Plastic Pirates – Go Europe![22] is a joint citizen science project that promotes knowledge and research on the distribution and abundance of plastic waste in European freshwater ecosystems.

Initiated by the German Federal Ministry of Education and Research (BMBF) in 2016, it has recently evolved into a joint campaign in collaboration with the Portuguese Ministry of Science, Technology and Higher Education and the Slovenian Ministry of Education, Science and Sport.

Plastic Pirates – Go Europe! is taking place in Germany, Portugal and Slovenia from the second half of 2020 and throughout the year 2021, as part of the trio presidency of the European Council.

In this project, young people from 10 to 16 years old have the opportunity to team up with researchers and identify sources of pollution in rivers and estuaries and contribute to a better understanding of environmental problems.

Students are made aware of the problem of pollution, actively contributing to scientific research, through participation in sampling campaigns to identify and categorize waste. Data are aggregated on an online platform and later analyzed by the different research groups involved in the project.

GET INSPIRED!

[22] www.plastic-pirates.eu/en

Bonus MICROPOLL

Healthy and clean ocean

Https://www.io-warnemuende.de/micropoll-home.html

Country
Poland

Goal
To make primary school students aware of microplastics and the threats they pose to the natural environment.

School + City
Primary School no. 8 Gdynia, Gdynia

Age
Middle School (10 - 11 years old)
Junior High School (12 - 15 years old)

Inland/Coastal
Coastal

School subjects
Science; Biology; Geography

Assessing pollution in the Baltic Sea coast together with scientists

My project
The project was designed and conducted by scientists from The National Marine Fisheries Research Institute in Poland, as a community outreach activity of the BONUS MICROPOLL research project focused on multilevel assessment of microplastics and associated pollutants in the Baltic Sea.

Students, aged 13-14 from Primary School no. 8 in Gdynia took part in the project that took place in June 2019. The project was designed in a way that gave the participants an idea of how to conduct true scientific research. Initially researchers visited the school to give a presentation on the problem of microplastics in the natural environment. The content and language of the presentation was adjusted to students' abilities. Discussion and interaction between scientists and students helped the students develop an emotional involvement with the problem.

During the second phase of the project, students were invited for a field trip to a local beach. Divided into groups and supervised by the scientists, the students collected samples of sand to evaluate plastic pollution on the beach. The sample collection was complemented by other activities including lessons on nautical knots and a tug of war competition between the groups. Students were then invited to the Gdynia Aquarium where they could use microscopes to analyze and measure microplastics content in the collected sand samples.

The project was wrapped up with another talk and discussion with the scientists. Project participants were also invited to visit the exhibit of the Gdynia Aquarium.

https://www.youtube.com/watch?v=MUZYBTUjghMText

SPlasH!

Healthy and clean ocean

Stop at plastic in H2O!

http://interreg-maritime.eu/fr/web/splash/projet

Country
Italy

Goal
Discover how the sea is interlinked to our life.

School + City
23 schools from Liguria and Sardinia regions.

Age
Primary School (6 - 9 years old)
Middle School (10 - 11 years old)
Junior and Senior High Schools (12 - 18 years old)

Inland/Coastal
Coastal

School subjects
Science; Maths; Civics; Critical Thinking; Current Events

Students participated in a Citizen Science experience, contributing to data collection on plastic amount on the seashore

My project
The schools participated in the INTERREG SPlasH! PROJECT, which aims at studying the dynamics and characterization of microplastics in three ports of Mediterranean Sea (Genoa, Olbia and Toulon).

From February 2019 to May 2019, the activity consisted in a first interactive lesson in the classroom and a second practical class on the seashore, several days later. Before starting the activities, a questionnaire titled “What do you know about plastic?” was submitted to all the students aged 7 and over (Geyer et al., 2017; The New Plastics Economy).

Activities in the classroom aimed to raise awareness about plastic pollution, understanding the influence of the ocean on us and our influence on the ocean, through videos, photos, slides, explanations and games. The practical activity on the beach was designed with the approach: ‘learn to look and look to learn’, in order to become aware of the amount of plastic (not only macro, but also micro) in the environment.

During practical sessions with some groups of students sheets were filled out to list the macro litter recovered on the beach.

A serious game developed in Italian, French and English is available at the following link:
www.europeanresearchinstitute.eu/splashseriousgame

Sea of Encounters

Healthy and clean ocean

https://academia.cienciaviva.pt/1471/mar-de-encontros

Country
Portugal

Coordinator
Cátia Liliana Lopes Santos

Goal
To raise environmental awareness among students and the local population as well as to monitor the amount of waste on the coast.

