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ASSOCIATION OF EUROPEAN MARINE BIOLOGICAL LABORATORIES EXPANDED

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Abstract

This deliverable describes the outcomes of the trans-national access programme (TNA) offered at UH-TZS and the third parties UTU-ARI and AAU-HBS, in terms of: installations available, applications received and user's projects performed (through on-site and / or remote access), users' profile and other stats (country of origin, career profile, type of organization, satisfaction of the services used).

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1. Introduction

Transnational Access in ASSEMBLE Plus is provided to a total of 36 marine stations in 15 countries. In the whole consortium, the stations provide access to a high diversity of marine environments; from the high Arctic (IOPAN) and Antarctic (UKRI-BAS) to the tropics (IUI and NIOZ-CNSI) and the mid-Atlantic ridge (CCMAR and IMAR). Within mainland Europe, access is provided to the Mediterranean, the Atlantic and the Baltic seas. Habitats comprise estuaries (e.g. SZN, ISMAR, CCMAR, AWI, IOPAN, UG), mega-tidal seas (SBR), cold-water coral reefs (KMRS, NUIG, SAMS), brackish seas and sea ice communities (IOPAN, TZS, ARI, HBS), near-shore deep sea (HCMR, IMEV, NUIG, UGOT, SAMS) and volcanic seeps (high CO_2 – low pH; HCMR, SZN, IMAR). The TA-providing stations (access providers) have modern research laboratories and a wide array of specialized research facilities to support internal and external users. Several of these also have technological backup of nearby university institutions.

This deliverable describes the outcomes of the trans-national access programme (TNA) offered at UH-TZS and the third parties UTU-ARI, AAU-HBS, in terms of: installations available, applications received and user's projects performed (through on-site and / or remote access), users' profile and their stats (country of origin, career profile, type of organization, satisfaction of the services used).

2. Objective

This deliverable intends to show the outcomes of the transnational access programme executed at UH-TZS and the third parties UTU-ARI, AAU-HBS, hence contributing to the ASSEMBLE Plus objectives:

- Enhance transnational access to a coordinated set of state-of-the-art European infrastructures for marine biology and ecology;
- Improve service provision by these infrastructures in line with their areas of excellence in marine biology and ecology, with emphasis on developing novel key enabling technologies and data solutions;
- Strengthen complementarity and interoperability within the consortium and with related infrastructures;
- Lay the logistical and strategic foundations to expand the coverage of the European Marine Biological Resource Centre (EMBRC) in both its scope and its geographical distribution and to consolidate its long-term sustainability.

3. Outcomes of the Transnational Access programme

3.1 Overview of the access provider(s)

At the research stations UH-TZS, UTU-ARI and AAU-HBS, research includes biodiversity-ecosystem function studies, benthic community ecology, sea-ice ecology, phytoplankton and zooplankton ecology, and studies on eutrophication and other human-induced problems in the coastal marine

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environment. The three stations provide access to coastal brackish-water areas in the northern Baltic Sea, characterised by vast archipelagos with high habitat complexity and strong gradients in biodiversity and the environment. The stations also have long-term datasets on environmental change in the coastal areas of Finland. Access to research facilities includes experimental aquarium facilities, laboratories for standard marine biological and chemical analyses and microscopy.

3.2   Installations offered

UH-TZS and the third parties UTU-ARI and AAU-HBS offered access to three marine stations with a specific set of installations:

3.2.1   Tvärminne Zoological Station (UH-TZS)

- Access to coastal Baltic Sea ecosystems, experimental facilities (indoor and outdoor aquaria) and laboratories at TZS, with corresponding logistic support and training. Services include boats for coastal research, sampling equipment, and SCUBA facilities. In addition, users have access to the FINMARI Culture Collection with 220 strains of Baltic Sea phytoplankton.
- Access to research vessels for sampling and deployment of instrumentation (first R/V Saduria, then replaced by R/V Augusta in October 2019).

3.2.2   Archipelago Research Institute (UTU-ARI)

- Access to coastal Baltic Sea ecosystems, experimental facilities (indoor and outdoor aquaria) and laboratories at ARI, with corresponding logistic support and training. Services include boats for coastal research, sampling equipment, and SCUBA facilities. In addition, users have access to zooplankton monitoring samples since 1966, with corresponding temperature and salinity data.

