



NATURE-  
WATCH  
BALTIĆ  
REPORT  
2006

# TO THE READER

Naturewatch Baltic is an environmental education project for students. The main target group is 13-16-year old students but primary class students and even kindergarten kids have participated. It was launched by WWF Sweden in 1991 and is coordinated by WWF sister organizations around the Baltic. WWF Sweden financed the project in the Baltic States and Poland until they became members of the EU in 2004. Russia still receives some support.

The project started with common questionnaires (coast, stream and lake) to investigate water-plants and animals, and to do chemical analyses. The materials for studying forest ecosystems and society – "Watch 21" - were developed later. In its peak year - 2001 - over 20,000 students from around the Baltic Sea participated.

Besides the practical outdoor activities for students, the teacher-training courses have been a very important part of the project. A number of international camps, conferences and meetings were organized in different countries.

The project has been a major step in raising young people's environmental awareness, encouraging them to act in a more sustainable way. Curious students, devoted teachers and coordinators have established a strong and effective network.

Now, in 2007, Naturewatch goes on! To our previous programs we are adding P-STOP, an outreach activity for teaching and learning about eutrophication. Another component will encourage students to be informed about, and advocate for, use of phosphate-free detergents and better sewage cleaning in their local towns and shops.



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This issue of the report was prepared by:

Estonian National Coordinator: Reet Kristian Estonian Fund for Nature, Estonian Youth Work Centre

Language editor: Marguerite Oetjen

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## KEEP NUTRIENTS ON LAND!

Do you know about P? All 90 million persons in the Baltic Sea region relieve about one kilo of phosphorous -P - per year, usually released in sewage pipes. About 60% of P originates from your visit to the toilet; the rest, 40%, comes from detergents when you wash clothes or use a dish-washer. With some calculations, you find that 36,000 tons of phosphorus is released from detergents every year. Roughly half is collected in sewage treatment plants and half, almost 18,000 tons of phosphorus, is emitted to our rivers, lakes or directly to the Baltic Sea.

Plants love phosphorous, especially in combination with nitrogen. On land this is a good thing, but not in water, as it causes algae blooming, lifeless bottoms, the decrease of cod and destroyed swim tours.

If you use phosphorous-free detergents you contribute to the decrease of eutrophication in freshwater and in the Baltic Sea. Ask for phosphorous-free detergents in your store!

This year Naturewatch Baltic wants to encourage teachers and students to teach, learn and disseminate the P-STOP message. I hope you and your class-mates will assist.

Let's increase the visibility!



*Birgitta Jutvik*

Birgitta "Gitte" Jutvik  
WWF Education / gitte.jutvik@wwf.se

*Have a look at the unknown world!*

<http://helcom.navigo.fi/stc/files/Publications/Audiovisual/lordofthethings/index.html>

## WATER SAMPLE ANALYSIS

*International pedagogical seminar on Education for Sustainable Development in the Baltic Sea area was held in Sipoo, Finland 26.-30.10. 2005. The participants were asked to bring with them a small water sample from the Baltic Sea coastline. The conditions where the samples were kept after obtaining them, and the lengthy time it took to get them analyzed makes the results less valid than in a proper scientific research. Nevertheless, the findings are interesting, and in line with what we know from before. The analysis was made by Samuli Korpinen, WWF Finland.*

*The analyses were taken from Finland – Helsinki, Vousaare Harbour; Espoo – Haukilahti Harbour; Estonia – Haapsalu; Latvia – Gulf of Riga; Lithuania – Klaipeda-Melnrage; Poland – Gdynia Harbour; Russia – St. Petersburg; Sweden – Öland – Kalmarsund.*

### 1. GENERAL OBSERVATIONS

The samples obtained in October 2005 clearly show that the Baltic coastal waters are eutrophicated. The impact of big rivers and cities on water quality is clear. The plant production in the Baltic Sea is primarily dependent on the concentrations of nitrogen-

based nutrients (nitrate, nitrite and ammonium), and secondarily on inorganic phosphorus (phosphate) in the surface water.

The Eutrofication is worst in sheltered bays surrounded by either agriculture or large cities, like the Gulf of Riga. About 60% of nitrogen, and 80% of phosphorus in the Baltic Sea comes from the catchment areas as a non-point pollution.

The most nutrient-loaded basin is the Gulf of Finland, although the nutrient load decreased by 40% from 1980 to 2000. The decreasing stopped in mid 90's due to the so-called internal loading. This means that the nutrients stored into the bottom surfaced due to various physical mechanisms and chemical reactions. Waste water treatment has a key role in reducing the external loading.

### 2. THE SAMPLES CONFIRM THE BAD CONDITION

The nutrient samples participants took with them to Helsinki give a good picture of the state of affairs in the Baltic Sea coastal waters. The St. Petersburg sample had the highest amount of inorganic nitrogen and phosphorus that support plant growth





(Figures 1,2). Concentrations of total nitrogen and phosphorus (the amount of these two nutrients in living or dead organisms) were also highest. The second highest concentrations were found in the Gulf of Riga. Both in St. Petersburg and in Riga the high phosphate values point to the origins of the loading: agriculture and waste waters.

The samples taken from the bays in the Helsinki region did not differ considerably from those of Estonia, Lithuania and Poland. Helsinki region wastewaters go through a pipeline into the outer archipelago, so they are not visible in these values. Therefore, the relatively high values seem to reflect the general state of the Baltic coastal waters. The Swedish Kalmarsund sample had the lowest nutrient concentrations. The site is close to the main basin of the Baltic Sea (the Baltic Proper), and there are no large rivers or point-polluters.

