We always do our best to find colleagues or others with whom we can share ideas. As teachers, we now and then seek the company of a teacher association where we can learn from each other. As marine educators, in Europe, we have to travel a long distance to meet a group such as the National Marine Educators Association (NMEA). Meeting other marine educators takes us away from our islands and gives us the opportunity to expand our horizon. Attending the annual conference of the NMEA is by far an overwhelming experience that provides us with plenty of resources and also recharges our batteries! It simply makes us grow professionally in our jobs. But one has to be candid; travelling to the U.S. is not inexpensive and often time consuming. Few employers are willing to make this investment, especially when budgets are being reduced globally. In order to create meaningful collaborations with other members of the ocean community, Europe needs its own network of marine educators, a network that is closely affiliated with the NMEA and the international ocean community.

In July 2011, the College of Exploration initiated an international meeting at the annual NMEA conference in Boston, attended by several European marine educators. At this meeting the new network of marine educators was spawned, the European Marine Science Educators Association (EMSEA). EMSEA’s core business is to establish a platform for ocean education within Europe. Europe has much to offer in terms of valuable marine projects and educational materials, but the efforts are often poorly visible, and thus seldom used by others. EMSEA is therefore dedicated to facilitate the exchange of best practices in marine education, to provide a networking directory for marine educators, and to organize annual conferences for educators throughout Europe, with the first conference taking place in Plymouth (UK) in 2013. The goal of the conference in Plymouth is to draw formal and informal educators from throughout Europe, with the first conference taking place in Bruges (BE) in 2012. The goal of the conference is to draw formal and informal educators from throughout Europe. During several days, attendees will have an opportunity to share ideas, experiences and resources, get to know other educators, and to participate in interesting scientific lectures and excursions along the beautiful Devon coast.

ADVANCING OCEAN LITERACY IN EUROPE

Parallel to developing European conferences and a network, the European marine science community has accepted the open invitation to collaborate in a wider, international context on advancing ocean literacy. While worldwide people express serious concern about the protection and the health of the ocean, Europe has yet to provide a structure to make ocean literacy its priority. The next position paper of the European Marine Board, “Navigating the Future IV,” which outlines the most important marine thematic research priorities for Europe (2012-2106), clearly states the tone in implementing a European consensus on ocean literacy. Questions such as what ocean literacy means for our continent, and what people should know about the ocean to make informed and responsible decisions need to be debated (McDonough et al. 2012, in press). Ocean literacy is also seen as a prerequisite for Europe’s quest for a more marine-oriented economy and society. The Marine Board (MB)—and its Communication Panel (MBCP)—are convinced that a more informed and concerned public will better understand the need to manage oceanic resources and marine ecosystems in a sustainable way. The position paper defines the future key priorities, unveiling what people know, want to know, and should know about the ocean through public surveys, as well as gathering together European ocean scientists and educators to agree on overall essential principles (based upon those prepared by the U.S.). A major concern is the large differences in languages, educational systems, and ways of living with the sea across Europe, which complicates the implementation of a future European Ocean Literacy plan.

FIRST CONFERENCE ON OCEAN LITERACY IN EUROPE, BRUGES (BE)

The MBPC and EMSEA held the first Conference on Ocean Literacy in Europe in October 2012 in Bruges (BE), an organization in close partnership with the Flanders Marine Institute (BE), Marine Biological Association (UK), University of Gothenburg (SE), the NMEA, and the College of Exploration. The conference
was a milestone event for both the European marine research and education communities and hosted well-known speakers who represented EU-policy, national governments, international organizations, and European stakeholders.

One of the objectives of the conference was to address the lack of ocean-related content in science education standards and to envision mechanisms and strategies to bring ocean sciences into mainstream science education. Furthermore, the conference emphasized how formal and informal marine education projects lead to enhanced public involvement and active participation. The conference was a major step in collaboration with the wider international community on ocean literacy. From both sides of the Atlantic, scientists, experts, educators, and policymakers discussed how ocean literacy improves the future of European seas.

The conference built on the initial outcomes of the EuroScience Open Forum (ESOF) 2012 workshop "Ocean Literacy – Challenges and Opportunities for Marine Science Communication and Education" (12 July, Dublin). Building on the ocean literacy efforts in the USA and Europe, this session focused on some of the science, education, and policy facts, as well as the challenges to create an Atlantic Ocean literate public. Using the examples of creatures and features of the Atlantic, speakers from the NMEA, EMSEA, and the MBCP presented how Atlantic literacy is vital for all persons connected to the Atlantic Ocean.

RESEARCH ON OCEAN LITERACY IN EUROPE

In Europe very few studies have been conducted on the subject of ocean knowledge and ocean education. The paucity information seems to indicate ocean knowledge is limited and in most European countries, ocean sciences are not a basic part of the educational curricula. In 2011, a European Union 7th Framework Programme project on Climate Change and Marine Ecosystem Research (CLAMER) organized the first European poll concerning public perception of climate change in the marine environment. The CLAMER project, which involved 17 marine research institutes and universities from 11 European countries, has built on the concept that there is a gap between what is known through research, and what policymakers and the public know and understand about the effects of climate change on the ocean. One of the outcomes of the project was to identify what the European public knows, and how citizens perceive climate change impacts within their seas. The poll surveyed over 10,000 European citizens from 10 European countries, taking into account differences between coastal and inland areas, by completing an online multiple choice questionnaire. The analyses CLAMER survey, although focusing on the impacts of climate change on our seas, did document some interesting results concerning what Europeans know about the ocean and what they care about (see CLAMER poll 2011, abstract from the results).

