

# SEA CHANGE



OUR OCEAN | OUR HEALTH

KEY ACHIEVEMENTS

## PREFACE

This booklet summarises the key achievements of the three-year European Union Horizon 2020 “Sea Change” project (March 2015 – February 2018). It presents the methodology adopted, the key activities implemented and the wide array of outreach and engagement assets that have been developed.

Through our achievements, we show how our approaches, activities and resources have helped attain the project goals and the impacts arising from such efforts. We ultimately demonstrate how Sea Change has benefitted European society through our contribution to helping achieve improved Ocean Literacy across Europe.

A separate but complementary legacy brochure has also been developed to present some of the key insights gained from three years of Sea Change work, and provides recommendations on the next steps necessary in advancing Ocean Literacy in Europe.

### Introduction to Sea Change

#### *Sea Change at a Glance*

**Programme:** The European Union’s Horizon 2020 Framework Programme for Research and Innovation (H2020-BG-2014-1)

**Funding Call:** BG-13 H2020 Blue Growth: Unlocking the potential of Seas and Oceans

**Instrument:** Coordination and Support Action (CSA)

**Total Budget:** €3,494,876

**Duration:** March 2015 - February 2018

**Coordinator:** Marine Biological Association (UK)

**Consortium:** 17 partners from 9 European countries

The Sea Change project aimed to establish a fundamental “Sea Change” in the way European citizens viewed their relationship with the sea, by

empowering them, as Ocean Literate citizens, to take direct and sustainable action towards a healthy ocean and seas, healthy communities and ultimately a healthy planet.

Sea Change used the concept of “Ocean Literacy” to create a deeper understanding amongst European citizens of how their health depends on the health of our seas and ocean. Sea Change brought about real actions using behavioural and social change methodologies. Building on the latest social research on citizen and stakeholder attitudes, perceptions and values, the Sea Change partnership designed and implemented mobilisation activities and resources targeted at three key focus areas; Education, Public Engagement, and Marine Governance.

### The Need for Ocean Literacy in Europe

Not all European citizens are aware of the full extent of the importance of the ocean and seas in terms of economic, societal, environmental and human wellbeing benefits. In turn, many of us are not aware of how our day-to-day actions can have a cumulative effect on the health of the ocean – a necessary resource that must be protected for all life on planet Earth to exist. In other words, many European citizens lack a sense of “Ocean Literacy” - an understanding of the ocean’s influence on us and our influence on the ocean.

#### An Ocean-Literate person:

- Understands the importance of the ocean to humankind
- Can communicate about the ocean in a meaningful way
- Can make informed and responsible decisions regarding the ocean and its resources



**SEA  
CHANGE**   
OUR OCEAN | OUR HEALTH  
KEY ACHIEVEMENTS

# OUR OCEAN, OUR HEALTH. YOU CAN MAKE A DIFFERENCE.

## CONTENTS

Introduction and Background	6
Expected impacts	6
Sea Change project goals	7
Infographic	8
<b>GOAL 1: EMPOWER educators, students and educational communities to help integrate and promote Ocean Literacy principles using mobilisation activities</b>	10
Achievements	10
<b>Case study:</b> Identification of barriers and solutions to teaching 12-19-year-olds about the ocean	11
<b>GOAL 2: PROMOTE responsible behaviour of citizens towards the ocean and its resources</b>	14
Achievements	14
<b>Case study:</b> Identification of barriers and solutions to teaching 12-19-year-olds about the ocean	15
<b>GOAL 3: ENGAGE in a dialogue with key actors of the international marine governance system on the links between human health and the health of the ocean</b>	18
Achievements	18
<b>Case study:</b> Sea Change Social Innovation, Participation and Processes (SIPP) Protocols for Education, Citizen Engagement and Governance	19
<b>GOAL 4: COLLABORATE with transatlantic partners in Canada and the US in order to bring about a global approach to protecting the planet's shared ocean</b>	22
Achievements	23
<b>Case study:</b> Sea Change International Advisory Group (IAG)	
<b>Goal 5: ENSURE that efforts to sustain an Ocean Literate society in Europe continue beyond the life of Sea Change</b>	24
Achievements	24
<b>Case study:</b> The European Marine Educators Association (EMSEA)	25
<b>GOAL 6: CREATE innovative learning resources relating to the links between the planet's ocean and human health</b>	28
Achievements	28
<b>Case study:</b> Sea Change public awareness campaign: 'Our Ocean, Our Health'	29
Summary of Impact	32
Conclusion	34

## INTRODUCTION AND BACKGROUND

Humans have always relied on healthy marine ecosystems for food, medicine, recreation, and economic opportunities. Human health is entirely dependent upon ocean health for a variety of free and essential marine ecosystem services, such as oxygen production, carbon dioxide capture and storage, climate regulation, nutrient recycling, biodiversity and medicinal discoveries. We are economically dependent upon marine provisioning services such as fisheries, oil, gas, minerals, sand and gravel, and marine-related industries like fishing, tourism, energy, aquaculture and transport employ thousands of people and contribute billions to economies around the world.

Despite our need for a healthy ocean, anthropogenic pressures continue to increase, and threaten the marine ecosystem services upon which we depend. Strategies aimed at promoting sustainable management of our marine environment rely on adequate public consultation and support and are unlikely to succeed in the absence of Ocean Literacy.

To address the lack of ocean-related content in science education standards, the first European Ocean Literacy conference was held in Bruges in 2012 to envision how to bring ocean sciences into mainstream education in Europe. Following this, the Galway Statement on Atlantic Ocean Cooperation (2013) was signed, and this reinforced the need for work to improve Ocean Literacy for Europe, leading into the development of the Transatlantic Implementation Plan.

In recognition of the importance of citizen involvement in science, the European Commission 7th Framework Programme had a strand titled “science for society”. An ocean focused consortium successfully bid and secured an innovative project called “Sea for Society” which ran from 2012-15 ([www.seaforociety.eu](http://www.seaforociety.eu)). Sea for Society carried out the first cross-sectoral and citizen dialogues in Europe to investigate public perceptions of the marine environment. The outputs generated from 20 Citizens/Youth Consultation Forums and 19 Stakeholder Consultation Forums across 9 countries confirmed a deficit in “attitudes and awareness” of

citizens across Europe as the key barrier to a “Blue Society”. The need to improve Ocean Literacy in Europe became evident, but how to create reform had yet to be established. Many collaborative initiatives have attempted to address this problem, but very few have achieved sustained behavioural change and delivered wider impacts on society. This challenge is recognised as a ‘wicked’ problem that requires a diversity of innovative approaches which will inspire and educate all society actors to ultimately change their understanding of, and relationship with, their ocean.

Over the past three years, the Sea Change partnership have addressed this need for diverse and innovative approaches for improving Ocean Literacy by creating and testing a variety of strategies across three focus areas: Education, Public Engagement, and Marine Governance. These strategies were aligned with the six project goals that are listed on the consecutive page. The diversity of outputs that have resulted from this work are a testament to the greatest collaborative effort that has ever been undertaken to advance Ocean Literacy anywhere in the world. In the following pages, we illustrate the diversity of these achievements, along with six case study examples of project activities, and a summary of the achieved impacts.

### EXPECTED IMPACTS

In response to the “Expected Impacts” in the Horizon 2020 funding call, the Sea Change partnership established six overarching project goals.

Expected Impacts as defined in the funding call:

1. Develop citizens’ understanding of the importance of Seas and Ocean Health, as well as interactions and interdependencies between the two, fostering behavioural change
2. Support the ecosystem-based approach in the management of maritime activities and contribute to the objectives of the Marine Strategy Framework Directive (MSFD)
3. Maximise the societal impact of EU-funded marine and maritime research

## SEA CHANGE PROJECT GOALS



**PROMOTE**  
responsible behaviour of citizens towards the ocean and its resources:  
by engaging with the wider public in various ways (e.g. citizen science programmes, developing innovative mobilisation activities to show them what a more Ocean Literate society could look like, outreach initiatives at Sea Festivals etc.).



**COLLABORATE**  
with transatlantic partners in Canada and the US in order to bring about a global approach to protecting the planet’s shared ocean.



