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Photo by Mariusz Grzelak

Poland takes over

the general co-ordination of the Baltic Sea Project on the threshold into the decade 2005 – 2015 signed by United Nations as a decade for education for Sustainable Development.

Germany finished three years hosting the BSP as general co-ordinator. Ute Grönwoldt has done an excellent work organising international workshops for the BSP schools, editing Newsletters, answering promptly all our questions. She was always helpful to all national co-ordinators and teachers. She printed her farewell speech in the last Newsletter and I introduced myself in the same one.

Therefore, as the new editor of the Newsletter welcome to about 350 BSP schools from the nine Baltic countries! I wish us all further success and satisfaction in work with the Baltic Sea Project.

During recent years two very valuable Learners Guides have been added to the list financed by the Danish Ministry of Education: Learners' Guide No. 4 "Rivers" and Learners' Guide No. 5 Education for Sustainable Development "Baltic 21".

This year a new BSP Learners' Guide "was born" entitled: "Environmental History" edited by Per Eliasson from Sweden. He has done huge, noble work during last nine years establishing the Environmental History programme for the Baltic Sea schools. With the financial support of general and national co-ordinators he organised six laborious courses for teachers starting in 1996 in Visby, Sweden, then in St. Petersburg, Russia, Norrköping, Sweden, Sonderborg and Skjern, Denmark, and finally in 2003 in Jurmala, Latvia. I had the honour to work with the editing committee of LG 6: Per Eliasson, Christian Bo Bojesen and Niels Kornun (Denmark) and Mirdza Zomere (Latvia) who are very hard-working and capable teachers. During those meetings and workshops we have shared experiences, met researchers and practised our methodological skills in real investigations. Finally LG 6 is ready and it will be presented for the first time at the "International consultation on education for sustainable development - Learning to change our world" in Göteborg, Sweden, 4-7 May, 2004.

Moreover I would like to mention all teachers and students who participate in the BSP and contribute to their experiences in our publications. Without their enthusiasm, devotion, universal, ecological knowledge and excellent job we would have neither Newsletters nor Learners' Guides.

This is the first Polish "BSP Newsletter". I am sure that everybody can find something interesting.

I would like to invite you, dear teachers, students and other interested readers, to join the adventure of writing an article about your work on sustainable development in your region.

Thank you very much all national coordinators, all programme coordinators for your excellent cooperation and your reports. Thanks also to all people who wrote interesting articles.

We have one Baltic Sea and we are one Baltic Sea family so we share responsibility for our Baltic Sea Region!

Jolanta Mol, General co-ordinator of the Baltic Sea Project within UNESCO ASPnet

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<http://www.bspnews.kiss.pl>



ALL THE BSP SCHOOLS ARE INVITED TO THE BSP PROGRAMMES LOGO COMPETITION

The rules of the competition:

1. This competition is only for BSP schools.
2. Each school can send only one or two logos for each programme. If there are more logos in one school, the best must be chosen by the school coordinator.
3. The logo should be square in shape (15cm x 15cm) or round (diameter 15 cm), coloured or black and white.
4. The picture can be made with different techniques but it must be flat (easy to scan).
5. The image should be simple enough to be used on our website as well as T-shirts, letterheads or business cards.
6. The image should be simple enough to be reproduced in black and white as well as in colour.
7. The logo should be suitable for adaptation to a variety of formats and maintain its appearance well in different sizes.
8. The logo may incorporate the name "Baltic Sea Project" or the initials "BSP" as well as abbreviations of the programmes (AQ (Air Quality), WQ (Water Quality), BE (Bird Ecology), EH (Environmental History), PhS (Phenological Studies), R (Rivers), CW (Coast Watch)).
9. Only one logo for each programme will be selected by a jury based upon the artistic quality of the design and the ways in which it symbolises the programme.
10. The jury reserves the right to suggest slight modifications to the winning logo(s) to make them more appropriate for the use of the BSP. These modifications will be completed in collaboration with the winner(s).

The name of the programme the logo is designed for must be written on the backside as well as the name of the author, school and country. The logo projects will be not sent back to their authors, whether or not selected.

Any questions and the logos (picture 300 dpi) should be sent by e-mail: bspnews@kiss.pl
or by the letter to:

**STOWARZYSZENIE KOMPUTER I SPRAWY SZKOLY „KISS”
UL. RACIBORSKA 3
40-074 KATOWICE
POLAND**

The deadline for sending the projects is 30th June, 2004

The present is waiting for the winners!

Good luck!!!

INVASIVE PLANT SPECIES – THE THREAT FOR LOCAL BIODIVERSITIES

One of the most important problems of environment protection nowadays is the introduction of exotic species, at least some of which may be harmful for local biodiversity. Foreign aggressive plants and animals are called invasive species. Invasive plants threaten ecosystems in many ways: they displace native flora and vegetation, cause change in the whole natural biocoenosis (e.g. by excluding native animals, fungi, bacteria which use native plants for nourishment, reproduction or as a shelter), they can bring about soil degradation, damage to flood defence structures and increased risk of flooding (species growing on the river banks), develop a fire risk. There is also strong impact on people like human health effect (poisonous and allergic plants), structural damage to buildings, paving, roads, river banks, archeological sites and blocking sight lines on roads etc. Invasive organisms are of interest to the Conference of the Parties of the Convention on Biological Diversity (CBD), which calls on the Parties to "prevent

the introduction of, control or eradicate those alien species, which threaten ecosystems, habitats, or species" (Article 8h). The World Conservation Union (IUCN) prepared guidelines for the prevention of biodiversity loss caused by alien invasive species approved by the 51st Meeting of the IUCN Council, Gland Switzerland, February 2000. The main goal and objectives are:

- to increase awareness of alien invasive species as a major issue affecting native biodiversity,
- to encourage prevention of alien invasive species introductions as a priority issue requiring national and international action to minimise the number of unintentional introductions and to prevent unauthorised introductions of alien species,
- to ensure that intentional introductions, including those for biological control purposes, are properly evaluated in advance, with full regard to potential impacts on biodiversity,
- to encourage the development and implementation of eradication and control campaigns and

programmes for alien invasive species, and to increase the effectiveness of those campaigns and programmes,

- to encourage the development of a comprehensive framework for national legislation and international co-operation to regulate the introduction of alien species as well as the eradication and control of alien invasive species,
- to encourage necessary research and the development and sharing of an adequate knowledge base to address the problem of alien invasive species world-wide.

The problem of plant invasions concerns more or less the entire world, especially developed regions with strong human impact on environment. Alien plant species have been able naturalised without suppressing the local species and have become a part of natural ecosystems or to overcome the local competition. These species can feel very well in new environment - they grow, reproduce and distribute very fast and often they have no natural enemies in new habitats. As a result the newly arrived plants compete the local species out of their habitats often becoming dominating species in the ecosystem. Creating an important "biological pollution" they have become a serious threat to natural ecosystems and species maintenance. Especially "botanical polluted" are urban and industrial areas, surroundings of human settlements, here is relatively low local species competition. In many places plant cover has established only partly or does not exist. In such a situation it is easy for foreign species to occupy new territories. The next step can be penetration



Canadian Goldenrod in postindustrial areas in Black Silesia, Poland.

(by Barbara Tokarska-Guzik)



Japanese Knotweed along Rawa riverside in Black Silesia, Poland.

(by Barbara Fojcik)



Himalayan Balsam

(by Barbara Fojcik)

the areas of semi-natural or natural character. Invasive plants can create very poor in species communities, consisting even the only one or two species, instead of natural varied and unique ones.

Among the most troublesome invasive species in Poland as well as in many European countries, are two species from Eastern Asia - Japanese Knotweed (*Reynoutria japonica*) and Sachalin Knotweed (*Reynoutria sachalinensis*). They are shrublike, herbaceous perennial plants that can grow to over 2-3m in height, spreading quickly to form dense thickets that exclude native vegetation and greatly alter natural ecosystems. These species are designated noxious weeds in many European countries as well as in 36 states of the USA. There are also some species from Daisy family (*Asteraceae*) of North American origin: yellow flowering Canadian Goldenrod (*Solidago canadensis*), Giant Goldenrod (*Solidago serotina*), Gloriosa Daisy (*Rudbeckia hirta*), Green-headed Coneflower (*Rudbeckia laciniata*), Jerusalem Artichoke (*Helianthus tuberosus*) - a type of sunflower and many representatives of aster genus. Pink and purple flowering ornamental

Himalayan Balsam (*Impatiens glandulifera*) was imported from Asia. It propagates vigorously by the explosive release of up to 500 seeds per plant over a 5-metre radius. Nowadays it is found near water sources, such as along streams, rivers and lakes not only in waste places and around homesites, but also in protected areas like some Polish national parks and nature reserves located in the mountain and lake districts. All these species were introduced as ornamental plants, Jerusalem Artichoke also for its edible tuberous roots. Then they escaped from gardens and parks and invade rural settlements, shrubberies, agricultural habitat, rapidly colonize waste ground and last time they poses a significant threat to meadows and even forest plant communities. Once established, populations are extremely persistent.

Very troublesome for the environment and dangerous for people are two species from Hogweed (*Heracleum*) genus - (*Heracleum sosnowskyi*, *Heracleum mantegazzianum*). They are biennial plants, which in the first year form a large rosette and strong root system, in the second - great size and inflorescence with a con-

siderable number of seeds. Hogweeds with their giant shape, very fast growth and green mass oppress the other plant species and form their own community. They were introduced as cultivated plants, great expectancy was also put on them as a cultivated fodder and decorative nectar plants. Nowadays, the distribution of the Hogweeds is out of human control and the species have spread widely especially along roads and rivers. As the stinging plants they are very dangerous for humans causing skin and mucous membrane burns, particularly dangerous for children.

Another group of invasive species are alien trees planted in Poland like American species: False Acacia or Locust Tree (*Robinia pseudacacia*), Red Oak (*Quercus rubra*), Green Ash (*Fraxinus pennsylvanica*), Box Elder (*Acer negundo*) or American Wild Cherry (*Prunus serotina*). They can tolerate a variety of adverse conditions including pollution, poor in mineral element soils, high salinity and drought. They are well adapted to some types of unproductive environments, and can be used in various rehabilitation

projects, e.g. planted on heap spoils, industrial wastelands, certain acidic sites and margin of roads. The problem is when these species disperse and penetrate natural forest and oppress our native trees and plants growing in the lower levels of the forest.

In Polish lakes, ponds and rivers can be found two invasive species - Sweet flag (*Acorus calamus*) that was used to plant in the ponds of manors and American Waterweed (*Elodea canadensis*) introduced occasionally in XIX century. Nowadays these species are stabilised in natural water ecosystems.

These examples show that we should be very careful with introduction of alien species, the most elementary precaution principles must be followed. Management of invasive species is very difficult and expensive. To extinguish alien plant population sometimes all the possible complex of agricultural, technical and biological methods must be applied. Monitoring, including our garden plants, is very important because activities are the most effective for small initial populations. In the struggle with invasive species local governments play an important role, they must take respon-

sibility where and what to plant, how to grow and control the distribution of the planted species. In the work of determining localities of invasive plant species and limiting their distribution also schools can take part, developing an observation system of foreign aggressive plant species in their surrounding as well taking part to limit their distribution area.

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BSP COD CONFERENCE IN NACKA/STOCKHOLM SEPTEMBER 2004

During the last two years there has been an intensive debate in Sweden concerning the over fishing and risk of extinction of the cod in the Baltic Sea. Sweden has negotiated within EU and with the other countries around the Baltic Sea in order to protect the Baltic cod population. Nacka Gymnasium in the Stockholm archipelago is an Upper Secondary School that is actively taking part in the BSP network and engaged in the scientific and political discussions regarding the Baltic cod and eager to pass on the awareness of the cod problem to other BSP schools. Therefore, with the support from the School Authority and the Ministry of Education in Sweden, Nacka Gymnasium plans to arrange a BSP meeting during a week in September next year that will address most aspects and problems regarding the cod and the cod fishing in the Baltic Sea.

Two schools from each BSP country are invited to send delegations

consisting of four Upper Secondary students and one or two teachers. The organizers will provide for full accommodation and other costs in connection to the participation in the meeting and, if necessary, in some cases also for the travelling costs. In return, the organizers wish that the participating schools should be within municipalities that are bordering the Baltic Sea having a cod fishing tradition. The students that are representing the school must be 17 – 19 years old, both boys and girls and sincerely interested in environmental issues. They must prepare themselves and contribute to the meeting by performing some pre-studies.

One school delegation from each country shall study the local history of cod fishing by i) interviewing an old fisherman according to a common protocol, ii) investigate and correlate historical records on local prizes on cod and catch sizes of cod fish (a supply and demand analysis) and iii) put

together a collection of local recipes from the last century how to prepare cod reflecting the socio-economic status of cod as a meal. The delegation from the other school from each country shall study the local opinion and the public awareness regarding the fishing of cod in the Baltic Sea by i) performing a common interrogative questionnaire among the people on the street (a Gallup), ii) investigate what and how much has been written about the problem in the major news papers during the last two years and iii) present the official and political stand points on the issue. The results from these studies shall be stored into web sites that have been designed and prepared with common protocols and interrogative questionnaires by students from Nacka Gymnasium. All information regarding history of cod fishing around the Baltic Sea will thereby be available and comparable within one web site and all information regarding local opinion and public aware-



Cod fish
Marek Szewczyk and Grzegorz Kurzeja, Poland

ness from all the countries bordering the Baltic Sea will be in the same form within another web site. These two web sites will constitute two of the studying themes for the meeting. Students from Nacka Gymnasium will design and store with information seven other web sites that will constitute additional studying themes for the meeting. Also these other themes all concern the cod in the Baltic Sea and they are listed below;

- habitat and living conditions; trophic level and interactions, abiotic regulation factors.
- reproductive biology; spawning, egg and larvae development, survival rate for young fish.
- protective measurements; fishing regulations, restrictions and stops, natural reserve areas, fish breeding and cultivation.

- other examples and lessons; over fishing of the Newfoundland and North Sea cod populations, signals of warning, critical limit of extinction.

- contemporary fishing; economic and social importance, catches, methods, sustainability, markets.

- international conventions; economic politics, interest groups, stakeholders, negotiations, agreements, lobbyism.

- consumers influence; boycotts, ethics, comparable situations and actions.

Participating students from different countries will be grouped together and assigned to a studying theme on which they are expected to present facts, viewpoints and ideas. This work will be scheduled to various and different timed du-

ring the week and it will be led by the students from Nacka Gymnasium who designed and equipped the web sites. The results from all nine studies will be summarized in a conclusive form.

The groups of students will also be assigned to give voice to the last shoal of cod in the Baltic Sea through nine different artistic expressions and performances. This creative work will also be scheduled to various and different times during the week and led by personnel from Nacka Gymnasium and it will hopefully result in a concluding cultural event.

The artistic expressions forms will be art/painting, sculpture, photography, film/video, dance, drama, music/song, poetry and writing/short story.

During times in between these major activities there will be opportunities to listen to lectures by experts and to participate in educational visits and tours. And there will time to socialize and have a good time together.

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'THE BALTIC SEA PROJECT' IN SECONDARY SCHOOL 47 IN WARSAW

I have always been close to nature. I used to live in Powsin a beautiful place next to Kabacki Forest. My family and I often used to visit a nearby botanical garden, we loved long walks in the forest too. This is why, when we had to move to Bemowo - a big modern district in the north of Warsaw - I was not very happy about it. Fortunately it turned out that my

new flat was quite near another large forest - Puszcza Kampinowska. The flat is big and comfortable and the fact that the area is green makes me a happy girl. I am a student of class 1a in Secondary School 47. I have chosen this school as it has an interesting environmental program.

One day our computer studies teacher Mr. M. Wąsowski told us

that our school had joined an international ecological project: The Baltic Sea Project and asked whether my class would like to take part. Together with our class teacher Mrs. A. Smosarska (biology teacher) we decided to join the project. Other teachers joined as well: Mrs. J. Sakiewicz - geography teacher, Mrs. M. Kokowska - computer studies teacher and



Miss A. Latuszek - English teacher.

Considering our school and local needs and possibilities we have chosen to work on Environmental History - precisely on the history of compost near Puszcza Kampinowska.

Air Quality - we intend to examine the quality of air in Warsaw using the lichen method.

Rivers we are going to study the quality of water in Vistula River.

Although we are working in three separate groups we cooperate a lot.

Each team worked out its own program and schedule. Air Quality team intends to:

- recognize various kinds of lichen on tree barks
- study the level of pollution of the air with dust
- state the acidity of rainfalls
- specify the causes of the air pollutions
- point to different ways of limiting the pollution
- the influence of traffic on the quality of air
- cooperate with the professional stations examining the quality of air

Rivers team is going to:

- work on bioindicators of the level of water pollution
- examine water ecosystems
- analyze the causes of pollutions
- examine the chemical composition of water

Environmental History team is going to:

- study recycling- especially the history of Warszawa- Radiowo Recycling Plant



- research segregation of rubbish in the district we live in

Each team prepared maps and special forms to note down the results of the research.

We analyze the data in chemistry lab in our school and during our computer studies class we work on presentation of the results (reports).

The Air Quality team chose to examine - areas near our school - Bielański Forest and Moczydło Park. They discovered that air in our district is polluted - 2nd and 3rd level on biological scale. Our school is located near a busy street. The research was carried out in

November and December and it will be repeated in late April and May. The Environmental History team found out that people living in Warsaw produce 530 tons of rubbish every day.

1/5 is recycled, 1/6 is burned and the rest is waste.

All we do 'The Baltic Sea Project' is very interesting. The research we do make us more aware of how to be environmentally friendly.