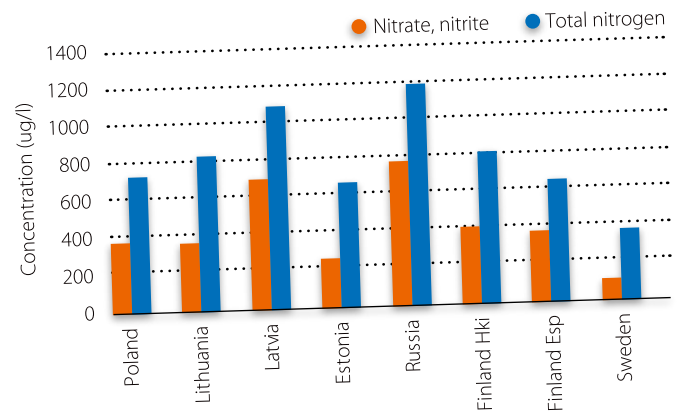
### 3. TO BE TAKEN INTO ACCOUNT IN THE INTERPRETATION

**3.1 SEASON:** Timing of the sampling (e.g. the season) must always be considered. In summer, light promotes photosynthesis and growth. Primary producers bind nutrients to their growth so the concentration of free nitrogen and phosphorus decreases in the surface water. In autumn decreasing amount on light, and finally also temperature, inhibit the production. In winter storms mix the bottom and surface waters. As a result, nutrient concentrations increase in the surface waters. During spring and summer the water column stratifies again, and the surface water nutrients are consumed.

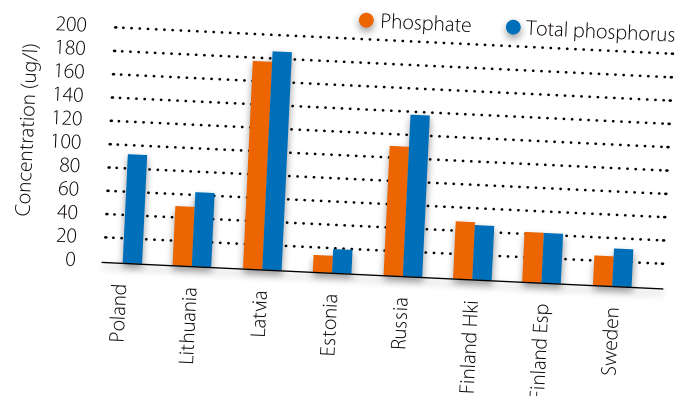
**3.2 TURBIDITY:** Turbidity of the water is caused by planktonic algal blooms (brown in the spring and green in the summer) or by inorganic or organic particles. It is measured by the FNU standard. The particular matter comes either from the catchment area or from the sea sediment.

Turbidity decreases the photic layer of the sea having a strong ecological impact. The thinning of the photic layer decreases the depth limits of algae and vascular plants on the shore. Especially the Bladderwrack (*Fucus vesiculosus*) has suffered from this. The decline in vegetation decreases habitats of several aquatic species. The decreased visibility has also a negative impact on the predatory fish. All these changes are all too visible in the Baltic coastal ecosystem (Figure 3).

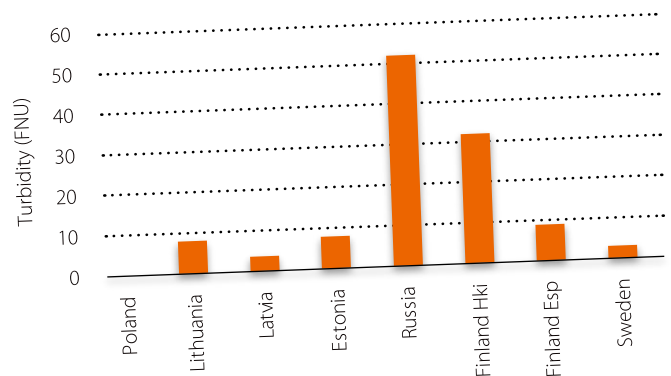
**FIGURE 1:** Nitrate, nitrite and total nitrogen in water samples



**FIGURE 2:** Phosphate and phosphorous content in water samples



**FIGURE 3:** Turbidity in water samples



Reet Kristian



## WE PARTICIPATED IN LOODUSVAATLUSED, OUR PART OF NATUREWATCH BALTIC!

Audentes Private School; Audru Secondary School; Jõhvi Gymnasium; Järve Gymnasium; Kadrina Secondary School; Kildu Primary School; Kohtla-Järve Co-Educational Gymnasium; Kolga Secondary School; Kose Gymnasium; Kunda Co-Educational Gymnasium; Lasnamäe Compulsory Gymnasium; Libatse Elementary School; Metsküla Elementary School; Palade Primary School; Põltsamaa Co-Educational Gymnasium; Pärnu Nature House; Rakvere Real-Gymnasium; Saue Gymnasium; Sillamäe Kannuka School; Suuremõisa Technical School; Sõmeru Primary School; Tallinn Co-Educational Gymnasium; Tartu Kivilinna Gymnasium; Tartu Nature House; Tartu Tamme Gymnasium; Valgjärve Primary School; Valtu Primary School.

Naturewatch Baltic is a program that supports our national curricula and out-door learning. Both aspects have been successful and have gained the appreciation of teachers. More than 500 students from 27 schools participated in Naturewatch in 2006, making investigations at the coasts, lakes, streams, forests and parks. A teacher training course, with 28 teachers participating, concentrated on sustainable use of washing powders and green energy.

## RESEARCH TRIP ON THE RIVER EMAJÕGI

On September 9-10, 2006 our form10 from Tartu Tamme Gymnasium went on a boat trip for research along the River Emajõgi. We launched our motorboats and headed towards Lake Võrtsjärv. After a 10 km trip we came ashore on a nice sandy riverbank. Our class was split into groups of five and every group had a different aspect to research. We investigated flora and fauna and also the quality of the water. Back at school, after a wet return trip for some of us, we made a report about what we saw and did on the River Emajõgi. We found that the trip was both educational and enjoyable, and satisfied all participants.