**CREATE**  
resources relating to the links between the planet’s ocean and human health:  
by developing innovative learning resources related to ocean health (e.g. iBook, computer games with coder dojo) and an online directory for best marine practices.



**EMPOWER**  
educators, students and educational communities to help integrate and promote Ocean Literacy principles:  
through mobilisation activities such as teacher training and by piloting a Blue Schools initiative inspired by the success of eco-schools in Europe.



**ENGAGE**  
in a dialogue with key actors of the international marine governance system on the link between human health and the health of the ocean in order to improve decision making and policy development:  
involving consultations with members of the European parliament, national politicians and intergovernmental organisations and enhancing the science-policy interface to support ocean governance.



**ENSURE**  
that efforts to sustain an Ocean Literate society in Europe continue beyond the life of Sea Change through codes of good practice, public campaigns and other ongoing community activities.



**Case study: Sea Change Participation Protocols: Social innovation, Participation and Processes (SIPP) Guides/Protocols for Education, Citizen Engagement and Governance**  
1 framework to monitor and track the progress of SIPP actions

**Case study: Sea Change outreach activities and SIPP-events: message in a Bottle (Spain) and the Buddy Campaign (Belgium) Message in a Bottle:** organised by **submen**

**50** participating organisations; & **229** followers

**10,000+** people across Spain were involved

**Buddy Campaign:** VLIZ campaign talking about beach safety, various participating organisations and people involved

Lessons learned from Science & Sailors cafes & intergenerational events; 3rd party and aquarium events  
Partners promoted Sea Change at or attended over

**200** events

Citizen science initiative and app (Crab Watch; MBA)

**383** Records added to crab watch database up to this date

Crab watch was the top performing page on Sea Change website - **3,547** web page views

Sea Change website, branding and social media pages

**91630** website page views

**2385** twitter followers

**2149** facebook likes

**513,049** people reached on Facebook since 2016

Promotional material; stickers, brochures, factsheets

**4** Project newsletters

Press releases

**35697** hits across 13 press releases

Massive Open Online Course (MOOC) 'from ABC to ABSeas: Ocean Literacy for all'

**450** Enrolments from 29 countries

**227** Facebook likes & 229 followers

Positive feedback: **80%** happiness rating

Press release hits: **7147**

**A Set of Sea Change OL Guiding Principles;** 1 training manual (including a toolkit)  
Development of **5** Sea Change co-creation principles and **9** Sea Change co-creation protocols

**Ocean literacy in European Governance: findings and recommendations**

1 review of 6 OL relevant policies e.g. blue growth, MSFD, MSPD, CFP, birds directive, habitats directive

**3** policy briefs on ocean health and human health

**Case study: Roadmap for effective science-policy interface in the field of ocean governance**

**30** stakeholders were involved in the consultation workshops

**4** topics of discussion

**1** roadmap for the sci society policy interface

Interviews conducted in **5** countries, engaging policy actors



**Published Policy Briefs in the Whitaker Institute: Policy briefs series on SIPP work undertaken in Sea Change**

**3** policy briefs

**Case study: Sea Change International Advisory Group (IAG)**

IAG participation: **12** members from 9 countries

**College of Co-Exploration (UK & USA) online seminars**

Over **300** registered from **29** countries

**Overall rating my respondents:** ★★★★★

Positive feedback: Almost **90%** to reuse resources

Press releases hits: **2833**

**Enduring Transatlantic networks established through the AORA Ocean Literacy working groups**

**1** workshop

Working group includes presidents of **EMSEA**, **NMEA** and **CaNOE** (trans-atlantic cooperation)

Networks grew from **200** organisations /institutes to **1534**

**Continued Promotion of Sea Change work through ResponSEABLE**

**RESPONSEABLE**

Sea Change achievements as case studies to **support future funding to support Ocean Literacy initiatives**

**LOVE THE OCEAN**  
OUR OCEAN, OUR HEALTH.

Brand identity and campaign created for 'Love the ocean' which involved blah blah

**Impact Assessment**  
We endeavour that further work will continue here

**Case study: The European Marine Science Educators Association (EMSEA)**

**4** EMSEA conferences

Became a legal entity in 2016 to enable the association to obtain funding to further develop OL in Europe

**Ongoing collaboration for World Oceans Day activities**  
Activity guide to help organise events around plastic pollution

**2017+ World Oceans Day**

**The Ocean Edge Directory & European Common Ocean Literacy Portal**  
First database of its kind in Europe

**Key metrics:**  
An average of **360** page visits per month, between April 2016 and January 2018  
**189** entries in the directory



**Harmful Algal Blooms Ibook**

Press release hits: **2634**

Twitter impressions: **10,513**

iBook downloads from March to November: **112**

**Coder-Dojo - learning through gaming**



Press release: **6620**

**6** winning projects/games shared on scratch, an animation/game sharing site



**Case study: Public Awareness Campaign 'Our Ocean Our Health'**

Video 'Our Ocean, Our Oxygen' **4191** plays



'Human Health and the Ocean: What's the Connection?' factsheets and animation **2253** plays



**Video Make a Sea Change** **120,000** views

(3,336 on Vimeo and the rest rising on FB with Love the Ocean campaign)

**Infographics:**

Make a small change for Sea Change, microbeads, marine plastics



Press release **8892**



Posters - **Our Ocean, Our Health** factsheets, Ocean Literacy posters & factsheets. Poster illustrating 500 years of ocean change, WOD fishy fact cards

**A review of the ways of achieving Societal Change**  
**1** Summary  
key principles for influencing society and bringing about behavioural change

**Case study: The creation of an EU Influence Map of Stakeholder Barrier Themes, showing which themes have overall aggravating influence to teaching teenagers about the ocean**  
8 reports, with key findings, and structural maps for each of the 8 countries



**Training Sea Change project members on Social Innovation and Environmental Behaviour**  
Delivering Environmental Behavioural Change Workshops to environmental non-profits/NGOs, public agencies



**1** workshop for the Sea Change partnership to empower them as 'Sea Change' agents

**3 YEARS**  
**17 PARTNERS FROM 9 EU COUNTRIES**



**Goal 1:**

**EMPOWER** educators, students and educational communities to help integrate and promote Ocean Literacy principles: through mobilisation activities such as teacher training, and by piloting a Blue Schools initiative inspired by the success of eco-schools in Europe.

**Achievements:**

1. Training “Sea Change Agents”: Sea Change trained the partnership and those interested in environmental behaviour change to work “with” different audiences, including citizens and policy makers, to empower them in making Ocean Literate decisions and choices and taking action.
2. The European Marine Science Educators Association (EMSEA): Founded to connect European marine educators and scientists to provide a united effort to develop Ocean Literacy in Europe, EMSEA is a catalyst for the development of Ocean Literacy in Europe.
3. Sea Change Massive Open Online Course (MOOC) ‘From ABC to ABSeas: Ocean Literacy for all’: The MOOC offers educators innovative ways to teach Ocean Literacy and is available on the European Multiple MOOC Aggregator (EMMA) - [https://platform.europeanmoocs.eu/course\\_from\\_abc\\_to\\_abseas\\_ocean\\_liter](https://platform.europeanmoocs.eu/course_from_abc_to_abseas_ocean_liter) - in several languages.
4. Sea Change Blue Schools teaching modules: Sea Change developed new Blue School modules for educators, teachers and school administrators that will aid in the uptake of Ocean Literacy into European school curricula.
5. Sea Change Blue Schools teaching modules: Sea Change developed new Blue School modules for educators, teachers and school administrators that will aid in the uptake of Ocean Literacy into European school curricula.
6. ‘Our Ocean Conversations’: A Sea Change summary to support educators in teaching teenagers about the ocean. The Our Ocean Conversations summary includes the results from workshops that were held in collaboration with education stakeholders across eight European countries (Belgium, Denmark, Greece, Ireland, Portugal, Spain, Sweden and the UK) to explore and map the barriers and potential solutions to teaching 12- to 19- year-olds about the ocean.

