



Deliverable D 9.3

Training information portal

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PU	Public	X
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

Abstract

This dissemination, exploitation and communication deliverable explains how the online EMBRIC training information portal has been made to provide internal and external end-users information regarding training courses related to and given within the EMBRIC framework. This online freely accessible platform (www.embric.eu/training) is a repository giving an overview of marine biotechnology courses and trainings that took place or that will be available in the near future. In addition, it gives access to the training opportunities by sharing direct training provider contact details and application details. Details on the used backbone, the XCRI-CAP course information standard and the ISCED fields of education categories are explained. To conclude, this portal facilitates users to access courses in the field of marine biotechnology to further enhance the pace of scientific discovery and innovation from marine bioresources.

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Glossary and abbreviations

BSc:	Bachelor of Science
CDM:	Course Description Metadata
CPD:	Continuing Professional Development
EMBRC:	European Marine Biological Resource Centre
EMBRIC:	European Marine Biological Research Infrastructure Cluster
EQF:	European Qualifications Framework
ESFRI:	European Strategy Forum on Research Infrastructures
HCB:	Human Capacity Building
IAP:	Integrating Activity Project
iframe:	A visual html browser window to display content from a third party website
ISB:	United Kingdom's Information Standards Board
ISCED:	International Standard Classification of Education
MLO:	Metadata for Learning Opportunities
MSc:	Master of Science
PhD:	Doctor of Philosophy
PHP:	Hypertext Pre-processor, scripting language designed for web development
RI:	Research Infrastructure, a site-specific cluster of research groups and tools that provide essential services for basic or applied research.
WP:	Work package
XCRI-CAP:	eXchanging Course Related Information - Course Advertising Profile, is an information model to share information about courses

1 Introduction

The discovery, development and exploitation of marine derived products for research and commercial development requires a skilled workforce to (1) select, harvest and manipulate resources,(2) to treat the generated data and foster new technologies, (3) to retrieve the economic potential, and (4) to overcome current and future interconnectivity barriers. Ensuring this workforce has the required skills, requires constant training and re-skilling. Therefore, the European Marine Biological Resource Infrastructure Cluster (EMBRIC) brings together and creates innovative training to meet the workforce requirements to foster innovation in marine biotechnology.

One of the methodologies to achieve the workforce requirements of tomorrow is the setup of an online training information portal. This deliverable D 9.3 is part of the work package (WP) 9 in charge of training and exchange of best practice. The online open access platform available through the EMBRIC website (www.embric.eu/training) gives an overview of all available courses related to the EMBRIC thematic domains. The EMBRIC training information platform is linked and hosted by the EMBRIC (European Marine Biological Resource Centre, one of EMBRIC's RI's) Marine Training Platform (www.marinettraining.eu).

Previously, in deliverable D 9.1, an overview of existing trainings was given in the fields of discovery and development of derived marine bio-products and marker-assisted selection in mariculture within and outside the EMBRIC clusters' Research Infrastructures (RI) and Integrated Activity Projects (IAP). Currently, not all stages from discovery to final product development are covered by the existing training networks. Subsequently, specific needs on trainings and education under the form of thematic bottleneck recommendations and SWOT-analysis are formulated in D 9.1.

In deliverable D 9.2, a supporting framework under the form of the EMBRIC integrated training programme was created to organise and disseminate training opportunities to boost continuous professional development (CPD) and human capacity building (HCB) of the EMBRIC community.

All the deliverables of WP9 support training for harmonizing practices and standards of procedures for the biotechnology and mariculture domain. Ultimately, EMBRIC spreads these best practices to academia and private sector within and outside the consortium.

2 The online training information portal methodology

The EMBRIC training information portal page is imbedded within the existing public EMBRIC website since Month 10 (March 2015). As one of the EMBRIC services to its end-user community, the training portal page is accessible without prior login (Figure 1).



Figure 1: Access to the EMBRIC training information portal visualised as “EMBRIC’s training offer” via the Services button in the EMBRIC top menu bar (www.embric.eu)

2.1 Backbone

The EMBRIC training information has been setup via the EMBRIC Marine training platform (www.marinetraining.eu, figure 2) and thus uses the same backbone. The technical backbone is an open source web service run on a PHP Drupal Platform fitting the XCRI-CAP (version 1.2) standard (eXchange of Course Related Information). This standard was endorsed in January 2009 by the Information Standards Board (ISB) as the UK’s e-prospectus standard. The ISB is part of the Department for Education and is the official authority for information and data standards in education, skills and children’s services. This standard, amongst other European national standards influenced strongly the in 2012 approved European standard called ‘Metadata for Learning Opportunities – Advertising’ (EN15982 MLO-

AD)¹. This European Standard specifies the characteristics of electronic representation of Learning Opportunities in order to facilitate their advertising and subsequent discovery by prospective learners. Subsequently, XCRI-CAP version 1.2 is conform to the requirements of the MLO-AD European Norm. Hence, possibilities of exchange of data with similar platforms in other domains is ensured.

