



The Baltic Sea Project

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Oil transportation and seabirds

- **Youth conference in Okayama**
- **ESD rice project**
- **25th anniversary of the BSP**
- **Can trees reduce air pollution?**





The Baltic Sea Project

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The BSP objectives are:

- to increase the awareness of students related to the environmental problems in the Baltic Sea area and provide them with an understanding of the scientific, social and cultural aspects of the interdependence between man and nature,
- to develop the students' ability to conduct research on changes in the environment,
- to encourage students to participate in developing a sustainable future.

The BSP uses the following methods:

- building networks of schools, teachers and educational institutions in the Baltic drainage area,
- creating and developing educational approaches and joint programmes for environmental and international education,
- organising joint activities and events, publishing the BSP Newsletter and providing other relevant information.

The basic characteristics of the BSP schools are:

- active participation in seeking solutions for the environmental problems in the Baltic Sea area,
- networking,
- a pilot that promotes environmental education in the spirit of the Rio Declaration, Agenda 21 & Baltic 21, and Agenda 21 for the Baltic region.

The educational approach for the BSP is:

- to achieve a balance between the holistic approach and individual subject studies,
- to change the role of the student from passive recipient to active constructor,
- to change the role of the teacher from supervisor to guide in the learning process,
- to use networks for providing participants with opportunities to learn and pass along new ideas,
- to use international co-operation as an inherent element in the school work.



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Dear readers!

As the last year of Estonian presidency in the Baltic Sea Project is starting to run out it's time to sum up our experiences and make conclusions.

During our time of serving as the coordinator we have developed the programs further and have indeed found some new methods for learning and teaching. Despite our efforts in making better use of the collected data this still remains a challenge. We truly hope that the new general coordinator will take this important issue forward.

We have successfully started up the process of applying for EU finances in order to strengthen cooperation between different stakeholders, offer a new Learners' Guide and search for new partners. Although our time as general coordinator will end this year, Estonia will remain committed to the EU project and hopes that all the participating countries will continuously support us in this initiative.

The UN Decade of Education for Sustainable Development has come to an end with a high-level conference in Japan. Our wish is that the BSP project will become a good example of how to implement UNESCO's new ESD framework. Let's join our efforts in doing that!

The Annual Meeting of Coordinators decided that in June this year the general coordination of the project will be passed on to a Russian University – Saint-Petersburg State University of Economics. I'd like to wish them a lot of energy, ambition and success in their job!

I would once again like to thank Tartu Environmental Education Centre and the financial supporters of our general coordination period – Estonian ministries of Education and Research and Environment.

Kerli Gutman

Secretary-General
Estonian National Commission for UNESCO



Dear BSP participants!

Estonian general coordination period is ending but I am glad to say that the Baltic Sea Project will continue, led by our partners in St. Petersburg.

During those three years we have managed to offer new possibilities to use supportive information technology for an out-door learning experience; offered teacher seminars, student research camps, conferences on relevant issues, competitions and campaigns; took part in many interesting and important meetings all over the world to share our experience; and as a cherry on the cake – we will organize a wonderful final conference on 5-8th of June in Tallinn, Estonia titled "Science of Changes" to demonstrate those changes that have taken place in and around the Baltic Sea.

The conference is organized by volunteer students and teachers to whom I'd like to say a special thank you. It will be an experience they never forget! I'd also like to say thank you to both Estonian national coordinators – first there was Sirje Janikson and now Kersti Sögel – from Tartu Environmental Education Centre. You have been both my drift and my anchor – letting me find my own wind but always keeping contact with me. I'd also like to thank Kerli Gutman and Hanna-Liisa Kaarlõp-Nani from the Estonian National Commission for UNESCO, Ülle Kikas and Imbi Hen-

no from the Estonian Ministry of Education and Research for their support, also Anne Kivinukk for putting together this lovely Newsletter again. And of course, most of our Estonian activities were financed by the Environmental Investment Centre, and our joint work on BSP's future project ideas by EUSBSR Seed Money Facility which brought us closer to Krista Kampus and Maxi Nachtigall from the sustainable development section in Baltic 21 at the Council of the Baltic Sea States.

It may be the last BSP's Newsletter published by Estonians but I sense that major changes will yet come to make the collaboration between the Baltic Sea Project students and scientists from around the Baltic Sea more meaningful and effective. The Baltic Sea Project has recently been more recognized and visible; therefore we wish to continue to strive for a flagship project status in education in our region. I have truly enjoyed the work of the general coordinator in BSP because of all those dedicated people who have worked hard beside me, and mostly during the weekends! All national coordinators and our specialists behind our observation programmes – thank you! Just like rivers we will continue flowing towards our sea!

Gedy Siimenson

General Coordinator of The Baltic Sea Project
Tartu Environmental Education Centre



The conference was attended by almost 200 people from 32 countries.

PHOTOS: HIDEKI MARUYAMA

UNESCO education for sustainable development youth conference in Okayama

➤ **SØREN LEVRING**, National BSP Coordinator in Denmark and
 ➤ **KERSTI SÕGEL**, National BSP Coordinator in Estonia

The UNESCO Decade (2005 - 2014) of Education for Sustainable Development is finished. The results of the decade were introduced in Japan during a youth conference in Okayama. The BSP national coordinators **Søren Levring** (Denmark) and **Kersti Sõgel** (Estonia) were invited to participate in the youth conference in Okayama.

The conference was attended by almost 200 people from 32 countries. Each country had four students and one teacher in its delegation. The competition was very tight for participation in the conference; organizers received more than 5000 applications. Every young delegate had a host who was

always present. The entire conference was led by young people themselves - it was voluntary work. As the young leaders of the conference spoke in Japanese, there was professional simultaneous interpretation in English, Japanese and French. It was a good experience for discussion leaders to understand and catch the real meaning of thoughts.

The aim of the conference was to create a network, understand each other's similarities and differences, and understand the needs and opportunities of teachers and students to contribute to the global worldview gap. The conference was important to show the activities of the education for sustainable development and continue activities even after the end of the decade.



OUR PLANET



Kersti Sögel and Søren Levring are giving lecture at the Ministry of Education of Japan.

To start the event, each of the student groups made a seven-minute presentation that was clearly too short of a time. Within this time they needed to introduce their country, the main environmental problems and solutions in their school activities, and talk about what students can do for sustainable development. After the presentations came the panel-discussion on topics such as:

- What do you think obstruct environmental sustainability in everyday life and society?
- What is the importance of promoting sustainable development?

Nelson Mandela: Education is the most powerful weapon which you can use to change the world.

The next day there was a big debate: what should be the aim for the UNESCO ASP Network students to achieve sustainable development of society and to ensure the future of our planet? During these two days formed the basis of the declaration that brought out the general directions how to move forward. Students asked for a more specific message, which they can distribute, but there was no time for it.

The teachers' workshop also had two main themes:

- What kinds of activities are carried out in each country for sustainable development?
- What is the teacher's role and activity in promoting education for sustainable development?

Discussion and speeches took 3 hours. The teachers were in a circle around the tables and discussed these issues and made a presentation of group work. Then an overview of all of the presentations was prepared.

BSP representatives could also give a lecture at the Ministry of Education for students and professionals working with ESD about education in Estonia and Denmark. Søren Levring introduced the new reform for primary and secondary

school in Denmark and gave examples of school based activities in the Baltic Sea Project. Kersti Sögel showed the connection between non-formal environmental education and public school system. This is not widespread in Japan. The basic is formal education. Non-formal education seems to be a topic that may become more important in the near future.

It was clear for us that the Japanese society still is very hierarchically organized also in the education sector. The most visionary teachers, school leaders and scientists are looking for networking as a way to share knowledge and work innovatively.

We are very thankful to Hideki Maruyama, Ph.D. Department for International Research & Co-operation, Ministry of

UNESCO Recommendation: Today begins tomorrow.

Education, Culture, Sports, Science and Technology of Japan whose initiative brought us to Japan. ◆



The BSP national coordinators Søren Levring (Denmark) and Kersti Sögel (Estonia) participated in the youth conference in Okayama.



ESD Rice project in a glance

> NAMIRAH FATMANISSA

It is a year since the ESD Rice project started and it has been a great experience for every participating school to promote ESD through rice. The project, with the participation of schools in Indonesia, Thailand, Philippines, Republic of Korea, Japan, and India, is trying to spread seeds of awareness to students and schools about sustainable world and how they have power to make it real.

Rice, as a staple food of all participating countries, has been an important part of us not only in terms of its environmental aspect, but also economic, social, and cultural aspects. Teachers and students together identified the surrounding problems related to rice, conducted research, designed and conducted projects and campaigns to contribute to solutions, and shared the experience with participating schools. "Will I see these fields of rice when I become an adult?", "Can my children eat rice that is as tasty as the rice I am eating now?", and "What should I do to solve this problem?" were some of their questions. They were simple questions, yet represent concern about a sustainable future and willingness to act. ESD Rice Project has become a home for all students and teachers across countries to really nurture the spirit of sharing with each other, learning together, and contributing together.

AN ENCOUNTER WITH THE BALTIC SEA PROJECT (BSP)

The first time we learned about the BSP was from Ms. Birthe Zimmermann during the first ESD Rice Workshop in Ayutthaya, Thailand (2013). The second time was from Ms. Gedy Siimenson in Malang, Indonesia (2014). This project, with participation of countries around the Baltic Sea, was initiated to contribute to the improvement of the environmental situation of the Baltic Sea. This project showed us how collaboration and actions do matter. The BSP encouraged students and teachers to understand that man and nature (especially the Baltic Sea) were interdependent. Thus, observing and protecting the needs of the Baltic Sea was urgent. Students and teachers undertook projects with that common goal and learned together. They conducted conferences and seminars, prepared newsletters, and organized joint competitions as ways to share with and keep updating each other.