<b>Case study: Empower</b>	<b>‘Our Ocean Conversations’:</b> Identification of European-wide barriers and solutions to teaching 12- to 19- year olds about the ocean.
<b>Target audience</b>	General public, educators, students, policymakers, media.
<b>Need that this resource/ activity addresses</b>	Policymakers and educational stakeholders need a good understanding of the challenges encountered when trying to embed marine science into existing education curriculum. By understanding the challenges, it is possible to develop effective strategies that can successfully incorporate marine science education into formal education.
<b>Approach taken</b>	<p>The objective of ‘Our Ocean Conversations’ was to identify barriers and solutions to teaching 12- to 19- year-olds about the ocean. Engagement took place with stakeholders across eight European countries (Belgium, Denmark, Greece, Ireland, Portugal, Spain, Sweden and the UK).</p> <p><b>Specifically, ‘Our Ocean Conversations’ aimed to:</b></p> <ol style="list-style-type: none"> <li>1. Identify the challenges ahead for teaching about the oceans.</li> <li>2. Learn from others about the pathways towards an Ocean Literate Europe.</li> <li>3. Develop creative solutions for the successful integration of ocean knowledge into education and outreach curricula.</li> </ol> <p>The conversations go significantly beyond consultation by offering participants the opportunity to voice the barriers to change and take ownership of solutions that influence their own welfare, while working towards an Ocean Literate society.</p>
<b>Key information:</b>	<p>248 participants representing a variety of marine groups provided input to ‘Our Ocean Conversations’, out of which 108 participants were brought together for one-day conversations across the eight participating countries. Over the course of the European ‘Our Ocean Conversations’, facilitators brought participants through the four Collective Intelligence steps:</p> <ol style="list-style-type: none"> <li>1) Idea Generation;</li> <li>2) Idea Categorisation;</li> <li>3) Structuring Barriers;</li> <li>4) Generating Options.</li> </ol> <p>Participants worked collectively in an open and conversational manner to generate barriers to teaching 12- to 19- year-olds about the ocean and propose options to overcome these barriers.</p>
<b>Key metrics:</b>	<p><b>248 stakeholders</b> participated in the ‘Our Ocean Conversations’, generating <b>657 barriers</b> and <b>proposing 316</b> options to overcome these barriers.</p> <p>During each of the conversations, partners as well as the participating stakeholders were active on social media.</p> <p>Partners involved in facilitating these conversations have formed eight Ocean Literacy networks and continuously contact their education stakeholders regarding Sea Change developments, events and materials.</p>

<p><b>Impacts:</b></p>	<p>The workshops created a lasting impact on participants by helping them to integrate Ocean Literacy into their work in the classroom. Questionnaires sent out after the consultation workshops showed that participants had been influenced to engage in Ocean Literacy activities as a result of their engagement with Sea Change.</p> <p><b>Attendees reported the following activities being implemented after the consultation events:</b></p> <ul style="list-style-type: none"> <li>• A workshop was set up for students interested in marine careers</li> <li>• A group was created to highlight pollution / marine litter issues</li> <li>• The topics discussed were introduced to a political organisation</li> <li>• Collaborations were established between National Parks and schools</li> <li>• The information was spread to thematic working groups linked to North Sea Strategy 2020</li> <li>• A school collaboration was established with a biological station</li> <li>• The findings were used to help promote action through a blue flag NGO</li> <li>• The protocols will be used to help inform decision making</li> <li>• Sea Change assets were disseminated at events</li> <li>• A participant reviewed contents of talks to visitors to include information on marine health</li> <li>• The conversation record was circulated to councillors</li> <li>• More ocean content was included in a participant's school education programme, inviting schools to visit scientific institutes</li> <li>• Started marine biology focussed high school classes</li> <li>• A participant took part in the Sea Change MOOC</li> </ul>
<p><b>More information</b></p>	<p><a href="http://www.seachangeproject.eu/images/SEACHANGE/SC_Results/Deliverable-D.3.2.pdf">www.seachangeproject.eu/images/SEACHANGE/SC_Results/Deliverable-D.3.2.pdf</a></p>
<p><b>Contact person(s)</b></p>	<p><b>Patricia McHugh</b> (<a href="mailto:patricia.mchugh@nuigalway.ie">patricia.mchugh@nuigalway.ie</a>)  <b>Christine Domegan</b> (<a href="mailto:christine.domegan@nuigalway.ie">christine.domegan@nuigalway.ie</a>)</p>
<p><b>Proposed next steps</b></p>	<p>Some of the important actions identified during the 'Our Ocean Our Conversation' to overcome the barriers include:</p> <ul style="list-style-type: none"> <li>• Helping teachers to bring learning to life through links to fieldwork elements.</li> <li>• The need for teachers to work together and pool resources.</li> <li>• Teacher training in marine science through partnerships with scientists.</li> <li>• Developing national strategies to implement Ocean Literacy.</li> <li>• It is also suggested that the valuable results from this work are used to guide future policy in marine education in secondary schools.</li> </ul> <p>These actions underpin the need for continued support for teachers via important platforms such as EMSEA.</p>



02



# Promote

## Goal 2:

**PROMOTE** responsible behaviour of citizens towards the ocean and its resources: by engaging with the wider public in various ways (e.g. citizen science programmes, developing innovative mobilisation activities to show them what a more Ocean Literate society could look like, outreach initiatives at Sea Festivals etc.).

### Achievements:

1. A review of the ways of engaging citizens in Ocean Literacy: A Sea Change review to successful strategies and key success factors for improving Ocean Literacy, as well as gaps that require targeted citizen mobilisation strategies to be addressed.
2. Training “Sea Change Agents”: Sea Change trained the partnership and those interested in environmental behaviour change to work “with” different audiences, including citizens and policy makers, to empower them in making Ocean Literate decisions and choices and taking action.
3. Sea Change Social Innovation, Participation and Consultation processes and protocols (SIPPs): a set of Sea Change protocols to guide all actors in co-creating change in relation to Ocean Literacy through innovative public engagement formats. We present a case study of Sea Change outreach activities using the SIPP Protocols: ‘Message in a Bottle’ (Spain) and its buddy campaign in Belgium (‘Seafety First’).
4. Lessons learned from Science & Sailor cafés and inter-generational outreach events across Europe: These lessons provide measurable insights into the success factors relating to innovative formats for public engagement used in Sea Change.
5. Crab Watch - a citizen science initiative that explored how citizen science can be used as a tool for increasing Ocean Literacy. Crab Watch successfully collected valuable scientific data with help from citizens and developed a mobile app to allow citizens to both learn about, and submit records of, the crab species found on the shores around Europe.
6. The Sea Change website ([www.seachangeproject.eu](http://www.seachangeproject.eu)) and social media channels (Facebook ([facebook.com/SeaChangeProjectEU/](https://facebook.com/SeaChangeProjectEU/)), Twitter (@SeaChange\_EU), Instagram ([sea.change.eu](https://sea.change.eu)), Snapchat ([sea-change](https://sea-change)), and Storify (SeaChange): Online platforms that encourage active engagement in Ocean Literacy, and make all Sea Change results, outputs and activities available to all stakeholders interested in Ocean Literacy.
7. Sea Change social media platforms: Facebook ([facebook.com/SeaChangeProjectEU/](https://facebook.com/SeaChangeProjectEU/)), Twitter (@SeaChange\_EU), Instagram ([sea.change.eu](https://sea.change.eu)), Snapchat ([sea-change](https://sea-change)), and Storify (SeaChange) as efficient channels for generating online awareness and engagement in Ocean Literacy with the wider public.
8. Sea Change promotional materials: Numerous resources have been developed to promote Ocean Literacy and to highlight the intrinsic link between ocean and human health, including four newsletters, factsheets, stickers and sixteen press releases, all available to download from the Sea Change website.
9. Sea Change competitions to raise awareness of Ocean Literacy: including the ‘Sustainable Fishing = Healthy Oceans’ international photography competition (by Ce de Pesca), and the

