



Report of the Workshop on
Defining an ocean literacy agenda for Horizon 2020
and transatlantic cooperation

25-26 June 2013, Ostend, Belgium



Rationale of the Workshop

The idea for this workshop arose from a meeting between European Ocean Literacy Consortium¹ and European Commission on 20 March 2013 in Brussels. The aim was to gather a selected group of experts and deliver recommendations to the European Commission DG Research & Innovation on mechanisms and initiatives to better support marine science outreach and education in the Horizon 2020 Programme and beyond. Three specific objectives are defined for this meeting:

1. Identify ten marine topics to be the focus of dedicated ocean literacy calls in Horizon 2020;

It was identified at the March meeting that the Commission plans to include in Horizon 2020, calls for projects that will synthesize existing scientific knowledge and bridge the gap between this knowledge and public understanding of selected marine issues. As a guide, the Commission identified the FP7 CLAMER² project as a model for the type of projects to be funded. The task of this workshop was to identify a list of the most important marine topics which could benefit from this type of project. A shortlist of criteria for suitable topics was developed and used to guide the workshop experts to select topics in accordance with the requirements of the Commission.

List of criteria:

- (1) **Perceived gap in public knowledge:** Extent to which the public are unaware or lack a sufficient understanding of the issue/topic.
- (2) **Societal relevance:** Extent to which the wellbeing of citizens (in Europe and beyond) is being, or is likely to be, affected by the selected issue/topic. Will the results of improved public awareness/knowledge bring benefits to the society as a whole? In particular, will they contribute to the EU blue growth agenda?
- (3) **Urgency:** Extent to which the issue is urgent and requires a policy/management response in a short time-scale.
- (4) **Novelty / Lack of duplication:** Extent to which the existing knowledge of a topic has already been compiled and made available for further outreach (e.g. CLAMER and “Marine Climate Change”).
- (5) **Capacity for action:** Extent to which an improved public knowledge or understanding of the issue-topic will facilitate an effective scientific or policy response and/or stimulate further action. Extent to which a time-limited project can stimulate a broad-scale response and/or lead to further funded actions at EU and national level.
- (6) **Level of public engagement:** Extent to which the public can readily participate in addressing the issue/topic, e.g. as ‘citizen scientists’.

¹ EMSEA: European Marine Science Educators Association; WON: World Ocean Network; EMBCP: European Marine Board Communications Panel; VLIIZ: Flanders Marine Institute; MBA: Marine Biological Association and University of Gothenburg.

² <http://www.clamer.eu/>

2. Identify key transatlantic issues and actions relevant to ocean literacy which will require EU-North American (US and Canada) collaboration;

Transatlantic cooperation is high on the agenda of the European Commission. Discussions between the EU and US as The Galway Statement on Atlantic Ocean Cooperation signed on 24 May 2013 will stimulate a much closer cooperation between the EU, the US and Canada on transatlantic marine, maritime and Arctic research. Ocean Literacy was specifically identified in the statement as a key horizontal activity³. The expert working group of this workshop will define and propose joint transatlantic actions to enhance ocean literacy. These will be taken forward to the 2nd Conference on Ocean Literacy in Europe on 3-5 September at Plymouth⁴, where there will be sessions dedicated specifically to transatlantic cooperation.

Eight questions were proposed to the participants for a brainstorming discussion (see workshop results).

3. Provide recommendations to the Commission on evaluation criteria for communication, education and outreach elements of Horizon 2020 marine scientific project proposals.

To date, outreach in EU funded research projects has largely been restricted to a one-way imparting of knowledge through project websites, brochures, scientific papers or conferences, with little or no attempt on public and stakeholder involvement. The Commission recognises the need for much improved communication and outreach mechanisms to ensure that the knowledge generated through EU funded research projects is transferred in an efficient way to those who can benefit from it. The workshop will consider the development of effective criteria and metrics to be used in the evaluation of Horizon 2020 research proposals.

Current guidance for project proposal evaluations
Highlighted points are criteria applicable to ocean literacy.

Source: European Commission

<i>Evaluation criteria applicable to Collaborative project proposals</i>		
S/T QUALITY	IMPLEMENTATION	IMPACT
"Scientific and/or technological excellence (relevant to the topics addressed by the call)"	"Quality and efficiency of the implementation and the management"	"Potential impact through the development, dissemination and use of project results"
<ul style="list-style-type: none"> • Soundness of concept, and quality of objectives • Progress beyond the state-of-the-art • Quality and effectiveness of the S/T methodology and associated work plan 	<ul style="list-style-type: none"> • Appropriateness of the management structure and procedures • Quality and relevant experience of the individual participants • Quality of the consortium as a whole (including complementarity, balance) • Appropriateness of the allocation and justification of the resources to be committed (budget, staff, equipment) 	<ul style="list-style-type: none"> • Contribution, at the European [and/or international] level, to the expected impacts listed in the work programme under the relevant topic/activity • Appropriateness of measures for the dissemination and/or exploitation of project results, and management of intellectual property.