The EMBRIC training offer page is incorporated as an iframe extracted from the EMBRC Marine Training Platform. The advantages linked to this collaboration are numerous. Firstly, EMBRIC does not spend resources in developing yet another standalone training platform which will not be fed after the project's deadline and thus would cease to provide up-to-date data. Secondly, the associate Marine Training Platform has become a reliable and essential player in the field of marine and maritime training worldwide, providing continuous data influx and stable development conditions. Finally, all course data supplied by the EMBRIC consortium to the EMBRIC training information portal is also displayed on the Marine Training Platform, extending the reach and dissemination capacity of the EMBRIC training information portal beyond internal and associate end-users.

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Figure 2: Print screen of the home page of the associated EMBRC Marine Training Platform (www.marinetraining.eu)

This win-win condition between EMBRIC and one of its cluster Research Infrastructure, in this case EMBRC, demonstrates the resilience of the EMBRIC

¹ European standardisation committee CEN/TC 353: Metadata for Learning Opportunities (MLO) – Advertising https://standards.cen.eu/dyn/www/f?p=204:110:0:::FSP_PROJECT,FSP_ORG_ID:32324,580446&cs=183F4D9D4E12375B84D0F02E91002753D

training information portal beyond the formal end of the project and outside the reach of the consortium.

2.2 Course providers and content

This training portal displays a list of courses relevant to the EMBRIC community. Providers are part of the EMBRIC cluster (EMBRIC partners and associated EMBRIC RI's members) and non-EMBRIC institutions, experts in the marine biotechnology and mariculture field.

For the EMBRIC funded courses provided by the EMBRIC WP's and integrated training programme or by one of its RI's or IAP's, no content screening is necessary, since all these courses are designed to serve the EMBRIC community. For the courses given by a non-EMBRIC institution, a content screening is done by the WP9 leader following relevant fields of education (see paragraph 2.5 for more information). Consequently, relevant courses from outside the EMBRIC cluster are added to this training information portal to further enhance the exchange of best practice for the whole EMBRIC community. This novel approach of offering additional information regarding external courses, benefits the EMBRIC community in three ways: (1) it expands the EMBRIC community network, (2) it enhances the dissemination of the EMBRIC project and (3) it gives the opportunity to the EMBRIC community to incorporate best practices from expert institutions outside if EMBRIC.

2.3 Course information gathering and dissemination

Ghent University (UGent, EMBRIC partner 16) is in charge of hosting and performing the maintenance of the EMBRIC training information portal page. It has an extensive know-how on course organisation and thus assists EMBRIC partners by gathering training information from the consortium and by disseminating it using several channels.

Information on potential EMBRIC funded trainings is firstly gathered by contacting the work package leaders of WP 2-8. Secondly, the cluster's Research Infrastructures and Integrating Activity Project are requested to share training activities in their networks. Finally, relevant training opportunities outside EMBRIC, for instance, in closely related ESFRI's or cluster, are added to the training information portal.

In addition, in collaboration with each WP, WP9 assists in fostering new trainings and workshops by setting up the online information required for dissemination. Therefore, WP9 works closely with WP1 to follow the implementation of the overall dissemination strategy in EMBRIC using dedicated tools to target specific audiences including user communities (academic, commercial), policy makers (regional and

national governments, academia, industry) and the wider public. The dissemination plan of the EMBRIC training includes, amongst others:

- 1) posting on the EMBRIC training information portal and associated platform,
- 2) diffusion of the training events through 'other' online means, such as, the project's newsletters, press releases, various social communication channels, partners' websites and infrastructures' websites, etc.
- 3) creation of promotion material following the project's identity and graphic chart
- 4) participation at relevant workshops or other international initiatives to present future trainings, for instance, knowledge and innovation communities business summer schools, specialised master courses, alumni networks, etc.

2.4 Fully searchable catalogue

Halfway the four year lasting EMBRIC project, a total of 35 short courses (EMBRIC and non-EMBRIC funded) are counted in the online catalogue (Figure 3). From those 35, a dozen were organised by the EMBRIC work packages and can be found back in the past event page of the EMBRIC website (<http://www.embric.eu/past-events>). The remaining courses are hosted by institutions outside the EMBRIC consortium on EMBRIC relevant topics in mariculture and blue biotechnology.

The discovery, development and exploitation of marine derived products for research and commercial development requires a skilled workforce to 1) select, harvest and manipulate resources, 2) to treat the generated data and foster new technologies, 3) to retrieve the economic potential, and 4) to overcome current and future interconnectivity barriers. Therefore, the European Marine Biological Resource Infrastructure Cluster (EMBRIC) brings together and creates innovative training to meet the workforce requirements to foster innovation in marine biotechnology.