<b>Case study: Promote</b>	<b>Sea Change Social Innovation, Participation and Processes (SIPP) Protocols for Education, Citizen Engagement and Governance. Two examples of implementation included – Message in a Bottle (SUBMON-Spain) and its buddy campaign – public platform with information about hazards and goods from the Sea, (VLIZ-Belgium).</b>
<b>Target audience</b>	Education and outreach professionals, policy makers, educators and media.
<b>Need addressed</b>	The SIPP protocols were developed to guide the development and testing of innovative formats for generating engagement in Ocean Literacy through outreach activities. The protocols are intended to help improve the uptake of knowledge by directly involving participants from the outset, actively involving them in protecting the ocean.
<b>Approach taken</b>	<p>The overall aim was to improve Ocean Literacy amongst the general public by inviting them to be co-creators of innovative events across Europe. A European-wide ‘Ideas contest’ was launched where citizens were invited to submit ideas in video format for events to improve Ocean Literacy, linking ocean and human health. Brainstorming sessions and workshops were held to further structure the winning ideas into plans for real events.</p> <p>‘Message in a Bottle’ and the its buddy campaign in Belgium ‘Hazards and Goods of the Sea’ were two of the events to emerge from this process. Both were designed to motivate people to take a pledge to protect the ocean, thus improving Ocean Literacy while testing the application of the SIPP protocols in promoting Ocean Literacy and engaging the general public.</p>
<b>Key information:</b>	<p>As part of the ‘Message in a Bottle’ campaign, different organisations including schools, associations, diving clubs, families, aquariums, natural parks and a residence for the elderly from across Spain have made pledges to take small actions to better protect the ocean. Six bottles filled with parchment challenging the participants to change their relation to the ocean travelled across Spain, from one participant to the next.</p> <p>The SIPP event for Belgium (the Buddy Campaign) - dealing with beach safety - comprises a series of events and product developments which are still ongoing</p>
<b>Key metrics:</b>	<p>The ‘Ideas contest’ resulted in 67 videos being submitted. The winning ideas were used to run seven events across Europe.</p> <p>‘Message in a Bottle’ (#MensajeBotella17) had over 50 different participating organisations across Spain, who contributed to a large media presence and online reach for the duration of the campaign. This encompassed, from 8 June to 24 November 2017: 1 TV newsflash, 3 national level radio interviews, 6 national online newspapers, and 4 regional newspapers (both online and paper). The methodology and results were presented at EMSEA 2017 in Malta. Overall, this campaign involved more than 10,000 people around Spain.</p> <p>The buddy campaign in Belgium received large coverage in the national media on 31 May and 1 June 2017 (3 national and 3 regional newspapers, 3 national level radio interviews, and 2 TV newsflashes). It went hand in hand with a World Ocean Day event (‘SEAfety First’) in Ostend on 8 June 2017, attended by 200 citizens.</p>

<b>Impacts</b>	<p>The activities undertaken in 'Message in a Bottle' and the 'Buddy Campaign' are concrete examples of how the SIPP protocols can be translated to real actions that engage citizens and improve Ocean Literacy through fun activities. They show the benefits of following the SIPP philosophy in order to create a broader impact in society.</p> <p>The 'Buddy Campaign' on beach safety shows how a 'butterfly effect' can be created: intermediary players (Education and Outreach workers) promoting and motivating grassroots input can together create momentum and pull the attention of the media. As a result of this increased presence, governance actors are more willing to get involved in the discussion on beach safety.</p>
<b>More information</b>	<p>Message in a Bottle: <a href="http://www.mensajeenunabotella.info">www.mensajeenunabotella.info</a></p> <p>Buddy Campaign: to be published; one part of the activities visible at <a href="http://www.vliz.be/seafetyfirst/">www.vliz.be/seafetyfirst/</a></p>
<b>Contact person(s)</b>	<p>Message in a Bottle: <b>Alba Tojeiro</b> (<a href="mailto:albatojeiro@submon.org">albatojeiro@submon.org</a>) and <b>Carla A. Chicote</b> (<a href="mailto:carlachicote@submon.org">carlachicote@submon.org</a>; +34 93 213 58 49)</p> <p>Buddy Campaign: <b>Jan Seys</b> (<a href="mailto:Jan.Seys@vliz.be">Jan.Seys@vliz.be</a>; +32 59 34 21 40)</p>
<b>Proposed next steps</b>	<p>A report on the successful 'Message in a Bottle' campaign is to be expected by the end of the Sea Change project. The 'Buddy Campaign' in Belgium is still ongoing.</p> <p>The SIPP process and outreach campaigns will be included in a scientific paper.</p>
<b>Media</b>	<p>Message in a bottle: <a href="https://www.youtube.com/watch?v=Kll3o3uHl2M&amp;feature=youtu.be">www.youtube.com/watch?v=Kll3o3uHl2M&amp;feature=youtu.be</a></p> <p>SEAfety First (Buddy Campaign):</p> <p><a href="http://www.vliz.be/seafetyfirst/wereldoceaandag-nagenieten">www.vliz.be/seafetyfirst/wereldoceaandag-nagenieten</a></p> <p><a href="http://www.vliz.be/nl/multimedia/vliz-events?album=5125">www.vliz.be/nl/multimedia/vliz-events?album=5125</a></p> <p><a href="http://www.standaard.be/cnt/dmf20170531_02905438">www.standaard.be/cnt/dmf20170531_02905438</a></p>





# Engage

## Goal 3:

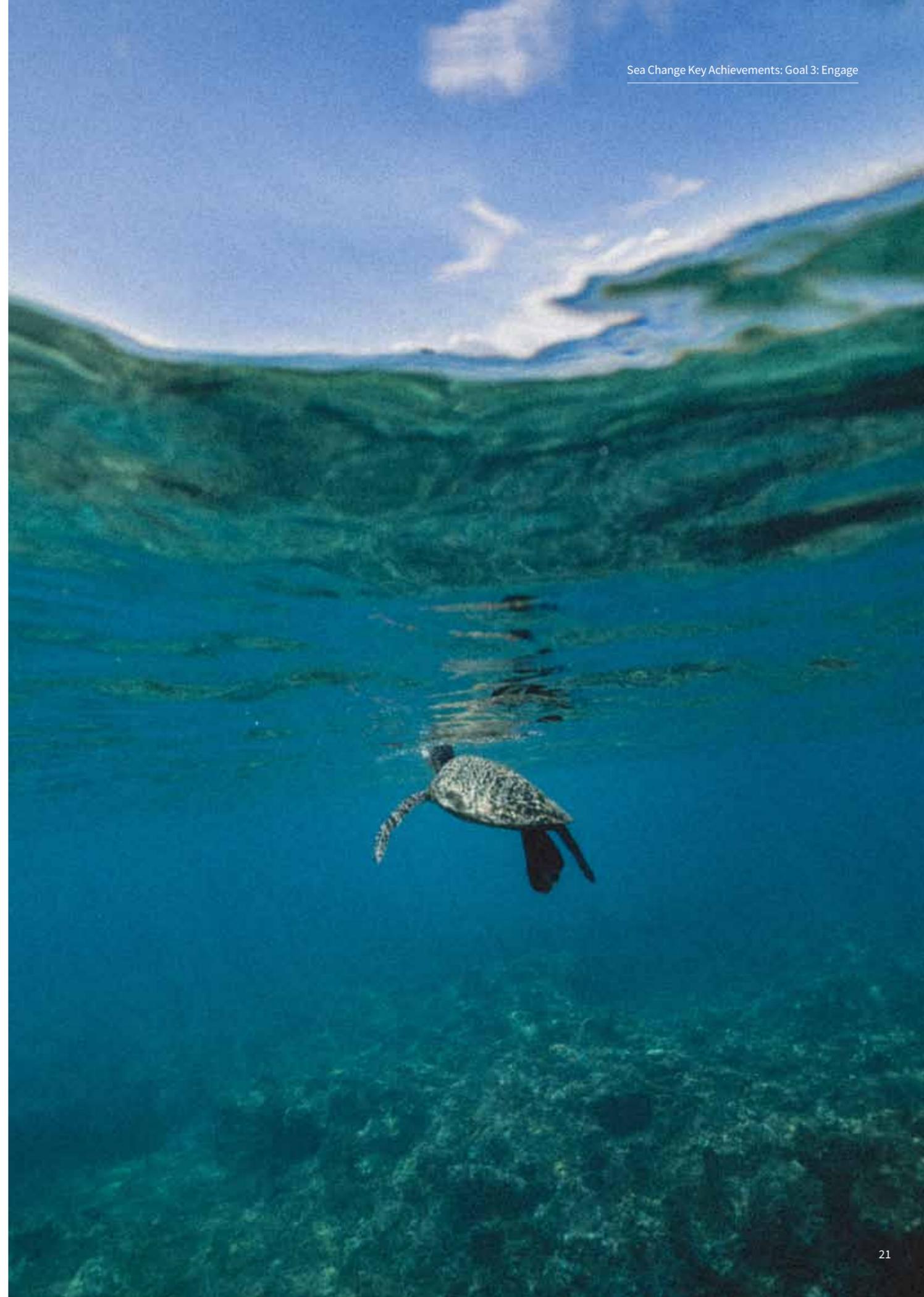
**ENGAGE** in a dialogue with key actors of the international marine governance system on the links between human health and the health of the ocean, in order to improve decision making and policy development: involving consultations with members of the European parliament, national politicians and intergovernmental organisations and enhancing the science-policy interface to support ocean governance.

