



DELIVERABLE 9.5

REPORT ON TRAINING SESSIONS FOR KNOWLEDGE TRANSFER

Work Package 9

Dissemination, Exploitation and Training Activities

December 31st, 2023



Grant Agreement number	862915
Project title	UNITED: multi-Use platforms and co-location pilots boostIng cost-effectIve, and Eco-friendly and sustainable proDuction in marine environments
Deliverable title	Report on training sessions for knowledge transfer
Deliverable number	9.5
Deliverable version	Resubmission
Contractual date of delivery	March 31 st , 2023
Actual date of delivery	March 31 st , 2023 (version 1.0) December 31 st , 2023 (version 2.0) June 20 th , 2024 (version 3.0)
Document status	Final version
Document version	Version 3.0
Online access	Yes
Diffusion	Public
Nature of deliverable	Report
Work Package	WP9 – Dissemination, Exploitation and Training Activities
Partner responsible	WINGS
Contributing Partners	WINGS, SUBMARINER, DELTARES, FuE
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Abstract	The UNITED project aims to promote sustainable and efficient multi-use of marine space by developing new knowledge and innovative technologies. Through this deliverable, various activities, such as workshops, training sessions, and stake-

	holder engagement, the project facilitated effective dissemination of knowledge and transfer of expertise among project partners, stakeholders, and wider audiences for knowledge transfer are being described. The project's approach to knowledge transfer, which emphasized community engagement and involvement but also collaboration among sectors, was effective in maximizing the benefits of research and innovation of multi-use for various stakeholders. The project's outcomes and findings can serve as a model for future research projects seeking to promote effective knowledge transfer and dissemination of research outputs.
Keywords	UNITED project, knowledge transfer, training sessions, communication channels, learning events, documentation process, dissemination, stakeholders, multi-use marine environment, soft skills, synergies, collaboration

HISTORY OF CHANGES

VERSION 2.0	December 2023	The document has been restructured and reformatted to enable the content contained within the deliverable to be better consumed by readers and improve the quality of the deliverable.
VERSION 3.0	June 2024	Changes in cover page and introduction tables

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ACRONYMS

H2020	Horizon 2020 (European Commission funding programme)
MU	Multi-use
MUPS	Multi-use platforms
MUSES	Multi-Use in European Seas (Horizon 2020 funded project, 2016-2018)
OWF	Offshore Wind Farm
TROPOS	Modular Multi-use Deep Water Offshore Platform Harnessing and Servicing Mediterranean, Subtropical and Tropical Marine and Maritime Resources (FP7-Ocean 2011 funded project, 2012-2015)
UNITED	Multi-Use offshore platforms demoNstrators for boosting cost-effective and Eco-friendly production in sustainable marine activities (Horizon 2020 funded project, 2020-2023)
WP	Work Package



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EXECUTIVE SUMMARY

This report describes the UNITED project's approach to knowledge transfer and its efforts to disseminate the project's findings and outcomes to a wider audience. The project utilized various communication channels such as newsletters, social media, press releases, and project websites to share updates on project progress, news, and achievements with the wider community. The report also details the learning sessions and events organized by the partners to facilitate knowledge transfer among partners and stakeholders, such as webinars, workshops, and conferences. The report emphasizes the importance of community engagement and involvement, which was achieved through the organization of community workshops in various locations across the three regional seas covered by the project. The workshops aimed to engage local communities in the project and ensure that their perspectives were taken into account. Overall, the report highlights the importance of effective knowledge transfer in advancing economic growth, informed decision making, and the protection of the marine environment and its enhancement in cross-working sectors.

1. INTRODUCTION

1.1. Objective of this deliverable

The knowledge acquired from the UNITED project activities and research is hugely important to its stakeholders, whether they may be from industry, policy, society or from other academic backgrounds. For industry and science, it can catalyse innovation and the subsequent emergence of new business models thus advancing economic growth; for the policy community, it provides the latest research and best practices evidence for informed decision making. Not only are these improved economic and political landscapes advantageous for society, an improved understanding of the multi-use marine environment, resulting from the pilot trials, also allows us to further expand business potential as well as to protect the marine environment.

These practices are a core component of the UNITED training provided under Work Package 9. They have been developed to familiarise project partners with the UNITED Knowledge Transfer Methodology that will support them through the process of maximising these benefits from existing work. It is anticipated that following these procedures and methodology, the UNITED involved partners will be able to transfer the project's findings to relevant policy, industry, science and societal stakeholders.

The main objective of this deliverable is to provide an overview of the training sessions for knowledge transfer that took place within the UNITED project. The report will describe the chosen knowledge transfer tools and communication channels, as well as the learning sessions and events that were organized to facilitate the transfer of knowledge between different stakeholders involved in the project. The report will also detail the documentation process and the different channels that were used to disseminate the project's findings and outcomes to a wider audience. In addition to documenting the knowledge transfer process and dissemination activities, this report will highlight the importance of the visibility of synergies and cross-work among sectors, as well as the increase of soft skills that occurred through the UNITED project's training sessions.

The project recognized the need for stakeholders to become familiar with the functions of synergetic sectors and to discuss possible synergies, as well as options for mitigating negative impacts. Through the learning sessions and events, the project aimed to facilitate effective collaboration and cross-work among different sectors, and to increase soft skills related to commercialization, budgeting, acquisition of funds, insurance, permitting, and more.

By increasing soft skills and promoting cross-work among sectors, the project was able to maximize the benefits of research and innovation for industry, policy, society, and academia. The project's outcomes and findings demonstrate the importance of effective knowledge transfer in achieving multi-use of marine resources while protecting the marine environment.

1.2. The UNITED approach for knowledge transfer

The UNITED project employed various knowledge transfer tools and communication channels to facilitate effective dissemination of knowledge and transfer of expertise among project partners, stakeholders, and wider audiences. These tools and channels were carefully selected based on the target audience, type of knowledge to be transferred, and level of interaction required.

The project utilized several communication channels such as newsletters, social media, press releases, and project websites to share updates on project progress, news, and achievements with the wider community. The use of social media platforms such as Twitter and LinkedIn proved effective in reaching a broad audience and sharing the project's activities with interested parties.

Learning sessions and events were organized, such as webinars and workshops, which were designed to facilitate knowledge transfer among partners and stakeholders. They were aimed at building capacity and raising awareness of the project activities and outputs and at providing practical knowledge and skills that could be applied by project partners and stakeholders in their work.

One of the key learning sessions was a series of webinars, which focused on different aspects of ocean multi-use solutions. These webinars were aimed at providing project partners and stakeholders with an understanding of the challenges and opportunities associated with ocean multi-use solutions, as well as the project's activities and outputs. The webinars were interactive and allowed for Q&A sessions, which enabled participants to clarify any doubts or concerns they may have had.



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In addition, the project established a Stakeholder Advisory Board and Community of Practice to ensure that stakeholders were engaged in the project's activities and outputs. The Community of Practice provided a platform for exchanging ideas, experiences, and best practices among stakeholders and project partners.

Additionally, the partners participated in various conferences and events to share the project's activities and outputs with a wider audience. The pilots and partners presented their work at several international conferences and workshops, which enabled them to showcase their work and receive feedback from other experts in the field.

Overall, the learning sessions and events organized by the UNITED project provided valuable opportunities for project partners and stakeholders to exchange knowledge, build capacity, and learn from one another.

2. KNOWLEDGE TRANSFER ACTIVITIES

2.1. Workshops

The knowledge transfer and training workshops organized in person and online by the UNITED project were an important part of the project's approach to knowledge transfer. The workshops were held in various locations across the three regional seas covered by the project and brought together stakeholders from different sectors, including fishing, tourism, energy, and conservation.

The workshops were designed to be interactive and engaging, with a focus on raising awareness about the project's activities and outputs, with the use of tools and techniques to facilitate discussion and encourage participation, including presentations, group discussions, and breakout sessions.

During the workshops, the project partners presented key findings and knowledge gained to date on several topics. The main aim was to fill out the gaps identified in the UNITED Knowledge Transfer Plan. Thus, the workshops program was shaped in a way to improve the knowledge and skills of target groups, with special focus on the aquaculture community as well as those working in the offshore fields. They also engaged external experts in the field and solicited feedback from stakeholders on the project's findings, and discussed potential challenges and opportunities for ocean multi-use solutions in the region. Moreover, where feasible, joint workshops were organized with other relevant projects and initiatives.

The workshops provided an opportunity for stakeholders to share their knowledge and experiences, and to contribute to the development of the project's activities and outputs.

2.1.1. UNITED WORKSHOP 1 | OFFSHORE PLATFORM OPERATION, SAFETY AND LOGISTICS WITHIN THE CONTEXT OF MULTI-USE (26/01/2022)

The first UNITED public training workshop "Offshore Platform Operation, Safety and Logistics within the context of multi-use" took place online in January 2022. In the first part sixty attendees from 18 countries joined the workshop. The workshop contributed to the capacity building of professionals working in offshore operations and logistics and reduces risks for the ongoing and future development of ocean multi-use solutions. The key takeaway from the first part of the workshop - multi-use may result in new risks - while new standards and procedures may also be needed, it is important not to create the red table. Ensuring understanding between users and having some sort of flexibility will play an important role.

