



The Baltic Sea Project

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The Baltic Sea Project

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The BSP objectives are to:

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

The BSP works with the following means:

- 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 issuing other relevant information.

The basic characteristics of the BSP schools:

- active participation in looking for solutions to the environmental problems in the Baltic Sea area,
- networking,
- pilot function in promoting 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 balance between a holistic view and individual subject studies,
- change the role of the student from passive recipient to active constructor,
- change the role of the teacher from supervisor to guide in a learning process,
- use networks to provide participants with opportunities to learn and pass along new ideas,
- use international co-operation as an inherent element of school work.

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DEAR READER!



Sustainable development is currently the top priority on the global agenda, even more – it is an urgency which calls for everyone to join. Baltic Sea Project since its beginning is one of the great examples that education for sustainable development is the most important tool in the task for encouraging people to change their ways and attitudes, to become and act more sustainably and consciously. The

targeted and well-thought of activities of the project have inspired many youngsters together with adults to take action and pave sustainable ways forward.

2012 is the year of United Nations Conference on Sustainable Development Rio+20. The purpose of the Rio+20 conference and initiative is to reset the world on a sustainable development path and to commit to a long term agenda on sustainable development. It means addressing and shaping the ways how we as a humanity ensure environmental protection, reduce poverty, advance social equity and secure cultural diversity. In this light it is also our responsibility within the Baltic Sea Project to seek and provide answers to this global quest through all our activities over the year – what future do we want to see, how do we visualise sustainable world and

peaceful living, what sustainable development entails and how it can benefit and transform people?

Therefore smaller scale yet similarly important will be the Baltic Sea Project International conference „Local resources for sustainable development“ hosted by Latvia in Valmiera. Indeed a lot of answers to global questions lay in local contexts. It is our local responses which shape the change and succeed to reach a critical mass of sustainable initiatives, activities and behaviours which will allow resetting the world. Let this conference be another milestone for the Baltic Sea Project and enable us to bring further changes we all wish to see!

Finally as this is the last year for Latvia to hold the presidency of the Baltic Sea Project, I am satisfied that the Latvian National Commission for UNESCO had the privilege to join all the devoted and caring project coordinators and participants of the Baltic Sea Project. Seeing the Project develop over these three years and knowing the global stage, I am convinced that the current setting and the needs of the world is providing also new challenges and inspiration for this excellent Project to evolve and expand!

Dagnija Baltina,
Secretary General, Latvian National Commission for UNESCO



The Baltic Sea Project (BSP) has been a successful school network for over 23 years, involving the nine countries around the Baltic Sea: Finland, Sweden, Denmark, Germany, Poland, Lithuania, Latvia, Estonia and Russia. BSP is a wonderful example on how time can be a beneficial factor: the project has gradually grown and expanded, the focus has developed from environmental education to education for

sustainable development. There are many kinds of networking and international meetings in the BSP. The most common are international workshops, in-service training for teachers and student camps. These smaller networking initiatives are supplemented by annual large conferences and coordinators consultations. Major conferences with students and teachers from all countries around the Baltic Sea have been organized every three years since the first conference in Kotka. Students and teachers come together to share results, thoughts and ideas from their work during the years. They learn about each other's local situations in terms of environmental problems, but also history, culture and working methods. In this issue you will find information concerning the conference “Local

Recourses for Sustainable Development” to be held in Latvia from the 27th to 30 August.

Reading this Newsletter you will be able to acquaint with various activities within the BSP in 2011. National coordinators, program coordinators and teachers share their experience of organizing various events. Students write about their benefits in environmental education activities and present their observations of nature.

The information about the BSP program work and student research, we publish on the website <http://www.b-s-p.org>. There we have published only a brief overview of the environmental measurements in 2011.

This is the last number of the Newsletter which is published in Latvia. Time has escaped very quickly and in autumn this year Estonia will take over coordination of the project, therefore, I want to say thank you to everyone who was active in the Baltic Sea Project. Special thanks to the national coordinators, program coordinators and Latvian National Commission for UNESCO for the support and cooperation.

I wish you all to continue to actively engage in solving environmental problems in the Baltic Sea region, keeping in mind that these problems are our common problems. Only by working together - we can solve them!

Velga Kakse,
General Co-ordinator of the BSP within UNESCO ASPnet



BSP - CAMP 2011

Climate change prospects - 1m sea level rise in 2100

In Denmark 400 participants from all nine Baltic Sea Project countries met for a week – and worked together on the issue of climate change in the Baltic Sea area.

At this camp all the participants contributed to financing transportation, board and lodging, and the program, irrespective of nationality. This has only been possible because of the rapid economic development which has taken place in the Baltic region over the last two decades, along with an increasing interest in environmental and social studies.

Mols Bjerger – a scientific gem

BSP-Camp 2011 was held in Denmark's newest national park, Mols Bjerger, which is a unique area of natural beauty formed by the movements of the glacial edge in the last ice age. Mols Bjerger has a variety of scenery and habitats, a rich variety of animals, proximity to the open sea, and many historical and cultural relics from various periods in Danish history.

Thinking the impossible – and going for it

Early on there was general agreement that the focus of the camp was to a strong academic program. This challenge proved to be very interesting for us as organizers. Everywhere we went we were received with lots of good will. Aarhus University, Aarhus Museum of Natural History, Risø, the Danish Hydrological Institute, VIA, Kalø Game Institute and many others volunteered participation, as did Leibniz Institute for Baltic Sea Research and "Young Europeans. Let's Take Care of the planet", Paris.

This meant that the program encompassed all aspects of the climate debate combined with basic scientific investigations. The fact that the Danish EU Climate Commissioner, Connie Hedegaard, also participated meant that the political aspects were made absolutely clear.

There is no doubt that students and teachers were very much inspired by this variety of scientists. Here they could get an insight into the realities of an academic career, all the way

from ice core research to the shedding patterns of the white-fronted goose.

Hands-on experiments

Hands-on experiments are an integral part and an important approach for BSP. In Denmark there is strong tradition for motivating the student to experiment, investigate and observe. In other words the basics of science and of teaching science. A big part of Camp 2011 were so-called workshops arranged by the teachers from the network and specialists from Denmark. This gave the students the opportunity to participate in various hands-on workshops in an international environment.

Within one week the students were taught by Finnish, Polish, Lithuanian, Latvian, Russian, Swedish, German, French and Danish teachers – together with students from the same countries.

Hands-on: A workshop on the warming climate and the effect on sea water

By Jon Urskov: Egea Gymnasium

We focused on a warming climate and the effect on sea water. We brought along some fish tanks, an empty one and one in which we had created a bottom hypoxic layer (Dead zone).

The students were to fill the empty fish tank with animals and plants that they found in the sea. We also talked about thermocline and halocline boundaries and the problem of oxygen not being able to reach the bottom because of, e.g., salinity and temperature, which in some cases can lead to the creation of a dead zone.

The main goal was to measure salinity. We took some water samples, which the other workshops had fetched, and measured the salinity of those comparing them to the salinity of the surface in order to relate that to the question of the thermocline and halocline boundaries. Of course we had also brought along samples from home in case they were unobtainable on location.

The activities could easily be differentiated. If a group of young students brought us samples, we would concentrate on finding animals. And it was also possible to differentiate within





the group so that the older students measured the salinity, and the younger students found animals and plants. At the end we brought everything together. We brought along everything we needed ourselves.

Other examples:

- A workshop arranged by Lydia Nicolet from "Young Europeans. Let's Take Care of the planet", Paris, where the students worked with their own attitude to climate change
- Lecturer Ole Mark from the Danish Hydrological Institute demonstrated simulations which showed the sea level rise by means of interactive digital models applied to Danish localities. These models will be further elaborated to become an educational tool in cooperation with the Danish BSP- schools
- "Cities and Climate Change", a program produced by high school teacher Ana Lavrinovic, Vilnius Zemynus High School, Vilnius, Lithuania. This workshop aimed to discuss the planning challenges of climate change, and the advantages of a regenerative town. The students investigated, discussed, and were taught how cities are influenced by climate change. Afterwards they worked out their own presentations of the topic
- A workshop organized by two Finnish high school teachers, which measured the nutritional contents of samples taken from local biotopes, and other samples collected before and after the sewage treatment plants in some of the towns represented at the youth camp.
- A Swedish team taught the BSP-program "Water Quality" on the beach, including identification and classification of animal life and nutritional content.

Logistics and administration

It is a far cry from making the decision to have such a youth camp to actually seeing it become reality.

Some principles in connection with the organizing have been through an electronic newsletter:

- To create awareness of the project in such a way that as many participants as possible from all BSP countries could attend
- To communicate often, short and to the point
- To communicate the most important information
- To communicate to create ownership of the camp
- To communicate to limit administrative hurdles

Registration on Google's online portal worked really well. It was a good starting point to provide the logistics of lodging, boarding, and transportation to and from railway stations and airports.

Being sociable and professional – hand in hand

As one of the organizers it was incredibly exciting to start the first day by welcoming the participants. Whenever possible they were each given a welcoming speech and some course material upon arrival.

A successful event does not only hinge upon a very professional program. There must also be a well-thought-through social program. Therefore, on the first night, there was a get-together arrangement featuring the medieval musicians "Virelei", who arranged chain dancing and exercises. It was wonderful to see smiles breaking out as the many participants warmed to the dance. Some just didn't want to stop!

The participants were divided into workgroups based on sex and nationality. On the second night a GPS- race had been arranged, and all the work groups had a run in the dark in the surroundings around the center. That got everybody going and spirits were high!

On the third night all the participants climbed the highest point on Mols, an area known for its barrows from the Bronze Age called Trehøje (The Three Barrows). The sun was just setting, and from here there is a view for miles across the sea to the towns of Aarhus and Ebeltoft. An experience for both - teachers and students. It was great fun to be standing on the hill as one of the first to get there and watch the long line of people snake their way through the terrain.

On the last night everybody danced, this time to modern music.

Camp 2011 ended with Aarhus University's chemistry show. A group of students have specialized in this kind of show and have created a thrilling, colorful and very loud performance, which was extremely well received. So was the closing ceremony where each participant received a certificate of participation. It may have been a minor detail, but it underscored the commitment of the individual and was a fine way to end five days of concentrated cooperation.

(More on Camp 2011 at www.unesco-asp-dk)

Søren Levring,
National BSP-coordinator
Birgitte Petersen,
BSP educational consultant,
Denmark





MEMORIES OF THE BSP CAMP ON CLIMATE CHANGE PERSPECTIVES



The BSP camp on Climate change perspectives took place in 2011 from September 12 to 16 in Aarhus, Denmark. A total of 51 teachers and 324 students from 30 schools of Denmark, Sweden, Germany, Finland, Poland, Russia, Latvia, Estonia and Lithuania participated in this camp. The head of the Lithuanian delegation was the national BSP coordinator Mrs. Miglė Simanavičienė. Lithuania was represented by students Augustinas Dzedziulis, Ieva Jankauskaitė, Jolita Peseckytė, Laimonas Klimovičius, Augustas Krasauskas and teachers Ana Lavrinovič and Danguolė Miliauskienė of Vilnius Žemynos gymnasija. When we arrived we were accommodated in the Fuglsoe-centre. During the camp we were met and guided by the National BSP-Coordinator of Denmark, Mr. Soren Levring. The first day we had an entertaining evening that was carried on by a medieval orchestra – “Virelai”. The day after we had lectures about climate change and impact on the marine environment: Microbial nitrogen transformations in oxygen deficient water such as the deep Baltic; Climate change and methane in the Baltic Sea – a mutual interaction; Bioscience: Fish, fisheries and climate in the Baltic Sea; Bioscience: Eelgrass as an indicator of water quality. After the lectures we had workshops in the outdoors and indoors. The workshops were conducted by various teachers including our teachers Ana Lavrinovič and Danguolė Miliauskienė. Also lectures were carried out only for teachers. The same evening after all workshops and lectures we had a GPS-cross activity.

The next day we had a Lesson on „Climate Change from the Ice Cores: A Tale from the Past and Concerns for the Future” by Mr. Sune Olander Rasmussen, Copenhagen University. After the lesson some students presented their presentations. Then we had a night walk to a mountain called “Trehøje”.