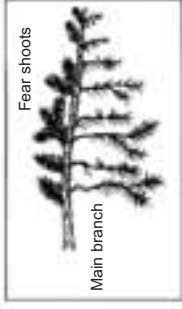
Małgorzata Dziuba kl. 1a

Teacher: Mr. Marek Wąsowski

Teacher: Mrs. Alina Smosarska
Secondary School 47 in Warsaw, Poland

3. FEAR SHOOTS

Note the occurrence of fear shoots on 20 branches of each of your studied trees using scale: none = 1 (0-4 branches), occur = 3 (5-9 branches), common = 3 (10+20 branches)



II LICHENS

EXAMINE THE OCCURRENCE OF LICHENS ON 5 TREES OF THE SAME SPECIES

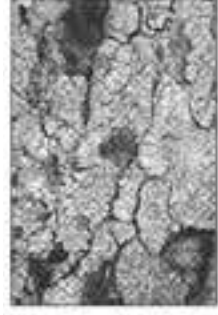
The studied tree should:

- grow not far from one another, but not in the shadow of other trees
- have straight, not slant, stems
- be approximately of equal thickness (diameter at least 45 cm), i.e. roughly the same age
- should have no shadowing branches below the height of 3 meters
- not grow near open water and too close to a road
- without disease or seeing damages

If you suspect that the air is strong polluted, carry out your investigation on rich bark species such as ash (*Fraxinus* sp.), elm (*Ulmus* sp.), linden (*Tilia* sp.), aspen (*Populus tremula*) or maple (*Acer* sp.). Otherwise, there is a risk that you will not find any lichen at all.

1. COUNTING THE NUMBER OF KINDS OF DIFFERENT TYPES OF LICHEN

- Count the number of lichen kinds (species, genus) of the three different types – crustose, foliose, fruticose (compare with figure below) on each tree, all the way round the stem of the tree from 0.5 to 1.5 meters above the ground.



Lecanora conizaeoides

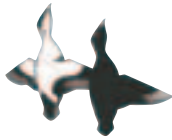


Crut lichen are flat and grow close to the base. *Lecanora* sp. and *Pertusaria* are examples of this type.



Leaf lichen fasten to the base with hypae-like threads. *Hypogymnia physodes*, *Parmelopsis ambigua*, *Platismatia glauca* belong to this group.

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ESTIMATION OF AIR QUALITY USING BIOINDICATORS

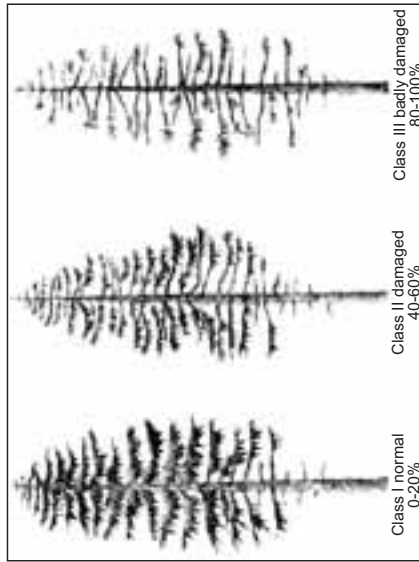
Test: condition of fir trees, lichens, tar spot fungus - methods

I FIR TREES

The investigation is conducted on 10 fully-grown fir trees. If fir is not available use spruce or pine.

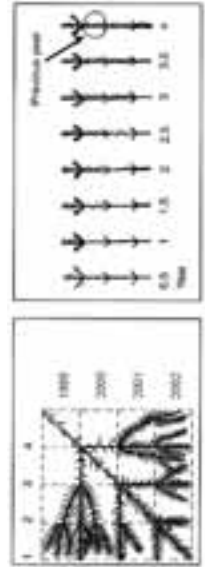
1. NEEDLE LOSSES

Compare with the figures below and try to classify each tree in one of the three categories.



2. AGE OF NEEDLES ON A BRANCH (GENERATIONS OF NEEDLES)

Use the figures to help you to determine the number of generations of needles on the 10 trees you are investigating.



III TAR SPOT FUNGUS (RHYTISMA ACERINUM)

EXAMINE THE OCCURRENCE OF THE TAR SPOT FUNGUS ON MAPLE TREES

Tar spot fungus (*Rhytisma acerinum*) is a pathogen of the maple trees, especially sycamore maple (*Acer pseudoplatanus*), norway maple (*Acer platanoides*) and silver maple (*Acer saccharinum*). The tar-like spot is a fruiting structure of the fungus that survives the winter on fallen leaves. Fortunately, tar spot does not cause serious harm to established trees. It is also intolerant to air pollution, so it can be used as bioindicator.



Tar spot on norway maple leaf

- Examine the occurrence of the black globular spots on 10 fallen leaves (in the autumn) of each 5-maple tree, not growing so close to each other, if possible in different part of your locality. Lack of spot shows that air is polluted.
- Assess the air quality using the scale below. Zone 1 represents highly polluted air, zone 4 unpolluted air.

Zone	Occurrence of tar spots
1	No spots at all.
2	Only leaves (some or all) of 1 tree have black spots.
3	Leaves of 2-4 trees have black spots.
4	Black spots occur on leaves of each tree.



Usnea biria

Bush lichen have a bushy body and are attached to the base at a single point. *Bryoria capillaris*, *Usnea filipendula* and *Pseudovernia furfuracea* are examples of bush lichen.

- Assess the air quality using the scale below. Zone 1 represents highly polluted air, zone 4 virtually unpolluted air.

Zone	Occurrence of lichen
1	No lichens at all.
2	Only some lichens survive - mainly crustose on the lower trunks and a few foliose lichens such as <i>Xanthoria parietina</i>
3	Both crustose and foliose are found in roughly the same number. Among others <i>Hypogymnia physodes</i> begins to be found on the tree trunks
4	Also fruticose begins to be found such as <i>Usnea</i> sp., <i>Ramalina</i> sp., <i>Bryoria</i> sp.

2. DETERMINING THE DEGREE OF COVERAGE OF THE LICHENS

- Study the coverage in % of all types of lichen – crustose, foliose and fruticose – all the way around the trunk of each tree.
- Find a place on the trunk where there is a substantial lichen growth, about 1.3 metres above the ground and place transparent paper divided into squares, to the trunk. On the paper mark the coverage of varied types lichen using a different coloured felt-tipped pens. Count the squares where you find the lichen within the bounds of the squared paper. Make the test on both sides of the trunk. Try to determine the percentage of coverage of each lichen group.
- Register the results in the table.
- Assess the pollution zone of each investigation site according to the following:

Zone	Coverage of the lichens in %
1	0
2	Less than 25
3	Between 25-35
4	35 and more



The Baltic Sea Project

ESTIMATION OF AIR QUALITY USING BIOINDICATORS

Test: condition of fir trees, lichens, tar spot fungus – protocol to be sent to co-ordinator

Date School

Teacher Class/Group

Address

Natural conditions and topographical situation (coastal, inland, mountain, plain)

Possible local source of pollution

I Fir trees

1, 2, 3. Investigating forest damage in fir trees

Name of the tree (fir, spruce or pine)

Tree no.	1	2	3	4	5	6	7	8	9	10	Mean value
1. Needle loss class (1, 2, 3)											
2. No. generations of needles											
3. Occurrence of fear shoots (1, 2, 3)											

II Lichens

1. Counting the number of kinds of different types of lichen

Name of the tree (English or Latin name)

Tree no.	No. kinds of crustose lichens	No. kinds of foliose lichens	No. kinds of fructicose lichens	Zone
1				
2				
3				
4				
5				
				Mean value zone:

2. Determining the degree of coverage of the lichen

Name of the tree (English or Latin name)

Tree no.	Coverage of crustose lichen in %	Coverage of foliose lichen in %	Coverage of fructicose lichen in %	Total coverage of the whole overhead film in %
1				
2				
3				
4				
5				
Mean value :				
Zone :				

III. Tar Spot Fungus

Name of the maple tree (English or Latin name)

Zone

IV. Discussion of the result and the state of the air on a separate paper.

AIR QUALITY IN OLSZTYN (POLAND)

In spring 2003 the research into cleanness of the air was carried out on six different cemeteries which are located in different parts of Olsztyn. From each cemetery a few trees were chosen and the specific composition of the lichens that covered those trees was researched. The lichens were found mainly on deciduous trees, seldom and in less quantities on coniferous trees and birches. Species like: *Lecanora* sp., *Lepraria* sp., *Hypogymnia physodes* (L.), *Physcia tenella* (Scop.), *Parmelia sulcata*, *Xanthoria* sp. (L.) were found in each area. Most of the cemeteries fructose lichen *Evernia prunastri* was found. The achieved results classify this air to third zone of settled scale made by BSP. The SO₂ concentration in the air measured

70 mg/m³ on the Hawksworth and Rose's lichen scale. The least SO₂ concentration resistant species were found on the



cemetery in Gutkowo. This is the western area of the city centre. Such a situation appears because of majority of western winds, which bring all pollution to the east. At the cemetery at Sielska street (Dajtki) only crustose and foliose lichens were found and in

less quantities. It shows that the area is heavily polluted with sulphur dioxide. Detached houses are main emitters of SO₂ in this area. For heating the house the inhabitants use materials, which contain sulphur. Our research results overcup the results of the research which was carried out by Wojewódzki Inspektorat Ochrony Środowiska w Olsztynie.

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ENVIRONMENTAL HISTORY WORKSHOP

- REPORT AND EVALUATION

The Workshop took place in Jan III Sobieski Castle in Rzucewo from 16 October – 19 October 2003. Thirty eight teachers from twenty five BSP Schools participated in the Conference. One of the three topics covered during the Conference was Environmental History (EH) which meant to prepare and encourage teachers to start working on the project.

Environmental History Workshop was prepared and led by Mrs. Katarzyna Zabicka. The workshop was divided into three parts. First part dealt with the subject of studies of EH. Second part covered both methodology of preparing BSP project in general and EH. Third part was the practical usage of the knowledge we acquired. In the meantime "Learners' Guide no.5 Baltic 21" was introduced to the participants. Practical part meant dividing each group into subgroups according to the type of school teachers were working in. The aim that each team faced was to create an example outline of the future project based on EH.

Demands for team work were:

- find local problem/conflict
- determine the field of problem
- define the field of research
- demands to the product
- define the fields of study
- prepare timetable
- presentation
- connection(s) to the national curriculum.

After hard and longitudinal work teams worked out the following ideas for projects:

- Primary Schools: Dogs in big cities, Pollution caused by industry in our area,
- Lower Secondary School: Results of feeding swans in Kolobrzeg, Garbage in households,
- Upper Secondary School: Eutro-

phication of lakes, Revitalisation of rivers, Supermarkets versus small shops.

We decided to present one of projects from Upper Secondary School:

1. The aim of the project: Improvement of water quality of the river:

- recognition of river water condition – present,
- determining of sources of degradation – past and present,
- looking for a way of improving river water quality for the future generations,



Jolanta Mol and Anna Strykowska

2. The field of research: the impact of urbanized areas on biodiversity, physical and chemical characteristics of river water (smell, look, extinction of life in water, lack of birds, contamination of water, protests of society).

3. Demands to the products:

- participation of teachers of chemistry, biology, geography, history, English, German, Computer Studies,
- several outdoor activities,
- using of different sources of information: data searching, data selection, data processing,

4. Fields of study: analysing of water quality, interpretation of results,

5. Timetable:

- Week 1 - 3: preparatory work, cre-

ating group, finding the problem/conflict,

- Week 4 - 6: making a list of activities for students and for teachers,
 - Week 7 - 27: research, looking for information sources in connection with history of the problem, processing of results, analysing and segregation of information, preparing of presentation, translating, multimedia processing,
6. Presentation,
7. Connection(s) to the national curriculum: biology, chemistry, ecological path, geography, history, foreign languages.

All projects presented above are either in progress or are to be started.

Feedback:

Participants felt that during the workshop they had the opportunity to:

- enrich their knowledge of how to work on BSP projects,
- systemize their information about Environmental History,
- get interested in EH,
- be prepared to work with project on EH,

- exchange knowledge and experience of their up until now work.

Conclusions for the future work were that seminars should be:

- more specific due to being general they lack time for thorough presentation of each and every theme
- organized more often – at least twice a year.

Polish team:

Anna Adamczyk
 Michal Augusiak
 Elzbieta Grzybek
 Iwona Konopnicka-Juszczak
 Agnieszka Machalska
 Dorota Mroz
 Barbara Tokarska
 Katarzyna Zabicka

LEARNING FROM ENVIRONMENTAL HISTORY IN THE BALTIC COUNTRIES

In May a new book, number six in the Baltic Sea Projects Learners Guide series, will appear - *Learning from Environmental History in the Baltic Countries*.

Environmental History has been a programme in the Baltic Sea Project since 1995. We have developed a special approach to investigations of peoples' relationship to nature in the past. Words such as "conflicts", "chronology" and "actors" have been used frequently. Our main goal is not better historical knowledge per se. It is rather that the students are able to develop an "action-competence" by discovering that their present environmental situation is the result of what real, once living, people have done in the past. We can summarise and generalise what these people did in processes such as "industrialisation" or "urbanisation". However it is still a matter of what real people, of flesh and blood so to say, did in our own home-town. When they made decisions about the future, they decided over our present situation. And this is just what we do today. We are the history for the people coming after us. In this sense we are created by history and we ourselves create history. When we talk about our common environment this is quite obvious.

Start from contemporary questions

When students raise contemporary questions and then go on to work with the history of the physical artifacts in their own local society, they can understand how and why they were built. When students work with the creation of industrial landscapes in Norrköping and Gelsenkirchen, they can understand the changes that industrialisation brought to real people a hundred years

ago. But these changes were of different kinds for different groups. This was discovered by the students at Kungsholmen who studied the building of the sanitation system in Stockholm in the late 1800s and its impact on water borne diseases and mortality. Some groups benefited from the changes brought about by industrialisation, others did not.

Investigate conflicts

Consequently conflicts arose. How can we see the traces of these conflicts between different groups in our society today? When students work with the oil-shale industry in Kohtla-Järve or the changing natural environment in the coal-mining area of Katowice, they can understand that the use of our natural resources gives rise to conflicts. But conflicts may also evolve out of the way in which we use our natural heritage as a source of history, a typical conflict between cultural conservation and environmental protection. This conflict was investigated in the famous Nydam moor outside Sönderborg.

Use chronology

When studying these changes and conflicts, it is important to use chronology. An explanation of the causes and effects of different changes has to be accompanied by an analysis of the impact of political and economic events outside our own local society. When students studied the changing use of the natural environment in a local farm in Vecpiebalga chronologically over a period of 120 years, they understood the connections to the major political changes that took place during the same period in this area. It is evident from the landscape that these political chan-

ges impacted on the natural environment. This was also understood by the young children in Maštaiciai who discovered that there was only one old oak in their forest surrounded by younger trees. They also used their knowledge outside school when they carried out an inventory of similar old trees in other forests in the neighbourhood, in order to push for their protection.

Networking for environment

Networking is the basic principle in the Baltic Sea project. The argument here is that by studying similar things in different places and then comparing the results you can discover new features and draw new conclusions. This is also the most important challenge for the Environmental History programme in the BSP. A good example of this approach is the study of the fresh water pearl mussel in Pedersöre and the students cooperation with students in Hudiksvall. When they compared their results, they were able to draw new conclusions about their own situation.

Environmental history and historical consciousness

When we try to understand our present environmental problems, we interpret what has happened in the past. Today we are aware that these problems are not only accidents caused by lack of knowledge or disregard. They are structural and built into the systems and therefore a product of our history. We must interpret the past, to understand the present in order to develop a competence for future action. This is usually called historical consciousness. That is why we work with environmental history in education.

LEARNING FROM ENVIRONMENTAL HISTORY

What?

Students working with environmental history start from current environmental questions

- they don't study the past independent from the present

Students working with environmental history start from conflicts about the environment

- they are thereby able to avoid both a one sided natural science, as well as a moralistic, perspective

Students working with environmental history start with studies of the local environment in order to draw conclusions about other areas from their results

- they don't start with the great trends in world history in order to illustrate them on a local scale

How?

Students working with environmental history can accomplish practical results

- they don't only use their results inside the school but present them to the community in order to change the situation

Students working with environmental history use chronology as an important tool both in explanations and in narratives

- they are consequently able to avoid treating questions as "eternal" and without any historical context

Why?

Students working with environmental history have a perspective of the future that allows them to develop a competence for future action

- they are not just satisfied with a better understanding of the present situation



Multitude of approaches

The book contains examples taken from school projects concerning environment and history carried out in the nine countries around the Baltic Sea. They are very different and mirror the complexities inherent in our perceptions of environment and history. Some of them lean towards existential values, working with local history and environment as a part of the students' identity. Some of them are more directed towards natural science, starting with investigations of pollution and the biology of certain

species. Some have a very clear social history perspective while others adopt a political or economic historical perspective. Each of the different projects starts with a short introduction, offering suggestions as to how the article in question could be related to the concept of environmental history.

The goal - competence for future action.

Our ambition in the Environmental History programme in the Baltic Sea Project has never been to force schools to carry out uniform pro-

jects, but to encourage networking and diversity. At the same time however, we have tried to encourage certain concepts of environmental history in practical use. This is because we are convinced that this concept, used in different ways, will help our students to achieve our goal - to develop a competence for future action.

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THE HISTORY OF THE AREA

KOŚCIUSZKO IRON PLANT (POLAND)

Katowice agglomeration is the area lying in the central part of Silesia. It is 1237 km² with a population of 2.1 mln. It is a poliocentric conurbation including several towns with industrial origins. The present shape of Katowice agglomeration is the result of intensive industrial processes and dynamic urbanization, dating from the beginning of the 19th century. Katowice agglomeration is the only area of this type in Poland, where on relatively small area there is a big concentration of industry. The towns which form Katowice agglomeration are: Będzin, Bytom, **Chorzów**, Czeładź, Dąbrowa Górnicza, Jaworzno, Katowice, Knurów, Mysłowice, Piekary Śląskie, Ruda Śląska, Siemianowice Śląskie, Sosnowiec and Zabrze. All these towns comprise on so called Upper Silesian Industrial Area (GOP). In the center of this agglomeration lies Chorzów the town which was called Królewska Huta. (Royal Factory) in the past. Chorzów one of the biggest towns of Black Silesia, lies in the central part in the north of Upper Silesia.