2.1.2. UNITED WORKSHOP 2 | TRAINING WORKSHOP - AQUACULTURE MULTI-USE OFFSHORE: ENVIRONMENT AND BIOLOGY (17/05/2022)

This highly interactive online training workshop raised awareness and increased the knowledge on multi-use, for private or public stakeholders involved in the maritime sector. For 2.5 hours, pilots of the UNITED project shared their two years of experience dealing with issues related to the measurement of the environmental parameters and the integration of these parameters within the UNITED assessment framework.

After the general presentation of the UNITED project, the assessment framework was introduced and followed by the lesson learnt in three UNITED pilots (Greece, Germany, Belgium). The workshop was concluded by active discussions with the participants, on environmental impact views and ways to measure these impacts.

The following presentations took place:

- 1.Environmental Assessment Framework
- 2.Offshore wind, oyster restoration and seaweed cultivation in the Belgian part of the North Sea
3. Blue mussels, seaweed and offshore wind energy in Germany
4. Aquaculture and tourism in Greece

2.1.3. UNITED WORKSHOP 3 | TRAINING WORKSHOP - AQUACULTURE MULTI-USE OFFSHORE: TECHNOLOGY TRANSFER (20/09/2022)

The first part of the event provided some background information on the UNITED project and was followed by presentations of three pilot projects (Greece, Belgium and Germany) that each face biofouling issues. Each presenter provided an update on the current status of their pilot and the key findings to date focusing on the technology transfer.

The second part of the workshop provided an opportunity for three companies to share their innovative solutions to prevent fouling on marine structures. The solutions introduced can provide long-term sustainable remediation systems that do not harm the environment.

In between and after both sessions, there was great engagement with the attendees, whose questions allowed for an active conversation among the panellists, particularly on the extent of biofouling on the pilots' structures and the transferability, scalability and impacts of the solutions implemented.

2.1.4. UNITED WORKSHOP 4 | MULTI-USE BUSINESS CASES AND ECONOMICS IN GERMANY (14/11/2022)

In November 2022 the German and Belgian Pilots gathered members of the offshore wind energy sector, scientists, marine planners, and policy makers (regional and EU level) in a two separate workshops, online and in person respectively, to discuss the following aspects of Multi-Use of marine space:

- What could commercialisation of offshore research projects look like? Which findings from the pilots can be transferred to other regions?
- What are possible socio-economic impacts that could result from a multiple use of aquaculture and offshore wind power, e.g. securing existing and creating new jobs, attracting industry?
- To what extent does multiple use of offshore areas influence the acceptance of maritime activities?

The participatory format of the workshop allowed participants to identify relevant impacts concerning economic, social and roll-out issues. Different possible impacts of a hypothetical multi-use project were discussed and weighted. This weighting process will be analysed and be an important part for further work in UNITED. Discussions also picked up issues of the technical readiness of pilots and how feasible this attempt of offshore wind energy in combination with aquaculture can be.

2.1.5. UNITED WORKSHOP 5 | POLITICS AND REGULATIONS AFFECTING MULTI-USE (22/11/2022)

The international UNITED workshop in Ghent brought together all pilot leaders and respective stakeholders to discuss the legal and insurance issues for multiple use (MU) of marine space. A draft report of D6.2 (Case specific report on legal aspects and insurance issues of MU) was distributed before the workshop, and participants were asked to provide comments if necessary. The central question of the workshop was why the implementation of MU at sea is so difficult, with a focus on (1) legal frameworks needed to develop MU projects and on (2) hurdles in insurance systems. For each pilot country, we focused on the MSP process and further discussed the (lack of) legal or regulatory framework for MU projects. Furthermore, the variables determining the necessity or absence of additional insurance to cover MU risk were discussed, as well as insurance policy clauses of utmost importance in the MU context. Finally, it was proposed which measures could be taken at different levels to restrain expenditure for insurance.

Discussion points:

- Legal and policy context of MU governance in pilots (MSP)
- Concessions, permits and access: pilot practice and law
- Insurance issues in a MU context
- Natura2000 and nature restoration via MU

During the workshop at Ghent University (Belgium), all pilot studies were discussed: is MU possible? Is it stimulated? What are the main insurance issues? We learned that all countries are open to MU (as a principle), but it is difficult to bring in practice as different activities are regulated by different authorities within the pilot countries. The lack of tradition to integrate procedures and the sometimes very different timeframes and spatial impact of activities is an important reason why MU is so difficult to realise. During the workshop, a governance analysis

framework was discussed in which two governance groups were distinguished; the more top-down oriented pilot countries and the more bottom-up oriented pilot countries. Both models can lead to mu, however, a certain flexibility seems a prerequisite for successful MU. Furthermore, it seems that cultural differences and historical use play an important role in regulatory frameworks. The latter was also found to be true for insurance. Specifically, the level of trust between MU partners differed per pilot and resulted in different insurance needs between the partners.

There are different models to integrate activities in an offshore MU context with legal and insurance perspectives. Some integration on the level of permitting and tendering will greatly benefit the development of MU projects both from a legal and insurance point of view. This can be done in both top down and bottom up governance systems, as long as there is enough room for flexibility. We see important steps forward with integrating food production in wind farms.

During the workshop there were several suggestions to adapt the governance analyses framework. This and the finalization of D6.2 will be done over the coming months.



Figure 1. UNITED Workshop 5 | POLITICS AND REGULATIONS AFFECTING MULTI-USE (22/11/2022)

2.1.6. OCEAN MULTI-USE POLICY, PLANNING AND REGULATION KNOWLEDGE TRANSFER SESSION : OUTCOMES AND FINDINGS (24/01/2023)

On January 24th, 2023, an online workshop was held to discuss the results of the UNITED Ocean Multi-Use Pilots and engage in interactive discussions with 45 fellow planners, regulators, and decisionmakers. The session aimed to share knowledge and experiences and provide advice on renewable energy planning processes and guidelines. Key outcomes and findings were presented by the leaders of UNITED Pilots. Whereas EU Member States in majority are in favor of stimulating multi-use of the ocean, there are some (institutional) hinderances to the development of multi-use such as the lack of access to proper insurance, cumbersome licensing procedures, uncertainty of the decommissioning phase and lack of clear rules for multi-use.

Insurance Challenges Remain Unsolved

One of the main challenges faced by multi-use developers is the lack of interest from insurance companies and high insurance premiums. The best chances for obtaining insurance are if the company has a good track record with the insurance company and all the necessary technical drawings and risk assessments are in place. However, it was stressed that public regulators need to get involved in better communication between insurance companies and regulators. The lack of understanding between the two parties has created a problem for future developers.

Test Zones for Multi-Use Testing Needed

To address this challenge, it was suggested that marine planners should include test zones in their spatial plans where multi-use can be tested on a larger scale. Regulators and other authorities can ensure that insurance is in place, risks have been assessed, and the necessary environmental assessments and permits are obtained. This would incentivize multi-use approaches, allowing commercial-scale testing to be conducted in a safe environment and generate further evidence on the feasibility of the system.

Combined Permitting and Environmental Assessment Procedures Encouraged

The experts also emphasized the importance of clear multi-use regulation and improved planning predictability. Regulators were encouraged to develop combined permitting and environmental assessment procedures to explicitly encourage multi-use. Currently, permitting is done on a single sector basis, but this combined approach would streamline the process and make it easier for multiuse projects to get off the ground.

Ocean Multi-Use Should Be Considered in the Design Stage

It was emphasized that ocean multi-use should be considered at the design stage of offshore wind farms to ensure that all necessary certifications, permits, assessments, and insurance are obtained jointly. It is difficult to add something to the wind farm once the permits and insurance are already in place.

Multi-Use Considerations Must Take into Account Fisheries and Restrictions

To ensure that multi-use makes sense in the given space, it is important to consider the existing fisheries and restrictions within wind farms. For example, it may make sense to include aquaculture in wind farms only if fishing is not allowed. However, if fishing is allowed, aquaculture creates competition and may not be a feasible option.

European Public Funded Research and Innovation Projects Have an Impact

Finally, it was noted that European public funded research and innovation projects have had a significant impact on the industry. The Ocean Multi-Use Action Plan from the MUSES project has been used as inspiration for the preparation of many spatial plans and further pilot projects, including those under United, Equinor, and ULTFARMS. In conclusion, the Ocean Multi-Use Policy, Planning and Regulation Online Session provided valuable insights into the current state of the industry and identified key challenges and solutions. The session provided a platform for planners, regulators, and decision-makers to share their experiences and learn from each other to make a real impact on the future of ocean energy.