3.2.3   Husö Biological Station (AAU-HBS)

- Access to coastal Baltic Sea ecosystems, experimental facilities (indoor and outdoor aquaria) and laboratories at HBS, with corresponding logistic support and training. Services include boats for coastal research, sampling equipment, and SCUBA facilities.

4. Applications received

4.1.   Origin country of applicants

UH-TZS received a total of 13 applications in the nine calls of TNA. Among these, 10 main applicants were based in European countries while 3 applicants came from other non-European countries.

UTU-ARI received a total of three applications in the nine calls of TNA. Among these, two applicants were based in European countries while one applicant came from a non-European country.

AAU-HBS received a total of two applications in the nine calls of TNA. Both applicants were based in European countries.

4.2.   Applicants profile

4.2.1. Home institution type

Applicants were mostly based in academic institutes (universities: 58.6%; research organizations: 41.4%).

4.2.2. Career status

The most recurring career profile of the applicant was senior researcher (34.5%), but the profiles had a good spread from PhD student, to post doc, to early career researcher.

5. User hosted and their stats

5.1.   Projects completed

Overall, UH-TZS, UTU-ARI and AAU-HBS have hosted 10 projects for a total of 18 users. Eight projects were carried out fully on-site, while 2 included a combination of on-site and remote access. The main reason for remote access was COVID.

The list of projects completed at UH-TZS, UTU-ARI and AAU-HBS is available in "Appendix 1 – List of user-projects completed" further below.

5.2.   Installations used

In general, all users used access to the coastal ecosystems around the three stations for either collection of biological material, execution of field experiments or deployment of, e.g., sedimentation traps. The access required use of smaller boats or larger research vessels, sampling equipment and SCUBA facilities. The users also accessed the indoor and outdoor aquaria for experimental work and the laboratories for analyses, including microscopy.

5.3. User satisfaction

Overall, users evaluated the services offered very positively (Very good: 68.8%; Good: 31.3%). In general, comments from the users were positive and constructive, but the users also commented that the administrative effort was rather large in relation to the sum of the costs covered. It also seemed that the procedures were not sufficiently clear from the beginning, causing some confusion regarding what was covered by the ASSEMBLE Plus grant and what was not covered. This could easily be improved in the future.

5.4. Projects not completed or cancelled

COVID meant that many projects were postponed and by the time it was again possible to travel, the work situation or personal life had changed for the applicant and they were no longer able to carry out the Transnational Access project, which then had to be cancelled. In the last call, UH-TZS received four applications, which passed the scientific evolution, but they were cancelled due to financial constrains at other partner institutions (outside Finland).

6. Use of resources

At all three stations, staff provided scientific, logistic and administrative support to the TA users. The scientific support included boat / research vessel transport, sampling of biological material and deployment of instruments in the coastal area, SCUBA diving support, analytical services in the laboratory (e.g. nutrient analyses), and training to use instruments and advice on experimental setup, particularly in relation to the local environment. Administration was mainly related to negotiating User Access Contracts and related documents, managing bookings of facilities and providing help with travel claims.

In addition, many PM are used annually for running all three research stations, and developing and maintaining the facilities, which makes it possible to host TA users, but it is not relevant to itemise these PM here.

Beneficiary / Linked Third Party	PM	short name of the installation(s)	explanations of tasks
UH-TZS	5	Lab/ecosystems/aquaria and research vessel	See text above.
UTU-ARI	0.5	ARI	See text above.
AAU-HBS	0.5	HBS	See text above.

7. Conclusion

The three stations from Finland are small and were previously not very well known in the European marine research station landscape, at least in terms of stations that would host new users with no previous connection to the station (usually a personal connection to a researcher). The ASSEMBLE Plus TNA programme has been a good way of increasing the visibility of the stations and the services they can provide in a much wider network. The overall outcome of the TNA programme was thus positive, as UH-TZS, UTU-ARI and AAU-HBS all received new users, several of which have indicated that they wish to return to the stations for continued research in collaboration with in-house researchers.