### Achievements:

1. Mobilising Marine Governance in Europe: Findings and recommendations as a guide for integrating Ocean Literacy into European Marine Policy.
2. An analysis of the science-policy interfaces in international and European marine policies, using the United Nations Sustainable Development Goal 14 (Conserve and sustainably use the oceans, seas and marine resources for sustainable development) as a case study.
3. Factsheets: Human health and the ocean, what's the connection? Focus on key messages to policy stakeholders, communicating that the marine environment has a major bearing on current and future human health and wellbeing, and public health more broadly.
4. Training 'Sea Change Agents': Sea Change trained the partnership and those interested in environmental behaviour change to work "with" different audiences, including citizens and policy makers, to empower them in making Ocean Literate decisions and choices and taking action.
5. Whitaker Institute Policy Brief Series: A series of policy briefs based on Social Innovation, Participation and Processes (SIPP) work undertaken in Sea Change, aiming for public-sector innovation and reform in relation to Ocean Literacy. Specific themes focus on: Mapping Policy Interfaces for Marine Litter; Mobilising a European Sea Change in Teaching 12- to 19- Year-Olds about the Ocean; and Irish Ocean Conversations: Co-Creating an Ocean-Literate Society.
6. Roadmap to effective science-society-policy interface in the field of ocean governance: Ocean Literacy as a tool in the science-society-policy interface to help shape informed ocean citizens who can contribute to changing the way science, society and policy work together to collaboratively solve marine issues.

<b>Case study: Engage</b>	<b>A roadmap for an effective science-policy interface in the field of ocean governance: a participatory approach to creating a Sea Change in European Marine Policy.</b>
<b>Target audience</b>	Policy actors, general public, educators, students, media.
<b>Need addressed</b>	Effective global environmental governance relies on scientific information about the problem at stake and the management options for decision-makers. Efficient science-policy interfaces are thus considered as key elements of environmental governance and must include citizens and the public. Ocean Literacy can be a tool in this science-society-policy interface to help shape informed ocean or marine citizens who can contribute to such processes.
<b>Approach taken</b>	<p>The first phase of the development of the Sea Change science-society-policy interface was done by interviewing almost twenty governance actors from Ireland, the UK, Portugal and Belgium, and three Members of the European Parliament (MEPs). The aim of the interviews was to elicit the governance actors' views on what factors could lead to a change in the way science, society and policy work together to solve the marine litter problem, an urgent marine issue which requires a collaborative approach.</p> <p>Fuzzy cognitive mapping (FCM) was used to elicit the governance actors' views, and to analyse their environmental perceptions and beliefs. Through the analysis of the FCMs it was possible to define the following priority areas of action for the Sea Change roadmap:</p> <ul style="list-style-type: none"> <li>• Public engagement in marine governance</li> <li>• Media engagement in marine governance</li> <li>• Marine citizenship</li> <li>• Bringing Ocean Literacy into the circular economy debate and action</li> </ul> <p>Four participatory scenario workshops were organised in Belgium, Greece, Portugal and the UK to build on these priority areas. Around 60 stakeholders came together to identify the most probable scenarios, and therefore actions, to be implemented in the short, medium and long term. It was also possible to identify key actors to involve and engage with in the future to be able to successfully put the roadmap into practice.</p>
<b>Key information:</b>	<p>The final resource developed is a roadmap for science-society-policy interface in ocean governance. The overarching message of the Sea Change roadmap is that the disconnect between science, society and policy can also be understood as a knowledge-governance gap caused by structural, functional, cultural and political disjuncture between knowledge and governance. This gap constrains enablers from implementing knowledge into management regimes. There is a need for new mechanisms to close the knowledge-behaviour-action gap.</p> <p>Here there is a clear role for Ocean Literacy in ocean governance as a social and adaptive learning approach. Social learning implies the capacity to reframe major problems by incorporating values, culture and politics. Social learning can contribute an integrative function by enhancing network governance, alleviating uncertainty and building the structural conditions for good governance.</p>

<b>Key metrics</b>	A total of 80 stakeholders from five countries (Belgium, Greece, Ireland, Portugal and the UK) were involved in the consultation workshops and interviews.
<b>Impacts</b>	A 'Plan of Action' linked to the Sea Change legacy will help define activities to enhance the effectiveness of the science-society-policy interface in the marine governance context moving forward.
<b>More information</b>	Not yet available.
<b>Who to contact</b>	<a href="mailto:f.santoro@unesco.org">f.santoro@unesco.org</a>





# Collaborate

## Goal 4:

**COLLABORATE** with Transatlantic Partners in Canada and the US to bring about a global approach to protecting the planet’s shared ocean.

### Achievements:

1. Sea Change recommendations for improving Ocean Literacy: provided to the USA Subcommittee on Ocean and Technology (SOST)
2. The Sea Change International Advisory Group (IAG): a model network for advancing global Ocean Literacy partnerships.
3. A Sea Change for Ocean Literacy; co-exploring three key ocean topics and issues to highlight their societal importance in the future, through international online seminars on ocean and human health, aquaculture, and seabed mapping. Students gained an understanding of the importance of mapping the ocean and identified key aspects of the relationship between the ocean and human health.
4. Strengthening of pre-existing international Ocean Literacy related networks and establishment of new ones as a cornerstone for the global approach needed to protect the planet’s shared ocean. The Sea Change network now encompasses active key stakeholders at all levels and transatlantic cooperation was intensified through regular collaboration with the United States National Marine Educators Association (NMEA) and the Canadian Network of Ocean Educators (CaNOE).

Case study: Collaborate	The Sea Change International Advisory Group.
<b>Target audience</b>	International Ocean Literacy stakeholders.
<b>Need addressed</b>	The Sea Change International Advisory Group (IAG) served as a model for advancing global Ocean Literacy partnerships.
<b>Approach taken</b>	The 12-member International advisory group representing (IAG), representing nine countries, met bi-annually during the project period, with more frequent meetings occurring among the IAG Chair, the Project Principles, and the Sea Change Steering Committee.
<b>Key information:</b>	<p>Formal presentations and recommendations were delivered from the IAG to the Sea Change Partners, Steering Committee, and General Assembly over the course of the project.</p> <p>The International Advisory Group (IAG) is an independent body consisting of selected high-level experts drawn from a range of stakeholder communities and representative organisations predominantly outside Europe, who have knowledge and experience of Ocean Literacy and public engagement with science.</p> <p>These key US, Canadian and EU project-external stakeholders shared knowledge, and provided guidance and feedback to the Sea Change project. They informed the development of the project and supported transatlantic cooperation by informing and reviewing frameworks used for other outreach programmes and considering how best to evaluate, and measure impact, across Sea Change.</p>
<b>Key metrics: Uptake/ attendances/ downloads/ engagement/ views, etc.</b>	The IAG established collaborations with the Consortium for Ocean Science Education, Engagement and Exploration (COSEE), Global Ocean Science Education and the UNESCO International Oceanographic Council (UNESCO IOC).
<b>Impacts-benefits?</b>	Sharing of effective practices at policy, programme management and implementation levels, which enabled more effective Ocean Literacy collaborations and network building at a global level.
<b>Where to find more information?</b>	<a href="http://www.seachangeproject.eu/consortium-iag">www.seachangeproject.eu/consortium-iag</a>
<b>Contact person(s)</b>	<a href="mailto:Paula.Keener@noaa.gov">Paula.Keener@noaa.gov</a>
<b>Proposed next steps</b>	The IAG will merge with the Ocean Literacy Working Group of the 'Atlantic Ocean Research Alliance' (AORA) to support the implementation of the Galway Statement and legacy of Sea Change moving forward.