The next day we had a discussion with EU-commissioner Mrs. Connie Hedegaard on “Climate Change and the need for action”. Then some of us were taken to Molslaboratoriet, where Morten DD Hansen took us to explore nature and showed us what we can find in animal feces. The day ended with an entertaining evening party.

The next day we were leaving, but before we left we had a spectacular chemists show.

Student: Augustas Krasauskas
Vilnius Žemynos gymnasium, Lithuania



STUDENTS' REVIEW OF THE BSP CAMP IN DENMARK 2011

Mārtiņš Andersons

I suppose taking part in the camp was great chance given me once. I didn't think I will have possibility get to know so many countries even along the way by bus. Within the project I visited Lithuania, Poland, Germany and of course, Denmark.

Tree days accompanied in the camp was unforgettable for me. First I got so much information about the climate change impact to the Baltic sea present situation, nitrogen transformation processes in the deep of Baltic and its consequences. I met participants from other countries and they became my friends.

Days in the camp also gave me the view of this country itself. It's clean and modern country, climate almost same as in Latvia-sunny days fight with cold ones. People –knowledgeable and friendly. There was so nice atmosphere during the camp. So many people together and everyone were joyful and nice to each other.

Working in the workshops gave me a new experience and also good friends. I worked in the BSP media group, made questions and interviews with the participants, lecturers and authorities of the project. At the beginning it seemed quite hard but later was really interesting.

Thanks to the organizers who had thought about free time activities-night walk, outside activities and others. In the evenings we could go to the gym and do sport. Different people from different countries did sport! I really loved it and made a lot of good friends. I will never forget last night party with live music. I love the camp. If I get one more chance to get there, I will definitely go .The way to get so much experience in so short time! It was great. I will remember it for a long time.

Jānis Jekovičs

The trip to Denmark was really useful. Sessions about the tips to save the Baltic Sea and the reasons why it can be dead if we will keep treat on this way were really useful. Now we know these hidden reasons which an average person doesn't think about and also I didn't know before the conference. It was interesting to see how close we all are connected in one catchment area. I liked the lectures about the fish and fisheries and how fishermen interests impact the sea.

Now about the workshops. They were interesting. We worked in groups together with Danish students in an editing group and made articles about the camp workshops, lectures and all what happened in the camp. We had to make sharp questions for making interviews, to think about precise, attractive headline and interesting pictures.

I have a point about other activities in the camp too. I loved mountain walk dark in the evening, opening ceremony with Danish folk dances and music. The food and meals were great. Meeting so many people, walks to the sea, evening sports activities made the feeling likable and active all the time.

Vivita Ose

BSP camp was interesting. Getting to know new people, acquiring problems and solutions, mastering my English. It was great an experience in all aspects.

In the morning breakfast which was quite early, then educational lectures. Some of them were interesting and useful. Then packed lunch and workshops.

In the evenings was organized some activity-orientation in the neighborhood, night walk, football matches etc. It was sad to leave the camp and friends. I wish it could be even longer.

Students from Vecpiebalga secondary school, Latvia





OUR ADVENTURE IN KNEBEL

The Baltic Sea Project academic camp took place in a conference facility in Knebel, a town near Aarhus in Denmark. It lasted from the 12th till the 16th of September 2011. The meeting was attended by participants from ten Baltic countries. Amongst them were thirty pupils from the Maria's Konopnicka's High School With Bilingual Divisions in Katowice. The conference's main goal was to interest students in ecological and environmental problems of the Baltic Sea. After our arrival and a warm welcome we were assigned to international groups of other young people. That enabled us to gain new friends amongst students from other countries.

Lectures, exhibitions and workshops have been organized in laboratories as well as outdoors in order to introduce us to the problems that were the main subject of the conference. Everybody had the chance to participate in many fascinating classes provided by the organizers of the project. Every day we took part in morning lectures and many different afternoon workshops. Thanks to that variety of activities every student was able to find something interesting to do. Some of us were assigned to the task of organizing workshops for our fellow participants.

Our school was represented by Szymon Poręba, a student of the biological-chemical class. Along with his team Szymon prepared an experiment considering the cleanness of water. His workshop was greeted with a great deal of enthusiasm and it ended with an energetic debate. The whole team was complimented for their commitment and professional attitude.

We also had the opportunity to see a chemical experiment prepared by scientists of the Aarhus University which caused a lot of emotions and was one of the highlights of the trip. I should also mention our appreciation of the evening strolls the organizers invited us to as well as the ones we undertook ourselves in order to investigate the closest surroundings in spite of the chilly and windy weather. We often walked the beautiful and clean Danish beaches and some of us even took a swim in the extremely cold Baltic Sea.

The camp abounded in a variety of entertaining events and lectures that provided us with a lot of knowledge. Equally important was the opportunity of meeting students from all over Europe that enabled us to practice communicating in foreign languages.

Our aim is to express the opinion that events such as the Baltic Sea Project are really important and educating, because they provide the possibility to get to know other countries and to find out many interesting facts that often aren't discussed in school. Such knowledge on specific topics is always useful as well as enriching and it has been passed on in a very approachable way.

We would all gladly take part in another trip of such kind in order to gain even more competence and to once more meet interesting people hoping to make new friends and practice some foreign languages. We highly recommend participating in meetings such as the Baltic Sea Project to anyone who wishes to develop and to see fascinating places.

Students: Martyna Wawrzyniak, Anna Kominko

Teacher: Jolanta Mol

II Liceum Ogólnokształcące z Oddziałami Dwujęzycznymi
im. Marii Konopnickiej, Katowice, Poland





SETTING UP AND RUNNING A SUCCESSFUL SUSTAINABILITY CONFERENCE

Comenius Conference in Trier, Germany, 8-11 April, 2011

"Trier, we've got a problem."

It was in June 2010, a hot period in early summer, only a week to go until the beginning of six holiday weeks, when we got an urgent phone call from our friends at Alssundgymnasiet in Denmark. At that time, for a year our team at Humboldt-Gymnasium Trier, Germany, had been cooperating in an exciting international school project, a European Comenius Project, with six schools from five European countries working together, with five of us being Baltic Sea Project schools, and now the Danish Comenius friends had an important message.

"This problem is serious. We are sorry to tell you we cannot hold the final conference next spring." The Danish school had previously agreed to take on the responsibility for arranging this final conference, which was the largest planned event within the two-year European cooperation. Now, nine months before this event, it was clear that many colleagues there would soon leave the school, including the Comenius coordinator and the principal. This left the remaining colleagues feeling uncomfortable about having the Comenius conference there which was of course easy to understand – some other school would have to take over. So the question was passed to us in Trier as the coordinating school and after a couple of days we said yes and then we did it. It was a tremendous lot of work as well as a wonderful conference that took place in April 2011. At the end everyone went home satisfied and happy – at least that's what we've heard.

This could be the story to tell here. In this article we'd like to do a little more.

We were not the first ones to hold such an international conference and we are sure we won't be the last. In a school project like the Baltic Sea Project, many schools might face this challenge.

In this article, we'd like to share a bit of our experiences, some do's and don'ts when preparing and running such a big event. Speaking with the words of Jagoda Sozanska, one of our Polish colleagues working with us who collected recipes for sustainable cooking, this article here might very well be seen as a recipe, a "how to ...":

Use this article for creating your own recipe, for preparing your own international conference on sustainability with teachers and students! Here we go.

One word about the size: the total number of participants in the conference described here - including all students, teachers, guests and preparatory team - was 179.

Part 1: Book your beds!

The very first activity should be: Find a place for the many participants to sleep. If there's no place for them to stay, there won't be a conference. So, before doing anything else: As soon as you know you might have to host a conference, book the beds. Most probably you can cancel your booking at no costs say three months later if you've got to cancel the conference, but without beds there'll surely be no conference at all! So, first of all: Book your beds, as soon as possible!

In Trier, there's a youth hostel which fortunately had all the beds we needed for a long conference weekend. This worked well from

a social as well as organisational perspective as everyone stayed in the same place.

Part 2: Food and drinks

Having good meals and especially enough water or other drinks for everyone at all times is essential. A conference with hungry and thirsty participants is always a bad conference.

Part 3: Team building

Our experience has been that for a big project you need a big team of volunteers. It's more important that it's all volunteers than that the team is big. Don't ever force a group or a class to be involved, voluntarism is a basic condition for success: Only those who want to do it will do it right.

In our case it was an 11th high level chemistry class that were involved plus the Agenda 21 NOW! workgroup. Most of them had enjoyed the earlier events in the Comenius Project, and when the question from Denmark came, they were motivated to create their own contribution to the Comenius Project. Both sub-groups joined to form ONE Comenius team, it was important to have this common identity, a Comenius team identity.

Part 4: Team structure (1)

Make it a flat hierarchy, with the teacher as much as possible in the role of a coordinator rather than a leader and lone decision maker. In this way, whenever possible it should be the whole team that makes the decisions! Being involved in discussions and decisions is great and a strong source of motivation for the team members.

Being a part of a decision making team is a key to team identity and commitment.

The first and most difficult decision we had to make was whether we would take over responsibility for the final conference in April 2011 or not, this event was a little more than nine months ahead at the moment of decision.

Part 5: Sustainable decision making: Are we going for the project – or are we not?

We are going to explain this through an example.

In our case the question was: Are we taking responsibility for the conference in April 2011 – or are we not?

Before going into the discussion, it had to be very clear what exactly we were deciding about and what the consequences of our decision would be. As much as possible we described what we'd have to do when preparing and running a big international conference, and it was a great advantage that most of the team members themselves had participated in earlier Comenius conferences, therefore they had an idea of what had to be done and just how much work was involved.

All team members took part in the discussions, which took about a week – in several sub-groups as well as in the large group. Everyone understood that every decision, yes or no, would be acceptable and everyone understood that a yes would mean to agree on taking over individual responsibility for a certain part of the whole project.

At the end, when everything had been said and all arguments had been exchanged and valued, we went for the decision: The Comenius group decided, with a vast majority, to go for it, to face the challenge, to agree on taking over responsibility for the large international conference in April 2011.

These three things are important here:

- (1) Provide detailed, full, transparent, honest information as a basis for discussion and the decision.
- (2) Let the team discuss about the consequences of their de-



cision, it is important that they know that a “yes” means taking over individual responsibility.

(3) Then make the decision with the team.

Part 6: Team structure (2): making sub-teams

At an early stage, it is a good idea to create a couple of very important lists:

(1) A detailed task list, with jobs and tasks to be taken over by the team members

(2) A detailed contact data list.

These two lists should be made public within the team i.e. everyone should always know who is responsible for what and how to contact any other team member in case this should be needed.

In our case we didn't distribute the contact list within the team because some team members disagreed on having their contact data on a list that would be copied to so many co-workers. This turned out to cause some slight difficulties with communication and we would work harder at getting a complete team member contact list if we did this again.

(3) On the basis of the task list, work out a list of sub-teams with detailed task descriptions. Do this together with the team, a suggestion as a beginning might be fine.

(4) Work out a list of team members in the sub-teams together with the team.

All team members define themselves which sub-teams they want to join. Everyone should at least join one sub-team, multi-team membership is acceptable as long as this is possible. Voluntarism is essential i.e. no one is ever forced to join any of the teams.

A timeline with clear deadlines (*what's got to be ready when*) is very helpful.

Very important: all lists and decisions mentioned need to be discussed and decided by the whole team. All results should be reported to the whole team in the way of a written proto-

col sent to everyone.

The sub-teams regularly report to the coordinator as well as to the whole team in regular team-meetings.

All this might take a bit of time, but the result is a clear structure of the preparatory activities, and even more importantly, everyone is involved. Everyone has been part of the decision making, everyone is part of the process which is an important source of empathy among the team members.

Our experience has been that it is definitely worth doing it in this participatory way, with a democratic approach, because it makes your conference better!

Involve the whole team as much as possible when creating the working structure.

Part 7: Sub-teams working structure

The sub-teams

- define their working structure themselves (on the basis of task list and timeline, see above)

- work independently

- report regularly to the coordinator and to the whole team (i.e. in weekly team sessions), usually being followed by a discussion within the whole team about the next steps to go in each of the sub-teams.