The most important water structure is the Rawa, running through the southern part of the town. It is about 12 km long. The average annual temperature in Chorzów is 7,7 st. C. The annual rainfall is about 730 mm. The winds usually blow from south – west. The sun shines about 4 hours a day on average, and there are about 100 sunless days in a year. The pollution from industrial plants affects the climate in a negative way. The soils appearing in the Chorzów area are connected with ice formations. They are rather poor within Cho-



rzów itself. The air is intensively exploited mainly by the industry. The history of the area where Kościuszko ironworks were built goes back to the Medieval Ages when the surroundings of today's Chorzów were the part belonging to the Vistulans. Since then the land changed hands and rulers until it was destroyed by the Tatars. Only then, in 1257 it was decided that the village should be rebuilt and populated again. In the 13th century farmer's resurrections opened the way for development of industry. Rich and easy to explore resources of coal, as well as progress in mining technologies started investment and quick profits. In 1822 the Royal Factory (as it was then called) was opened).

In 1822 the first mining settlement was founded and named Royal Factory.

The I World War stopped further development of the town. In the years 1797-1802 the factory was the largest ironworks in Europe. The settlement which was built next to it had 110 houses and 778 inhabitants in the year 1840. The

industrial development was really fast. The settlement grew larger and finally Chorzów received township rights. In 1870 there were 19000 inhabitants. After 1945 the industrial plants were developed and new housing estates were built together with shopping facilities, services and cultural facilities. In the 60's, thanks to Mr. Ziętek, a huge park of 600 ha was built, which serves as a recreational area both for Chorzów and Katowice until now. The town of Chorzów can be proud of beautiful historic buildings, especially those which come from the first half of the 19th century and from the period of secession. Royal Factory, today called Kościuszko, was the second biggest and most modern in Upper Silesia as well as in Europe, was exceptionally useful during the Napoleonic wars for Prussia. It supplied the Prussian army with guns and bullets. Since 1830 the factory was at its best and especially one man, the factory inspector Mr. Eck, overcame many difficulties by making new inventions and improvements.



The years 1858-1861 brought crisis in mining and iron industry and Kościuszko ironworks was not an exception. In 1871 Shareholding Society is founded in Berlin and the plant has its revival. The plant produced elements for bridges, railway carriages and iron constructions in many of its specialized parts. During the war the factory started producing wheels what became useful after the war when the plant received many profitable orders. Between the wars the factory was being

modernized and newly equipped. In some parts of the factory production had doubled. Kościuszko ironworks had a great influence on the rebuilding of the country after the war. Again in 1945 it is modernized and reconstructed to suit the needs of the hard times. With the help of Soviet Union and Czechoslovakia two new fully, automatized, furnaces are installed. This strengthens the position of the factory and its role in the development of Polish industry.

derwent the necessary reconstruction what found approval of all the authorities responsible for the well - being of the region. Since 1994 the inhabitants have not complained about the pollutions emitted by the factory. In the year 2000 the factory was divided into two separate plants: Kościuszko and Royal. The Royal factory is solely productive plant, whereas Kościuszko deals with renovations and media supply. The changes which took place in the 90s mean that water is polluted by communal wastes rather than industrial activity of the factory. The improvement of the ecological, industrial and social situation is the condition which the region of Katowice agglomeration has to fulfill in order to become a real member of the European Union.



Kościuszko Ironworks exports its products to 20 countries. The industrial development of this region brings bigger and bigger numbers of workers to Silesia what in consequence begins to change the existing workers settlements into big towns. The factory is 200 years old. In 1989 it was put on a list of 80 most polluting organisms in the country. In the years 1989-1995 it un-

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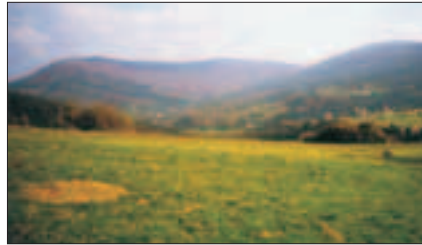
LANDSCAPE PARK OF THE BESKID OF MYŚLENICE

During the tenth conference of the Polish schools BSP UNESCO, which took place from 16th to 19th of October 2003 in Rzućwie near Gdańsk, we joined the Environmental history programme with a complete project, which is aimed at establishing a landscape park in the surrounding area of Myślenice.

The Beskid of Myślenice, which includes four mountain ranges: the Barnasiówka, the Babica, the Koskowa mountain and the Lubomir and Łysina range, is full of unique landscape qualities. The landscape mainly consists of the qualities of living nature (among others; a large number of vascular plant species, forests, fallow-deer), qualities of inanimate nature (among others; sandstone monadnocks, called the Devil's Stones), qualities of cultural environment (among others; cemeteries from the First World War, wooden monuments – churches, manor-houses, a synagogue). It is observed that natural environment has been considerably devastated by many negative factors caused by the growing tourist commotion (among others; more and more litter is found in the uppermost and dorsal areas of the mountains, disadvantageous influence of the natural calamity area – Cracow agglomeration, proximity of the currently modernised Cracow-Chyżne highway which causes the contamination of soil with heavy metal compounds, the considerable increase of noise, excessive deforestation and chaotic summer-resort development of building grounds in the well-head areas of rivers and springs. The final result of this is the sewage contamination of the last sources of drinking water.

It is not our goal to close the Be-

skid of Myślenice. We believe that it should be more accessible to people who search for active rest and for average tourists (pedestrians, cyclists). The postulate to introduce protection – through establishing a landscape park – also involves launching resources in order to create a particular tourist and recreation infrastructure (parking lots, camping-sites with sanitary authorities, information boards, a web of routes for cycling, and backpacking with antirust surfaces, skiing tracks on the Chełm mountain and service-gastronomy base of supplies, scenic points on



the highest mountain of Lubomir, pavilions with regional publications, periodic folk and touring ventures. Every tourist or a holiday-maker shall be a welcome guest in this park – the nature, which is going to be aided without damaging the already impoverished substance shall be the host itself.

Our initiative has been supported by the municipal authorities. The mayor of Myślenice addressed a proper appeal to all involved parishes: Pcim, Tokarnia, Wiśniowa, Lubień, Sułkowice, Dobczyce. Only three of them answered by sending their opinions to Myślenice. Here are their excerpts:

The Department of the Administration of the Pcim Parish informs that the project of establishing a landscape park has been presented, in order to get an opinion, to the Commission of Agriculture Forestry and Environmental Protection of the Pcim Town

Council. The project was also presented during rural conferences – the attitude of the inhabitants and Commission was negative.

Wiśniowa Parish: (...) currently we cannot assume an attitude towards establishing of the landscape park of The Beskid of Myślenice, because it requires direct consultation with the inhabitants during rural conferences.

Sułkowice Parish: (...) the plan of establishing the landscape park of The Beskid of Myślenice is a great idea and it has our Parish's full support. In the times of high degradation of the natural environment separation of the area that includes unique natural, culture and historical qualities will allow us to break away from grim reality and enjoy the treasures of the nature to the full.

Currently, after administrative changes in our country, the whole of the landscape park, which is now being designed now, lies within the borders of administrative district of Myślenice. However adequate decisions are up to the province administration. It cannot be however one-man decision of the voivode currently holding an office.

More consultations with the inhabitants and the involved parishes should take place. A special plenipotentiary for the matter of the landscape park should be appointed in order to take over activities that so far have been run by Myślenice parish, and he also should be a causative factor of further pronouncements in this matter.

Special attention should be drawn to the management, tourist and recreational utilisation. A very interesting outlook is unfolding here especially in the context of ecotourism and agrotourism which are very popular all over the world now.

The first can be defined as a few-day or even a few-hour excursions, of small groups of tourists that are interested in the observation of the wildlife, into the country. The second is a traditional and very well known form of holiday modified only in the area of financing or self-financing, because inhabitants of cities pay for their accommodation in the country helping their hosts with the harvest or potato lifting. The most important directions of the development of the park – apart from ecotourism and agrotourism – are exploitation of the forest resources, hunting, fishing, healthy food

production, artistic craft, handicraft and art. Soon it may become the main source of income for the local inhabitants.

I believe that the Parishes of the re-



born administrative district of Myślenice can afford a decision thanks to which our grandchildren and our grand grandchildren will be

able to admire the mountains of Myślenice not only in the virtual reality of old photographs, but using modern technologies of environmental protection in a natural form. We hope that after the publication of this short text in the BSP bulletin, our parishes from the administrative district of Myślenice will be able to afford a decision.

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POLISH MATCH FACTORY IN CZĘSTOCHOWA

The match factory is situated not far away from the center near the railway track Warsaw – Vienna. It is the oldest factory in Częstochowa founded in 1882.

From 1882 to 1902 an enormous growth of production was observed. This was caused by favorable conditions such as: growing demand for safety matches, lack of competitive factories and tsarist authorities policy aiming to the development of match production.

In the 1884 the match factory gave the jobs to 7,51 percentage of people in the whole Częstochowa's district.

In the year 1913 The Match Factory in Częstochowa was damaged by the fire. Then it was modernized and adapted to modern production. In the interwar period the extent of production depended on the outlet and owners' policy. Matches of Częstochowa could have been purchased in the whole country. But they were also exported to Germany, Russia, the Netherlands, France, Belgium and Balkans. Before the First World

War the factory was one of the mills with the highest number of workmen in Częstochowa. In the first year of the First World War mill was producing commodity using reserves placed in warehouses. When the reserves run out, the factory stopped functioning.

The production was started again in 1919. Thorough repairs were made and in 1920 the match factory gave job to 600 people, mainly women.

In the thirties the factory extended the assortment of matches.

To common white matches (48 matches a box) joined white impregnated and luxury matches (packed 43 a box). In 1937 factory started producing red impregnated matches and illustrated ones.

The difference between them was the size and the colour of substance used to striking matches.

During the Second World War the greatest growth of production occurred, because the match factory was producing huge orders to army and German administration.

So, the war didn't affect the situation of The Match Factory in Czę-

stochowa in any serious way and 250 people were working there.

Nowadays production process in the Match Factory in Częstochowa looks approximately in the following way: aspen tree trunk is unloaded at loading platform, after this the bark is removed and the machines cut wood into short blocks. Blocks are sliced and transformed into sticks.

Afterwards they are impregnated, dried, polished and classified. Later sticks go to the automatic machine, which parafines the sticks' endings and dips it in matchmass, to form the head of the match. After drying the match is ready. Boxes are made of cardboard. Reams of cardboard are cut by the latest machine, which gives them a box shape, prints the labels and covers the sides with red phosphate.

At present in the factory employs staff of 100 people.

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BIRDS OF UPPER SILESIA – POLAND

Upper Silesia is a region of South Poland with a population of over 3 million. The biggest city of the region is Katowice, with its thousands inhabitants. This part of my country is usually associated with highly polluting industry like coal mines an ecological disaster and steel factories which caused during the last decades. In this work I want to present another face of Upper Silesia. Apart from the industrialized terrains, the region provides good habitat for many rare kinds of birds. Over 300 species were observed here (over 70% stated in Poland), from which about 200 kinds are nesting.

One of the most important, from the ornithological point of view, places of the Upper Silesia are fish ponds situated in the Valley of Upper Vistula, the longest Polish river. Disappearance of natural water-marshy areas and swamps, caused mainly by the drain age process, has led to the loss of many natural bird habitats in Poland and all over Europe. In this situation the mentioned complex of fish ponds has a significant meaning for various rare water bird species and has become an important place of their breeding and stops during spring and autumn migrations. The Valley of the Upper Vistula comprises 130 thousands ha, 8% of the area are water reservoirs. There are 80 complexes of fish ponds and big Goczałkowice water reservoir (3200 ha), where birds find good conditions. Species endangered in Europe, nest here quite commonly: Red-necked Grebe (*Podiceps grise-gena*), (it is estimated that at least 1% of European population nest here), Bittern (*Botaurus stellaris*), Little Bittern (*Ixobrychus minutus*), Redshank (*Tringa totanus*), Whiskered Tern (*Chlidonias hybridus*), Night Heron (*Nycticorax nyctico-*

rax) (almost all Polish population), Little Crack (*Porzana parva*), Ferruginous Duck (*Aythya nyroca*). Last summer a bird sensation was nesting of Avocet (*Recurvirostra avo-setta*) on the Goczałkowice reservoir. You can also see White-tailed Eagle (*Haliaeetus albicilla*) and many other predators gratefully sailing on the sky: Honey Buzzard (*Pernis apivorus*), Sparrowhawk (*Accipiter nisus*) or Marsh Harrier (*Circus aeruginosus*) Birds prefer the Valley of the Upper Vistula, because of an abundance of food and good nesting places. To protect, this important for all Europe area, a sensible fish farming and cooperation between fishermen and ornithologists are needed.

In the agriculture areas of Upper Silesia you can also find interesting kinds of birds. Open terrains with groups of bushes and trees are favoured by Shrikes (*Lanius*). Its European population quickly decreases. Red-backed Shrike (*Lanius collurio*) and the biggest shrike — Great Grey Shrike (*Lanius Excubitor*) are stated as breeding species. Two others, Woodchat Shrike (*Lanius senator*) and Lesser Grey Ghrike (*Lanius minor*) are extremely scarcely met. Agriculture in Upper Silesia is mostly extensive what is conducive to a lot of species e.g.: Whitethroat (*Sylvia communis*), Pheasant (*Phasianus colchicus*), Partridge (*Perdix perdix*), Kestrel (*Falco tinnunculus*). Noteworthy is the high population of Buzzard (*Buteo buteo*), what is a result of protecting activities taken in the second half of 20th century. Buzzards play an important role in limiting population of numerous rodents.

Next area that provides great conditions for birds is the Beskidy Mountains. These medium high, but wooded mountains border

with Upper Silesia from the South. The vast, virgin forests are shelter for such endangered species like Capercaillie (*Tetrao urogallus*) and Black Grouse (*Tetrao tetrix*). Drumming of woodpeckers can be often beheard among forest silence: Black Woodpecker (*Dryocopus martius*), Grey-headed Woodpecker (*Picus canus*), Great Spotted Woodpecker (*Dendrocopos major*) and a specially interesting and rare Three-toed Woodpecker (*Picoides triadactylus*). Grey Wagtail (*Motacilla cinerea*) and Dipper (*Cinclus cinclus*) live in turbulent mountain rivers.

Upper Silesia is one of the regions in Poland where changes to the environment, introduced by man, are most advanced, but during last 10 years situation the become much better. Emission of toxic sulfur dioxide (SO₂) and heavy metals has been significantly reduced and many activities protecting the environment hae been taken. The great diversity of habitats make Upper Silesia an area, which is worth special care. There is a need of further efforts aiming to maintain the situation of reasonable equilibrium between the economical development and saving of the biodiversity.

The Mentioned birds form only a small part of species you can observe in Upper Silesia. Many of them have already died out in other regions of Europe.

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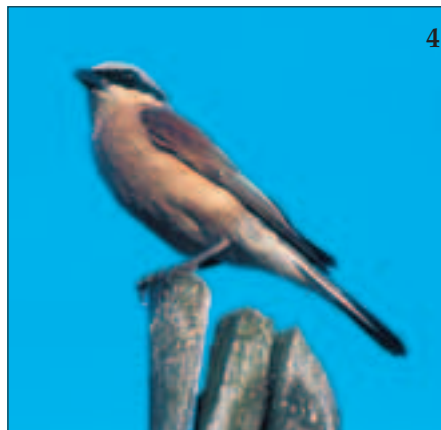


Photo captions:

1. Buzzard (*Buteo buteo*)
2. Whitethroat (*Sylvia communis*)
3. Great Spotted Woodpecker (*Dendrocopos major*)
4. Red-backed Shrike male (*Lanius collurio*)
5. Grey Wagtail (*Motacilla cinerea*)
6. Yellowhammer (*Emberiza citrinella*)
7. Mute swan (*Cygnus olor*)

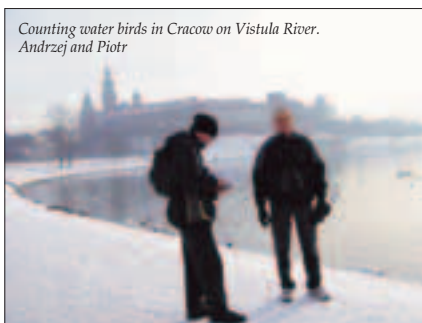
All photos by Krzysztof Szade



FROM STORKS COUNTING TO BSP

School Ornithological Club "IBIS" from Miechów, Poland.

Our main task since the year 2000 has been counting young white storks in their nests. The White stork *Ciconia ciconia* is a permanent element of Poland's picture and typical feature of agricultural landscape. According to information provided by Polish Association of the Friends of Nature "pro Natura" Polish population of storks is estimated at more than 40 000 pairs. They favour north-eastern Poland where population density varies from 20 to more than 40 pairs per 100 square kilometres. In our region- southern Poland the density is much lower and varies from 0 to 10 pairs. In the year 2000 we checked 25 nests, in 2001 it was 47, in 2002 it was 42 and in 2003 again 47. Some nests were abandoned, in some of them there were no young storks so the average amount of young storks from the nests with the hatch were respectively: 3 ; 2.2 ; 2.6 and 2.8.



Counting water birds in Cracow on Vistula River.
Andrzej and Piotr

We also count birds every autumn on their way to wintering areas, as a part of international counting, organised by BirdLife International. In the year 2002 we noticed 1800 birds from 60 species. The rarities were: Great white egret – *Egretta alba*, Little stint – *Calidris minuta* and Wigeon – *Anas penelope*. In the year 2003 we observed 2537 birds from 56 species. That time rarities were 40 individuals of Curlew – *Numenius arquata*, Grey plover – *Pluvialis squatarola* and Pintail – *Anas acuta*. Every year we count

birds on the fish ponds in Nadniziański Landscape Park, which are situated near the medieval town of Wiślica 60 kilometres from Miechów. Last year we started the water bird studies in our region as a part of BSP programme – Bird Ecology. We did our midwinter counting as well as spring counting. The first one took place in Cracow, on the Vistula River. It was on 11th of January. The weather was perfect, 12 degrees below zero, sun was shining and the visibility was good. We covered the distance of approximately 7 kilometres and 3264 birds were counted, mostly Black-headed gulls – *Larus ridibundus*, Mallards – *Anas platyrhynchos* and Mute swans – *Cygnus olor*. Birds were fed by the Cracow's citizens. Rarities were a pair of Goosander – *Mergus merganser*, two males of Scoup – *Aythya marila* and male of Mandarin duck – *Aix galericulata* which probably had escaped from the ZOO.