The BSP has been committed to doing this since 1989 and is still continuing. The spirit of believing that our small actions are significant for the future and that those actions may become greater through continuous collaboration was something that I learned from the BSP.

Recently, ESD Rice project has planted the seeds of sustainability to all their participating countries and harvested the results. Can we take some harvested grains and plant them again? Yes, we can. We have implemented planted seeds



Ms. Gedy Siimenson, General Coordinator of the UNESCO Baltic Sea Project, together with the participants of the ESD Rice Workshop in Malang.



Students of SMAN 10 Malang, Indonesia, one of the ESD Rice participating schools, made a presentation on their research on rice in Biology class.

of sustainable development in students who will be agents of change for creating a sustainable society. Those bright young generations and their education are the key for a better world. Challenges need to be overcome, yet we have all the practices, bright and full-spirited youths, and each other.

ESD RICE PROJECT AND THE BSP

Although the UN Decade for ESD ended in 2014, it is still imperative to uphold the message of sustainability. As ESD Rice Project will stand on its own feet, it will be so wonderful to have another project as a "friend" to share, learn, and improve together. We contacted a student from a participating BSP school and expect continuous sharing and discussion with them. We may have projects under different themes - rice and sea - but we have a common goal which is a sustainable future. The discussion will be rich with ideas, advice, and cheers. Students will gain broader knowledge and perspective on sustainable development as the network expanded. A lot of possibilities of collaboration may come. Let us leave the world as a better place than when we got here. ♦



In service teacher training on BSP bird watch program in Poland.

PHOTO JOLANTA MOL

Baltic Sea Project in Konopnicka Upper Secondary School through 20 years

> **JOLANTA MOL**, PhD, BSP national coordinator in Poland
> **DOROTA GROCHAL**, BSP school coordinator II Secondary Konopnicka School in Katowice, Poland

The Baltic Sea Project in UNESCO ASP-net is the flagship project of Konopnicka Upper Secondary School in Katowice, Poland conducted with the support of UNESCO.

As a BSP coordinator at the school since 1993 and ASP national coordinator appointed by the General Secretary of the Polish National Committee for UNESCO I would like to share some memories from that wonderful time.

PARTICIPATING IN YOUTH WORKSHOPS AND CONFERENCES

Our school has participated in many trips, workshops and conferences organised within the Baltic Sea Project. Among the most important ones there were some highlight events which were as important as all the other ones but provided the opportunity not only to broaden knowledge related to ecology but also knowledge of culture, customs, language, economy and society of both the Baltic Sea Region countries

as well as countries which cooperate with the project such as Japan, Tanzania or Arabic countries.

In 1994, 1999, and 2001 the groups of our school took part in the BSP Conferences and International Ecology Olympiad in Saint Petersburg. The delegates visited the Hermitage Museum, Russian State Museum, Narva Triumphal Gate, Church of the Saviour on Spilled Blood, Peterhof Palace, Mariinsky Theatre and many other monuments of culture.

In 1999 a group of 40 students of our school went to Sweden within the exchange program with schools from Borlange and Falun. Our students took part in eco-workshops and lectures as well as visited the monuments from the UNESCO World Heritage List.

In 2002 together with Ute Grünwoldt from Germany (the General BSP Coordinator during 2000-2003) we represented BSP UNESCO in the Second Earth Summit in Johannesburg.

In 2004 a group of students with me and Krystyna Pytlik took part in the Baltic Sea Project conference on sustainable fishing. Students and teachers from the Baltic Sea region were present at the conference together with students from



BSP teachers at the International Conference on Urban Ecology in Vilnius, 2009. PHOTO: [HTTP://WWW.B-S-P.ORG/HOME/](http://www.b-s-p.org/home/)

Japan and Lake Victoria Region (Kenya, Tanzania and Uganda). Susanne Mellvig organized a fantastic conference which we will remember for a long time.

In 2009 a group from our school participated in the International Conference entitled Urban Ecology in Baltic Sea Region organised within the BSP project in Vilnius.

In 2012 a delegation from our school took part in the International BSP Conference “Local Resources for Sustainable Development” under the auspices of UNESCO which was organised in Valmiera, on the territory of the National Park Gauja in Latvia.

In 2013 a group of 14 students and teachers participated in the BSP international eco-workshops in Kappeln (Germany). Students were not only participants but also workshop leaders. They learned and shared knowledge they learned at school with others, listened to lectures on oceanography, broadened their knowledge on the topic of protection of the Baltic cod and invasive animals and, what’s most important, made friends with peers from the Baltic Region countries, acknowledged their culture and traditions.

Our students visited the International Environmental Camp organised by Meri-Pori Upper Secondary School during 1996 - 2014. During the workshops we had a chance not only to participate in field work but also to visit the UNESCO World Heritage Monument in Finland, the Fortress of Suomenlinna situated on six islands near Helsinki.



BSP International Conference “Diversity and Sustainability” in Katowice, PL in Zloty Potok at the Complex of Jurajski Landscape Parks located on unique Kraków-Częstochowa Upland.

PHOTO: MAŁGORZATA FEDOR-KUBAS



Sustainable Fishing Conference in Sweden hosted together with the BSP students the young people from Japan and Lake Victoria Region. PHOTO: [HTTP://WWW.B-S-P.ORG/HOME/](http://www.b-s-p.org/home/)



Environmental History BSP workshop for teachers in Katowice, Poland, with Per Eliason as the former programm coordinator. It is at Wujek Coalmine, 670 metres deep underground.

PHOTO: JOLANTA MOL

ORGANISING INTERNATIONAL COOPERATION

Over the past 20 years in the BSP our school has often organised student exchange programs with the Baltic Sea Region schools, mainly from Sweden. They had a chance to sample the local cuisine and meet the local families as we often hosted them in our homes. On each of these occasions we tried to organise a time for eco-education and show green Katowice, green Silesia, and the areas closest to our school: Murckowski Forest, Nature Reserve Ochojec, Kościuszki Park and Silesian Park in Chorzów, Ojców National Park and the unique Kraków-Częstochowa Upland. Our neighbours from the Baltic Region saw also the Beskidy Mountains and Zakopane in the Tatra Mountains. They also visited UNESCO Heritage Sites like Kraków, Wieliczka Salt Mine and Auschwitz Concentration Camp.

During our international cooperation we often organised international conferences and workshops on the history of the industrial regions. The most exciting was a visit to the real working coal mines Wujek Coal Mine and Wieczorek Coal Mine where the guests had a chance to wear real uniforms and feel the hardships of the work of a miner. We have organised many international photo and artistic contests on the topics of sources of energy, local tales about the Baltic Region illustrated by the students, and many more.

During the Polish BSP presidency (2003-2006) teachers and students of our school organised an international conference “The Baltic Sea Project: Diversity and Sustainability”. The conference was held in Katowice and in Zloty Potok. More than 160 teachers and students from nine Baltic countries visited the conference. Our honourable guests were: Krystyna Urbańska, the ASP-net Coordinator from the Polish National Committee for UNESCO, and Jean O’Sullivan, the Chief Executive of the Department of Education in General UNESCO Headquarters in Paris.

The students and teachers from our school have published a few dozens of articles in “The Baltic Sea Newsletter” describing their research projects, experiments, and observations as well as impressions from various international meetings organised in the Baltic Sea countries.

The significant experience gained during our presence in the Baltic Sea Project was presented by the General BSP Coordinator in UNESCO ASP-net to people outside the project acting in other international eco-projects such as Great Volga River Roots (Paris, 2004) and Water (Abu Dhabi, 2006) during conferences organised by the General Committee of UNESCO in Paris and the National Committee for UNESCO in the United Arab Emirates.

I hope that our students and teachers have enjoyed the BSP activities and that those memories are some of the best ecological experiences of their life. ♦

Annual environmental camp in Meri-Pori is focused on environmental measurements program.

PHOTO: [HTTP://WWW.B-S-P.ORG/HOME/](http://www.b-s-p.org/home/)





Conference in Riga devoted to 25th anniversary of the Baltic Sea Project

► **EIRANA OSTROVSKA**, *A.Upits Skriveri Secondary School, Latvia*

To celebrate 25th anniversary of the Baltic Sea Project, the National Centre for Education organized a conference for teachers and students from 14 different schools in Latvia. The conference was held on November 21 at the Latvian National Cultural Center in Riga. In addition, the participants also had the opportunity to visit the Latvian National Library (LNL).

First we visited the LNL and what we saw was a beautiful library interior. This new building from the outside and the inside is very impressive. The building is divided into five zones: public, readers', storage facility, staff, and technical areas. In the LNL they have a collection of more than 4 million units covering all branches of science with the basic profile of humanities and social sciences. Of course the jewel of our national literature "Dainu skapis" (folk song collection) was available for all people.

The event was opened by general secretary of UNESCO Latvian National Committee Baiba Moļņika. She told about the importance of this long-term project in Latvia and eight other countries which share the Baltic Sea. The conference featured 3 lectures about the Baltic Sea, the quality of the water of Latvian rivers and lakes, which was led by Ingus Purgals (from World Wildlife Fund), Andris Urtāns (from Environmental Protection Agency) and Loreta Urtāne.

The lecture about the water quality of the Baltic Sea was comprehensive because it related both economy and ecology which are an integral part of the marine areas in the current situation. The undeniable fact is that our sea is not the cleanest because the open parts of the Baltic Sea are currently not in an acceptable environmental condition. There are many influencing factors and that is the reason why projects and mass measures are organized – it helps to solve pollution problems. No matter how beautiful Latvia is, there are environmental problems here which it would be worth thinking about.

The quality of water in Latvian rivers was the second problem that we discussed. We were told what the causes of river pollution were, and how they are being addressed. This topic made me think how really important is to live in harmony with nature. At the end we looked at the Latvian lake water quality, and realised that many students do not know how many lakes there are in Latvia (2256 lakes). A surprising fact was that lakes with a large area are less than 1.5 m in depth on average.



