

# ASSEMBLE



ASSOCIATION OF EUROPEAN MARINE BIOLOGICAL LABORATORIES EXPANDED

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## GENERAL DATA

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## Abstract

**This deliverable describes the outcomes of the trans-national access programme (TNA) offered at NUI Galway, 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).**



## Table of Contents

1. Introduction.....	5
2. Objective.....	5
3. Outcomes of the Transnational Access programme .....	5
3.1 Overview of the access provider(s) .....	5
3.2 Installations offered .....	6
4. Applications received .....	7
4.1. Origin country of applicants .....	7
4.2. Applicants profile .....	7
4.2.1. Home institution type.....	7
4.2.2. Career status.....	7
5. User hosted and their stats .....	7
5.1. Projects completed.....	7
5.2. Installations used.....	7
5.3. User satisfaction .....	7
5.4. Projects not completed or cancelled.....	7
6. Use of resources .....	8
7. Conclusion .....	8
8. Appendices .....	9
8.1. List of user-projects completed at NUI Galway.....	9



## 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, TSZ, ARI, HBS), near-shore deep sea (HCMR, IMEV, NUIG, UGOT, SAMS) and volcanic seeps (high CO<sub>2</sub> – 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 NUI Galway, 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 NUI Galway, 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)

The Ryan Institute is based in the Martin Ryan Marine Research building (NUIG-RI), with aquaculture and live rearing research carried out at Carna Research Station (NUIG-CRS). Research: taxonomy and systematics (particularly cephalopods and sponges), marine ecology, inshore fisheries, aquaculture, harmful algal blooms, macroalgae, oceanography, jellyfish and migratory species. Access to Galway



Bay ecosystem wide variety of biodiverse habitats. Highly detailed bathymetry is available from multibeam and LIDAR surveys undertaken by the national INFOMAR programme. Access to instrumentation: constant temperature rooms, a microscopy suite, sample sorting, sediment analysis, molecular laboratories (Martin Ryan building) & mass spectrometry for metabolomics and a facility for elemental analysis (NMR). The Carna Research Station has seawater supply, experimental areas with multi-replicated tanks with photoperiod and temperature control, a fish feed formulation/production unit and facilities for phytoplankton and other live feeds production. Services currently provided by the infrastructure: Access to all ecosystems described above is by foot (intertidal) and by means of small boats and SCUBA; access to instrumentation and culture facilities is either hands-on or under technical supervision. Significant projects at Carna have included the national cod aquaculture programme, lumpfish rearing and a seaweed hatchery. Work on inshore fisheries collected the most detailed data to date on the movement growth and survival of inshore populations of *N. norvegicus*. Deep sea ROV work has led to the identification of new species and the characterisation of a newly recognised habitat on vertical cliffs.

### 3.2 Installations offered

NUIG offered access to different host locations coordinated through the Ryan Institute

- Marine natural products lab: Facilities for extraction, isolation, fractionation and profiling of biologically-derived chemicals. Including access to chromatography, MS and NMR instruments.
- Chemical monitoring facility: Clean room, digesters and MS for trace metals analysis in biological samples.
- Carna Research lab: Holding tanks, recirculating aquaculture systems and access to habitats. Solid and live feed production facilities.
- Molecular labs: DNA or RNA extraction and sequencing.



## 4. Applications received

### 4.1. Origin country of applicants

*NUI Galway received a total of 10 applications in the nine calls of TNA. Among these, 9 applicants were based in European (EU) countries while 1 applicant came from a non-European country.*

### 4.2. Applicants profile

#### 4.2.1. Home institution type

*Applicants were mostly based in research institutes (universities: 20%; research organizations: 80%).*

#### 4.2.2. Career status

*The most common career profile of the applicants was postdoc or otherwise early career researcher (70%), with the remaining 30% consisting of PhD students.*

## 5. User hosted and their stats

### 5.1. Projects completed

*Overall, NUI Galway hosted 7 projects for a total of 8 users. All projects were carried out on-site.*

The list of projects completed at NUI Galway is available in "[Appendix 1 – List of user-projects completed](#)" further below.

### 5.2. Installations used

The breakdown of projects across facilities was: marine natural products lab (3), Carna research lab (1), and molecular laboratories (3). This use represents 44 person days at Carna, 42 person-days at marine natural products lab and 26 days at molecular labs.