# 05 Ensure

## Goal 5:

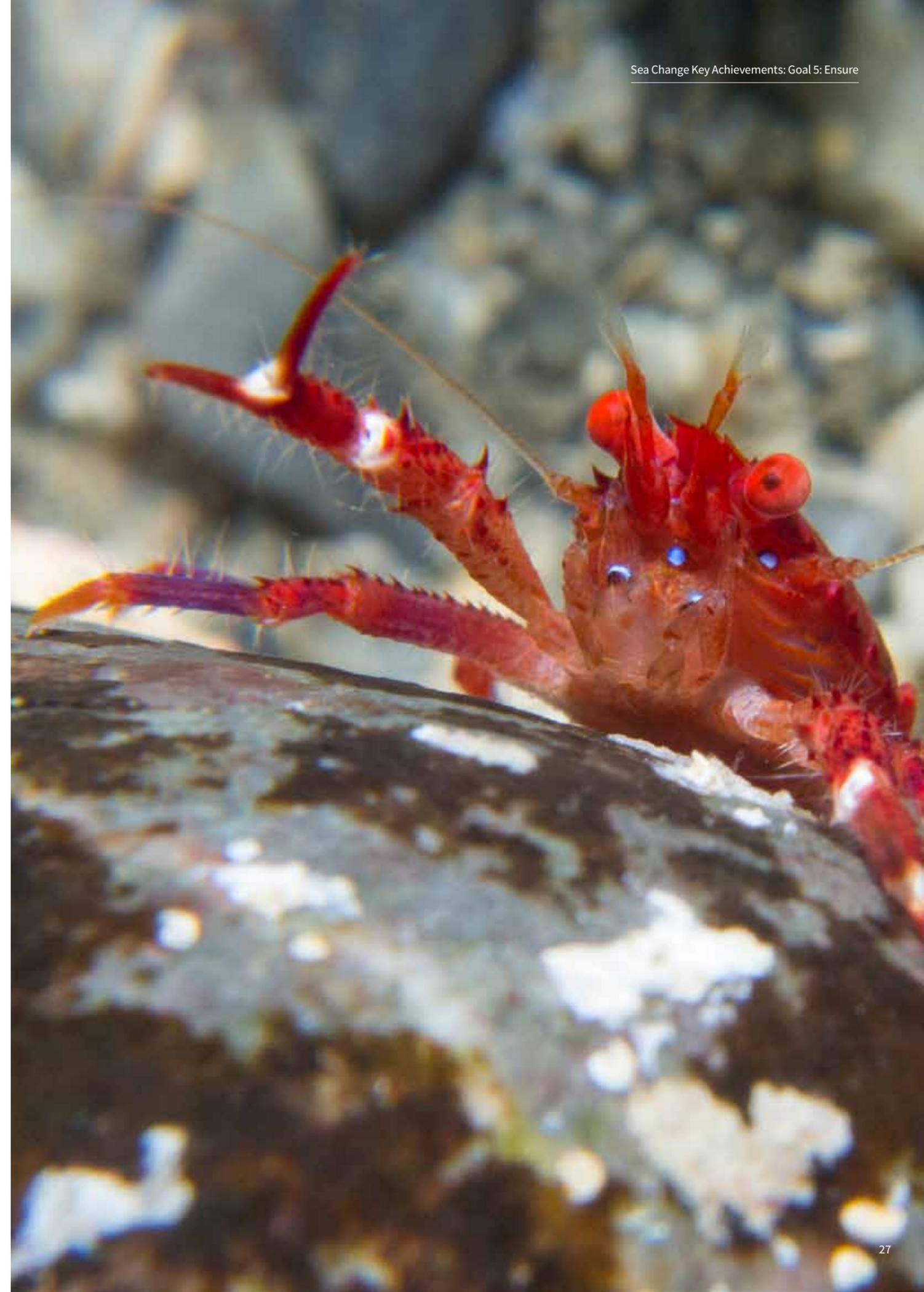
**ENSURE** that efforts to sustain an Ocean Literate society in Europe continue beyond the life of Sea Change through codes of good practice, public campaigns and other ongoing community activities.

### Achievements:

1. The European Marine Science Educators Association (EMSEA): Founded to connect European marine educators and scientists to provide a united effort to develop Ocean Literacy in Europe, EMSEA is a catalyst for the development of Ocean Literacy in Europe.
2. Sea Change Ocean Literacy Guiding Principles: A set of principles and protocols developed and adopted by the Sea Change partnership that can be used to co-create change in relation to Ocean Literacy through environmental behaviour change and engagement.
3. Bringing the ocean into our schools: Future implementation of a long-term 'Blue Schools' initiative for Europe to boost Ocean Literacy in the classroom.
4. A review of the ways of achieving societal change: A baseline investigation into the factors that influence public perceptions of marine environmental issues.
5. Sustaining an Ocean Literate society in Europe into the future: through continuing commitments of Sea Change partners to co-create behavioural change, in specific through planned collaborative World Oceans Day activities.
6. Environmental behavioural change workshops: Sea Change developed and delivered workshops, manuals and toolkits for environmental organisations working on environment, community and/or social issues, enabling them to adopt and apply the Sea Change co-creation principles in their daily work on an ongoing basis.
7. Established successful collaboration with the related European initiative ResponSEable ([www.responseable.eu](http://www.responseable.eu)): ensuring Sea Change results will continue to be actively promoted and used through sister project, ResponSEable.
8. Open Access to Sea Change resources: to facilitate the continued use and uptake of Sea Change results, resources and concepts by all stakeholders, including through established Ocean Literacy networks.
9. The Sea Change Champions Ambassador program: a program that will actively promote Ocean Literacy at community level across Europe.
10. Sea Change 'Love the Ocean' campaign ([www.lovetheocean.eu](http://www.lovetheocean.eu)): an online campaign to encourage citizens to 'Take one Action for the Ocean' and make a real Sea Change. With input from scientists and educators from a range of disciplines, the campaign provides tips and useful resources on what citizens can do to make a difference.

Case study: Ensure	The European Marine Science Educators Association (EMSEA)
<b>Target audience</b>	Marine science educators, scientists, policy makers.
<b>Need addressed</b>	EMSEA was founded in 2011 to connect European marine educators and scientists to provide a united effort to develop Ocean Literacy in Europe where none previously existed.
<b>Approach taken</b>	EMSEA was inspired by the National Marine Educators Association (USA) and became an official organisation with charitable status in 2016. EMSEA aims to: <ul style="list-style-type: none"> <li>• Promote education and training in the fields of marine sciences</li> <li>• Advance Ocean Literacy in Europe and worldwide</li> <li>• Raise educator's awareness of ocean issues and the need for a sustainable future for our coasts, seas and ocean</li> <li>• Improve the quality of marine sciences education</li> <li>• To function as a platform for sharing and disseminating information and expertise among its members</li> </ul>
<b>Key information:</b>	EMSEA'S main activities are to: <ul style="list-style-type: none"> <li>• Develop and promote good practice in marine science education</li> <li>• Participate in collaborative projects concerned with Ocean Literacy and the teaching of marine sciences</li> <li>• Provide a forum for the discussion of marine science education and Ocean Literacy</li> <li>• Organise EMSEA conferences, courses and workshops for its members</li> </ul>
<b>Key metrics:</b>	EMSEA has organised an annual conference since 2013 starting in Plymouth, Gothenburg (2014), Crete (2015), Belfast (2016) and Malta (2017). Approximately 100 delegates attended each conference. The Association has also established regional sea groups in the North Sea and English Channel, Mediterranean and Baltic. EMSEA-Med have produced the Mediterranean Sea Literacy document adapting the Ocean Literacy principles to the Mediterranean Sea. EMSEA has 3,414 followers on its Facebook page and over 500 followers on Twitter (@Emseassociation).
<b>Impacts</b>	EMSEA has been a catalyst for the development of Ocean Literacy in Europe. The Association was involved in organising the first Ocean Literacy conference in Europe, which led to significant developments in Ocean Literacy with the inclusion of Ocean Literacy in the Galway Statement, which consequently led to transatlantic Blue Growth funding calls under the EU Horizon 2020 programme. Sea Change and ResponSEable were the two strategic projects funded to help implement Ocean Literacy in Europe. EMSEA conferences provide opportunities for practitioners to share their experiences and resources and develop new initiatives. EMSEA is also involved in Global Ocean Literacy developments through its work networks such as the National Marine Educators Association (NMEA) and the Asia Marine Educators Association (AMEA).