Part 8: Collaboration with international partners (1): General setting of the conference

In case there are partners you work with, involve them in the preparation where possible. It is essential that the hosting school creates a suggestion for a conference concept which is discussed with all partners.

In our case, a preparatory meeting was held at one of the project schools (in Poland) half a year before the conference in Trier, where the conference concept was discussed and adopted by the students and teachers who represented their schools.

Involve your partners!





Part 9: Collaboration with international partners (2): Workshops

When preparing a conference, there's one thing your partners from abroad can always contribute:

Your partners can offer workshops which they can prepare themselves and independently.

In our case, two months before the preparatory meeting (i.e. eight months before the conference in Trier), we asked all schools to create at least two workshops each and bring workshop descriptions to the preparatory meeting.

In a session during the preparatory meeting the schools briefly reported their workshop ideas. After that, internationally mixed groups were created to discuss the suggested workshops. For two reasons:

- to provide good ideas from other directions to improve workshop quality
- to involve other schools in workshop making in order to create intercultural workshop teams, i.e. we hoped for workshop teams that consisted of teachers and students from more than one school. At the end, two out of the fourteen workshops were such interculturally prepared workshops.

Send out the list of available workshops to the schools so that the participants can make their choice well before arriving at the conference.

Workshop length was 4 hours each, and there were two different workshops to choose from the list, plus two alternatives in case a workshop would turn out to be too crowded.

Part 10: Collaboration with local partners

Involve local partners for great intercultural experiences! Support in the way of helping hands from many directions is of course necessary and a good idea.

Due to the support of many parents we could offer a special lunch on Sunday: all 140 participants from abroad were divided into mixed groups to have an intercultural Sunday lunch with families in Trier. The intercultural lunch was a great experience for most of them, as far as we've heard.

Part 11: Mix them up!

Make your international conference an intercultural experience from the very beginning.

Even though most participants want to get to know participants from other nations, it doesn't always happen that

easily. Therefore, if you don't actively plan for this, people will probably stand around and sit and work in their national groups most of the time.

It is absolutely necessary to encourage and support international communication and collaboration as early as possible.

Two examples for mixing up your participants internationally:

(1) Your cooperation partners will have to send names of all participants and their workshop choices well before the conference. Make school quota or country quota for each workshop and send lists with the quota to the participating schools so that each workshop has participants from all schools.

(2) The same applies for excursions: If you make lists where the participants have to sign up, make sure you have school or country quota.

Part 12: Give the participants a home at night

In contrast to the principle of "mix them up", most participants, even older ones, feel more comfortable sharing their bedroom with people they know rather than strangers. Therefore, it is very daring to require that the sleeping rooms have mixed nations. This will usually cause a lot (a lot!) of discussion and frustration, and you may see many unhappy young faces. Our experience is:

Mix them up during the day – and let them sleep amongst their friends at night.

Part 13: Give orientation (1): a written conference guide

Most participants will be totally new to the venue and the town where you hold the conference.

Make sure the participants always know WHEN to be WHERE and HOW they can get there.

A must-have is a piece of written information every participant receives on arrival, containing information on the following items

- the programme of your conference (timetable)
- the venue (where to find what)
- a list of phone numbers including emergency numbers
- a city map (including information on going out and shopping). Consider there might be a copyright on the map you intend to use.

We made this written information a little book and called it a conference guide. The book was small enough to be carried in a pocket.

Part 14: Give orientation (2): daily group meeting

Talk to the whole group once a day!

This is something we did not do during the Trier conference, and we found that it would have been better with it.

For orientation and comfort, it is good to once a day assemble the whole group in order to provide last minute information and give instructions for the day.

A good time to schedule this is in the morning, after breakfast, right before the beginning of the work programme.

Part 15: Give orientation (3): a conference office

Participants tend to have questions; sometimes they are seeking special information or have special needs. It is important that there is a place where they can get their answers and find the required service, this place is your conference office.



It should open half an hour before the official conference activities begin in the morning and close half an hour after the end of your afternoon activities. Useful equipment includes: phone, fax and internet, a copy machine, first aid kits and a range of stationery.

In our case we also had a night office in the youth hostel where the participants were accommodated, which turned out to be a very good idea to help solve late night conflicts among the participants from different nations.

You need a well-equipped conference office!

Part 16: Give orientation (4):

Identifiable conference personnel – People with a green shirt

The helping hands working in the conference office should be easy to recognise. Let them wear the same type of green shirt (or similar) and tell your participants at the very beginning what these people wear their green shirts for.

Make sure your people with green shirts are experienced students; they must be part of your team and be well informed about the structure and the contents of your conference.

Introduce the green-shirt people to the participants at the beginning of the conference.

Part 17: Evaluate your conference together with your team

This is essential and a good tool for your future activities. Make sure that all your students are part of the evaluating team. There are of course lots of evaluation methods.

Here is one you maybe haven't yet heard of: the evaluation spider (see picture): Each leg stands for a category that is to be evaluated. Write your evaluation elements into the boxes. Equip your students with coloured dots, and then everyone of them can place a dot on each leg, the further to the centre, the better they think this element was during the conference. So, after a great conference there will be a lot of dots close to the centre, after a bad one they'll be further outside.

By analysing the pattern of dots you can make decisions about what you can improve on next time and start planning what you would do differently.

Part 18: Write and report about your conference

Think about the documentation of your conference, photos and texts are essential, should there be videos? Find students who enjoy being part of a documentation team, plus a responsible teacher to assist them. And if you need quality photos, it is a good idea to engage a professional or semi-professional photographer. You will see the difference!

Part 19: Copy, paste and adapt!

None of the ideas mentioned in this article are new. Everything has been seen before, probably a lot of times. Both authors have been to a lot of different conferences with students and teachers. Especially a lot of former Baltic Sea Project conferences have been a great source of ideas for contents and methods. Our strong recommendation is:

Copy and paste good ideas from other good conference events and adapt them for your own purposes.

We hope this article can help you with this. Have fun and success with your own conference!

Weblinks

<http://www.borderregions.org/comenius2011/>

Website of the Comenius Project described in this article

<http://www.agenda21now.org>

Website of the Agenda 21 NOW! project

<http://www.b-s-p.org>

The UNESCO Baltic Sea Project

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SYNTHESIS: THE INTEGRATION OF ENGLISH IN DESIGN AND RESEARCH ACTIVITY IN ECOLOGICAL AREAS

Discussion of this trend should start with some definitions and concepts.

Integration is the state of connectivity of individual parts into the one whole.

The main objective of this integration is the creation students' holistic view of the outside world, i.e. the formation of ideology.

The experience of work in our lyceum shows that design and research activities of students in the classroom and extracurricular activities are the most important factors in learning environment.

The main objective of language education-learning is to use language skills help students to understand ecological problems deeper. Students are acquired the skills and abilities to perceive and process large amount of information, to master modern means, methods and technologies to work with them.

Integration of educational materials contributes the development of students' creativity, allowing them to apply their knowledge in real world.

It is the one of the essential factors to form the personal qualities to a good attitude to nature, to people, to life.

Raising the overall motivation of students

Project is transfer activity. This task, in which students must pass the message information from the sources to the statements/reports on the marked topic. Projects involve eliciting of students: they must write, search for information through references, talk with other people and with each other and e.g.. And finally students with different levels of language training can participate in project work in accordance with their capabilities.

Increasing importance of English as a means of communication

Telling others about the world in English, students are discovering the value of English as the language of international communication. They may be in a situation where they need to communicate in a foreign language method of achieving a specific goal through the development the problems and get the real bottom line.

Educational and pedagogical value

Interdisciplinary ties contribute to the development of students cognitive activity, imagination, self-discipline, skills of joint activities and skills to conduct research. Execution of projects provides an opportunity to practice using the knowledge and methods from other areas.

Practical advice

Preparation of the project includes different levels of activity. Prepare, draw up and submit a project- it is much longer than doing traditional tasks. However, not all training should be conducted in the classroom. If the project is done individually, students can work on it at home. In the course of the project students, discussing work with friends, speak in Russian. Nothing wrong with that, as a final version is prepared in English. In preparing the project is often used translation from Russian into English, for example the texts of reference books.

Main guarantee of successful work on the project - its accurate preparation and organization. The class must have

reference books, dictionary, guide to grammar, the atlas. In addition there should be magazines, brochures, maps, etc. Students should be able to find the information independently, turning to the teacher only when they can not find an answer to the question. They must learn to plan their actions and decide what materials they will need for project and where to find them.

Evaluation of the finished project.

Asking students to submit a project work, assessing the finished project we should pay attention not only on the correction in use of language. We shouldn't correct mistakes in ready-made project. Point on them in drafts. An important impetus for the development of personality of students is their degree of creativity and originality in the performance of the project.

The text of the research work see in Appendix.

Appendix 1

The students of Lyceum 179 in St Petersburg have started with an environmental question of today: What is the reason for the pollution in the lower part of their river Okhta? After an investigation of the water quality they found out that the pollution was much higher downstream an old industrial area. Therefore they started to investigate the history of this area. This is a work in progress and the result of their investigation so far.

Upstream and downstream the Okhta river in St Petersburg. The start of an environmental history investigation

The Okhta river - a polluted river

The Okhta river is one of the main tributaries of the Neva river. That is why the history of St Petersburg has always been closely connected to the history of the Okhta banks. Nowadays numerous factories are situated along the banks of the Okhta. We started to examine the quality of the water in the Okhta river and the smaller Okkervil river in June 2000, using water samples for biotesting with algae, plants and molluscs. The algae was *Daphnia magna* which is easily cultivated and highly sensitive to polluting factors of different origins. The results of our investigation were very clear. The toxicological data showed us that the river is heavily polluted. In the lower parts of the river, the results from the biotests and bioindications showed a high degree of toxic substances. The samples taken upstream, in the upper part of the river Okhta, contained many more living algae than in the samples taken downstream of the factories. Our conclusions were that the waters of both the Okhta and Okkervil rivers are highly polluted by organic and toxic elements. The factories along the river banks contribute to this pollution. However the banks of the river Okhta have a long industrial history so we started our research with this.

Foundation of St Petersburg

In the 17th century, the Swedish fortress and city of Nyenshans was situated on the south side of the river Okhta along with its brick works. The Okhta river was then called Svarta - the Black river. During the Nordic war at the beginning of the 18th century, the fortress was besieged and captured by tsar Peter I. The city of St Petersburg was subsequently founded on the other side of the Neva river in 1703 and Nyenshans became a garden planted with trees. However the Okhta river became a centre for the Russian navy. Lumber-mills, ship-

yards and factories were built. The Okhta area became one of the first industrialized zones in St Petersburg.

Gunpowder mill and chemicals

One of the oldest factories was the gunpowder mill - Pokrokhoviye. Production was constantly threatened by frequent explosions and spring floods that destroyed the dams of the mill. Nevertheless gunpowder production continued and by the end of the 19th century, it had become one of the largest factories in St Petersburg. In 1894 the factory started to produce smokeless gunpowder and work was hard and dangerous. The heaviest explosions occurred one after another over a very short period between December 17th 1912 and January 3rd 1913. At the beginning of the Soviet era, production was changed and the factory was converted into a chemical plant, producing celluloid and bakelite for the electrical industry. In the 1930s, synthetic materials and plastics were produced. Today the factory is called Plaspolimer.

Shipyards and factories

Among other important industrial plants were the shipyards founded in 1721 for the Russian navy. They were developed into mechanical workshops in the late 1800s, producing small motor-boats and tug-boats. It was here that the first tug-boat in Soviet times was built in the 1930s. Today it is named Petrozavod and builds ships and makes equipment and machinery for ships.

The Komarovs cotton plant, paper mills and a factory manufacturing cheap roof-covering materials were also located here.

We found that industrialization along the Okhta river had a long history. We will now proceed with our investigation and examine the production of the industries and factories that have been built during the last decades. It is possible that we will be able to find out the reasons for the concentration of pollution in the downstream areas of the industrialized zone.

Appendix 2

Benthos of the Okhta River in the area within St. Petersburg.

The river Okhta is one of the most polluted rivers. High level of pollution in the lower course has been keeping for more than 10 years. Okhta state is under scrutiny of environmental organizations, including Greenpeace. They require to take steps to improvement this important river for the city. Relevance of this study is dictated by the value of the river Okhta for the urban environment and insufficient knowledge of the benthos in it.

