



Connecting minds, creating
the future for the oceans
XXIX CEI CONFERENCE 28th June to 4th of July 2015

Global Forum

*For
Environmental Education*

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**CEI 2015 Oeiras, Portugal
Conference Delegate Issue**



Caretakers of the Environment International
A global network for teachers, educators, and students

President's Message

Greetings to CEI 2015 delegates - colleagues, teachers and students

Welcome to the annual **Caretakers of the Environment International (CEI) conference**, which the Portuguese branch of the CEI namely **ASPEA** arranges this year. Thanks to **Fátima Almeida** and her hard working team, her networks and international contacts, for having invited all of us as Caretakers of the Environment to for the 29th CEI conference taking place in Oeiras and its beautiful surroundings.

Through the exciting CEI 2015 theme "**Connecting minds, creating the future for the oceans**", the Ocean Literacy Principles are explored. During this conference there will be lots of field trips, outdoor activities and meetings taking place and time for both formal presentations and informal chats. Don't miss the opportunities to get to know new friends and to get to know more! Exactly this is so important, to get a chance to share reflected experiences to form knowledge together, in particular, as you come from different places and have investigated various sorts of ecosystems and sustainability issues around the world.



By taking part, talking and listening to each other's projects, meeting with students and teachers from different countries, and exchanging experiences, we advance our common understanding and extend our individual learning among other things about the Earth's unique water resources - as found in the oceans.

As proclaimed in the Ocean Literacy Principles, the ocean and humans are inextricably interconnected, and for that reason everyone is responsible for caring for the ocean. "The ocean sustains life on Earth and humans must live in ways that sustain the ocean. Individual and collective actions are needed to effectively manage ocean resources for all." Consequently, it is critical that we connect our minds and our creativity in joint learning processes to raise awareness about how to avoid exploiting the seas further. Let's find ways to focus on the fact that prevention is more practical than cure. For example, let's look for tools to apply preventative environmental management strategies instead of focusing on "end-of-pipe solutions". Do share best practices found with one another and try to find sustainable solutions to tackle the overwhelming challenges that the oceans face today - and probably - in the future.

Once again my sincere thanks to all of you for contributing so much by being active in our network of the CEI, engaging in the important sustainability work, so truly needed. The successful networked learning, thanks to the CEI, has been very rewarding to many of us, who see and catch the moment. Let's continue, keep in contact, and take on new challenges together! Therefore, I ask you to spread the message and tell those you meet about the importance of paying attention to sustainability problems, but also point out mutually beneficial ways to find solutions together - for example, through such exceptionally good networked learning opportunities we continuously manage to develop together.

Cordial greetings to all of you - members in the CEI board, teachers, alumni and students, fieldtrip and workshop leaders, old and new members of the Caretakers! I wish you a joyful, successful and fruitful learning experience and hope that it continues and develops also after the conference.

Take care!

Birgitta Nordin

Birgitta Nordin
President, Caretakers of the Environment International
President of the Swedish CEI Branch

Hello from Portugal!



CEI 2015 Conference Team

Left to right: Laura Gonzalez Gonzalez, Fatima Matos Almeida, Nikki Milini

Hosts



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TURISMO DE NATUREZA, Lda.



AGRUPAMENTO DE ESCOLAS DE S. JULIÃO DA BARRA



Oceanário de Lisboa
Sempre diferente.



Dá ritmo à vida



APORVELA
ASSOCIAÇÃO PORTUGUESA DE TREINO DE VELA



Câmara Municipal



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PORTOS E LOTAS, S.A.



Parques de Sintra
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PORTUGAL

MINISTÉRIO DA EDUCAÇÃO
E CIÊNCIA

Connecting minds, creating the future for the oceans

XXIX CEI CONFERENCE



28th June to 4th of July 2015
Oeiras - Portugal

A conference for secondary school students and teachers who share
concern for the environment and are active in environmental education.

Hosts



Supported by





Second Fiddle

I had always played second fiddle. I was the queen of mediocrity and danced in the shadow of others' success. At least that's how I saw my world; my scope was limited to outward comparisons rather than intrinsic growth. I finally I found my confidence and self-worth in the most unlikely place, Taiwan.

I was invited, along with seven other delegates, to represent Oregon and U.S. at the annual (CEI) conference. The conference brings together seventeen countries to an itinerant location. The delegations present both research and hands-on projects to small classrooms of students in order to express environmental concern on a global scale. I was ecstatic to see what other students around the globe were doing to protect our world.

The project I undertook with my partner was to build four wheelchair accessible garden beds for an assisted living home in our community. The garden gave the residents the chance to reconnect with the earth and the food grown would eventually become a source of organic vegetables for the facility. To be working on such a meaningful project to my home town allowed me a sense that I played a vital role in the community and could stand alone as a force of change.

My upswing in confidence grew almost exponentially when my partner and I were chosen among the top seven presentations to speak to all the attendees about our work back in America. We were elated to share our

project and basked in the feeling that we had, if only a sliver, an effect on humanity.

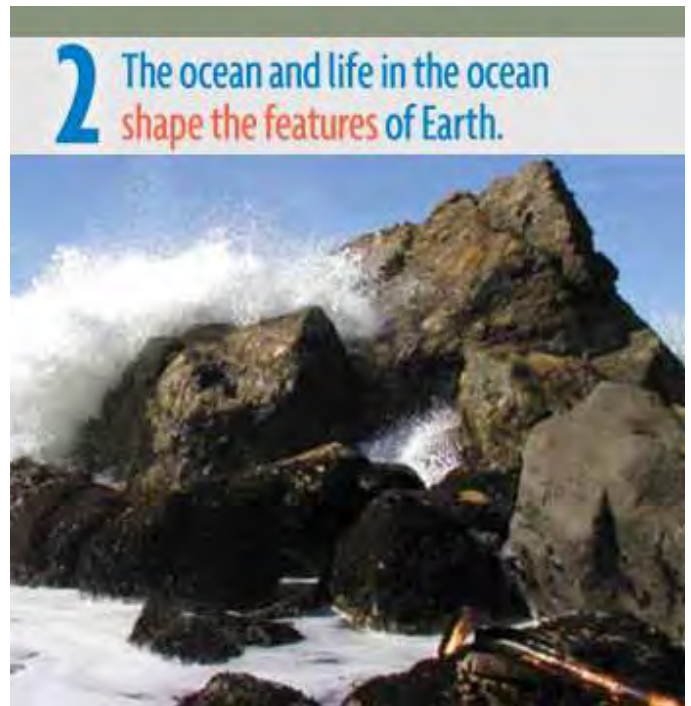
In my most honest reflections of my time in Taiwan, I realized the important souvenirs I took home were not an improved knowledge of water usage and agriculture nor a bag full of rice based desserts, but rather a better understanding of myself and the cultures that surround me. I made life-long friends with students whose sole communication was giggles and shared smiles. Language and cultural barriers fell with every shared experience, swim in the ocean, and tear as we hugged goodbye. It wasn't the new knowledge or travel that changed how people saw me but rather the only thing that had changed was how I saw myself. I had a new outlook on the role I played in the world. Previously, I had looked at myself under a microscope, picking apart the anatomy of my mistakes and accomplishments until they seemed to mean nothing. I now see myself as greater than the sum of my parts - maybe not yet as the lead guitarist, but certainly as the happy and vital second fiddle.

Emily Ausman

Sisters High School, Sisters, Oregon



Welcome, Caretakers!



4 The ocean made Earth habitable.



5 The ocean supports a great diversity of life and ecosystems.



6 The ocean and humans are inextricably interconnected.



7 The ocean is largely unexplored.



Alumni Team 2015

This year we have 6 alumni with a mixture of new and old faces, ready and excited to greet you all in sunny Portugal! We cannot wait to dive in (that was on porpoise,) and we're shore you can't wait either. Fin I'll stop. But seriously, we're all delighted to be leading you on this wonderful ocean adventure.

Don't forget to follow us on social media, our Twitter is **@imcei**, Instagram is **@imcei**, Snapchat name is **ceialumni** and we also have a CEI 2015 Facebook group. Make sure to hashtag: **#CEI2015** all week!

We love to get your photos, comments and ideas, during and after the conference and of course leading up to the next conference so please get involved with our social media!

And of course check out our website: ceialumni.org

Peace and love, take care,

The Alumni Team 2015

This year our team is:

Jana Cox – Secretary & Co-Chairperson

Nationality: Irish



Conferences attended: Denmark 2008, Scotland 2009, The Netherlands 2012, Scotland 2013 & Taiwan 2014 (alumni)

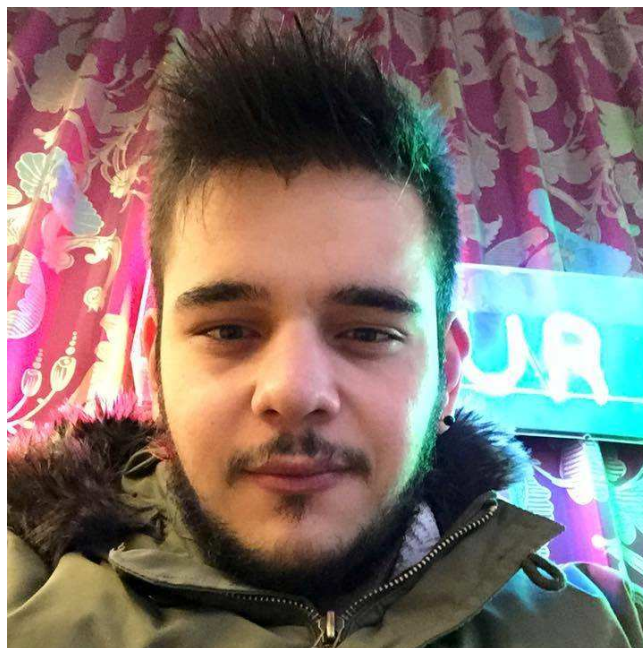


Errikos Kontogoulidis – Logistics Team Co-Chairperson

Nationality: Greek



Conferences attended: Scotland 2009, Hungary 2011, The Netherlands 2012 & Scotland 2013



Jessica Tattiana – Entertainment team

Nationality: Indonesian



Conferences attended: Hungary 2011, The Netherlands 2012 & Taiwan 2014 (Alumni)



Nikoleta Papoutsaki – Entertainment team

Nationality: Greek



Conferences attended: Hungary 2011 & The Netherlands 2012.



Gosia Kocot – Social media team

Nationality: Polish



Conferences attended: The Netherlands 2012, Scotland 2013 & Taiwan 2014



Tony Currier Reagor – Logistics team

Nationality: American



Conferences attended: Hungary 2011, The Netherlands 2012, Scotland 2013 (workshop presenter) & Taiwan 2014 (delegate projects coordinator)



Introduction of Alumni Caretakers Projects

In 2013 the CEI board and Alumni devised the concept of the Alumni Projects. The aim of these projects is to show how the Alumni act as Caretakers outside the weeks of the Conference, and to show students that you are not a Caretaker merely for one year, or one conference, you are a Caretaker for life.

2014 was the first year that alumni successfully carried out alumni projects. These projects not only incorporated this year's alumni team, but also past alumni, conference delegates and CEI board members, because CEI is a big family and we are all Caretakers together working towards one common goal, to save our planet. The alumni all undertook local actions to help save a small part of their world.

The following are summaries of the projects undertaken by the 2015 Alumni Team.