The second one was on 11th of May on the fish ponds. Among many common species were two very rare. The first one was Shelduck – *Tadorna tadorna* which population in Poland is estimated at 120 – 140 pairs. We saw only a male, so we are not sure whether they are breeding there or not. The second one was Red-crested pochard – *Netta rufina* which population in Poland, according to "Polish Red Data Book of Animals", is estimated at 15 – 20 pairs. One pair breeds on these ponds. In April nests colonies of Rook- *Corvus frugilegus* were counted. This bird is an indicator of agricultural landscape. Our joining the European Community will be connected with higher use of fertilizers, weed-

killers and insects exterminants. That's why it was so important to count all colonies earlier. We found in our area 13 colonies with 763 nests.

On 31st of January we were counting again wintering water birds in Cracow on Vistula River. This year the weather conditions were not as severe as they were last year. The river wasn't covered with ice at all and the air temperature was higher. Most winters fish ponds and dam-reservoirs freeze up. As a result, such water bodies are suitable only for irregular wintering. The main exception is Vistula River which generally doesn't freeze up, especially the urban part in Cracow. This time the number of birds observed was lower, because other water bodies were also free from ice. 1897 birds were counted, mostly Black-headed gulls – *Larus ridibundus* - 605, Mallards – *Anas platyrhynchos* - 530 and Mute swans – *Cygnus olor* - 439. Some of them had yellow neckbands.



Birds were fed as usual by the Cracow's citizens. Rarities were a group of thirty Cormorants – *Phalacrocorax carbo* and a male Goldeneye – *Bucephala clangula*.

Last but not the least is our cooperation with a local newspaper. I write articles referring to our work or dealing with current ecological problems – for example: poachers or air pollution.

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MUTE SWAN MONITORING

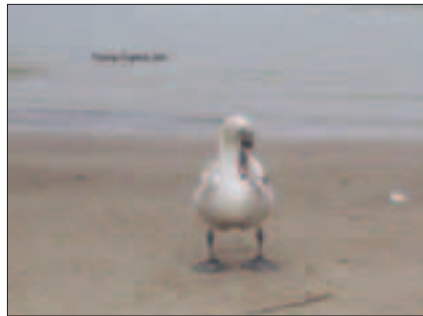
For a couple of years our school ornithology club has been co-operating with Polish-wide Society of Bird Protection in Gdańsk the Ornithology Research Institute and the Polish Section of Swan Research at The Polish Academy of Sciences in Gdańsk.

One of the very important aspects of our work is watching ringed swans. The aim of bird marking is to find out details concerning birds' biology: their lifespan, migration times and routes, winter sites and others.

Ringing for scientific goals was initiated in Europe in 1899. The Polish ringing centre was set up in 1931 and now it is located in Gdańsk.

So far about 20000 swans have been ringed with standard aluminium rings. Out of those 1000 have been banded and about 1500 marked with plastic leg rings. Aluminium rings always have two letters and four figures, ie: AS 1404, AC 1636, AP 4971

Colour marking (bands and leg rings) makes it much easier to identify birds on water reservoirs. Poland, Germany and countries to the south of Poland use yellow rings. Scandinavians, Lithuanians, Latvians and Estonians – blue and the urban population of mute swans in Copenhagen – red ones.



Plastic bands and rings have two letters and two figures, ie: FM 01.

We record the number of swans in the coastal area, get symbols from the rings and send the data to the ringing station which gives us feedback including among others:

- name of species and strain
- sex and age

- date and place of ringing
- precise co-ordinates
- name of person who did the ringing

We open a file on each marked swan in our area in which we record the cases (dates) of its appearances. We have got more than 70 files of that kind. The number is still rising.

On the beaches in Kołobrzeg you can see swans which were ringed in Gdynia, Szczecin or fish farms in the south of Poland. But most of the swans have been marked in Kołobrzeg.

They stay here all year. Some of the swans have been noticed at our place only once but most of them have been here for a couple of years.

The project is still carried on.

The pictures taken by student Szymon Sadło.

Maria Adamiak

Andrzej Kropidłowski

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COASTAL OBSERVATIONS ON THE ISLAND OF SAAREMAA, ESTONIA

On 27 September 2003 the students of the science classes (10b, 11b, 12b) of Saaremaa Co-educational Gymnasium carried out a series of coastal observations by the Veere Bay along the northern coast of Saaremaa – Estonia's largest island. Saaremaa Co-educational Gymnasium has been a member of the Baltic Sea Project (BSP) since 1991. The field trips were supervised by our biology teachers, Mrs. Inge Vahter and Mr. Mart Mölder. In September we have a traditional two-day camp by

Lake Sarapiku for the students of science classes. The first evening in the camp is spent by the camp fire, we get to know each other, sing and play games. The following day we observe and explore the coast.

We do research in three stages: the first stage is the preparatory stage taking place prior to the field trip. The teachers explain the students the aims and methods of observation. The second stage is made up of observation sessions during field trips. During the third stage of the research project, the students of

Form 10 and Form 11 prepare reports on their observation results and present them to their fellow students.

In the morning of day two 40 young researchers were taken to the Bay of Veere. The coastline to be studied was 6.5 km long and about 10 metres wide, extending from the sea to the steep coast. The students formed 13 groups, each group studying a 500-metre-long strip of gravelly and shingle shore. The first groups (including the authors of the present account) star-

ted their field study in the vicinity of the Veered port, which is a major fishing and trading port on Saaremaa Island. There have been plans of building a deep-sea port at Veere, though it is more realistic that the location of the new port will be some kilometres away at Küdema. The observations were carried out in keeping with the BSP international coastal observation guidelines. Our task was to establish which plants were growing in the observation area. *Zostera marina*, algae and other plants were found. We also had to find the length of *Fucus vesiculosus*, to make sure if the algae was growing on the substrate and of any other algae were growing on the plant. The instances of inflorescence of the algae were also recorded. The coastal fauna and the traces of their activity were studied as well. We also monitored the amount of rubbish and pollution in the observation area. The coast was rather littered, mostly with plastic bags and bottles, metal and glass containers; occasionally one could also come across of a boot, a pair of

socks or tights, a car tyre, tubes, cardboard packages, aerosol containers, filling and insulation materials. The students of form 12 gathered the rubbish into big plastic bags and we took it to special containers in Veere port.

The final stage of our research, i.e., group presented the results, conclusions we explained our to other students. Each group had gathered some interesting specimen characterising their observation area: stones with fascinating patterns and fossils, feathers, an *Aurelia*, a can with bottle corks, objects covered with *Balanus*. The students discussed the current and future state of the region considering the vicinity of the port and the shipping route. They brought out several factors endangering the coastal environment, such as erosion, construction work, litter, and oil spill. The current state of the coast was still estimated to be good. The water was clean and transparent, algae were found in that part of the bay that cuts deeply into the land.

Other students made individual re-

search in some other coastal regions of Saaremaa County. October 3rd 2003 students studied a 500-metre-long area at Kallaste harbour, Muhu Island. September 26th 2003, 6 students observed the coast of Kuresaare Bay along a 2500-metre coastline. September 28th a student looked through 500 metres of the Kaugatuma coast, the Sõrve Peninsula. The total length of the coastline was 10 km studied, described and recorded.

The research was kindly supported by the Estonian Fund for Nature. We kindly say thank you for their assistance we wish hereby to acknowledge.

The research project was the most an interesting experience and a great fun. The coast got cleaned and we enjoyed the project process very much. We are sure that in the future there will be more students to join in our se project.

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Liis Saat, Liis Suluste
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WATER NEAR BY US IN BOGS AND ON COAST, ESTONIA

Our school, Järve Gymnasium is located in town Kohtla-Järve in the North-East part of Estonia, not far from Finnish bay and Peipsi lake.

This year we took aim in environmental projects to go more into nature with our students – to look, to see, to touch, to smell and to feel by themselves. We had two trips: one in May and another in September 2003.

1. Seli and Kotka bogs – pearls from the nature of Ida-Viru County.

It was the most beautiful weather in May, when 29 students went to trip to Seli and Kotka bogs. At first we took a bus to reach near the trails in Kotka and Seli bogs and after that we walked along the trails looking on morasses, bog-lakes and very special plants. We collected them and tried to find out their names. We also saw the differences of landscape in two bogs during our trip. We found out, that those bogs are very specific and very important places as clean water reservoirs near our industrial area.

2. To the beach in September – to watch and clean up!



On Saka beach we found only small amount of trash.

Other children were very surprised, when students of 6., 10. and 11. grade told, that they go to



September 2003 on Saka beach.

the beach today. But so it happened again, that we had the finest sunshine during our coast-watch day in September, when there is usually cold and rainy weather in Estonia. We drove by bus to Saka beach, the nearest



Teacher Mall Schmidt explained to Liis Veski differences of mosses.

coast to our town Kohtla-Järve. There we had two assignments:

- 1) to watch coast nature and fill the work-list
- 2) to pick up every piece of trash to clean up shore-sand.

Most of those hours, we spent on the coast, we worked on our work-lists. We were very surprised, that there was so little of trash – people have been very considerable there.

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SUMMER CAMP AT LAKE VÖRTSJÄRV, ESTONIA (30–31 AUGUST, 2003)

To start with, our environmental club Scarabaeus is having a great importance in keeping active our members as well as the other students in Tartu Kivilinna Grammar School (Estonia). Our high school students have a possibility to take up studies in environmental technology. It unites both chemical experiments in the lab and lectures out of the school as well as many educational activities. Here is an example of our activities.

Recently we carried out a 2-day-long summer field-camp at the lake Võrtsjärv – second biggest lake in Estonia with its area of 270,7 km². This educational course was put through from 30th till 31st August 2003.

Firstly, the aim of this field study was to gain knowledge about lake monitoring with more specific measurements than only eyes, paper or simple thermometer. The project had also objectives to educate us in the field of treating GPS, pic-

king mushrooms, recognising common plants as well as giving a short introduction about macro invertebrates. Our teachers were Helgi Muoni, Tiina Sõber, Aigi Kikkas, Ain Vellak.

During those 2 days we measured the air temperature, cloudiness and the amount of precipitation in every two hours. In the first day we had two lectures – by scientists Henn Timm and Diana Sarik. Our evening was filled with educational lessons “What to do with mushrooms?” and “Do you know the most common herbs growing in your home region?”. Evening activities culminated with a quiz and a birthday party (one of the biology teachers, Tiina Sõber, celebrated her birthday with us).

Second day was planned as the boat trip on lake Võrtsjärv. The boat was rented from the Võrtsjärve Limnology Station and called therefore “Bioloog” (the Biologist). The weather was quite windy and we had to fight against



The water sampler takes samples from the different water layers up to 40 metres.

rain clouds up in the sky as it had rained 24h in succession since the first day. During the 2-hour-long trip on the lake we learned more about the geography and vegetation of the lake as well as we could measure some biological and chemical characteristics in the wa-



A sieve with small holes enables to catch micro organisms and prepares a sample for future investigation.

ter by ourselves. Thanks to the modern instruments from the limnology station we were able to observe the change in figures of the chemical compounds as we moved from one water layer to another.

On the whole, we all enjoyed the field camp, where the members of the environmental club Scarabaesus and other students from Tartu Kivilinna Grammar School could meet and spend time together. Even though in the first day the weather did not support our activities with a shiny day, we still relished the rainy side of it.

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Environmental Club Scarabaesus
Grammar School
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THE CHEMICAL CONDITION OF THE ŁYNA RIVER WATER, POLAND (SPRING 2003)

Łyna is the left-bank tributary of Pregoła. Its total length is about 289 km, from this in borders of province (and State) 3/4 of its length is included. The surface of its drainage area in area of country is about 5327 km.

The source of the river is near villages Łyna and Orłowo, situated in a picturesque canyon. The area source of Łyna is in region of the morainal hills about average of height about 170 m over sea level, in neighbourhood the locality Prawdzińsk Łyna spills itself in reservoir barrage. Between lake Ustrych and village Ruś the river has mountainous character. Strong meandration in the bottom of its flow appears. On terrain of warmińsko-mazurskie province it flows by the row of the lakes.

Łyna outruns Poland's border in Stopki and passes to Pregoła in Russia. The most important punctual sources of dirt Łyny are the sewages of different stages of the brush-up that are brought from cities provinces warmińsko-mazurskie by which it flows.

The aim of this research has been to specify the chemical deteriora-

tion of the Łyna River's waters which flows through the city of Olsztyn. The research was supposed to prove average urban area influence on a chemical condition of the river. The content of phosphates, nitrates, oxygen in the water and its pH was analysed. On the basis of it the clarity class



of the Łyna River was established in April 2003.

For the researches the two measure points along the bank of Łyna were chosen in Brzeziny (before Olsztyn) and in the city forest (outside Olsztyn). The chemical analysis was carried out in April 2003 in Wojewódzka Stacja Sanitarno-Epidemiologiczna in Olsztyn in participation of the schoolgirls from III Liceum Ogólnokształcące in Olsztyn. On the

basis of carried out analysis of the Łyna River it was stated that spread oxygen content in its waters pointed at the first clarity class and perfect oxygen condition in the early spring period, when its consumption in life processes of organisms is the smallest in all year. Turbulence, temperature and proper water reaction, were conducive to spreading element. The low BOD₅, showed about a small attendance organic substances and not large extent of organisms development.

The city did not have any big influence on the oxygen content, what can be concluded from a very similar amounts spread in the waters of the river before as well as outside the city.

The content of nitrogen and phosphorus compounds in three first measurements was low and fulfilled demands of the first class. It was probably merit of very long, frosty winter, which effectively limited surface confluence.

These compounds content clearly increased outside Olsztyn and the influence of the city was evident



for the phosphorus and nitrogen river condition, what showed abo-

ge. However, it was insignificant and the results classified to the first class. On the basis of received results one can say about the clarity of surface of the Łyna River

ut pollution of the river waters by municipal and industrial sewa-

in this period. The river thanks to oxygen richness is capable of self-clearness on the further stage.

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Teacher: A. Macikowska, L. Terlecki

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Poland

VISIT TO ESBJERG FISHERIES AND MARITIME MUSEUM AND SAILING WITH CLAU SØRENSEN

Esbjerg Gymnasium is participating in a Comenius project: SOS (Save Our Seas)

with schools from Estonia, France, Germany, Romania and Sweden.

The school participate with one class 1Y – probably for 3 years

The first year (02/03) the class made 2 bigger projects in groups (ca. 3/group)

Each group made an english resume

1. Project:

Resume from one group Ida, Nicoline og Ninna:

We're in 1y at Esbjerg gymnasium (upper secondary school), and we are so lucky as to be one of the classes which are in an international program called SOS (Save Our Seas). In connection with that we were at the Fisheries and Maritime Museum and out sailing on the Claus Sørensen, on a day when we had only biology/history. During the day at the Fisheries and Maritime Museum we dissected two fish and studied them. After that we went to the aquarium to look and study fish, which were alive. Finally we went out sailing on the cutter Claus Sørensen, to see which fish it was possible to catch near Esbjerg at that time.

1) The Laboratory experiments
In the laboratory at the Fisheries and Maritime Museum we got the assignment of examining a herring (sild, *Clupea harengus*) and a sculpin (ulk, *Cottus scórpius*) and afterwards dissecting them to decide where they lived, what



*Katarzyna Żabicka, Poland
Hans Joergen Bruun Olesen, Denmark*

they fed on, and how they survived in the sea. We got a number of questions, and from the answer, we were able to conclude which differences there are between streamlined fish and not-streamlined fish. The streamlined fish, including the herring, most often live near the surface and are not hunters, whereas the not-streamlined

fish, including the sculpin live near the bottom and often hunt fish and other sea animals. By dissecting the fish, we had an opportunity to compare the two types of fish, and they proved to be very different. This was what we spent the first hour of our day doing.

2) A tour of the aquarium

After finishing in the lab, we were handed another pile of papers, this time with questions to which the answer should be found in the aquarium of the museum. The questions were once again about differences and similarities between the different types of fish. Based on the knowledge we had gained during the laboratory experiments, it was easy for us to decide those things. This time, though, it was all put in a greater perspective, because we had more than two kinds of fish to examine. In that way, it became more interesting.

We finished the tour in the aquarium with a well-deserved lunch break, before we bicycled down to the harbour, to find the Claus Sørensen.

3) The sail on the Claus Sørensen
Our last activity during the day was a sail on the Claus Sørensen. The purpose of this sail was to decide which fish we could catch near the coast of Esbjerg with trawl,

and based on the types of fish we could conclude which conditions the Esbjerg seaarea offered. All not that surprising, as we used the trawl we caught the following fish:

- Sprat (Brisling, *Sprattus sprattus*)
- Plaice (Rødspætte, *Pleuronéctis flefus*)
- Flounder (Skrubbe, *Pleuronéctus flefus*)
- Sand Leance (Tobis, *Ammotisláncea*)
- Sculpin (Ulk, *Cóttus scórpíus*)
- Pipefish (Tangnål, *Syngnâthus rostilla*)
- Sand goby (Sandkutling, *Pomatoschistos minutes*)
- Sand crab (sandkrabbe, *H. as araneus*)
- Shore crab (strandkrabbe, *Cárcinus máéenas*)
- Swimming crab (Svømmekrabbe, *Portúnus depurator*)
- Edible crab (Taskekrabbe, *Cáncer pagúrus*)
- Common shrimp (Hestereje, *Crángon vulgáris*)
- Starfish (Søstjerne, *Aatérias rubens*)
- Oyster (Østers, *Ostréa edúlis*)

We think it was an interesting assignment. It was a very exciting day and we enjoyed the sail on the Claus Sørensen, as the weather was perfect. The work with the report has given us an insight into and knowledge about fish, which we would otherwise not have had.