*By Mati Sõber and Kaija Kõiv / Tartu Tamme Gymnasium*

## ALAM-PEDJA NATURE SCHOOL

**WHY?** The aim was to establish a nature education centre within the Alam-Pedja Nature Reserve - a nature school amidst nature. At the centre in Palupõhja village, located on the bank of the Emajõgi River, surrounded by the river floodplains, meadows, forests and mires of Alam-Pedja Nature Reserve, and only 40 km from the city of Tartu, children and parents, students and adults are taught and led by experienced naturalists and interpreters. The principle of the nature school is learning through experience and mentoring. Teaching methods used at the nature school include camps, seminars and field training courses; Naturewatch activities are also suitable. Palupõhja village was identified as an ideal location for a nature centre.

**HOW?** In the autumn of 2001, the Estonian Fund for Nature (ELF) and the nature protection society "Kotkas" (Eagle) jointly bought a suitable empty farm house in the centre of Palupõhja village and started planning and executing renovations, with aid from Danish and Dutch foundations, private donors and state sup-

port. The renovation was complicated as the house had become host to one of the largest. Pond Bat (*Myotis dasycneme*) breeding colonies in Estonia (app. 300 adult females), which occupied the crevice between the log walls and the outer siding. The main work began after the departure of the breeding bats in September 2005; all the outer reconstruction had to be complete before the bats' return the following spring. The builders and ELF bat expert worked closely to ensure that similar conditions for the bats would be preserved in spite of the renovation.

**WHEN?** The school was officially opened on 24 October 2006, and hosted 11 nature camps in the first "semester." However, seminars, meetings and field training courses had been in process since 2002.

**WHAT NEXT?** The interest is high. It is clear that such a centre for nature education and experience is much needed. The founders envision the school as a base for year round, in depth, natural science projects for students – youth and adults, local and distant – using the nature reserve as their classroom, and benefiting from the resources available at the Palupõhja nature centre. Instructors include university professors, and staff of Kotkas, Alam-Pedja, ELF and the Tartu Centre for Environmental Education.

## OIL POLLUTION IN NORTH-WEST ESTONIA

On 28 January 2006, an oil slick was discovered on the northeast coast of Estonia and on islands in the Gulf of Finland. Estimated at 20 tons, the oil killed thousands of wintering birds, and left many survivors in need of rescue.

Estonia faced a serious problem. It was the worst oil disaster in its history. Authorities and NGOs did not know how to respond most effectively to clean the coastline and rescue the birds. Fortunately, ELF had just started its oil combating project in 2005, in order to be ready with trained volunteers and equipment for such disasters. Additionally, the International Fund for Animal Welfare's Emergency Relief team with Project Blue Seas (Germany), SEA ALARM (Netherlands and Belgium) and the RSPCA (UK) arrived a few days later to help to establish the rehabilitation system, the bird hospital and to train local volunteers for the work. The cleaning of the coast and management of the bird hospital lasted until final release of birds in May 2006.

As of February, 2007 the cause of the pollution has still not been discovered, pointing up the risks and dangers of shipping to the environment. Therefore, ELF, in cooperation with the Estonian Rescue Board, WWF Finland and the Estonian Nature Conservation Centre, is carrying out activities in order to provide training, know-how and operational information to volunteers, state institutions and nature reserve staff for managing the consequences of oil pollution in coastal areas, including the cleaning of animals, in case of

such disaster. As of 2006, 700 persons had been trained in Estonia and Finland and are prepared to help. These activities are carried out within the joint project "Improving the preparedness for oil spills at the Gulf of Finland" and implemented within the framework of the Interreg IIIA Southern Finland – Estonia Programme.

*Myotis sp. | Photo: Uudo Timm*



### WE PARTICIPATED IN NATUREWATCH, OUR PART OF NATUREWATCH BALTIC!

Alakylän koulu, Etelä-Sipoon koulu, Härkävehmaan koulu, Itä-Suomen koulu, Vantaan Jokivarren koulu, Juvan koulukeskus, Kannelmäen ala-asteen koulu, Kasukkalan koulu, Kaukopään koulu, Kourujärven koulu, Kumpulan koulu, Kyrkoby skola, Käpylän peruskoulu, Laajasalon ala-aste, Lehtoniemen koulu, Mukkulan koulu, Palokan koulu, Pirkkalan yläaste, Pitäjänmäen peruskoulu, Pukinmäen peruskoulu, Pähkinärinteen koulu, Rajakylän koulu, Sakarinmäen koulu, Simon koulu, Sorrilan koulu, Strömbergin koulu, Viitaniemen koulu, Virasojan koulu, Vuoksenniskan koulu, Vuosaaren peruskoulu and Kotka-Vartio Scouts.

### OVER 100 SPECIES FOUND DURING FOREST WATCH

The year 2006 was an exciting year for the Naturewatch in Finland as there were many new findings and a lot of species identified from different habitats. The most popular subject for Naturewatch studies was the forest ecosystem. Pupils were, in particular, active in identifying plants, mosses, lichen and fungi. Mammals kept hiding, but traces of their visits were visible. How many species of animals do you know? More than 100?

### THE FIND OF THE YEAR: FLYING SQUIRREL (*PTEROMYS VOLANS*)

The most exciting finding was the Flying Squirrel which was reported from two different locations, Rauma and Palokka. With its soft, silky pelage and large eyes, the Flying Squirrel is such a cute creature... and of course its ability to glide over tree-tops is fascinating. Students did not actually see Flying Squirrels during their investigations but a nest and droppings were found. Its droppings are easy to identify as they are like little grains of rice but bright yellow.

Flying Squirrels tend to dwell in trees along rivers, usually living in hollows. They eat the leaves of deciduous trees in summer, and the catkins and buds of birch and alder during winter. Flying Squirrels are nocturnal, making long trips to forage during night time and returning to the nest before sunrise. They spend the day resting in their nests.



Flying Squirrel | Photo: Rainar Kurbel

Hanna Nordström



### LAKES ARE IN BETTER SHAPE THAN RIVERS

Some differences were found in the quality of rivers and lakes in Finland. Water was found fresh and clear in lakes but rivers were somewhat muddy and stinking.