Further information about the alumni projects can be found on the Alumni Website, under the Alumni Project Blog tab at ceialumni.org

Learn to Love the Coast: A World Wetlands Action Day

I worked with Coastwatch Ireland and Newtown School Waterford to organise an action day for World Wetlands Day. A group of 5th form students from Newtown School Waterford (including the Irish delegation for the 2015 conference) visited Trinity College Dublin where we had an information morning. This included a talk about CEI from Alumni Laura Cox, Julien Beuken and myself. They also heard about Coastwatch Ireland and World Wetlands Day from Karen Dubsky and Michael Walsh from Coastwatch Ireland, and sea turtles from Ashley Shak, an intern of Coastwatch Ireland



After this we brought the students to Bull Island, a RAMSAR (protected area) wetland site in Dublin. They



visited the interpretative centre and were given a tour of the site and a lecture by Pat Corrigan, head of the interpretative centre about the flora and fauna on the

island. We then led some practical activities on the beach related to biology and shells.

A big thank you to everybody involved, we had a great day and learnt lots about wildlife, wetlands and the coast! We are Caretakers!
Jana Cox - Ireland

What are eco-friendly products and devices and how do we identify them?

For my project I decided to work with my former high school in order to work with teenagers between the ages of 15 to 18.

ΕΡΩΤΗΜΑΤΟΛΟΓΙΟ
«Πράσινα» προϊόντα: Τι είναι και πώς τα αναγνωρίζουμε.

1. Φύλο:
☐ Αγόρι ☐ Κορίτσι

2. Ηλικία:
☐ 14-15 ☐ 15-16

3. Ξέρετε τι είναι τα «πράσινα» προϊόντα;
☐ Ναι ☐ Όχι

4. Αν ναι, από πού;
☐ Έντυπα/ Τηλεόραση ☐ Διαδίκτυο ☐ Φίλους/ Γνωστούς ☐ Σχολείο
☐ Άλλη πηγή:

5. Ποιος από τους παρακάτω ορισμούς είναι ο σωστός;
«Πράσινα» προϊόντα είναι αυτά που:
Α)) Παράγονται με παραδοσιακές μεθόδους, χωρίς τη χρήση χημικών ουσιών, φυτοφαρμάκων.
Β) Είναι κατασκευασμένα μόνο από ανακυκλώσιμα υλικά έτσι ώστε να μειωθεί η ποσότητα των απορριμμάτων στις χωματερές.
Γ) Προκαλούν μειωμένη, μικρή ή και καθόλου βλάβη στο περιβάλλον κατά την παραγωγή, τη χρήση ή την απόρριψή τους.

6. Επηρέαζεστε από τις διαφημίσεις όταν ψωνίζετε;
☐ Ναι ☐ Όχι

7. Έχετε δει διαφημίσεις «πράσινων» προϊόντων;
☐ Ναι ☐ Όχι

I cooperated with some of my former teachers and since I wouldn't be able to be present when the questionnaire, quiz and information sheet I prepared I organized that they would hand out all those papers and collect them back.

Up to now I have gathered the answers from only a few classes. Therefore, the results are not final yet, but so far they show that the students know only the basics about green industry and can't identify some of the green labels

of the quiz. Hopefully, the rest of the classes will do better and find the information sheet helpful since it provides them with the answers of the quiz and also some useful tips regarding their “green” shopping.

I started this project knowing that it is quite simple and covers only some basic knowledge on how to protect the environment because I thought that the “problem” lies there, not knowing the basics. And that is what I realized from my research so far too. However, I’m still positive that the final results will be a lot better and more encouraging.

Nikoleta Papoutsaki - Greece

Celebrating Water:

Creating a Movement through Memories

Celebrating Water is a campaign that aims to support organizations that focus on the protection and awareness of the waters

(maritime, ocean, reservoir, clean drinking water, marine wildlife, etc.)

I designed several post cards with the simple theme of ‘water’. I handed out



physi

cal copies of the post cards with a pamphlet describing our mission as ambassadors of CEI. I introduced CEI to fellow students and instructors that shows interest in



maritime and environmental sustainability in general. I worked with the international students services at Pennsylvania State University to support this project.

I came up with this project with the aim of introducing and reminding the community about the importance of oceanic sustainability. First, I gave a presentation to organizations about waters, negative impacts of human activities on the ecosystem (particularly waters), and approaches to maintain the health of our oceanic environment. Then I asked them to write messages on the postcards to remind the community of the importance of oceanic sustainability.

As a Caretaker and as an ambassador to the environment, I wish that this project will increase in popularity and remind the community of the importance of Celebrating Water.

Jessica Tattiana - Indonesia

River as a City Mirror

I am working on my project with students and teachers from my high school. Our main aim was changing the look of our local river called the Rawa into a beautiful sign of the city. I started to show my interest to help environment in my city in school. I have asked some students to make a presentation about what they know about river "Rawa". My teacher came up with an idea of “bokashi” balls to help save our river.



“Bokashi” is a Japanese term that means “fermented organic matter” and refers to a system developed in Japan that uses beneficial micro-organisms to break down toxins and food waste. During open days in my school, students with our teacher made some of these balls. To make the bokashi balls, the group combined a mixture of clay, ceramic powder, brown sugar or molasses and rock salt and then infused the mixture with micro-organisms.

When they were done some students threw them into the river.



We are waiting for micro-organisms to do their job and clean the water. I hope that in the future we will do it again and again to make water more clear, and to show our environmental interest to others.

Gosia Kocot - Poland

Pollution of the sea

In Greece, since it is a country with a long coastline, the sea is very important. However many factories drain their waste into the sea. As a result of this, they infect and pollute the sea and of course the fish.

I worked with some volunteers and we visited an island where this problem is huge. We faced a disaster. A whole beach was destroyed and thousands of fish were dead.



We spoke with the mayor and the local authorities and they assured us they will solve the problem. Along with residents of the island who volunteered to help us, we tried to clean the beach and give life again to the island.



I chose this project because it's very common and many countries face the same problem. So, students working in partnership can share their ideas how to solve it, and prevent this happening again in the future.

Errikos Kontogoulidis - Greece

The Ocean of Mentorship

"Tell me and I forget, teach me and I may remember, involve me and I learn."
-Benjamin Franklin

The future is imminent, and with it comes the shifting tides of life. For example, one of my mentees is moving off to a prestigious university. All these new steps for people has me thinking about my legacy.

My legacy is the ocean of mentorship. As the ocean sculpts life on Earth, mentorship sculpts the mentee's ability to take control of their life, shape their community, and create culture by teaching them to be the waves that form the cliffs of their world.



I encouraged my students' waves to reach new heights. I want them to lead new projects, talk about

environmental problems, to be a tsunami on the complacency and fears that created our current situation. I empower my students to inspire others.



Mentoring has to be just as effective at low tide as high tide, and sustain the mentee through the ebb and flow of the waters, and weathering inevitable seasickness.

My project has evolved into mentoring our at-risk youth engaged in environmental stewardship to help them navigate the waters of adolescence that include personal challenges at home and school, and assist them in finding their place.

Tony Currier – USA

CEI 2015 Delegate Projects

CNELL Center of Non-formal Education and Lifelong Learning

Our organization have an annual local youth programme that engages around 80 young people in a wide range of weekly activities. Our youth programme is coordinated by 3 professional youth workers and 5 volunteer youth workers. Activities of the



youth programme include educational workshops on various societal issues, skills development trainings, individual coaching and

personal development and Entrepreneurial learning – Start up days.

Last but not least our organization have a cooperation with many institutions in Tirana such as Schools, other NGOs, Center for people with disabilities, Art and Culture Public institutions etc.

Discover Neighborland is a long term project and initiative of Cnell Albania that will last for 2 years. Aim of the project is to promote and to foster intercultural, inter ethnic and interreligious dialogue between young people of Western Balkans and the EU countries.

We wish to create opportunities and experiences which enrich the cultural development of ALL youth and enable them to share their ideas about United Europe and Common European Values, to meet new cultures and to become active European Citizens.

The specific objectives of the project are:

1. Enable active participation of young people in Europe
2. Promote diversity and cultural understanding
3. Develop competencies (skills, knowledge and positive attitude) of young participants
4. Enhance cooperation between youth organizations and to promote international youth work.

Each youth exchange will be organized by two partners and will have a specific theme that is relevant to the organizations work and the needs participants. The age of the participants is 15-18 or 18-25 depending on the target groups of the partner organizations 5- 10 participants per country.

Ms. Mezexhiu Bora, Executive Director
Tirana, Albania

“It is a small step for us, but a giant leap for our nature.”

Plankton is an utterly important factor concerning our future. As nearly 75% of our atmospheric oxygen is produced by planktonic organisms, the pollution of the oceans with plastic is a severe problem for the environment.

In everyday life, one keeps stumbling across plastic in various forms: be it when drinking out of a plastic bottle, or brushing your teeth. Although plastic has become



essential in our world, it is more important than ever that we reduce our plastic usage. Therefore we have organised a project

with which we tried to raise awareness for the problems our environment is facing due to plastic.

First of all, we made a film in cooperation with some pupils (aged 10-14) who attend afternoon class. The aim of this part was to focus on waste that is inconsiderately thrown away in our environment.

Secondly, the film was shown in biology lessons and ways to reduce our usage of plastic were discussed. Students were provided with general information about the harm of plastic.

In the last part of our project we organised a week with some students from 6th form. During this week we collected the plastic in our school and evaluated the amount of plastic. Our "helpers" created an island in the middle of our school so that it was well seen by all students and teachers. Even though there was less plastic



than we had expected, we tried to further reduce this amount.

As we do care about the environment, it is important for us to inform our classmates and younger students about current problems and issues. Even more students reuse plastic bags and bottles. What is more, our project made us

think about ways to reduce plastic in our school. This is why we replaced the coffee cups in our school with more eco-friendly material and we hope to reduce plastic in our future.

Students: Elisabeth Christine Pferschy, Bianca Scharf, Judith Elisa Steinwider, Viktoria Johanna Moser, Angelika Kogler, Florian Dieter Steinwider

Teachers/Leaders: Mag. Ilse Prenn, Dr. Mag. Eva Gergely, Mag. Bernd Fiechtl
BG/BRG Judenburg, Austria

"A Positive Approach to Climate Change" Canada Workshop

This workshop briefly provides the basics of what is climate

change, what are its causes and

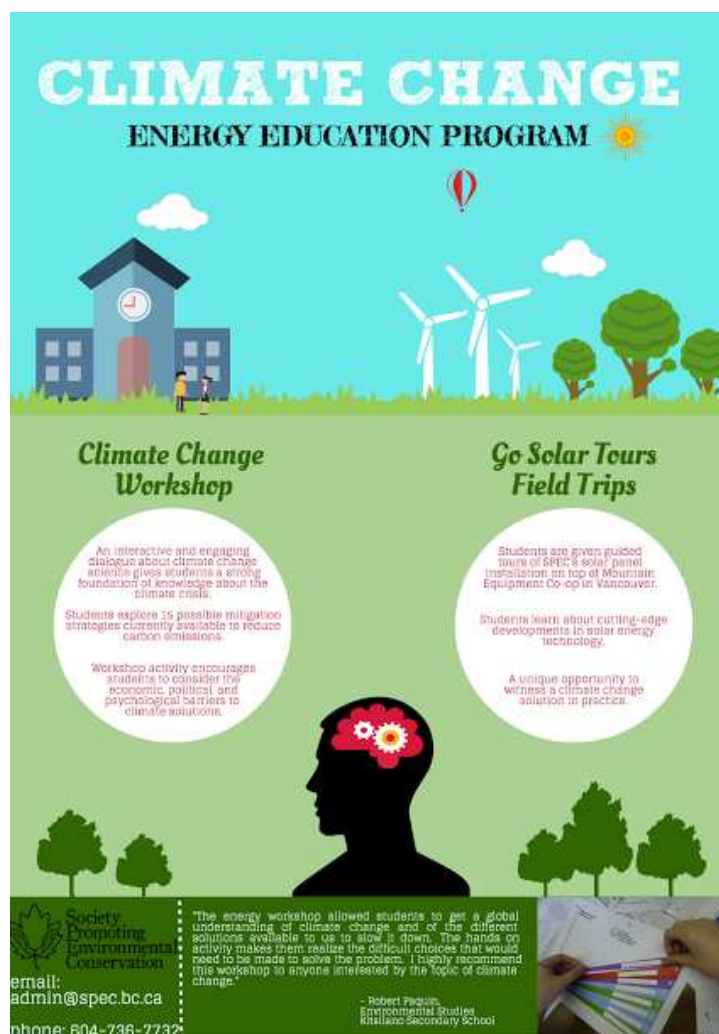
implications on our planet in a interactive presentation. It then provides an array of potential solutions to the climate change problem, where students will then



participate in an interactive group activity where they must make decisions about the best strategies to stop climate change.