<b>More information</b>	<a href="http://www.emsea.eu">www.emsea.eu</a>
<b>Contact person(s)</b>	Ms. Evy Copejans (Secretary): <a href="mailto:evy.copejans@vliz.be">evy.copejans@vliz.be</a> Ms. Fiona Crouch (President): <a href="mailto:ficr@mba.ac.uk">ficr@mba.ac.uk</a>
<b>Proposed next steps</b>	In 2016 EMSEA became a legal entity under Belgian law to enable the Association to obtain funding to further develop OL in Europe and be a potential partner in other Horizon 2020 projects. EMSEA is a key element of the Sea Change legacy with the remit to continue to promote and develop the work of the project through the Network. EMSEA has also recently launched a paid membership scheme to provide resources to develop initiatives such as teacher training.



# 06 Create

## Goal 6:

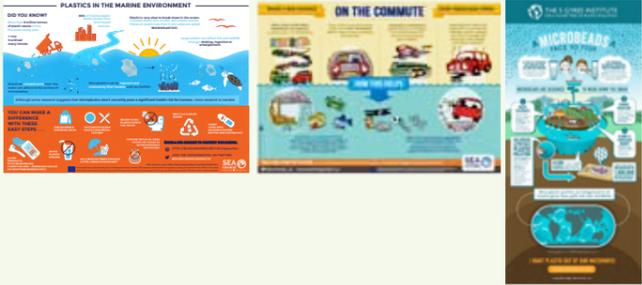
**CREATE** learning resources relating to the link between the planet's ocean and human health: by developing innovative learning resources related to ocean health (e.g. iBook, computer games with coder dojo) and an online directory for best marine practices.

### Achievements:

1. Sea Change marine science iBook entitled 'Harmful Algal Blooms': An innovative learning tool developed to encourage Ocean Literacy, specifically targeted at secondary school students to augment students' ocean literacy, anchored by maritime pedagogical content.
2. Sea Change Coder Dojo – co-creating innovative Ocean Literacy learning tools: A Sea Change game design challenge that invited CoderDojo members aged 7-18 years to develop tech games using the latest gaming technologies to raise awareness of ocean issues.
3. Sea Change Massive Open Online Course (MOOC) 'From ABC to ABSeas: Ocean Literacy for all': The MOOC offers educators innovative ways to teach Ocean Literacy and is available on the European Multiple MOOC Aggregator (EMMA) - [https://platform.europeanmoocs.eu/course\\_from\\_abc\\_to\\_abseas\\_ocean\\_liter](https://platform.europeanmoocs.eu/course_from_abc_to_abseas_ocean_liter) - in several languages.
4. Sea Change animation 'Increasing Ocean Literacy': Available on Vimeo (<https://vimeo.com/139562761>), this animation about Ocean Literacy highlights the importance of protecting the ocean by making choices that are more 'ocean-friendly'.
5. A Sea Change Co-Creation Toolkit: A set of fundamental concepts and activities to co-create a transformative 'Sea Change'.
6. The Sea Change Ocean EDGE (European Database of Good Examples in marine education and outreach): An Open Access online platform containing a collection of educational resources and activities that serve as an inspiration to help sharing ocean knowledge to any type of audience ([www.seachangeproject.eu/seachange-about-4/campaign/sea-change-database](http://www.seachangeproject.eu/seachange-about-4/campaign/sea-change-database)).
7. The Sea Change 'Our Ocean, Our Health' public awareness campaign: Generated to improve public awareness of the intrinsic links between ocean health and human health, the campaign included several Sea Change produced videos ('Our Ocean, Our Oxygen' and six different call to action 'Make a Sea Change' videos), infographics (Make a small change for Sea Change, Microbeads, Marine Plastics), Factsheets 'Human Health and the Ocean: What's the connection?', posters (including a poster illustrating 500 years of ocean change), and World Ocean Day fishy fact cards.

<b>Case study: Create</b>	<b>The Sea Change public awareness campaign of interconnectedness of seas, ocean and human health: 'Our Ocean, Our Health'</b>
<b>Target audience</b>	European citizens.
<b>Need addressed</b>	<p>A central aim of the Sea Change project was to generate a 'Sea Change' in the way that European citizens view their relationship with the sea, by raising awareness of the intrinsic links between ocean and human health. By empowering them, as 'Ocean Literate' citizens, it was anticipated that citizens would take direct and sustainable action towards a healthy ocean, healthy communities and ultimately a healthy planet.</p> <p>To achieve this 'Sea Change' in attitudes, it was recognised that a campaign was needed to both inform and inspire citizens to act more responsibly towards the ocean in their daily lives.</p>
<b>Approach taken</b>	<p>The 'Our Ocean, Our Health' campaign was designed to demonstrate the relevance of the Ocean in the lives of all citizens, by demonstrating the interconnectedness of seas, ocean and human health. The campaign emphasises the vital role of the ocean in making life on Earth possible and enforces the need to manage our ocean resources sustainably.</p> <p>A two-tiered approach was taken to this campaign, using social marketing techniques developed in Sea Change to:</p> <ol style="list-style-type: none"> <li>1. Raise public awareness around the interconnectedness of seas, ocean and human health, to inspire European citizens to care about the welfare of their ocean resources, leading to improved Ocean Literacy.</li> <li>2. To send out a call to action to citizens to adopt responsible decision-making with regard to our shared ocean resources, and to ensure their sustained health into the future, thus leading to behavioural change.</li> </ol>
<b>Key information:</b>	<p>A number of assets and resources were developed to firstly improve awareness of the importance of healthy oceans amongst the wider public, by illustrating the intrinsic links between ocean health and human health. These include:</p> <p><b>'Human Health and the Ocean: What's the connection?' Factsheets &amp; Animation</b></p>  <p>The animation and factsheets highlight 5 principle ways that the ocean health is linked to human health, through: food, climate regulation, medicine, pollution, and the 'Blue Gym' effect.</p>

<p><b>Key information: (continued)</b></p>	<p><b>Videos - 'Our Ocean, Our Oxygen'</b></p>  <p>A central aspect of the campaign was a video which was developed to improve awareness of the interconnectedness of seas, ocean and human health amongst European citizens. The video, titled 'Our Ocean, Our Oxygen' enforced the fact that the ocean provides us with much of the oxygen we breathe. The video was widely disseminated and used to introduce various sea change activities. The video was subtitled to maximise its reach across Europe.</p> <p><b>A variety of printed materials were also produced to support the campaign, including:</b></p> <ul style="list-style-type: none"> <li>• Our Ocean, Our Health factsheets</li> <li>• Ocean Literacy posters &amp; factsheets</li> <li>• A Poster illustrating 500 years of ocean change</li> <li>• World Oceans Day fishy fact cards</li> <li>• Sea Change Stickers</li> </ul>  <p>These were followed by a number of informative videos which showed citizens how they can make a positive difference to ocean protection in their daily lives.</p> 
--	---

<p><b>Key information: (continued)</b></p>	<p>These were accompanied by a series of infographics, as well as additional infographics illustrating issues such as microbeads and marine plastics.</p> 
<p><b>Key metrics:</b></p>	<p><b>Social media insights</b></p> <ul style="list-style-type: none"> <li>• <b>+130,000</b> video plays on social media (Vimeo, Facebook, Twitter)</li> <li>• Approx. <b>100,000</b> visitors to Sea Change website</li> <li>• Over <b>500</b> resource downloads</li> <li>• <b>9,471</b> Press Release hits</li> <li>• <b>1,809</b> Asset Downloads</li> <li>• <b>+300,000</b> people reached with 'Love the Ocean' campaign</li> </ul>
<p><b>Impacts</b></p>	<p>The assets developed served to directly target and engage with European citizens. As assets were released during the campaign, calls to action were also included asking citizens to pledge or commit to responsible behaviour in relation to the Oceans.</p>
<p><b>More information</b></p>	<p><a href="http://www.seachangeproject.eu">www.seachangeproject.eu</a></p>
<p><b>Contact person(s)</b></p>	<p><b>Emer Cooney, <a href="mailto:emer@aquatt.ie">emer@aquatt.ie</a></b></p>
<p><b>Proposed next steps</b></p>	<p>All resources that have been developed as part of the 'Our Ocean, Our Health' campaign will be available to download free from the Sea Change website for a period of 5 years following the closure of the project in February 2018. These resources will continue to provide value long into the future, as they will be made publicly available via a new, open-access European Ocean Literacy portal that is presently under development.</p>