2. Project:

Examination project: The different groups worked with the North Sea (Ecology, fishery), the Wadden Sea (ecology, protection and importance), Fishery (Consumption – industrial), Pollution from Esbjerg (Waste water cleaning, dumping) and Water quality. Here are the summary of 2 groups:

First group: Made by: Simon, Goran and Søren.

We have chosen to write about the

Waddensea, and dumping of dredged material, one of the most discussed pollution subjects. The Waddensea is home to an amazing and unique animal life. The animals as well as the plants have their own way of surviving under the remarkable conditions the Waddensea offers. But we humans are threatening the fauna and flora of the Waddensea. For example by dumping polluted sediment from the harbors, it in the Waddensea. Many are against this



method, as they think that the contamination is getting too big. These people think that we should take care of the sediment on land. Authorities have rejected the proposal because they don't have enough space to store the huge amount of polluted dredged material anywhere. This method would be 4 to 8 times as expensive pr. m³ sediment. The two toxic groups that cause most damage are PAH and TBT. TBT was mainly use in paint for the bottom of ships. This year the government has forbidden the use of paint for ship bottoms if the paint contains TBT. From the year 2008 a total ban on paint containing TBT is expected. This means that all the ships, which are painted with the TBT-paint, are going to be repainted. TBT tends to accumulate in living organisms and in the food

chain. With Some small animals, it results in deformation and sex changes. The part of TBT-pollution that comes from the sediment doesn't seem to affect the fauna that much; on the other hand the TBT that comes from the paint has been proven to be very damaging. PAH contains various aromatic hydrocarbons. Some PAH's can be cancer-causing to animals as well as humans. It tends to damage the genes and the reproduction ability. The naturally occurring PAH's,

are mostly created in volcanic eruptions or forest fires, naturally this is only a very small part of the pollution in the Waddensea, because there are no volcanoes in Denmark. The offshore industry causes the most pollution.

Second group: The plaice and the sea (Made by Flemming, Jens and Niels Ole).

The plaice is Europe's most important flatfish. It has excellent sight in daylight but is almost blind at night. It mainly feeds on different marine animals such as bivalves, worms and other minor fish. The characteristics of the plaice are its red spots on the topside and the fact that it is dextral. Minimum catch size for a plaice is 27 cm.

The plaice lives on sand or clay bottom at a dept of 200 meters where the water is saline and cool.

It is sexually mature at the age of 4 to 6 years and the female spawns up to \approx a million eggs. The eggs hatch after 1 to 2 weeks and the fry measures 5 to 6 mm. The first couple of months of their lives they live on low waters for instance in the Wadden Sea. The plaice was caught with trawl, Danish seine and net. Nevertheless to avoid depleting of the population the government has set a quota system. The problem with this quota system is that the quotas are very small, so small that the fishermen cannot make a living. Furthermore increased amounts of by-catches are thrown back into the sea. The plaice is very dependent on the climate. If the water temperature drops below the freezing point, its immune system weakens considerably. In the course of time the marine environment has changed. Human activity has left traces – the



ocean has functioned as a waste site for chemicals. New alien materials such as PAH and TBT (an anti fouling toxic, used to protect the bottom of ships) have shown their effect on marine animals. The hormone balance has been disturbed which has led to a muta-

tion of sex in the female snails. Another man-made problem is deoxygenation, which waste water is the source of. Nutrient salt found in the water feeds the algae, which increase the amount of organic material produced. Since the marine animals do not consume all this organic material, it drops to the bottom of the ocean. Decomposition of this material requires oxygen. However, such large amounts of oxygen are not always to be found on the bottom. This leads to the release of toxins. Fish in sea farms are particularly vulnerable since they have no opportunity to abandon the area. Generally speaking we are poisoning our selves through the food chain. The ocean is also a natural resource for humans.
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DANES NETWORKING WITH ESTONIA

As I look back at my visit in Estonia, many impressions come to mind. I have a vivid recollection of the arrival by sea, the first sight of the Tallinn skyline, the woods and the waterfront of Pirita, and as the harbour came into sight, the discovery of the decaying buildings of half a century of occupation: a run-down former military installation on the wharf, a lifeless factory whose tall chimney loomed like a stark sentinel. This first glance at the composite nature of Estonia added a more restrained note to the Medieval fantasy which the newcomer imagined. But as the ship slowed to come alongside, I could make out some more contemporary feature, the huge sign proclaiming "Hotel" as if it were some political message and the daring steel-and-glass spire recently built for a bank. I had cau-

ght a glimpse of a complicated play, set on a stage with at least three layers of reality, the Hanseatic backdrop, the middle ground still cluttered with remnants of half a century of despondency, and in the forefront some visible attempts at modernism. During my stay in Estonia, I was intrigued by some contrasts which reflected the complex situation of a country having only recently recovered its independence. Meeting people, I tried to understand Estonia as it had really become, not necessarily as I had read or heard about. It was obvious that the country had made outstanding progress in less than ten years, thanks to a mixture of vitality and clear thinking, but it could easily be sensed that the remarkable performance of the economy had not been matched in some other areas. Tra-

velling through the country, I gathered a variety of conflicting impressions, everywhere, people engaged in building or renovating, but also some older apartment buildings where, for lack of a clear status of ownership, facades and staircases sometimes seemed beyond repair, more big and fast cars, a growing variety of lifestyles, but also some people just scraping through. But I also learned to recognize and appreciate the strength, the quiet determination of the people I met. I was impressed by the calm confidence of many citizens, especially the family I lived with, in the future of their reborn State.
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BSP IN CHINA: “INFORM OTHERS OF YOUR WORK”



Crystal clear weather. The sun shone on the Siberian and Mongolian planes beneath me, the snow glittered from the mountains when we crossed in over China, I saw terraced fields and I even caught sight of the Great Wall creeping along the mountain tops. I saw the straight line of a road, the compact houses with snow-covered roofs, and the small ponds nearby, frozen in a very special blue colour. I was on my way to Beijing and my first visit to China, ever.

The capital of the People’s Republic of China had been whitewashed by a severe and unexpected snow fall just prior to our arrival. The air, therefore, was fresh and cold, and 60.000 Beijing workers were shovelling the snow away, and in a few hours removing the many broken trees and branches. The city and its hustling - bustling traffic was soon back to normal. The dry air enabled the remaining snow to simply evaporate.

I had the important BSP principle “Inform others of your work” on my mind when on Saturday 8 November 2003 I had been asked by the National Commission for UNESCO in Denmark to represent my country and the BSP Learners’ Guide 5 at the International Forum for Education for Sustainable Development, in Beijing. The Forum was organised by UNESCO of the People’s Republic of China, by the Chinese National Working Committee for the UNESCO Project on Education for Environment, Population and Sustainable Development (EPD), by Beijing Municipal Education Commission, by Beijing Academy of Educational Sciences, by Chaoyang

District Government in Beijing and by the UNESCO Office in Beijing.

It was a great honour for me to present the outcome of the co-operation of our BSP school network in the nine countries bordering the Baltic Sea. As editor of the Learners’ Guide 5 it is my sincere hope and belief that its contents can inspire others all over the world and therefore be of educational use towards and in the UN Decade for Education for Sustainable Development.

In my presentation I was happy to announce that Learners’ Guide 5, financed by the Danish Ministry of Education, is now also available in a digital version to be freely downloaded from <http://pub.uvm.dk/2003/learnersguide>

I was invited as a key note speaker in the opening session, following

prominent speakers from all over the world, such as Mr John Daniel, UNESCO Paris, speaking about the United Nation’s decade for education for sustainable development; UNESCO resource person Mr John Fien, Australia; Mr Bernard Hugonnier, OECD, speaking about the challenges and opportunities in OECD countries; Prof. Jandhyala Tilak, India, pointing out that education leads to sustainable development and that sustainable development leads to education; Mrs Elizabeth Amukugo, Namibia, giving the African perspectives, including HIV/AIDS and poverty; Mr Gordon Dryden, New Zealand, advertising the digital learning revolution; Ms Hu Yamei giving a very personal speech upon health issues with reference to her job as honorary director of Beijing Children’s Hospital; Dr. Burgenmeier,



EPD childrens drama

(by Birthe Zimmermann)

Switzerland, speaking on economics and its contribution to sustainable development.

EDP was then given the floor. Dr Shi Gendong as director of the national committee for the UNESCO project on education for environment, population and sustainable development gave the basic concepts and his presentation was given further substance by the Chinese students' impressive art exhibition in the foyer outside the plenary hall. His speech was given in Chinese with simultaneous translation, but its contents were clear: EPD was launched in China in 1998 and more than 1000 schools all over the country take part. Teachers are trained, schools with stable leadership and experimental teams and innovative ideas can be nominated experimental schools after two years, and schools with outstanding results can be demonstrative schools promoting innovation of school education and consequently gain access to the title EPD eco-schools.

EPD is formulated and implemented to achieve the following objectives:

- to enhance awareness and capability of education in primary, secondary schools and colleges on promotion of education initiatives for environment, population and sustainable development
- to help teenagers to acquire knowledge and skills about environment, population and sustainable development, and cultivate their awareness and readiness to act positively for ESD notion
- to prepare a new generation of citizens with creativity and consciousness of sustainable development and relevant capability
- to work together with partners among the member states to integrate sustainable development with education of environment and population to improve the living environment so as to promo-

te the sustainable development of human beings

Dr. Carole Murphy, USA, then spoke of the role of leaders, leadership and global sustainable development; Prof. Niu Wenyuan introduced us to ESD and human resource development in China; Vice governor of the Chaoyang District in Beijing introduced us to the experiences from his district, to be experienced further on study visits; then it was my turn to share the BSP results and Learners' Guide 5 before Mr Dieter Boehn closed the opening session giving some insights from Germany - and the piece of good advice: Keep and implant optimism!

The impressive conference room had flags from each of the 29 nations present. I was pleased to be seated with the Danish flag and comfortably between Canada and Finland. It was a pleasure to be seated next to Finland as the BSP initiative was first taken there in 1989.

Chinese students played and sang with talent, and a beautiful board welcomed everyone to the first International Forum for Education for Sustainable Development. The setting was beautiful and impressive.

I was pleased that following my presentation a suggestion was made from Korea that a similar school network could be established regionally between China, Japan, HongKong, Korea, Mongolia and others. I do not know if the UNESCO Associated Schools Project Net as is the case in the Baltic Sea Region have ASP co-ordinators in the Asian countries mentioned, but I consider the idea of regional networks excellent and very important. Regional networks may then co-operate and together become global. I still consider local/regional knowledge and democracy a precondition for global understanding. I therefore wish the



(by Birthe Zimmermann)

Plants need tender care

Asian region good luck, and hope to welcome the region when at major events, for teacher training etc. the regions may benefit mutually from each other.

In the days to follow workshops and study visits enabled all delegates to share ideas and learn more of the various experiences in different regions and countries all over the world.

Chinese students presented their work in art "EPD in my eyes", in music, drama performances, and a visit to Beijing High School no 80 was an impressive example of an outstanding experimental Chinese eco-school that serves as a model for others. The lessons there are inquiry-based, the 56 students in each class co-operate in experimental learning.

As a master of biology I attended a biology lesson, and had a guided tour through the lab, the exhibition room, the DNA and cell classroom, the biotechnology lab where students made plant experiments. The student who guided me spoke fluently English, whereas language could still be an obstacle when talking to somewhat older Chinese teachers and co-ordinators. Language obstacles, however, were overcome by smiles -

and students were always stepping in to assist. At the Agricultural School students were given "hands on" experiences, and we saw the green houses and pepper plants with fruits in various colours, green, yellow, orange, red - and a colour new to me - black peppers!

The cultural program was impressive from students' performances to the Laoshe Teahouse professional and colourful entertainment, as was the visit to the Great Wall in frosty sunshine.

As this was my first China experience I was fortunate to also have some time to visit impressive Beijing sites e.g. the Forbidden City, The Summer Palace, the Temple of Heaven.

I noted the Beijing traffic, its many bicycles used for all kinds of purposes - for "sustainable transport" of people and goods, often quite heavy loads, and for having an outdoor shop e.g. selling hot yams for lunch, or caged birds - (which I actually disapprove of). When I photographed bikers I had many smiles in return. I was told that SARS, however, increased the number of cars tremendously: People who could afford to buy a car bought one to avoid close contact and risk of attracting SARS in public transport, and a thousand new cars were introduced in Beijing during the SARS period - every day! Sustainable transport?

I noted Beijing's many parks and the serenity of the Temple of Heaven, the Summer Palace and the Forbidden City, and I noted how people use the parks for singing, dancing, social activities, and I felt very much at ease here. I noted the children. Parents with their only child as a consequence of the Chinese one-family-one-child policy proudly and willingly posed for my camera when I asked permission to photograph.

I wish to express my gratitude to



Pupils at the agricultural school

(by Birthe Zimmermann)



Coming up for air

(by Birthe Zimmermann)

all organising bodies for meeting the challenge of making the forum international, and for making it a success, I wish to thank the Danish UNESCO National Commission and the Ministry of Education for giving me the great opportunity to share the BSP experiences in the process which hopefully leads to sustainable development - "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" to quote the definition made by the Brundtland Commission.

Like all participants I consider

education the key role factor in this process and welcome the UN initiative of declaring the decade 2005-2015 a decade for Education for Sustainable Development.

A decade, however, is not enough. We are all responsible for our one world. Always.

29 November 2003

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BSP SUMMER CAMP IN LATVIA

The Baltic Sea Project camp took place last summer in Ogresgals from 18.-20. August. Camps are taking places every year and those organized by BSP coordinator Velga Kakse. There were 4-6 students from each school.

On 18. August we arrived at the beautiful Ogresgals school at 1 o'clock, and students from this school gave us the program.

After lunch we walked around the school. At 3 o'clock the seminar was opening. It happened outside in the school yard. We were introduced to other school students. All students were in four groups divided- red, blue, white and yellow. We met our group companions.

After that there were job creative workrooms "Ambiance and art." We made cornet from napkin and resin, and pictures from coloured sands. After this job we were very hungry.

At 8 o'clock started move theatre "The Long Term upgrowth." We prepared in groups exercises drafted from every team cap. The themes were: ambiance cleanliness, impurity, air quality, water cleanliness. Teachers took part, too.

At 12 o'clock everybody was in bed, but there was no silence. We were awake till



The seminar in the school yard.



2000 different species of cactus.

2 o'clock thinking about this day. On the next day two groups went to explore water, two other groups walked around Ogresgals. We attended an interesting cactus collection. There where 2000 different species of cactus. After than we went to the birds farm. We saw hens, turkeys, ducks, geese, peacocks. After dinner we went to the river the Ogre to explore the water. We studied water plants and animals. It was very interesting. We explored the pollution of the water.

In the evening there was a camp - fire. We sang songs and danced. On the third day we had to showed our group. We were all very friendly. Every group told about the interesting moments in the camp. At 2 o'clock we said "Good - bye" to our friends and returned home.

This camp was very interesting and nice. And we are waiting for the next camp this year.

Ieva Cirule, Baiba Berzina
Rujiena Secondary School,
grade 7 Latvia

ECOLOGICAL EDUCATION IN OUR SCHOOL

There is a class in our school which is truly interested in ecological problems. This year they are going to finish the modern programme called "Tourism and Ecology" which has been realized for three years. For three years the students have been ta-

king part in many educational courses. Thanks to those activities they became much more sensitive to many environmental changes caused by human beings around the world. Students enjoy hiking and rambles very much. That's why we decided to use

their likes in teaching theory. We organized many hikes in National Parks and Nature Reserve. It was a great opportunity for them to acquaint not only with natural environment but also with many species of animals and plants known only from TV program-

mes and handbooks. Every year our students take part in 4-5 day ecological workshops led in various National Parks. The students also take part in 2-3 day educational classes, campaigns and ecological competitions.

In connection with The Baltic Sea Project, our students exchange their experiences with other schools and they are involved in many projects. One of them deals with Bird Counting. It is based on counting birds wintering on our coast.

Another project, which we are involved in, is called Air Quality.

Our students estimate the purity of air, watching maple leaves, coniferous trees and lichen. Next ecological projects is called Coastwatch – our students study the pollution of Baltic beaches. We also take part of project - Environment History. Here the students gather information about development of wind energetics in our region.

There have been organized meetings with 12-year-old pupils from primary schools in Ustka. The topic of those meetings was "Our little works to environment". Our students told their

younger friends what was the best way to protect our environment through their "little works". They also explained how important the ecological awareness of society was. The aim of those meetings was to encourage pupils to choose ecological group in the future and continue the realization of The Baltic Sea Project.

*Teresa Kaminska,
Katarzyna Kostrubiec (translation)*

*Teachers of Grammar School
in Ustka, Poland*

BALTIC CRUISE, POLAND

At the beginning of September group of 10 sailors from the Secondary School nr 5, Krosno (Zespół Szkół Ponadgimnazjalnych nr 5 w Krośnie) were sailing on Baltic Sea. Their route was: Świnoujście - Sassnitz - Copenhagen - Helsingor - Ystad - Świnoujście. The cruise was organized by School Sailing Club.

First impressions from the sea made by sailors from the mountains (Krosno is situated in Carpathian Mountains) is hard to describe: a bit of fright, anxiety, enormous joy of discovering far and unknown places

During the cruise we made a lot of observation connected with landscape and ports.