In addition, more litter and signs of eutrophication were found in rivers than in lakes. Pupils from Jokipuisto School investigated Sipoo River and were worried about its condition. They concluded that cultivated fields are too close to the riverbank and that some nutrients may leak into the river.

Despite these findings, trips to the shore were enjoyable. Palokka School Nature Club teachers Terttu and Markku Tossavainen recap the feelings on their Naturewatch Lake & Rivers survey, which was rich in species: "We were lucky on our field trip by the lake. We heard Great Bittern (*Botaurus stellaris*) booming in the nearby reed bed, saw Golden-eye (*Bucephala clangula*) nesting in a woodpecker hole and found fresh droppings of a Flying Squirrel. And what is more, it was a beautiful sunny day, perfect for Naturewatch!"

### EKO WATCH – RECYCLING IS EASY IN FINLAND

The most important result in Eko Watch surveys was that most of the pupils are already active in reducing and recycling waste in Finland. For example, they try to avoid plastic bags while shopping, and recycle paper, cardboard, bottles and cans. But students still need some practice in saving energy. Many pupils reported that they take long hot showers and leave televisions on stand-by-mode, which are both unwise acts that waste energy. Now you know how to improve next year!

### NATUREWATCH AWARD 2006

Etelä-Sipoo Primary school and Pitäjänmäki Comprehensive school were awarded with 2006 Naturewatch Award. Pitäjänmäki School has been involved in Naturewatch since the beginning in 1999. So the year 2006 was the eighth consecutive year for their Naturewatch surveys. Pupils from Etelä-Sipoo Primary were, on the other hand, active in writing and filming an introductory Naturewatch Finland –video. Both schools were awarded with a diploma and 500 euros to be used for their environmental education work. Congratulations!

Inspecting a dead standing tree also known as kelo  
Photo: Hanna Nordström



## WE PARTICIPATED IN DABAS VĒROTĀJI, OUR PART OF NATUREWATCH BALTIC!

Andrupene Primary School; Daugavpils Secondary School No 3; Daugavpils Secondary School No 9; Daugavpils Youth Centre „Jaunība”; Daugavpils Central Gymnasium; Dignaja Primary School; Embute Primary School; Ergli Secondary School; Gavieze Primary School; Ilguciems Secondary School; Jekabpils Youth Centre; Jurkalne Primary School; Jurmala 1. Gymnasium; Kalupe Primary School; Kaunata Secondary School; Kuldīga Central Gymnasium; Kraslava Rainbow Secondary School; Kurzemite Primary School; Karsava Gymnasium; Liepāja Ezerkrasts Primary School; Limbazi Secondary School No1; Lubana Secondary School; Mezvidi Primary School No 2; Nica Secondary School; Pilskalne Primary School; Pavilosta Secondary School; Remte Primary School; Reveli Primary School; Riga Secondary School No 49; Robeznieki Primary School; Saliņa Secondary School; Saulkrasti Secondary School; Sermite Primary School; Sloka Primary School; Stacija Primary School; Svente Secondary School; Ugale Secondary School; Vergale Primary School; Vigante Primary School; Zvejniekiems Secondary School.

Naturewatch is still the largest and longest lasting environmental education project in Latvia. About 700 students from 40 schools sent back data this year. The most popular program this year was Stream/Lake, including 25 schools. Most of the data was submitted directly to the internet database – [www.liis.lv/dv](http://www.liis.lv/dv) - and this was a great success!

## FROM NATURE TO THE CONFERENCE HALL

Two conferences were organized for Naturewatch Baltic students last autumn. The first one - „Forest and History” - was organized in cooperation with Stora Enso Forest and WWF Latvia. More



*Inese Liepina*

than 100 students from 26 schools presented their investigations about local forest history and ways of traditional use of the forest.

Students from Tirza Primary School were surprised about the large number of toponyms, names connected to the forests, found in their region.

Lielvarde Secondary School students investigated barrel makers' work and demonstrated the process of barrel making to all participants.

“Americans were hunting for gold for centuries: We don't need to find any gold; we have “green gold” (forests) here, near us!” - from report of Baiba Dregere, Zvejniekiems Secondary School.

## WATER WORK, INDOORS AND OUT

The other conference was all about Water: Teachers and students from all around Latvia met in Riga to share their experience about stream, lake and coast investigations and participated in workshops with various specialists. The conference was organized in cooperation with the Youth Initiative Centre of Latvia.

Saulkrasti Secondary School presented materials about Sunset trail along Riga Gulf coast. Long-term Baltic Sea coast pollution problems were presented in the work of Ilguciems secondary School from Riga.

The decor from flood-land meadows plants was made by Pilskalne Primary School.

Students from Zvejniekiems Secondary School were surprised at the large number of beavers in the river and found this animal very interesting!

We will continue to organize conferences on Naturewatch traditional topics, and plan to hold another conference for Watch 21 students in 2007.

*Coast watchers  
from Saulkrasti Secondary School  
Photo: Inara Strapcane*

*Beavers Dam Zvejniekiems  
Photo: Svetlana Grube*



### WE PARTICIPATED IN GAMTOS STEBĖJIMAS, OUR PART OF NATUREWATCH BALTIC!

Vytautas Didysis Gymnasium, Klaipėda; "Žemyna" High School, Klaipėda; "Aukuras" High School, Klaipėda; M.Gorkis High School, Klaipėda; "Baltija" High School, Palanga; S.Dachas High School, Klaipėda; "Sendvaris" High School, Klaipėda; "Aitvaras" Gymnasium, Klaipėda; "Zaliakalnis" "Vydūnas" High School, Klaipėda; "Pagėgiai" High School, Šilutė region; Kėdainiai Naturalist Club "Laukinukai"; Kratiskiu Main School, Biržai region; Vilkyškiai High School Club "Laselis", Šilutė region; "Rusne" Main School, Šilutė region; "Sodai" High School Club "Zaliukai", Mažeikiai; "Josvainiai" High School, Kėdainiai; Ukmergė A.Smetona Gymnasium; "Krantas" High School Gargzdai, Klaipėda region; "Saulėtekis" High School Naujoji Akmenė; "Daugelių" High School, Kuršėnai; K.Buga High School, Dusetai; J.Tumas-Vaizgantas High School, Rokiškis; Lithuanian Young Naturalists' Center; L.Meškaityte Main School, Smalininkai; "Romuva" High School, Šiauliai.