School + City
CED Nossa Senhora da Conceição - Casa Pia de Lisboa, Lisboa

Age
Primary School (6 - 9 years old)

Inland/Coastal
Coastal

School subjects
Arts; Geography; Informatics; Literature; Maths; Natural Sciences; Technology

My project
Does the ocean need to be protected? This was the question posed to students during their introductory study visit "Mar Profundo Português", promoted by the Portuguese Institute of the Sea and the Atmosphere, partner of Escola Azul program. The students debated on the state of conservation of the beaches and understood their importance through practical activities.

They were trained in a simulation of a beach clean up, during which they analysed collected litter and made a to 10 frequent litter items. Then it was time for the real work, monitoring the beach of Segundo Torrão, Trafaria. They carried out a statistical study of the garbage collected and analyzed the microplastics in the sand that they collected. With the garbage they built an art installation which represented the world where you can see the plastic islands.

Understanding that this plastic circulates in our ocean, and inspired by the stories in the book *Plasticus Maritimus*, by Ana Pêgo, they created children's stories to tell the little ones. Thus, with a single theme, they were able to develop, in a practical way, contents from various disciplines and raise awareness to the entire school community for the preservation of the ocean.

Using a beach litter monitoring as an inspiration to create an artwork and tell stories to small children

Waste in Water hurts our health Danube Delta

Teens research their environment • 2006 - 2007

https://www.env-health.org/IMG/pdf/HEAL_on_youth_participation_2_.pdf

Country
Romania

Coordinator
Adnana Mihaela Patrascoiu

Goal
To find out how waste in the water influences the quality of drinking water and thus people's health and give young people a voice.

School + City
Școala Gimnazială Sfântul Gheorghe, Craiova

Age
Junior and Senior High Schools (12 - 18 years old)

Inland/Coastal
Coastal

School subjects
Arts; Biology; Chemistry; Foreigner Language; Geography; Informatics; Maths; Native Language; Natural Sciences

My project
Students analyzed water from the Black Sea, the Danube River, the channels surrounding the village and tap water to evaluate its cleanliness and resultant impacts on human health. Students communicated with researchers to find out the extent of the dumping of waste in the water systems. The project made young people aware of how environmental problems affect their own well-being, encouraging them to become active in improving the living conditions in their communities.

This project gave students a voice within their communities and in the European public making them aware that they form part of the European Community, of parallels and differences in living conditions of young people throughout Europe and of the possibilities of networking at a European level.

The project involved research activities on how waste in the water influences the quality of drinking water and thus the healthiness, students took measurements of the quality of the water and soil through collaboration with the Danube Delta Biosphere Reserve Authority (DDBRA) representatives.

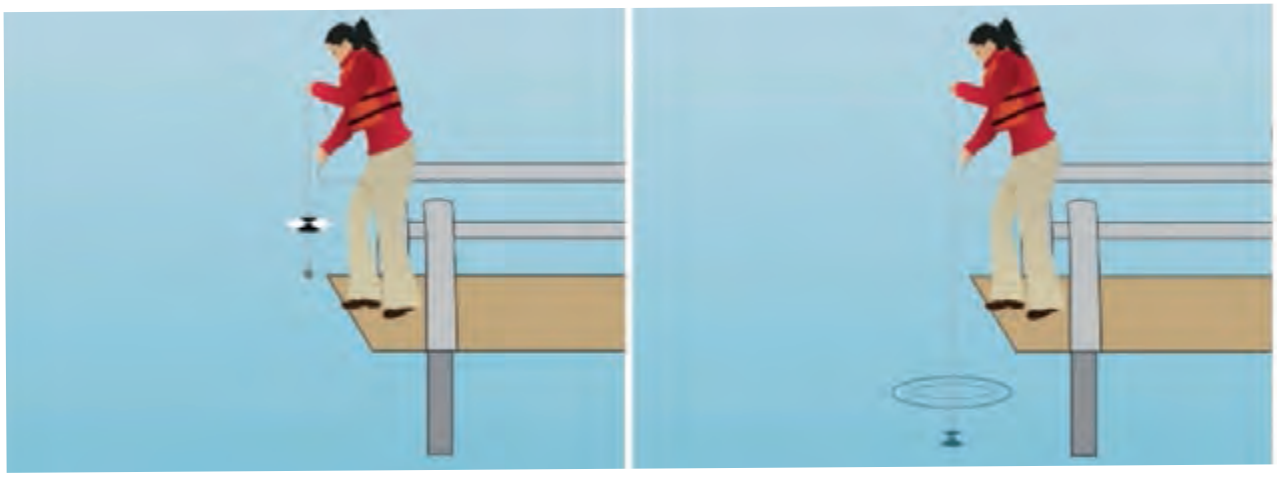
Interviews with the employees of the meteorological station and the doctor in the village gathered local professional qualitative knowledge. The project won one of the Best Practice Awards of the Childrens Environment and Health Action Plan for Europe (CEHAPE). The video of the project was presented in communities of the Danube Delta and at a video festival in Slovenia on 2-6 July 2008.