Jacqueline Craig

Master in Public health student in global health stream
Simon Fraser University, Vancouver, British Columbia
Canada



Living by the Sea

The Danish delegation has been exploring and expanding their knowledge about how humans and the ocean are connected – with a specific focus on how the humans affect the ocean and the other way around: how the ocean affects the humans.

Our first project is about the oceanic environment nearby Denmark, and how we as Danes pollute this environment - and how we try to minimize this pollution. The students



visited a Danish navy station to get a better understanding of how the Danish government is trying to minimize oceanic pollution by monitoring the ocean with different kinds of vessels from the navy. The students will combine their knowledge about the pollution of the ocean and how not to pollute - and try to communicate this to other youngsters in their local community. The second project is focused on coastal protection. In Denmark we are experiencing issues with the ocean



ruining our coastline – which results in people losing their homes, because their houses are being washed to the sea. What is the solution - hard or soft

coastal protection? This is what the students are trying to figure out, and they have been visiting various places on the west coast of Denmark, to explore the different solutions. With this knowledge they will try to create their own solution, where they will include all aspects of the



issue - both political and environmental considerations have to be incorporated.

Students: Diana Fayed, Jonas Lykholt, Anne Larsen, Louis Nielsen, Asger Rygaard-Sørensen, Marie Akobe, Linda Lui, Nadia Agermose **Teachers:** Elisabeth J. Brun and Sophie Mortensen

Aalborg Youth School, Aalborg, Denmark

teenagers should become aware of the threats of overfishing to the Oceans and the interdependence of Oceans' and human life.



We have chosen as our main topic "Seafood and people are inseparably linked" based on the ocean literacy Principle 6 of the conference topics, "The oceans and humans are inextricably linked". We started gathering information about our immediate sea environment, the Aegean Sea and extend our research further to the Mediterranean Sea and globally to the oceans realizing that overfishing and its negative effects on the sea is a huge global issue.

Moreover, we were overwhelmed by WWF data that "More than 70% of the world's commercial marine fish stocks are either fully exploited or overfished" and "Once considered inexhaustible, our oceans are in a state of global collapse" and this is also a threat to humanity. We have discussed on our possible contribution in facing this threat and decided that we can do it by 1. the way of choosing our seafood as this can determine sustainability of the life in Oceans so that tomorrow's generations will continue to enjoy the oceans' riches and 2. Participating in local and world campaigns against overfishing for the protection of local fishing communities.

We focused on the problem of overfishing, its consequences and the suggested solutions by either the Official bodies or other organizations. With our project presentation we aim at informing young students about: a. the criteria upon which they should choose their fish food (seafood red list & endangered species), b. overfishing (which fisheries are in peril and why), and c. how they can contribute to the protection of the sea. Greenpeace says that 40% of the world's oceans should become ocean sanctuaries. Currently less than 1% of international waters are protected – so we need to pick up the pace. What we say is that we need to raise students' awareness on the issue.

Sustainability and Overfishing

Sustainable seafood - Is it really possible?

We decided to work on this particular subject because we believe that people and especially



leader/teacher: Dina Tamoutseli /Niovi Iliadou

Students: Georgios Kontogoulidis, Theofilos Kevezitidis,
Areti Ioannidou
Caretakers-Greece

Simulation of an Ecosystem: Construction of an Ecosphere



Various threats are posed on ocean, from conventional sewage pollution, over-fishing, coastal development, to



oil exploitation, microplastic pollution and global warming. All these are destroying our precious ocean and its ecosystems. Once the ecosystem is upset, it is, despite modern technological knowhow, impossible to recover it fully.

The present project attempts to recover an ecosphere are illustrated. Ecosphere, firstly was designed in 1982, is a sealed aquarium that simulate the ocean. It consists of two biotic components: shrimp and algae. The ecosphere is considered as a closed system and, ideally, only sunlight is needed to sustain its operation.

Within the ecosphere, the biotic components and sunlight (abiotic component) interact. Energy from sunlight supports the photosynthesis of the algae. Through this, oxygen and food for shrimps are produced. The shrimps eat the algae and excrete “wastes”. These “wastes” serve as a nutrient source for algae in return. Therefore, feeding shrimps manually is not necessary in this sealed ecosphere, or else the equilibrium of this ecosystem will be upset.

Students: Michael AU, Ryan CHUNG,
Oscar LUN, Flora MAN, Susan QIAN

Leader/teacher: Miss Ivy Liu and Mr Tony Leung
Po Leung Kuk Laws Foundation College (Group 1)
Hong Kong, China



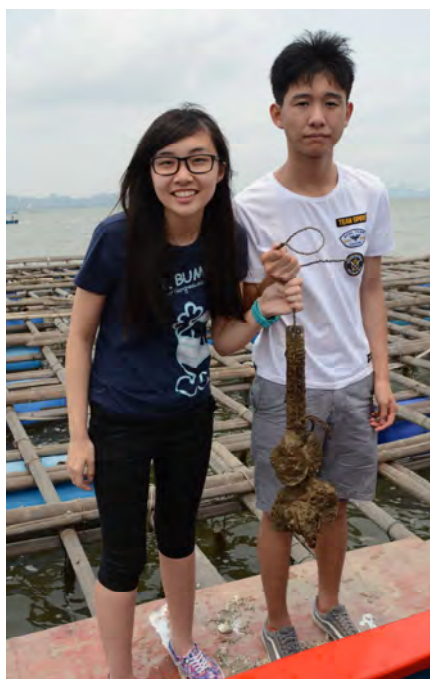
Sustainable Oyster Culture

In this project, we would demonstrate how ocean and humans are inextricably interconnected by using a case study of oyster culture in Lau Fau Shan,



which locates in the Pearl River Delta. Our school is located in Tin Shui Wai, a new town near Lau Fau Shan.

Oyster culture in the Pearl River Delta areas had been started for at least one thousand years ago. It is a sustainable way of mariculture since oysters are grown with natural sea water and they feed on phytoplankton.



Early settlers in the Pearl River Delta established walled villages and they cultured oysters as food. Oyster products, such as fresh oyster, dried oyster, oyster sauce and lime, and other products came from the ocean, were sold in local markets. These economic activities helped local people to expand their villages. Villagers developed their specific culture related to the ocean and wetland, such as Da Jiu (God Worshipping Festival) and Celebration



of Tin Hau Birthday. Oyster culture is still one of the most important primary industry in Lau Fau Shan. A seafood market in Lau Fau Shan was established, because of oyster production.

With the rapid urban and industrial development at the beginning of 1970s, oyster industry was adversely



affected by water pollution, since oysters were mainly produced by bottom laying method. The efforts on improving the water quality and culture method (raft culture) in last two decades revived oyster industry in Lau Fau Shan.

We then conducted some experiments to test for level of heavy metals by using hydrogen peroxidase of pig liver as a bio-indicator. According to our results, the exchangeable heavy metals in seawater and sediment of Tin Shui Wai was not high. Our findings are consistent with the government seawater monitoring reports. This implies that the seawater is still suitable to oyster culture and consumption.

In order to know the current status of oyster industry in Lau Fau Shan, we interviewed some oyster farmers, local residents of some walled villages and people worked in Lau Fau Shan. We concluded that a good water quality, better tourist facilities, and a proper oyster licensing system are all important to sustain oyster industry in Lau Fau Shan. It has multifaceted benefits, such as providing

local job opportunities, conserving intangible cultural heritage, improving food safety, promoting local economy, providing leisure activities, etc. We therefore will write letters and interview with the governments and member of the Legislative Council in Hong Kong, so as to bring up our concerns to the government. In order to further promote these messages, exhibition inside school, talks to primary school and eco-tours will be organized.

Students: In Ping CHEUNG, Shing Yip KWONG

Leader/teacher: Pat Chun CHAN

Queen Elizabeth School Old Students' Association

Secondary School

Hong Kong China

The Effects of Oceans on our Region in Hungary

With some enthusiastic students

of secondary schools in Zalaegerszeg we started to involve ourselves in the environmental issues of ocean literacy



with a possible partner school from Indonesia.

Due to the changing of circumstances in our background situation, which meant that our possible supporters stepped back from their promises to donate our participation in the CEI conference 2015, we had to cancel the participations of many students from the original team members. We felt sympathy with the Indonesian school delegates with whom we had created close partnership on the internet in the hope of a joint presentation. Unfortunately they had to cancel their participation. We felt a big waste of energy with calculating some possible financial support by industrial, pharmaceutical and marketing companies.

So we had to alter the original conception of project presentation, as a consequence of the facts mentioned above, we rejected the almost totally completed materials which would have related to the environmental impacts of oil industry on our region and the relationships between the oceanic presence in the geological past and the present surface forms with their oil resources in our region.



The new topic seemed to be developed focusing on the natural potentials of our region and the connections with the oceans. Our country situated far from the oceans but the impacts of them can be detected on our present climate and on our ancient surface forms of landscape in the West-Danubian Region /West Transdanubia/.

Finally we created a completely new presentation which partly relates to the impacts of oceans and our country image from the side of tourism and folk traditions.

Students: Hunor Rác, Anett Mészáros,

Teacher: Tamás Szlávecz, Dr. Marianna Bába Rác
SEE the Future Foundation / Zalaegerszeg Team

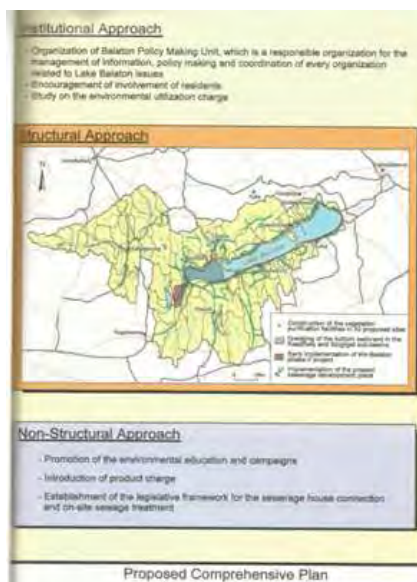
Hungary

Hungarian Adventurers on the Ocean

Although Hungary is situated in the heart of the mainland since the end of the 19th century there have been historic, big, successful Hungarian voyages on the Ocean.