All three stations have also previously hosted researchers from other institutions, but hosting TNA users from a range of different countries also prompted us to improve our routines on how to provide information as well as services to completely new users. The main difficulty has been the slight confusion regarding what the programme actually covers in terms of costs, but also this has been a useful exercise for the stations in the general aim of costing the services correctly for other users. Sometimes researchers' expectations or needs and the reality with the available infrastructure or possibilities to assist did not meet, but solutions were always found in the end. In the beginning contacted researchers were very keen to come to do research via a TNA programme, but in some cases it subsequently seemed that the bureaucracy of filling in the application forms was found a bit too hard. This experience is valuable for all future operations at the research stations.

8. Appendices

8.1.   List of user-projects completed at UH-TZS, UTU-ARI and AAU-HBS

UH-TZS:

- Project title: Contributions of organic carbon from vegetated coastal ecosystems (OC-VCE). Users: Hagen Buck-Wiese, Mona Abouhaidar Andskog (Max-Planck Institute for Marine Microbiology, DE). Services used: Ecosystem access, Experimental facilities, Diving facilities, Analytical facilities, Taxonomic services, In-house lodging, In-house catering.
- Project title: Determination of the identity of the type species of the dinoflagellate genus *Durinskia* (Identity of *Durinskia baltica*). Users: Øjvind Moestrup, Nina Lundholm (University of Copenhagen, DK). Services used: Ecosystem access, Access to FINMARI culture collection of Baltic Sea phytoplankton strains, Dry laboratories, In-house lodging, In-house catering.
- Project title: Diversity and ecophysiology of phytoplankton-parasite interactions in the Baltic Sea. (Phyto-Parasite). Users: Silke Van den Wyngaert, Elisabet Alacid Fernandez (Leibniz-Institute of Freshwater Ecology and Inland Fisheries (IGB), DE). Services used: Ecosystem access, Access to FINMARI culture collection of Baltic Sea phytoplankton strains, Imaging, Dry laboratories, In-house lodging, In-house catering.
- Project title: Effect of diel cycle and community composition of phytoplankton on DOM dynamics in coastal system (TZS PhytoDOM). Users: Hans Jakobsen, Lumi Haraguchi (Aarhus University, DK). Services used: Ecosystem access, Aquaria and tanks, Wet laboratories, Analytical facilities, In-house lodging, In-house catering.
- Project title: Investigating the effects of anthropogenic disturbance on benthic sedimentary marine carbon stores (DEBRiS). Users: Kirsty Black, William Austin (USTAN, GB). Services used: Ecosystem

access, Aquaria and tanks, Wet laboratories, Analytical facilities, Coastal research vessels, In-house lodging, In-house catering.

- Project title: New biomarker tools to characterise the role of macroalgae in coastal marine Blue Carbon budgets (MacroBlue). Users: Clare Woulds, Gregory Cowie (University of Leeds, GB). Services used: Ecosystem access, Coastal research vessels, Sampling equipment, Aquaria and tanks, Dry laboratories, Analytical facilities, In-house lodging, In-house catering.
- Project title: Rate-induced tipping in a phytoplankton-zooplankton system (RIT_REAL). Users: Anna Vanselow, Ulrike Feudel (Institute for Chemistry and Biology of the Marine Environment, DE). Services used: Access to FINMARI culture collection of Baltic Sea phytoplankton strains, Aquaria and tanks, Dry laboratories, Analytical facilities, In-house lodging, In-house catering.

UTU-ARI:

- Project title: Anti-Fouling defence dynamics Of a founDation Seaweed from high and low latitude populations (AFODS). Users: Mahasweta Saha (Plymouth Marine Lab, GB). Services used: Ecosystem access, Organisms collected in the wild, Wet laboratories, Sampling equipment, Aquaria and tanks, Dry laboratories.
- Project title: Parasitofauna and meiobenthos in the Baltic (BalticParasites). Users: Inga Martinek (Swedish museum of natural history, SE). Services used: Ecosystem access, Organisms collected in the wild, Dry laboratories, Wet laboratories, In-house lodging, In-house catering.

AAU-HBS:

- Project title: Mechanisms governing the distribution of protistan plankton communities along salinity gradients in the Baltic Sea (SalGrad). Users: Sabine Filker (University of Kaiserslautern, DE). Services used: Ecosystem access, Aquaria and tanks, Dry laboratories.