NATURE-WATCH BALTIC 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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Eesti Noorsootöö Keskus

CONTENT

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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

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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

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(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*

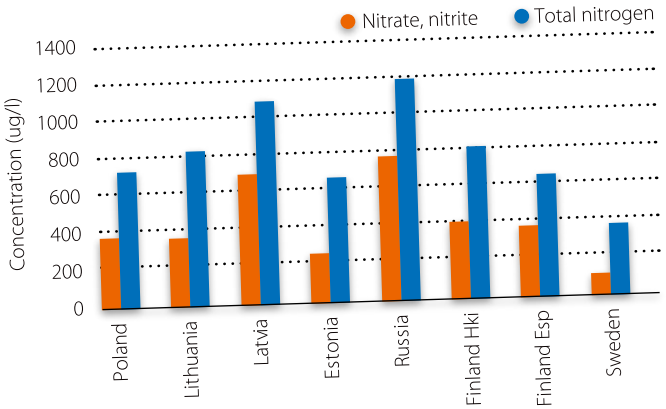


FIGURE 2: *Phosphate and phosphorous content in water samples*

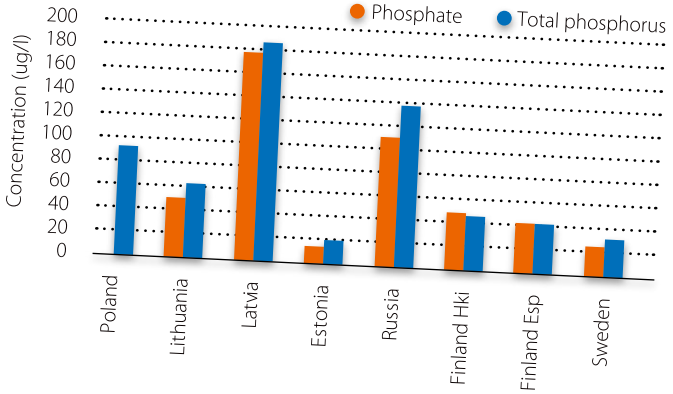
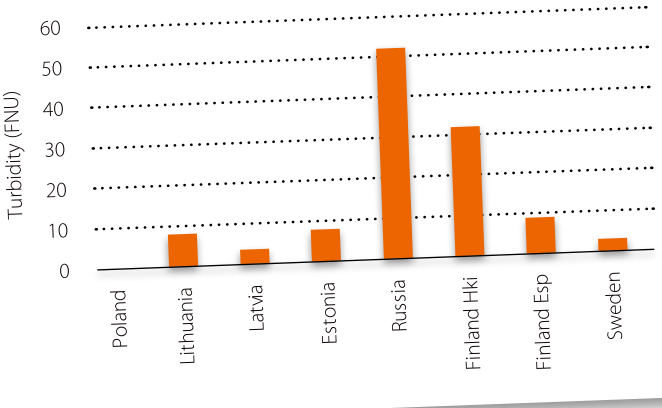


FIGURE 3: *Turbidity in water samples*



ESTONIA

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 support. 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 Nordstroöm

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 Nordstroöm

Inese Liepina

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 „Jauniba"; Daugavpils Central Gymnasium; Dignaja Primary School; Embute Primary School; Ergli Secondary School; Gavieze Primary School; Iļguciems Secondary School; Jekabpils Youth Centre; Jurkalne Primary School; Jurmala 1. Gymnasium; Kalupe Primary School; Kaunata Secondary School; Kuldiga Central Gymnasium; Kraslava Rainbow Secondary School; Kurzemite Primary School; Karsava Gymnasium; Liepaja 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; Saliena 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; Zvejniekciems 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 - 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 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, Zvejniekciems 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.

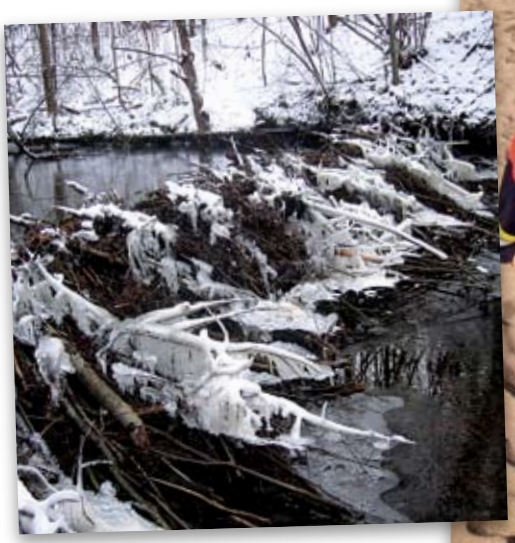
The decor from flood-land meadows plants was made by Pilskalne Primary School.

Students from Zvejniekciems 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 Saulktrasti Seconadry School Photo: Inara Strapcane

Beavers Dam Zvejniekciems 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 Schoo,l 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, Šilute 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; "Kranto" 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; Lithuainian Young Naturalists' Center; L.Meškaityte Main School, Smailininkai; "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 Klaipeda 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 Klaipeda 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

Stase Alenskiene

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, Klaipeda