The first significant expedition on the ocean took place in the northernmost part of the globe. It was the Austro-Hungarian North Pole Expedition of 1872–74, the first to announce the discovery of the islands. named in honor of Franz Joseph I. The expedition was led by Julius von Payer and Karl Weyprecht on board the schooner, *Tegetthoff*, the expedition's primary goal was to find the north-east passage and its secondary goal to reach the North Pole. After their main Hungarian sponsor a big group of islands were named Zichy-land. But we can discover some more Hungarian names like Hungaria-bay, Cape of Budapest,

Vámbéry islands, Deák Ferenc island etc. A century passed when an adventurous sailor, Fa Nándor decided first to cross the ocean then to sail around the world. Nándor Fa managed to sail around the world four times. He has always sailed in boats planned and constructed by himself. Fa Nándor helped a lot to a young student who wanted to follow him. He is called Rakonczay Gábor. The young



Hungarian couple Viktória and Gábor Rakonczay aboard Tűzhangya (Fire-ant) crossed the Atlantic-Ocean in 2008. The distance they covered was 5200 km i.e. 3500 miles, they set off from Portugal and started their journey from the Canary-island and arrived at Antigua in 51 days 6 hours and 10 minutes. With this time they set a world record which has not been beaten since then.

What made these people leave their safe home and choose the big waves for their homes for months? Is it the spirit of an adventurer?

We also decided to make our own discoveries although not on the ocean but on Lake Balaton aboard the school sailing boat and discover the lake.

Students: Horváth Regina, Szabó Tamás, Tóth Gergő

Leader/teacher: Rázsinné Gyulassy Adrienne
Vajda János Gimnázium, Keszthely, Hungary

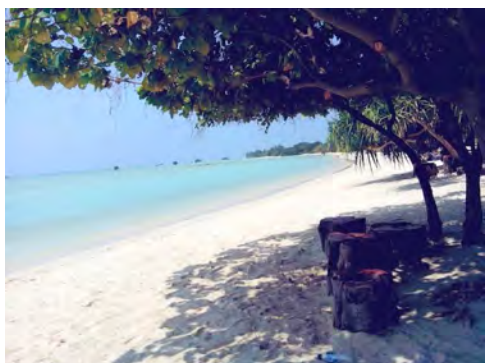
The Ocean and Us

Indonesia is a vast archipelago consisting of an estimated total of 17,508 islands and is located between the Indian and the Pacific Oceans. Seeing how the country's oceans play a significant role in its identity, it is no wonder why Indonesians refer to their homeland as "Tanah Airku", or "My Land and My Seas."





As Indonesians living in Bogor, a tranquil city situated about 70 miles from the coastlines, we realize that although we live far from the ocean, our actions inevitably have an effect to the condition of our oceans. We realize that we can do something positive in our day to day lives and during our visits to the ocean as tourists. We decided that through this project, we can raise awareness to our school community about what we can do as citizens of



Bogor and as tourists. Having had an interview with representatives of WWF Indonesia, we learned that the sea is where much of our waste is

disposed. For instance, we unconsciously pollute the ocean by using household products containing chemicals on an everyday basis. Thus, we decided to target our presentation and booth for our school's Earth Day event to address this issue. We also made environmentally friendly seaweed soaps by the guidance of Mrs. Tuti Wahyuni, a marine researcher. We showed that it is possible and fun to create something that is both safe for us to use and safe to the environment. Using products as these can help us make a step closer to our goal to



prevent water pollution. Aside from that, ecotourism strikes as an important field for us to look

into. Our school has yearly field trips where students of each grade visit various places in Indonesia. We'd like to promote ecotourism programs to our school where we, as tourists, attain environmental awareness and participate in activities which help the environment, specifically the marine ecosystem. As a start, we plan to visit the Thousand Islands off the coast of Jakarta to design a program with the help of local travel agencies and environmental initiatives there. We hope that not only will we learn a lot during these programs, we will have fun in doing so too.

When we see a large tree (in this case let this tree symbolize the targets of our project), it has to come from a small seed. We, the CEI members, want to 'grow' this tree so we'll start off by initiating the program in our school, Sekolah Bogor Raya. We assure you that it will be a fun and educational program as it raises students' awareness in a way that is enjoyable to experience. If our attitudes change, we may also be able to inspire the behaviours of those around us. If programs as these keep being implemented, there is hope that we can create a difference, both as city citizens and as tourists.

Students: Kazi, Noah, Elita, Laura, Michelle, Nick, Ian
Delegation leader/teacher: Ina Isnaedi
 Sekolah Bogor Raya School, Bogar, Indonesia

The ocean, so close yet so far

We live in Mexico City, our nearest coast is 300km away and we have to go down a mountain or two. This was a challenge when we had to come up with a project involving the sea, but we decided to give our best. In the city we tend to forget that the ocean plays a part in our everyday lives, from the food we eat to the stories that we tell.



We realize how important it is to be aware and informed about what is going on in the oceans. Our Project is to develop a website for our schoolmates and the general public in which they may do the following:

- Find out about ocean geography and photography by using an interactive virtual map of the seas.
- Find out about the latest developments in ocean exploration.
- Allow them to find out the biodynamics and diversity that the sea possesses.
- Allow them to find and donate to NGO who protect the seas and sea life.
- Realize the importance of the oceans in our life, and how we need it.
- The migration patterns of sea life in our national waters.



With our project we hope to get people talking about the sea and all that's in it, if we archive this we can be sure that more and more people will dedicate their lives to studying and protecting our oceans. We have asked our classmates if they would like to work in a sea related field of studies, afterwards we will then show them our website and let them explore it for a few days. The website will be updated by us periodically, and we will ask our schoolmates, if after finding out more about the sea, they would like to work on a sea related project. We hope to raise awareness and inspire people to further develop technology and projects so that we may have a better understanding of the seas and oceans of our planet.

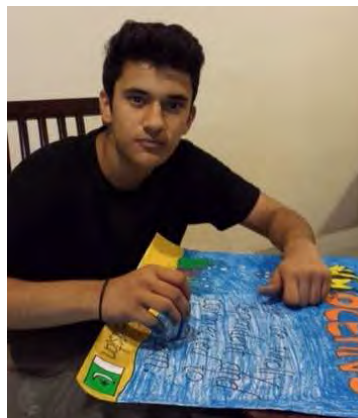
Students: Catalina García Chavez, Emiliano Guerrero Carmona, José Pablo Correa Rosell, Maria Miranda Ruiz, Montserrat Miñaur Olivares, Luisa Gutierrez Esteve

Teachers: Ana María Jiménez Aparicio. Rosa María Catalá Rodes
Colegio Madrid, Mexico

Impact of Ocean on Humans

Caretakers of the Environment International - A global network of teachers, educators and students

This year, our team from Pakistan conducted a thorough, precise and deep research on the impact of



the presence of ocean on human lives. More specifically, we investigated into the realms of how the Ocean affects us and what impact we have on it. The objective of this study was to comprehend the importance and significance of ocean in

terms of sustaining human life on earth.

From the historical perspective, the Ocean has always been a key factor in the growth and development of human civilization. Arguably, the most successful nations throughout history have always been those who had direct access to the sea. The ancient Greeks, Romans and Persians, for instance, and to the more recent British, American, Portuguese, Dutch and Spanish all had progressed in various facets of life because they achieved



naval supremacy. From the scientific view point it is not an exaggeration to say that the Ocean is

the very reason why we exist after all most of the world's supply of oxygen can be traced back to the ocean which also removes 1/3rd of human caused carbon dioxide. The Ocean is also a great source of minerals, food and recreation. Even today half the world's population lives around the coast and a significant portion of the world economy is made up because of the Ocean which is why we believe that it is important for everyone to know and understand its traces in our everyday lives. So, it makes it all the more crucial for every one of us to learn more about why these mysterious waters have always been so important.

Students: Muhammad Haroon Zahid, Ramish Kamal Syed

Leader/teachers: Zahid Amin Syed Zahid Kamal
Lahore College of Arts and Sciences (LACAS)
Lahore, Pakistan

From Tap Water to the Ocean

The aim of our project was to identify the main sources of threats to the Baltic Sea, which is the youngest sea of the Atlantic Ocean. To this end, we made contact with the Polish Polar Stations in Hornsund and Spitsbergen, and with the scientists at the Department of Earth Sciences, University of Silesia.



The main threat turned out to be eutrophication, caused by the pollutants in European rivers, which affects the intensity of photosynthesis and, at the same time, deepens oxygen deficit in the atmosphere, thus increasing



the concentration of carbon dioxide, which is the main cause of global climate change.

In order to improve the quality of water in the rivers flowing through Katowice workshops during which students made Bokashi balls were conducted. The balls, utilizing effective

microorganisms, are used in water treatment. They were thrown into the Kłodnica river. During the workshop on climate and meteorology conducted at the Department of Earth Sciences, University of Silesia, students learned about the impact of land and oceans on climate formation, in particular, the impact of threatening the stability of the global ocean circulation: conveyor belt.



Our activities also included the cleaning of the water

reservoirs in the Szopienice-Borki AONB, as well as holding an ecological competition promoting our project. The divers from the Hydrozagdka Diving Club



dove in. The event was held under the patronage of the Mayor of Katowice.

* AONB – area of outstanding natural beauty

Students: Magdalena Kocot, Karolina Karcz, Kamila Zdebik, Oyumergen Amarbayar

Teacher: Bożena Kurzeja
Szramek High School
Katowice, Poland

Fishing Resources and Sustainability – Evaluation of the state of *Trachurus trachurus*



Our investigation work had four major steps: a visit to a small fishing boat; identification and triage of fishing resources in Matosinhos' Docapesca; a study of the biology of *Trachurus trachurus* and a visit to a fish canning facility in Póvoa de Varzim.



The fishing resources are not inexhaustible, therefore the study of the biology of the species, like the Atlantic horse mackerel which is one of the most common and commercialized species in Portugal, is extremely important in order to control its stocks. In this study we analyzed a total of 29 Atlantic horse mackerels of which we then identified and measured the following parameters: total individual length, the total weight of each subject, gutted individual weight, sex identification, gonads' ripeness, visceral fat state, gonads' weight and collection of otoliths.



This investigation work was carried out with the support of IPMA Matosinhos, under the National Program for Biological Sampling (BANP) aimed to study the growth and reproduction of *Trachurus trachurus* in order to obtain estimates of the exploration levels of this species in the Portuguese coast. It was found that approximately 69% of the sample was male and of those 65% were in the fifth state of maturation. Of the females 55% were in fifth state of maturation. None of the subjects had visceral fat state bigger than 1, both in the body and in the stomach, therefore we were able to conclude that these specimens were captured after the breeding season. With regard to length and the otoliths it was found that the specimens were captured above the minimum established size and were aged between 5 and 10 years which shows us that these specimens have participated in several breeding seasons, contributing to the sustainability of the species. These results are of great importance to establish fishing restrictions for the purpose of preserving fish stocks.

These four steps of our investigation allowed us a clear and comprehensive vision, because we were able to

monitor the entire process from capture to the processing of the fishery resources of our shore.

Students: Abreu, F.¹, Freitas, J.¹, Gândara, R.¹, Jorge, A.¹, Marques, J.¹, Pires, V.¹, Somova, V.¹, Sousa, A.¹
1 Colégio Euro-Atlântico

Using Foraminifera and Alkanones in Determining the Temperature of the Oceans



The marine deposits, among other organisms, foraminifera and organic synthesized markers, alkanones, that allow the reconstruction of ocean surface temperature to a geological scale. Foraminifera form their shells according to the characteristics of the water they have lived in, accompanying its changes and evolution. The alkanones are organic compounds with a molecular structure extremely resistant to degradation. The characteristic before mentioned is what makes them useful as a molecular biomarker. The developed work has had, as an objective, the determining of the temperatures



of the surface of the ocean from 20.9 thousand years ago until today, in order to compare to data of the ocean's temperature between 380 thousand years and 430 thousand years ago. For this purpose, the group used samples from box cores – as to say, testimonies of the changes due to evolution of the ocean, which consist on cube shaped samples of marine soil. These samples are from along the Portuguese coast. Besides the samples, the analysis of the Foraminifera; the measurement of Mg/Ca in the Foraminifera's shell, contained in the plankton and the UK³⁷ index were used.