The building of the library is divided into five zones in different colours: public, readers, storage facility, staff, and technical areas.

Folk song collection „Dainu skapis” as UNESCO Heritage is available for all people.

PHOTOS: DAIGA MARTINSONE

Overall, everything was very interesting because indisputably, the conference and this project made us understand what is happening in our environment and how we are making it happen. We are thankful that there are people who think about how to protect the nature and make the world better so that people can live there for many generations. ◆



Oil transportation and seabirds

► **AGNI KALDMA**, *Estonian Fund for Nature*

The Baltic Sea with its slow water change and shallow waters with low salinity is a unique ecosystem throughout the world. In 2005 the International Maritime Organisation (IMO) named the Baltic Sea a particularly sensitive sea area. By that it was internationally acknowledged that the growing sea traffic on the Baltic Sea can easily harm the extremely sensitive ecosystem of the sea. For that reason additional measures have to be taken to improve the safety of marine traffic as well as protection of the marine environment.

BUSY SHIP TRAFFIC ON THE BALTIC SEA

According to the HELCOM Baltic Sea Action Plan (HELCOM BSAP), ship traffic on the Baltic Sea is one of the busiest in the world. About 2000 ships sail daily on the Baltic Sea, 200 of them oil tankers. The number and size of the ships, foremost that of oil tankers have increased in the past years and this trend is growing constantly. This busy traffic is happening in the narrow straights and shallows which are covered with ice for a long time. That is why the Baltic Sea is difficult to navigate with lots of crossings of ship routes which lead to an increased risk of ship wrecks.

Busy ship traffic on the Baltic Sea and growth of the share of oil and other chemical substances increase the probability of large-scale oil spill incidents. Plans, strategies and risk

assessments prepared by different state authorities acknowledge the extremely high risk of an oil spill which may result in a catastrophic damage to the environment.

In addition to an economic loss, oil spills are always accompanied by large environmental damage. Beaches are polluted, habitats are damaged or destroyed, birds and seals are covered in oil. The increased numbers of oil spills have already influenced the populations of wintering seabirds on the Baltic Sea.

The study conducted in Gotland University compared the numbers of wintering long-tailed ducks (*Clangula hyemalis*) to the numbers of oil spills in the area from the winter of 1996/1997 to the winter of 2003/2004, and came to the conclusion that from the wintering population of long-tailed ducks in the Gotland area (total number approx 1.2 millions according to the 1993 and 1994 calculations) every year approximately 120 000 birds are killed by oil. This is not a small number even for such a large population.

THE EFFECTS OF OIL ON WILDLIFE

The effects of oil on wildlife have been studied a lot. Most well-known are studies conducted in the Royal Netherlands Institute for Sea Research concerning the impact of oil on seabirds which contains data on shored oiled birds from 1915, and long-term studies of Gotland University in Sweden about the impact of oil on wintering seabirds. After an oil spill, impact research is conducted across the world. In Esto-



nia these studies are mostly done by the Marine Institute of the University of Tartu and cover small organisms, birds and mammals. All these studies prove the negative impact of an oil spill on wildlife.

The first impact of an oil spill may go unnoticed, yet could later prove lethal to some forms of wildlife. The recovery of some habitats and species can take from one year to even 30 years. The time of recovery and the nature of damage depend on the type of oil.

The main impact of light oils is toxicity. They do not stay in the environment for a long time, evaporate quickly and are very flammable.

The main impact of crude oil is mechanical suffocation of wildlife, worsened gas regime by bacterial decomposition and poisonous by-products that are released in this decomposition. Crude oil is not that toxic; it is very sticky to being almost solid and stays in the environment for a very long time.

The coverage of biological damage can vary from minimum to complete destruction of life in some habitats, recovery of which can take decades. The impact of an oil spill on wildlife depends a lot on environmental circumstances like season, water temperature and movement, wind, geography of the area etc. For instance, when an oil spill happens in the winter, evaporation and decomposition of oil is slower and a larger amount of oil will sink and have a larger impact on benthic organisms.



Rescue center.

PHOTO: [HTTP://WWW.ELFOND.EE](http://www.elfond.ee)

WHEN AN OIL SPILL HAPPENS...

When an oil spill happens, mostly seabirds are in danger. The most important outside effect is that oil sticks to the feathers and spoils their waterproof structure. Through the spoiled feathers cold water will reach the skin and the bird will start using its internal resource of energy intensively just to keep itself warm, first the fat layer and then muscles. Feeling cold makes the bird preen just to adjust its feathers to be waterproof again, so the oil will reach the bird's digestive system. The first impact of this intoxication is diarrhea which makes the bird lose a lot of energy and fluids. This will cause anemia which will hinder the seabird from diving and feeding: the number of red blood cells that transport oxygen is too decreased. All this makes seabirds that normally spend all their time on the sea come to the shore in a couple of days where they become an easy target for predators, intoxicating them in turn, or freeze to death.



REHABILITATION CENTERS FOR OILED BIRDS

The rehabilitation of oiled birds is not a new thing in the world. The first model of rehabilitation was created in late 1960s when organizations like the International Bird Rescue Research Center (IBRRC), Tri-State Bird Rescue and Research, the Royal Society for Prevention of Cruelty to Animals (RSPCA), and the South African Foundation for the Conservation of Coastal Birds (SANNCOB) were established. All these organizations acted like NGO-s and depended on donations only. During the years, most of these organizations have signed contracts with oil or transportation enterprises or have received governmental funding.

As methods of oil recovery evolve, the first rehabilitation model has developed into present methodology that is based on scientific research. Main standards, criteria and protocols are used and improved so that better results in rehabilitation of oiled birds can be achieved year by year. The negative impacts can be prevented, minimized and eliminated through a professional rehabilitation process.



Rescue center. Social support to oiled wildlife rescue is shown by volunteers willing to help in an oil spill.

PHOTO: [HTTP://WWW.ELFOND.BE](http://www.elfond.be)

REHABILITATION OF CONTAMINATED BIRDS - PROS AND CONS

The rehabilitation of oiled wildlife implies a large investment of time and energy of people dealing with it. A lot of other resources like water, electricity, and of course, money, are used during this process. So it is only natural that questions such as does oiled wildlife need to be saved at all and is it actually a reasonable way of acting, have been raised. Two understandings have collided: one of society and media of what is important, and the other of biologists concerning long-term species protection. Debates are argued between economic reasons and species protection positions, and the overall principles of animal welfare, animal protection,

ethics and moral obligations. The question „Why rehabilitate or why not rehabilitate?“ has helped formulate arguments for and against rehabilitation. Nowadays, developments in knowledge, scientific research, analysis of results of past spills as well as internationalization have brought us to the point where the question „Why rehabilitate?“ is losing its importance and is replaced by the question „Who should rehabilitate, when and how?“.

In a democratic society where citizens can express their opinion freely it is normal that wildlife suffering from an oil spill will generate compassion and cause resentment. A legitimate expectation that the environmental damage will be eliminated and a situation close to normal will be restored will follow. A common estimation is that a catastrophe and its impact on wildlife caused by humans must be repaired by humans as well. Social support to oiled wildlife rescue is shown by volunteers willing to help in an oil spill, and donations collected for this work. Even the sources of risk itself – oil transportation and drilling companies, shipping companies - have started to show their support to oiled wildlife rehabilitation by signing contracts with rehabilitators all over the world.

Although rehabilitation of oiled wildlife does not have a significant importance from the population biology point of view as it occurs in large populations, it still has an importance when small or endangered populations are threatened. To be ready to save small or endangered populations, all opportunities to learn and improve have to be used. Opportunities like this will arise from every rescue operation of oiled wildlife. Besides experience gained from these operations, they also provide an opportunity to scientists to get new data on species and gather information for different researches.

All in all, the amount of money spent on rehabilitation of oiled wildlife is really marginal compared to the oil transportation related money flow. Besides that, many funds that cover also oiled wildlife rehabilitation are established by international agreements. With proper planning and preparedness a rescue operation is many times cheaper than an unprepared random rehabilitation attempt. Also, people who have once helped oiled birds are most certainly the biggest nature protectors in the future. They are also active citizens who are willing to help in critical situations and have an experience of acting in difficult circumstances. Also, we should not forget that most countries, including Estonia, have legally regulated responsibilities when it comes to wildlife in distress.

Hopefully it is not going to be this way continuously that some people contaminate the sea and earn on that while other people save the doomed birds. In this case scenario, we are ourselves doomed. Oil does not kill seabirds only. Less visible sea organisms get their part too and the gradual extermination of the ecosystem of the sea with oil contamination is going to be a threat to all of us. ◆



A group of students keeps a disc on their knees, thus forming a common table.

PHOTOS: HIDEKI MARUYAMA

Education for Sustainable Development in Japan

➤ **KERSTI SÖGEL**, *National BSP Coordinator in Estonia*

➤ **SØREN LEVRING**, *National BSP Coordinator in Denmark*

The BSP national coordinators Søren Levring (Denmark) and Kersti Sögel (Estonia) were invited to examine the Education for Sustainable Development (ESD) activities in Japan. The Baltic Sea Project is also known in Japan and its sustainability as the network is highlighted.

LEARNING PROCESSES AT GIRLS' COLLEGE (UNIVERSITY OF THE SACRED HEART)

We visited a girls' college, where we participated in an ESD (Education for Sustainable Development) sample lesson. The lecture contained parts as follows:

■ Personal experience of ESD

One student shared 3 pictures depicting her family history that she had taken from her home. Everyone had to find a link - how this can be an important point of education of sustainable development. The Japanese education system uses a lot of self-analysis. When everyone had to take time to think, they

shared their ideas in a circle. In this case, the student had taken pictures of her family and talked about how life is affected by a family tradition.

■ Short lecture by the teacher: "What happens when the world's climate change +2 degrees?"

