ASSEMBLE +

ASSOCIATION OF EUROPEAN MARINE BIOLOGICAL LABORATORIES EXPANDED

Acronym: ASSEMBLE Plus

Title: Association of European Marine Biological Laboratories Expanded

Grant Agreement: 730984

Deliverable 5.4

Knowledge exchange among scientific community for enhanced training of actual & prospective RI users
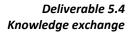
September 2022

Lead parties for Deliverable: CCMAR
Due date of deliverable: M60
Actual submission date: M60

GENERAL DATA

Acronym: **ASSEMBLE Plus**

Contract N°: **730984**

Start Date: **1st October 2017**

Duration: **60 months**

Deliverable number	5.4
Deliverable title	Knowledge exchange among scientific community for enhanced training of actual & prospective RI users
Submission due date	30 September 2022
Actual submission date	5 October 2022
WP number & title	WP5: NA3 Engaging with user communities
WP Lead Beneficiary	CCMAR
Participants (names & institutions)	CCMAR and other partners

Dissemination Type

Report	X
Websites, patent filling, etc.	☐
Ethics	☐
Open Research Data Pilot (ORDP)	☐
Demonstrator	☐
Other	☐

Dissemination Level

Public	X
Confidential, only for members of the consortium (including the Commission Services)	☐

Document properties

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Editor(s)	
Version	1.0

Abstract

ASSEMBLE Plus must be able to attract a diverse user base from academia, industry and policy. The main objective of the task was the facilitation of knowledge exchange to familiarise prospective users with technologically advanced platforms. Internal bids were solicited from partners (including, topic, objectives, planning, user demand and costs) to organize courses based on platforms and services offered. The PIC selected the most innovative and relevant courses to the advancement of user access. Training courses were advertised widely targeting potential users from academia and the private sector. ASSEMBLE Plus partly covered organizational costs. This deliverable reports on the courses and feedback from participants.

Content

5

1. Introduction

Horizon 2020-funded ASSEMBLE Plus (www.assembleplus.eu) is a four-year Integrating Activities project performed by a consortium of 24 partner organisations from 16 countries, operating under the umbrella of the European Marine Biological Resource Centre (EMBRC-ERIC). ASSEMBLE Plus integrates over 30 marine biological stations and installations from various regions of the world's oceans and seas, offering scientists from academia, industry and policy with the services of these marine stations.

The project's expected impacts include "development of a new generation of researchers who are able to optimally exploit essential tools for their research", "offer high quality services to users from academia and the private sector" and "reinforced partnership of research organisations with industry". Furthermore, the philosophy of EMBRC-ERIC is to "strengthen the connections between science, policy and industry".

To achieve these impacts, ASSEMBLE Plus aimed at increasing its user base, by showcasing its services, in particular to early career researchers.

The purpose of this deliverable is to present a summary of activities from task 5.4

2. Objective

ASSEMBLE Plus considers that strengthening the positioning of European marine biological stations as hot spots for excellent marine science requires increases its user base, in particular early career researchers.

Assemble Plus planned to address the challenge through courses (knowledge exchange and training) based on existing platforms and services offered, and open to the participation of the scientific community in particular early career researchers. This was conceived as a way to familiarize early-career researchers and prospective users with the concept of accessing specialized research infrastructures. The aim was to help prospective users to better evaluate what Assemble Plus offers and better plan Assemble Plus project applications. The activities started with internal bids solicited from partners (including, topic, objectives, planning, user demand and costs) to organize courses based on platforms and services offered. The Project Implementation Committee (PIC) selected the most innovative and relevant courses to the advancement of user access. Training courses were advertised widely targeting potential users from academia and the private sector. ASSEMBLE Plus partly covered organizational costs. This deliverable reports on the courses and feedback from participants.

A summary of the three activities is described below together with the main conclusions.

