5

INSPIRING
PROJECTS

5

INSPIRING PROJECTS

Teachers have created remarkable projects on ocean topics over the past years all over Europe. Some of the projects originated from a personal passion of the teachers or an interest of the school community, while others were set up by or with the help of scientists or marine education organistions. These projects will no doubt provide teachers with a lot of inspiration to find their blue challenge in their community.

This is only the beginning, more projects will come and updates will be made regularly

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- Food from the ocean

- Climate and ocean

- Healthy and clean ocean

- Biodiversity

- Maritime culture

Food from the ocean

Farmed fish and seafood are an important part of the diet of millions of citizens across the globe.
Use the European Atlas of the Seas to know which types of fish or shellfish are farmed in your country.

September 21, 2020

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Esri, GEBCO, DeLome, NaturaVue

https://ec.europa.eu/maritimeaffairs/atlas/maritime_atlas/#lang=EN;p=w;bkgd=5;theme=208:0.75,242:0.75,717:0.75;c=1004375.7572647273,7111583.735211002;z=5

European Atlas of the Seas · Aquaculture

Shellfish farms

- Clams
- Mixed (other)
- Mussels
- Mussels-Oysters
- N/A
- Oysters
- Specialized (other)

Seawater finfish farms

- Diversed farm
- Flatfish
- N/A
- Other specialized farm
- Salmon
- Salmon-Trout
- Seabass-Seabream
- Trout
- Tuna

Freshwater finfish farms

Fishing with a future

Food from the ocean

Country
The Netherlands/Belgium

Goal
Educate young fishermen to continue operating successfully in a changing world.

School + City
Maritiem Instituut Mercator, Ostend

Age
Junior High School (12 - 15 years old)
Senior High School (16 - 18 years old)

Inland/Coastal
Coastal

School subjects
Multidisciplinary; Maritime Education

Fisheries students explore and build the profession of a fisherman.

My project
Fishing profession has changed considerably over the years.
In this project (which is a multiple day training), fishery students acquire new knowledge and skills to practice their profession in a sustainable manner and deal with:

- What is sustainability in fishing (People, Planet, Profit)?
- Environmental challenges, such as waste and air emissions;
- New activities at sea: wind energy, aquaculture and protected areas;
- Critical consumers and social organizations, quality marks and quality requirements from the trade;
- Other parties, such as researchers and policymakers, to get a better picture of the fish stock research and management.

ProSea has been conducting these trainings since 2004 within all Dutch fisheries schools and adapted them in 2018 to the Flemish local fisheries context, in collaboration with the Belgian Federal Public Service Environment and other local parties. Recently, ProSea started the ambitious Catching the Potential Project (www.catchingthepotential.eu) together with partners from nine European member states. Goal: develop, based on pilots in nine European member states, an international/EU sustainable fisheries training standard and to get it implemented as widely and mandatorily as possible within the project. The pilot of 2018 in Belgium ran for one full week. The 31 students between 14 and 23 years old were divided into five different age groups with each a teacher who supervised the group process. The programme consisted of daily lectures, guest presentations, group workshops (such as on how to communicate) and short excursions. During the final assignment, the students, who are not used to presentations, had to give one about a chosen topic.

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

Boulogne et la mer
Food from the ocean

Boulogne and the Sea

Country
France

Coordinator
Maggy Sinnaeve

Goal
Creating awareness on the economic and professional challenges of fishing in Boulogne sur Mér in the context of globalization. Create an organic glue.

School + City
Collège Navarin, Boulogne sur Mèr

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

Inland/Coastal
Coastal

School subjects
English; Maths; Technology; Geography; French

Creating an innovative product from fish waste can be done by students

My project
In this 3 years project, students learned about the economic, social and professional aspects of fishing in Boulogne sur Mer in the context of globalization together with fish processing companies, NAUSICAA, the Fondation de la mer and the Development Agency of the City of Boulogne sur mer. Starting from the photographs of fishermen taken from Frédéric Briois' book "Vagues à larmes", we discovered what the pupils know about the world of fishing.

During a "fishing week", an official from the Development Agency of the City of Boulogne sur mer visited the school to present the local fishing industry. Then the education department of Nausicaa made the students aware of the Mr Goodfish program (a campaign for the sustainable consumption of seafood products). Later, company visits took place.