The results obtained for each marker and its comparison to other markers has allowed the group to conclude that the depth and the period in year which the organism has lived influences certain temperatures of the water and can thus obtain information on the different environments in which organisms lived. The results obtained allow us the determination of the temperature of the ocean in past ages and the understanding of

different evolutions and alterations in earth history, serving as data to anticipate future climatic changes.

Students: Beatriz Inácio; Carolina Branco; Diogo Cruz; Diogo Vidal; Maria Catarina Silva
Leader/teacher: Marco Coutinho
Colégio Pedro Arrupe

Study of Parasites in *Ruditapes*

decussatus, *Mytilus edulis* e *Crassostrea* sp.

The existence of parasites in bivalves mollusc's can eventually affect consumption of shellfish in the Portuguese population with social and economic consequences. This study is about parasites in bivalves mollusc's, like the the "Good Clamp" (*Ruditapes decussatus*), Mussels (*Mytilus edulis*) and the "Rough Oyster" (*Crassostrea* sp), and we were able to analyze parasites like *Perkinsus atlanticus*, *Martelia* sp. and *Pinnotheres Pismum* which do not cause problems to human health. *Perkinsus Atlanticus*, *Martelia* sp. and *Pinnotheres Pismum* provoke lesions on the gills and in the digestive system were they parasite, decreasing the respiratory capacity, the water filtration and eventually cause deaf. During the investigation, students learned the work techniques in laboratory and have executed different types of analyzes in samples of 25 individuals: Necropsy (external observation, measuring, determination of the condition index and the state of flesh), organ harvest for histopathological studies (preparation smear the digestive gland, Makin-Ray test in gills). Observing the results of the histopathological studies under the microscope allowed us to determine incidence and prevalence, having been found that samples of grooved carpet shell were parasitized by *Perkinsus atlanticus* and *Mytilus edulis* samples by *Martelia* sp. and *Perkinsus atlanticus*. No conclusive relationship between the presence of *Pinnotheres pismum* in *Mytilus edulis* and their meat state. For *Crassostrea* sp., The results were inconclusive. The level of certain parasitic raises concern about the sustainability of shellfish resources in our country.

Growth Biology: Study of Fish Age (*Sardina pilchardus*) through its Otoliths

The study of fish age and their growth is very important on the determination of their population dynamics, allowing an evaluation for a rational management that allows a sustainable exploitation of fishing resources. One of the most used methods in Portugal on the determination of fish age is the study of their otoliths. We

started our work in the laboratory, collecting data that allows us to check the state of individual mackerel growth, measuring their length, weight and evaluating the gonads maturation. We learned how to extract the otoliths and learned the methods used to prepare observation, such as the differentiation of the growth rings. Later we determined the age of a population of 50 sardines (*Sardina pilchardus*), captured in 2008 in the northern-central part of the Atlantic Ocean, (captured between Nazaré and the north coast of Portugal) by counting the annual rings of their otoliths. All of the group elements checked the fish age and discussed what was observed, in order to have accurate results concerning their age. Then, the group made a length-age key of that population, which shows the frequency that individuals of each age group are distributed in each length class, and the respective growth curve (von Bertalanffy model). It was possible to observe that, generally, there is a proportionality between the fish growth and their otoliths and we also came to the conclusion that there are fewer fish as they grow older. As marine resources are exhaustible, monitoring them will allow a sustainable exploitation.

Students: Alison Dias, Inês Trindade, Hugo Varela, Marta Branco, Ricardo Santos
Leader/teacher: Isabel Cabaço
Anselmo de Andrade (Escola Básica e Secundária)
Portugal

"Plasma Glucose Levels Variation in Young *Argyrosomus regius* Over a Fast Period"

The energy, in the cells, is obtained from the degradation of glucose, a sugar provided by the diet or the degradation of reserve substances. Glucose is the organism main energy source. According to several authors (e.g. Philipson Eames et al. 2010), fish have some difficulties in the use of carbohydrates provided by the diet, thereby, they are considered glucose intolerant. However, glucose is the main energy source in many species.

If fasted, the organism synthesizes glucose from non-glycoside compounds. This process is known as gluconeogenesis, which occurs in the liver and consists on the transformation of substances like amino-acids into glucose.

The main goal of the research held in "Estação Piloto de Piscicultura/ Instituto Português do Mar e da Atmosfera –



IPMA”, its regional headquarters in Olhão, was to observe the plasma glucose levels variation in young *Argyrosomus regius* after being fed. Nevertheless, when we started the study, the fish metabolism was below normal, as the low water temperatures in the tanks where the fish were raised inhibited them from feeding themselves. Thus, we reformulated the experimental design and the research conditions. Once the fish were fasted, we acknowledged the glucose concentration over time, particularly at the beginning of the fast period (T_0), after 24 hours (T_{24}) and after 48 hours (T_{48}). In order to obtain this data, several fish were measured and weighed, being their blood collected with the purpose of being analysed.

Overall, it was verified that glucose levels decreased over time. Yet, in some cases, the plasma glucose concentration initially increased and eventually decreased.

Students: Rodrigo Rodrigues Lucas, Rita Afonso Leandro
Olga Pronchak

Teachers: Hélder J.R. Pereira, Ana Marta dos Santos
Escola Secundária de Loulé



Every Human Being is a Child of Ocean

Our life appeared from ocean that's why ocean is like a cradle of humankind and every human being is the child of the ocean.



Our goal

To prove ocean can influence every person.

Our tasks

To study literature on this theme.

To learn possible aspects of ocean influence on people and nature.

To show what impact ocean has on every person.

To make a research about the influence of ocean sounds on people.

Climate

Russia is washed by the Arctic Ocean whose climate influence is great. In winter the arctic air can cause a cold snap, a frosty and sunny weather without snowfalls. In summer it causes a cold snap first, and then it heats up and forms cloudless or slightly overcast weather. In early spring there is returnable cold weather which is dangerous for many plants. In our region they are till June 10. Therefore our territory is called a zone of risky agriculture. The climate of the European part depends on the processes happening in Northern Atlantic. The western transfer of sea air masses causes mitigation of frosts, thaw and snowfalls. In summer the arrival of the Atlantic masses is followed by a cold snap and loss of rainfall.

Seafood, ocean products

have always been popular. Seafood is valuable because sea meat is rich in mineral substances, vitamins and amino acids which are necessary for normal people's activities. One of their most valuable features is low calories. In our area sea cabbage is very much appreciated thanks to a large number of compounds of iodine. It is used for treating diseases of a thyroid gland.

Ocean sounds

We conducted a small medical research consisting of two stages: before and after listening the ocean sounds. We passed tests for uneasiness and health before listening noise of the ocean. We measured arterial pressure. Listening of the ocean lasted 7 minutes. After that everyone received a task to write about the feelings during a session. The psychological state coincided at everybody. All the participants were weakened; quiet, joyful, felt full satisfaction.

Chalk is a sedimentary rock of white colour, soft and friable, not soluble in water, of organic origin.

Chalk is used as a necessary component of the chalk overlay paper, as a cheap material for whitewashing,

painting of fences, walls, borders, to protect trunks of trees from solar burns.

We use solid chalk for writing on blackboards at school. In our area soils are sour that's why a large amount of chalk is used for neutralization of soil acidity and for fighting against fungal diseases of cabbages.

Fertilizers for plant growing

In Russia scientists revealed the influence of seaweed on fertility of cespitose and podsolich soils. It became clear that in the moderate zone and in not irrigation agriculture an alga has favourable effect on a crop. This action is shown through stimulation of useful microflora. In the shops we can get the fertilizers made on the basis of seaweed.

Conclusion

Despite our area is far from oceans, we feel its influence on our life.

The ocean influences climate causing frosts, thaw, snowfalls.

Seafood is useful for preventing thyroid gland.

Ocean sounds calm people, give them feelings of security and composure.

Chalk is used for whitewashing and protection of trees, for improvement of the soil in our region.

Being far from us, the ocean helps us to be engaged in organic agriculture, allows receiving ecologically healthy.

Students: Mariia Sorokozherdeva, Egor Savintsev, Danila Gordin, Margarita Borodina, Ekaterina Anfilatova

Teacher: Marina Konopleva
Kirov, school 28, Group 2
Russia

Responsibility for our Waters: Making our Rivers Clean

Objectives: to investigate the problems of the ocean and to make students of our school aware of them; to draw people's attention to the problem of pollution; to organise a volunteer clean-up activity



Summary of the project, including activities:

Though we live far from the ocean or sea we decided to participate in the conference in Portugal. The theme seemed challenging to us. At first we were at a loss how to make up our project but then we investigated different web-sites, found a lot of exciting information and videos about the problems of the ocean. We got interested. We

realised that actually we know nothing about the ocean except some ordinary things. And we came to thinking that we must do something to make the world a better place.

So, we studied the 7 principles of the ocean and got down to business. It was difficult to choose the topic for our project and we tried to work in every direction but then somehow we came to the conclusion that the most suitable principle for us would be "The ocean and humans are inextricably interconnected". We think that everyone is responsible for caring for the ocean. The ocean sustains life on Earth and humans must live in ways that sustain the ocean.



No doubt, the ocean affects every human life. It supplies fresh water (most rain comes from the ocean) and nearly all Earth's oxygen. It moderates the Earth's climate, influences our weather, and affects human health. From the ocean we get foods, medicines, mineral and energy resources. In addition, it serves as a highway for transportation of goods and people, and plays a role in national security. It is also an important element in the heritage of many cultures. Much of the world's population lives in coastal areas.

At the same time, humans affect the ocean in a variety of ways. Laws, regulations and resource management affect what is taken out and put into the ocean. Human development and activity leads to pollution and physical modifications (such as changes to beaches, shores and rivers). We were shocked to know how terribly polluted the ocean is.

The first step in our project was to work out an educational programme for the students of our school and tell them about all these aspects of the ocean. We made presentations and conducted lessons of ecological literacy for 12-15 year-olds. Many students were involved in the discussion of the question how to reduce pollution.

Students had an idea to draw pictures of the ocean as they see it. We organised an exhibition of the drawings to

attract more people to the ecological problems. The next creative idea was to collect photos of the rivers of our region and show how beautiful they are and how fragile this beauty can be if people do not preserve it. Then we took part in the action **"Let's make our waters clean!"**

We think that more individual and collective actions are needed to preserve our waters clean for the future generations.

Students: Daria Filippova, Anna Tarabukina,
Polina Tolmacheva

Teacher: Marina Avdeeva
Secondary School No 37
Kirov, Russia

Noia Estuary: Geomorphology, Resources and Impacts

Ocean Literacy Principle: 6, *The ocean and humans are inextricably interconnected*

The "Rías Baixas" (Galician for "Lower Rías") are a series of four estuarine inlets located on the southwestern coast of Galicia, Spain.

The "Ría de Muros e Noia" is the smallest of the "Rías Baixas" as well as the most northern. The part of the ría known as Muros is in the area closest to the mouth (outer zone), while the Noia portion is farther in the estuary near the head (inner zone).

Out of all five "Rías Baixas", this is the only one not to have islands near the mouth. The principal river to join the "Ría de Muros e Noia" is the Tambre. Important natural features in the area are the mountain and lagoon of Louro as well as the Corrubedo wetlands.