2.1.7. WORKSHOP AT THE EUROPEAN MARITIME DAYS 2022 (19/05/2022)

On 19th May 2022, the European Maritime Days (EMD) organized a workshop session titled "Several maritime plans support multiuse, yet realization is still lacking: what are the next steps?" The session was held in Ravenna, Italy, and aimed to showcase pioneering examples of multi-use and discuss the pitfalls and priorities in an engaging and interactive manner. The session was organized by the UNITED and EU-SCORES projects and focused on the role of multi-use in the climate transition, highlighting the importance of Maritime Spatial Planning (MSP) in reconciling different priorities, including renewable energies, food security, and nature protection. The session started with the United Nations Global Compact representative introducing the recently published Climate Smart MSP Roadmap, where UNITED and its pilots were mentioned as good practice examples. The representatives discussed how multi-use can help meet the Paris Agreement and the Sustainable Development Goals (SDGs) by supporting the development of climate mitigation solutions, advancing biodiversity goals, and helping achieve social buy-in and benefits. The representatives from UNITED were also involved in the UNGC working groups, where they discussed transferring knowledge gained in UNITED pilots to a wider audience. The session then moved on to showcase some examples of multi-use, including offshore wind, aquaculture, and restoration in Belgium, and the world's first bankable hybrid offshore marine energy parks in the EU-SCORES project. The participants discussed how to maximize synergies in an ever-busy ocean space and emphasized the need to break silos and go beyond box-ticking towards good dialogue and social innovation.

The participants also identified necessary steps to realize multi-use. The first step is for planning authorities to decouple policy from practice and embrace social innovation. They suggested exploring informal engagement approaches for community of practice initiatives, going beyond one-time consultation and instead adopting continuous stakeholder engagement. The second step is to tap into cross-sectoral platforms and harness cross-industry

and cross-sectoral platforms to break silos. It is vital to make use of existing platforms, or set up new ones, consisting of business, investors, entrepreneurs, and policymakers. The third step is to work with neutral brokers to convene stakeholders, build trust and capacities, especially beyond the European context. Examples given were Sea Grant in the US and the Nature Conservancy in South Africa and Kenya. The fourth step is to use MSP and a Strategic Environmental Impact Assessment to support the identification of areas that could be used for multi-use, in turn, easing the process for stakeholder innovation.

The workshop session was a great success, with over 500 physical participants attending the session and the knowledge transfer booth organised together with the EU4OCEAN initiative.

In-person joint session June 2022 with MUSICA and EU-SCORES sister projects in Delft and in the Hague at the Dutch Marine Energy Center Opening 2022

A joint session was organised together with MUSICA project in order to facilitate the exchange of knowledge and technology transfer. The session was used to jointly discuss the challenges that projects have encountered in terms of technology, financing and stakeholder engagement. Opportunities for joint dissemination were identified and a follow up dissemination booth was organised at the Dutch Marine Energy Center in collaboration with the third sister project EU-SCORES.

SUBMARINER Macroalgae Working group session 28 November 2022 in collaboration with UNITED

Knowledge transfer to the aquaculture sector has been facilitated via the SUBMARINER Macroalgae Working Group and its sessions. The updates from UNITED pilots and main breakthroughs are regularly shared with the group. Moreover, the dedicated session was organised online in order to present and discuss the key results of the DE and BE pilots. The main aim was to enhance the soft skills of those aquaculture businesses and other related target groups attending the session. Thus the potential commercialization of multi-use solutions was discussed through the case of two UNITED pilots. The meeting focused among others on licensing seaweed farms in the Baltics and North Sea. The meeting agenda also included updates on completed and ongoing projects related to macroalgae, such as the completion of BalticSeaSafe work on environmental risks of seaweed production in the Baltic Sea Region, the introduction of BalticSeaSafe work on standardizing licensing and environmental assessment work, and updates on the seaweed project Seamark, and the SeaWHEAT project on Ulva research and innovation. The meeting also provided an open space for members to share news and ideas related to macroalgae.

SUBMARINER Mussels Working group session February 2023 in collaboration with UNITED and Baltic MUPPETS projects

The SUBMARINER Mussels working group¹, in collaboration with UNITED and Baltic Muppets projects, held a meeting on 22 February 2023, focusing on enhancing the soft skills of aquaculture businesses for commercialization, marketing, and product development. The meeting covered various topics, including an introduction to the Baltic Muppets project, upcoming calls, and funding opportunities for SMEs and start-ups, insights from the UNITED project about ocean multi-use with mussels and offshore wind energy, and a presentation from the Norwegian BlueMusselFeed project that focused on blue mussels as a novel ingredient in chicken feed. The meeting also provided an open space for discussions, knowledge exchange, pitches, and ideas. Additionally, the German pilot on mussels and seaweed in offshore wind farms from the UNITED project was presented during the meeting. Overall, the meeting aimed to improve the soft skills of aquaculture businesses and increase their potential for commercialization, marketing, and product development in the Baltic Sea region.

¹ More available at: <https://balticmuppets.eu/news-post-about-mussels/>

2.2. UNITED in the Context of the United Nations Ocean Decade

UNITED has been supporting the UN Ocean Decade more directly by contributing to the

- United Nations Global Compact Roadmap to Integrate Clean Offshore Renewable Energy into Climate-Smart Marine Spatial Planning where one whole chapter deals with the multi-use concept.
- Being a part of the UNITED Nations Global Compact working group on Climate Smart MSP
- Co-organising the ocean literacy activities together with the EU4OCEAN initiative at the European Maritime Days 2022
- Many of other UNITED activities with the ocean literacy element indirectly contribute to the UN Ocean Decade for example a series of videos and documentaries done in the framework of UNITED – most prominently the recent German television networks 1) ZDF documentary, titled 'SOS ocean - Help for an endangered habitat' and 2) NDR documentary, titled 'Algae cultivation between wind turbines' which also showcased the education work that UNITED has been doing in German schools.
- Moreover, The Multi-Use Knowledge Community of Practice is being formed in the collaboration with the MULTI-FRAME project and the Marine Spatial Planning Knowledge Network. The aim of this group is to facilitate the exchange of knowledge among marine planning practitioners and those working on the topic of ocean multi-use, thus contributing to the ocean literacy in the wider sense.

2.3. Project communication outlets

The UNITED project utilized various communication outlets to disseminate information about the project and its progress. These outlets include the project website, newsletters, social media platforms, and press releases. As one of the key general knowledge transfer tools the project website serves as a central repository of information about the project, providing updates on the progress of the project and information about the ocean multi-use in general. The website reached 14 thousand views by 9 thousand different users since the beginning of the project. Moreover, the project also issued newsletters to stakeholders, providing regular updates on the project's progress and highlighting important milestones and achievements. The newsletters were distributed via email to subscribers, including project partners, stakeholders, and interested parties.

One such outlet is the project's news section on the official website. This section provides up-to-date information on the project's activities, milestones, and achievements, including publications, events, and workshops.

The news section features articles and press releases that cover different aspects of the project, such as pilot developments, stakeholder engagement, and policy recommendations. The articles are informative and accessible, making it easy for stakeholders, policymakers, and the general public to understand the project's objectives, challenges, and outcomes.

In addition to the news section, the project has also utilized social media platforms such as Twitter and LinkedIn to share project updates and engage with followers. The project's social media accounts provide regular updates on project activities, share relevant news articles and publications, and promote upcoming events and workshops.

Moreover, the project also issued press releases to local and international media outlets to raise awareness about the project and its objectives. These press releases highlighted important milestones and achievements and provided an overview of the project's goals and outcomes.

NEWS

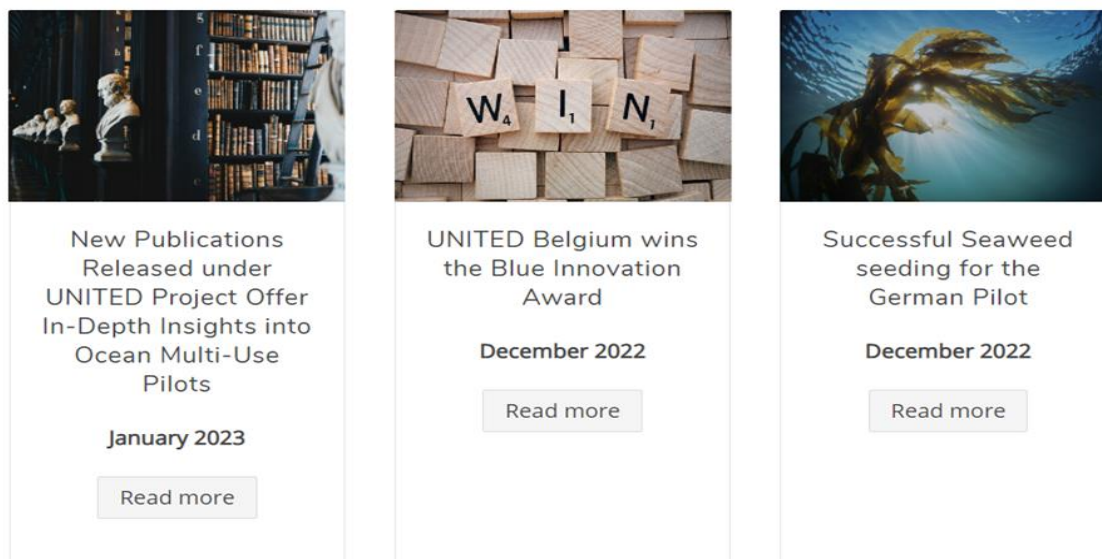


Figure 2. Online knowledge transfer outlets

Social media

UNITED has active Twitter, Facebook and LinkedIn accounts. The overall engagement with each of the three accounts is progressively increasing over time. Twitter activity counts over 143 Tweets, 467 followers and 680 engagements. Facebook account has 99 posts, 118 followers, and 139 engagements. LinkedIn had 74 publications. 224 followers. Hootsuite software is being used to manage the accounts, schedule communications, and monitor the progress. The link has been established with other projects in the field e.g. MUSICA, MULTI-FRAME, and EU-SCORES to cross-post, reshare and jointly maximise impact.