The teachers involved (mathematics, geography, technology, French, …) then set up a part of their lesson program in connection with these visits. Thanks to their discoveries, students became aware of the existing issues and decided to use fishery co-products to create a glue based on fish waste. Approximately half of the fish caught today makes it to the dining table. The rest is processed into animal feed or gets disposed of.
The biological potential of fish is however too big to let it go to waste. New products can be developed by recycling fish waste.

This is the starting point of a project supported by Nausicaa and the local stakeholders to move from the idea to the concrete realization of the product (with the creation of slogan, logo, presentation and advertising videos, prototype of the product, the manufacturing in 3D printing, Story-Boards). The students won the "E.P.I seas and oceans" 2018 competition (a practical and interdisciplinary teaching competition). The Fondation de la Mer awards the first prize to them, in partnership with Nausicaa and the National Education.

Develop a project with interlinked activities

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Bring in a European dimension

Seaweeds in the feed

Food from the ocean

Country
Portugal

Goal
Raising students awareness to the importance of healthy eating, looking at seaweed as an important complement to vegetarian and other diets.

School + City
Agrupamento de Escolas de Padre Bartolomeu de Gusmão - Escola Josefa de Óbidos - Lisboa

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

Inland/Coastal
Coastal

School subjects
Physics-Chemistry; Biology-Geology

My project
The project aims to raise students' awareness of the importance of preserving marine ecosystems for the health and well-being of the planet, looking at seaweeds as the main producers of oxygen/consumers of carbon dioxide, capable of mitigating climate change.

The existence of hydrocolloids makes seaweeds an important source of soluble fibers while the richness in different chemical elements makes them an important food supplement and a source of nutraceuticals.

The preservation of ecosystems forces us to look at multitrophic aquaculture as an opportunity for local development and the creation of highly qualified jobs linked to the sea.

This project aims to raise students' awareness of the importance of knowledge to the valorization of natural resources and to the creation of a value chain that preserves the environment, according to the principles of the circular economy.

Valorization of seaweeds and its use as a complement to healthy diets

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Bring in a European dimension

Climate and ocean

Global warming has alarming impacts on our coasts.
Use the European Atlas of the Seas to describe the state of the coastline in your country.

September 21, 2020

1:73.957.190

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Esri, GEBCO, DeLome, NaturalVue

https://ec.europa.eu/maritimeaffairs/atlas/maritime_atlas/#lang=EN;p=w;bkgd=5;theme=195:0.75;c=1488680.7684794758,6372896.293863254;z=3

European Atlas of the Seas · Coastline changes

Coastline changes based on satellite data (2019)

🔴 Erosion (castline retrogradation)
🟡 Stable (imperceptible change)
🟢 Accretion (coastline progradation)

The ocean in the carbon cycle

Climate and ocean

Country
Greece

Coordinator
Fotios Charitakis

Goal
Acquire scientific knowledge concerning ocean acidification issues through a teaching-learning sequence.

School + City
6th Primary School of Alexandroupolis

Age
Middle School (10 - 11 years old)

Inland/Coastal
Coastal

School subjects
Science

My project

During the past two school years, we implemented a Teaching – Learning Sequence to a group of 6th graders in our school, taking into account the Ocean Literacy Guide, especially the fundamental concepts which concern the role of the ocean on the carbon cycle and the balance of pH, as well as the Ocean Literacy Scope and Sequence.

This Teaching-Learning Sequence was comprised of 3-weeks inquiry--based and knowledge-integration activities, particularly experiments, concept maps, virtual laboratories, and interactive online activities, concerning photosynthesis, respiration, web chain, carbon cycle, pH and ocean acidification. In these activities, students were asked to present their knowledge concerning the carbon cycle, emphasizing the effects of CO_2 increase on ocean acidification.

In this specific project, 3 different approaches for evaluating knowledge gains of the students were applied prior and after the extended didactical intervention, namely a structured questionnaire, a concept inventory, and the so-called "rich pictures", a free form of chart or image used to help illustrate complex issues, found mainly in science.

For the successful implementation of this project a close collaboration, between our school teachers and marine educators from the Department of Primary Education, Democritus University of Thrace, has taken place.