Students investigate and communicate on the water pollution problems in the Danube Delta

Building your own turbidimeter

Healthy and clean ocean

http://www.sciencemakers.se/turbiditetsmatare/



Country
Sweden

Coordinator
Malin Rosengren

Goal
To develop environmental awareness a mong students and the local population as well as to monitor the water quality.

School + City
Gullmarsgymnasiet, Lysekil.

Age
Primary School (6 - 9 years old)
Middle School (10 - 11 years old)
Junior and Senior High Schools (12 - 18 years old)

Inland/Coastal
Coastal

School subjects
Biology; Chemistry; Geography; Informatics; STEM; Maths; Natural Sciences; Physics; Technological Education

My project
The project focused on ecology and the environmental impact of the coastal communities using a project-based approach. It aimed to find out a range of environmental influencing factors around the Swedish coast, including influences of filter feeders on water purity, effects of boating and leisure activities on turbidity of waterways, and discovering which animals and seagrasses are affected differently by the turbidity of the waterways.

Students were actively involved in all parts of the project: by building their own equipment to measure turbidity, performing follow-up measurements and creating their own hypothesis.

Depending on the design and questions asked during the follow-up projects, scientists and/or science centers, municipalities, boat clubs, and the community could all be involved.

Building the turbidimeter and the actual LEGO (TM) design and then connecting all the cords to the Arduino takes about three 80-minute lessons if the students have knowledge of how to read wiring diagrams. Designing and performing follow up experiments can take anything from 2 lessons to 2 weeks or more depending on the ambition of the project.

https://github.com/sciencemakersSE/Turbiditetsmatare

Analysing the water quality can be done with Arduino programmed equipment

Aire marine éducative de Port-Vendres

Healthy and clean ocean

https://ofb.gouv.fr/aires-educatives

Country
France

Goal
Protection and management of a coastal area close to the school by students. Developping knowledge on the ocean and ecocitizenship. Main outcomes: Marine litter workshops on the beach during summer; Zero waste project for the school; Make the beach accessible (down to the sea) for the disabled to be able to swim.

School + City
210 schools involved in France and oversees areas

Age
Primary School (6 - 9 years old)
Middle School (10 - 11 years old)

Inland/Coastal
Coastal

School subjects
Interdisciplinary

Partners
Gulf of Lion natural marine Park; Terre Marine NGO; Natural marine reserve Cerbère-Banyuls.

Participatory project where children become environmental managers of a coastal area

My project
As an ecological marine managed area (EMMA), this project is based on three pillars: “knowing, experiencing and sharing”. The school needs to implement a programme of actions: conducting an ecological survey in the chosen area involving the children alongside scientific teams; establishing a children’s sea council to discuss the actions to be implemented; investing in educational activities within the areas so that the students can develop new nderstanding in a real-life situation; and developing relationships with decision makers, professionals and academics in order to link up different generations. In the Port-Vendres primary schools, pupils from 3 classes worked together and defined the following actions to implement throughout the year:

Communication
1. MEA presentation panel
2. Marine pollution sign (garbage/marine animals in danger/stop garbage please)
3. Educational workshops in the summer for people on the beach

Waste reduction
4. Pick up garbage on the beach more often and clean the seabed
5. Implementing "zero waste" in schools
6. Add green garbage cans and sorting garbage cans on the beach
7. Prohibit smoking
8. Prohibit pets

Others
9. Make the beach accessible for the disabled to the sea for swimming
10. Set up a first-aid station

Students also participated in activities to better understand marine ecosystems (boat trip, discussion on the impacts of human activities on the marine environment) and performed role play games to find out difference between marine protected areas and educational managed areas. During their project, the pupils also planned some exchanges with another EMMA based in Sète.

Develop a project with interlinked activities
Produce a clear output
Involve all students
Collaborate with a local partner
Communicate project results
Provide authentic learning experiences
Work multi or interdisciplinary
Mobilise beyond the classroom
Foster a land-sea interaction
Bring in a European dimension

Biodiesel from algae

Healthy and clean ocean

http://liceulovidius.ro/extracurriculare/biodiesel/html/conclusions.html

Country
Romania

Coordinator
Carmen Bucovala

Goal
Find a solution to a local problem, by investigating the causes and validating a proper scientific solution for it.