We have chosen a study of our estuary as well as being a source of wealth and economic base of the region, is our window to the Atlantic Ocean.



With the geomorphological study of the estuary we try to know both its structure and its internal functioning, that is, how the ocean dynamics (tides and currents) affecting the biological wealth of this area and controlled, to some extent, the activities of the society living on its shores. The analysis of resources will allow us to approach the knowledge of the daily reality of our society because many of our neighbors use the natural wealth of the area, taking advantage of their fish and shellfish resources and the excellent conditions for installation other food industries, such as those dedicated to aquaculture. But any exploitation of natural resources of an area involves an alteration, however slight, of the environment, so our project also aims to reflect the impacts that this use may have on the environment.

Students: Martín Arufe, Áurea Cadarso, Adriana Iglesias,
Aida Amar, Gabriel Lago, Ramón Rudiño, Julián Molinos,
Julieta Dix, Venancio, González, Aitor Alonso,
Rebeca Silva, Lucía Alonso

Leader/teacher: Valeria Martínez / Ana López
IES Campo de San Alberto / IES Virxe do Mar
Noia, Spain

How Can Fish Cultivation be Made Sustainable?

Principle of Oceans literacy: The ocean supports a great diversity of ecosystems

Objectives: To investigate what environmental problems aquacultivation may cause and seek preventive solutions and thus present more sustainable examples.

Summary of the Project including activities:

Sweden has a long coastline (east) along the Baltic Sea. This is one of the most fragile seas in the world and its ecosystems are highly threatened. It is a young sea and has brackish water, which makes the species living there stressed and extra sensitive to changes due to human activity. Overfishing and Eutrophication are serious problems. The aim of this project was to learn how fish farming affects over-fertilization especially in the Baltic Sea and to propose a more environmentally friendly alternative to fish farming than what is used today. The students studied articles about the Baltic sea and aquaculture and interviewed professors and scientists. They observed that the main cause of eutrophication, due to fish-farming are the pellets used. Most pellets produced today are made from fish – being primary or even secondary consumers-and this is a very unefficient





method energy-wise, since 90 % of the energy is lost from one trophic level to the next. When using an aquaculture-basin in the sea, there will be a leakage of nutrients to the surrounding water causing eutrophication. The optimal method to produce adequate fishfood would instead be to use algae extract. According to different studies, it is possible to combine fish farming with algae farming. These would have mutual positive impact on each other, since algae can absorb and eat the wasted pellets (nutrition) and benefit from the extra Nitrogen and Phosphorous from fish feces, and thus counteract the eutrophication. It is also concluded that there would be an economic gain, when combining algae and fish farming.

Students: Ajla Zisko and Dzeneta Sadikovic

Teacher: Karin Warlin

Allvar Gullstrandgymnasiet

Landskrona, Sweden

Effects of hormonal residues from Contraceptives in water on Marine Life



Principle of Oceans literacy addressed: *The ocean supports a great diversity of ecosystems and*

The ocean and humans are inextricably interconnected

Objectives: To develop an experiment in



order to study the effect of hormonal residues in waste-water on the Crustacean Artemisia

Summary of the Project including activities:

In the society of today we consume a multitude of different pharmaceuticals, without considering the consequences they may cause to other organisms except ourselves. Many influential drugs, such as hormonal contraceptives, pass straight through our sewage treatment plants and impose long-term adverse effects on the marine wildlife. In our research we have examined how the crustacean *Artemia salina* reacts in terms of hatching to different concentrations of synthetic Progesterone and Estrogen.

In order to examine this we first had to set up an appropriate experiment. We used PET-bottles, added the same salts as found in seawater, arranged proper oxygen-flow with plastic tubes connected to a waterpump and added a series of concentrations of Estradiol and Gestagen. After 3 days, we examined amount of crustaceans alive, dead, non-hatched and if they had any abnormalities.

We also examined what can be done to improve the wastewater purification of today. Our hypothesis was that less crustacean eggs would hatch as the concentration of the hormones increased. We also assumed that Progesterone would be less harmful to *Artemia Salina* than



Estrogen. As expected, the crustaceans showed signs of hormonal abnormalities during the experiments, but contrary to our hypothesis the Progesterone seemed to have a more lethal impact on *Artemia* than Estrogen. In addition we concluded that disposal of medications could decrease significantly by adding ozone water treatment to water sanitization processes.

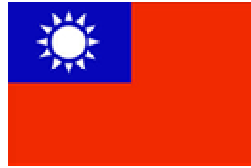
Students: Maja Warlin and Reem Emad Muhanad

Teacher: Karin Warlin

Katedralskolan, Lund, Sweden

The Depletion of Marine Resources: Overfishing in Taiwan

Ocean Literacy Principle: *The ocean and humans are inextricably interconnected*



Overfishing, a severe marine issue, has greatly influenced the entire world. With the increasing demand for seafood, fishers have no choice but to catch enormous amounts of fish to meet consumers' needs. Consequently, marine creatures have insufficient time to grow and reproduce, and the continued depletion of marine resources will ensue.

One example of the many negative consequences of overfishing is the catch of whitebait. In fact, whitebait is a kind of fish which can't live longer than 8-10 months. Because whitebait looks a lot like the baby fish of another species, fishers seeking whitebait usually catch immature specimens of other kinds of fish along with them. This leads to the reduction of specific types of fish that do not have the chance to reach maturity and reproduce.

Furthermore, inappropriate policies can worsen the ecology. The government holds a series of festivals about seafood to promote domestic tourism. For example, when tuna is in season, domestic tourism agencies over-catch tuna for the promotion. However, these promotions make the yearly catch of specific species of fish decline, and the bodily size of the fish become continually smaller. These are direct results of overfishing.

Visiting Fish Canning Factory

Canned fish is a common product, and many people enjoy it and eat it regularly. In order to understand how overfishing impacts the canned fish industry, we visited a fish canning factory. The factory manager told us that the catches have been decreasing and the size of the fishes is getting smaller. For instance, the size of tuna has dropped from 3-5 kg to 1-3 kg. This phenomenon shows the depletion of fishery resources.

Interviewing Fisher Association

Nanfanao fishing port, located in eastern Taiwan, possesses a great number of mackerel; thus, most businessmen chose to set up canning factories there. In light of this, we visited a Fisherman Association to investigate problems those in marine ecology are facing, and the trends of fishery in Taiwan.

Ways of catching fish

Many ways of catching fish harm the environment. For example, when using drift nets, fish of any size become

entangled, not only the intended catch. Additionally, drift nets are attached to coral reefs, which is harmful to marine ecology. Although drift nets are banned in several countries, they remain legal in Taiwan.

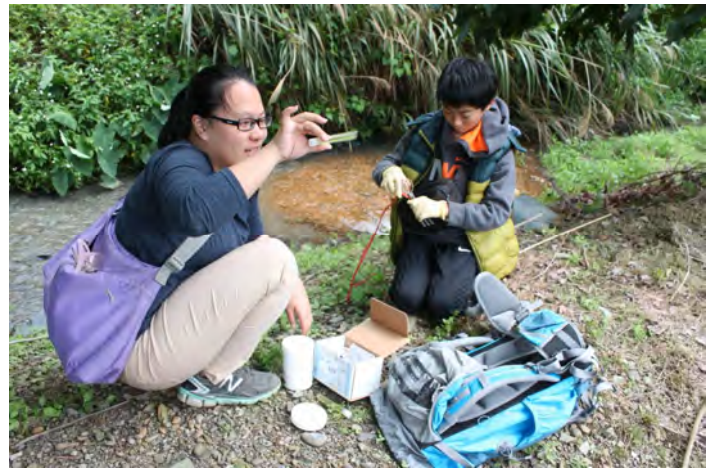
Fishing off season

Fishermen aren't allowed to catch specific type of fish during the off season. Theoretically, marine creatures will have sufficient time to grow and reproduce, which slows overfishing. Although fishermen in some places stop fishing during this period, fishermen in Taiwan simply catch other kinds of fish. In doing so, they continue to strain the marine populations.

How Can We Reduce Overfishing?

Choices of consumers

What consumers want influences the kind of fish caught.



Since fishermen's catches are based on demand, we can popularise the idea of purchasing seafood that is in season.

Government policies vs. benefits of fishers



It is necessary for government to enact more well-rounded policies and supporting measures to reconcile both environmental preservation and benefits for fishers.

Moreover, they should promote

their policies and help fishers carry them out thoroughly. For instance, the government could prohibit fishers from

using drift nets, and advocate for recreational fisheries to achieve a win-win situation.

Students: 吳友文 WU,Yu-Wen (Kevin), 盧亞柔 LU,Ya-Jou (Angela), 游兆賢 YU,Chao-Hsien (Haley), 鄭蓓琳 CHENG,Pei-Lin(Sandy), 黃文力 HUANG,Wen-Li (Wayne)

Teacher: 陳冠丞 CHEN,Kuan-Cheng (Morris)
Huey Deng High School

Preserving Aquatic Ecosystem

Toucheng where we live is a small town located in between the Hsueh Shan mountain and the Pacific ocean, north-east of Taiwan. People here used to depend on the ocean for a living since the soil here is too wet and rocky for farming. Yet after the Hsueh Shan Tunnel finished in 2006, it has been in rapid urbanisation. As a result, lots of wetlands have been turned into construction sites and rivers have been polluted with sewage, chemical fertilizers and trash.

In order to fully understand how serious the situation is, we went on field trips to investigate the four main rivers around the town and the Juan estuary where those rivers meet and flow into the Pacific ocean. We tested water according to some of the water pollution indicators to know the pollution level of the rivers, discovering pollution along the rivers, cleaning up piles of trash from the coastline. Furthermore, we also interviewed some of the residents to know more about the past of the town and how they live with the ocean.

To address our concern over the pollution issue in the water cycle, we plan an environmental art action to raise people's awareness of the importance of preserving aquatic ecosystem which would benefit oceans and our future generations.

??? YU, Vico 游俠 YU, Max 游遠
Teacher: LIU, Kantine 劉政云

Humanity Primary and Junior High School
宜蘭縣人文國民中小學
01 Taiwan 台灣

Fishing and Seafood

Ocean Literacy Principle: The ocean supports a great diversity of life and ecosystems

We are a group from LTSH from Ilan. The team called yellow submarine which are consist of three 11th grade students and one earth science teacher.

Taiwan is an island surrounded by the Pacific Ocean and is therefore highly dependent on the fishing industry. One of our group members father is a fisherman, and makes his living catching fish. In recent years, he has seen a significant drop in the amount of fish he has caught. After listening to his experience and sharing, we all felt sympathetic due to how the decrease in fish has impacted his work as well as our ocean. Thus we decided to investigate the connection between the existing species of fish and our dining habits. We divided the seafood in Nanfanauo into different species and assigned the color of red, yellow or green to each species. We also categorized different species according to season. On weekends, we distributed these handouts to the local consumers, especially the consumers in Nanfanauo, the local harbour from which we used to getting seafood, to figure out their buying habits and we have shared our results with everyone. After we come back from the annual conference of CEI, we'll also share our beneficial gains at The Mackerel Festival in Nanfanauo in October. Besides, while doing our research, we also promoted the concept of sustainable development to all of the individuals we interacted with. We hope that human beings can strike a balance between Seafood and Ocean Ecosystem.

Students: CHEN, Pen-Sin / CHUANG, Hui-Chiao /
LEE, Chih-Yu

Leader/Teacher: SU, Ching-Yi
Lo-Tung Senior High School

Exploring the Seas of Marmara

Ocean Literacy Principle: The ocean and the life in the ocean shape the Earth

Our school TED İstanbul College is situated on the hills of Beykoz on the way to Polonezköy where you can enjoy lovely areas of natural greenery.