Ocean acidification and the carbon cycle in primary education

Develop a project with interlinked activities

Produce a clear output

Involve all students

Collaborate with a local partner

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Provide authentic learning experiences

Work multi or interdisciplinary

Mobilise beyond the classroom

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Bring in a European dimension

STEM4Sea
Climate and ocean

Country
Belgium

Coordinator
Annika Devos

Goal
Developing a school's STEM curriculum
with activities related to the sea

School + City
Sint-Lodewijkscollege SLOS4, Brugge

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

Inland/Coastal
Coastal

School subjects
STEM

My project
The project started with a co-creation process were pupils, parents and teachers choose the topics from a short list provided by the scientists. Around the 3 most wanted topics we created STEM activities in the first year of the project:

1) topic: Voyage around the world – activity:
Building a boat that can carry containers – age: for 1st grade;
2) topic: the sea came through the mailbox – activity:
Building a coastal protection against flooding, age: for 2nd grade, and
3) topic: Jonas and the sea – activity:
Building a submarine that sinks and floats, age: for 3rd grade.

In all activites children used recycled materials and LEGO (TM), they worked in pairs and did not get any guidelines on how to do the construction. The activities were also tested by different teachers in the school. All activities were hands-on and followed an enquiry based approach where the children seek solutions for problems. In the second year of the projects, the activities are embedded in the schools STEM curriculum and the lesson plans are shared via workshops with other schools and several education centers on the coast. The project was initiated by the board of parents at our school and researchers from the Flanders Marine Institute. We found funding at the local municipality to hire a STEM teacher that can lead this project.

Using the sea as a source of inspiration for STEM activities

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

EDUCATIONAL PASSAGES
MINIBOAT PROGRAM

Educational Passages' Miniboat Program[21] connects people around the world to the ocean and each other, creating citizen scientists and global ocean stewards. Students work together to prepare, deploy, and track their miniboat while learning about ocean currents, weather, technology, etc. Each 1.5m long unmanned boat has a satellite transmitter and can be followed online as it sails. Students develop important Science, Technology, Engineering, Art, and Math (STEAM) skills and confidence while learning about maritime careers. With help from fisherman, research vessels, and other mariners, 145 boats have crossed the world's ocean, bringing together thousands of students, teachers, and communities around fascinating learning opportunities. Boats often land in Europe after sailing along the Gulf Stream from the USA, which provides a unique opportunity to learn about different cultures while making lasting friendships.

Partners like the Portuguese Escola Azul help to re-launch them: WEST, for instance, which had stops in Portugal, Scotland, and the Azores, travelling over 20,000 km over four voyages. In 2019, the Spirit of Ashley Hall connected students from the South Carolina (USA) to the Isles of Scilly (UK) after crossing in 118 days. Boat tracks, stories, and data are all available online.

[21] http://educationalpassages.org/start
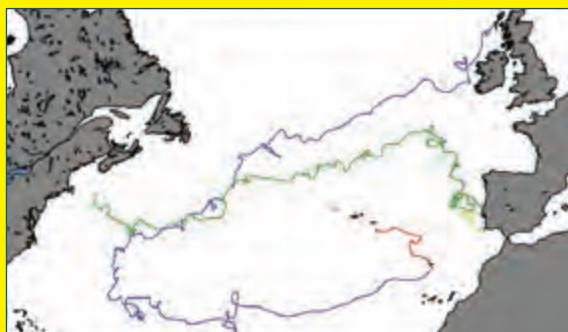
One of seven Portuguese sailboats
being launched into the sea under the
"Educational Passages PT" project:
Take Portugal to the World (Leva Portugal
ao Mundo), Escola Azul (Portugal)

Adopt a Float
Climate and ocean

www.adoptafloat.com

Country
France

Goal
With a specific and participatory approach, the Adopt a Float project aims at bringing marine sciences into the classrooms.

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
Inland/Coastal

School subjects
STEM

My project
The concept of the project is based on the idea that a class could adopt an underwater robot of the "profiling float"-type and follow it during its scientific voyage. With the float, the learners "travel" into an oceanic zone (e.g. the Mediterranean or the North Atlantic).

In real-time, they participate in the observations collected by the float as well as to the sciences that are associated. The learners are accompanied by scientists and work on a specific project.

At the end of the school year, they present their work to the Adopt a Float team and, if possible to a wider public. Trainings for educators on scientific topics are proposed. Scientists at different career levels are implicated and trained on science-based outreach issues.

The project is tightly linked to the international global ocean observation program: BGC-Argo (https://biogeochemical-argo.org/).

Follow an underwater robot and work with the real-time ocean observation data during its voyage.