School + City
Ovidius" High, Constanta

Age
Junior and Senior High Schools (12 - 18 years old)

Inland/Coastal
Coastal

School subjects
Biology; Chemistry

My project
This project started with the observations made by students regarding the local algae species on the Romanian shore.

Huge quantities of algae cover the beaches every year generating a decomposing biomass. By producing biodiesel out of this biomass, students could solve two problems – not only to find a way to dispose of the algae on the beach, but also to reduce the emissions from the fossil fuels.

Learning outcomes:
1. Comparing different methods in the biodiesel technology
2. Identifying a method for producing biodiesel from algae
3. Promoting to the public and companies the advantages of replacing the diesel from fossil fuels with biodiesel

The project involved analysis of the existing biodiesel production methods (out of biomass such as rapeseed oil), collecting the algae and evaluating the quantity and potential for combining these methods.

Students explored ideas for developing a method for the algal biodiesel. Validation of the method was done with the help of experts. Valorization of the method developed by presenting the project at several national and international project contests.

Too many algae on the beach?
A team of students found a solution.

Develop a project with interlinked activities
Produce a clear output
Involve all students
Collaborate with a local partner
Communicate project results
Provide authentic learning experiences
Work multi or interdisciplinary
Mobilise beyond the classroom
Foster a land-sea interaction
Bring in a European dimension

Biodiversity

Stretching over 18% of the EU's land area and more than 8% of its marine territory, Natura 2000 is the largest coordinated network of protected areas in the world. It offers a haven to Europe's most valuable and threatened species and habitats. Use the European Atlas of the Seas to discover the protected areas in your neighbourhood.

https://ec.europa.eu/maritimeaffairs/atlas/maritime_atlas/#lang=EN;p=w;bkgd=1;theme=14:0.75;c=617910.1422549915,6651738.573047511;z=4

European Atlas of the Seas · Marine Natura 2000 sites

Marine Natura 2000 sites

- Special Protection Area (SPA)
- Special Conservation Interest (SCI)
- Both SPA and SCI
- Not available

Aranguez tastes like sea

Biodiversity

www.facebook.com/pages/category/School/Aranguez-Sabe-a-Mar-projeto-da-Escola-Azul-23-de-Aranguez-107173627530427/

Country
Portugal

Goal
To promote ocean literacy, contributing to a participatory "Blue Society".

School + City
Escola Básica 2/3 de Aranguez, Agrupamento de Escolas Sebastião da Gama - Setúbal

Age
Primary School (6 - 9 years old)

Inland/Coastal
Coastal

School subjects
Natural Sciences; Math; Portugal History and Geography; Languages (Portuguese/English); Visual Education; Technology Education; Sports and journey through the world of knowledge (school offer)

A cross-border project based on the outcomes produced by students and involving a network of 6 partners (education, municipality, national authorities and ocean literacy institutions)

My project
This project arose from the will of a multidisciplinary team of 8 teachers aiming to develop the skills of their students, preparing them as future citizens aware of the importance of the Planet's sustainability and the paramount role of the ocean.

Art was the main communication way used to spread the word through school and local communities. The urban street artist Smile visited the school and created a mural painting based on the projects and studies carried out by students. The mural – painted with the collaboration of the students – stresses the importance of preserving the marine prairies and results from an in-depth preparation and scientific research of both students and teachers with the collaboration of several partners. Preparation and research activities included student field trips and workshops and training sessions for teachers. Additionally, the issue of pollution and species preservation was explored on Portuguese subject classes through the analysis of work of the writer and poet José Fanha, who visit the school.

Some of the strategies and activities of the project were adapted to the "new reality" of the COVID-19 pandemic and the subproject "Our home tastes like sea" was born. At home, students could continue to develop their project using waste materials easily available.

The initiative and the outcomes of the project were publicize in the project website and by the city council on its social networks.

What is the Sea?

Biodiversity

http://liceulovidius.ro/extracurriculare/biodiesel/html/conclusions.html

Country
Croatia

Coordinator
Korina Lukašić

Goal
To increase native speech and recollection of long-forgotten words, connect with the local community, particularly the elderly population

School + City
Osnovna škola Marčana, Marčana

Age
Kindergarten (3 - 5 years old)
Primary School (6 - 9 years old)

Inland/Coastal
Coastal

School subjects
Arts; Biology; History; Literature; Music; Native language

My project
The project aimed at raising awareness about the importance and uniqueness of the sea and wild life within it, using the native language, which is slowly fading and disappearing over the years. The project was brought closer to the students and the local community through various activities.

The implementation of the project began with a visit to the Aquarium Pula, where students learnt about plant and animal inhabitants of the Adriatic Sea. This was followed by a lecture by the research associate of the Ručer Bošković Institute, Prof. Andrej Jaklin on marine organisms. We learnt about their habitats, behaviours, and how they feed and reproduce.