3. Internal calls and selection

A first internal call was launched by CCMAR between 15th October and 9th November 2018 inviting Assemble Plus partners to submit proposals for knowledge exchange and training activities. The call text is in Annex 1. Five proposals were received from two partners which were evaluated by three PIC members based on their scientific quality and expected impact. The expected impact considered was: 1) potential for increased numbers of high quality, focused and feasible applications to Assemble+; 2) potential for increased collaboration and coordination across the marine biological community; 3) potential to attract users from multiple disciplines; 4) making available open access data; 5) capacity building; 6) increased standardization and interoperability. Three courses out of the 5 applications were selected from the first call:

- "Liquid chromatography and Mass Spectrometry methods in Marine Sciences" led by José Paulo Silva (CCMAR)
- "Zebrafish tools for the screening of osteogenic compounds" led by João Paulo Gavaia (CCMAR)
- "Practical course on meta-omics data processing analysis and organization: bioinformatics tools to mine and share the data" led by Maria Luisa Chiusano (SZN)

A second call was launched between 5 and 27 September 2019 and had 4 applications from which 3 were selected:
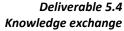
- "Cryopreservation of dinoflagellates" led by Estefania Paredes (U Vigo/EICIMAT)
- "The Evolution of Enzymes and Metabolic Pathways: analysis, understanding and implications for biotechnology" led by Immacolata Castellano (SZN)
- "Identification of larval fishes as a tool for systematics, ecology, and population dynamics". led by Roi Holzman (IUI).

4. Implementation and feedback

The course "Liquid Chromatography and Mass Spectrometry Methods in Marine Sciences" took place 28-30 October 2019, Faro, Portugal with 20 participants. The Knowledge Exchange and Training activities aimed to give an overview of liquid chromatography and mass spectrometry methods to researchers and demonstrated their potential in Marine Sciences by analyzing/running specific examples. Participants were encouraged to send selected samples for analysis. Participants were mostly postdocs and established scientists that considered themselves familiar with the concept of research infrastructures and about 50% knew about Assemble Plus but had never accessed a RI. Most indicated participating in the course increased the likelihood of applying for RI access in the future. The course was rated 4.4/5.

The course "Zebrafish tools for the screening of osteogenic compounds" took place 15-17 July 2019, Faro, Portugal with 8 participants. This course provided both conceptual and experimental know-how on zebrafish screening systems through lectures given by experts in the field. Attendees had the opportunity to acquire some technical expertise through hands-on sessions where they learned to manipulate zebrafish tools to screen for osteoactives. Participants were PhD students of which 50% considered themselves familiar with the concept of RI, 65% knew about Assemble Plus and 30% had accessed a RI. Only 20% indicated participating in the course increased the likelihood of applying for RI access in the future increased. The course was rated 5/5.

The course "Practical course on meta-omics data processing analysis and organization: bioinformatics tools to mine and share the data" took place 3 - 7 February 2020, at Stazione Zoologica Anton Dohrn, Naples, Italy, with 23 participants. The course was addressed to unexperienced students, scientists and stakeholders interested in acquiring practical bioinformatics skills on metabarcoding and metagenomic data analyses. The course consisted of lectures and practical sessions introducing main aspects of metabarcoding and metagenomic bioinformatics data analyses (from data pre-processing to data analysis), providing the students with the necessary knowledge and skill to select and apply the main approaches. Participants were mostly PhD students (50%), postdocs and established scientists. Only half considered themselves familiar with the concept of RIs and a similar percentage knew about Assemble Plus while 25% had accessed a RI. About 50% indicated the likelihood of applying for RI access increased after the course. The course was rated 4.5/5.

The course "The Evolution of Enzymes and Metabolic Pathways: analysis, understanding and implications for biotechnology" led by Immacolata Castellano (SZN) took place 28-30 June 2022 at Stazione Zoologica Anton Dohrn, Naples, Italy, with 15 participants. The course was addressed to PhD students and early-career researchers aiming at acquiring an interdisciplinary understanding of concepts and methods for the investigations of enzyme and metabolic pathways evolution, with insights into environmental adaptations and their potential biotechnological applications. Participants were mostly PhD students (80%) which indicated familiarity to RIs and 90% did not know of Assemble Plus and a similar percentage had not accessed to a RI. Approximately 60% intended to apply for RI access in the future and 40% considered the course helped in that decision. The course was rated 4.1/5.
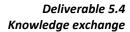
The courses "Cryopreservation of dinoflagellates" and "Identification of larval fishes as a tool for systematics, ecology, and population dynamics" did not take place because of COVID restrictions.