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

Discovering High Waters
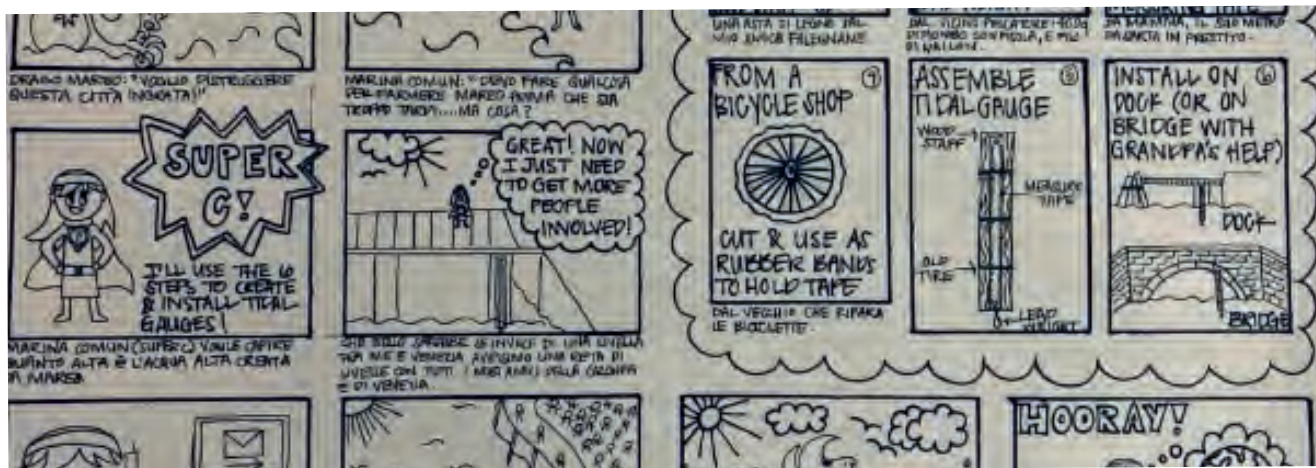
Country
Italy

Coordinator
Giovanni Cecconi

Goal
Raise awareness of the risk of sea level rise
in the Venice lagoon.

School + City
Schools from the Venice Municipality Itinerari Educativi

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
Hydraulics; Natural science; Geography; Physics

My project
Students contributed to the work of scientists struggling
with the problems of climate change and subsidence in
Venice lagoon. They actively contributed to the understanding
of high water by measuring:

1. the delay of the tide from Venice to their school/territory;
2. the effect of the wind on the high water;
3. the local baseline for local soil settling and sea level rise.

Their measurements were added to the official mathematical
models of Punta della Salute to monitor the delay of the tide
and the growth over the years of the sea level and the effects
of the wind on the high waters that threaten the Venice lagoon
territories. The project started with a 2 hour introduction and 2 hour
installation of the equipment in the field. In the following weeks
during normal or stormy weather, the students carried out a dozen
readings, mainly out of school hours, accompanied by a family
member or the teacher. The work was presented at the annual
Earth book Forum. The activities were shared with eTwinning
schools of the major coastal cities of the world threatened by the
growth of sea level starting with Croatian and Slovenian schools
of Upper Adriatic.

*Measuring the tides
in the Venice lagoon*

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

Healthy and clean ocean

Every year, millions of tonnes of litter make their way to our beaches and seas, causing a major hazard for marine life. Use the European Atlas of the Seas to describe the most common types of litter you can find on the nearest beach