The teacher gave an overview of media articles about this theme.

■ Group work, students were asked to bring out the climate warming positive, negative, and neutral effects, and create a concept map of the connections. The teacher had created a very simple and comfortable groupware tool: a disc of about 1 meter in diameter of strong material (cardboard, plastic or plywood can be used as material). A group sits up to five students who keep this disc on their knees, thus forming a common table. Responsibility is divided - if one will not hold the disc anymore, then all the others will have to work harder. Sitting in a circle helps to create a discussion between students. If some students are ready then they are given additional tasks: a table where you write



SUSTAINABLE SCHOOL

about what you can do in one year, five years, and in a longer period as an individual, on organizational, community, national and global levels. Finishing these tables can be done at home.

- Presentations. Each group presented the results of their discussions. Students pointed out the important points and commented on their concept maps.
- Homework. Read printouts of articles in English and Japanese about climate change in the world.

Students' understanding of the topic was checked by the following method. Students are asked to do the following: if you feel you understood everything, raise five fingers. If you feel that you can understand something, raise two fingers. If you feel that you do not understand, then raise a fist.



Watch and learn!

EXAMPLE LEARNING PROCESSES IN YANAGAVA ELEMENTARY SCHOOL

We visited a school where the environment and sustainable development is really a cross-cutting theme throughout the school curriculum and in all subjects. Even a special calendar has been created for that. The school's educational objectives are to cultivate the students who know how to think, act, and learn about yourself; learn to consider others; keep your body healthy and respect life. Parents and the community are important partners for cooperation. The teacher is not only the information provider, but a coordinator of the educational activities. After school - two sixth-grade classes (a total of 60 children) started at 2 pm - students gathered in the school gym to prepare for the next day's presentations. The topic was the historical development of the region - life and culture. Demonstrations were like dramatic productions which included children's handmade decorations. It seems that the students had enough freedom to manage their own learning processes and to experiment with different ways to convey

the message. For example, when talking about a traditional Japanese house, the students prepared a cardboard box house model with the furniture. Presentations included questions for the audience. It looked like the process was also important, not just the outcome. ◆

subject	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Japanese		Our town 100 years From now		The next step (project report)		Investigating on the internet		Forecasting the weather				
Arithmetic							The sizes of units				Percentages & graphs	
Science		Generation and growth of plants					Work performed by flowing water					
Social studies		Rice of the fertile Shonai Plain				Our future eating habits		Using information		Protecting the environment		Preventing natural disaster
General studies		Protecting the Earth by ourselves						Earthquake! What to do				
Special Topics								Learning school history		Yanagawa Festival		
English		「Hello!」「I'm happy.」										
Social Morality				Waste not want not		Global warming & The disaster forests		Cleaning party on Chomolunama				
Music												
Art				Poster								
PE											Injury prevention	
Home economics								Delicious daily food				
					Environmental education		Multicultural understanding		Human rights & the value of life			Study skills

Education for Sustainable Development Calendar of Yanagava elementary school.



Our smart Hand Wash Station

► **PEEP TOBRELUITS**, *Viljandi Hobby School, Estonia*

Many Estonian summer houses and country homes are still not connected to the general water supply, making it rather cumbersome to take a shower. Fear not - the merry crew of the nature group at Viljandi Hobby School came up with a clever solution.

The idea took root from the fact that the Hobby School inhabits on a century-old schoolhouse where hand-washing facilities are not available in every classroom. For example, children in the nature group had to walk for about 40 meters and go through three separate doors just to wash their hands in the restroom. Then they had to walk back to their classroom the same way. That, indeed, wasted considerable amounts of time.

Our hand-washing system i.e. the Hand Wash Station is made of an old refrigerator. The contraption contains four layers of turf to filter the water used for washing. Filters are located in the former fridge's baskets. The lowest drawer holds a collection container which in turn holds a sensor. The sensor sends out a signal when the water level is about to rise above the bottom half of the container. A green LED light turns yellow when the container is filling up. A second sensor is attached to the upper edge of the container, and when the water level touches the edge a warning red LED light comes on. A measuring container is used to draw water from the collection container to keep constant tabs on water use.

Clean and used water quantities are recorded by date. Filtered water is analyzed employing a simple analysis kit (water is analyzed on site: AQUANAL-Ökotest Wasserlabor Art No. 37801 Fluka Analytical; www.sigmaaldrich.com; Sigma-Aldrich Laborchemicalen GmbH). Analyzed water is in turn used to water plants in the classrooms. In the course of a year, the Hand Wash Station has given new life to 24 l of water. Some of the water (approximately 10 l) is contained in the turf filter.

Clean water is transported to the Station from a restroom tap and the water is kept in a special container by the sink. The water container is equipped with a tiny faucet that lets out a small quantity of water. This quantity is enough to wash your hands or quench your thirst.

All you need to build a system such as the one above is the casing of a refrigerator. We received the fridge for free from a waste disposal plant; the turf and other component parts cost us a total of approximately 10 euros. Our fridge was broken, and all of its freon had leaked out long ago. Otherwise we would have had to order a freon removal service. The fridge's cooling system still had to be removed. Today, the Hand Wash Station is used on a daily basis.

The described hand-washing system also serves as a teach-



PHOTOS: PEEP TOBRELUITS

The water container is equipped with a tiny faucet that lets out a small quantity of water. This quantity is enough to wash hands or quench your thirst.



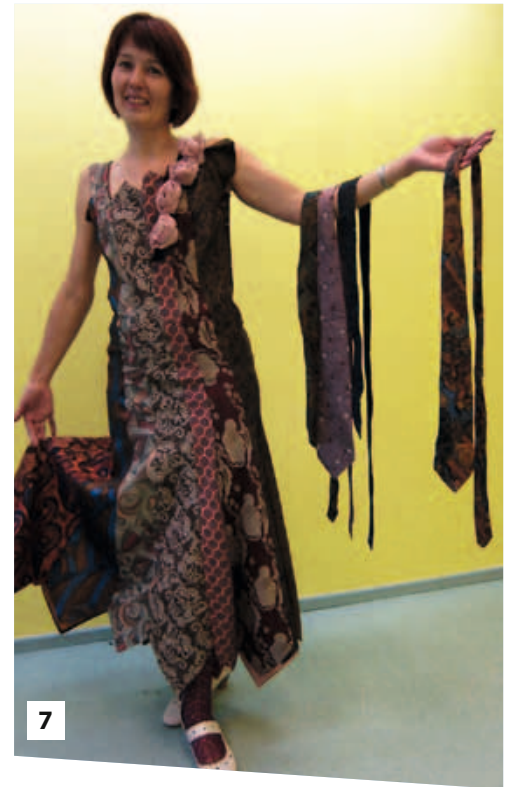
The contraption contains four layers of turf to filter the water used for washing. Filters are located in the former fridge's baskets. Clean and used water quantities are recorded by date. Measured water quantities can exemplify use of water as a natural resource.

ing aid in environmental education, explaining sustainable water use, water economy and the hydrological cycle. Measured water quantities can exemplify use of water as a natural resource: where could water disappear to, and what happens to contaminated water? Turf filters are a link of sorts to wetlands. Swamps play a significant role in maintaining the Earth's fresh water supply. Using filtered water to water house plants in the classroom teaches kids how to take care of the plants. ♦



From old to new

GOOD IDEAS FROM ESTONIA AND LATVIA





10



14

- 1 From old apple tree trunk to flower box
- 2 From tin tub to flower box
- 3 From plastic bottle to apple picker
- 4 From coffee packages to shopping bag
- 5 From tin cans to shoe rack
- 6 From plastic bottle to bird feeder
- 7 Dress from neckties
- 8 From vinyl record to picture frame
- 9 From shopping cart to armchair
- 10 Bottle cork lamp shade
- 11 From old TV set to a box-room
- 12 From vacuum to floor lamp
- 13 From old drawer to picnic table
- 14 From bathroom tissue rolls to pencil holder
- 15 From pantyhose to stuffed animal
- 16 Old chair
- 17 From old jeans to purse
- 18 Laundry basket from old barrel

Estonian samples collected by the
Estonian Environmental Board
www.keskkonnaamet.ee