News items and the project newsletter

56 news items have been published on the UNITED website to date. The news items take a form of a blog post where text is enriched with links, pictures and videos. The calendar section of the website is also being continuously updated with several partners actively sharing their relevant events and engagements. Five Newsletters have been released to date to over 372 subscribers. The subscribers are collected through the website form and during events where the newsletter sign in sheet is being shared on the link to the website registration page. The NewsletterToGo software is being used for developing and releasing the newsletters.

Videos

16 videos have been developed to date: 6 videos for pilots, 9 videos for the legal pillar of the project (WP6) and one overall education video 'What is ocean multi-use' in 5 languages. 'Add on' flyer with the QR code for the video has also been developed and shared at events and other engagement opportunities. All the videos are adhering to the visual guidance and contain the full UNITED logo, EC logo and the disclaimer. The videos are available for viewing both on the UNITED website and the UNITED YouTube channel. The development of further videos is foreseen in the project, especially for the pilots and for disseminating the key results towards the end of the project. A joint all pilots video is in the preparation at the moment.

Moreover, several documentary movies and videos have been produced about UNITED project and its pilots by the external entities such as the German and Belgian TV stations or the International Grid initiative Nature Network series. It is estimated that these far reaching mediums have reached tens of millions of viewers.

The project's YouTube channel has gained 21 followers and has hit a total of 2500 views for all the videos.

Apart from the videos produced by UNITED, the section below presents some of the key TV shows and media channels where UNITED was featured reaching tens of millions of watchers:

Mission day with the Belgian television on board

During summer 2022, the National Belgian Television joined the Belgian pilot for a day at sea. The aim of the excursion on that day of July, was to install a third restoration table, to implant young oyster spat in the restoration table and to attach a new oyster aquaculture structure to the backbone in order to test its application offshore. These tasks were not easy to implement, as very bad weather suddenly hit the crew, despite an initial nice sunrise. Thankfully everyone was equipped with safety helmets and jackets! The anchors and camera crew from the show "Over eten" from the VRT channel were very impressed by the work being done in the UNITED project, particularly under these rough conditions, and were also enthusiastic about experiencing life at sea for a bit! The footage was featured in the "Noordzee" episode of the "Over eten" show on 5.10.2022 on VRT.

Renewable Grid Initiative "Offshore Nature 22" video series

The video series highlights the potential of combining offshore wind farms with other activities such as aquaculture, marine conservation, and shipping lanes.

Ms. Nancy Nevejan, a project coordinator for Belgium's ocean multi-use UNITED pilot, explains how the project is exploring the possibilities of combining multiple uses of the ocean while minimizing the impact on the environment. "We're looking at how we can use the ocean in a more efficient way by combining different activities," Nevejan said in the video. "We want to create synergies and avoid conflicts between different sectors."

The Renewable Grid Initiative Offshore Nature 22 series aims to promote the use of offshore wind energy as a key component of the transition to a sustainable and carbon-neutral future. The series features interviews with experts in the field, including policymakers, industry leaders, and researchers. Nevejan's involvement in the series highlights the innovative approach being taken by Belgium's UNITED pilot project and the potential for similar projects to be implemented around the world.

Link to the video: <https://www.youtube.com/watch?v=cjUsKAUBDbA>

ZDF TV documentary 'SOS ocean - Help for an endangered habitat'

A new documentary on German television network ZDF, titled 'SOS ocean - Help for an endangered habitat', highlights sustainable solutions to protect the world's oceans. The documentary, directed by Kristin Siebert and Tilman Wolff, focuses on projects from around the world that are committed to protecting the oceans from rising sea temperatures, pollution, and overfishing. One of the featured projects is the German pilot of the UNITED ocean multi-use project, which aims to farm sugar kelp on the seabed around offshore wind farms in the North Sea off Sylt.

Other projects featured in the documentary include the protection of black-mouthed catshark nurseries in the Mediterranean Sea, the establishment of locally managed protection zones along the coast of Madagascar, and the development of genetically optimized coral species to preserve the Great Barrier Reef off the east coast of Australia. This inspiring documentary showcases some of the most innovative and sustainable initiatives aimed at protecting our oceans from the devastating effects of pollution, overfishing, and climate change.

<https://www.zdf.de/gesellschaft/plan-b/plan-b-sos-ozean-104.html>

NDR documentary 'Algae cultivation between wind turbines'

A new documentary by German public broadcaster NDR, titled 'Algae cultivation between wind turbines', delves into the inner workings of the German UNITED pilot and its local awareness raising activities. In the documentary, viewers get an up-close look at the project's research facilities at Kiel University of Applied Sciences, where high school graduates are lending their support to the research efforts. The students are learning about the process of seaweed cultivation and its potential to contribute to the fight against climate change.

One of the key questions being explored by the UNITED project is where sugar kelp, the type of seaweed being cultivated, thrives best. The researchers are investigating various factors, including water temperature, nutrient levels, and the effects of wind turbines on seaweed growth. The documentary offers a fascinating glimpse into the world of seaweed cultivation and the exciting potential it holds for reducing CO2 emissions and promoting sustainable development. It is a must-see for anyone interested in environmental research and the fight against climate change.

Link: <https://www.ardmediathek.de/video/schleswig-holstein-magazin/algenzucht-zwischen-windkrafttraedern/ndr/Y3JpZDovL25kci5kZS9hY2E3YzU3My03MzY3LTRhNDUtYWU2Mi1mMzE2OWJhZGM2Yzk>

Knowledge Transfer Events

UNITED project has organised over 15 in person and online events. A series of 'add on' flyers with the QR code for the event satisfaction questionnaire or link to the videos have been used at events. Apart from internal project experts, additional external experts in topics exhibiting knowledge gaps have been engaged as presenters at events. Several events have been co-organised with wider knowledge transfer networks such as e.g. SUBMARINER Network working groups, United Nations Global Compact working groups and sister projects (e.g. MUSICA and EU-SCORE). Apart from the workshop a series of activities have been organised in collaboration with the EU4Ocean initiative on ocean literacy during the EMD to raise the awareness about the multi-use topic. These include the screening of the video, live interview, and quiz with participants in the exhibition hall booth. A more detailed description of some of the events can be found in the continuation of this report. UNITED, its pilots and related results have also been presented at a large number of external events and exhibition booths have been used to disseminate the material.

Offline knowledge transfer outlets

Offline communication outlets included project brochures and leaflets, which were distributed at events and conferences. These materials provided an overview of the project and its objectives, as well as details on the project's progress and achievements.

The initial communication strategies have been developed for each of the pilots to fit the local needs and circumstances and cover a multitude of targeted actors. In general, pilots have actively contributed to the outreach and overall promotion of the project through radio and TV interviews, newspaper articles, and other outlets. Limited in person engagement has also taken place in several pilots.

Danish pilot: As part of the pilot specific communication strategy in Denmark, the 'virtual offshore wind farm tour' is currently being organised. It consists of a QR code being placed on several locations in the city of Copenhagen - technology museum, several universities, offshore wind farm viewpoints, and touristic locations. The QR code once scanned will take tourists and locals to the online page with the video of a virtual tour including the audio-visual story about the Middelgunden offshore wind farm, explanation of relevance of the renewable energy, and multi-use concept. In September 2020, the Danish UNITED pilot had an opportunity to hold an in-person demonstration event. The boat tour to the offshore wind farm took place where around 100 people had an opportunity to hear about the planning and development process of the Middelgrunden offshore wind farm and learn about the importance of the renewable energy and local cooperative ownership structures that ensure direct benefits to the local communities. This was at the same time the opportunity for the communications team to record the video for the Danish pilot, including the interview with the pilot lead and several stakeholders. Similar communication concepts are being planned for other pilots, each trying to respond to the specific local conditions and needs.

Dutch pilot: In the Dutch pilot the UNITED logo was printed on a buoy before it being placed in the water. The photos were made and are being used in the promotion campaign of the pilot and the project as a whole.

German pilot: The educational tours have been taking place close to shore in the German pilot where students had a chance to learn about the pilot and learn about the importance of reconciling the food security (aquaculture) and energy security (offshore wind) objectives in a form of a multi-use platform. Visits to the offshore location (10h per ship) are unfortunately not possible due to costs and safety regulations.

The communication strategy for each of the pilots will be updated in iterations throughout the project in order to reflect current conditions and needs in each of the localities. Several meeting sessions took place with the local

and federal authorities as well as the local wind energy operators (e.g. Vattenfall) to explain the pilot and collect local perspectives. The German pilot became a regular invited speaker at internal meetings of the off-shore wind industry (e.g. association of offshore wind operators) over the course of the UNITED project.

Belgium pilot: The explanatory session with the local communities, by passers and scientists took place during the pilot mission close to shore. As shown in the Belgium pilot video, the pilot leads used the opportunity to explain to the locals the activities taking place in the pilot and answer the questions related to the activities that took place that day. Outreach also took place at the relevant conferences e.g. NORA.