### ENVIRONMENTAL STUDIES ARE LIKE A BRIDGE

In Lithuania 1009 students and teachers participated in Naturewatch Baltic activities in 2006. It has emphasized for teachers that the study of the environment is like a bridge that connects family life with school life. In the working process we stated once again that Nature is interconnected, therefore we have to get to know it as a whole.

### WIND STORMS DESTROYING THE SEASIDE, BAD OR GOOD?

The Atlantic Ocean cyclones did harm not only to Western Europe, but to the Lithuanian seaside as well. Extremely strong wind caused high waves in the Baltic Sea, which washed away Lithuanian beaches. Palanga beach and the north of Klaipėda suffered the most destruction. In some places there was no beach left. During the storm the sea level rose to 1,4 m., and even broke down the sea bridge. Waves also reached and damaged a protective dune ridge near Juodkrante, and washed away other beaches in Nida. The storms damaged about 5 km of the Curonian Spit tip. There was concern that the high waves would cause seawater to flow into the Klaipėda port-shipping canal and to the Curonian Lagoon. After the storm, Lithuanian President Valdas Adamkus examined the beaches and criticized the environmentalists, who fail to find long term means to protect the seaside, which is being destroyed by storms.

Scientists and environmentalists disagree about the damage done and about the further protection of the seaside. Some of them suggest adding sand, reinforcing the dunes with brushwood; others suggest building ferro-concrete or stone reinforcements into the sea which would stop the loss of sand. There are some who think that Palanga beaches will have to be reinforced with concrete embankment. The only obvious thing is that if the beaches are not revived and protected – storms will continue destroying the coast. What is your advice?

By Stasė Alenskienė / Teacher and Naturewatch Coordinator



Stasė Alenskienė

### DETERGENTS AND NATUREWATCH BALTIC

While working on the project during our geography and chemistry lessons, we found out how the phosphates that are in the washing powders contaminate water. Our task was to check the chemical composition of the washing powders that are sold in supermarkets. It was really interesting work and taught us a lot about the supply of different detergents. As a result, we discovered that most washing powders that are really popular contaminate water. Unfortunately, only a few detergents do not contain any phosphates contaminating the Baltic Sea. Moreover, in some supermarkets in Klaipėda there were no washing powders that do not contain phosphates. Consequently, after completing this project, we always pay attention to the chemical composition of washing powders and look for detergents that do not contaminate water. We believe that this project was useful and interesting and the information we managed to collect will help us to save the Baltic Sea.

By Živilė Jonaitytė / Student, Klaipėda



Stream survey | Photo: Stasė Alenskienė





## WE PARTICIPATED IN OBSERWATOR PRZYRODY, OUR PART OF NATUREWATCH BALTIC!

Primary School No 118 Warszawa; Primary School of S. U.Ledóchowska Poznań; Primary School Turza Mała; Primary School Witnica; Primary School Kobrzyniec - Rogowo; Primary School No 31 Gdynia; Primary School Zarzecze; Primary School Budzyń; Primary School Okrągła Łąka - Sadlinki; Primary School Choczewo; Primary School Jastrzębia Góra; Primary School No 63 Bydgoszcz; Primary School No 314 Warszawa; Primary School Białal; Primary School No 6 Rumia; Gymnasium Bolszewo; Gymnasium No 3 Gdynia, Gymnasium Rozogi; Gymnasium Staniszewo; Gymnasium Brusy; Gymnasium Goniądz; Gymnasium Rogowo; Gymnasium

Suchowola; Gymnasium Choczewo; Gymnasium No 29 Gdańsk; Gymnasium No 2 Rumia; Gymnasium Krasnopol; Gymnasium Kamienica Elbląska; Gymnasium No 2 Hajnówka; Gymnasium Nisko; Joint Special Schools Mrągowo; Joint School Suchowola; Joint School Zarzecze; Joint Special Schools Czersk; Joint School Sobolewo; Joint School No 2 Białystok; Education Center Szymanowo Morąg; Joint Vocational Schools Olsztyn; Secondary School Rozogi; Secondary School No 12, Gdynia.

## FEWER ANIMALS AND FAST-GROWING TREES

We have participated in the Naturewatch program for the last seven years. During the last two years we were surprised by the small number of living creatures that children found in the water. Young trees, seedlings of poplars, alders and willows, which appeared last year in the sandpit, are today several meters high.

There is still no sewage treatment plant for west bank of the River Vistula. Near the mouth of the sewerage on the opposite side of the river, mews are eating waste that floats on the water surface. Near the east bank, where we were standing, ducks were swimming. When we finished our tasks we sat down on the bank and stated that we like the area near the River Vistula in the neighborhood of our settlement. It's still wild and natural.

*Hanna Powierża, teacher*

## NATURE OBSERVERS IN THE FOREST

Last year we went to the forest and observed the trees. This year we decided to take part in Naturewatch Forest. First, all pupils met in the classroom and read the questionnaires. We had to prepare for research works and brought measuring tapes, pencils, crayons, boxes, magnifying glasses, gloves, bags for garbage and many other things.

In October we made two excursions into the forest near to our school. We divided into few groups, four persons each. We counted how many worms lived in one liter of the forest bed, measured the trees' thickness, counted the dead trees, copied the bark and identified the trees.