11



15



12



16



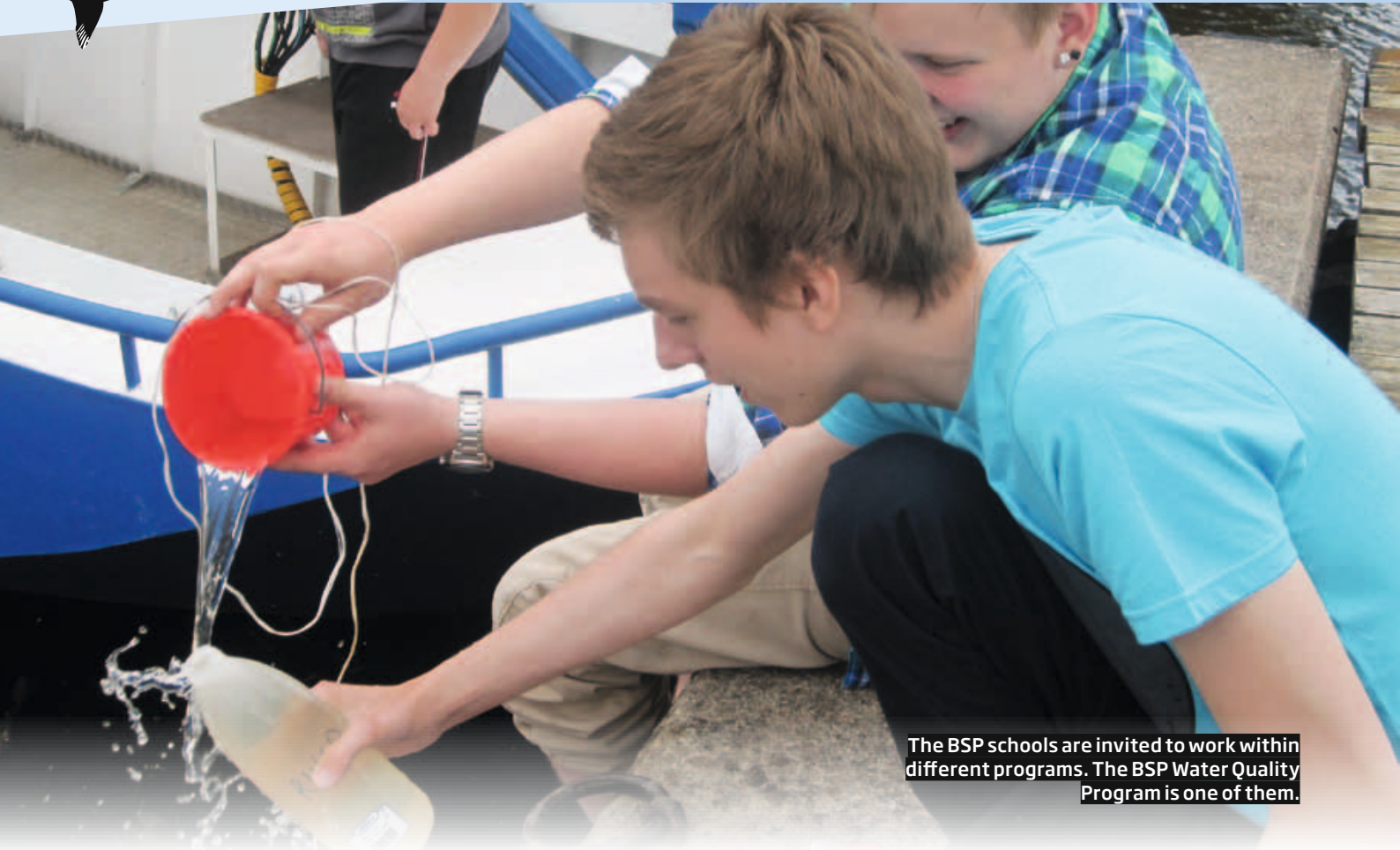
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13



18



The BSP schools are invited to work within different programs. The BSP Water Quality Program is one of them.

Hatching new scientists across the borders

► **SOREN LEVRING**, *BSP National Coordinator in Denmark*

A new BSP Learner's Guide entitled "Hatching new scientists across the borders" (http://www.b-s-p.org/home/guides/learners_guide_10) has been published by the BSP editorial team. This is a new workbook for teachers of the Baltic Sea Project. The book is an innovation in terms of the work of the network. Now teachers can easily learn about international cooperation that is the basis for the Baltic Sea Project.



THE PROGRAMS ARE REVIEWED

There are instructions on new opportunities for collaboration with universities in the region, digital teaching resources and presentations of different states meant for politicians and stakeholders.

A key novelty of the Learner's Guide is also associated with an app for programs designed for data collection directly on students' smartphones.

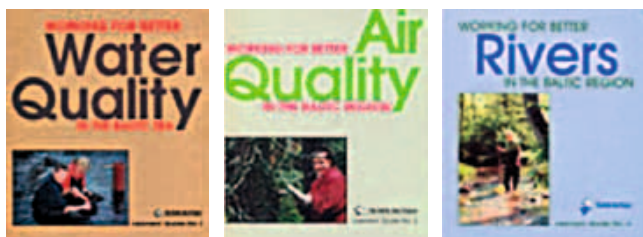
The Learner's Guide 10 is edited in Denmark, but is the result of cooperation between members of the Baltic Sea Project in several countries, the South Baltic Weblab and Monde Pluriel. The book is financed by ASP Denmark, EU South Baltic Strategy, Sønderkov School in Sønderborg and Tartu Environmental Education Center.

This is a handbook for teachers enrolled in the Baltic Sea Project (BSP). The intention of the book is to explain relevant theories and practices to be used in teaching under the BSP programs which will be mentioned briefly below.

Currently, more than 200 schools from all nine countries around the Baltic Sea are involved in these programs. Most practices referred to have been developed and tested by teachers and students in national and international camps or training courses which are an important part of the activities of BSP.

The following defines the work done by teachers in the BSP:

- English is used as a common working language, even when participant have only minor skills.
- Exercises are either done directly in nature or are carried



out as laboratory exercises with relevance to the natural environment in or around the Baltic Sea area.

High priority learning-goals are:

- Democratic responsibility.
- Theories about the environment and the Baltic Sea which represent common interests for the joining countries.
- Intercultural awareness which is taught through teamwork with colleagues in other BSP countries.

BSP PROGRAMS

The BSP schools are invited to work within the following programs as Water quality in the Baltic Sea, Rivers, BSP Coast Watch, Air Quality including estimation of air quality by using bio-indicators and phenological studies, Bird Ecology, Environmental History, Environmental measurements. For every program there is a program coordinator. Names of the coordinators can be found on the homepage of BSP: www.b-s-p.org/home/programmes.

For science education it is possible to share results from Rivers, Water Quality, Coast Watch etc. using a new app developed under the BSP project and mentioned in this book. It will be possible for students to use this app from mobile phones and similar devices.

Results gained under specific programs can be sent to the program coordinator or published directly on the website and/or in the BSP-newsletter. In Denmark publication of results is also possible in the annual ASP-report.

There are several printed learner's guides available on varying subjects of relevance to the programs. A list of these as well as electronic versions (as pdf-files) can be found on the BSP website.

SCIENCE AND SUSTAINABILITY

In the Baltic Sea Project teachers are working across national borders to increase awareness of sustainability and to hatch new scientist amongst students. This must be done in cooperation between all levels in the educational system to inspire students and to show them the possibilities for future engagement and work. Current evidence points to the importance of working together across educational sectors like secondary schools and universities.

NETWORKING

The BSP-schools must have an active international profile and the board and leadership at the school must be ready to support the work and, especially, be aware of UNESCO.

CULTURAL CROSS-BORDER UNDERSTANDING AND COMPETENCE TO ACT BETWEEN CULTURES ARE NECESSARY IN THE GLOBAL COMMUNITY

Direct contact between teachers and students across borders is important. Besides visits where people meet physically the organization of direct contact is today effected largely via Internet connections using different platforms such as social media for presentation of data and activities recorded on video, pictures, in sound or text taking advantage of the large amount of software freely available on the Internet. The EU website www.etwinning.eu also gives a good platform for cooperation in a safe digital environment.

For students as well as teachers visits with collaborating partners at twinned BSP-schools is an experience for life. These visits give the students a possibility to meet eye-to-eye and gives them a sense of being part of an environment where they can work together at the same topic or subject. The personal experience for students is broadened by living in private homes of hosts.

UNESCO strives to build networks among nations that enable this kind of solidarity, by

- Mobilizing for education: so that every child, boy or girl, has access to quality education as a fundamental human right and as a prerequisite for human development.
- Building intercultural understanding: through protection of heritage and support for cultural diversity. UNESCO created the idea of World Heritage to protect sites of outstanding universal value.
- Pursuing scientific cooperation: such as early warning systems for tsunamis or trans-boundary water management agreements, to strengthen ties between nations and societies.
- Protecting freedom of expression: an essential condition for democracy, development and human dignity (ref. UNESCO homepage <http://en.unesco.org/about-us/introducing-unesco>) ◆



A workshop within Sustainable Fishing Conference in Sweden, 2004 PHOTOS: [HTTP://WWW.B-S-P.ORG](http://www.b-s-p.org)



Antioxidant properties of garlic varieties

- > Student: **Stanisław Surma**
- > Tutor: **Prof. Jan Gmiński**
- > Teacher: **dr Danuta Nabiłkowska**
The University of Information Technology and Management in Rzeszow, II Konopnicka Upper Secondary School in Katowice, Poland

Despite the fact, that the health benefits of garlic are well described in the literature there is a lack of data comparing the biological properties of garlic varieties of different geographical origin.

During studies antioxydative potentials of aqueous garlic extracts were measured, using plants harvested in Poland, China and Spain. Those three varieties are the most abundant on the Polish market. The antioxidant properties of garlic varieties were evaluated by DPPH•, and ABTS•+ free radical scavenging assays and Cu(II) and Fe(II) ions chelating methods.

All three garlic extracts showed concentration-dependent ability to scavenge DPPH• and ABTS•+ free radicals. Analysed extracts from fresh garlic cloves had shown that Chinese garlic has the best results in free radicals DPPH• and ABTS•+ scavenging. Aqueous extracts of Polish, Chinese and Spanish garlic showed also high capacity to chelate Fe(II) ions, even at low concentrations. The most effective in Fe(II) chelating was the Polish garlic extract, whereas the lowest Fe(II) complexing activity had the extract of Chinese garlic.



Polish garlic



Chinese garlic



Spanish Morado garlic

Research on copper ion chelating did not produce results significantly different between those three types of garlic.

It is first known in literature comparison of Polish, Chinese and Spanish variety of *Allium sativum* L. Obtained results suggest that garlic varieties grown in different geographical regions have diverse antioxidant potential. Observed differences between Polish, Chinese and Spanish garlic extracts indicate that the three garlic varieties contain different amount of biologically active substances, responsible for antioxidant properties of garlic. ◆



SOURCE OF PHOTOS: INTERNET

Karolina was researching galls caused by mites and insects.

Our biological achievements

- > **Students: ANNA MASŁOŃ, MARIOLA TOMASZEK, MICHAŁ BARNAT, MICHAŁ BARAN**
- > **Teacher: LUDMIŁA SMĘT-DUDZIAK** | Liceum Ogólnokształcące im. Henryka Sienkiewicza in Łańcut, Poland

Students from I LO im. H. Sienkiewicza in Łańcut engage in many activities related to their favourite hobby – biology. For example, they take part in the Biology Olympiad every year. Thanks to our teacher's – Ludmiła Smęt-Dudziak help and support students often achieve great success.