September 21, 2020

1:36.978.595

Esri, GEBCO, DeLome, NaturalVue
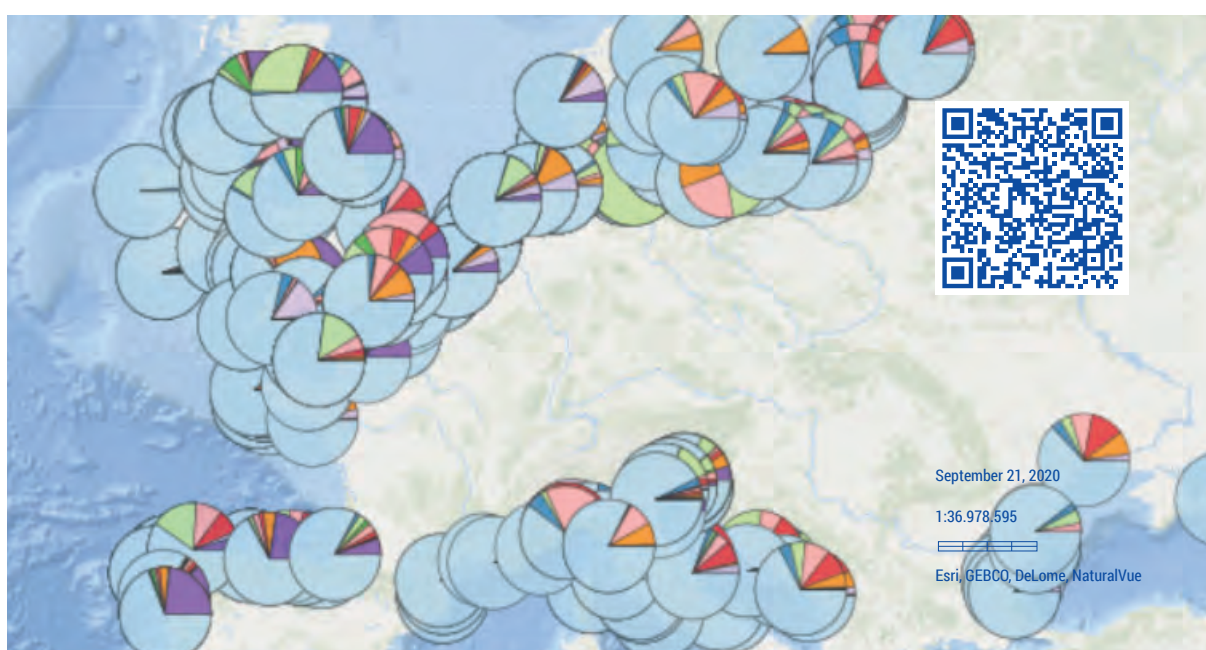
https://ec.europa.eu/maritimeaffairs/atlas/maritime_atlas/#lang=EN;p=w;bkgd=5;theme=562:0.8;c=-8261.993457008619,5668452.641187269;z=5

European Atlas of the Seas · Beach Litter

Beach Litter – Composition of litter according to materail categories

- Artificial polymer materials (%)
- Cloth/Textile (%)
- Glass/Ceramics (%)
- Medical litter (%)
- Metal (%)
- Paper and cardboard (%)
- Pollutants (%)
- Processed/Worked wood (%)
- Rubber (%)
- Sanity litter (%)
- Other (%)

Clean Sea

Healthy and clean ocean

Microproject Interreg

Country
Belgium/France

Goal
To raise awareness among coastal children about the origin of marine waste, the consequences for sea life and the daily actions that lead to waste reduction.

School + City
· Ecole Kleber (Dunkerque - FR)
· School De Vlieger (Ostende - BE)
· Ecole municipale d'Arts Plastiques de Dunkerque (FR)

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

Inland/Coastal
Coastal

School subjects
Visual Arts; Art History; Written Expression; Modern Languages (French/Flemish)

My project
We started the project with creating awareness on marine pollution in both schools separately by class activities on the origins, impact and solutions to marine pollution and a sensory discovery of the beach and its natural and unnatural elements.

The pupils then created a work of art (artistic expression) and a plea (written expression). They also prepared a presentation for the schools of the neighboring country which can be understood by children from another language.

When the approximately 100 students from each side of the border met, we engaged them in children games on the sea and on waste, experimented with other mode of expression, allowing children to understand each other despite the difference in language.

Finally the students had to vote for the output of the project out of 12 works of their art. And they decided to create an album that can then be used to support future writing workshops without any text. The schools were supported by Horizon Educatief (Oostende, BE) en CPIE Flandre Maritime (Zuydcoote, FR) in the process.

A cross-border project between
3 coastal schools on beach pollution

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

Plastic ALARM! Müll im Meer

Healthy and clean ocean

Garbage in the Sea

Country
Germany

Coordinator
Annekathrin Schuldt

Goal
To use artistic engagement to teach about the impact of plastic pollution on the marine environment.

School + City
Grundschule Dietrichsfeld, Grundschule Heiligengeisttor, OBS Ofenerdiek, OBS Osternburg, OBS Alexanderstrasse

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

My project

The project focused on the artistic interpretation of the immense pollution of the environment by plastics, especially the ocean, and how the resulting destruction of the habitats of animals, can impact the rest of the Earth and inhabitants.

The school and local community together with 17 artists, explored the ghost nets of the seas, learning about the huge, deep-sea plastic landscapes, travelled with cruise ships in the plastic sea or investigated fish stomachs. The sea sculpture was explored, experienced and designed using artistic-aesthetic methods. Seventeen professional artists from Bremen and Leipzig worked on plastic pollution in 2019 over 5 weeks with over 220 students from 5 schools in the studios and workshops of the Oldenburg Art School.