Herunder is a non exhaustive overview of existing trainings in the fields of discovery and development of marine natural products and marker-assisted selection in aquaculture from within and outside the participating Research Infrastructure (RI) and associated centres of excellence

EMBRIC Training Catalogue (provided by MarineTraining.eu)

Filter by type

- Course (35)

Filter by academic level:

- Lifelong Learning (25)
- PhD (20)

Training course "Preserving, storing and maintaining microorganisms"

Language: English Venue: Egham, United Kingdom Start date: 12 Sep 2017

United Kingdom

UGent Blue Growth Summerschool II

Figure 3: The EMBRIC training offer page displaying the EMBRIC training information portal.

This service's big advantage is the filtering ability of the catalogue in the left-hand side-bar. The centralized information related to the cluster's marine biotechnology and mariculture training possibilities is projected as one list on the webpage in anti-chronological order. End-users have the possibility to filter this list following several criteria:

- Filter by academic level
 - Some providers specify the target audience for certain courses: For MSc, for PhD or lifelong learning trainees
- Filter by start date
 - To select the date in which a course takes place
- Filter by venue country
 - At this point 13 countries host(ed) trainings relevant to the EMBRIC community, including EMBRIC funded courses
- Filter by venue city
 - In these countries 26 different cities host(ed) trainings relevant to the EMBRIC community, including EMBRIC funded courses
- Filter by provider
 - Until now 33 different providers hosted or co-hosted events relevant to the EMBRIC community from within and outside the EMBRIC consortium partners
- Filter by ISCED fields of education
 - See paragraph 2.5
- Filter by attendance mode, study mode and attendance pattern
 - All three have implication of how the training is given. For instance, on a campus site or distance learning.

Next to the criteria here above, the associated EMBRC Marine Training Platforms provides supplementary filters, such as filter per language or per course type. Until now all trainings relevant to the EMBRIC community were short courses given in English. Hence, no need to develop those filters. To conclude, searching for an adequate course is put forward in a very user-friendly way (figure 4).

EMBRIC Training Catalogue (provided by MarineTraining.eu)

Current search

Search found 5 items

- (-) 0512 - Biotechnology
- (-) 0688 - Bioinformatics

Filter by type

- Course (5)

Filter by academic level:

- Lifelong Learning (4)
- PhD (4)
- Master (2)

Filter by start date

- April 2017 (1)
- February 2017 (2)
- June 2017 (1)
- May 2017 (1)

Filter by venue country:

- France (2)
- Germany (2)
- Switzerland (1)

Summer School: Marine Ecological & Environmental Genomics (MEEG, 13th edition)

Language: English | Venue: Roscoff, France | Start date: 5 Jun 2017

Station Biologique de Roscoff, EuroMarine

First steps in computational biology for RNA Research

Language: English | Venue: Lausanne, Switzerland | Start date: 15 May 2017

Université de Lausanne (University of Lausanne)

Microbial 16S rRNA gene metabarcoding

Language: English | Venue: Berlin, Germany | Start date: 3 Apr 2017

Physalia

Practical definition of strain and chemical data requirements for EMBRIC

Language: English | Venue: Paris, France | Start date: 27 Feb 2017

Université Pierre et Marie Curie - Paris 6 (Pierre and Marie Curie University)

Eukaryotic-metabarcoding

Language: English | Venue: Berlin, Germany | Start date: 20 Feb 2017

Physalia

Figure 4: Example of search results for thematic courses in biotechnology and bioinformatics

2.5 ISCED fields of education

The International Standard Classification of Education (ISCED)² is a statistical framework for organising information on education maintained by the United Nations Educational, Scientific and Cultural Organisation (UNESCO). It was first designed in the early 1970s to serve as an instrument suitable for assembling, compiling and presenting statistics of education both within individual countries and internationally. In a similar way, the EU created the European Qualifications Framework (EQF) to act as a translation device to make national qualifications more readable across Europe, promoting workers' and learners' mobility between countries and facilitating their lifelong learning.

Within the biotechnology framework (currently 58% of the courses are tagged as biotechnology courses, see figure 5) of the EMBRIC training information portal mostly workforces with a higher educational level (BSc, MSc and PhD) are targeted. Therefore, qualifications for educational levels of ISCED or EQF were not incorporated, but only the fields of education were used as classifiers. The Marine

² The 2011 UNESCO International Standard Classification of Education (ISCED)
<http://www.uis.unesco.org/Education/Documents/isced-2011-en.pdf>

Training Platform uses 32 fields encompassing all Marine and Maritime related education. The EMBRIC trainings offer counts until now 23 different educational fields. The vast majority of the EMBRIC courses handle biotechnology, aquaculture, policy & governance, and bioinformatics as main course content (figure 5).