For instance, our student Karolina Zawadzka not only qualified for the third stage of the Biology Olympiad but her research work became singled out by the province committee. Karolina was researching species composition of galls (*Cecidia*) in Rakszawa, in particular the number of species and factors which influence their multiplicity.

Michał Baran started to breed *Myrmeleon formicarius* and he dedicated his research to this.

The aim of his study was to observe the behaviour of *Myrmeleon formicarius* in different environments: the natural environment and the aquarium.

The subject of Mariola Tomaszek's research was storks. She calculated the number of them and compared it to data from the list of storks from 2004. She noticed that the number of birds decreased but their reproduction increased. She concluded that this could be the result of turning fields into cultivation sites of rape or corn.

Anna Masłoń's research also became singled out by the province

committee. She designed a nature trail and a trail tutorial – a booklet aimed at pupils from primary schools.

Karolina Zawadzka, Mateusz Barnat, and Tomasz Skoczylas demonstrated their knowledge of ecology and environment protection. They qualified for the second stage of the Ecology Olympiad.

Students from I LO in Łańcut engage in research for the Baltic Sea Project. They conduct phenological observations and monitor the quality of air by observing *Rhytisma acerinum* and coniferous trees.

In the finale of the international competition Young People in European Forests in Eberswalde, Poland our school was represented by students: Jolanta Podwyszyńska, Monika Kuryło, and Agnieszka Grzenia. Agnieszka Grzenia's team finished second, Monika Kuryło's team got the third place. ♦



Anna Masłoń designed a nature trail and compiled a guide for it.



Amphibians are an important part of preserving biological diversity

Volunteers helping to set up the frog nets.

➤ **MARTA JAMSJA**, *Kadrina Secondary School, Estonia*

Every species has an important role to play in nature. At the moment there are 7387 amphibian species in the world out of which 11 live in Estonia. As a beginner nature protector and self-styled herpetologist I made the following research: “Estonian amphibians, a part of biological diversity. Humans’ awareness and attitude towards them”.

In 2014 I conducted an inquiry among 93 Estonians from Kadrina Secondary School and all over Estonia, between the ages 14 and 76 to find out their knowledge about those animals. I hypothesized that schoolchildren would be more aware of amphibians and their protection ways than adults. On the basis of the research I concluded that the respondents would be well informed why amphibians needed protection and they knew about the different projects which focused on helping them. It is interesting to point out that some people thought that reptiles, fishes and mammals were also amphib-

ians because they remembered that they were animals who lived on land and in water.

In addition, I organised a bee to help amphibians across the road to their breeding grounds. It was done as a part of a national campaign coordinated by the Estonian Fund for Nature called “Frogs off the road!”. The breeding period lasted from April to May during which 15,677 amphibians were helped to cross the road safely in 26 places all over Estonia. Together with 23 volunteers between the ages of 5–54 we were able to save 649 toads, 50 frogs and 2 newts in 11 nights (April 12–23) from the surroundings of Undla and Viitna lake. To carry out the bees the Estonian Fund for Nature sent frog nets, which were placed on the other side of the road from the lake. Since amphibians usually start action in the dark, it was necessary to start patrolling at 9.30 pm. On average the constant road and net checking took about two hours, as by midnight the amphibians stopped moving.



Waiting for a helping hand.



Determined frog on its way.



A frog hit by a car.
PHOTOS: MARTA JAMSJA

In the research inquiry 62% of men and 57% women expressed their overall wish to help amphibians. In reality the numbers were different. Out of the 23 volunteers 14 were women and 9 were men, which makes the proportion of men 30%. Despite the fact that men took interest in amphibians, women showed greater initiative by helping frogs. All the participants enjoyed giving their contribution to the nature and promised to meet again the following year to help the frogs.

The main purpose of the research was to draw people's attention and make them interested in amphibians. I believe that my mission was accomplished because I was able to involve nearly 150 people in this research and make them even for a second think about amphibians and their part in biological diversity. I hope that one day all the world will realise the importance of every single animal and give them the credit they deserve. ◆



Weighing samples.

Can trees reduce air pollution?

> Student: **KAMILĖ BANDONYTĖ**
> Teacher: **RASA KUČINSKIENĖ**
Prienai "Žiburys" gymnasium, Lithuania

Trees have long been known as the lungs of our planet, because they absorb CO₂ emissions and release O₂, which is needed for breathing. However, people need more and more space and as a result approximately 30 mln trees are felled every day. As a consequence – decreasing amount of absorbable CO₂ and decreasing amount of secreted O₂. The aim of this research was to find out if it is possible to solve the problems of pollution and space by choosing which trees have the most chlorophyll.

Unfortunately, process of extracting the chlorophyll from tree leaves and prickles takes a lot of time and I had to finish my research in 2 days. As a result, I was able to measure spectra of the set of pigments (including chlorophyll- α , chlorophyll- β , phaeophytins, xanthophylls and carotenoids)

but not the spectra of chlorophyll- α , chlorophyll- β , because it takes a lot of time for the pigments to separate in chromatographic column.

Although there are a lot of different species of trees in the world, I have chosen 6 of them. One of them was houseplant *Zamioculcas zamiifolia* (common name Zanzibar Gem), the others were trees growing in Lithuania: *Pinus mugo* (Mountain Pine), *Aesculus hippocastanum* (Horse-chestnut), *Larix decidua* (European Larch), *Picea abies* (Norway spruce), *Acer platanoides* (Norway Maple).

First of all I needed to extract the pigments from tree leaves and prickles. I took 2 grams of each sample, so that the results of the research would be as accurate as possible. After crushing samples and filtrating I had 6 pigment extracts made from my chosen samples. The following step was to test each of the pigment extracts absorption spectra. Using "Ocean Optics



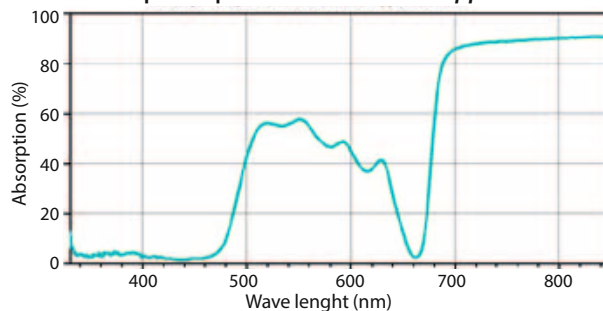
Filtration of mashed samples.

PHOTOS: RASA KUČINSKIENĖ

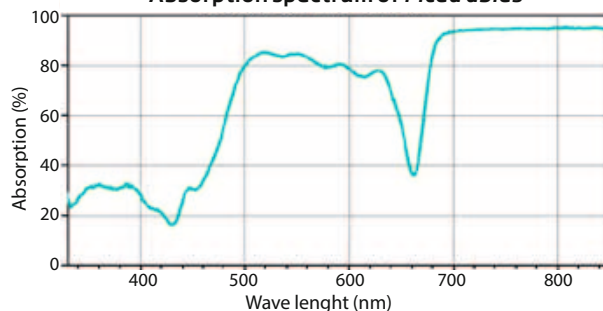
– USB650 Red Tide“ absorption spectra measuring device I got the results of my research. *Zamioculcas zamiifolia*, *Pinus mugo*, *Aesculus hippocastanum* and *Larix decidua* absorb about 60 % of light which means that those are quite productive trees. But analysis of the results have shown, that the best trees to grow from these 6 that I have chosen, are *Picea abies* and *Acer platanoides*. They absorb about 80 % of light.

I believe, that choosing trees by their ability to absorb light can help to make the future of our planet much brighter. If we would plant trees like *Picea abies* or *Acer platanoides*, because they absorb about 80% of light, performs the photosynthesis faster than other trees and release more O₂ than it is being released now, who knows, maybe the air would become less polluted? Everyone wants to breath clean air and maybe one of the ways to it is planting the specific trees? We can do anything if we try. ♦

Absorption spectrum of *Aesculus hippocastanum*



Absorption spectrum of *Picea abies*





Keep going wilder. The process of biological succession on meadows

➤ Student: **MONIKA BIALY**

➤ Teacher: **dr JOLANTA MOL**

II Secondary Konopnicka School in Katowice, Poland

I like biology very much. I took part in the BSP international workshops in Kappeln in 2013 and it was a fantastic experience for me and my friends from my school. Our school is cooperating with the Medical University of Silesia and we will have the opportunity to study at a program “The Medical University for students of secondary school”.

I passed well the exams and now for one year I can attend the lectures and classes. Every year students of the Konopnicka school take part in the Biology Olympiad. Everyone who wants to take part in it, first of all, has to do the research work connected with biology interests, then write a poster, and take very difficult tests in biology.

That was one of the reasons why I undertook a project about two types - mowed and unmowed - meadows. And I am truly delighted that my work was distinguished and gave me an extraordinary opportunity to take part in the international competition, consisting of only biology projects. I selected and separated two areas of these meadows and did research to find differences between them.

The first meadow had not been mowed for two years and was becoming wilder and wilder. The other was mowed every week. I collected plants for my herbarium and after five months I started working on results. I put all of them into tables and graphs and saw huge differences in plant species diversity from these two meadows. I was really surprised that just a moment of peace is enough for nature to do an enormous work to come back to its wild form again. And it was a great and worthy experience for me, mostly when I had to mark all the plants I had collected.