During the final exhibition, there was an extensive supporting program with actions and lectures in cooperation with the Museum Natur und Mensch and the Institute for Chemistry and Biology of the Sea (ICBM) at the University of Oldenburg.

Working with professional artists to create art works for a public exhibition

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 Garbage Pirates

Healthy and clean ocean

Country
Germany

Coordinator
Doris Henningson

Goal
To arouse positive emotions on ocean pollution and to convey a message with joy, great commitment and sustainability.

School + City
Grundschule Neuhaus an der Oste, Neuhaus

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

Inland/Coastal
Inland/Coastal

School subjects
Arts; Music; Technology; Drama

My project
The pupils participated in a musical on garbage pirates. In this imaginative forum we created a pirate ship using emotive and musical performance techniques, drawing attention to consequences of pollution of the seas, the careless use of the environment, and the thoughtless consumption of resources and resulting waste.

This became a continually running project as part of school curriculum on education about sustainable development, the preparation specifically for the musical lasted six months.

The main point was to involve everyone in the school in the project in a positive way, with roles to fit everyone and ensure the whole community and student body were included including technical aspects, lights, decoration, catering, cleaning, and performing.

The combination of music as a motivational and creative aspect and the existential topic of marine litter allowed the topic to be incorporated in a creative and inspiring manner. The garbage pirate ship that was build did not wear out after the musical, but now serves its purpose as an environmental center for recycling in our school.

Creating awareness on litter
by involving the whole school
in a musical

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

Let's make a move!

Healthy and clean ocean

European citizens fighting the ocean plastic soup

Country
Germany

Coordinator
Melanie Bolks

Goal
To inform on the topic of plastic waste in the ocean, become aware of consumer behaviour and jointly develop strategies to raise awareness of the threat to the seas in their schools.

School + City
Adam-Josef-Cüppers-Berufskolleg, Ratingen

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

Inland/Coastal
Inland/Coastal

School subjects
Arts; Informatics; Technological Education; Foreign Language

My project
Four European partner schools in Germany, France and the Netherlands spent six months reflecting on a current topic of high social relevance: pollution of the ocean by plastic waste.

The students informed themselves about the topic of plastic waste in the ocean, became aware of their own consumption behavior and jointly developed strategies to raise awareness of the threat to the ocean in their schools.

International collaboration over the Internet is a new experience for the students. They get to know each other via the eTwinning platform and work together in cross-border groups to approach the topic. Together they have developed an exhibition to raise awareness of the garbage problem in the ocean at their schools and to sensitize classmates to the possibilities of avoiding garbage.

Students from 4 schools cooperate via eTwinning to raise awareness on plastic pollution

Develop a project with interlinked activities

Produce a clear output

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Work multi or interdisciplinary

Mobilise beyond the classroom

Foster a land-sea interaction

Bring in a European dimension

Kids save Ocean

Healthy and clean ocean

www.kidssaveocean.com

Country
Austria

Coordinator
Peder Hill

Goal
Give students a voice to change
environmental policy

School + City
Draschestrasse Grg 23 Vienna
Bilingual School, Vienna

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

Inland/Coastal
Inland

School subjects
Art; Biology

Giving students a voice to
change environmental policy

My project
Kids Save Ocean started in 2017 when the teacher introduced
12-year-old art students to plastic ocean pollution and suggested
to build something highlighting the problem. Horrified, they rose
screaming "YES"!

Six months later their plastic whale sculpture was finished. Dissatisfied
with its impact, the teacher and the students approached the United
Nations (UN) proposing a Children's Clean Ocean Summit, where kids
would teach each other about causes and solutions to plastic ocean
pollution and share their vision with the world. The UN embraced it, and
on June 22nd 2018 with over 300 participants from 6 schools, the kids
brilliantly ran the entire show.

During the summit each child voted on which solutions they thought
most important, and their prioritized list along with the Children's
Clean Ocean Declaration they wrote was sent to every world leader.
Over 20 personally responded: kings, presidents, prime ministers, a
queen, even a knight (Attenborough). Their whale sculpture exhibited
on World Ocean Day at the UN, in the Austrian Academy of Sciences,
and will exhibit at Austria's Haus des Meeres aquarium for 2 years
starting in Fall.

With volunteers, and the co-design with children, the students also built
the FateChanger app, designed to give children everywhere a voice
about our planet's environment.

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with interlinked activities

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