The aim of our study was to examine the state of communities in different parts of the river Okhta within St. Petersburg in autumn period of 2010 year.

Objectives were to estimate species rich in benthic fauna, trace changes in the indices of benthos in the longitudinal profile of the river Okhta from the place, which is called Lavriky to the mouth, to identify possible changes in the benthos over 3 years, to bioindication on benthic. Materials for the work were the benthic samples, collected on Sept. 15, 2010

year in 5 settlements and archival materials in 2007 year. All-time study on the urban section of the river Okhta was found 22 taxons ; 11 taxons in 2007 year and 15 taxons in 2010 year. The number of types – 4, classes - 7. Among the representatives of the benthos were practically no indicator species of clean water. Only one empty house of caddis was met in the top settlement under study area near Lavriky. Oligochaetes kind Tubifex sp dominated in most of settlements. In many cases the degree of dominance (oligohtetny index O) exceeded 80% at high density of oligochaetes, which indicates that the river is very dirty. In 2010 year, the proportion of tubifitsid, exceeded 80% was observed at a greater length of the river. The tendency to reduce species richness in the longitudinal profile, the number of species in the study ranged from 8 points at Lavriky to 2 points in the mouth. Species composition at each point was not stable for 3 years. At some points the number of species in 2010 year has increased compared with 2007 year, while others declined. The index of species similarity between years for the entire portion of the river was only about 25%. Shellfish (often dead) were found before Irinovsky prospect at all points in 2010 year. At each point of observation for 3 years there have been specific changes in the composition of the benthos. Chironominae spp dominated during the studied period in Lavriky. In 2010 year, the species richness here was higher than in 2007 year. However, the instability of living conditions in this section of the river indicates the presence of dead shellfish and caddis. In point from the village Devyatkinno in 2010 year, the species composition is almost entirely unchanged from 2007 year. The number of species has become smaller. Common component for the comparable years were just dead sharovka. Species composition below the reservoir was poor in 2007 year, and in 2010 year the organisms were not found. Perhaps this is due to strong currents which are not favourable to development of the benthic fauna. In the point on Irinovsky Prospect in 2010 year it was indicated a relative improvement in living conditions, compared with previous year. The number of species has increased. Alpha- mezosaprobnye species have appeared- Crustaceans Asellus aquaticus, two species of bivalves and gastropods. We should note that this point was safely than the one upstream, which indicate that there are processes of dilution and purification in the river. The density of organisms in Lavriky, Devyatkinno and Irinovsky prospect in 2010 year increased significantly, compared with 2007 year. In Lavriky- by chironomids, in other points through tubifitsid. At the mouth of the river for three years there is no practically change. This section of the river throughout the studied period was full of the poorest species and with a minimum density of organisms. Calculation of indices of species structure allows to quantify the level of pollution of different areas of the Okhta river for different years. Value of index of species diversity ranged from 0 to 2.04, substantial changes in the three years were not found. In the area Lavriky and Devyatkinno the level of pollution on diversity index ranged from medium to high (index value was within the range of 1 to 1,5). Below Irinovsky prospect in an input mouth of the river diversity index of the river was heavily polluted (the index was less than 1). Nature of the change of index of species richness in the longitudinal profile of the river was largely the same as the diversity index. In the lower current the index of species richness was generally lower than at the area from Lavriky to Devyatkinno. The value of the biotic index Vudivissa in most cases corresponded to high and very high pollution (from 1 to 3) and only occasionally in 2007 year, reached 4. According

to published data in 1996, the value of the biotic index in the lower current was 2, that is, the index Vudivissa for 14 years significant changes haven't occurred so the level of pollution is high. The absence of indicated organisms in the studied section of the river and a high index of oligohetny of silted soil shows strong pollution of the river Okhta within the city. Based on work done lets have the following conclusions. Benthic fauna in the river Okhta at the area within the city in 2007 year and 2010 year was poor. The number of species did not exceed 15. Only eurybionic species mostly attended. In most cases, oligochaetes Tubifex sp dominated. Types of indicators of clean water were practically absent. Decrease of species

richness in the longitudinal profile of the river from Lavriky to the mouth was marked. In most settlements in 2010 year, the density of the benthos increased essentially in comparison with 2007 year. Species composition at each point was not stable for 3 years. According to the results of macrozoobenthos bioindication of the Okhta river in the area within the city is very polluted reservoir.

Students:
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Teachers:
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NATURE LOVERS' ACTIVITY IN RAGUVELES BASIC SCHOOL

Our school joined in the Baltic Sea Project one year ago. Our new headmistress Vilma Dirzyte suggested this activity and we assented to this proposal to participate in the project. We would like to say that we didn't chagrin. This activity is very interesting.

We started our work with the analysis about air pollution by sulphur dioxide maple-leaf and lichen's methods. The students liked analyzing because it's the concrete work and it's possible to know the results very quickly. After computing we have noticed that the air pollution with regard to sulphur dioxide is quite clean in our village. We have prepared a report which had been read for the school's community also we participated in the national Baltic Sea Project conference and read our report in the republican conference „Eureka“ which had been organized in our school.

This year the analysis by sulphur dioxide maple-leaf's method have shown that the air is less polluted- 3,2 mg/m.

Every autumn a floral exhibition of carpets takes place outside the school. This year all students in our school were making the carpets from the flowers and were enjoying each other works. People who lives in village go and enjoy the flower carpets too.

The students of primary school participate in the phenological studies programme. They draw the forest in the different

seasons. Their pictures are hanging on the school walls. We also take care of the plants and the animals. There is a conservatory, an alive corner and a new-look parterre.

As the young foresters' coterie works in the school so there are the students are willing to socialize with Raguveles forestry's woodwards, Panevezio State Forest Enterprise Tree Nursery employees. The students visited in the Tree Nursery, took a look at the plants growing there and knew how to look after them. The Tree Nursery employees were wondering that our students are filled with curiosity about the plants, the forest enginery. Also the Tree Nursery employees have given the present for us two flowered bushes.

The forestry officer and his assistant always communicate with the students.They show the rare plants, the oldest and the widest trees growing on their territory, introduce with the planting ofthe sapling's methods, teach to implant.

It's very warm and dry this autumn so we can enjoy the different autumn colours.The students devised to collect a full-colour leaves collection.

Now we are going the new reports for the future conference, watching the nature and fixing the natural phenomena.

Students:
Julija Luksyte,
Asta Sabaliauskaite
Raguvele Basic School, Anyksčiai district, Lithuania



PROJECTS OF ENVIRONMENTAL PROTECTION IN "ZIBURIO" GYMNASIUM IN PRIENAI



As the air pollution is increasing and the rarest sorts of plants are getting extinct, the schoolchildren are encouraged more and more to get interested in the ecological problems. Therefore in 2011 the schoolchildren of "Ziburys" Gymnasium in Prienai took part and were awarded support in the competition of Small projects of environmental protection. While implementing the project "Search for protected sorts and provision of safeguards in landscape reserve of Prienai pinewood" (coordinator – teacher of biology, supervisor Rasa Kucinskiene), the schoolchildren of the 1st-3rd forms were going to Prienai pinewood from April and determining the type of forest, variety of sorts, were searching for rare and quite rare sorts of plants, and were gathering medicinal plants.

On October 13, the 3rd-formers of the gymnasium presented several projects of environmental protection meant to attract the attention of the schoolchildren to the problems of air pollution and their settlement modes, and to introduce the schoolchildren with determination of air pollution using the test of lichen and maple blots, as well as according to the bioindicative features of conifers (using the methods of the project of the Baltic sea).

On November 18 the project "Search for protected sorts and provision of safeguards in landscape reserve of Prienai pinewood" and the project "Medicinal plants in Prienai pinewood and their usage" were presented in Vilnius center of young naturalists in the competition of ecological projects of the Lithuanian schoolchildren "Treasures of woods" meant to

commemorate the end of International year of forests. The 4th-former Gintare Barauskaite and the 3rd-former Ruta Barcyte were awarded with the letters of acknowledgement for the creatively prepared work "Search for protected sorts and provision of safeguards in landscape reserve of Prienai pinewood", while the authors of the project Medicinal plants in Prienai pinewood and their usage" – the 3rd former Jovita Kelmonaite and the 2nd-former Karolina Valentaite – became the winners and received the letters of gratitude from the Minister of Education.

In order to complete this project supported by the Lithuanian Nature Fund, on November 29 the final event "Afternoon with tea" was organized it was meant to introduce the gymnasium's pupils with the research works of the schoolchildren and to share the issues of concern. The most active schoolchildren received the little tokens from the Nature Fund, and all the participants were invited to enjoy the teas prepared from the herbs collected by the participants themselves.

We are glad that we have a possibility to participate in the projects, which help us to gain practical skills and possibilities to participate in various competitions.

Student:

Rūta Barcyte

Teacher:

Rasa Kucinskiene

Prienai Ziburys gymnasium, Prienai, Lithuania

PROJECT P-STOP IN KLAIPEDA

It's worth thinking what we breathe and drink. Our perception about environment is not adequate because we do not know a lot of things. The thorough and clear view we can find when we look more carefully around, sometimes open the doors of laboratories and hear out the results of specialists' researches. However it is not enough. The more important thing is to look for the ways and means to save our environment.

In 2009 – 2010, ten various teams from different schools of our city Klaipeda, associated for one purpose – to find out the solutions and to offer the suggestions how to stop the process of eutrophication in the Baltic Sea. The teams from Lithuania, Latvia, Poland, Russia and Sweden pursued the project P – STOP. 55 teachers and more than 500 students attended the project in Klaipeda. The new opportunities emerged to enlarge the interdisciplinary links. Therefore the teachers of geography, biology, physics, chemistry, English, mother – tongue and IT were involved in the project. This project demanded the realization of qualified interdisciplinary link.

Klaipeda's expert geography teacher Stase Alenskiene organized the seminars for qualified teachers' training. The lectures were read by lecturers from Klaipeda's University there was also translated a book "Teaching and learning for sustainable development – about laundry and underwater ecosystems" /Gunnel Bergstrom, Gitte Jutvik, Krzysztof Kochan/ into Lithuanian. In the seminar we heard about the eutrophication. This process is caused by the washing – powder. One of the components in the washing - powder is phosphate . It causes the process of eutrophication in the water.

The whole year an active work was done at schools. The community had a chance to learn about the eutrophication and they had an opportunity to show the knowledge they had gained. The water was tested in the laboratories of the city and schools. The Klaipeda Sea Search Institute and the Joint – stock company "Klaipedos vanduo" gave students an opportunity to test water in the river Dane, in the Curonian Lagoon and in the Baltic Sea. In Summer time some students regularly took samples to clarify the chemical composition of the water. The eutrophication process

of the Baltic Sea is very conspicuous in August. On the 3rd of September in 2010 a conference "Mokymas ir mokymasis praktikoje" was organized in Klaipeda. The aim was to evaluate the results of the project. The students' teams from Klaipeda schools contested and shared their experiences in this conference. The best were the students of the gymnasium "Žaliakalnis". In October they took part in the international conference in Jurmala, Latvia. There was presented the Lithuanian teachers work in the project and the students presented their report about this project. In the conference students had a very good opportunity to discuss, to learn, to share their experiences, to establish a newspaper and to socialize with the teams from the other Baltic countries. The main aim was to find out the ways to reduce phosphates getting into environment, to analyse what is done in other countries, to find the alternative eco washing – powder made from plants.

Teachers:
 Vilma Norvaišienė,
 Vilma Bergeliene
 Klaipeda Simonas Dachas Basic school, Lithuania



TRAINING CAMP FOR IMPLEMENTATION OF BSP PROGRAMMES

In August 2011, The Baltic Sea Project (BSP) training camp, „The Development of Environmental Protection and Researching skills for implementation BSP programmes“ was organized in Vilnius. The camp was held in the Centre of Naturalists, which is located in Vilnius, in the Pavilniai Regional Park. We, the young members of BSP, had a really interesting and useful time. We have met new friends, expanded our knowledge about nature, bird-watching, river water tests and other programmes of the Project. We enjoyed the original teaching methods, which were prepared by the great camp leaders Miglė Simanavičienė and Vytautas Eidėjus.