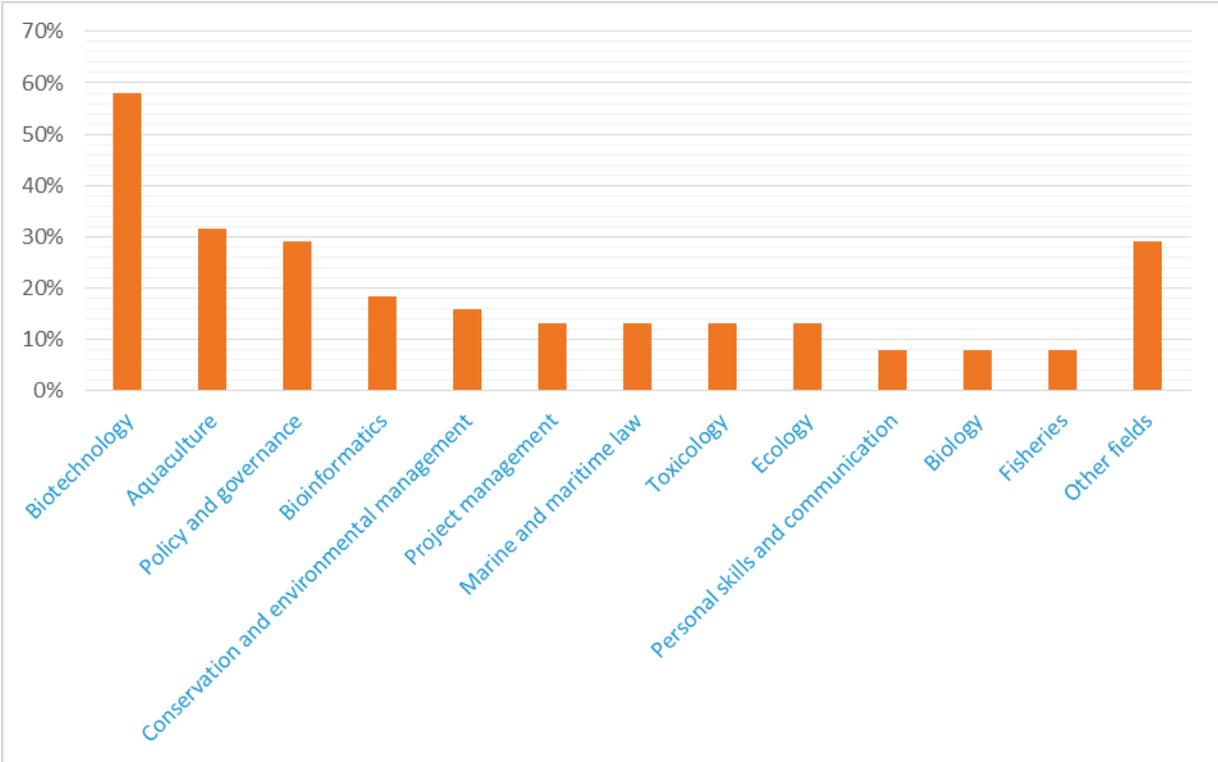


Figure 5 A clustered column chart representing the fields of education of the 38 courses currently listed in the training information portal

These four educational fields are also used as criteria to include such courses in the training information portal of EMBRIC. They can be found back in the course content as following highlighted icons (figure 6).



Figure 6 EMBRIC educational criteria as highlighted icons of the 32 ISCED fields of education used for the associated EMBRC marine Training platform

3 Conclusion

- The online freely accessible EMBRIC training information portal (www.embric.eu/training) has been put in place at the beginning of the project at month 10 and contains 38 short courses (12 EMBRIC funded and 36 external) by month 24.
- The EMBRIC training information portal is hosted by the associate EMBRC Marine Training Platform
- Its sole purpose is to facilitate internal and external end-users to access practical information regarding training courses related to marine biotechnology.
- Courses incorporated in the training information portal include 4 ISCED fields of education: biotechnology, aquaculture, policy & governance and bioinformatics.
- Providers are part of the EMBRIC cluster (EMBRIC partners and associated EMBRIC RI's members) and non-EMBRIC institutions, experts in the marine biotechnology and mariculture field.
- This user-friendly multi-purpose tool is equipped with various category filters to facilitate the search for courses improving the blue economy value chain.
- The use of the EMBRIC training information portal allows broad dissemination beyond the EMBRIC community and project's end of life.
- Knowledge transfer through EMBRIC human capacity building and continuous professional development enhances the pace of scientific discovery and innovation from marine bioresources.