But that was just the first step on the way that I want to take. I plan to continue the research with more than two years of observation, and I hope that the future will help me understand better the process of succession not only in this area. ◆

**As a result of the studies differences between
2 types of meadows have been found out.**

PHOTO: MONIKA BIALY



Table. Comparing plant species diversity on two meadows

No	Species	Occurrence of species		Incidence of species		
		Mowed meadow		Not mowed meadow	Mowed meadow	Not mowed meadow
		A	B			
1.	<i>Plantago lanceolata</i>	+	+	-	8%	
2.	<i>Geranium palustre</i>	-	-	+	-	3%
3.	<i>Geranium pratense</i>	-	-	+	-	2%
4.	<i>Betula pendula</i>	-	-	+	-	-
5.	<i>Centaurea jacea</i>	-	-	+	-	8%
6.	<i>Quercus robur</i>	-	-	+	-	-
7.	<i>Ajuga reptans</i>	-	-	+	-	7%
8.	<i>Angelica silvestris</i>	-	-	+	-	8%
9.	<i>Lychnis flos-cuculi</i>	-	-	+	-	2%
10.	<i>Lathyrus pratensis</i>	-	+	+	2%	3%
11.	<i>Ranunculus acris</i>	-	+	+	1%	2%
12.	<i>Lotus corniculatus</i>	-	+	+	1%	3%
13.	<i>Chenopodium album</i>	-	-	+	-	2%
14.	<i>Trifolium pratense</i>	+	+	-	13%	-
15.	<i>Festuca rubra</i>	-	+	+	4%	7%
16.	<i>Achillea millefolium</i>	-	-	+	-	6%
17.	<i>Mentha arvensis</i>	-	-	+	-	2%
18.	<i>Taraxacum officinale</i>	+	+	-	14%	-
19.	<i>Cirsium arvense</i>	-	-	+	-	7%
20.	<i>Potentilla erecta</i>	-	+	+	2%	6%
21.	<i>Urtica dioica</i>	-	-	+	-	3%
22.	<i>Fragaria vesca</i>	-	+	+	2%	1%
23.	<i>Veronica chamaedrys</i>	-	+	+	2%	2%
24.	<i>Arrhenatherum elatius</i>	-	+	+	4%	4%
25.	<i>Poligonum persicaria</i>	-	+	-	3%	-
26.	<i>Rosa camina</i>	-	-	+	-	1%
27.	<i>Equisetum arvense</i>	+	+	+	9%	3%
28.	<i>Spergula arvensis</i>	-	+	+	1%	2%
29.	<i>Bellis perennis</i>	+	+	-	8%	-
30.	<i>Poa pratensis</i>	-	+	+	4%	5%
31.	<i>Alopecurus pratensis</i>	-	+	+	6%	4%
32.	<i>Vicia tetrasperma</i>	+	+	+	7%	5%
33.	<i>Vicia sepium</i>	-	+	+	3%	2%



Youth Declaration on the Protection of the Gulf of Finland



Adopted on 27 July 2014 in Helsinki (Finland)

Developed by:

schoolchildren from Russia, Finland and Estonia; young leaders of the Youth Environmental Centre of SUE "Vodokanal of St. Petersburg", the public organization "Friends of the Baltic", Baltic Nature Fund, Ecological-Biological Centre "Krestovsky Ostrov", Luonto-Litto and Tallinn Environment Department.

We are the youth who live on the coast of the Gulf of Finland in Russia, Finland and Estonia!

We are united by a common goal – to make possible contributions to the protection of the Gulf of Finland and involve people in taking care of the Gulf of Finland to reach balance between the nature, society and economy. During the Gulf of Finland Year we studied the specific features of the Gulf, current problems and possible ways to solve those problems; we exchange views and understood better what impact we produced on the Baltic Sea.

We believe that the Gulf of Finland is exposed to a high human-caused load and that all of us need to join efforts to reduce negative impacts on the environment.

We proclaim the Declaration

and call upon the youth, politicians, all decision-makers, businessmen, scientists, teachers, public organizations, farmers, fishermen, tourists, mass media and all population of the region to follow our principles and facilitate the implementation of our proposals.

Our principles:

Individual and collective responsibility for the actions that produce impact on the environment;

- Think globally, act locally;
- Treat the nature as if it were you home;
- Foster careful attitude towards the environment among the youth from all countries.

We are ready to demonstrate by our own example how important it is:

1. To refrain from actions impairing the environment of the Baltic Region:

- Not to leave garbage on the coast;
- Not to slip off (dig out) rare plants;
- Not to discharge foreign substances into water bodies;
- To use household chemicals to the smallest extent and give preference to organic analogs.

2. To make your own contribution to the improvement of the environment in the Gulf of Finland region:

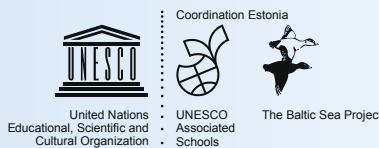
- Take environmentally responsible actions, use water, energy and all resources in a rational and sustainable way in your everyday life;
- Receive good education and turn professional in relevant areas in order to find and implement new ways of preserving the Baltic Sea.
- Spend more time out of town near the Gulf to learn more about local environment;
- Take the initiative and actively participate in projects and events aimed to solve the problems of the Gulf of Finland;
- Disseminate experience and knowledge about the Gulf of Finland among friends and peer groups via the Internet and mass media;
- Share experience in preservation of the Gulf of Finland with the youth of the neighboring countries.

We urge to join efforts to coordinate actions of all stakeholders including the youth to take well-balanced, optimal decisions for the sake of the environment of the region. We direct our proposals to all those who may influence their implementation – politicians, local authorities, businessmen, citizens.

OUR PROPOSALS:

SOCIETY

- Famous people should demonstrate careful and sustainable attitude to the environment in their everyday life and become role models for the younger generation.
- Use public service announcements based on positive images and associations with the Gulf of Finland encouraging people to make their own possible contributions.
- Post immediately available and useful information about



The Baltic Sea Project's international post-crossing campaign "We are connected!"

FEBRUARY - JUNE, 2015

environmental matters for the young people on official web-sites of municipal and state authorities;

- engage the youth in discussing issues related to the status of the Gulf of Finland and take into consideration the views of the youth in decision-making on different levels.
- Call on people to stop overconsumption, shift to sustainable use of goods and products and give preference to the goods with environmental labelling and to the goods of those companies which use minimum packing.
- Call on all people to use water, energy and other resources reasonably.
- Call on people to stop using toxic chemicals, to use household chemicals sparingly and to give preference to phosphate-free detergents.
- Call on people to use biological wastewater treatment processes, dry toilets and organic waste composting in private estates, summer houses and gardeners' communities.
- Call on people to choose solutions with a minimal environmental impact in their everyday life - at home, in shops, at work and in transport.

INDUSTRY

We deem it necessary to:

- Widely implement environmental management systems in companies;
- Strive for closed production cycle and zero waste;
- Pay more attention to the development of wastewater treatment technologies to be applied by industries and households;
- Develop production of goods based on sustainability and cyclical economy -

The Baltic Sea Project of UNESCO ASP Network has almost 200 schools involved in its annual activities: BSP observations, school projects, national & international seminars, camps, contests, conferences. To encourage students to contact each other more, share their opinions and invite other schools to take part in their activities we are launching an international BSP post-crossing campaign which also promotes using BSP homepage, our Facebook page and our biggest event coming in 5-8th of June in Tallinn, Estonia – "BSP's 9th International Conference: Science of Changes".

RULES OF THE CAMPAIGN:

- Each national coordinator has received a pack of postcards which they will disseminate between BSP schools in their country.
- Teachers who have received the post cards from national coordinators will give them out for BSP students who would like to take part.
- Students will choose the message (new idea, message, invitation, facts etc.) they want to send over the Baltic Sea.
- Students will visit BSP homepage: <http://www.b-s-p.org/home/> (Homepage -> About BSP -> Schools) and they will choose a country and a concrete school or schools they want to send the message to.
- When a school receives this BSP post card, students will take a picture of the message they got & will post it on BSP's Facebook page: <https://www.facebook.com/unesco.bsp>
- When posting this picture in Facebook, please also add the **name & country** of the **sending and receiving school**. We will count the pictures posted on Facebook.
- Students who are involved in sending the card may **tag themselves** on the picture.
- Sending time lasts till the BSP international conference – till the beginning of June.

SUGGESTION FOR THE SENDERS:

- When you are about to send the card, please take the picture of the message and save it. Just in case – the snail-mail can be tricky!

Hopefully you will continue using these new contacts you made during this campaign!

With any questions or problems, please write to:
gedy.siimenson@teec.ee



YOUTH DECLARATION

produce goods which serve longer, are easy to repair and recyclable;

- Raise awareness of the employees with regard to the environmental impact made by their Company;
- Introduce the youth to the best environmentally responsible practices in production and company management;
- We consider it important to support initiatives of the companies which are open for interaction with the youth and develop environmental awareness-building projects (establishment of youth and children environmental centers, information centers, exhibitions, programmes, corporate museums, etc. to demonstrate best solutions for the environment of the region).

EDUCATION

We consider it important that educational institutions and organizations should work towards environmental management and promote eco-friendly behavior of their administration and staff;

- Support the initiatives for teachers and young people in modern environmental education;
- Conduct more extra-curricular activities out of town focusing attention on studying the local environment;
- Support educational initiatives and public organizations' projects;
- Organize open discussions of issues related to the local environment among the youth, experts and scientists.

SCIENCE

We are aware of the fact that scientists carry out a lot of research in monitoring the condition of the environment (changes in biodiversity, climate changes, water quality, etc.) and make studies aimed at the development of up-to-date green solutions.

We call on scientists to publish the results of their research in relation to the Gulf of Finland and the development of eco-friendly technologies in the Internet and popular-scientific literature in an easily understandable form oriented towards the young people and general public.

COASTAL TERRITORY

We consider it important to ensure the balance between the industrial development of the coast and the conservation of the nature.

The Declaration was developed in three countries with the support of the Gulf of Finland Year Coordination Center, Finnish Environment Institute (SYKE), Nordic Council of Ministers, Tallinn Environment Department, Helsinki Environment Centre, Association of Biology and Geography Teachers of Finland and many other educational institutions of Russia, Finland and Estonia.