On the first day we were grouped into five teams and had to create the model of a green city. It was a creative work. All the teams presented their ideas. In the evening an acquaintance party took place. A lot of interesting games were played. We understood that the campers were really interesting and funny nature lovers.

On the second day Oicosophy and Water Quality Programmes were introduced. We were researching vegetation and fauna of the river Vilnele, also we were filling up the protocols of BSP Water Quality. Weather was fine and the mood was great. The interesting and unexpected activity waited us after lunch. We had to improvise any action (for example, waste re-

cycling) or place (for example, a forest). It was really pleasant. After these activities we had to get ready for the trip to Trakai. We thought that it would be just a simple excursion, but we were wrong, because there we were grouped into two teams and each group got the navigation and a sheet of paper with coordinates and tasks on it. This activity was like a treasure quest. It was interesting. Supper also was special. We were in Trakai so we ate..., guess what? Of course, kibinai.

The third day was of Phenological Studies. The eminent naturalists, Salemonas Paltanavičius and Algirdas Knystautas, have helped us to know the nature better. In the evening the camp manager Vytautas invited us to a movie night. There we found out how to create a film about nature and watched a film about the jungle. The films were really interesting, although one of the viewer's fell asleep (probably was tired...).

We did not notice, when the last day came. We were creating movies about what would be, if... (Environment History programme). At the time of this activity we saw that we can create a film using only a box, pencils and a lot of paper. After the film presentation and delicious lunch we said goodbye to our new friends and went home...

Students:

Laurynas Rudis, Kristina Ratkeviciute,
Arune Verbickaite, Rimvile Prokarenkaite

Teacher:

Laima Sabaliauskiene

Algirdas Brazauskas gymnasium, Kaisiadorys district, Lithuania



PROJECT OF ENVIRONMENTAL PROTECTION IN "ZIBURIO" GYMNASIUM IN PRIENAI

"Prevalence and Provision of Protective Measures of Protected Sorts (pasque flower, mountain arnica, dark red helleborine) in landscape reserve of Prienai pinewood"

The ecological problems, which are getting more and more topical in the entire world and Lithuania, especially in the town we live, Prienai, induce interest in environmental protection. Thus in 2011 the schoolchildren of "Ziburio" Gymnasium in Prienai took part in the competition of Small environmental protection projects and implemented the project of environmental protection "Prevalence and provision of protective measures of protected sorts (pasque flower, mountain arnica, dark red helleborine) in landscape reserve of Prienai pinewood".

We could be really glad that we live in special place – Regional Park of the Nemunas loops, where the most valuable section of the longest Lithuanian river is being preserved, as there the Nemunas has made the biggest loops. It is impossible to find such loops nowhere in Lithuania and Europe. The Regional Park of the Nemunas loops is famous for the pinewoods of Punia and Prienai, which have preserved the features of aboriginal Lithuanian forests and which have valuable biocenoses, where the plants registered in the Red Book are growing. However, due to the large area, there are some places within the territory, where the comprehensive inventories of prevalence of plants and animals have not been done. The random visits revealed that several sorts of protected plants are growing in this territory, but their exact prevalence is not known. If the growing places of the plants are not known, the protective measures also cannot be applied. As we live surrounded by unique environment, we have the possibility to contribute to the researches and preservation of the sorts. Therefore the aim of the work was to assess the growing places of such protected plant sorts as pasque flower (*Pulsatilla patens*), mountain arnica (*Arnica montana*), and dark red helleborine (*Epipactis atrorubens*),

their prevalence, abundance and condition of the populations in the surroundings of the upper reaches of the Revuona stream in the landscape reserve of Prienai pinewood of the Regional Park of the Nemunas loops.

The researches were done in April-July 2011 in the selected territory in the Regional Park of the Nemunas loops, not far from Prienai town, by the road to Marijampole and Alytus, in the quarters 80-81, close to the place where the highest Lithuanian spruce used to grow. The 1st-3rd graders of "Ziburio" Gymnasium in Prienai dispersed in the quarters every 50 meters, walked through the researched territory crosswise and lengthwise, marked the coordinates of detected plants on the map, determined the number of plants in one sector, the area they occupy, calculated the croppers, indicated the injuries of the plant and their growing conditions. After the researches had been done, the results were revealed. 53 sorts of the plants were found in the territory of Prienai pinewood, where 5 sorts of the plants were quite rare: Martagon lily (*Lilium martagon*), branching St. Bernard's lily (*Anthericum ramosum*), flat pea (*Lathyrus sylvestris*), alpine trefoil (*Trifolium alpestre*) and broad-leaved helleborine (*Epipactis helleborine*). The sorts of pasque flower (*Pulsatilla patens*), mountain arnica (*Arnica montana*), and dark red helleborine (*Epipactis atrorubens*) were not traced, and instead of dark red helleborine (*Epipactis atrorubens*) another sort was encountered – broad-leaved helleborine (*Epipactis helleborine*) (we analyzed the broad-leaved helleborine more thoroughly – see Table 1). We made such a conclusion on the basis of several features, which allowed recognizing different sorts of the broad-leaved helleborine. First of all, the growing place of the broad-leaved helleborine (*Epipactis helleborine*) is the leafy and mixed forests, whereas the dark red helleborine (*Epipactis atrorubens*) grows in dunes, sands, which are not characteristic for Prienai pinewood, although there are some dry areas. The second feature is that the plants differed in the color of their blossoms. The blossoms of broad-leaved helleborine (*Epipactis helleborine*) are lighter, of purple color, while the dark red helleborine (*Epipactis atrorubens*) has darker and rosier blossoms. The doubts about recognition of the sorts were confirmed by Dr. V. Stukonis. It is considered that under the improper conditions these sorts have disappeared, or according to Prof. Habil. Dr. J. M. Balevičienė, the





orchid plants can be encountered every second year. Therefore our project shall be continued. We are going to search for these rare sorts next year, as well, by taking larger areas. We have also encountered several sorts in Prienai pinewood registered in the Red Book: Pycnoporellus fulgens, cinnabar polypore (*Pycnoporus cinnabarinus*), Saw-sedge (*Cladium mariscus*), wild garlic (*Allium ursinum* L.), but they were not within the territory that we have selected.

Finally it was determined that the poor soil of normal humidity is predominant in the selected territory. The type of the forest is *Vaccinio-myrtillosa*. The predominant trees are pines with small contribution of spruces and birches. The number of spruces is bigger in wetter places. Mainly the trees of average age are growing; however, in several places the areas of old forests and young forests are inserted. In the grass cover the blueberries are predominant (*Vaccinio myrtillus*). In the less fertile soils the number of lingonberries gets bigger (*Vaccinio vitis-idaea*). The redstem feathermoss (*Pleurozium schreberi*) and Glittering-Wood moss (*Hylocomium splendens*) prevail in the moss cover. In the spruce woods the common wood sorrel is common (*Oxalis acetosella*). The undergrowth is not big. It mainly consists from Alder Buckthorn

(*Frangula alnus*) and European Rowan (*Sorbus aucuparia*). The project "Search for protected sorts and provision of protective measures of protected sorts in landscape reserve of Prienai pinewood" is very topical nowadays, because as the rarest sorts of the plants are disappearing, it gets more and more difficult to preserve them. Therefore the majority of us should be familiar with the vanishing sorts of the plants, so that we could not only admire but also help to preserve the rarest sorts registered in the Lithuanian Red Book, which are growing in our surroundings. Thus we are glad that we have a possibility to participate in the projects, which help us to acquire practical skills and possibilities to participate in various competitions. We are grateful to the Lithuanian Nature Fund, sponsors of initiative encouragement programs of environmental protection of young people of the Lithuanian Nature Fund, and ecologists from the Regional Park of the Nemunas loops, Ž. Preikša, for the provided consultations.

Teacher:
Rasa Kučinskienė

Student:
Rūta Barcytė

"Ziburio" Gymnasium, Prienai, Lithuania

LET'S PLAY WITH BSP!

There was a great national training course organized for BSP schools in Lithuania in 2011. For four days teachers and students participated in different type of outdoor activities and classroom workshops. During training course participants improved their knowledge about BSP, had some practice with different BSP programmes such as Environmental history, Rivers, Oicosophy, Bird ecology and Phenological studies. We want to share with you the method that was implemented during training – “Nature calendar”. This method gives sense of phonology and motivates schoolchildren to observe nature and to participate in Phenological studies programme.

- 1) Prepare cards or photos with different phonological signs for each season, (some examples for spring season: first flowering of snowdrop , first flowering of wood anemone , first leafing of oak, swallow first seen, cuckoo first seen, brimstone butterfly first seen, frogs and toads first heard croaking, hormone storms first seen:).
- 2) Ask students to separate in four groups, for instance: children born in spring make first group, children born in summer – second group, etc.
- 3) Give for each group a paper (A1), pencils, magazines, glue, scissors, and cards/photos (1).
- 4) Ask students to create four calendars for each season from things they have got. Phenological signs must be included in the calendar consistently.



Photo: Miglė Simanavičienė

- 5) Each group has to present their calendar and discuss about the team work.

BSP Program coordinator:
Vytautas Eidėjus
Lithuanian Center of Young Naturalist's

ONE DAY ON THE EXPLORATORY SHIP

In the morning of July 28, students from various places of Estonia gathered in the Virtsu harbor. Having formed an enthusiastic group of students, we headed for the exploration ship. The ship was called Salme and belongs to the Tallinn University of Technology. Salme is a fishing ship and it was renovated into an exploration ship in 2009. To get the day started, the crew introduced us the ship. On the lower deck of the ship there were living quarters, a sauna and two toilets. Everything in need on longer explorations was all there. On the upper deck there was a kitchen, a lounge and a small laboratory for doing simple experiments.

We were introduced the ship, study methods used and the characteristics of the Baltic Sea. After the presentations it was time we went on outer deck, and carried out our research.

We started with studying the sea by measuring the visibility of the water with Secchi disc. Considering that it was the Blue and Green algae blooming period, the visibility of depth was fairly good with 3.5 meters. Visibility of depth can be measured easily with domestic appliances. For example, using a white lid, lowering it into the water with a string attached to it, and measuring the length of the string at the moment the lid disappears. This method is an easy way to do it.

After having studied the visibility, using a probe, we started gathering samples of the water.

Having collected a variety of samples from different depths we went to the laboratory, where we analyzed the oxygen



levels and the quantity and the variety of algae in the water. The day was full of sunshine but on the way back to the harbor we also experienced thunder and rain.

Student: Solveig Verbu
Tartu Kivilinna Gümnaasium, Estonia

WHITE DUNE IN SAULKRASTI - CHANGES AND FUTURE

White Dune is a natural monument on the Saulkrasti beach where the right bank of the river Inčupe flows into the sea. The Dune acquired its name from the white sand hardened layers that resemble sandstone. Sandstone rock was formed 405-350 million years ago.

Dunes form a landscape and are well maintained, but the slopes - fixed. The Dune top has a viewing platform and an installed viewing area. From the dunes there is a beautiful view of the sea, Inčupes estuary and a wide beach. The Riga Film Studio footage white sand dunes for feature films "As swans the white clouds go" and "Nauris".

Sunset Trail runs from the white sand dunes to the river Peteris about 3.5 km in length. There are several places of the beautiful views of the river valley and the sea. Where walking along the trail you can see in 20 big pines and distinctive shape of trees: pines whose branches are equal in length to the trunk and continue parallel to the ground or up, or wind different. Many trees have double endings. There is also rising with five birch trunks and the so-called "werewolf pine" with the wind bare roots.

The White Dune is a favourite stop for young couples' wedding trip to Saulkrasti. Directly on the site you can take beautiful wedding pictures on the white sandstone background, as well as photographs of a young couple from the top of the dunes. Built paths allow easy movement and festive dresses. Furnished recreation area will suit for a small coffee break, or on the contrary - romantic dinner in private or even a wedding ceremony. In the latter case, note that this site is very popular among tourists and for many activities you have to previously agree with the Local Government of Saulkrasti.

From 18 m high dune there is a wonderful view of the sea. The convenience for visitors is the viewing platform up here, as well as a built forest trail that will stretch along the coast. Saulkrasti White Dune was formed from sand accumulation process in this area of coast.