³ http://europa.eu/rapid/press-release_IP-13-459_en.htm

⁴ <http://www.emseaplymouth2013.org/>

Workshop results

10 marine topics for Ocean Literacy Calls in Horizon 2020

Ocean Literacy Topics (10)

No.	Topic + Lead Question	Challenge
1	Marine biodiversity What is marine biodiversity and how does it benefit society?	Understand the nature and extent of life in the oceans and what function it has in our everyday lives, how it is changing, and what the consequences of these changes are (and may be in the future).
2	The deep sea What is in the deep sea and why is it important?	Synthesize scientific knowledge and educate people on what we know (and don't know) about the deep sea (which extend to more than 66% of the global surface area) and the implications of expanding commercial activity there.
3	Sustainable food from the sea Which foods originate in the sea, is it sustainable and is it an important part of my diet?	Know the origin of seafood (fisheries and aquaculture) the challenges and opportunities in moving towards a sustainable supply of protein from the sea (include health issues)
4	How oceans benefit people Why is the ocean important in my daily life?	Understand and respect the major life-supporting role of the oceans (primary production, oxygen generation, food & energy production, climate regulation/CO ₂ sink etc.) and the significant goods and services (bioremediation, recreation etc.) and the need to know more (science) and to protect this for future generations (management)
5	Oceans and human health What is the link between the oceans and human health?	Understand and take account of the largely unrecognized but significant links between the seas (and their "health status") and public health. On the one hand negative issues such as effects of chemical pollution, marine pathogens, HABS, radionuclides, contamination in seafood, extreme weather and geo-hazards. On the other hand benefits include a range of unquantified goods and services (climate regulation, bioremediation), blue growth opportunities (e.g. bioprospecting for discovery of new drugs) and cultural/recreational benefits ("blue gym")
6	The need for ocean observation Why do we need to observe the ocean?	Educate the public on the rationale and benefits (societal & economic) provided by an improved knowledge and observation of our seas and oceans and in doing so justify in the minds of the public (and policy makers) the investment in ocean observations and associated research.

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7	Ocean governance (How) do we manage the seas and oceans?	Synthesize and understand the current status and possible options for achieving an equitable system of ocean governance which is underpinned by sustainability and supports blue growth
8	Energy from the sea Can we provide sustainable energy from the sea?	Scientific synthesis and public outreach and education on the rapidly developing marine energy sector with a strong focus on renewables and sustainability and blue growth (employment)
9	Marine pollution (link with topic 5) Am I polluting the ocean and is it a problem?	Understand the causes and behaviours of marine pollution, how it impacts on environmental and human health and measures that people can take to reduce it.
10	Recreation & leisure How does the sea support recreation and can we make it sustainable?	Understand the recreation and leisure benefits provided by the seas and oceans and how their sustainability depends on protection, including some of the harmful effects of overuse of coastal zones.

Service Topics (2-3)

No.	Topic	Challenge
1	Expand European Educator's network Can we create a more structured inclusive European network of ocean educators?	Support the development of a European network of marine Educators to become a sustainable platform beyond the lifetime of an initially funded project.
2	Marine education and engagement How can we better transfer knowledge of the sea to different stakeholders?	Map what people know about the role of the oceans in supporting life and society. Develop pragmatic and practical mechanisms to improve knowledge transfer including e.g. getting ocean issues on the school curriculum
3.	Ocean Literacy impact metrics and case studies Can we develop simple mechanisms for measuring success of OL initiatives and examples of clear impact?	Develop mechanisms (KPIs etc.) for defining, measuring and monitoring "impact" of ocean literacy actions. Conduct and follow up on a set of especially designed case-studies which provide evidence of the positive impact and societal benefit of OL activities.

Cross-cutting issues

The following cross-cutting issues should underpin the successful implementation of projects associated with all of the above-listed topic proposals:

1. Global change.

Topics (and eventually projects) addressing all of the above should incorporate global change (changing oceans, human vs. natural pressures and impacts etc.) as a guiding theme.

2. The Ocean as part of the Earth and climate systems

Topics (and eventually projects) addressing all of the above should not compartmentalize the ocean as a separate isolated system but at all times should address the ocean literacy issues taking into account that the ocean system is the dominant component of the linked Earth and climate systems.