Greek pilot: Due to the restrictions in the tourism activities the Greek pilot had difficulties to roll out the campaign in beginning of summer. A three-month long campaign took place in the period between July and September with an aim to market the 'multi-use tour', raise the awareness, and conduct a game like quiz in collaboration with the local restaurant and the diving club. All the steps of the campaign have been carefully planned to raise the knowledge and awareness of participants e.g. as a first steps each participant watched a 'What is ocean multi-use' movie and got a presentation about the UNITED project, Greek pilot and functioning of the tour. At the end of the tour their knowledge about the topic was tested to assess the possible change in their understanding of the subject. Over 80 people have taken the tour in this period and have exhibited increased awareness about the topic of ocean multi-use.

2.4. Training activities

The UNITED project organized a range of training activities to transfer knowledge and build capacity within the Blue Economy sectors. These activities aimed to enhance the skills and competencies of stakeholders working within the Blue Economy, including project partners, industry actors, and local communities.

The training activities included workshops, seminars, and training courses. These activities covered a wide range of topics, including ocean multi-use solutions, technology readiness levels, business models, and policy making.

In collaboration with the local stakeholder engagement strategy rollout the communication & dissemination campaign is being rolled out in each of the pilots. The summary is here:

1. Greek: local acceptance, awareness raising, training of new tour guides - implementation of the diving tour, marketing and maximisation of visibility and maximisation of the value (commercialisation)
2. Danish: awareness raising, training of new tour guides - implementation of the boat tour, marketing and maximisation of visibility and maximisation of the value, customer service training, commercialisation of products and services
3. Belgium: local acceptance and literacy, visibility with local agencies and industry engagement with the Blue Cluster. A campaign to merge arts and science is in the planning.
4. Dutch: North Sea Community of Practice engagement, exchange of good practices, exploitation
5. German: Local education and engagement with schools, authorities, outreach to the wind industry

ACTIVITY EXAMPLE: Greek outreach campaign

UNITED ocean multi-use open days were being organised where locals and tourists were able book a special diving tour (or as a small add-on to the existing tour) to explore the innovative world of multi-use. Several well-planned knowledge transfer steps were followed by participants during the campaign:

1. Watch the multi-use video
2. Play an online quiz and win a prize
3. Learn from the Greek pilot leads about the UNITED pilot taking place there
4. Dive around the fish farm - and 'hunt' for a QR code hidden underwater, that when scanned outside the water can win them prize after watching the short online tutorial
5. Answer a questionnaire about their awareness and knowledge about the aquaculture impacts (before and after the tour so that the project can measure how the awareness and knowledge changes before and after the involvement)

6. The winners of the quiz had the chance to enjoy a free meal with fish from the aquaculture farm in the Kastelorizo restaurant.



Figure 3. Greek outreach campaign

ACTIVITY EXAMPLE: Knowledge transfer training videos

A series of knowledge transfer videos and training materials are being continuously produced. Namely, a set of questions regarding the training/skills of each specialty in the project (e.g. ICT, restoration, tourism, etc.) were developed. In the next step, each project expert representing one of the categories will prepare the answers to the questions and a short educational interview will be produced to resulting in approx. 5-6 min knowledge and or tech-transfer video for each topic. Each video will be uploaded to the UNITED website as training material for future experts.

ACTIVITY EXAMPLE: German algae-growing school project

A school project was organized with a local “Gymnasium”. Together with the teachers a program was conducted. The pupils got a short introduction to the UNITED project by the German project team of FuE. The introduction was followed by lessons on the general idea of algae cultivation, its uses and also its bottlenecks. During these lessons, the theoretical background and information of alga cultivation was taught. Also, an experimental setup was prepared. The students were shown how algae propagation is done on a small scale. Algae cultivation tanks were set up at the school, sporulation using algae sorus was conducted by the pupils under supervision of the FuE team and the pupils cared for the algae seedlings that were settling on different net and rope materials. After precultivation of the algae seedling in tanks for 3 weeks the nets were brought onto a private jetty in the open sea, close to the school. The pupils monitored different environmental parameters (temperature, salinity, pH, turbidity, O₂) and documented weekly the growth of the algae by taking photos and keeping a log of the different measured parameters and activist. The experiments are ongoing and will finish in April 2023. A film crew also visited the school and reported on the project on regional television.

The television reportage is online accessible under: <https://www.ardmediathek.de/video/schleswig-holstein-magazin/algenzucht-zwischen-windkraftaedern/ndr/Y3JpZDovL25kci5kZS9hY2E3YzU3My03MzY3LTRhNDU-tYWU2Mi1mMzE2OWJhZGM2Yzk>

Below two screenshots of the respective reportage.



Figure 4. German algae-growing school project



Figure 5. German algae-growing school project

2.5. Participatory webinars

The UNITED project has organized several participatory webinars to engage stakeholders and disseminate project-related information. These webinars have provided a platform for stakeholders to learn about the project's progress and outcomes, ask questions, and provide feedback.

The webinars have covered various topics, such as the project's objectives, pilot developments, stakeholder engagement, and policy recommendations. They have featured presentations from project partners and experts in the field, followed by a question-and-answer session.

The participatory nature of the webinars has allowed for open dialogue between project partners and stakeholders. Stakeholders have been able to provide feedback on project activities and provide input into the project's outcomes.

2.5.1. UNITED WEBINAR: CHALLENGES, RISKS AND BARRIERS FOR THE LARGE-SCALE COMMERCIAL ROLL-OUT OF OCEAN MULTI-USE (03/06/2020)

The first UNITED webinar took place on 3 June 2020. The webinar, which lasted 3 hours, introduced the project to the wider audience and it initiated a broader discussion about the topic of multi-use. Over 90 attendees had an opportunity to learn about the ongoing project activities, its pilots, and involved partners. Some of the initial project results were verified via an interactive live poll session. The initial review of barriers to multi-use conducted in UNITED highlighted that not only Technological Readiness Level is important as an indicator for multi-use development progress, but also Social, Commercial & Legal Readiness Level. The live poll showed that local jobs and local seafood sources are some of the main expected benefits of the multi-use. The Q&A with speakers took place via the GoToWebinar chat and the results can be seen in the UNITED website. The UNITED sister project MUSICA: Multiple-use-of Space for Island Clean Autonomy was also presented, and the presentation has been published in UNITED website.

2.5.2. UNITED WEBINAR: GET TO KNOW THE OCEAN MULTI-USE DEMONSTRATION PILOTS (27/10/2020)

The second UNITED webinar took place on Wednesday, 27 October 2021 from 10:00 - 12:30 CET. The event had an overall aim to increase the visibility of UNITED project pilots and their activities, facilitate a wider discussion and raise awareness about the ocean multi-use topic. The interactive webinar showcased advancements in five real-life ocean multi-use UNITED demonstration pilots. Attendees had an opportunity to interact with the pilot leads throughout the sli.do Q&A. Most of the multi-use technologies researched and implemented by UNITED are first being tested in more subdued conditions near-shore before their implementation in more critical conditions offshore. The aim is to bring offshore technology level (TRL) in the five pilots – from validation and demonstration in relevant environment (TRL 5 and TRL 6) to system prototype demonstration in operational environment (TRL 7) within the next 2 years. The presentations focused on the following questions:

- At what stage is the multi-use implementation in 5 UNITED pilots?
- What challenges were encountered on the way and are there any lessons learned for future such endeavours?
- What are the key next steps in the coming period?
- How can interested stakeholders engage with the pilot and obtain regular updates on the development progress?

Each of the two sessions was followed by a panel involving the industry actors relevant for the presented multi-use combinations.

2.6. Stakeholder Advisory Board and Community of Practice

Apart from the project Advisory Board the project is also maintaining the project engagement in the International Ocean Multi-Use Knowledge Network Community of Practice. This international Community is bringing together the initiatives from the ongoing multi-use projects globally and is facilitated via the working group of the Marine Spatial Planning Knowledge Network. It facilitates the international ex-change between the ongoing multi-use projects and enhance the communication with the policy and industry community on the topic of ocean multi-use. UNITED is also a part of the North Sea Community of Practice in collaboration with the Dutch pilot and the eMSP

project. The discussions facilitated through these Communities are expected to advise the research and policy agendas and increase motivation and confidence for further implementation of the ocean multi-use concept. A wider exchange across pilots and other relevant initiatives is also facilitated via these communities.

For example, on 30th November 2022 Julia F. Chozas from the Danish Pilot participated in a community event in Den Haag (Netherlands) as part of the Communities of Practices (CoPs) within the eMSP NBSR project, discussing the wider transferability of the Danish pilot to the North and Baltic Sea context. The activities, challenges and learnings of the Danish Pilot were described; and very interesting discussions emerged from the fantastic opportunity of combining offshore wind and tourism; and the cooperative approach behind wind farms. Being the second presentation of the day, it was referred to during the whole seminar.