We call for:

- Development of the existing nature conservation areas and creation of new ones;
- Creation of favorable conditions on the coast for migratory and nesting birds, conservation of biodiversity in general and amplification of rare plants and animals;
- Establishment of properly equipped recreation spaces for population on the coast.

AGRICULTURE

We want agriculture to be more environment-friendly not to inflict harm on the Baltic Sea and not to make the eutrophication worse.

We propose to:

- Restrict the use of fertilizers containing nitrites and phosphates;
- Develop and support agricultural farms that use organic fertilizers;
- Utilize animal waste by means of eco-friendly technologies (production of biogas, fuel briquettes, and dry fertilizers).

FISHING INDUSTRY

We announce:

- No poaching! No overfishing! Let us prohibit over-trawling.
- Let us use only the nets and ways of fishing permitted by the law.
- Let us support small-scale fisheries (since they are more eco-friendly).

TRANSPORT

We consider it important to develop mainly public transport, especially in cities, to apply eco-friendly types of fuel, in particular, biogas, and to use only double-bottomed tankers for oil transportation.

We urge people to:

- Use public transport and bicycles instead of private vehicles to reduce exhaust emissions;
- Use rowboats and sailing ships instead of motor boats where possible;
- Choose train instead of aircraft for short trips.

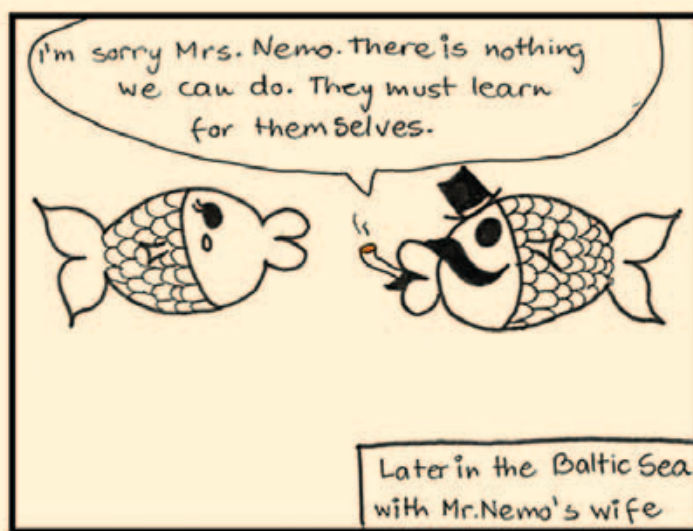
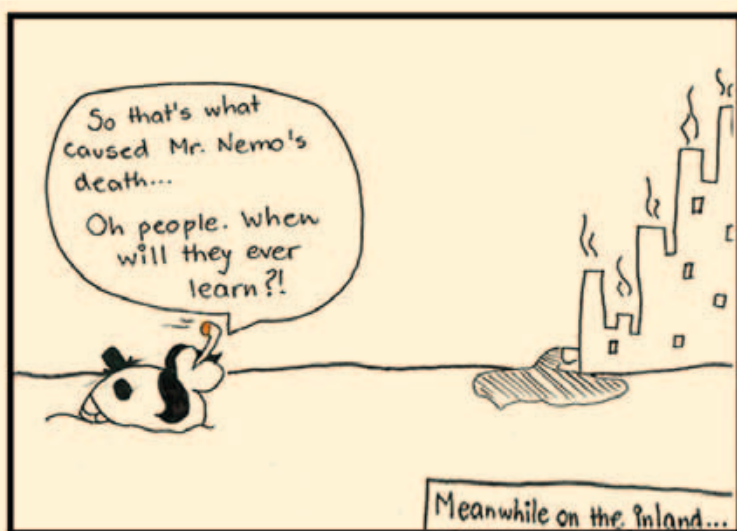
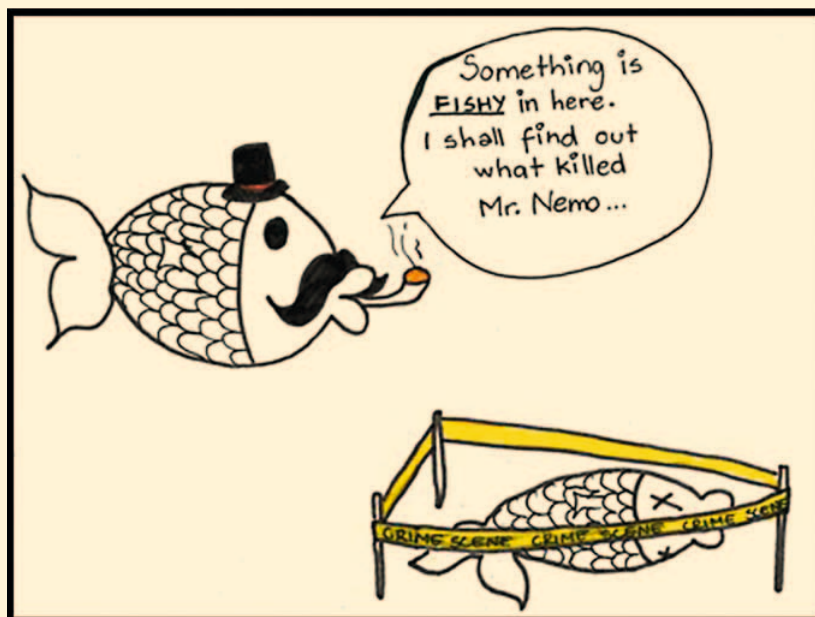
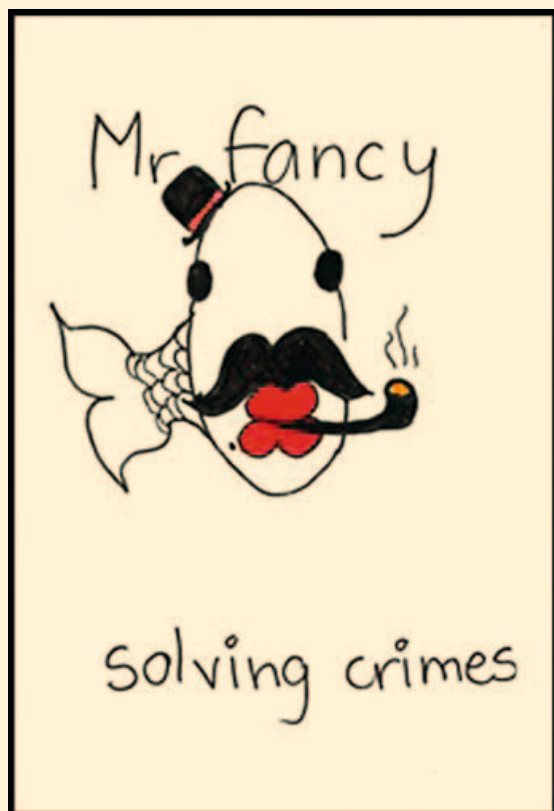
**We want to be heard,
we want to be helpful!!!**





BSP's cartoon contest

"Gulf of Finland - the coast and habitants"



Noomi Kams
2014



BSP Coordinators



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BSP EVENTS CALENDAR

WHEN?	WHAT?	WHERE?
January 9 – 11	Winter camp for BSP Estonian schools	Jäneda, Estonia
January 31	Register deadline for BSP conference presentation proposals	www.b-s-p.org
January 30 – February 2	BSP annual coordinators meeting	Tallinn, Estonia
February 1 – June 1	BSP post-crossing campaign	www.b-s-p.org
March 5	Competition for students in Science projects	Latvia
March 5 – 6	Annual UNESCO ASP Meeting	Denmark
March 2-27	BSP Students' Science Competition	Lithuania
March 19	A global Internet conference on sustainability for students aged 14 +: „Agenda 21 NOW!“ on theme as Road to 2050 – what the world should be like, what the world could be like ...	www.agenda21now.org
April 1 – May 30	BSP 3rd International WebQuiz	www.b-s-p.org
April 22	Cooperation with WWF teaching-learning materials about eutrophication of the Baltic Sea and teachers training	Latvia
April 24 – 29	22th International Camp School in Meri- Pori Upper Secondary	Meri-Pori, Finland
May 5 – 9	Final conference of the BSP related Comenius Project “Borders: bridges and barriers, burden or benefit? Identities in Europe as based on lifestyles, stereotypes and structures” at both Kurt-Tucholsky-School Flensburg, Germany, and Alssund Upper Secondary School, Sønderborg, Denmark.	Germany and Denmark
May 8	Students' conference “Climate changes”	Latvia
June 5 - 8	The 9th International BSP Conference „Science of Changes”	Tallinn, Estonia
July	BSP students' summer camp.	Lithuania
August	BSP Sea days for Estonian teachers	Estonia
October 21 – 23	Annual BSP meeting	Denmark
October	Local workshop „We welcome new schools and teachers!”	Estonia
November	BSP teachers' meeting	Latvia
November	Annual BSP students' conference	Lithuania
November	Teachers' meeting of BSP Germany schools	Germany

DEAR READERS,
WE ARE LOOKING
FORWARD TO
RECEIVING AND
PUBLISHING YOUR
CONTRIBUTIONS!

However – there are some rules that the authors should follow:

- Keep the articles short and precise, maximum of two A4 pages, including illustrations;
- Please send the contributions as Word documents (not PDF!). Make sure that the article is written in correct English, with a title, as well as the author's name, school and country;
- Please include the name of the author, title and description with any illustrations – photos, pictures, graphs or other scanned materials. The illustrations should be sent as separate attachments, please do not insert them in the Word document. Please observe the copyrights of any background materials;
- All photos and illustrations should be saved in JPEG format.

Please send all contributions by e-mail or by post (on CD) to:

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