3. The importance of research

Topics (and eventually projects) addressing all of the above should highlight the importance and relevance of the topic but also the importance of research as a critical tool to expand knowledge and address the associated societal challenges.

4. Sustainability

Topics (and eventually projects) addressing all of the above should ensure that sustainability is a guiding principle, whereby activities of the project promote the use of the ecosystem-based approach to the management of the marine environment and the protection of this environment and its intrinsic goods and services for future generations.

5. Blue Growth

Topics (and eventually projects) addressing all of the above should promote opportunities for sustainable blue growth to reflect its importance as a European Union policy priority.

Identify key trans-Atlantic issues and actions relevant to ocean literacy which will require EU-North American (US & Canada) collaboration

Question 1: How to build a common vision on transatlantic ocean literacy?

European Ocean Literacy vision:

- Small group of European experts to write a draft European vision on ocean literacy. This should cover:
 - whether to adopt the US term, “ocean literacy” (does not translate well in several European languages),
 - what does ocean literacy include (US definition about understand, communicate and act)
 - the specificity of Europe and its relationship with the sea
 - different target audience (e.g. k-12 school children as in the US and/or others such policy makers, business leader, general public etc.)
 - the principles adapted to Europe
- This draft should be submitted to a wider community for comments and then improved accordingly by the core group.

Transatlantic Ocean Literacy vision:

- Need to identify what are the shared issues, challenges for the US, Canada and Europe with respect to the Atlantic (e.g. eels, Sargasso Sea, communication cable).

Question 2: How to facilitate transatlantic ocean literacy actions brainstorming and successful achievement between Trans-Atlantic actors?

Importance of attending meetings. Forthcoming conferences that might be good targets:

- EurOCEAN Conference 2014 (Rome, 07-09 October 2014)
- EROGEO 2014 (European geography conference)
- Marine Science Communication Conference, Lisbon, 2014

Importance of having a directory on the EMSEA website.

Question 3: How to make future transatlantic ocean literacy actions relevant to different schools systems?

School system:

- Avoid trying to add a new curriculum on marine science but more use a horizontal implementation.
- Bottom up approach: embed ocean knowledge and examples into the existing curriculum in the different countries. Train the teachers to “marinate” their courses.
- Top down approach: Convince the curriculum decision makers to clearly specify marine environment in the curriculum.

Other parts of the population:

- We need to have transatlantic ocean literacy initiatives targeting policy makers, business people.

Question 4: How to benefit from the practices / tools already in place?

It should be EMSEA's role to provide access to existing practices and tools, but funding is required.

Question 5: How to demonstrate the benefits of transatlantic collaboration beyond the marine related issues?

Beyond marine, the benefits could be:

- Language learning through Content and Language Integrated Learning (CLIL)
- Discovering new cultures
- Addressing multidisciplinary topics
- Exploring partnership in science

Question 6: What are the common issues or scientific questions that could be addressed in transatlantic ocean literacy activities?

Selection of ideas listed during Session 1 focusing for the EU/US discussion.

- Blue technology
- Seafloor mapping
- Why ocean observation?
- Pollution (behaviour waste)
- Noise pollution
- Non-indigenous species
- Marine micro-plastics pollution
- Oceans & human health
- The deep sea
- Ocean governance
- Ocean misconception (media)
- Marine education
- Maritime transport
- Arctic
- Ultra-peripheral regions (e.g. Caribbean)
- Des sea mining
- Climate change

Question 7: What are the strategies that could be used in transatlantic ocean literacy actions to engage the public in relevant marine experience and learning?

List of suggestions:

- Not only inform but engage, e.g. citizen science
- involving parents & grand-parents
- Citizens competition: science fair, video & art competition
- Demonstrate what it is to be a scientist (e.g. scientific method, observation skills)
- Training young researchers to communicate
- Specific strategy to inland population

- Students summit
- Let people tell their story related to their culture (e.g. cooking)

Question 8: What are the main obstacles/challenges to transatlantic ocean literacy collaboration today?

- Lack of funding
- Inconsistent terminology
- Lack of advocacy (need to develop our common vision first)



Recommendations on evaluation criteria for communication, education and outreach elements of marine scientific project proposals

To date, outreach in EU funded research projects has largely been restricted to a one-way imparting of knowledge through project websites, brochures, scientific papers or conferences, with little or no attempt on public and stakeholder involvement. The Commission recognises the need for better communication and outreach mechanisms to ensure that the knowledge generated through EU funded research projects is transferred in an efficient way to those who can benefit from it.