With the help of the internet and the locals, students learnt several legends and colloquial sayings that came from marine organisms, and life by the sea which contributed to the picture book's 10 stories in the native language translated into the Croatian standard language.

The students designed the visual identity of the project, they created artwork from various picture books to mobile phones and other installations from sea debris. In the music culture class, a fourth grader rehearsed a song on the sea being thin and thick. For the native language of Marčana and its surroundings to be heard more widely, students enclosed a CD with sound recordings of stories along with the picture book, and with the help of a computer science teacher, the CD was enriched with games.

In ten sea stories children learn on marine biodiversity and get to know their native language

Once upon a time... the sea

Biodiversity

(Erasmus+ project 2018-1-RO01-KA229-049131 - 2018-2021)

http://www.onceuponatime-thesea.ro/

Country
Romania

Coordinator
Emilia Ciocan (Project Coordinator),
Adriana Constantinescu (Project team member)

Goal
The exchange of good practices in environmental education. The project united students, parents and teachers from local communities across Europe, who all wish to learn about the risks of pollution of the marine environment, all of which are located in the neighbourhood of 3 seas and Atlantic Ocean.

School + City
Scoala Gimnaziala Lucian Grigorescu, Medgidia (RO),
ICS Francesco Riso, Isola delle Femmine, Palermo (IT),
Escola Gabriel Castella I Raich, Igualada (ES),
Agrupamento de Escolas de Vale de Ovil, Baião (PT)

Age
Primary School (6 - 9 years old)
Middle School (10 - 11 years old)
Junior and Senior High Schools (12 - 18 years old)

Inland/Coastal
Inland/Coastal

School subjects
Arts; Biology; Chemistry; Foreign language; Geography; Informatics; Literature; Maths; Music; Natural Sciences; Technology

My project
The project involved students in research activities that contributed to develop ecological and civic behavior and stimulated the motivation to explore the natural values of the sea from an artistic perspective, encouraging both students and teachers to learn English. Students approached the problems of the marine ecosystem through interdisciplinary lessons.
The project developed new teaching and learning methods to make studying the sea more attractive. The success of the project was due to the involvement of participants from coastal countries with the purpose to share their experience, also taking into consideration the local community vision.
Through collaborative work between all partners a audio (mini) dictionary and an (audio) mini atlas with information on marine flora and fauna was created.
The talented students in literary creation composed sea-themed poems and signed up to the literary contest judged by the teachers.
The best poems were awarded prizes. The poems awarded with the 1st prize in each partner schools were translated into English, and collected in a brochure "Sea Poems" and an e-book. The Romanian students have created a coloring book for their younger colleagues. The "Black Sea: from legend to stories" is a brochure that contains the literary creations of Romanian students. A literary contest included a large number of students with imagination and creativity who wrote a few wonderful stories and legends about the sea. The best creations were edited in English as an e-book entitled "The Sea" in stories and legends. The teachers from the partner schools collaborated and created a teaching guide that includes didactic scenarios regarding the biodiversity of the marine environment. Students and teachers also created educational games, a theatre play, and a brochure entitled "Taste of the Sea" that contains culinary recipes based on fish or seafood. Communication events and exhibitions took place in public spaces. Each time the local media was present to promote the activities and results of the project, making them known to the general public. All this has contributed to increasing the European dimension at the level of partner schools and their communities.
At the level of the partner schools, a procedure for selecting students as members of the project team was performed. Thus, the selected students actively participated in the organization and development of all activities.
Signing a partnership with the NGO Mare Nostrum made it possible to carry out some activities. At the same time, a project with the same title was carried out in the eTwinning platform, bringing together students and teachers also from European countries, other than those from the Erasmus project. (https://twinspace.etwinning.net/71077/home).
Details about all activities unrolled can be found on the project website.

Presenting literary works, games and other resources on the sea to students from other countries

Develop a project with interlinked activities
Produce a clear output
Involve all students
Collaborate with a local partner
Communicate project results
Provide authentic learning experiences
Work multi or interdisciplinary
Mobilise beyond the classroom
Foster a land-sea interaction
Bring in a European dimension

SEND us to the sea

Biodiversity

Country
United Kingdom

Coordinator
Karen Wilcocks

Goal
To increase the emotional wellbeing of the pupils from local special schools through experiences with the Ocean

School + City
Mount Tamar School, Plymouth
Longcause Community Special School, Plymouth

Age
Primary School (6 - 9 years old)
Middle School (10 - 11 years old)
Junior and Senior High Schools (12 - 18 years old)

Inland/Coastal
Coastal

School subjects
Science; Citizenship; Personal Education; Social Education; Maths; English; Art.