Beykoz includes everything from the streams of Küçüksu and Göksu (just before Anadolu Hisarı) up to the opening of the Bosphorus into the Black Sea, and the villages in the hinterland as far as the river of Riva. This is one of the most pleasant and peaceful districts of Istanbul, with much greenery still intact.

In this project, we aimed to discover the main properties of the Sea of Marmara, its interactions with Black Sea and Aegean Sea in terms of;

- Oceanographical characteristics (currents, salinity, temperature, etc)
- Biodiversity and ecosystem
- Anthropogenic stress (fisheries, shipping, pollution, habitat destruction, etc)

Covering an area of 11,350 square kilometers, the Sea of Marmara has always held great strategic importance as the link between the Black Sea and the Aegean via the straits of the Bosphorus to the northeast and the Dardanelles to the southwest. It's named after Marmara, the largest island in the Marmara group that lies to the south of the sea. That in turn is named after the marble ("mermer" in Turkish) that is still quarried in great quantities there.



Marmara Sea is a unique area in the world surrounded by the lands of only one country. It is a sea with its unique marine and coastal biodiversity, coastal deltas and rocky coasts & cliffs and still undiscovered values.

Marmara Sea is under a huge

human use pressure. Land based pollution, over – fishing, exotic species, climate change and oil pollution are major threats to the marine biodiversity of the area.

To understand the features of the Sea of Marmara better, we contacted the NGO, nearby our school; TÜDAV(Turkish Marine Research Foundation). TÜDAV supports various studies, especially studies on biodiversity, present researches, provides guide books and brochures, organizes seminars and conservation precautions, especially for fishermen and other society parts. With

provided material and the seminar delivered by Dr. Ayaka Amaha Öztürk, we learned a lot about the biodiversity and the physical properties of the Marmara Sea, the species under threat and a very interesting phenomenon; the exotic specie *Mnemiopsis Leidy* (comb jelly) brought by tanker traffic with ballast waters to the sea, which ate the fish eggs and larvae resulting in decrease in the fish population.

Further investigation about the endangered species of the Sea of Marmara, fishery observations in Beykoz(Istanbul/Turkey) are planned in May.

We; as the caretakers TED İstanbul Delegation, will also take part in the action "Let's CleanUp Europe" by attending the activity "Let's Clean Up Kilyos Coast" on 9th of May.

TED İstanbul College Foundation High School
Group Archea
Istanbul, Turkey

Under Sea Investigation

Ocean Literacy Principle: The ocean is largely unexplored



Turkey is situated in Anatolia and the Balkans, bordering the Black Sea, between Bulgaria and Georgia, and bordering the Aegean Sea and the Mediterranean Sea, between Greece and Syria.

Anatolia is also the meeting point of major sea routes since the ancient times.

Marine history began about 4,000 years ago in the Mediterranean."

Turkey is a country that hosts the history of many different ancient civilizations. Until today, many historical remains have been discovered so far, and still continue to be discovered on land and also beneath water. In addition to many remains from antiquity, there are battleships and submarines from the World Wars I and II in the dark waters of Turkish seas.

To understand the properties of Turkish Straits and oceanographic data of our seas, we contacted the NGO; TÜDAV(Turkish Marine Research Foundation). TÜDAV supports various studies, provides guide books and brochures, organizes seminars and conservation precautions, especially for fishermen and other society parts. With provided material and the seminar delivered by Dr. Ayaka Amaha Öztürk who is the MARLISCO Project Manager and the co-founder of TUDAV. We learned about



oceanographically characteristics, biodiversity and ecosystem and anthropogenic stress of Turkish Straits.

We examined various documents and newspapers in



news. In a newspaper article from 2004 we learned that “The Yenikapı site (located in the Istanbul neighborhood of the same name), built during the reign of Theodosius I (AD 379-395), was first revealed in 2004 during the construction of a subterranean rail line and station for a new rail link between Europe and Asia.”

We also learned that “The Uluburun Shipwreck is a Late Bronze Age shipwreck dated to the late 14th century BC, discovered close to the east shore of Uluburun (Grand Cape), and south coast of Turkey in the Mediterranean Sea near the city of Kaş in the province of Antalya”, from the article which gives the information of history's greatest 10 shipwreck.

Our project group started the regional searches included: Underwater antic cities, underwater museums and galleries, historical artifact in Turkish Straits and the technique used in the exploration of objects underwater.

The more we do research the more we learn. Researches will not have an end, topic by topic new ideas are coming up and we are ready to research everything that concerns environment and the oceans.

We, as the caretakers TED İstanbul Delegation, will make an fishery observations in Beykoz (İstanbul/Turkey) in May, also take part in the action “Let’s Cleanup Europe” by attending the activity “Let’s Clean Up Kilyos Coast” on 9th of May.

TED İstanbul College Foundation High School, Group USI
İstanbul, Turkey

BLUE MOCEAN

Oceans are essential for us humans. They are necessary for all of the ecosystems of our planet, Earth. They cover the two-thirds of the Earth’s surface, but even with their mass that big, they are vulnerable to human influences such as overfishing and dumping of waste. And unfortunately, humankind didn’t notice the effect those acts had on oceans, and continued to act like that. Not a long time ago, member states finally started to take actions, but as we can see now, those actions were not enough, and they are still not.

To decrease the effects of ocean pollution, some solutions had had been proposed, and our group supports the implementation of those solutions. But, we think the first thing to do must be raising awareness. We think this should be the base of further implementations.



Another thing we encourage is international cooperation. There are great organizations that work really hard to achieve their goal of cleaning oceans. If the number of those kind of organizations get increased, more work can be done by reaching more people in a shorter time.

Also, given the role of microplastics in ocean pollution, we believe that finding a solution to prevent this substance from being dumped to sea could be a great step. There are a lot of products that are made from microplastics. Even facial cleansers consist of them. Either people should

learn how to use those products, or the amount of microplastics that are used should be decreased. As we care about our seas and whole of our world, we started to work with an organization named Turkish Marine Environment Protection Association (TURMEPA), whose mission is 'to contribute to the preservation of seas and coasts as a national priority and to create a country that has reached sustainable development goals for future generations'. This association is cooperating with some international organizations, including United Nations, and has been working on a wide range of projects. TURMEPA visits schools to inform students about the importance of keeping our seas clean, and works on their projects with the volunteer schools. Some of their projects are cleaning beaches and coasts, collecting used oil, producing environment friendly products, and participating in international activities. So, in order to take a part in those activities and save our oceans, we contacted with their staff and told them about our goals. As a consequence, they immediately approved our request, and will come to our school in the beginning of May to give a seminar and set workshops to enhance our knowledge on measures that could be taken to protect oceans.

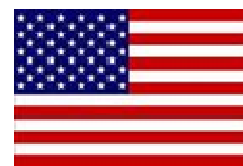


In conclusion, we consider raising public awareness, educating people, and having more international organizations should be the first steps that must be taken before implementing further solutions. We believe those and more measures should be taken immediately, in order to keep our oceans the way they used to: clean, invaluable, and generous.

Students: ÖVGÜ SALCAN ÖZCAN, MELİKE NAZ TEMEL, İREM GEDİKLİ, İPEK SAMSA
Leader/teacher: DENİZ GÜLERCAN
 CEVRE HIGH SCHOOL, TURKEY

Beading through the Ocean

***Ocean Literacy Principle:** The ocean and humans are inextricably interconnected*



Beatthebead.org



In my Earth Science class, we spent a week watching a documentary... This documentary explained how there was all this aquatic life being killed in Australia. For a while they could not find the cause of the decline of aquatic life. After looking at the bodies of the aquatic life, they discovered tiny little plastic in the animal's organs. This plastic is known as Microbeads. These Microbeads are tiny little plastic beads that cannot dissolve. These beads are often found in cosmetics, soaps, and facial scrubs. This ingredient is also known as Polyethylene (PE). Because I was so stunned by all the information I had just



learned in the documentary, I went home and immediately checked all my products and found out that majority of my products had this ingredient. I then told Zain to check hers as well and we disclosed that she was also using these harmful products. We decided that because this issue is ruining our oceans, we are going to

focus on this issue for CEI Portugal. We decided that we would talk to our local water treatment plant to track where our water goes and what they are doing with this issue. We then thought it would be good to talk to the Alliance for the Great Lakes, Environmental organization to protect the great lakes near Chicago, to see what we can do in our own neighborhoods to stop this problem. We continued our research and found a website that's

main purpose was to advocate for clean oceans and the removal of Microbeads in all products. They offer a list of products that have these beads and provide steps describing how we need to work as a nation to get these beads out. In order to spread the word, we are trying to get the word out to download the app "Beat the Microbead" and take the pledge. Please spread to



everyone and as we continue to study the issue, we plan on taking on the responsibility to stop all production of Microbeads.

Students: Nadia Young, ,
Zainub Muhammed
Teacher: Mr. Wayne
Schimpff
Neuqua Valley High
School/Lisle High School
Chicago, USA

Upstream Stewardship for a Healthier Ocean



Ocean Literacy Principle:

#6 - The Ocean and Humans Are Inextricably Interconnected

Our project focuses on stewardship in our watershed. We realize that all of our streams are interconnected -- what happens upstream impacts the health of the water downstream. Ultimately all of the water on the land ends up in the ocean and by taking action and educating the public we can do our part to ensure our watersheds remain as healthy as possible. The team from Oregon has participated in the following stewardship activities over the course of this year: "Leading the Change" Youth Conference, the Youth Farm, Youth Enviro Squad, and Community Outreach events.

With "Leading the Change" we have hosted a conference to encourage and empower youth of the Willamette Valley to begin improving the community and the environment. Our team coordinated the conference and tried to inspire others to take action in their communities. Some of the project outcomes at Leading the Change were to encourage our community to begin composting their leftover food instead of wasting it. Additionally groups were formed to enhance our local parks through cleanup and restoration activities.

The Youth Farm specializes in involving and educating youth about organic agricultural practices. It teaches them a sense of discipline and gives them an understanding about safe agricultural practices that they can then integrate into their daily lives and future. Agricultural practices that are conventional, ultimately, affect the ocean in a large way as they output major amounts of chemicals that eventually reach the ocean. As the Youth Farm itself uses no chemicals, such as herbicides or pesticides, the kids gain a sense of awareness about the dangers of non-organic methods and the many benefits of organic methods.

Throughout the course of the year, the Youth Enviro Squad has encouraged teens to get involved with on the ground upstream enhancement. We have manually removed invasive species from a variety of local parks and natural areas in our community. A significant invasive species that borders many of our waterways is Scotch Broom. Instead of using harmful and persistent



herbicides to control the invasive weed, we have spent many hours manually removing them. Though the work is hard, we know it is a much safer way of managing the pest. In addition to invasive species removal, we have also enhance our streambank with naturally occurring native plant species which provide important habitat to native wildlife, but also act as filters capturing pollution in runoff.

A large part of our efforts involve participating in community outreach events. One of the more recent events we attended was the Earth 411 event at Riverfront Park in Salem. At this event we talked to visitors about what we do to benefit the community and see if they would like to become part of it. Each person was asked to fill out a survey that asked them about how aware they

are of the issues in the community, especially relating to water issues, what (and if) they are doing anything about it, and if there was any way that these groups could do to



assist them in getting more active. We hoped that through our actions in the community will inspire others to be stewards as well.