### 5.3. User satisfaction

*Overall, users positively evaluated the services offered (Very good: 49.1%; Good: 38.2%). There were few specific comments, although one project was not happy with the quality of the laboratory at Carna. The laboratories at field stations are often quite basic. This comment was from a visiting group working on cancers, so may have higher expectations of what a basic laboratory includes. Mismatches in expectations may not be unusual when researchers move between different fields with different levels of basic funding.*

### 5.4. Projects not completed or cancelled

*There were 2 projects that passed scientific evaluation, but did not progress. These had not been scheduled before the pandemic prevented any transnational access. Although there was a window for*



*access in 2021 and 2022, the employment/personal circumstances for funded scientists had changed and they were no longer able to take up the access opportunities.*

## 6. Use of resources

None of the anticipated costed support was used. This reflects how difficult it was to estimate applicants' needs in advance. An estimated 5.5 PM were committed; this was not charged to the project: see table.

<b>Beneficiary / Linked Third Party</b>	<b>PM</b>	<b>short name of the installation(s)</b>	<b>explanations of tasks</b>
All TNA visits	3.5	NUIG-RS, NUIG-CRS	Liaison officer: facilitates tasks, organizes paperwork and coordinates with host labs. Also 0.5 PM from legal team in contract examination
Application 236	0.5	NUIG-CRS	Field support technician. Transport to sites and assistance sampling
Application 70, 246, 13126	1	NUIG-RS	Lab coordination and support
Application 13262	0.5	NUIG-RS	Assistance and guidance with RNA extractions
Application 11154	0.5	NUIG-RS	Assistance with sampling and experiment set up

## 7. Conclusion

The TNA visits were successful both in terms of visitors achieving their goals and in the engagement by host laboratories. Having a receptive host laboratory is probably important to a successful access project, but we did not have an issue with laboratories being happy to host. This may reflect that individual laboratories were included in discussions at the grant proposal stage, so already knew about the project when being asked about the feasibility of hosting. The culture of visits reflected collaborating scientists rather than strict service provision. This was not something that was imposed by host laboratories; it reflected shared research interests and projects without immediately commercial IP.





## 8. Appendices

### 8.1. List of user-projects completed at NUI Galway

Project title: Finding the clonal structure of cockle cancer in Ireland: Emerald Neo (EmeraldNEO).

Users: Seila Maria Díaz Costas, Alicia López Bruzos (Center for Research on Molecular Medicine and Chronic Diseases (CIMUS), ES). Services used: NUIG-CRS (Carna) Organisms collected in wild, field sampling logistics support, sample preparation and fixing laboratory.

Project title: Artemias as a Proxy for Ostreopsis TOXicity (APOTOX). Users: Sophie Pavau, (IMEV, FR). Services used: NUIG-RI Structural and chemical analysis.

Project title: Atlantic RHODolith beds: The influence of LATitude on net primary and carbonate production (RHODOLAT). Users: Nadine Schubert, (CCMAR, PT). Services used: NUIG-RI Organisms collected in wild, field sampling logistics support, sample processing lab and controlled temperature facilities including aquaria.

Project title: Enhancing the elemental composition of MACROalgal bloom BIOMASS (MACROBIOMASS). Users: Ricardo Bermejo, Ignacio Hernandez (University of Cadiz, ES). Services used: NUIG-RI Organisms collected in wild, field sampling logistics support, sample processing lab, trace metal analysis facilities and controlled temperature facilities including aquaria.

Project title: New anti-oxidant molecules from the sea (SEAOX). Users: Giovanni Andrea Vitale, (CNR-IBP, IT). Services used: NUIG-RI Structural and chemical analysis.

Project title: RNA-seq analysis of the stress responsive hepatic transcriptome of farmed gilthead seabream (*Sparus aurata*) (RALF). Users: Cláudia Raposo de Magalhaes, (CCMAR, PT). Services used: NUIG-RI Sample processing and RNA extraction

Project title: TABOO: meTABolomics of Bacterial cOcultivation for antibiOtics discovery (TABOO). Users: Fortunato Palma Esposito, Carmine Buonocore (SZN, IT). Services used: NUIG-RI Structural and chemical analysis.