My project
Delivery of the project started in 2018, with a pilot project running from January to August. Initially funded by the city council, the project is now funded by the participating schools. The students involved benefitted from 4 different aspects of the programme as follows:

1. Scheduled, curriculum linked sessions – The delivery and scheduling of the workshop sessions varied between the two schools to suit the recognised learning needs of the respective student cohorts. Students from Mount Tamar attended two consecutive sessions each throughout the school year. To provide an extended experience, Longcause selected three middle school classes who each attended 6 two-hour sessions each across a single term.

2. Work experience opportunities – students were given the opportunity to join the staff team at the aquarium, experiencing work in a variety of departments across the building, including catering, hospitality, education and retail. In each area students were trained work alongside full time employees.

3. Special events – As part of their engagement with the programme students got special access to events at the Aquarium, including careers and science fairs where they met and talked with professionals from across the city.

4. Unlimited access to the Aquarium exhibits during term time.

Using the marine topic to increase confidence around personal / life skills, career aspirations and personal wellbeing

Develop a project with interlinked activities
Produce a clear output
Involve all students
Collaborate with a local partner
Communicate project results
Provide authentic learning experiences
Work multi or interdisciplinary
Mobilise beyond the classroom
Foster a land-sea interaction
Bring in a European dimension

The Kingdom of Photophilous Algae: a fairy tale

Biodiversity

http://www.imbbc.hcmr.gr/content/kingdom-photophilous-algae-tale-created-pupils-second-grade-elementary-school-crete-greece

Country
Greece

Coordinator
Irini Skoula

Goal
Acquire scientific knowledge concerning algae and their importance in the marine ecosystem

School + City
Elementary School of Gournes Pediados, Heraklion, Crete

Age
Primary School (6 - 9 years old)
Middle School (10 - 11 years old)

Inland/Coastal
Coastal

School subjects
Interdisciplinary

My project
Students collaborated with the marine scientists of the Hellenic Centre for Marine Research (HCMR), creating a tale based on a current scientific problem: the introduction of marine species in the Mediterranean Sea through the Suez Canal (Lessepsian immigration), by investigating possible impacts on the Mediterranean ecosystem and seeking management interventions.

Marine scientists shared relevant scientific materials such as presentations, experimental aquaria with Lessepsian species and informational videos.

The pupils undertook supervised fieldwork, collected biological samples and analysed them in the HCMR laboratories. Furthermore, they worked on thematic activity worksheets and created, wrote and digitized their authentic fairy tale story.

An enquiry-based learning methodology was followed, as well as experiential learning, group-working, field work, and development of a knowledge-based dramatic output. The project won the first prize at the Pan-Hellenic Educational Conference on Algae held in the Cretaquarium, 2015.

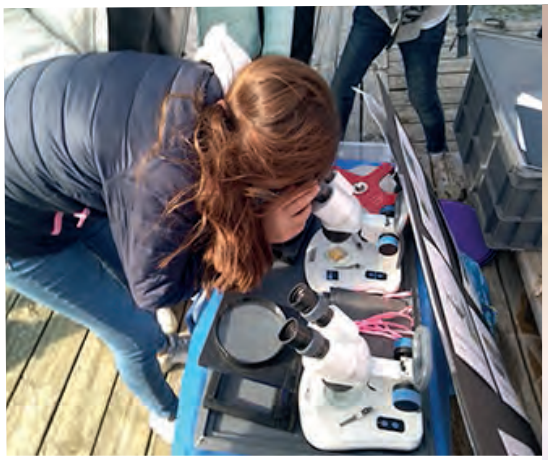
Children investigate local marine species and develop a book

Nya arter

Biodiversity

New species

https://www.nyaarter.se/projektloggbok



Country
Sweden

Coordinator
Björn Källström (Project Manager)
Tina Johansen Lilja (coordinator Blue School Sweden)

Goal
To help teachers fulfil the curriculum requirements and allow school children meet and work with real marine scientists in the field while generating data through the citizen science project.

School + City
Stenungskolan; Ekenäs, Jörlanda and Stora Höga from Stenungsund. Ängås, Varekil and Henån from Orust, Ytterbyskolan, Marstrand, Diseröd and Kärna schools from Kungälv, Kållekärr's school and Rönnängs school at Tjörn and Uddevalla upper secondary school.

Age
Primary School (6 - 9 years old)
Middle School (10 - 11 years old)
Junior and Senior High Schools (12 - 18 years old)

Inland/Coastal
Coastal

School subjects
Biology; Chemistry; Geography; Maths; Natural Sciences; Physics; STEM

My project
The project started in 2017 with the aim of educating teachers and students in primary and secondary schools about the problem of alien and invasive species in the sea.