The day of third cruise's day was gray, cold and misty. The yacht sailed on water of strait Sund. In the distance we could notice something, which looked like a construction suspended above the water. Yacht was approaching to this mysterious construction. From the mist emerged breathtaking details of the bridge- Ore-sund, which is 8 km long. This bridge links Denmark with Swe-



Crewmen of yacht "Rzeszowiak". On the left captain Marian Wilusz.

den. It contains few parts: the longest tunnel in the world, submerged in the sea, 4 km long road on the artificial island and the main construction of the bridge. Ore-sund bridge was opened few years ago in 2000 year. Due to this bridge the journey from Copenhagen to Stockholm is much quicker. Another, new for the sailors view were windmills. They stood in the sea along the coast.

The view of rocky, steep seashore, foaming waves will stuck in sa-

ilors memory for a long time.

School Sailing Club is planning to organize new cruises, during which they will conduct another researches.

*Milena Kuziemka - member of
„Rzeszowiak” crew*

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THE SCIENTIFIC SESSION



On June 10th, 2003 The Scientific Session, which concerned major environmental issues, took place in C.K. Norwid Secondary School in Jelenia Góra, Poland. It was organised by the chemistry teacher – Izabela Owsianska, the biology teacher – Jolanta Wrotniewska and the students from II LO in Jelenia Góra.

Six, the most urgent, issues regarding the Earth's ecosystem were discussed. They were also the main themes of students' works:

1. The Ozone Layer
2. The Greenhouse Effect
3. Acid Rains
4. Genetic Mutations
5. Extinction of Species
6. Amazonian Forest Fell

The Scientific Session was divided into three parts. During the first one, the papers presented by 69 students were examined and marked by the biology and chemistry teachers.

The best works were chosen. During the second part the students were to present their projects to the teachers and students keen on ecological problems in ten minutes' time. The third part was devoted to the exhibition of students' works.

During the Scientific Session students had the opportunity to show not only theory but also practice. The works that involved computer presentations enriched the lectures prepared by the students.

The purpose of this event was not only to develop and maintain our students' interest in ecology but also to enable them to gain faith in their own abilities and show the exciting and interesting ways of acquiring knowledge. Moreover, the majority of participants seem to be aware of how precious our environment is. Deforestation, content of carbon dioxide in the air, fumes, pollution, litter and other global problems started to be the dominant topics of students' discussions. Finally, we came to conclusion that The Scientific Session gave us a lot of satisfaction and fulfillment of undertaken work.

We think that more similar events should be organised in our school. Our teachers have declared that The Scientific Session is just the beginning of the regular seminars devoted to the problems connected with environment and ecology.

Teacher: Agnieszka Machalska

Students: Magdalena Grynienko

Malgorzata Gargas

Karolina Harecka

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CROATIAN SEMPEP DAYS

BAKAR, 9–12 OCTOBER 2003: KVARNER

The first Croatian Days for UNESCO South Eastern Mediterranean Environmental Education Project (SEMPEP) were organized by Professor Marica Kucan, SEMPEP School Coordinator, in the Maritime School in Bakar, at the beginning of the new academic year 2003/2004 and were conceptually dedicated to Kvarner. They were visualized as the first experimental effort to step boldly out of the School straight onto the Sea, on the deck of the Maritime Training Ship «Vila Velebita II» for the on site visit in the daycruise across Kvarner in Northern Adriatic.

Kvarner includes geographically the aquatorium between Peninsula of Istra as the western border, and Velebit Mountain range along the Croatian coastline on the eastern border, including islands of Cres and Krk, the two largest ones in the huge family of 1185 islands, islet and rocks of the Adriatic Archipelago. Kvarner includes therefore the Bay of Rijeka and the Bay of Bakar, Vela Vrata, Srednja Vrata, Mala Vrata, Kvarnerić and the Velebit Channel as the major bodies of water which have supported since times immemorial the life, fisheries and subsistence of inhabitants on the Adriatic islands and the coastline, as well as navigational routes for travel and trades. Rijeka has developed therefore into a major city and sea port on the Adriatic Sea.

Very close to it eastwardly is the small and historical town of Bakar, with the cradle of our contemporary maritime education in the Maritime School of Bakar. This school has been for many years very active participant in UNESCO SEMPEP activities and Summer Schools, and by the kind invitation of Professor Ivan Kucan, the Principal, hosted the first Croatian SEMPEP Days on its premises, in its Nautical Cabinet, on board «Vila Velebita II» and in the Student Dormitories.

The SEMPEP Days were designed to include various events: short festival of most recent SEMPEP activities, SEMPEP Seminar with lectures and groupwork and promotions for Friday, the 10th; and the whole day cruise on board «Vila Velebita II» across Kvarner, with the two ports of call: Beli on Island of Cres and Glavotok on the Island of Krk with the old and famous Franciscan Monastery there, for Saturday the 11th. All that was planned as a contribution of UNESCO SEMPEP to environmental education for sustainable development of Kvarner and dedicated to protection of the seawater and the freshwater resources in Kvarner, by stepping out of the

School into the Wider Community.

It was planned to have participation of one student – reporter from every SEMPEP school, as well as at least one SEMPEP teacher and SEMPEP School Coordinator from most participating schools all along the Adriatic Coastline, from Dubrovnik in the South, till Pula, Labin and Pazin in the North. Of course some more local students and teachers from Bakar, Rijeka and Susak were invited to participate particularly for the Kvarner Cruise.

We have been honoured by almost unexpected response: City of Dubrovnik was represented in Bakar by its Medical School (Teacher Ms Marina Rudenjak Lukenda, Deputy SEMPEP NC; student Tina Bosolt), Blato: Highschool (Dubravka Cetinić, Nela Zaknić; Vida Cetinić), Split by First Linguistic Gimnazija (Vesna Brkljačić-Srsen; Matea Dorčić, Sani Penović), Medical School (Jakov Giljum; Lara Isak, Daniela Jakšić), Business School (Vesnja Banić; Amalija Tokić), Trogir: Highschool Ivana Lucića (Marija Kezele; Jelena Melvan), Zadar: Medical School (dr. Mirko Jamnicki Dojmi; Matilda Vidović), Obrovac: Highschool and Business School: Darko Tokić; Ana Simicević, Zeljana Sakić), Senj: Highschool Pavla Rittera Vitezovića (Tomislava Vukusić; Vanja Bettle), Crikvenica: Highschool Antuna Barca (Marija Nestorović; Rajka Domijan, Sandra Sućurović, Sandra Ristić), Rijeka: Prva susacka hrvatska gimnazija (Melba Blazić Grubelić), Prva rijecka hrvatska gimnazija (Bozica Radovanić; Anja Kolacio, Iva Fabris), Mali Lošinj: Elementary School Marija Martinolića (Jelena Jovanović), Labin: Highschool Mate Blazine (Ceda Perko; Maja Hamzić, Ana Stepancić), Pazin: Gimnazija Jurja Dobrile (Dusica Dorčić; Sandi Paulisić) and even continental Zagreb was represented by its VIIIth Gimnazija (Vlatka Kuhar; Ana Fistrić), Xth Gimnazija (Bojana Borović), and XVIth Gimnazija (Jasna Salamon; Dunja Pekić).

Of course Bakar with its Maritime School was best represented by numerous teachers (Marica Kucan, Ivan Kucan, Gabrijela Polović, Dolores Paro Mikeli, Leon Vucina, Frane Lazanja, Davor Ostrić, Nevenka Pavletić, Bore Strbac, Milovan Petrović, Jadranka Reggianini, Nada Jovanović, Nina Vuletić, Radiana Tomee-Cicvarić, Ines Veić, Sabina Bra-

darić), and many students (Andrej Prebeg, Marko Njegovan, Nena Polić, Monica Balzani, Hrvoje Brkljaca, Vanja Matulić, Edi Borić, Sergej Marulić, Aleksandar Mataruga) among whom the most prominent were Elvio Ivanković with his competent computer support of the whole Meeting and Srđan Zuskin with his guitar, who was spontaneously in charge of keeping the spirits high and not allowing the Dalmatian song and jokes, humour and laughter ever to stop during brakes and on board «Vila Velebita II» (e-mail: pomorska-skola-bakar@ri.tel.hr).

Bakar was represented also by its Port Authority and Captain Luciano Keber, presenting us with fascinating lecture on traditional wooden shipbuilding in our country, and Officer Boris Kucan,



How beautiful these shells are! Students are delighted with malacology, particularly with small pink shells from the Baltic Sea, Jurmala Beach, Latvia

Chief of Engine, right now on board of an ocean going ship on its way to Japan, who has been on our little ship the chief of the large grill, providing delicious traditional Mediterranean Food to all teachers and students on board.

The Meeting was opened by welcome speeches of Principal Ivan Kucan as the host and Professor Gabrijela Polović who introduced us briefly to the history of Bakar Maritime School (Pomorska škola Bakar), and the chief Organizer Marica Kucan, who run the whole Meeting afterwards. All of us have learnt that Pomorska škola Bakar was inaugurated on 5th September 1849 as «Bakarska Nautika» and has been working since in various buildings, under different circumstances and different names, but was always distinguished by having the Maritime Training Ships (Skolski brod) in possession as the crucial educational tool.

The first Skolski brod «Margita» was constructed in English Shipyard Birkenhead (1880) as yacht of Henry Pigeon «Chonita» (Liverpool), and was inaugurated in Bakar, in 1894 as the first ever



Damjana Kucan, thier daughter was the youngest on board „Vila Velebita II“

Croatian maritime training ship – sailing boat, and as «Skolski brod – jedrenjak» was also the first training ship in the Merchant Navy in the whole of the Mediterranean Sea.

In 1908 the second Skolski brod – Sailing Boat «Vila Velebita», constructed in German Shipyard Howaldswerke in Kiel as a brick-scooner replaced the former in the educational process, because «Margita» was getting too small for the ever increasing number of students of Bakarska Nautika. During thirty years of her life and educational service she has greeted on board students from all countries of the Austro-Hungarian Monarchy, as well as students from Chechia, Slovakia, Poland and Bulgaria. The appearance of this floating school was exceptionally beautiful and attracted attention wherever she appeared, and only the experts were able to hear the silent messages of this unusual sailboat resembling a luxury yacht. Inside, however, she was narrow, uncomfortable and ascetic for many students - mariners, all being dedicated to practical training and sailing, to hard and full contact of Man and the Sea. She sailed all across the Mediterranean paying calls to Barcelona and Marseilles, to Alexandria, Greece and Istanbul. She had survived the First World War waiting in Bakar and Obrovac, but she «died» at the beginning of The Second World War. Italian fascist forces have taken her to Italy and for two years 1941-1942 she was used by Italian Marina Militare under the name of Palinuro, but in 1943 on her way from Trieste to Southern Adriatic she was sunk by German Nazi forces.

The third Skolski brod of Bakar Maritime School bears therefore the name «Vila Velebita II» and started her educational function in Bakar in 1973. She was constructed from wood in 1956, in the

Croatian Shipyard in Zadar, and owned by «Jadrolinija» under the name «Kali», she was sailing previously as small passenger ship among the Adriatic Islands. After many improvements and upgrades in navigational equipment by the Maritime School in Bakar, she was ready to invite us on board for cruise in Kvarner.

The SEMEP Festival included short accounts and reports on the highlights of recent SEMEP events: the jubillary Fifth SEMEP Summer School on the Island of Vis in July (PowerPoint report by the Organizer: Marina Lukenda), report on the last Meeting of SEMEP National Coordinators in Turkey at the TED College Istanbul, and visit to Highschool Blato on the Island of Korcula (SlideShow report by NC), and brief reports by students of each participating school using transparencies and beautifully designed posters on their various and diversified project activities related to water, food and health: human health resulting from environmental health.

Lectures by invited speakers that followed were addressing the issues: Freshwater resources under threat (Mr. Sc. Margita Mastrović, Head of the Office for the Adriatic Sea, Ministry for Protec-

tion of the Environment), Solid Waste and student workshhets (Melba Blačić Grubelić), Risks in the Project Druľba Adria for Omi%oalj Oil Terminal (Vjerran Pir%oić, Chair EKO Kvarner), Coastal destruction by collection of date-shells, Lithophaga lithophaga (Dr. Bartolo Ozretić, Center for Marine Research, Rovinj), History of classical wooden boat constructions in Croatia and model building (Captain Luciano Keber, Port Authority, Bakar).

Promotion of the book: «Illustrated Directory and Dictionary of the Adriatic Sea Fauna» (in eight languages: Latin scientific name, Croatian, English, German, French, Italian, Spanish and Greek), by Mladen Ercegović, published by Medicinska naklada, Zagreb, 2003; was carried in Bakar, after its first promotion in Dubrovnik. This dictionary will be crucial for mutual understanding in any joined international educational effort on Marine Biodiversity between BSP and SEMEP hopefully sometimes in the future, in the Adriatic Sea, in Summer Schools or on board Vila Velebita II? So you might like to start learning Croatian names for fish of your preference immediately by ordering the book from: araic@medicinskanaklada.hr

Promotion of «Sailor's Bag»: an Educational Bag, which contained various educational materials ready for transport to Seminars, Ships and Sea: various books, e.g. Maritime Encyclopaedia, Seaman's Knots Encyclopaedia, SEMEP Posters in Rolls ready as present for all participating schools, set of transparencies, set of slides, malacological shell collection (including the beautiful delicate shells from the Baltic Sea: Jurmala Beach, Latvia), Mediterranean seafood samples to be tasted and tested during coffee brakes (marinated mackerel and salted sardines in olive oil, Bakar's sailors biscuits) and even CD Player with Wagner's CD: «Flying Dutchman



tion of the Environment), Solid Waste and student workshhets (Melba Blačić Grubelić), Risks in the Project Druľba Adria for Omi%oalj Oil Terminal (Vjerran Pir%oić, Chair EKO Kvarner), Coastal destruction by collection of date-shells, Lithophaga lithophaga (Dr. Bartolo Ozretić, Center for Marine Research, Rovinj), History of classical wooden boat constructions in Croatia and model building (Captain Luciano Keber, Port Authority, Bakar).

Promotion of the book: «Illustrated Directory and Dictionary of the Adriatic Sea Fauna» (in eight languages: Latin scientific name, Croatian, English, German, French, Italian, Spanish and Gre-

Ouverture» to start the Meeting with and «Nostalgija» CD: «Na Omi%koj stini», to keep the meeting going in Dalmatian style, sound and mood.

The second book promoted was the Book of short stories: «Ponoćni tulum u skoli» (Midnight Party in School), produced by students of the Medical School Zadar, edited by Dr. Mirko Jamnicki Dojmi and published by Medicinska %okola Ante Kuzmanića, Zadar, 2003.

The third book introduced to our participants was «Water in the Mediterranean» edited by Professor Michael Scoullous and Ms Iro Alampej, and presented during the «Mediterranean Water Week» in Athens, 2002; at the First Meeting

of MEDIES (Mediterranean Educational Initiative for Environment and Sustainability).

Groupwork that followed has been centered around major topics including: Environmental Education: WATER as the Essence of Life, Mediterranean FOOD for Health, Next SEMEP Summer School VIS 2004, and the «Solid Waste» Student Worksheets.

The next day, Saturday, was dedicated to the cruise on board «Vila Velebita II» and the full contact with the Sea, the landscapes of the coastline and seascapes of the Blue Adriatic Sea. They are seriously degraded in the Bay of Bakar and the Bay of Rijeka by unrestrained industrial development in coastal zone, with the cities of Rijeka and Kraljevica displaying their impressive Oil Industry Plants, Shipyard Constructions and docks, respectively. We sailed further along the Island of Saint Marko and observed there the longest bridge ever constructed in Adriatic, connecting the Island of Krk with the mainland. Upon approaching the Island of Krk we came across the Oil Terminal in Omišalj, which we have heard yesterday is to be the destination for the ever larger scale of oil transfer into ocean going tankers and transport southward all along the Adriatic Coastline and Island Archipelago, in the contradictory Drušba Adria Project. The landscape of the coastline in Omišalj is already scary enough and one tends to agree with all the fears and arguments pointed yesterday by the NGO EKO-Kvarner President Mr. Vjeveran Pirović in his impressive presentation.

The trouble there is even worse because all the cozy little villages and towns in Kvarner, including famous Opatija Riviera have been developing tourism, and local people see the touristic alternative for the area much more promising for sustainable development of Kvarner. Even the rough economic benefit from tourism of the area is tenfold stronger than the benefit from the oil terminal. And it has been clearly pointed out by Dr. Edward Goldberg, Chemical Oceanographer from Scripps Oceanographic Institute in La Jolla, USA, that there is no better use or economically more justified exploitation of the sea, than in the tourism and recreation industry, which is today the largest industry worldwide in global economy. And it can thrive fully, only in well preserved landscapes and seascapes, with clean seawater and freshwater resources as well as healthy food grown locally in a healthy environment.

With such thoughts and dilemmas on our minds we were passing touristic villages of Njivice and Malinska along western side of Krk and entered Kvarnerić, heading straight to the northern tip of

Island of Cres, called Tramuntana, and the medieval town of Beli. The landscape and seascape have changed drastically for the better. We have entered «the Mediterranean as it once used to be»: clean sea and impressive rocky coastline of Cres with no coastal construction and ugly industrial plants in the narrow coastal strip. We have landed in the small port of Beli next to the beach and climbed up the steep road to the village of Beli on its Eagle's Position of the island mountain range.



Sandi Paulišić from Pzin Highschool Juraj Dobrila reporting

We were to visit the EKO-Center «Caput Insulae» which is well known worldwide for their fine work in study and protection of the remaining colony of the Griffon Vultures (*Gyps fulvus*) on the rocky shores of Island of Cres. The guided tour through the exhibition and information center by the volunteers have acquainted us with wisdom of the traditional lifestyle of island population since the times of Roman Empire. They have managed to live and survive in the harsh conditions, together with vultures and the cold northerly wind Bura. After walking along the Educational paths and visiting the Town of Beli with its well preserved Roman Bridge, we have returned back to «Vila Velebita II», where we have been welcomed with lunch prepared on board: grilled fish (rumbac in Croatian, Latin scientific name: *Scomber busis*, German: Makrelenthunfisch.; Spanish: melva, French: bonitou, English: bullet tuna, Italian: tomarello, Greek: kopáni) or meat according to tastes and preferences.