5. Conclusion

While the second call courses were highly affected (delays and cancellations) by the pandemic, Assemble Plus support to knowledge exchange and training activities enabled around 60 mostly early career researchers (mostly PhD students) to have direct contact with RIs and their capabilities, albeit circumscribed to some research and technology fields. Most participants had no specific knowledge of RIs or of the Assemble project and the courses' success in convincing potential users to apply for access in the future varied greatly. It appeared that courses that used more specialized or rare instruments or technologies were more successful in this respect.

In conclusion, this kind of activity can have an important dual role of promoting RI platforms and services to prospective new users, while at the same time providing fundamental training for young researchers. This can be better achieved if activities are selected on the basis of the specific advantage of using a particular platform or service and preferably with an hands-on component.

Annex

Contents

GUIDELINES TO HOST USER KNOWLEDGE EXCHANGE AND TRAINING (2018-2020)

Calls for Hosts

Assemble+ partners are invited to take part in a Call to host Knowledge Exchange and Training activities for prospective users.

The purpose of user Knowledge Exchange and Training courses

Knowledge exchange and training activities are effective ways to familiarize early-career researchers and prospective users from with the concept of accessing specialized research infrastructures, to carry out projects using the best available advanced technological platforms, equipment and services. This will help prospective users to better evaluate what Assemble+ offers and better plan Assemble+ project applications.

Expected Impact: Increased numbers of high quality, focused and feasible applications to Assemble+; increased collaboration and coordination across the marine biological community; attract users from multiple disciplines; making available open access data; capacity building; increased standardization and interoperability.

The results of Knowledge Exchange and Training activities will be compiled in the Assemble+ Report on Knowledge Exchange Deliverable D NA3.4 - Overview of Knowledge Exchange within the Marine Stations and Scientific Community (M48).

What does a Knowledge Exchange and Training involve?

Assemble+ partners are invited to submit proposals to host a Knowledge Exchange and Training activity directed at prospective users, with priority to those from outside the Assemble+ consortium. Course attendants to be targeted are scientists and PhD students who can be from research institutions in the public, non-profit or private sectors. Attendants from companies are particularly welcome.

Typical courses are aimed at improving hands-on technological skills in using, for example, confocal LM, EM, HTS sequencers, 3D UW photography, RT-PCR, MALDI-TOF mass spectrometry or ROV, or in conducting elaborate scientific workflows requiring various procedures and devices.

Knowledge exchange and training sessions should familiarize prospective users with the advantages of marine stations to carry out scientific research beyond their comfort zone of the home institution or company. Welcome sessions with explanations of ongoing activities, local visits and interaction with local staff are among the ways to achieve this objective. In the discussions course attendants may be asked to identify the challenges that they face in their topic area which may help to define future projects for TA.

A key aspect of the activity is advanced training based on the platforms and services offered at one or more Assemble+ marine stations and institutes. The more appealing the activity, including the training, the more likely it will be able to attract prospective users.

Applicants are free to define the duration, format and content of the activity but need to explain how it contributes to the expected impact indicated above.

How to submit a proposal?

Proposals should be no more than 1000 words long and include the following headings: title/topic, objectives, planning, expected user demand and estimated costs involved, co-funding, name of applicant and signature. Proposals should be sent in PDF format by e-mail to access@embrc.eu .

Review and selection of Knowledge Exchange and Training proposals

The User Selection Panel of Assemble+ will review and select the most innovative and relevant Knowledge Exchange and Training proposals taking into consideration their potential impact.

Schedule of Knowledge Exchange and Training Calls

The 1st Call will be open between 15th October and 9th November 2018 until 23:59 hours CET. Activities will be selected to take place during 2019, preferably before 30th August 2019.

The 2nd Call will be open between 5 and 27 September 2019 until 23:59 hours CET. Activities will be selected to take place during 2020, preferably before 30th August.

Reimbursement guidelines and Reporting

The selected knowledge exchange and training activities should produce a short report including feedback and comments considered helpful for future activities and to improve the services offered.

Assemble+ will contribute up to 2,500 euros for organization. Organizers are expected to find co-funding. The transfer of funds will be arranged through the Assemble+ coordinator. Participants are expected to pay for travel and subsistence unless organizers are able to find funds for this purpose.

The selected Knowledge Exchange and Training hosts will prepare a short report, including feedback and comments considered helpful for future activities and to improve the services offered.