2.7. Conference Sessions/Presentations, Participation and Publications

2.7.1. PRESENTATION AT EVENT

The UNITED project was presented at over 60 events most of them online due to the covid situation. The link has been established with the ongoing projects and initiatives in the framework of the SUBMARINER Network Better of Blue event series, ICES Working Group on Offshore Wind and Fisheries, UN Global Compact events, Global Bioeconomy Summit, Aquaculture Europe Conferences, Baltic Sea Planner Forum, EMD 2022, MULTI-FRAME, MUSA and EU-SCORES project events, Dutch Energy Hub, Green Future in Split, BlueInvest, SUBMARINER Network Accelerator and working groups, HELCOM-VASAB Working Group, etc. Moreover, several ocean multi-use related events and interventions have been co-organised with the Capacity4MSP project dealing with the improvement of knowledge and capacities of Marine Spatial Planners. Some examples of the events and conferences that UNITED was represented are listed below:

Blue Innovation Awards

The Blue Innovation Awards are an initiative of Blue Cluster to give exposure to innovative projects, products and services in the blue economy. All entries are scored on the basis of five criteria: innovative character; link to economic activities in, on and by the sea; market potential; international ambitions and impact; and contribution to the delivery of the UN's Sustainable Development Goals (SDGs). On Thursday 15 December, the formal presentation of the 2022 Blue Innovation Awards took place in the Port Authority Building in Antwerp. **The Belgian pilot of the UNITED**, an initiative of Ghent University, Jan De Nul, Brevisco, Colruyt Group, the Royal Belgian Institute of Natural Sciences and Parkwind, won the Blue Innovation Swell award for their collaboration. The Belgian pilot combines offshore wind, flat oyster aquaculture and flat oyster reef creation as well as seaweed cultivation.

RGI-WindEurope-OCEaN Conference

On 19 October 2022, the Renewables Grid Initiative (RGI), WindEurope and the Offshore Coalition for Energy and Nature (OCEaN) co-organised an event discussing challenges and possible solutions to accelerate offshore energy infrastructure deployment while also restoring Europe's marine ecosystems. One of the components of the conference was the Community of Practices Fair on Nature Conservation and Restoration. This fair provided a platform for projects, working on the conservation and restoration of marine ecosystems, allowing them to promote and explain their practice to diverse industry and policy stakeholders and inspire replication and scale-up.

The UNITED Belgian was selected to participate in the associated fair and the lead of this pilot, Dr. Nancy Nevejan, was present at a dedicated UNITED booth to showcase the project's results and progress, to the participants, using the video of the Belgian pilot and the roll-up poster of the project.

AQUACULTURE EUROPE 2022

During September 2022 the representatives of the UNITED pilots joined at the Aquaculture Europe conference. The Belgian and German pilots had oral presentations and the Greek pilot had a booth.

2.7.2. PUBLICATIONS

New publications are added on a regular basis and a writer's retreat has been organised to take place in the next months in order for new publications to be discussed and written before the end of the project.

The publications so far:

Toolbox for data analysis, visualization, and planning for decision makers (December 2021)

Design and construction plans for the pre-operational phases of the pilots (June 2021)

Automation and scheduling tools (December 2021)

Report on identified risks, challenges and barriers (April 2020)

Report on the State of the Art implementation of an integrated pilot approach (June 2020)

Business Analysis (December 2021)

Current economic assessment and status of Pilots (April 2020)

UNITED Assessment Framework to Determine Economic Feasibility of Multi-Use Platforms (December 2020)

Current environmental assessment and status of Pilots (July 2020)

Assessment Framework to Determine Ecological Feasibility of Multi-Use Platforms. (June 2021)

Framework and practical guidelines for stakeholder engagement (July 2020)

Inventory of legal and insurance aspects, risks and risk management options and the wider governance context of risk management. (October 2020)

Review of pilot TRL, legal aspects, technical solutions and risks (August 2020)

Developing a blueprint for the offshore site operation (April 2021)

Curriculum for offshore course, guideline and learning manual (April 2021)

Initial Communication plan (July 2020)

Knowledge Transfer Plan (December 2021)

2.8. Overview of knowledge sharing via events and online platforms

Table 1. Dissemination activities and presentations at events by partners for the period 2021 – March 2023. A comprehensive table of dissemination activities throughout the project will be presented in UNITED D9.1 – Final Dissemination report – which will be delivered at the end of the project.

Dissemination and communication activity	Location (Country, City)	Number (Insert new row for each activity)	Date / Date Range	Name of event	Title of the communication activity [if you gave a presentation e.g. oral or poster please give the title and authors]	Type of Estimated Persons reached in the context of the dissemination and communication activities [Scientific Community (higher education, research)] (SC) [Industry] (Ind.) [Civil Society] (CS) [General Public] (GP) [Policy Makers] (PM) [Medias] (M) [Investors] (Inv.) [Customers] (C) [Others] (O)										Total Estimated Number of persons reached	Total estimated used funding amount EUR	Project Work Package Number	Beneficiaries (List the contributing beneficiaries and indicate the lead in bold font format)
						SC	Ind	CS	GP	PM	M	Inv	C	O					
Meeting with licensing agencies about off-shore multi-use projects	Germany, Kiel	1	13.07.2021	nn	UNITED project presentation	x				x						15	nn	7	FUE
Trade fair / Conference presentation	Copenhagen, Denmark	1	23.11.2021 - 25.11.2021	Wind Europe Electric City 2021	Poster presentation - UNITED German Pilot, Eva Strothotte	x	x			x		x				200	nn	7	FUE
Trade fair / Conference presentation	Copenhagen, Denmark	1	24.11.2021	Wind Europe Electric City 2021	Oral presentation - UNITED German Pilot, Tim Staufenberger	x	x			x		x				20	nn	7	FUE, KMF

Interview for the University of Latvia, Faculty of Law	Online	1	10.03.2022	Effective Maritime Spatial Planning Regulation Framework and Implementation Challenges and Best Practice Examples for the Context of the Baltic Sea	Interview	x									1	nn	7	FUE
Interview for the University of Latvia, Faculty of Law	Online	1	10.03.2022	Effective Maritime Spatial Planning Regulation Framework and Implementation Challenges and Best Practice Examples for the Context of the Baltic Sea	Interview	x									1	nn	7	KMF
Exhibition: Off-shore projects, German Off-shore Wind Energy Foundation	Berlin, Germany	1	05.04.2022 - 13.05.2022	Offshore projects	Presentation + poster UNITED German pilot, Eva Strothotte	x	x			x					100	nn	7	FUE
Invited speaker for the meeting of the Bundesverband der Windparkbetreiber Offshore e.V.	Germany, Kiel	1	26.04.2022	Meeting Environment committee	The UNITED Project: A CONCEPT FOR THE MULTI-USE OFFSHORE SECTOR, Eva Strothotte	x	x								30	nn	7	FUE

Interview with journalists	Germany, Kiel	1	04.05.2022	Interview with journalists: The Times, Süddeutsche Zeitung, NRC Handelsblad							x				2	nn	7	FUE
PhD presentation	Viena, Austria	1	26.05.2022	European Geoscience Union 2022	Oral Presentation, UNITED project, Rieke Santjer	x									60	nn	7	Deltares
Workshop presentation	Online	1	18.05.2022	Macro Algae Workshop	Oral presentation, UNITED project German pilot - Necessary data collection and monitoring practices at the seaweed farms in the Baltic Sea, Eva	x	x								27	nn	7	FUE, KMF
Workshop organisation	Delft, The Netherlands	1	02.06.2022	Ocean multi-use: Modification of existing structures vs newbuilds - UNITED and MUSA joint workshop	Interactive session	x	x	x						x	40	nn	9	SUB
Exhibition	Ravenna, Italy	1	18.05.2022 - 20.05.2022	European Maritime Days 2022	UNITED at the European Maritime Days booth EU4Ocean	x	x	x	x	x	x	x	x	x	500	500	9, 5	SUB, Acteon
Workshop organisation	Ravenna, Italy	1	19.05.2022	European Maritime Days 2022	Several maritime plans support multi- use, yet realization is still lacking: what are the next steps?	x	x	x	x	x	x	x	x	x	300	1500	9	SUB

Movie screening and QR code hunt	Ravenna, Italy	1	18.05.2023 - 20.05.2023	European Maritime Days 2022	Ocean Multi-Use movie screening and quiz/QR code hunt at the exhibition hall	x	x	x	x	x	x	x	x	x	x	500	500	9, 5	SUB, Acteon
Exhibition	The Hague, The Netherlands	1	02.06.2022	Marine Energy Accelerator Conference/ Opening of the Marine Energy Hub	Rollup, poster, flyers and exchange with stakeholders, Ivana Lukic		x			x	x	x	x	x		200	300	9	SUB, Deltares
Workshop presentation	Venice, Italy	1	23.05.2022 - 26.05.2022	Workshop on Sustainable Blue Economy	UNITED project presentation	x	x			x	x	x	x	x		100	nn	9, 7	Oceans of Energy
Danish pilot demonstration sessions	Copenhagen, Denmark	45	30.06.2021-30.06.2022	Tour to the Mid-delgrunden offshore wind farm	Visit the wind farm	x	x	x	x	x	x	x	x	x		1200	nn		SPOK
Workshop organisation	Online	1	26.01.2022	OFFSHORE PLATFORM OPERATION, SAFETY AND LOGISTICS WITHIN THE CONTEXT OF MULTI-USE	Several UNITED related presentations	x	x		x	x		x	x	x		80	nn		SUB, WUR
Workshop organisation	Online	1	17.05.2022	TRAINING WORKSHOP - AQUACULTURE MULTI-USE OFFSHORE: ENVIRONMENT AND BIOLOGY	Several UNITED related presentations	x	x		x	x		x	x	x		70	nn		FUE, SUB
Conference presentation	Split, Croatia	1	09.06.2022	Green Future Conference	Fire chat: Blue economy and multi-use, Ivana Lukic	x	x	x	x	x	x	x	x	x		500	nn		SUB
Webinar organisation	Online	1	27.10.2021	UNITED webinar: Get to know the UNITED Ocean Multi-Use Demonstration Pilots!	Several UNITED related presentations took place	x	x	x	x	x	x	x	x	x		80	nn	9	SUB, Acteon