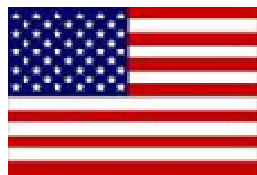
Students: Nicole Barbuch, Yaneli Hernandez-Tapia, Samuel Simas, Rafael Arrezola III, LaRissa Alves

Leader/Teacher: Dan Hoynacki, Ryan Kinnett
Oregon State University 4-H Youth Development- Marion
Early College High School, Salem, Oregon
Oregon Chapter, Caretakers USA

The Earth and the Oceans ARE What We Eat

Ocean Literacy Principle:

*#6 - The Ocean and Humans Are
Inextricably Interconnected*



This project explores our food system with an environmental focus. At the Youth Farm, we learn, teach, and practice sustainable farming methods. We also

encourage discussion of the issues with our food system and how our food system impacts the rest of the world. Youth farmers focus on food production, but also explore: food transport, food choices, and food preparation. The Youth Farm crew learns to look at our farm in a global perspective and analyze our impact, and some of us analyze our personal impact on the world.

This personal impact on the world is our main discussion point in this project. Our goal is to encourage each and every individual to ask themselves: what dietary choices can I make to limit my impact? Food is a necessity, of course, but we ought to be able to produce healthy,



nutritious food for every human and do so sustainably. The solution proposed is to choose food products in that have a minimal impact on the environment, which will encourage more sustainable agriculture practices. In other words, vote with your purchases; your purchases should be aligned

with your ethics. Ethically and morally, we *are* what we eat.

Students: Ryan Thompson and Emily Ausman

Leader/Teacher: Dan Hoynacki/Ryan Kinnett
Early College High School and Sister High School
Salem and Sisters, Oregon



Caretaker of the 21st Century

I remember my first time sitting in the crowd of caretakers at the opening ceremony in Hungary 2011. I didn't know at that time how much this organization would mean to my life at all. I wish someone had told me but then again, the best part is the thrill of not knowing, right? At that time I saw the smiles of many nations, felt the passion of many hearts and understood that I was a lucky 15-year-old.

Throughout my years of attending conferences with CEI I have established an international network worth more global network of teachers, educators and students

than I can imagine and obtained an understanding on not just cultures and people but the problems that we are facing right now. Caretakers of the Environment International is not just an organization that brings together young people from all over the world, that helps to create strong bonds across the oceans of friendship and mutual understanding but also an organization that is built of the belief that together we are stronger, together we can create differences far better and bigger than individually. The people behind CEI have in at an early stage acknowledged that our climate is changing due to human interaction with nature and they have taken responsibility! Something we must carry on ourselves. CEI is a week for you to enjoy, to let people inspire and educate you in every possible way but to keep in mind that this does not end when you fly back to your home. You will most likely consciously or unconsciously bring it with you everywhere you go. The cultural awareness you have gained, the academic knowledge of global warming and the understanding of the world we live in will be helpful to you for as long as you are on this planet. I have taken all of this with me myself. For the time being the city of Sydney is my victim. Now see the experiences I have gotten from CEI are not only for me to keep and look back at. They open doors wherever I go. At the moment I am working with Engineers without Borders to educate aboriginal high school students in sustainability and energy efficiency – a project I would not have been eligible to apply for if not for my experiences with CEI. And this is just a small example of doors CEI can open for you. That is if you use this conference to not only have fun but to make great contacts and develop skills that people later on will admire and would want to work with. I am very grateful today to myself for attending these conferences but I am mostly grateful to the people of Care of the Environment International who made that possible to me. Thank you so much!

My wish for you reading this is to remember one thing: You are very lucky to be where you are right now no matter who you are or where you come from. You are very lucky.

Trine Rosengren Pejstrup
Caretakers - Denmark

Gone Fishing

*Recipes for
responsible fishing*

Everyone likes eating.
It's something we all
do to survive, and it's
something that

almost everyone takes great pleasure in. Most people also like planet Earth, after all it is the planet on which we reside. Now, humankind has put itself in quite a pickle, because what we eat, and how we consume food greatly affects the climate on Earth, ultimately making it inhabitable to humans. With this in mind it seems like a fair strategy to alter our food consumption so that maybe we can eat tomorrow too. This project aims at making this abstract thought of "food change" into something concrete.

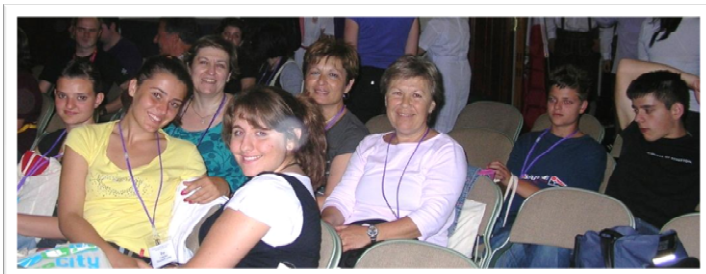
We (Reena and Samuel) are making a cookbook with fish recipes, as a fish diet is more sustainable than a pure meat diet. However, there are many problems in the fishing industry too, and these problems can be very hard to understand and respond to. In order to make things clear, we have also included some basic information on how you can as an individual buy fish that has been part of a more reliable, ecological process. With this in mind, we have collected recipes that use eco ingredients. The recipes themselves aren't a complete set of dishes that can be made in order to eat sustainably. In contrast, they work as a basis that shows that a legitimate environmental friendly diet is possible.

We hope that you'll enjoy our cookbook, which can be found online at: [let's put some blog here or whatever?]
Have a nice day and fish away!

Samuel Thelaus
Astrakanvägen 17
224 56, Lund
Sweden

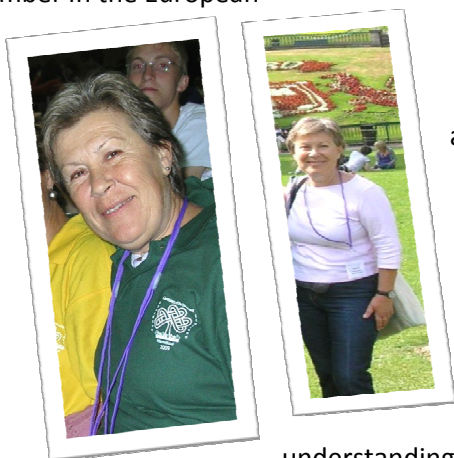
IN MEMORY OF ANTHOULA HATZITHEODOROU

Mrs Anthoula Chatzitheodorou: Our dear friend, irreplaceable colleague and devoted educator, passed away last August after a very short time of fighting with the cancer. She was a Caretakers Greece council member and one of the most active members of our organization from the very beginning. She has inspired and empowered us as Caretakers Greece members to develop and participate in many environmental and cultural projects and activities.



ment International - A global network of teachers, educators and students

She participated with her students in many conferences of Caretakers of the Environment. CEI members will remember her from her participation in Greece, Poland, Indonesia, Hungary, Netherlands, Scotland conferences and was dreaming of and planning to participate in CEI Portugal as soon as she heard about the venue of next CEI 15 conference, but life would allow her ... She was active member in the European projects that Caretakers Greece participated in partner. She was an inspiration to her students and worked hard to develop awareness in environmental issues. As a friend she was giving, understanding, always ready to organize us all members of CEI Greece, in many environmental, educational and cultural activities. We are happy we met her, we will miss her and we will remember her...



as



CEI 2016 – 30th Anniversary Conference
22 June -2 July, 2016 Aalborg, Denmark
Sustainable Societies: *Better life, Better World* Smart Cities, Smart Choices



CEI 2014 Reflections

Delegation from Sekolah Bogor Raya School, Indonesia

CEI 2014 in Yilan, Taiwan was our first CEI Conference. Its great success motivates us to keep being Caretakers and to join upcoming conferences. We are greatly thankful to the Board, Committee, the CEI alumni, volunteers and helpers, who made CEI 2014 happen. ..Our faith in ourselves and in others has greatly intensified, because when you take a step back and see what we can do, as a collection of small groups of people from all over the world, it really is amazing. We are all one as Caretakers and we can work together to save the environment in spite of our differences in culture, race, or nationality.

Antoni Salamon

Group leader, Szramek High School, Katowice Poland

Culture evening gave us a chance to see and to hear what is important for teenagers from different countries, in

their culture nowadays and in the past. The event "World Food and Fun Market", first time organized on CEI conference, was really funny too.

My most important discovery in Taiwan are the Taiwanese people! Friendly, pleasant and kind, ready to help every time. I have met them everywhere, on airport, in hotel, at Huey-Deng school (staff and students - conference helpers!!!), on the streets of crowded but well organized Taipei. I am thanking for this experience.

Judith Steinwider,
Student, BG BRG Judenburg, Austria

Learning more about our environment and how to live in an eco-friendly way was one part of the conference. I quite enjoyed listening to others and extending my knowledge. Even though some presentations were difficult to understand, there were a lot of useful hints, which we can use to improve our local environment. During the conference it seemed like we live in an eco-friendly way back home in Austria...

My personal highlight during this week was the river trekking. I enjoyed being out in nature and watching animals. On this trip we for example climbed up a waterfall and jumped down again, which we would have never done in Austria. We learnt that we sometimes can achieve more in a group and that it's important to trust and help each other.

Zainab Muhammad
Student, Chicago chapter, USA

In Taiwan I learned something new every day. I learned how to talk to others I don't talk to, to make new friends, learned about different cultures, and different ways to keep our environment together, and also how to treat your body well to stay healthy. These things were very helpful to learn because I can use it in my everyday life. (Post-conference tour) I liked Yong'an Community the most because we were outside most of the time and it was like being out in the nature! It was really fascinating when we saw crabs in the water because I have never seen a baby crab in real life.

Gail and Wayne Schimpff
Educators, Chicago chapter, USA

(Post-conference tour) The unique natural highlights were equalled by the wide variety of activities we had in experiencing the local indigenous cultures. Nancy, Hsien-Tang and Peter, kept a lot of surprises that unfolded as the trip progressed. The way Lilly opened up her home, her community, and her heart was one of the highlights of the trip. Gail and I will never forget this trip. It could never be duplicated as the post conference tour expanded and

deepened our cultural and natural resource experiences that were introduced during the CEI conference.

Lam Yik Hang
Student, Po Leung Kuk Laws Foundation College, Hong Kong

Tracing back to my first conference (CEI2012 Maastricht) to this year's conference, from an 'apprentice' to the leader, I think my leadership skills, communication strategies and the understandings of foreign culture have been strengthened. These knowledge and skills are not taught in school so I grasped every moment in the conference for these.

Kevin, Yu-Wen Wu
Student, Huey-Deng High School, Yilan, Taiwan

This year, I got the privilege of attending CEI2014 held in Yilan, Taiwan. During the event, there were so many fun and exciting activities, such as ice breaking, culture night, fun market, field trip, eco-catwalk, and farewell party... Organised by the alumni team, Eco-catwalk was interesting and wonderful. We used a lot of eco-friendly and recyclable materials to make a beautiful dress for our within 45 minutes. During the whole process, all of us worked hard and cooperate closely. On the catwalk, each team presented their dresses and had a wonderful show.

Pen-Yuan Hsing
Volunteer, Taiwan

I feel CEI 2014 was in many ways like the frog's eye-opening experience. We heard presentations about "duck rice farming" and students turning their classroom into a garden; We saw posters describing the work students from across the world have done to re-think their relationship with the Earth; We visited Taiwanese aboriginal tribes and cleaned up a beach. Through these activities we learned from others and got ideas which we can incorporate into our own environmental efforts. It is also important to remember that we were exposed to new ideas, perspectives, and stimulation not just through the academic activities, but also from the mingling of so many different cultures.

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May your experiences and memories of
Oeiras and all of Portugal continue to
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to take care of our environment.