→ At the Ostend workshop, the group of 21 experts identified outreach criteria and recommendations that can be used as an evaluation tool for future Horizon 2020 collaborative research proposals. Although these criteria and recommendations were developed from a perspective of upgrading Ocean Literacy in Europe, it's clear they can also be used for other marine and even non-marine scientific projects, with the objective to improve the outreach and interaction with other segments of society. Though an increase in the outreach budget would undoubtedly help in achieving this objective, the criteria and recommendations below were developed under the assumption that the dissemination/outreach budget component of research projects is not increasing and amounts to about 10% of the total project budget.

We propose to slightly modify the existing criteria for the evaluation of collaborative research projects as follows (changes marked in bold, original texts refer to the table in p.2):

- Quality of the consortium as a whole (including complementarity, balance, **ability to engage relevant stakeholders**)
- Appropriateness of measures for **a sustainable** dissemination (**including outreach to the public**) and/or exploitation of project results and management of intellectual property.

Furthermore, some recommendations have been made to be incorporated in the "Guide for applicants" or in the chapter "Expected output". These dissemination recommendations for Horizon 2020 collaborative research projects can be categorized as follows:

(1) Partnerships, project consortium

- the way the best available practice/expertise in outreach is being exploited & the best multipliers for science been involved in the project;
 - e.g. use the experience available at centers of public outreach (science centers, aquaria, visitor centers, zoos, museums)
 - e.g. explore how to line up with experts in communicating science to the press and/or experienced in behavioral change
- how knowledgeable the WP-leaders responsible for communication/outreach are;
- a clear strategy on how to spend the resources for outreach effectively and distribute the efforts over the partners that are involved;

- (2) Interactions with stakeholders in society other than scientists & policy-makers:
- the extent to which the possibilities to involve/include stakeholders from industry and other segments of society are being explored for the sake of the project (end-user committees, etc.);
 - the reference being made to policy-frameworks where possible (e.g. specific parts of the Integrated Maritime Policy, Blue Growth, Marine Strategy Framework Directive, etc.);
 - the reference being made in the outreach component of projects to Ocean Literacy (and Science Literacy) principles;
- (3) Proposed activities:
- development of deliverables intended to create knowledge transfer (eg. popularized article in a science magazine, apps, media, etc.);
 - the degree of innovation and creativity in making traditional instruments/formats of dissemination more effective and in developing new formats & tools;
 - the degree to which training components for non-scientists have been considered
 - the involvement of the public, e.g. by organizing a competition;
 - identifying whether baseline studies on knowledge and public perception on that topic are existing;
 - the provision of tools for citizen science and/or dialogue;
- (4) Evidence of evaluation of the outreach component:
- measuring the impact of the project dissemination;
 - an appropriate and well-prepared dissemination strategy and plan ;
 - the way different audiences are being targeted and reached;
 - the sustainability of your dissemination activities and products and a proactive approach to deal with that (e.g. deliverables that have a longer life by linking them to more permanent initiatives).

Two more suggestions/ideas have been put forward:

1. Organization of an award for the best dissemination collaborative research project within each call, and
2. Creation of a communication platform (or one communicator for several projects e.g. for each call) that can build up experience over time and centrally assist in proposing best solutions for dissemination efforts for each project.



Annexes

Annex 1 Programme of the workshop

Annex 2 List of participants

Annex 1 Programme

Day 1- 25 June 2013	
12:00-14:00	Arrival and Lunch
14:00-14:15	Welcome and Introduction Dr Jan Seys (VLIZ/ EMBCP)
14:15-15:30	Session 1: Identify ten marine topics to be the focus of dedicated ocean literacy calls in Horizon 2020 1.1 FP7 CLAMER project- promoting science synthesis and ocean literacy Dr Niall McDonough (EMB) 1.2 Discussion: Meeting Document #1 “Criteria for the topics”
15:30-16:00	Coffee Break
16:00-17:30	1.3 Discussion
19:00	Dinner
Day 2- 26 June 2013	
8:30-9:00	Arrival and Coffee
9:00-10:30	Session 2: Identify key transatlantic issues and actions relevant to ocean literacy which will require EU-North American (US and Canada) collaboration 2.1 Presentation on transatlantic ocean literacy Ms Géraldine Fauville (EMSEA/Univ. of Gothenburg) 2.2 Brainstorming: Meeting Document #2a&b “Transatlantic cooperation”
10:30-11:00	Coffee Break
11:00-12:30	2.3 Discussion
12:30-13:30	Lunch
13:30-15:00	Session 3: Provide recommendations to the Commission on evaluation criteria for communication, education and outreach elements of Horizon 2020 marine scientific project proposals 3.1 Current Evaluation Overview Dr Jan Seys (VLIZ/ EMBCP) 3.2 Discussion: Meeting Document #3 “Evaluation criteria”
15:00-15:20	Coffee Break
15:20-16:50	3.3 Recommendation

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