Workshop presentation	Online	1	13.10.2021	Workshop: The Potential for Marine Spatial Planning and Blue Economy Initiatives to Improve the Management of Exclusive Economic Zones	Ocean Blue Economy and Marine Spatial Planning	x	x			x				x	150	nn	9	SUB
Conference presentation	Online	1	21.08.2021	Blue Energy - The potential of Interreg	Ocean multi-use UNITED project	x	x			x	x	x		x	100	nn	9	SUB
Workshop organisation	Lisbon, Portugal	1	30.06.2022	UNOC side event: Marine and coastal-estuarine ecosystems in Europe under high pressure: Sharing insights & best practices on source-to-sea, multi-use and marine protected areas	Nature restoration as an integral part of ocean multi-use: the case of native flat oysters in Belgian offshore wind farms Dr. Annelies Declercq, Seaweed	x	x			x	x	x	x	x	100	nn	9	Ecologic
Television	Ghent, Belgium	1	29.06.2022	Belgian television (VRT) will film the United nearshore site of the Belgian pilot	UNITED nearshore site of the Belgian pilot	x	x	x	x	x	x	x	x	x	10000	nn	9, 7	UGENT
OTS meeting	Online	1	17.03.2022	OTS bi-weekly meeting	UNITED stakeholder engagement in the Netherlands	x	x			x	x	x	x	x	30	nn	9, 5	SUB, NSF

Video and news item	Online	1	24.02.2022	A short video on the United project for the FOCUS Magazine #6	Restoring oyster banks in the North Sea	x	x	x	x	x	x	x	x	x	1000	nn	9	JDN
Conference presentation	Online	1	24.11.2021	The EATiP on-line Forum on OFF-SHORE AQUACULTURE	The multi-use concept within UNITED - Case report piloting offshore wind and aquaculture multi-use in the North Sea, Nancy Nevejan and Annelies Declercq										200	nn	9, 7	UGENT
Poster presentation	Online	1	23.11.2021 - 25.11.2021	Native Oyster Restoration Alliance (NORA) webinar	Belgian pilot restoration, nearshore and offshore	x	x			x	x			x	500	nn	9, 7	UGENT
Magazine item	Online	1	20.04.2022	UNITED description and pictures at the WinMon.BE report Odnature	nn	x	x			x	x			x	1000	nn	9	RBINS
Magazine item	Online	1	20.07.2021	Belgian pilot of UNITED in the IMPACT magazine, a new magazine that focuses on science communication, specifically on Bioresource recovery.	Seaweed harvest within the Belgian pilot of UNITED	x	x	x	x	x	x	x	x	x	1000	nn	9, 7	UGENT
Newsletter	Online	3	For the reporting period	UNITED newsletter	UNITED Newsletter	x	x	x	x	x	x	x	x	x	400	nn	9	SUB

Conference presentation	Online	1	18.05.2022	Final Conference of the Blue Deal Project in a session dedicated to the involvement of civil society in renewable energy projects	UNITED Danish pilot	x	x			x	x			x	200	nn	9, 7	SPOK
Conference presentation	Valencia, Spain	1	23.03-2022 - 25.03.2022	Valencia Business Forum, Blue Deal Project; Blue Challenges	UNITED Danish pilot	x	x			x	x			x	200	nn	9, 7	SPOK
Aquaculture Europe			30.09.2022	Aquaculture Europe Conference	Oral presentation: MULTI-USE SYSTEMS – A SOLUTION TO COMPETING INTERESTS IN OFFSHORE SPACE? FIRST LESSONS LEARNED FROM THE GERMAN NORTH SEA PILOT	x	x			x					30	800	7	FUE
Aquaculture Europe			30.09.2022	Aquaculture Europe Conference	Oral presentation: IMPORTANCE AND FINDINGS OF THE GERMAN NEARSHORE TEST SITE IN THE MULTI-USE OFFSHORE PROJEKT UNITED	x	x			x					30	800	7	FUE/KMF
Aquaculture Europe	Rimini, Italy		27.09.2022 – 30.09.2022	Aquaculture Europe Conference	Booth WINGS- Greek pilot	x	x			x					100	0		WINGS

Enterprise Europe Network, Investor Bank Schleswig-Holstein, Germany	Germany, Kiel		03.11.2022	HORIZON EUROPE – Cluster 5: Klima, Energie und Mobilität	Oral presentation: The UNITED Project	x	x			x		x				40	0	7	FUE
Presentation Belgian pilot during fair	Belgium, Brussels		19.10.2022	RGI-WindEurope-OCEaN Conference: Speeding up Nature Positive Offshore Energy Infrastructure Deployment	Nature restoration as an integral part of ocean multi-use: the case of European flat oysters in Belgian offshore wind farms	x	x			x						100	50	7	UGENT
TV station ZDF documentary	Germany, Kiel		01.12.2022	Filming for Documentary	Plan b SOS Ocean			x	x		x					1000000	0	7	FUE/KMF
TV station ZDF documentary	Germany, Kiel		21.12.2022	Filming for Documentary	Plan b SOS Ocean			x	x		x					1000000	0	7	FUE/KMF
Interview newspaper SHZ	Germany, Kiel		12.01.2023	Newspaper article	UNITED			x	x		x					500000	0	7	FUE
Presentation UNITED and German pilot	Germany, Kiel		16.01.2023	Exchange German Aquaculture Offshore projects and UNITED	UNITED German pilot	x										2	0	7	FUE/KMF
Presentation UNITED	Germany, Kiel		20.01.2023	Interview	Bachelor University of Oldenburg	x										1	0	7	FUE
TV station ZDF documentary	Germany, Kiel		14.02.2023	Filming for Documentary	Plan b SOS Ocean	x	x	x	x	x	x	x				3.5 Mio	0	7	FUE/KMF
TV station NDR documentary	Germany, Kiel		15.02.2023	Filming for Documentary	Schleswig-Holstein Magazin	x	x	x	x	x	x					350000	0	7	FUE/KMF

Presentation UNITED and German pilot			01.02.2023	Sustainable biomass production in the sea: Feasibility study on off-shore culture of macroalgae for land-based utilisation	UNITED	x										2	0	7	FUE/KMF
Interview Swiss TV	Germany, Kiel		07.03.2023	Kick Off Meeting Aquaculture Geomar, Kiel	UNITED	x	x	x	x	x	x	x	x	x			0	7	FUE
Presentation UNITED	Germany, Kiel		07.03.2023	Kick Off Meeting Aquaculture Geomar, Kiel	UNITED	x	x			x	x	x				25	0	7	FUE
Presentation about Sustainable Blue Economy and MSP	Venice, Italy		23.05.2022 – 26.05.2022	Mediterranean Strategy Group 2022	Sustainable Blue Economy in the Mediterranean Region	x	x	x		x			x			25	0	7	OOE

Some of the platforms where UNITED knowledge was shared include the following:

- ENLIT projects platform
- Grid Network (BE pilot)
- Horizon Results Platform
- CORDIS
- SUBMARINER Blue Platform Multi-Use Page
- United Nations Global Compact working group and Roadmap
- MATES Pact4Skills and the continuation in the form of FLORES project that among others focuses on the offshore renewables multi-use related skills improvement.

2.9. Future actions

In order to build upon the successes of the UNITED project and continue to promote effective knowledge transfer and dissemination of research findings, several future actions and activities could be pursued.

Firstly, it is important to continue to engage with stakeholders from different sectors and backgrounds to promote cross-sectoral collaboration and maximize the benefits of multi-use marine environments. This will be achieved through the organization of additional workshops and learning sessions, as well as the development of targeted communication strategies and outreach activities.

Secondly, it is important to build on the soft skills and capacity building activities that were developed as part of the UNITED project. This will be achieved through the development of training courses and resources focused on specific sectors, as well as the integration of soft skills development into existing education and training programs.

Thirdly, it is important to continue to involve and engage with local communities in the development and implementation of multi-use marine environments. This could be achieved through the development of community outreach programs and initiatives, as well as the inclusion of community representatives in decision-making processes.

Finally, it is important to continue to promote the dissemination of research findings and best practices related to multi-use marine environments. This could be achieved through the development of knowledge transfer plans and strategies for future research projects, as well as the creation of accessible and user-friendly communication materials such as reports, infographics, and videos.

3. STAKEHOLDERS ENGAGED AND KNOWLEDGE GAPS ADDRESSED

3.1. Stakeholders engaged

The UNITED project's dissemination activities addressed a diverse set of stakeholders, including engineers, aquaculture farmers, offshore wind developers, policymakers, and environmental groups.