But in nowadays Saulkrasti White Dune is a subject to erosion: its height decreases each year due to wind. During the observation we found that there are many exposed tree roots and some of the trees tilt towards the sea. The main factors determining and influencing geological processes in the present day coastal zone and the development of the coastal zone include the wind regime, wave climate and storm surges as well as ice conditions and ground frost conditions.

How does it affect the Baltic Sea? The site continues to develop onshore sandbar. While the Baltic Sea area increases, the Latvian land area decreases. Scientists estimate that within the next 15 years, Latvia will lose 300 ha of the land. The total length of the Latvian coast is 497 km, 254 km of which is open Baltic Sea coast.

Some of dunes are foredunes, may be White Dune in Saulkrasti also could change its location, because in this site river Inčupe flows in the sea. River stream is small but if we compare estuary with photos taken 2 years ago, we can see differences.

Coastal zone includes high biodiversity. Secular pines are 176-196 years old. Their trunks are habits for resin wood borers. In this area are some species written in Latvian Red Data Book: pasque flower, sandwort pink.

Based on the calculations, researchers have developed a model of how to protect the dunes: it is embedded in later cutting tree, which would propel the roots and would not let the wind blow the sand away.

20 years later at this site we may be experiencing a land area of the resignation of 15-20 m band.

One part of sand will be collapsed into the sea, making the seas in this place even shallower and beach wider.

To protect this place people can't cut pines in this area and take care about ground cover.

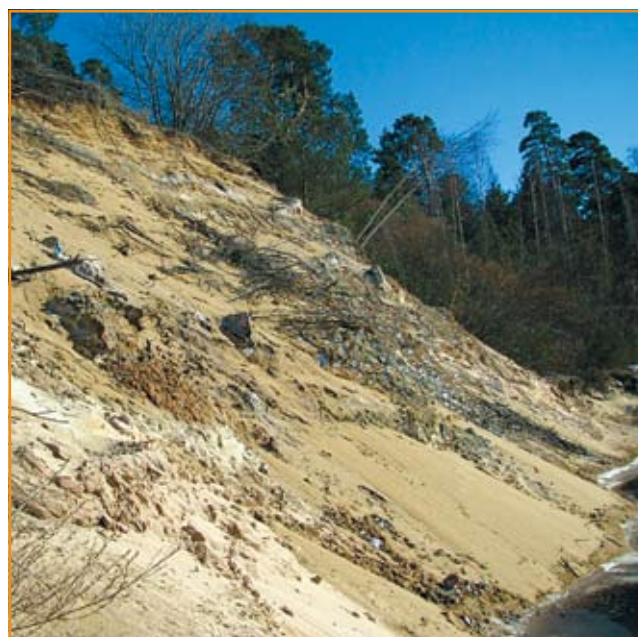
Student:

Anda Hmelņicka

Teacher:

Daiga Martinsone

Andrejs Upits Skriveri secondary school, Latvia



LET'S OBSERVE NATURE – IT'S AMAZING!!!!

Biology has always been our passion. Observations of nature and discovering new secrets related to the world of animals and plants are one of the most interesting and fascinating activities. We are the students of the second year of a biology-oriented class in high school. It was just here in I LO named after Henryk Sienkiewicz in Łańcut where our journey into the world of ecology and biology began. Our reliable guide is our irreplaceable honorable teacher Ludmiła Smęt-Dudziak, thanks to whom both – I and many students of the school have engaged in the Baltic Sea Project which enables us to realize our passions in a bit different way than so far. Participation in these programmes, especially in 'Phenological Studies', 'Air Quality' and 'Water Quality' encourages us to deeper and deeper learning about the surrounding environment.

Aneta Woś while attending the Water Quality project has examined the cleanliness class of Wisłok river on the basis of biological and physicochemical factors.

Also, this year, under the leadership of honorable teacher Ludmiła Smęt-Dudziak we set out on a short trip as a part of Air Quality. Our main purpose was to examine the purity of air in the region of Łańcut powiat (which is second level of local government administration in Poland) using various bioindicators. On the basis of these studies we found that the air in our region is contaminated in a small scale, however we should greatly reduce the amount of coal used to heat our homes.

In turn, Asia, Madzia Szydełko and Roland Dubiel while conducting phenological studies tried to capture the beauty of nature in some snapshots. That made them possible to acquaint with environment and the way of life of many birds and mammals.

One of our peers – Jan Witowski – decided to found nature monuments in some monumental avenues of the town of Łańcut. He examined more than 1000 trees to measure their height, width and estimate health. It revealed that 15 of them qualify to receive a status of natural monument. To measure their height he used the computer software created by himself. (Photo 1))

Our another colleague, Martyna Schonborn conducted a thorough analysis of the development cycle of common frog (*Rana temporaria*) and common toad (*Bufo bufo*). She made her observations in Łańcut's ponds. (Photo 2; 3) Thanks to enormous commitment and assistance of our honorable teacher, Martyna's and Janek's research have been awarded by the Regional Commission of National Biology Olympiad and it will take part in the European Union Contest for Young Scientists. (Photo 4) Apis mellifica, the honeybee has become the object of Karolina Matuszek's research. She has been searching for the growing mortality rate of these wonderful and extremely useful insects living in the apiaries located in Podkarpackie voivodeship in the last few years. That was a continuation of research made by Karolina Kluz which was distinguished in XXII EUCYS. (Photo 5)

We have had as many as ten participants in Biology Olympiad. Ania Ingot has examined the effectiveness of chemical and natural crop protecting methods to fight potato blight (*Phytophthora infestans*) with a tomato (*Lycopersicon*) as an example. Ania's experiments revealed that Amistar (toxic chemical compound) is as effective as extract of nettle.

Basia Tupik has shown that Jew's ear fungus, used commonly in asian cuisine, grows also in Poland on Elderberry trees

– that's the jelly ear (*Hireola auricula*). While Karolina Pasierb has impressed us by fascinating galls. (Photo 6; 7)

Monika Szlachta set up on a journey around Świętoniowa in order to search for invasive and expansive plants. Who would think that ubiquitous Impatiens, Canada golden rod (*Solidago canadensis*) or wild cucumber (*Echinocystis lobata*) aren't our native species. (Photo 8)

Renata Gardziel – a nature lover, have been looking for remains of virgin forests in "Lupa" natural sanctuary. Karolina Werfel decided to draw up a project of path within the town of Łańcut, presenting the best ecological and cultural values contained in our small city. (Photo 9)

Our main aim isn't only to develop our knowledge and biological skills, but also shape appropriate ecological attitudes among people surrounding us. In order to do that, we organized a festival entitled: 'Think green!' in our school. The awareness raised by us met with the enormous interest among young people. Around our linden, our teachers with our support have planted over 1300 bulbs of daffodils, tulips, crocuses and a great variety of other beautiful flowers. (Photo 10) We have also held a competition for gymnasium students for the best sketch, song, poster and artistic handicraft. On the day of festival all the students and teachers were wearing green-colored clothes. (Photo 11) We all experienced fantastic moments and became convinced that with learning we can have great fun and vice versa.

Also, like every year, we are organizing contents for our colleagues attending junior-high-school in our powiat. For this purpose we are arranging short assemblies, inviting well-known lecturers to hold meetings with young people and owing to excellent talent of Joanna Szydełko we are decorating our school with posters. (Photo 12)

The memories of our trips and school events are unforgettable. Thanks to the Baltic Sea Project we discover the world anew, find its beauty and learn how to protect the natural environment. It is a really great undertaking which we are going to support actively. We can do nothing else, but simply thank you!!! (Photo 13)

Students:

Magdalena Szydełko, Jan Witowski

Teacher:

Ludmiła Smęt-Dudziak

I Liceum Ogólnokształcące im. Henryka Sienkiewicza w Łańcutie,
Łańcut, Poland





HOW TO CHECK IF A STREAM IS CLEAN?

Biology has become my real passion in grammar school since I had the first opportunity to take part in off road workshops over the Ślepiotka River. I got to know the methods of macro invertebrate observations and ways of carrying out physical and chemical tests of water.

I also started to perceive biology as science. I was able to develop this interest by participating in the Baltic Sea Project. Thanks to that I had a chance to take part in ecological workshops in Denmark where I learnt about a lot of new environmental protection issues and met interesting people from other Baltic countries.

Last summer I decided to take advantage of the knowledge and skills which I had acquired at the off road workshops and to do research on macro invertebrate in watercourses. I chose a stream flowing through the village where I was spending my holiday. I set three sites where I collected the benthic macro-fauna samples. The aim of my work was determining the water quality class on the basis of comparison of the benthic macro-fauna taxonomic composition at the three selected sites in the stream.

One of the most numerous insects were Phryganeidae. Their larvae live both in stagnant and flowing water, they are very common in Poland. Their occurrence depends on the amount of oxygen contained in water. When they are absent I can conclude that water is low in oxygen.

Daphnia present massively at site I (the source of the stream) indicates plentitude of planktonic algae, which Daphnia feeds on.. These, in turn, occur in very polluted water. The source which was tested lies near a contaminated wastewater stream that feeds the stream during rainfalls.

The greatest diversity of organisms at site II (the middle of the stream) is a sign of the best conditions. The larvae of caddis and mayflies indicate an improvement of living conditions, higher oxygen content and lower degree of



water pollution. However, the water is not completely pure - there are earthworms and larvae of chironomidae at the site. They suggest that the waste water from some cottages are directed to the stream.

The Wide trough at sites II and III (stream mouth), allows faster water flow and less visible pollutants. The trough at site I is very narrow and the bank is densely grown.

Observations of the bank lead to the conclusion that water at site III is rich in nitrogen compounds, because duckweed grows abundantly on the river bank. These compounds cause a smaller amount of invertebrate macro-fauna occurring in the stream.

Thanks to my school I can develop interests, broad my knowledge and improve ecological skills.

Student: Agata Pietrzyba

Teacher: Jolanta Mol

II Liceum Ogólnokształcące z Oddziałami Dwujęzycznymi
im. Marii Konopnickiej
Katowice, Poland

SUNNY NEWS FROM BISMARCKSCHULE HANNOVER

About two years ago some environmentally conscious students and teachers at our school got the idea to install solar panels on the roof of our new school building. A lot of calculations had to be done because Northern Germany is not a part of the world in which the sun shines all day long, but the calculations have shown that it makes sense and we hope that in about 10 years it will have given a good return in order to finance other environmental projects.

At the beginning of the year we started the system and we were all very relieved, because it was hard work, especially to get the money for the project. Parents, teachers, and students supported us by buying so-called "solar bricks", which are interest-free loans, and a few companies gave donations. Our new school building is a passive house and the 42 solar panels give electricity to its ventilation system.

The project is finally finished and we are very happy - as you can see in the picture. You can find more information (in German) on our school homepage: www.bismarckschule.de



Student:

Sven Merseburger,

Caroline Seifert (photo)

Teacher:

Hilke Heinks

Bismarckschule Hannover, Germany

MINES ON LEAFS OF THE CONKER TREE

I love animals both big and small. I have some pets. I decided to develop my hobby and put them into practice. Two years ago, during holidays I had a veterinary practice. I could learn there how an everyday work of veterinary looks like. These two weeks made me realize that this vet that I would like to become in future should work with the rule: „sanitas animalium pro salute homini”.

I have two Norwegian Forest Cats. In my free time I participated with my cats in several Cat Exhibitions, also abroad. My cats have won several awards.

In 2011 I wrote a research on destructive activity of Horse Chestnut Leaf-miner (*Cameraria ohridella*), which caterpillar eat away the leaf tissue of chestnuts, creating mines and destroying leaves. This is now a serious problem in Poland. I have decided to test, which trees of the conker tree (*Aesculus hippocastanum*) are endangered by this vermin: old or young?

Therefore I picked up a given number of leaves in the period from June to August, every two weeks, of four young trees and four old trees. Then I counted the number of mines in the central, longest part of the leaf and two parts of the leaf that adjacent with it. I did that because not all of the leaves that I collected consisted of 7 parts (a usual number of parts in a chestnut leaf). Some of them were only composed of 5 parts. Thus, in my research I decided to focus on the biggest parts of a leaf.