## SUMMARY OF IMPACT

Individual initiatives with isolated impact have been found to be inadequate to address the broader challenge of achieving sustained behavioural change in wider society. One of the most important aspects of the work undertaken by Sea Change has been to use a collective approach to address the challenge of improving Ocean Literacy across Europe, and to evaluate the effectiveness of this approach using a tailored Collective Impact Assessment Framework. The impact assessment framework draws on relevant EU and North American frameworks and includes traditional assessments of events and resource outputs, and also social innovation indicators to measure improvements in knowledge, networks, system dynamics, as well as more intangible variables such as trust, commitment and learning. This work evaluates the successful contribution of the Sea Change project as a whole, as well individual project activities, to the advancement of Ocean Literacy in Europe across the three focus areas of: Education, Marine Governance, and Public Engagement.

### Education

The Sea Change partnership has successfully implemented the collective approach to empower educators with insights, training, assets and solutions, and set the wheels in motion for Ocean Literacy to be integrated into European school curricula and marine educational policy. Consultations held across Europe provide unique country-specific insights into barriers and solutions to teaching teenagers about the ocean. A set of co-creation principles and protocols developed under Sea Change have empowered the Sea Change partnership and transformed them into a powerful collaborative network of behavioural change agents, that will continue to collaborate on Ocean Literacy initiatives into the future. Innovative educational tools that have been created and tested by the Sea Change project, including online courses, eBooks, educational games and apps, continue to be utilised by educators across Europe, and the establishment of EMSEA as a legal entity will ensure that European educators will continue to have a forum to share and collaborate on their Ocean Literacy endeavours into the future.

### Marine Governance

In the policy context, it is anticipated that creating a more Ocean Literate society in Europe will result in increased interest in, understanding of, and engagement with marine policy. Sea Change conducted the first evaluation of Ocean Literacy content in European Marine Policy and presented recommendations to increase this content. Sea Change partners held dialogues with policy actors which revealed their level of awareness of popular marine issues, such as marine litter, and investigated their views on solutions to these problems.

A strong science-policy interface is considered to be a key element of environmental governance, and Ocean Literacy can be a tool in this science-society-policy interface to help shape marine citizenship. The reports produced from Sea Change work provide a valuable analysis of the science-policy interface mechanisms of the policy process of global and regional agreements pertaining to fisheries, pollution, biodiversity and climate change in the ocean, and assesses their strengths and weaknesses. Consultations with 30 stakeholders contributed to the further development of the initial reports to produce a roadmap for the science-society-marine policy interface as a guide for policymakers for future policy developments.

### Public Engagement

The Sea Change project reached out to the public at over 200 events and conferences around Europe. Building on a baseline review of the ways to achieve societal change, the collective approach was used to co-create Social Innovation Participation and consultation protocols (SIPPs) that formed the basis for a series of innovative outreach and engagement events across seven European countries. A series of outreach and engagement events were also held by third-party organisations in six countries on both sides of the Atlantic, reaching a total audience figure of over 165,000 across all Sea Change outreach events. These innovative approaches were tested for their effectiveness to ensure that successful approaches could be replicated. This offers a unique and valuable insight into the effectiveness of

innovative social engagement and marketing methods that have been tested in a variety of settings and amongst varied target audiences, allowing this work to be built upon in the future. The numbers are figures arising from these analyses are impressive. Resources such as the Ocean Edge Directory, an online guide for marine best practise developed under Sea Change, were utilised by roughly 360 visitors per month, and the Sea Change website received 91,630 visits and recorded over 500 resource downloads. The networks built over the duration of the project grew from 873 organisations in the first 18 months to 1,534 after 30 months.

The central aim of the Sea Change project was to generate a 'Sea Change' in the way that European

citizens view their relationship with the sea, by raising awareness of the intrinsic links between ocean and human health. Resources created under the 'Our Ocean, Our Health' campaign included 9 videos and animations, which received over 130,000 plays, 12 infographics, and 7 posters and factsheets that were downloaded over 500 times and Sea Change press releases reached 9,471 people. The 'Our Ocean, Our Health' campaign, along with a more recent 'Love the Ocean' public awareness campaign, reached over 240,000 people via social media (Facebook, Twitter and Linked In, Instagram and Thunderclap). Sea Change has successfully managed to reach out to a wide and interested audience.



## CONCLUSION

Science shows that human health is dependent upon ocean health, and it is therefore critical that the numerous free ecosystem services that our ocean provides are sustained for future generations. This can only be achieved if citizens, educators and policymakers understand the importance of the ocean in their lives, and how their day-to-day actions impact on the ocean and its benefits. Ultimately, Sea Change is about influencing human behaviour and the choices we make, and Ocean Literacy encourages a sense of responsibility towards taking action for sustainable management of our shared ocean.

Creating sustained behavioural change is recognised to be a problem. Sea change has brought together a diverse group of people and sectors to match the diversity and complexity of this challenge. Empowered as a network of 'Sea Change agents', the Sea Change partnership have initiated an Ocean Literacy movement across Europe that will continue to grow beyond the lifetime of the project in a multitude of ways.

The resources and educational tools developed by Sea Change will continue to be utilised by educators, citizens and policymakers into the future. These resources will be integrated into an open-access common European Ocean Literacy portal to provide a central repository for Ocean Literacy materials. The work of Sea Change will continue to be promoted by partner project ResponSEable for its remaining lifetime, and the European Marine Science Educators Association (EMSEA) will continue to offer support to science educators and seek to establish a European network of Blue Schools, building on the modules that have been developed and tested during the Sea Change project, and provided to the Foundation for Environmental Education (FEE).

The Sea Change consortium will continue to collaborate as co-creators of societal change at events such as World Oceans Day. An ambassador programme is under development, which will engage actors at the community level and is intended to grow the social movement that has been initiated by other Sea Change outreach activities. The strong and diverse European and Trans-Atlantic networks that have been established over the past three years will

endure and will be further built upon via the AORA Ocean Literacy working group ([www.atlanticresource.org](http://www.atlanticresource.org)). AORA will also work to strengthen industry links to improve Ocean Literacy in the maritime private sector, which is critical to achieving cross-sectoral sustainable use of our marine environment.

The accomplishments that have emerged from the past three years of Sea Change work form the basis for securing funding for future work in advancing Ocean Literacy in Europe and beyond. Sea Change has illustrated that much can be achieved using a collective and creative approach, but also that there is much more work to do.

Much progress has been achieved, which now needs to be built upon, scaled up and improved in response to the urgency of the problems to be solved, and to catalyse global change at a systems level that will protect our oceans and the people who depend on them.

Sea Change deliverables and achievements form the basis for continued work that, with support, can further advance the Ocean Literacy movement in Europe. This continued work is critical to achieving sustainable management of Europe's marine environment, and to meet the requirements of the Marine Strategy Framework Directive and the criteria underpinning Sustainable Development Goal 14.

The Sea Change consortia would like to recognise the commitment of the European Commission to support sustainable Blue Growth and in turn to fund initiatives on Ocean Literacy such as Sea Change and ResponSEable. It is a recognition that increasing Ocean Literacy in European citizens is an essential enabling component to helping achieve Blue Growth.

A separate but complementary legacy brochure has been developed to present some of the key insights gained from three years of Sea Change work, and provides recommendations on the next steps necessary in advancing Ocean Literacy in Europe.

Sea Change has started a ripple of change, and we want this ripple to grow, expand, and lead to a wave of change in the way that all Europeans relate to our oceans. Join the movement at [www.seachangeproject.eu](http://www.seachangeproject.eu).