During those excursions we also counted the lichens (we were using the special checks), looked for mushrooms, collected leaves and fruits. Later we dried the leaves.

This time in our lessons we learned about forest animals and birds. Now we know the birds that fly away for winter, and those that come and stay with us for the winter.

We painted portraits of the birds we saw at our bird dining-table.

Recently we met again and started to prepare the herbarium with the trees we saw in the forest. We retrieved the information and curious details about our trees and drew the trees' view. We stuck the leaves, fruits, bark and all information on large paper charts and we affixed the slats and string to the charts. We would like to organize the exhibition in the communal library.

We told to our friends about our trees, presenting all our information and details.

When we are in the third class, we will go to investigate the forest again.

*By pupils from Primary School in Choczewo*

## TEACHING WITH NATUREWATCH

The educational program Naturewatch is still gaining popularity in the schools of our local community because of the interesting formula of the project. The Naturewatch program has many educational advantages: it teaches independence, responsibility, and respect for nature. Moreover, it creates potential for the development of different interests.

The group work permits the participants of the project to exchange their experiences and knowledge. The students do research in a chosen area and it allows them to have direct contact with nature, teaching them to use their knowledge of botany, zoology, nature protection and ecology.

This year I entered into cooperation with two other schools in our country which also wish to participate in the project. I have been taking part in the project for several years and, thanks to it, I have the possibility of promoting the program by exchanging experiences with the teachers who want to start the program in their schools.

*By Peter Radoch, local co-coordinator of the Naturewatch Baltic program, Rozogi Gymnasium*

Work after forest research  
Photo: J. Dziegielewska



River survey | Photo: M. Matyskiel



### WE PARTICIPATED IN ИССЛЕДОВАНИЕ ПРИРОДЫ, OUR PART OF NATUREWATCH BALTIC!

Kaliningrad Liceum No.49; Kaliningrad Secondary School No.5; Kaliningrad Secondary School No.18; Kaliningrad Secondary School No.20; Kaliningrad Secondary School No.25; Kaliningrad Secondary School No.30; Kaliningrad Secondary School No.31; Kaliningrad Secondary School No.38; Kaliningrad Secondary School No.49; Kaliningrad Secondary School No.50; Ladushkin Secondary School of Bagrationovsk district; Baltijsk Gymnasium No.7; Baltijsk House of Children's Creativity; Liceum Vasilkovo of Gurjevsk district; Orlovka Secondary School of Gurjevsk district; Secondary School No.1 of Gvardejsk district; Secondary School No.2 of Gvardejsk district; Zelenogradsk Secondary School; Zelenogradsk Primary School No.1; Zelenogradsk Primary School No.2; Zelenogradsk Kindergarten No.4; Grachevka School of Zelenogradsk district; Kovrovo Primary School of Zelenogradsk district; Krasnotorovka School of Zelenogradsk district; Melnikovo School of Zelenogradsk district; Pereslavskoe Secondary School of Zelenogradsk district; Pomanovo Secondary School of Zelenogradsk district; Rybachy Secondary School of Zelenogradsk district; Neman Secondary School No.2; Nesterov Secondary School; Nesterov House of Children and Youth Creativity, Club "Green Meridian"; Iljushino Secondary School of Nesterov district; Zamkovskaja secondary school of Nesterov district; Sovetsk Gymnazium No.1; Sovetsk Center for Development of Children and Youth Creativity; Ozersk Secondary School; Novostroevo Secondary School of Ozersk district; Novo-Gurjevo School of Ozersk district; Secondary School of Polesk district; Tchernjakhovsk Kamenskaja School.

### "PUBLIC PASSPORT OF THE RIVER (LAKE) "

After 10 years of the "Naturewatch Baltic" international project, we discovered that the most popular program of the project is "Streamwatch". In general, the children began with collecting rubbish or investigating water animals; they went on to become river researchers.

However, the field materials have tended to accumulate and accumulate, but haven't been made available to new participants in the project. Consequently, they can't see "the big picture," and repeat the same work year after year, even though it is in a new area of the river or lake. They aren't able to imagine a positive outcome. Soon the "river-keepers" reach a discouraging conclusion: "We can't save a river by ourselves." To assist the river-watchers' efforts, we have introduced a new mini project – making the "Public Passport of the river (lake)".

"Public Passport of the river" is a simple outline for systematization of the investigation results, suitable for beginners or for those who have accumulated lots of information. New data can be added to the "Passport" annually, or even more often.

Finally, the completed "Passport", demonstrating systematized information about river/lake conditions which require improvement, can be presented to the local authority.

Participants of the "Public Passport of the river – 2006" project used the outline below. The abstracts of the 14 completed passports were published in the Green magazine.

### PUBLIC PASSPORT OF THE RIVER (LAKE) - OUTLINE

1. Name of the river and basin
2. Photographs of the river:
  - » the most beautiful parts
  - » the most polluted parts
3. Diagram/Map of the river
4. Geographical data:
  - » source and outlet (Where does it flow from and to?)
  - » length, width of the river, direction of flow
  - » basin characteristics
  - » flora
  - » soil
  - » climate
  - » flow velocity, water colour, etc.
  - » points of interest
  - » population
5. Historical data
  - » previous name(s) of the river
  - » previous type of river
  - » how people used it
  - » interesting historical facts
  - » cultural and natural heritage
6. Present-day condition
  - » water protection zone
  - » diagram/map with marked pollution source
  - » list of pollution sources of the river
7. Investigating section
  - » notes on the plan
  - » list of actions performed in this area
  - Photo – before action
  - Photo – after work was completed
8. Suggestions to improve the river conditions
9. Additional information or observations