Sailing this time was a short crossing the channel from Cres to Krk, to pay the call to Glavotok and the Franciscan Monastery there, which dates back to Mid-

dle Ages. We have been welcomed there warmly by fra Anto Garić, one among the Priests, who invited us to Church to join him in the evening prayer to God for Kvarner and the people there, both the local residents and those who come from all over Europe for recharging their batteries and souls in this safehaven of peace, beauty and spirituality. Students and teachers were invited afterwards into the closter for coffee and tasting of Bakarske bakote and Bakarska vodica. It made the perfect end of the day, the highpoint and evening event, almost the crown of the Cruise in Kvarner.

Departure from Glavotok was warm and optimistic filled with franciscan dedication to God, to Man and to Ecology, though we were to return into the darkness of the night and into the zone of industrially degraded landscapes of Rijeka and Bakar. They were looking even more ghostly in the blue of the night with all the intensive industry spotlights and aggressive illumination, as visual signs of development and progress.

Full development has taken place there, quite evidently, and we cannot change it. But the question remains if we want further development to go on, at the same speed, with similar pattern, and in the same direction. Or do we want the other kind of development, the one which is called sustainable development, where local community has the right to choose, and to prove awareness of the basic transgenerational justice, and the rights of our children to enjoy the beauty of the Blue Adriatic and standing values of Kvarner, with its precious freshwater resources, which we have been blessed with, and lucky enough to enjoy fully in our times.

Sustainable development, as originally defined by Dr. Gro Harlem Brundtland is really the Story of Little Damjana Kucan, the youngest of all the participants on board «Vila Velebita II» for the Kvarner Cruise: the story of her future and scope of choices in Bakar. Her child's rights are in question: the right to swim in the sea in front of her house in the Bay of Bakar and to eat fish caught on line there without the fear of being intoxicated, and the right to drink the water entering the sea from numerous, clear and unpolluted, dependable and still unknown, vast, year-around freshwater reservoirs of the Karst landscape in Bakar. That is what the sustainable development is all about, and what the most essential human rights stand for: the right to life, the right to water, the right of life in healthy environment.

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**AIR QUALITY
2003
- REPORT**



On April 2003 dr Beata Węgrzynek from Poland, worker of University of Silesia, became a new co-ordinator of the Air Quality project within the BSP programme. Former co-ordinator was Swedish teacher Mrs Birgitta Berggren, now she is retired. Air Quality programme has a new modified questionnaire (methods and protocol to be send to programme co-ordinator). New test based on observation of Tar Spot Fungus (*Rhytisma acerinum*) was added in order to make possible the simple bio tests also in the polluted area (lichen desert). It is available from BSP-website.

On April 11th - 13th 2003 in Rzucewo near Gdańsk (Poland) there was teachers' training course – Xth International Workshop "Working for better air quality in the Baltic region" within the Baltic Sea Project. 13 teachers from 6 countries (Finland, Denmark, Latvia, Estonia, Lithuania, and Poland) and the national co-ordinators of Germany, Denmark and Poland as well as members of Polish government and the commission for UNESCO participated in it.

On September 16th-19th 2003 in Rzucewo near Gdansk (Poland) training course for Polish teacher "Xth Ecological Conference for Polish BSP schools" organized by General and Polish BSP Co-ordinator - dr. Jolanta Mol and the Air Quality programme co-ordinator - dr. Beata Węgrzynek took place. 19 teachers declared work in Air Quality or spreading it through another teacher.

I have got back protocols from Denmark (2), Latvia (5) Lithuania (2) and Poland (4). I hope that some are on the way, because some observations within Air Quality should be conducted in the autumn. Moreover Polish teacher Andrzej Śliwiński published in the local newspaper article devoted to the role of bioindicators in estimation air condition in his home town Miechów and another one, Leszek Terlecki prepared the article for the BSP newsletter.

All questions and comments about the Air Quality programme are welcome.

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**COAST WATCH
2003
- REPORT**



Participated countries: Denmark, Estonia, Latvia and Poland
Participated schools (8): Naerum Skole (D), Sillamäe Kannuka Kool (E), Järve Gümnaasium (E), Palade Põhikool, (E), Saaremaa Ühisgüm-naasium (E), Roja Secondary School (E), Riga Secondary School No.49 (LA), Zespol Szkol No. 2 Kolo-brzeg (P)
Number of filled in questionnaires is 30
Proposal: Fixed survey time

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**ENVIRONMENTAL
HISTORY 2003 - REPORT**



1. Theoretical concepts

Students working with environmental history start from current environmental questions

- they don't study the past independent from the present

Students working with environmental history have a perspective of the future

- they are not just satisfied with a better understanding of the present situation but want to create action competence for the future

Students working with environmental history can accomplish practical results

- they don't only use their results inside the school but present them to the community in order to change the situation

Students working with environmental history use chronology as an important tool both in explanations and in narratives

- therefore they avoid treating questions as "eternal" and without any historical context

Students working with environmental history starts from conflicts about the environment

- thereby they avoid both a one sided natural science, as well as a moralistic, perspective

Students working with environmental history start with studies of the local environment in order to draw conclusions about other areas from their results

- they don't start with the great trends in world history in order to illustrate them on a local scale

International network and Environmental History in education

Since 1995 the UNESCO/ASP sponsored Baltic Sea Project has included first a theme and then a programme involving schools in all the nine Baltic countries. Their experiences have been shared in the BSP programme of Environmental History in the Baltic region. Courses for teachers have been held in Russia, Denmark, Sweden, Latvia and Germany. Schools have been working with, for example, the history of the oil-shale industry in Estonia, the history of land-use during the 20th century in a farming district in Latvia, mining and landscape changes in Poland and Germany, the history of sugar beet production and landscape changes in Denmark and a joint project between Finland and Sweden about the threats to the rare pearl mussel caused by changes in land-use. The Baltic projects will be presented in a book in 2003. It will appear as number 6 in the BSP series of methodological books Learners Guide. The first, and uncompleted, version of some of the participating schools contributions are presented on the web under the link Baltic Sea Project. <http://w1.479.telia.com/~u47902564/> They are now being rewritten following the editorial meeting in Riga in October last year. The new and final versions will be ready in 2003 and the book printed in spring 2004.

This new book will contain 15-20 presentations of school projects and articles by researchers working inside the ESEH (European Society for Environmental History). Among them are Poul Holm, professor at the Centre for Maritime & Regional History, Syddansk University, Esbjerg and Simo Laakkonen at Helsinki University, in charge of the environmental history project The Sea and the Cities. From Sweden Sverker Sörlin, professor in environmental history, KTH, writes about the use of environmental history in schools and Lars Berggren, department of History, Lund university, about the use of oral history in environmental history investigations. From Germany Joachim Radkau, professor of history, Bielefeld University, contributes with an article about the long-term perspective on man and nature.

From the outset, work with environmental history in education has involved cooperation between schools and researchers. This approach has been very fruitful and made it possible to introduce a new concept of history teaching without support from traditional text-books and teacher's education.

The new book on Environmental History

in the Baltic countries will fit into our concept, providing teachers around the Baltic Sea and in other European countries with inspiration from real school projects under realistic circumstances. The need for this kind of methodological guidance is huge as well as the legitimating for the subject in regular school work. It also helps to validate and provide inspiration to the research work being carried out by scientists in this field.

A new Learners Guide on Environmental History in the Baltic Countries will represent an international break-through for the use of this concept in education in schools. The growing interest in this topic, both among teachers and researchers, means that our current experiences in the Baltic countries will be received with great interest. An example of this increasing interest is the special round-table discussion about environmental history in education in the conference in Prague in September, by the European Society of Environmental History.

2. Environmental History in the Baltic Countries. BSP Learners guide 6

Preliminary (!) content

Why did the trees fall? - Environmental history and historical explanations
Christian Bo Bojesen, Niels Kornum, Per Eliasson

(A result of a seminar at the Pedagogical University of Denmark in november 2000)
Environmental history and the Sea
Professor Poul Holm, Syddansk universitet, Denmark

Nature contra history in Nydam Moor
Sönderborg, Denmark

(A study of the conflict between culture and nature protection in a moor with interesting flora and archeological excavations)

Coal mines and landscape change
Gelsenkirchen, Germany

(An investigation of the problems of old coal mines and the reconstruction of nature)

The Slepjotka Stream Restoration Project
Katowice, Poland

(An investigation of the problems of coal mining industry, pollution and the restoration of a highly polluted river)

Oral History - pitfalls and possibilities - Narrative as a source in environmental history

Ass. professor Lars Berggren, Lunds universitet, Sverige

Guard our trees! - Environmental history of old trees in Mastaiciai

Mastaiciai, Lithuania

(About the work in a primary school with children of the age of seven to ten years to

guard old oak trees against theft and vandalism. The trees history was investigated in order to make the children to understand the value of them)

Landscape changes - Why do they happen? - Changes in land use structure in Vecpiebalga parish from 1879 to 2000
Vecpiebalga, Latvia.

(An investigation of the people on a certain farm during 120 years through the family archive and history in order to understand how the events of world history affected nature in a little farming community in the eastern part of Latvia.)

Man and Nature in a long-term perspective
Professor Joachim Radkau, Bielefeld University, Germany.

Truth and lie about the environmental situation in Ida-Virumaa

Kohtla-Järve, Estonia

(A study of how the oil-shale industry have been described in the local newspaper during fifty years in contrast to interviews with old workers in the industry.)

S:t Petersburg and the Sea - Environmental history of the flood protection barrier

S:t Petersburg, Russia

(An investigation about the plans of the flood protection barrier in the Finnish gulf outside S:t Petersburg)

Environmental history and the Baltic cities
Ph. D. Simo Laakkonen, Helksinki University, Finland

The pearl in Esse (Ähtäri) river: The freshwater pearl mussel (Margaritifera margaritifera)

Pedersöre, Finland.

(An investigation of the environmental history of land use in Österbotten in order to understand the difficulties of the reproduction of the fresh water pearl mussel)

Water issues, Land Use and the Environment in Stockholm in historical perspective.
Kungsholmen, Stockholm, Sweden

(A study of the connections between the building of a water pipe system, topography and health at Kungsholmen in the end of the 19th century)

The history of the environment in Norrköpings industrial landscape from 1600 to 2000

Norrköping, Sweden.

(An investigation of how the industrial landscape in Norrköping has been developed and the future plans for it)

The value of environmental history in education

Professor Sverker Sörlin, Swedish Institute for Studies of Education and Research, Sweden

Environmental History Programme

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PHENOLOGICAL STUDIES 2003 - REPORT

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RIVERS 2003 - REPORT

New Rivers Programme

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WATER QUALITY

It is hard to underestimate the Baltic Sea; the values created by the people belong to other categories. The sea is value. The human being often thinks about the sea as a consumer. How much does the sea cost? How many tons of fish is it possible to get out of the sea, how much money will it give? Which fish is more delicious, which of them are healthier? What is the most perfect and the simplest way of producing substances out of the seaweeds that can be used in producing medicine, cosmetics and pastries? The sea as the source of wealth has always fascinated people from this point of view. The mankind has always acted so as if the riches of the sea were inexhaustible. Now we see that it is not so.

In the same time lots of artists, poets, musicians have considered the sea to be a source of inspiration providing new ideas and new impressions. For somebody else the sea provides adventures, challenge, giving new experience, and new feelings. The sea helps us to test ourselves to understand ourselves and to grasp the real values in life.

Many people perceive the sea as a living being, having its own life, its breath, and its secrets. We should understand, discover and feel its appeal, so that the sea could live in its own natural rhythm – full of vitality and energy, unpolluted by men.

BSP Water Quality Programme lets us cast a glance in these secrets. In order to be able to watch the sea in the context of su-

stainability, we should get acquainted with it, study its conformity to natural laws, its biodiversity. Taking part in studying the water quality the students have the possibility to get an insight into these secrets, to get acquainted with the wonderful world of its creatures. For many students studying a drop of water in microscope is real adventure. They find out that the drop is full of life. There are hundreds of living organisms, busy in their everyday life, which pay no attention to the researchers. Water quality programme is not isolated activities; they should be viewed as a part of the education about water and environmental questions. You need to be careful of too negative a starting point as that would only be focusing on problems. It is important to allow the students to experience how fantastic the sea and its animal and plant life are. Unfortunately in 2003 only seven schools have sent us the results of their investiga-

tions. I would like to thank students and teachers of these schools:

- Rujiena Secondary school, Latvia (teacher: Anda Deksnē),
- Jelgavas 1st Gymnasium, Latvia (teacher: Kagaine),
- Rīga Secondary school N 66, Latvia (teacher: Liene Zeile),
- Vytautas Didysis Gymnasium, Klaipėda, Lithuania (teacher: Benediktas Gaižauskas),
- Zespół Szkół Nr.2 Kołobrzeg, Poland (teacher: Maria Adamiak),
- Västermalms skola, Sundsvall, Sweden (teacher: Krister Söderberg),
- Ilguciems Secondary school, Riga, Latvia (teacher: Liesma Abolina)

I am sure that students and teachers of other schools have also taken part in these investigations. But it will be very nice that you acquainted us with results of investigations. It is very important to exchange with information, to exchange views and

compare notes. I wish you to be more active in next year! For better research work it is advisable to use BSP Learners' Guide No 1 "Working for better Water Quality in the Baltic Sea". If you would like to start work in this programme you should ask your national coordinator or me to send you the Water Quality programme sheet for filling results of investigations.

In May 2004 Water Quality training courses for teachers will be organized in Latvia. More detailed information about these courses you can ask your national coordinators.

Let your dates with sea be like some music from the symphony of nature!

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BIRD ECOLOGY 2003 - REPORT

Participated countries: Denmark, Poland, Lithuania, Latvia, Estonia.

The results of Denmark

DENMARK : Counting of Spring Birds - 2003.
School: Amtsgymnasiet i Sønderborg, Grundtvigs Alle 86, DK 6400 Sønderborg, Denmark
Phone: +45-74420501 Fax: +45-7443 3238 www.amtsgym-sdbg.dk
Students: Anne Kathrine Skov Kjær and Torben Slothuus, form 1Y
Teacher: Birthe Zimmermann (Biology and English)
Date: Tuesday, May 6th 2003.

Observation area: Sønderborg Bay by bike along the path ("Gendarmstien") to "Trillen" (inlake) at Hørup Hav Bay
Temperature: 18 degrees C.

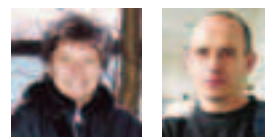
Vision : Excellent > 5000 meters. Clouds: Overcast, after rain.

Wind: Weak western wind. The water with some waves.

Species of birds observed along the route: Numbers = Observed

Letters A-F refer to locations marked previously

- A. Grundtvigs Allé C: Klinten i Sønderskoven E: Alfredslund/Lambjergskov
B. Fiskerhytten D: Sønderskoven F: Trillen = Høruphav Bay



Danish name	Latin name	English name	A	B	C	D	E	F
Toppet lappedykker	Podiceps cristatus	Great crested grebe	-	-	-	-	2	-
Gråstrubet lappedyk.	Podiceps griseigena	Rednecked grebe					2	1
Storskarv	Phalacrocorax carbo	Cormorant	-	-	-	-	4	-
Fiskehejre	Ardea cinerea	Heron	-	-	-	-	-	2
Knopsvane	Cygnos olor	Mute Swan	-	2	-	-	2	2
Sangsvane	Cygnis cygnos	Whooper Swan	-	-	-	-	-	-
Gråand	Anas platyrhynchos	Mallard	-	3	-	-	-	3
Krikand	Anas crecca	Teal	-	-	-	-	-	-
Taffeland	Anas ferina	Pochard	-	-	-	-	-	-
Troldand	Aythya fuligula	Tufted Duck	-	-	-	-	-	2
Bjergand	Aythya marila	Scaup	-	-	-	-	-	-
Hvinand	Bucephala clangula	Goldeneye	-	-	-	-	-	-
Ederfugl	Somateria molissima	Eider	-	-	-	-	-	-

BSP PROGRAMME REPORTS

Stor skallesluger	Mergus merganser	Goosander	-	-	-	-	-	3
Toppet skallesluger	Mergus serrator	Redbreastedgoosander	-	2	-	-	-	2
Rørhøg	Circus aeruginosus	Marsh harrier	-	-	-	-	-	1
Blå Kærhøg	Circus cyaneus	Hen harrier	-	-	-	-	-	1
Fasan	Phasianus colchicus	Pheasant	-	-	-	-	-	1
Blishøne	Fulica atra	Coot	-	-	-	-	-	2
Stor præstekrave	Charadrius hiaticula	Ringed plover	-	-	-	-	-	1
Alm. ryle	Caladris alpina	Dunlin	-	-	-	-	-	-
Mudderklire	Actitis hypoleucos	Common sandpiper	-	-	-	-	-	-
Rødben (mørk form)	Tringa totanus	Redshank (Icelandic)	-	-	-	-	-	-
Svartbag	Larus marinus	Great black-back gull	-	-	-	-	-	-
Sildemåge	Larus fuscus	Lesser blackbacked g	-	-	-	-	-	-
Sølvmåge	Larus argentatus	Herring gull	-	1	-	-	2	8
Hættemåge	Larus ridibundus	Blackheaded gull	-	-	-	-	-	-
Ringdue	Columba palumbus	Wood pigeon	-	-	-	-	2	2
Gøg	Cuculus canorus	Cuckoo	-	-	-	-	-	1
Landsvale	Hirundo rustica	Swallow	-	-	-	-	2	3
Sortkrage	Corvus corone	Carrion crow	-	-	-	-	-	1
Tornsanger	Sylvia communis	Whitethroat	-	-	-	-	-	1
Stillits	Carduelis carduelis	Goldfinch	-	-	-	-	-	2
Rørspurv	Emberiza caesia	Cretzschmar's bunting	-	-	-	-	-	2

Comments on the observations:

The observations are made at noon (12-14 hours)

We would like to thank you Kaja for dear you wonderful job with the programme and we wish you all the best in your new work. New Bird Ecology Programme co-ordinator from the year 2004 is Mr Andrzej Sliwinski from Poland.