I calculated the average number of mines from the picked up leaves and I divided them through the average length of the identified parts of the picked up leaves. Such indicators I calculated for every identified day of the observation period. The research that I conducted with the method that I invented re-



Mines on the leafs of the old tree (left) and of the young tree (right) in June 2011



Mines on the leafs of the old tree (left) and of the young tree (right) in June 2011

vealed that trees that I classified as old, are more prone to get destroyed by Horse Chestnut Leaf Miner's caterpillars, than the leaves of trees that I classified as young.

To protect the chestnuts a scope of research should be broaden and steps should be taken to overcome this vermin.

Student: Agnieszka Dziembała;

Teacher: Jolanta Mol

II Liceum Ogólnokształcące z Oddziałami Dwujęzycznymi

im. Marii Konopnickiej,

Katowice, Poland

INVASIVE PLANTS ON THE RIVERSIDE OF ŚLEPIOTKA

I am the student of the biological class so I love to observe the nature. I live not far away from the banks of the small Ślepiotka river. I read a lot about original plants of the Ślepiotka valley and I have tried to compare species of herbaceous plants, which used to grow on the banks of Ślepiotka river before revitalization of this area (conducted as a part of the REURIS European project) with those which appeared after the process has been concluded. Ślepiotka is a small river in Katowice, Silesia, Poland. It is a tributary the Kłodnica river, which falls into second longest river in Poland : Odra. Before the revitalization of this area, it had been possible to find mainly invasive species like: *Reynoutria japonica* Houtt, *Solidago canadensis* L., *Prunus serotina*, *Impatiens glandulifera*, *Solidago gigantea*. In my project, I have distinguished, in 10 sectors, species of herbaceous plants characteristic for each sector. Then I have compared them with species which used to occur on this terrain before revitalization. All the data concerning Ślepiotka have been obtained from the City Council in Katowice.

Student: Marcin Michalik

Teacher: Jolanta Mol

II Liceum Ogólnokształcące z Oddziałami Dwujęzycznymi

im. Marii Konopnickiej,

Katowice, Poland



SENSITIVE LICHENS

Bioassays is the biological information about the state of natural environment. It is received from the living organisms. Simultaneously, it is one of the oldest methods of evaluating the condition of natural environment. Since the prehistoric times man has tried to use plants and animals indicators to search for a settlement, food resources or mineral deposits. Nowadays, the bioassays is still used, although there are very accurate technical methods to measure the contamination. Bioindicator is the organism which has a very specific informative features which externalize by the use of characteristic symptoms, determining the state of natural environment. For example, lichens are very sensitive to any kind of air pollution. These organisms grow on different surfaces: barks, stones and walls, but only epiphytic lichens (which grow on trees and bushes barks) are the most frequently used to control the air. I decided to use the bioassays features of this kind of lichens to determinate the actual concentration of sulphur dioxide in my home town – Nowy Sącz. On the basis of the results we can state to what extent the city inhabitants are exposed to the effects of that harmful compound. Obviously, it is impossible to create the lichens map of the whole city. That is why, I have chosen three places which are differently urbanized. The first one was the park in the city centre (Planty) where there is the heaviest traffic. Gorzków housing estate is the next place.

There is less traffic but still it is quite heavy. Strzelecki Park was the last area to examine and it turned out to be the cleanest. It is surrounded by low buildings near the river, what is why the traffic isn't large there. In order to mark the lichens species on the chosen areas, I set two or three transects depending on the width of the examined area, paralleled to the street, at a distance of 0,3 – 0,5 km each. I set measurement points at a distance of 100 – 150 m from each other within these areas. I marked the lichens species on each tree and I sorted them into individual morphological forms: crustose, foliose or fruticose. I also measured the height on which they existed. The results turned out to be consistent with the predictions. The lichens proved that the most polluted area was Planty. There were only the most resistant ones – crustose. They were found in 36% of measurement points, while the foliose ones only in 9%. Their thallus was strongly reduced. Foliose forms existed on a low height and didn't reach 1,5 m level. In the rest of measurement points in the Planty area there were no lichens. It shows that the contamination of sulphur dioxide there is the highest. In the Gorzków housing estate the pollution was a bit lower. The crustose lichens occurred in 44% of measurement points and the foliose ones in 20%. Fruticose forms didn't exist in the area. Foliose lichens thallus was considerably developed at times and it occurred there for the first time. As a matter of fact, they appeared only in 10% of measurement points, but the fact of their existence shows a little concentration of sul-



Złotorost ścienny (*Xanthoria parietina*) and Pustulka pęcherzykowata (*Hypogymnia physodes*)



Pustulka pęcherzykowata (*Hypogymnia physodes*)



Chrobotek strzępiasty (*Cladonia fimbriata*)



Liszajec zwyczajny (*Lepraria incana*)

phur dioxide in the air. The percentage of crustose and foliose lichens was similar, because the crustose ones were in 36% of points and foliose ones in 30%. The height on which foliose lichens thallus occurred increased up to 3 m, and in fruticose it was over 1,5 m. Thallus of all forms was highly developed. On the basis of the chosen areas I calculated an approximate concentration of sulphur dioxide for all those three places. It was about 124 $\mu\text{g}/\text{m}^3$. According to the WIOŚ data, a permissible level of sulphur dioxide is 350 $\mu\text{g}/\text{m}^3$ in an hour and 125 $\mu\text{g}/\text{m}^3$ in 24 hours a day. As a result, Nowy Sącz is within the norm but on its upper border. For the time being the state of the air doesn't threaten the inhabitants, but it may soon change, that is why we should pay more attention to what the nature is saying to us and take some steps in order to protect the environment.



Zlotorost ścienny (Xanthoria parietina)



Tarczownica bruzdkowana (Parmelia sulcata)

Student:

Katarzyna Tekieła

Teacher:

Małgorzata Kuźma

Zespół Szkół Ogólnokształcących nr 1 im. Jana Długosza
w Nowym Sączu, Nowy Sącz,
Poland

BRIGGEN TRE KRONOR

Four science students from Nacka Gymnasium, located in Stockholm, had the opportunity to be a part of the crew of Briggen Tre Kronor and the event "Hållbara Hav 2011". All in all it was us and about 16 other students from Marina Läröverket and Media Gymnasiet. Our journey began early in the morning with a seminary, which was very interesting. We students really appreciated the level of the information and research. We could follow and understand it all, which made it much more interesting and manageable. It felt good to be a part of something that can make a difference, since Briggen Tre Kronor is also apart from being a symbol for the environment in the Baltic Sea a tool for youths to raise their voices. We listened to some of Scandinavia's leading scientists on the Baltic Sea, involved companies (WWF, Wärsilä etc.) and Åsa-Britt Karlsson, State Secretary at the Ministry of Environment. We could be a part of an important discussion, which helped us grow as individuals.

To be part of the crew on board Tre Kronor was something really special. Everybody involved made it very easy for us to feel comfortable and soon we felt like a family. When we headed for our first stop, of course it was the Crown Princess Victoria who broke the last hawser, which is a memory in itself! There were a lot of people and journalists there to document the happening. During this moment I think all of the students onboard felt a bit misplaced and confused. Words like "Brace the royal sail!" felt like Chinese and we just stood there staring. All of us appreciated not being treated like the small and insignificant students we felt like. At the same time were we extremely proud of being a part of this project and make something for the environment. Every day was different and we all woke up excited about what would happen. Were we going to climb in the rig again? We all hoped so. To steer a ship under a clear black sky filled with stars and a full moon is something I want to do again. The happiness we all felt at this time cannot be described.



On one of the days we visited a museum in the archipelago, and everybody ran as fast as they could towards the toilets. Running water! We had not really got used to the primitive lifestyle on board. The museum was a nice break and the coffee tasted great, but after about five minutes we wanted to get back to the important thing, sailing!

We have learnt a lot about the Baltic Sea and the projects that Briggen Tre Kronor is responsible for. Many thanks to the whole crew (especially the food that the chief John cooked) for making this journey so very special and memorable!

I would like to dedicate this article to my good friend Cecilia Schyllert, who was with me on this trip but passed away very quickly without warning this winter.

"I den stora sorgens famn, finns små ögonblick av skrämt - In the middle of the great sorrow, there are small moments of laughter".

I am very glad we did this and many other journeys together. I miss you every day.

Rest in peace my dear and beloved friend.

Student: Frida Segernäs
Nacka Gymnasium, Sweden



THE ENVIRONMENTAL MEASUREMENTS PROGRAMME, 2011:

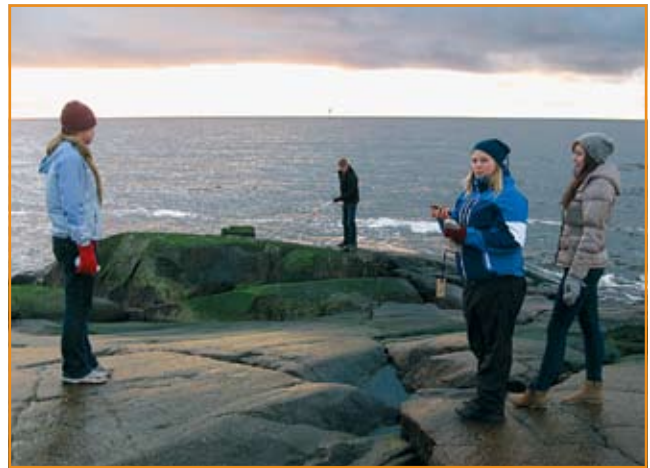
Common environmental researches in the whole BSP area by using bioindicators, physical and chemical analyses, with the help of outside partners: industrial, municipal and scientific laboratories. Our team in Meri-Pori Upper Secondary: Hanna Numminen (pine needles), Anne Kettunen (moss bags) and Anja Hokajärvi (water). We are very grateful to all teachers and students who are sending us samples.

Chemical Water Analysis:

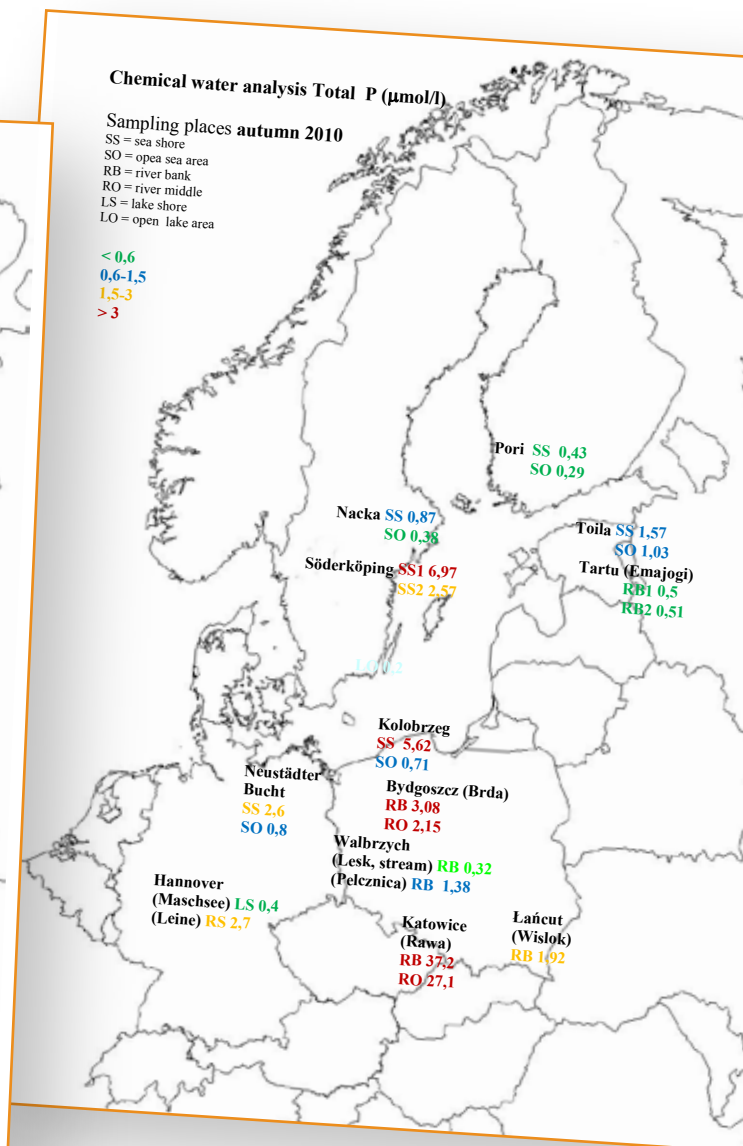
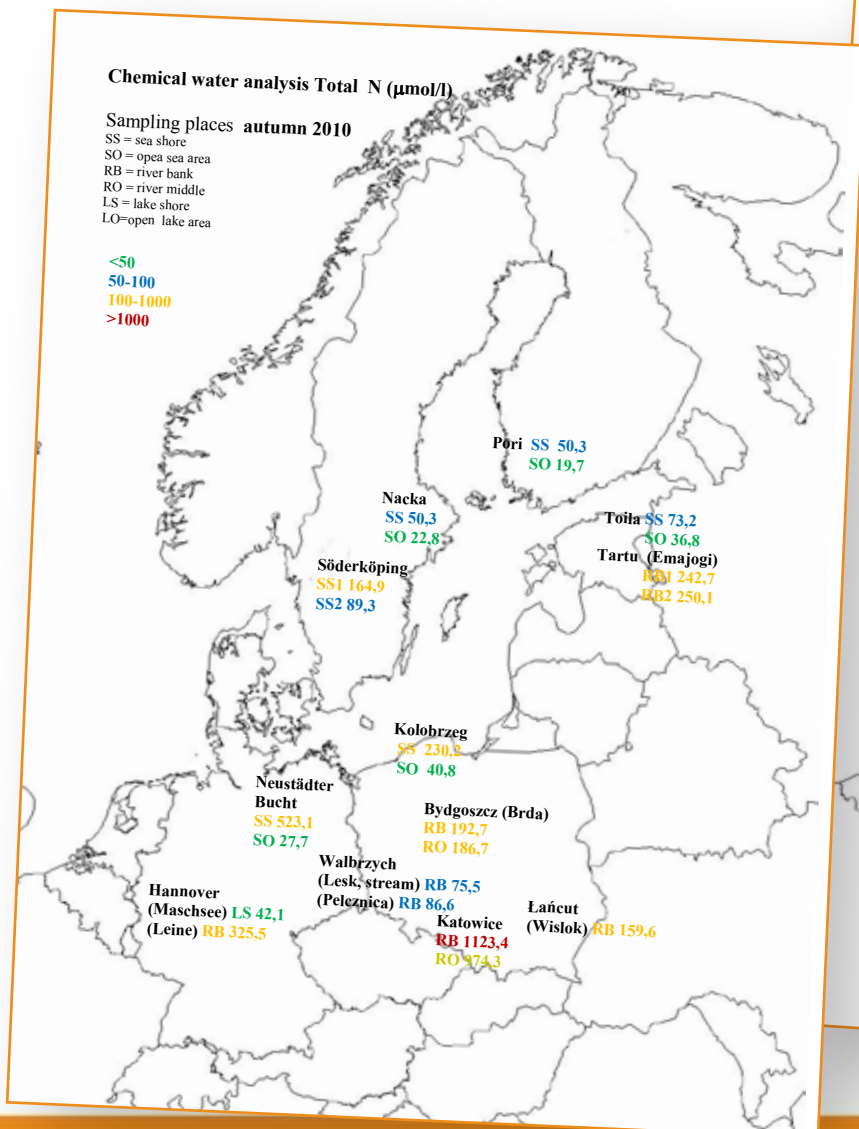
The aim of this study is to gather information about the nutrient concentrations (total nitrogen Ntot and total phosphorus Ptot) in different parts of the Baltic Sea.

The schools got instructions and bottles by post in the middle of October and the sampling time was at the beginning of November. The samples were sent to Meri-Pori Upper Secondary and they were measured by Marine Research Center of Finnish Environment Institute. The schools got the report about results in order to make their own conclusions.

We got 12 sample pairs from (one sample from shore and another from open water area) from 6 countries around the Baltic Sea: Estonia (Toila, Tartu), Finland (Pori), Germany (Neu-



stadt, Hanover), Poland (Bydgoszcz, Katowice, Kolobrzeg, Lancut, Wahlbrzyh), Sweden (Nacka, Söderköping). All samples are from the Baltic Sea drainage basin except Hanover sample. Six sample pairs were from sea water, the others were from rivers and lakes. This was the 7th year of this study and almost all former participants are with and we have got new participants, too. The results are to be seen from two maps: Chemical water analysis Total N and total P.



Pine Needle Project:

This is already the 18th year of our international research measuring the quantity of total sulphur of the Scots pine (*Pinus sylvestris*) two-year-old needles and observing the scanning electronic microscope pictures from the lip cells upon them.

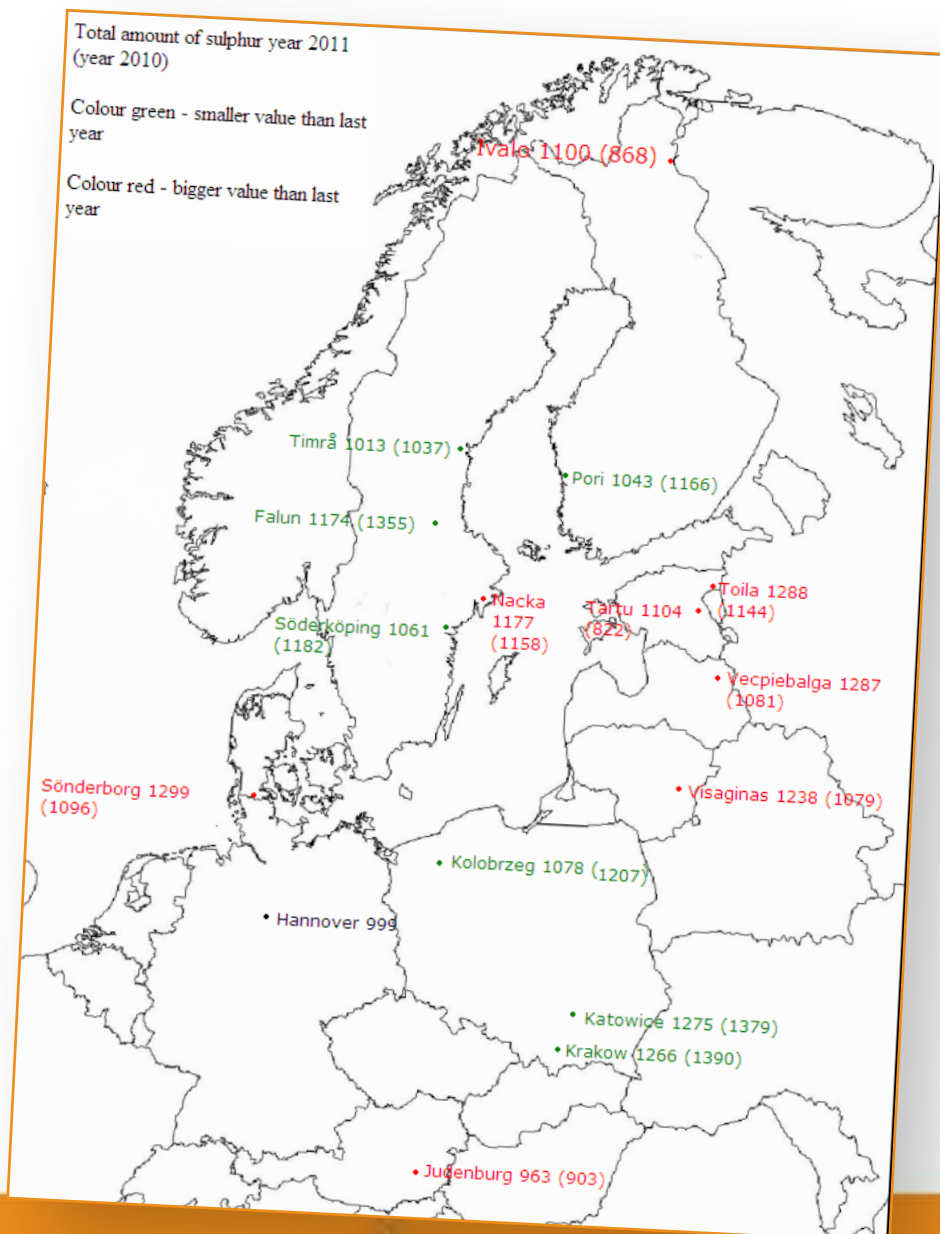
Needles were collected with aid of branch saw or shotgun mainly during January. The basic aim was to choose branches best exposed to rain and prevailing winds. Two year old needles were separated for further treatments. Few needles were carefully detached with tweezers and stored in small plastic pots for electron microscopic photography. The needles were then deep-frozen to be photographed by Outotec.

To measure the sulphur concentration about 100 ml of two year old needles were collected and later dried for 3 days in 55°C and ground to homogenized samples. The sulphur was measured by X-ray fluorescence device in Sachtleben Pigments. The results are expressed as ppm.

This year we got needles from 10 countries and from 18 different schools: Austria (Judenburg), Denmark (Sönderborg), Estonia (Tartu and Toila), Finland (Ivalo and Pori), Germany (Hannover), Latvia (Rujiena and Vecpiebalga), Lithuania (Visaginas), Poland (Katowice, Kolorbrzeg and Krakow), and Sweden (Falun, Nacka, Söderköping and Timrå).



The participants in the Pine Needle Project each year get a report that includes the measurement results of all participating schools. The results are to be seen from map Pine needles 2011.





Moss Bag Study (heavy metals in the air):

We have studied heavy metals (cadmium and lead) in the air from the year 1994 in Pori and Harjavalta area nearby industrial plants and in city centre. We also measured some foreign samples, which our friendship schools had sent to us: Denmark (Sönderborg), Poland (Katowice, Kolobrzeg, Krakow, Miechow),

Moss is the most efficient of all kinds of materials to absorb air impurities. Moss bag research is a good way to study local air quality. We purified the moss (sphagnum) by hydrochloric acid, rinsed it with distilled water and wrapped small moss bags into hair nets. Then we hanged the moss bags to tree branches in the sampling places for two months. The moss was dried properly in 40°C and from the dried moss the cadmium and lead contents were measured by (graphite oven) atomic absorption spectrophotometer in Sachtleben Pigments' laboratories..

The good thing is, that nowadays traffic and power plants do not emit much heavy metals. As to normal city areas lead and cadmium do not seem to be any bad problem. In Finland we here have found the hottest spots of heavy metal pollution: some local metal smelting or metal recycling plant. Fortunately the metal dust does not fly very far from this source, but still these plants should not situate very near housing areas.



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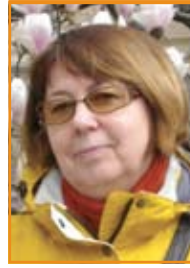
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BSP international events

When?

What?

Where?

2012

March, 16 th – 18 th	The 25 th Consulting Meeting of National and Programme Coordinators of the Baltic Sea Project within UNESCO ASPnet	in Latvia
May 27 th – June 1 st	The 19 th International Environmental Camp School 2012 of Meri-Pori upper secondary school	in Finland
August 27 th – 30 th	International conference „Local Resources for Sustainable Development“	in Latvia

The Baltic Sea Project

is arranging a conference

„Local Resources for Sustainable Development“

August 27 -30, 2012 in Valmiera, Latvia

The conference will focus on one of the objectives of the Baltic Sea Project which is to encourage students to participate in developing a sustainable future.

Sustainable development was defined by the Brundtland Report in 1987 as “development that meets the need of the present without compromising the ability of future generations to meet their own needs”. Meeting the needs of the future generation depends on how well we balance social, economic, and environmental objectives or needs when making decisions today.

The conference programme will include poster exhibition, lectures, workshops, excursions and social activities.

Each BSP country is invited to send 15 delegates, 12 students and 3 teachers. The students representing their country have to be able to communicate in English. National coordinator has to decide which students and teachers will be able to participate in the conference.

Students from each country have to prepare poster “Local resources for Sustainable Development”.

Registration will be open on website: www.b-s-p.org from April 16th till May 16th.



United Nations
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UNESCO Associated Schools



United Nations
Educational, Scientific and
Cultural Organization

Latvian National Commission for UNESCO