The students worked together with researchers who study alien species. The researchers participating in the project were helped by students and teachers to discover early on whether new species were emerging along the west coast.

The students were actively involved through classroom activities before and after the field trip, and, maybe even more importantly, through real field investigations together with the marine scientists.

Nyaarter.se is the project's website and is primarily adapted for use on mobile phones to serve as a first reporting function when children carry out their field surveys.

Studying marine invasive species together with scientists

Marine Wildlife Champions

Biodiversity

http://www.knowle-plymouth.co.uk/marine-wildlife-champions/

Country
United Kingdom

Goal
To engage pupils and staff with the natural world, finding fun and innovative ways to help young people learn about their local marine environment and ultimately be inspired to take practical action to promote and protect Plymouth and Devon's marine wildlife and habitats.

School + City
Multiple schools in the locality

Age
Primary School (6 - 9 years old)
Middle School (10 - 11 years old)
Junior and Senior High Schools (12 - 18 years old)

Inland/Coastal
Coastal

School subjects
Citizenship; Science; Geography; Technology

Discovering how our actions can have an impact on the sea and ocean

My project
The project aimed to increase knowledge and understanding of the marine environment and the challenges it faces allowing students to take the lead in affecting behavioural change in their community; to champion the cause of marine wildlife.

Led by Davon Wildlife Trust (DWT), the project allowed for students to work as a team and present their ideas and their findings to a wider audience. At the start of the project, DWT's Marine Education Officer visited each of the schools and presented the marine champions with five different challenges relating to marine life: terrestrial pollution; plastic waste; climate change/ocean acidification; overfishing; and the protection of the sea.

The students were then challenged to develop a project within the school, at home or in the local community which will have measurable outcomes for the good of marine life. Each school nominated at least 10 Marine Wildlife Champions, who will take the lead in developing this project within the school community or beyond.

Over the course of the project, the pupils taking part came to realise that their actions, negative and positive, can have a real impact on the ocean and its marine wildlife.

The Marine Wildlife Champions Project has been running since 2017, thanks to funding from the National Marine Aquarium in Plymouth.

VIRTUE-s

Biodiversity

https://virtue-s.eu/

Country
Sweden

Coordinator
Malin Rosengren

Goal
To develop environmental awareness among students and the local population as well as to monitor the amount of waste on the coast.

School + City
Brattebergsskolan, Öckerö

Age
Kindergarten (3 - 5 years old)
Primary School (6 - 9 years old)
Middle School (10 - 11 years old)
Junior and Senior High Schools (12 - 18 years old)

Inland/Coastal
Coastal

School subjects
Science; Citizenship; Biology; Chemistry; Technology

My project
In the school project VIRTUE students measure biodiversity of water environments through the accumulation of organisms on CD-shaped discs (biofouling). The CD-shaped plastic discs were mounted on a rack and placed in different underwater environments during different seasons. When the discs were retrieved, the organisms that settled on them were examined, identified, counted and observed. Thus, different aspects of aquatic biology were studied and used as an interdisciplinary approach in biology, mathematics, environmental science, physics and arts.

This project can be applied in freshwater and marine environments and the discs can also be pre-treated before deployment to test hypothesis on anti-fouling paint or effects of different nutrient solutions. The materials are cheap and easy to acquire, and all participants can openly use the website with instructions and teaching material and then share their results using the VIRTUE database and map function.

The main objectives were to learn about and measure biodiversity in aquatic environments, explore different hypothesis and questions concerning effects of environmental differences, physical gradients, and environmental pollution, and increase ocean literacy. A key part of this involved putting real-life context to the curriculum through a Project-Based Learning approach helping to spark curiosity and get students excited to solve problems and ask questions.

The value of the project can be vast; students are involved in the building and planning process, deciding which questions are asked, the level of interdisciplinarity, how many times the pupils return to study the same disks. Minimum time is needed for observing the growth and organisms on the plates for identification and quantification is approximately 2-3 hours, this can then be repeated on one occasion, every other month going, over a semester or over several years. The information retrieved when studying the disks can then be used in math, biology, arts, writing reports etc.

The exposure time of plastic discs is a minimum of 1-6 months (depending on season, region and geographical place) but they can also be left in the water for several years. Teachers from 29 countries are represented in VIRTUE. The project offers online courses for educators and an online classroom. VIRTUE also has an Erasmus+ project to train teachers in using relevant ICT tools.