Bird Ecology Programme co-ordinator

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Please send your new reports on address:

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NATIONAL COORDINATORS



DENMARK

There are now 13 Danish BSP schools (we have two new this year). We are working on being 3-4 more schools. The schools work with the BSP programmes: Water Quality, Air Quality, Rivers, Phenological studies, Coast watch, Bird Ecology and Environmental History. The big hit this year is Environmental History. Some of the schools have also exchange with other BSP schools.

- 10-11.03: All ASP schools joined UNESCO's 50 years jubilee in Copenhagen. First with a joint programme, followed by a separate meeting for the BSP schools.
- 10-13.04: 3 of our schools joined Air Quality course in Gdansk, Poland
- 12-14.05: An International course in Sønderborg, "A sustainable Fishery in the Baltic"
- 11-15.06: A school joined the Conference in Pløn, "Yesterday - Today - Tomorrow"
- 2-5.10: An International Conference in Ribe, "Education for Sustainable Development - Baltic 21."

More than 30 persons from eight countries participated



- 29-31.10: National BSP meeting. The theme was Sugar production (Environmental History).

Learners Guide no. 5 "Education for Sustainable Development" by Birthe Zimmermann came first in June, and we have worked a lot with the themes in the book. It is a very good book, and it is translated to Danish. We are all looking forward to that.

A new theme we are working on is Green account on our schools: Are our schools green? We work on an article on that theme to the Newsletter.

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ESTONIA



Estonian National Report for the Period January, 2003 to October, 2003

There are 16 schools officially involved in "The Baltic Sea Project" in Estonia. The coordinator of the BSP is Estonian Youth Work Center. Two Estonian schools joined up with the project this school year.

There have been many activities organized and made students' research works in Estonian BSP schools. Estonian schools participated in the following BSP programs in 2003: Rivers, Air Quality, Water Quality, Bird Ecology, Coast watch.

We organized the contest of students' research works for Estonian BSP schools to choose the students to participate in conference in Germany last summer. The topic of contest was: Yesterday – Today – Tomorrow. We got the research works from four schools:

- Tartu Nature House – "Yesterday – Today – Tomorrow"
- Lillakyla Gymnasium – "The impact of human activities to the Kopli Bay"
- Järve Gymnasium – "Orchids at technogenic landscape in Ida-Virumaa"
- Kolga Secondary School – "The condition of river Puidisoo - Yesterday – Today – Tomorrow"

We have arranged the annual meeting for the BSP schools, which was held in May 8th to 10th in Hiiumaa (an island in western part of Estonia). About 35 teachers and students participated. In the program there was fieldwork such as bird watch, lichens, plants observations, meeting with the local environmental specialists etc.

Many Estonian schools have made annually the investigations of water quality of rivers and lakes. For example Tartu Kivilinna High School, Tartu Tamme Gymnasium and Tartu Nature House investigated the water quality of Emajõgi; Viljandi C.R. Jakobsons Gymnasium made the surveys of Lake Viljandi and they have done this many years; Kadrina Secondary School investigated the water quality of river Loobu and some local lakes.

The students and teachers of Viljandi C.R. Jakobsons Gymnasium pay their attention continually to the energy problems and sustainable lifestyle. The students have introduced their experience at the posters in the school.

Many environmental camps and excursions were organized in Estonian schools. A lot of students' research works were done in schools in very different topics:

- "Different sorts of fuel", "The influence of loud noise to the health", "The old arable land as present undeveloped lands"- Tartu Kivilinna High School
- "Tuudi river", "Home forest", "Võigaste forest", "The elk" - Lihula Gymnasium
- "The wastes" – Kadrina Secondary School

Estonian students do a lot of social valid work – cleaning the forest, seacoasts and riverbanks of rubbish, collecting the waste paper.

Tartu Nature House prepares the project of fishery and this project is for Estonian BSP schools.

The students from Järve Gymnasium have continued the theme of environmental history and they have prepared very interesting research works. They investigated the old local newspapers, how the journalists have treated the topic of environment from 1965 till nowadays.

What is planned further on?

- annual meetings for BSP teachers and students
- one – day seminars for the teachers
- Co – operation with ASP schools and with ASP coordinator in Estonia – the conference "Youth and the awareness of environment", which will take place next summer in July. This conference will give all presumptions for youth for an active participation, involving the public, changing the experiences between different countries and further co – operation.

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FINLAND

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GERMANY



After the final conference at Koppelsberg/Plön in Schleswig-Holstein in June 2003 a lot of things have changed. After a time of digestion and relax the weeks after - we started highly motivated in the future.

Unfortunately we could not participate in the international conference in Warsaw because I got very ill some days before and we could not manage it at that very short time sending someone else.

In October 2003 we had a very important national conference with more schools than ever.

The most important result is: working more closely together with the UNESCO - schools and other school projects in Germany as there is e.g. a project called BALTIC21; an article is found in the Learners' Guide No.5.

So we are involved in the international UNESCO-schools day in April 26th.

Therefore we'll have a one week national summer-school in a fantastic nature resort before, organised by Barbara Maitin, the BSP programme-coordinator of phenological studies.

The same day – as in the years before – Martin Jarrath will start a new edition of International INTERNET Conference. This year the title will be: FOOD and NUTRITION. You all are invited to take part.

November 2003 we got some money for publishing a newsletter - documentation about the Plön conference, I hope you all have received it already.

Mr. Volker Stiehl is working hard at a CD concerning the extraordinary performance. You'll of course order copies of it.

At last we have a fantastic information: As I told you some times before – now it's real: The GREEN-Point and the Bundesstiftung Umwelt, Germany, are interested in a new BSP-Learners' Guide about RECYCLING (this is only a working title), which is connected to our programmes Air Quality, Water Quality, Rivers and especially in Education for Sustainable Development.

We ask you for your experiences to this topic at school, your

NATIONAL COORDINATORS

articles about it and your O.K. working together with us in an international editor's group. Please send us – as soon as possible – first ideas!

On behalf of all German BSP-schools we say thank you for your participation in Plön.

All the best for You, Jolanta, in Germany the BSP is going on with the best of all commitments.

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LATVIA

There are 25 active BSP schools in Latvia.

We have organized two BSP teachers meetings every year. The first meeting took place in May 17th, but the second meeting will be organized on December. The aim of these meetings is to exchange experience and to support each other to implement ESD in our school curricula. We are very thankful for the LG No 5; it will be very useful for teachers and students.

The student conference "Yesterday, today, tomorrow" in Latvia was organized on February 1st. Students from 20 BSP schools have participated with the reports about they projects, developed according the environmental history of the local environment. One of the rules of the conference was that for the design of the poster students must use only environmentally friendly materials or different packing materials.

Some students from BSP schools took part in the National Environmental Project Olympiad and drawing competition about local environmental problems, organized by Latvian National Commission of UNESCO.

Two teachers from Latvia have participated in the international teachers training course "Air quality" in Poland.

32 persons (7 teachers and 25 students) from Latvia took part in the international conference in German "Yesterday-Today-Tomorrow".

We have tradition that every summer we have organized student summer camp and teacher seminar and the hosts are some of BSP schools. This year the hosts were Ogresgala basic school. About 80 students and 20 teachers have participated. There were workshops about rivers, art, and environmental theatre. Teachers who participated in the international teachers training course in Poland were the workshop "Air Quality" leaders and the new protocols was adopted. All participants have possibility to visit kiln where the ceramist introduce with the producing stoneware using old methods and we have saw the opening of the melting-on stove. It was very impressive and useful for students to understood how complicate is producing the ceramics and what kind of raw materials are used. After we have discussions how this ceramics kiln effect the environment.

I have prepared special questioner for BSP school teachers and till the end of year they must answer and I will made the summery about the activities, participating in the BSP programmes, problems according to the implementation of ESD and others.

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LITHUANIA



Seminar of the BSP schools coordinators took place at Lithuanian Centre of Young Naturalists in 5th of May 2003. Certificates of the BSP participants were given for twenty schools in this seminar. Although near thirty Lithuanian schools participate in the BSP, but not all of them present reports for the BSP programs coordinators. One of reasons is lack of information about programs or possibilities to get this information in national language. New website www.gamtininkai.lt/bsp is designed for spreading of information and will help to improve resent situation. Teacher will find all useful information about the BSP in Lithuania in this website.

Vilnius _emyna Gymnasium has to be highlighted in Vilnius region. This school, together with Centre of Young Naturalists, organizes conferences for schoolchildren „The development of Environment“. Those conferences are organized already for four years and are dedicated for communication of children from different schools that participate in the BSP. They can meet each other; shear their ideas and experience. Communication with contemporaries helps in search of motivation for this work.

Children of Kaunas district Mastai_jai Main School do great work in Environmental History program. Experience of their teacher Birut_ Jasinskien_ could be useful for other participants of this and other BSP programs.

Most of BSP certificated schools are located in Kaunas and district of Kaunas. Consequently in October of 2003 annual meeting of BSP schools coordinators took place at Kaunas district Lapi_ Main School. In this meeting experience brought from Plön, Germany where the 5th final students and teachers Baltic Sea Conference took place, was presented. Program Environment history was discussed with the top interest and some requests for renewing of BSP programs information more frequently were formulated.

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SWEDEN



The year 2003 has been an eventful year for Baltic Sea Project in Sweden. The National Agency for School Improvement was formed and took over the co-ordination of Baltic Sea Project and a new national co-ordinator was therefore elected. The Nordic Council of Ministers' held a seminar in Karlskrona on Education for sustainable development. Teachers and pupils from Sweden visited the international conference in Plön. A decision to launch an evaluation of BSP was made. The national co-ordinator visited the co-ordinators meeting in Debe. The first of March a new National Agency for School Improvement was formed. From the former National Agency for Education two new agencies started working. The new National Agency for Education with the mission to control and evaluate the schools in Sweden and The Swedish National Agency for School Improvement with the mission to support improvement work. The National Agency for School Improvement is now responsible for the co-ordination of the Swedish participation in the BSP.

The new Agency for School Improvement is working intensively to promote and support education for sustainable development in Sweden. During 2004 and 2005 a project group will work with information, competence development, support material and networking in order to support new teaching methods and organisational innovations. An important part of this project is the participation in BSP.

Susanne Mellvig, who has been the national co-ordinator for Sweden since 2001, was replaced by Martin Westin during the

summer. Sweden would like to thank Susanne for a job well done! Martin Westin is working at the National Agency for School Improvement.

In June the Nordic Council of Ministers' held a seminar on education for sustainable development in Karlskrona, Sweden. The aim of the seminar was to exchange experiences regarding sustainable development efforts in the context of education. The emphasis was on how the education can be designed. About 130 delegates took part in the seminar. Delegates attended from Denmark, Estonia, Finland, the Faroe Islands, Greenland, Iceland, Lithuania, Norway, Poland, Russia, Sweden and Aland. Among the participants were schools active within BSP.

During the summer teachers and pupils visited the BSP conference in Plön. The conference gave possibilities to meet over the national borders and exchange ideas.

The National Agency for School Improvement has decided to launch an evaluation of BSP. The evaluation will try to find out if the co-operation within the BSP has had any effects on the teaching methods and organisational structures in the participating schools in Sweden.

In November Martin Westin participated in the international co-ordinators meeting in Debe, Poland. The meeting gave possibilities to exchange ideas on how to develop the work within the BSP co-operation.

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POLAND

The major changes in the structure of the Polish BSP network took place in 2000.

The national co-ordinator, dr Krzysztof Kafel, who has been with the Project from its very beginning in 1989, has resigned from his position and dr Jolanta Mol took over the coordination of the BSP.

Till the year 2000 twenty five ASP schools were involved in the project and they were very active. The environmental education is popular in Poland so we decided to develop the cooperation with other schools which are not members of ASP. Currently 66 schools from all over the country are participating in the Baltic Sea Project: 56 Upper Secondary Schools, 3 Grammar Schools and 7 Primary Schools.

In 2001 we held the meeting in the Ministry of Education in Warsaw. The General Secretary of the Commission of UNESCO in Poland Mr dr Tomasz Orłowski and the Counsellor of the Minister of Education Mr dr Krzysztof Kafel opened the conference. The school coordinators of BSP presented their work. Ms Jolanta Mol introduced herself as the new national co-ordinator and described the very new Environmental History Programme which appeared interesting for the teachers.

During those three years the environmental education has been developed in different fields.

1. Polish schools participating in BSP – programmes

No	Programme	Numbers of schools
1.	Air Quality	7
2.	Water Quality	11
3.	Coast Watch	6
4.	Rivers	21
5.	Bird Ecology	13
6.	Phenological studies	9
7.	Environmental History	12
8.	Pine Needle Project	3
9.	Moos Balls	2
10.	Crustacean Shells	1



Conclusions:

1. Primary and grammar schools participate in such programmes like Phenological studies, Bird ecology, Coast watch and Rivers.
2. Upper secondary schools work mainly with Environmental history, Rivers, Air quality and Bird ecology programmes.
3. Every Polish school works with more than one programme, some of them work with 4 different ones.
4. Last year one of the most popular programme became Environmental History

2. Exchanging of students

About 20 schools organized the exchanging of students with different Baltic countries. The most active in that field are: Konopnicka Upper Secondary School from Katowice (7 times: with Swedish schools from Borlange, Falun and Stockholm and with Danish school from Kalundborg) and Nowodworski Upper Secondary School (7 times with schools from Germany, Denmark and Sweden).

3. Participation in the international conferences and workshops

15 Polish schools took part in different workshops and conferences organized in Germany (Neuminster, Flensburg, Rostock, Plön), in Denmark (Skjern, Sonderborg), in Finland (Pori), in Poland (Rzucewo), in Latvia (Jurmala), in Estonia (Tallinn, Tartu), Russia (Petersburg).

4. Writing and publishing articles in BSP Newsletters and Learners' Guides in years 2000-2003

No.	The name of the Polish BSP school	Newsletters	LG No. 4	LG No. 5
1.	II Konopnicka Upper secondary School, Katowice	7	1	
2.	Nowodworski Upper Secondary School, Krakow	1		1
3.	II LO Glogow	1	1	1
4.	ZSO 6 Gdansk	1		
5.	Gymnasium Ustka	2		1
6.	ZS 2 Kolobrzeg	1		1

Conclusions:

1. There are only 6 schools good working with publishing articles
2. We have to work with making our school more active in this field

5. Organizing national and international BSP conferences in Poland for teachers and co-ordinators

1. November, 7th - 10th 2002. Rzucewo (Gdansk, Poland) - International meeting for National and Projects Co-ordinators within the Baltic Sea Project, organized by Ms, Jolanta Mol in cooperation with former General BSP Co-ordinator – Ute Grönwoldt, financed by German General Committee of UNESCO
2. April, 11th - 13th 2003. Rzucewo (Gdansk, Poland) - International Ecological Conference within the Baltic Sea Project, 10th International workshop "Working for Better Air Quality in the Baltic Region" – organized by Ms Jolanta Mol, financed by Ministry of Education and Sports in Poland, and Polish General Committee for UNESCO.
That conference was organized and financed by Poland because of taking over the Air Quality Programme co-ordination. Polish botanist Ms dr Beata Wegrzynek was honored with the nomination of being the international co-ordinator
3. October, 16th - 19th 2003 – Polish national conference for BSP school coordinators "Working with BSP programmes and exchanging of students", 42 participants, it was financed by Ministry of Education and Sports in Poland, and Polish General Committee for UNESCO.
4. November, 13th - 16th 2003 - "The 16th consulting meeting within the Baltic Sea Project" in Debe (near Serock, 30 km north way to Warsaw). Financed by the Polish General Committee for UNESCO.
5. December 13-15th - National BSP meeting "IT workshops for BSP teachers", in Katowice, 60 participants. Financed by Ministry of Education and Sports in Poland

Poland is taking over the General Co-ordination of the Baltic Sea Project after Germany for the next 3 years!

In June, 11th – 15th 2003 – during the "Final Session of the German coordination of the Baltic Sea Project – a regional flagship project within the Network of UNESCO-Project-Schools" in Plön (Germany) Poland took over the General Co-ordination of the BSP Project. Ms Jolanta Mol was nominated for the next three years 2003-2006 as the General Co-ordinator of the BSP after Ute Grönwoldt. Poland was represented by 44 teachers and students on that conference.

About 40 schools are very active but they don't send the protocols to the national and programmers coordinators

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Questionnaire for BSP schools – please fill in and send it to your National BSP Co-ordinator before, October 2004.



**The Baltic Sea Project
QUESTIONNAIRE**

Protocol of the all active schools to be sent to the national co-ordinator
by e-mail:

- School:
- Address / country:
- BSP liaison person:
- e-mail:
- Tel:
- Number of teachers involved in the BSP:
- Subjects involved in the BSP:
- Number of students involved in the BSP:
- Age of students:
- When did your school start to participate in the BSP (year)?

Table 1. BSP programmes:

No.	Programme	Are the protocols sent to the programme co-ordinator?	In which subject the programme is realized?
1.	Water quality of the Baltic Sea		
2.	Rivers		
3.	Air quality		
4.	Phenological studies		
5.	Coastwatch		
6.	Bird watch		
7.	Environmental history		

Table 2. In what kind of national and international BSP activities did your teachers and students participate?

No.	Activities	Number of teachers		Number of students	
		National events	International events	National events	International events
1.	Teachers' training courses				
2.	Camps				
3.	Conferences				
4.	Others				

Did your school send articles to the BSP Newsletter from 2000-2003?

- Name your BSP friend schools in your country (network).
- Name your BSP friend schools in other countries (network).
- Name the BSP activities organized in your school.
- Name the subjects where you have used BSP Newsletter.
- Name the subject in what you have used:
- Learners Guide No 1,
- Learners Guide No 2,
- Learners Guide No 3,
- Learners Guide No 4,
- Learners Guide No 5,
- Learners Guide No 6.

Elaborated by:

Date 2004

Salacgriva, Latvia, 20-23.05.2004

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