In 2005, the Flanders Marine Institute (BE) performed a study concerning the basic knowledge of the public regarding the sea. They questioned approximately 1200 secondary students and senior citizens about their marine knowledge and interests, and concluded that their basic comprehension about oceans and seas was insufficient (Hoebbergs and Seyes 2005). This study was taken as a starting point for two publications on how to upgrade basic knowledge of the world's ocean and seas through secondary education. Two Flemish curriculum analyses confirmed that marine topics were not taught during biology lessons in secondary education (Eggermont 2007) and that the sea plays a minor role in geography classes (Copejans 2006). Ocean-related issues are barely addressed and consequently class resources are fragmented. Textbooks contain merely some isolated facts and illustrations. Both papers offered a list of marine topics that could be integrated
in the existing curricula and methodologies concerning how to ‘marinate’ the content of biology and geography classes. Since the ocean is of distinct and intrinsic importance, ‘ocean topics’ need to also become an integral part of the science curriculum. It is unrealistic to think all teachers are motivated to integrate marine content in their courses.

CONHECER O OCEANO

During the last few years, Portugal has made a significant effort to place ocean literacy on the map for its science teachers. The Portuguese National Agency for Scientific and Technological Culture, Ciência Viva, launched in 2011 a version of the ocean literacy principles adapted to the Portuguese reality, linked to the Portuguese science curriculum: ‘Conhecer o Oceano (Knowing the Ocean), Princípios Essenciais e Conceitos Fundamentais (Essential Principles and Fundamental Concepts).’ The ocean literacy principles and concepts were organized by the different levels of education and the science disciplines in a matrix. Within each matrix area, teachers can locate the contact details of a scientist specialized in that particular science domain. The website (http://www.cienciaviva.pt/oceano) also offers relevant education

ABSTRACT FROM THE RESULTS OF THE CLAMER POLL

The marine issues that the public are most concerned about were pollution, over fishing, coastal erosion, and habitat destruction. A range of climate change issues such as sea level rise, flooding, and melting sea-ice all score very highly. For some issues, most notably ocean acidification, public awareness is extremely low.

Figure 1: Results to the open-ended question, “When you are thinking about the coastline or the sea, what are the three most important environmental matters that come to mind?”

Respondents were also asked about how informed and concerned they felt about a predetermined list of marine environmental matters.

Focusing on the results to the question regarding ‘concern’, ‘pollution’ came out as the number one issue, across all 10 countries. There is generally a strong correlation between how informed the respondents perceive themselves to be and how concerned they are, although some anomalies do exist. This is particularly true for ‘oceans becoming more acidic’ with only 14% of people saying they are ‘informed’ about this issue (with a figure as low as 7% in France), but with 58% of people being ‘concerned’ about it.

The survey also revealed several differences between countries and across demographic groups. With regard to all issues of concern, females generally were more concerned but less informed than males, and coastal dwellers claimed to be both more informed and more concerned than those living inland.

Figure 2. Results to the multiple choice questions, “How informed do you feel about each of the following... and now please indicate to what extent do you feel concerned about each of the following?”

An important area of interest to this project was how European citizens obtain information about climate change impacts at the coast or in the sea and to what extent they trust different sources of information. With regard to sources of information, the dominant medium was television and in general, there was a good degree of trust in television as a source of information. Trust was particularly high for scientific publications, and a surprisingly high percentage of respondents (29%) claimed that they had heard about climate change impacts at the coastline or in the sea through this medium.

Figure 3. Results to the multiple choice questions, “Where, if at all, have you seen or heard of information about climate change impacts on coastlines or the sea and to what extent, if at all, do you trust each of the following types of media when providing information about climate change impacts on the coastline or the sea?”
In 2011, a version of the ocean literacy principles “Conhecer o Oceano” or “Knowing the Ocean” was adapted by Portugal as part of their science curriculum.

Through EMSEA, European countries have the opportunity to adequately address the purpose of ocean education for their economic and scientific challenges, and determine strategies to collaborate on ocean issues and stimulate a science curriculum reform. Investing in ocean literacy on a European and global scale will have considerable significance now and in the future. (For more information visit us at www.emsea.eu.)

REFERENCES


Evy Copejans works as a science communicator at the Flanders Marine Institute (VLIZ) in Ostend, Belgium where she is responsible for the marine education section. She is a qualified geography teacher who strongly believes that young people need to be educated about the ocean. Evy attended her first NMEA conference in 2009 where she was inspired by the numerous people and activities involved in promoting Ocean Literacy. This led her to invite other European educators to establish the European Marine Science Educators Association (EMSEA) in 2011.

Fiona Crouch is a member of the education team at the Marine Biological Association in the UK. She primarily works on a Citizen Science project called the Shore Thing (www.mba.ac.uk/shore_thing) that encourages students and community groups to monitor their local rocky shore, recording the distribution and abundance of climate change indicators and non-native species. She has worked in marine education for over 20 years and is a founding member of EMSEA, a very exciting opportunity to develop Ocean Literacy in Europe.

Géraldine Fauville has a background in marine biology and is finishing a masters in education, communication, and applied information technologies at the University of Gothenburg, Sweden. Géraldine is a member of The University of Gothenburg Learning and Media Technology Studio (LETStudio) and is currently coordinating three projects creating digital environmental education resources and aiming at enhancing marine and environmental literacy among young citizens. She is one of the co-founders of the European Marine Science Educators Association.

PHOTO CREDIT

Figures 1, 2, and 3: Courtesy of CLAMER poll 2011