Workshops and webinars were used as primary methods to disseminate project findings and outcomes to the stakeholders. The events were often tailored to specific audiences to address their knowledge gaps and interests.

For **engineers**, workshops were focused on the technical aspects of multi-use platforms, such as design considerations and technological requirements. The webinars addressed technical challenges in the deployment and operation of the platforms, such as installation and maintenance.

For **aquaculture farmers**, workshops were organized to provide insights into the production of fish and other aquatic species on multi-use platforms, including best practices, challenges, and opportunities. The webinars addressed issues related to food safety and quality standards, as well as marketing and market access.

For **offshore wind developers**, workshops and webinars were organized to provide insights into the integration of wind energy production on multi-use platforms. Topics discussed included the compatibility of different uses, the regulatory framework, and the potential benefits and risks associated with the technology.

For **policymakers**, the workshops focused on the policy and regulatory aspects of multi-use platforms, including the development of a legal framework, incentives for investment, and the involvement of stakeholders in the decision-making process. The webinars addressed issues related to the sustainability and socio-economic impacts of the technology.

Finally, **environmental groups** were also included in the dissemination activities, with workshops and webinars focused on the potential impacts of multi-use platforms on marine ecosystems and the measures that can be taken to mitigate these impacts. The events aimed to promote dialogue and collaboration between the different stakeholders to ensure the sustainable development of multi-use platforms.

Overall, the UNITED project's dissemination activities were designed to engage a diverse set of stakeholders and to address their specific knowledge gaps and interests. This approach helped to ensure that the project's outcomes were relevant and applicable to the needs of the different stakeholders and that the technology was developed and deployed in a sustainable and responsible manner.

3.2. Knowledge gaps addressed

Based on the UNITED dissemination actions, the project aimed to address several knowledge gaps related to the implementation of multi-use platforms in the marine environment. These gaps include:

- Lack of understanding and awareness of multi-use platforms among different stakeholders, such as engineers, aquaculture farmers, offshore wind developers, and policymakers.
- Limited knowledge of the technical and environmental requirements for the design, construction, and operation of multi-use platforms.
- Inadequate knowledge of the economic viability of multi-use platforms and the potential benefits they can bring to different sectors.
- Limited awareness of the regulatory frameworks and governance models that can support the development and implementation of multi-use platforms.
- Limited understanding of the social and cultural implications of multi-use platforms and the potential conflicts that may arise among different stakeholders.

Through its dissemination activities, such as workshops, webinars, social media, videos etc., the UNITED project aimed to bridge these knowledge gaps and raise awareness among different stakeholders about the potential of multi-use platforms for sustainable development in the marine environment. By sharing its findings and outcomes with a diverse range of stakeholders, the project aimed to facilitate a more informed and collaborative approach to multi-use platform development, ultimately contributing to more sustainable and integrated management of marine resources.

4. SYNERGIES AMONG SECTORS

Through UNITED, different communication channels were used to facilitate interactions and visits/exchanges across Member States and across different fields/sectors as to increase the capacities of those who are to implement the multi-use solutions in the future. The aim is to allow those working in a specific sector to become familiar with functions of a synergetic sector, discuss possible synergies and options for mitigating possible negative impacts. This aim involves facilitating cross-sector collaboration and knowledge sharing to promote multi-use activities and mitigate negative impacts. By bringing together individuals working in different sectors, such as aquaculture and OFW, the project seeks to promote understanding of the functions and potential synergies between these sectors. Through discussion and collaboration, participants can identify opportunities for joint activities and potential ways to minimize any negative impacts of multi-use activities.

For example, aquaculture and OFW can be complementary activities, as offshore wind farms can provide a platform for aquaculture activities such as mussel farming. However, there are also potential negative impacts such as increased noise levels and changes in water quality that need to be addressed. By promoting cross-sector collaboration and knowledge sharing, the project aims to identify and mitigate these negative impacts while maximizing the benefits of multi-use activities.

Overall, the goal is to establish a foundation for long-term technical assistance and collaboration between sectors, ultimately promoting sustainable multi-use activities that benefit all stakeholders involved.

The UNITED training sessions aimed to enhance the capacity of professionals working in different sectors such as the offshore industry and aquaculture sector to work collaboratively and effectively in the context of multi-use projects. The training sessions focused on developing both technical and soft skills to enable effective cross-working among sectors.

One key aspect of the training sessions was to increase visibility of the potential synergies between offshore wind and aquaculture industries. The training sessions provided participants with a better understanding of the functions, benefits, and challenges of the other sector. This allowed participants to identify potential areas of collaboration and to discuss possible synergies that could be achieved. Another important aspect of the training sessions was to discuss possible negative impacts that could arise from cross-working among sectors and to identify options for mitigating these impacts. This involved discussing issues such as environmental impact, social impact, and economic impact. By engaging in open and constructive dialogue, participants were able to develop a better understanding of the potential risks and benefits of multi-use projects and to identify ways to minimize negative impacts.

More specifically, the training sessions were held to increase awareness and understanding of multi-use concepts and potential synergies among stakeholders from different sectors. These sessions were designed to be interactive and included practical exercises to encourage cross-sectoral collaboration and discussion. During these sessions, case studies and best practices from existing multi-use projects were shared with participants to provide concrete examples of successful collaborations and demonstrate the potential benefits of multi-use approaches. Technical training sessions were held to increase knowledge and skills related to specific multi-use sectors, such as aquaculture, offshore wind, and marine spatial planning. These sessions provided practical guidance on topics such as commercialization, budgeting, acquisition of funds, insurance, permitting, and environmental impact assessments.

For example, in Workshop 2 on aquaculture multi-use offshore environment and biology, pilots of the UNITED project shared their two years of experience dealing with issues related to the measurement of environmental parameters and the integration of these parameters within the UNITED assessment framework. The presentations covered topics such as offshore wind, oyster restoration, seaweed cultivation, blue mussels, and tourism.

Similarly, in Workshop 4 on multi-use business cases and economics, members of the offshore wind energy sector, scientists, marine planners, and policymakers came together to discuss possible socio-economic impacts resulting from multiple uses of aquaculture and offshore wind power. They also discussed how multiple uses of offshore areas could influence the acceptance of maritime activities.

Overall, the UNITED project's knowledge transfer and training activities facilitated synergies and cross-work among different sectors by bringing together stakeholders with diverse backgrounds and expertise to discuss and develop ocean multi-use solutions. The collaboration among different sectors was evident in the topics covered during the



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workshops, which included offshore platform operation, safety and logistics, aquaculture multi-use offshore environment and biology, technology transfer, multi-use business cases and economics, and politics and regulations affecting multi-use.

5. SOFT SKILLS GAINED

Through the UNITED events and workshops, several soft skills related to the multi-use of offshore space were increased. These included communication and collaboration skills, as well as skills related to commercialization, budgeting, acquisition of funds, insurance, and permitting. Specifically, the training sessions aimed to increase the participants' understanding of the functions and needs of other sectors, such as aquaculture and renewable energy. The workshops also provided opportunities for networking and collaboration among stakeholders from different sectors, helping to develop soft skills related to communication and teamwork.

In addition, the training sessions also covered topics such as risk assessment, project management, and stakeholder engagement, which helped to increase the participants' skills in these areas. Overall, the workshops and events organized by the UNITED project helped to improve the soft skills of participants, enabling them to work more effectively in a multi-use offshore space.

The project achieved this through various training sessions, including workshops, webinars, and study visits, that provided participants with practical knowledge and skills. For example, in the aquaculture sector, training sessions focused on the cultivation of multiple species, market analysis, and innovation, while in the offshore windfarm and tourist sectors sector, training sessions covered financing, legal and regulatory frameworks, and technical aspects of solar installations.

Additionally, the project offered training sessions on communication and networking skills to enhance collaboration and cross-sector cooperation. Through these efforts, participants were better equipped to navigate the complex regulatory and financial landscapes of their respective industries and to identify and capitalize on potential synergies between sectors.

6. CONCLUSIONS

In conclusion, the UNITED project's approach to knowledge transfer has not only provided knowledge transfer tools and communication channels based on the knowledge transfer plan but has also emphasized the importance of the visibility of synergies and how to cross-work among sectors (collaboration) as well as increasing soft skills. The learning sessions and events held throughout the project have contributed to expanding business potential and protecting the marine environment while improving the economic and political landscapes. These activities have also provided valuable opportunities for project partners and stakeholders to exchange knowledge, build capacity, and learn from one another. The workshops have not only engaged local communities but have also facilitated effective dissemination of knowledge and transfer of expertise among project partners, stakeholders, and wider audiences. Overall, the UNITED project has demonstrated the significance of effective knowledge transfer in maximizing the benefits of research and innovation of multi-use for various stakeholders. The project's outcomes and findings can serve as a model for future research projects seeking to promote effective knowledge transfer and dissemination of research outputs.

Finally, the use of innovative approaches and technologies should also be considered for effective knowledge transfer and dissemination, such as virtual reality training sessions or interactive webinars. By prioritizing effective knowledge transfer and dissemination, future projects can maximize the benefits of research and innovation for various stakeholders and contribute to the sustainable development of multi-use marine environments.



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UNITED deliverable 9.4 “Knowledge transfer plan”