Earth Day  
Photo: Alexej Milovanov





Julia Danilova



Alexei Poloskin

## WE PARTICIPATED IN ИССЛЕДОВАНИЕ ПРИРОДЫ, OUR PART OF NATUREWATCH BALTIC!

Palace of Youth and Children's Creative Work; Ecoclub "Biotop"; Palace of Youth and Children's Creative Work of Petrogradsky district; Frynzensky Center of Children's Creative Work; Center of Children's Creative Work of Krasnoye Selo; Center of Children's Creative Work of Pavlovsk; Young Naturalist Station, Kingisepp; Center of Children's Creative Work of Lomonosov; Center of Children's Creative Work of Lodeynoe Pole; Primorsk Center of Children's Creative Work; Olonets Young Naturalist Station; St.-Petersburg Gymnasium No.56; St.-Petersburg School No.91; St.-Petersburg School No.95; St.-Petersburg School No.137; St.-Petersburg School No.164; St.-Petersburg School No.201; St.-Petersburg School No.248; St.-Petersburg, School No.252; St.-Petersburg, Lyceum No.273; St.-Petersburg, School No.292; St.-Petersburg, School No.296; St.-Petersburg, School No.395; St.-Petersburg, School No.417; St.-Petersburg, School No.430; Selco Secondary School of Leningrad Region; Glebuhevo Secondary School, Leningrad Region; Gatchina Lyceum No.3; Kingisepp School No.1; Kingisepp School No.2; Kingisepp School No.3; Kingisepp School No.4; Kingisepp School No.5; Kingisepp School No.6.

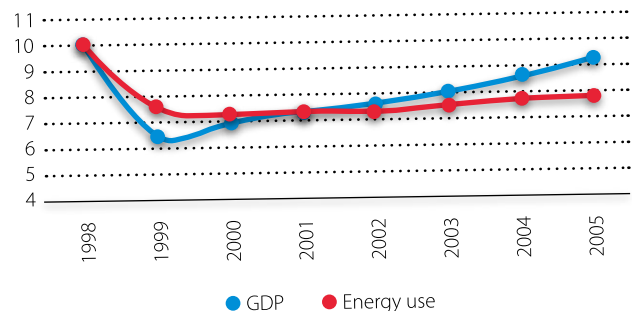
## BALTIC WINTER

The goal of our new "Baltic Winter" is to encourage students to take part in field research activities and form their own opinion concerning the problems of global climate change. As a result, the students will make research activities in the St.-Petersburg and Leningrad Region as well as meet scientists specialized in the problems of climatology, biodiversity and sustainable development. They will also get experience on how to involve people in nature protection. The best projects will be awarded with an educational trip to Olonets and the nature reserve in Karelia.

## COWS HELP GEESE SURVIVE

Thanks to a rural development project, Naturewatch is also well known in Olonets in Russian Karelia. In Olonets, cows help migrating geese get food from large meadows. Without grazing cattle, geese will be in bad condition and cannot survive the nesting period in the arctic White Sea. Teachers and about 500 students are now involved in learning about milk and meat production, bird watching and tourism. Many students like the handicraft and other cultural activities aimed to help give Olonets its identity. What kinds of geese species cross your country on their way north and south?

**FIGURE 1.** Global Development Product GDP and use of Energy in Russia, % of 1990 / What do the curves tell you? What is the same diagram for Sweden, Poland, etc? / Make a scenario for your 45th anniversary! From WWF Russia



Clean Planet  
Photo:  
Alexej Milovanov



My tree  
Photo: Alexandra Koroleva



### WE PARTICIPATED IN NATURVÄKRANA, OUR PART OF NATUREWATCH BALTIC!

AB Videdals Privatskolor; Backa skola, Hedemora; Bokelundsskolan, Sölvesborg; Borgmästarskolan, Nyköping; Brännaregårdsskolan, Olofström; Böskolan, Göteborg; Carlshöjdsskolan, Umeå; Charlottenborgsskolan, Motala; Eklanda Gårds förskola, Mölndal; Fjällskolan, Göteborg; Fridhemsskolan, Örebro; Fågelbäret, Västervik; Fågelsviks skola, Värmdö; Handskerydsskolan, Nässjö; Hjaltevadsskolan, Eksjö; Kyrkskolan, Värmdö; Mehede skola, Tierp; Montessoriskolan, Luleå; Munksunds skola, Piteå; Nättrabyskolan, Karlskrona; Pershagens skola, Södertälje; Riseberga skola, Ljungbyhed; Rönnskolan, Piteå; Schubergstorpsskolan, Falkenberg; Stureskolan, Hedemora; Tenggrenstorps förskola, Tenggrenstorp; Torö skola, Nynäshamn; Tunge skola, Kode; Vad skola, Söderbärke; Viaskolan, Nynäshamn; Älvsbyns Gymnasium, Älvsbyn.

More than 1300 pupils participated in Naturewatch Baltic in 2006 and made many exciting discoveries. Seventeen (17) new schools contributed with surveys this year. Sea & Lake was the most popular; Forest, second.

### DIRECT FROM SCHOOLS

In Böskolan in Gothenburg older pupils examined coasts and lakes with younger pupils. Many children said it was a lot of fun. They liked having the older pupils as teachers for a day!

"We visited a beach. It was a very rainy day but we dressed well and took off. Along the walk we looked for "invisible water" - water hidden in trees, in birds, in an apple. We found little animals in the sea. We took some of them back to school with us to take a closer look at them. We played "guess the animal" and ate our packed lunch."

Rönnskolan

### BE A PART OF THE SOLUTION!

Many problems on earth are connected to our consumption. We all buy or get products. That makes us consumers. In the Baltic Sea region we use lots of resources, food, energy, wood, fibres, etc. If everyone on the globe had a lifestyle like people in our nine countries around the Baltic Sea we would soon need 4 globes. Our life style can be measured: let's call the unit a footprint or global hectare. We need to change! As consumers we are a part of the problem, and the solution. It's all about sustainable development!



**FIGURE 1.** Ecological footprint Big foot: the situation today= 4,3 global hectares per person in the Baltic Sea region. Small foot: all "Earth members" share equally. We all have 2,2 global hectares for our living. /Why is a footprint used as a metaphor for use of natural resources?