Study marine or freshwater biodiversity with CD-shaped plastic discs

Science@Sea

Biodiversity

Country
Belgium

Coordinator
Maaike Steyaert

Goal
Discovering the North Sea.

School + City
Sint Franciscus, Evergem

Age
Junior and Senior High Schools (12 - 18 years old)

Inland/Coastal
Inland

School subjects
Biology; STEM

My project
Since 2014 a full semester of ocean science topics was incorporated in biology classes. The students come from different class groups and have chosen to work together on this project for 2 hours a week.

The series of marine biology lessons started with discovering where the ocean is in people's lives. Students went to the supermarket and looked at the marine components in daily products. This was followed by a field trip to the coast to discover the coastal habitat, followed by different lab exercises and activities in the classroom to learn about biodiversity and relationships between organisms. We look at the threats to biodiversity and some of the technology to study marine life together with scientists.

The project ended with a presentation and reception at the school where the students presented different snacks made from algae.

Students sign up for a scientific discovery of what lives in the North Sea

Spot the Jellyfish, Spot the Alien Fish

Biodiversity

www.aliensmalta.eu

Country
Malta

Coordinator
Alain Deidon and Maaike Steyaert

Goal
To train students as citizen scientists in recording sightings of jellyfish and marine alien species within Maltese coastal waters

School + City
15-20 schools in Malta and Gozo
(Maltese archipelago)

Age
Primary School (6 - 9 years old)
Middle School (10 - 11 years old)
Junior and Senior High Schools (12 - 18 years old)

Inland/Coastal
Coastal

School subjects
Science; Environmental science; Biology; STEM

My project
Since June 2009, Maltese schoolchildren have been engaged directly, through a combination of formal (held within school premises) and informal (held outside school premises, such as the Malta National Aquarium or on the beach) within three different marine-themed citizen science campaigns (Spot the Jellyfish, Spot the Alien Fish and Spot the Alien) operated on a national basis.

The three campaigns, which are managed by the Department of Geosciences within the University of Malta and which are funded by the International Ocean Institute (IOI) and the Malta Tourism Authority (MTA), have managed to engage thousands of Maltese students through ad hoc lectures, hands-on activities and even documentary screenings within cinemas.

A considerable number of citizen science sightings of jellyfish and marine alien species were submitted by the students themselves, especially of beaches specimens and of specimens sighted in shallow waters.

Becoming ocean literate and a trained citizen scientist by becoming familiar with local marine biodiversity

The Seahorse

Biodiversity

The seahorse, an indicator species of the Ria Formosa lagoon seagrass prairies and other ecosystems good condition

Country
Portugal

Goal
Aware students and the surrounding community to the importance of preserving the seagrass prairies, using the seahorse, a threatened and iconic species, as an "anchor".

School + City
Agrupamento de Escolas João da Rosa - Olhão

Age
Kindergarten (3 - 5 years old)
Primary School (6 - 9 years old)
Junior and Senior High Schools (12 - 18 years old)

Inland/Coastal
Coastal

School subjects
All subjects (multidisciplinary approach) with special focus on Natural sciences, environmental study and citizenship

Local community (parents and community) engagement into the project.

My project
The Blue School project is a crucial part of the everyday activities of the schools, deeply involving students, teachers and the rest of the community.

The main objective of this project – to increase children's ocean literacy – was achieved. Our students are more aware of the importance of the oceans in their lives, are aware of the threats that exist and begin to work actively to reduce the negative impacts of human beings in the oceans, particularly in Ria Formosa. All the campaigns to reduce the use of plastics and to preserve the seahorse are having an effect in the daily lives of our students and in the community.

The choice of the theme that our group embraced was a success. The protection of the Ria Formosa lagoon seahorse has been widely present in the media, and the work of our students and their teachers was important in what is now almost a national goal. We are forming a new generation of citizens more aware of the important role that seagrass play in our well-being, and knowing that conserving a species means preserving the entire ecosystem in which it lives.

The current Blue School project has a slightly different scope. Our school was one of five invited to participate in the CleanAtlantic project, developed by the Science and Technology Faculty of the University Nova de Lisboa and by the General Directorate of Sea Resources. It is a project that involves Docapesca, the fishermen and secondary classes, in order to make people aware of the problem of marine litter, and take concrete actions to reduce it. This project is complemented with others, developed at the initiative of teachers, students and the school community, from the various teaching classes. The objective remains the same: that João da Rosa Schools continue to train students who are more aware of what the Ocean represents for humanity.

Develop a project with interlinked activities
Produce a clear output
Involve all students
Collaborate with a local partner
Communicate project results
Provide authentic learning experiences
Work multi or interdisciplinary
Mobilise beyond the classroom
Foster a land-sea interaction
Bring in a European dimension