### IS IT ALL ABOUT CLIMATE?

The use of fossil fuel is the main problem when we consider the gases that cause global warming and climate change. What to do? Save energy; use more biofuel, or both? Älvsbyns gymnasium and Borgmästarhagsskolan i Nyköping Älvsbyns gymnasium used Watch 21 – Energy, conducted interviews and offered concrete advice for reducing energy, i.e. electricity, heating and fuel:

"Insulate windows and doors"

"Reduce temperature when school is closed"

"Reduce temperature at home"

"Turn off the light"

"Public transportation, more and better"

### ECOLOGICAL FOOTPRINT PER PERSON, BY COUNTRY, 2003 (global ha/person)

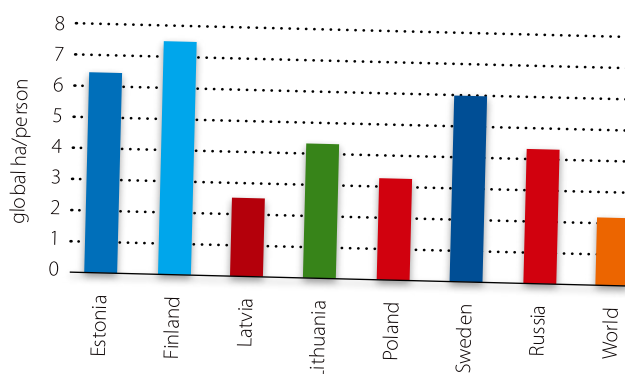
ESTONIA	FINLAND	LATVIA	LITHUANIA	POLAND	SWEDEN	RUSSIA	WORLD (AVERAGE)
6,5	7,6	2,6	4,4	3,3	6,2	4,4	2,2

**FIGURE 2.** Ecological footprint per person, by country, 2003

A global hectare is a projected world-average hectare capable of producing resources and absorbing waste.

Source: Living planet report 2006 [www.footprintnetwork.org](http://www.footprintnetwork.org)

Latvia, how do you manage to use so little energy? Teach us!



# LITTER

## LITTER DATA FROM ESTONIA AND FINLAND WERE USED IN ACTION FOR A CLEANER BALTIC SEA!

For several years, school pupils have been collecting, sorting and counting litter. Their work was put to valuable use in 2006. HELCOM (Baltic Marine Environment Protection Commission) used the litter data from Finnish Naturewatch Baltic reports 1998-2005 and from Estonian Naturewatch Baltic Reports 1998-2006 as a part of a marine litter project survey. The aim of this project was to assess the scale of the problem of marine litter in the Baltic Sea and, on that basis, to formulate recommendations for decision-makers in the region.

The geological, climatic, temperature, and other conditions vary greatly around the Baltic Sea, making it difficult or impossible to compare data. Numbers in the tables below show the average number of items per unit (500 m) found along coasts, streams and lakes. The numbers do not describe the general situation, only the situation in the surveyed areas that are usually easy to access and close to towns and villages, at a given moment.

Litter is always connected with human activities and is harmful to nature. The less a human leaves behind, the better for nature as well as for man. He is also part of our Mother Earth!

### LITTER/PER UNIT

COAST	GLASS BOTTLES	PLASTIC BOTTLES	PAPER PACKAGE	CANS	PLASTIC SHOPPING BAGS
<b>ESTONIA</b>	4.0	3.6	1.0	1.2	4.5
<b>LATVIA</b>	4.0	11.0	9.0	2.0	No data
<b>KALININGRAD</b>	22	10.5	3	4.5	17
<b>SWEDEN</b>	1.3	1.4	2.3	2.2	4

STREAM/LAKE	GLASS BOTTLES	PLASTIC BOTTLES	PAPER PACKAGE	CANS	PLASTIC SHOPPING BAGS
<b>LATVIA</b>	11.0	15.0	9.0	5.0	No data
<b>POLAND</b>	4.6	8.7	6.3	2.1	7
<b>KALININGRAD</b>	11	11.5	5.0	8.0	4
<b>SWEDEN</b>	1	1.6	2.4	0.7	3

FOREST	GLASS BOTTLES	PLASTIC BOTTLES	PAPER PACKAGE	CANS	PLASTIC SHOPPING BAGS
<b>LATVIA</b>	5.0	16.0	8.0	2.0	No data
<b>POLAND</b>	1.9	6.3	3.7	2.4	4
<b>SWEDEN</b>	1	1	0.5	0.5	3



## TOPICS TO DISCUSS

There is blue green algae Nodularia on the photo.

When phosphorus is available it takes nitrogen from the air and causes "algae blooming".

*What can you do to stop eutrophication?*



*What is the best way to clean after a meal?*

Think economical, ecological and social - think sustainable development!

# CONTACT

## **ESTONIA**

Reet Kristian  
Estonian Fund for Nature/Estonian Youth work Centre  
e-mail: reet.kristian@entk.ee

## **FINLAND**

Hanna Nordström  
WWF Finland  
e-mail: hanna.nordstrom@wwf.fi

## **LATVIA**

Inese Liepina  
Children's Environmental School  
e-mail: inese@bvs.parks.lv

## **LITHUANIA**

Stasė Alenskienė  
e-mail: alsta@takas.lt

## **POLAND**

Grażyna Wolniakowska  
Polish Ecological Club  
e-mail: ekograzyna@wp.pl;  
wowa@am.gdynia.pl

## **RUSSIA KALININGRAD REGION**

Alexandra Koroleva  
Ecodefense!  
e-mail: sasha@ecodefense.ru

## **RUSSIA SAINT-PETERSBURG AND LENINGRAD REGION**

Yulia Danilova and Alexey Poloskin  
Baltic Fund for Nature  
nwb@bfn.org.ru

## **SWEDEN**

Germund Sellgren  
WWF Sweden  
e-mail: germund.sellgren@wwf.se





*Beavers hard work | Photo: Ksenia Popova*