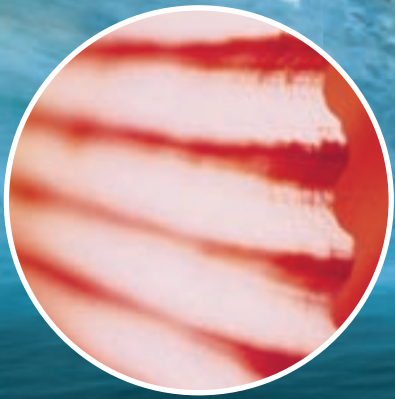
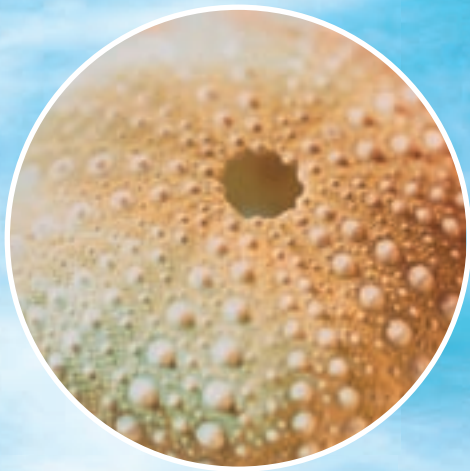


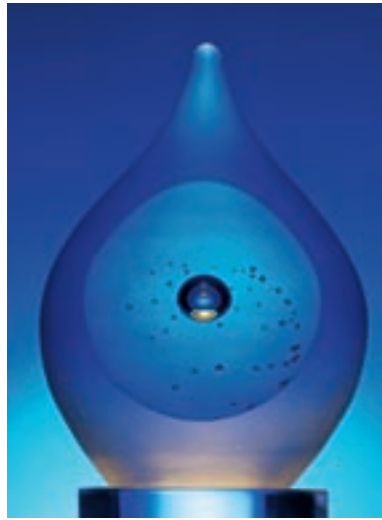
FINALISTS 2004 STOCKHOLM JUNIOR WATER PRIZE



STOCKHOLM
JUNIOR
WATER PRIZE

The Stockholm Junior Water Prize

Water and Young People – Linked to the Future



The international Stockholm Junior Water Prize contest aims to encourage young people's interest in issues concerning water and the environment.

The award is given annually for an outstanding water project by a young person or a small group of young people. With this, the competition seeks to inspire young people to a continued engagement for water and the environment.

While the global water environment remains in peril, the future depends on our ability to manage this life-sustaining resource. Today's youth are indeed tomorrow's leaders and must be encouraged to pursue water-related careers or risk further erosion of our scarce supply. In

Stockholm, the young finalists experience a busy and full week that will include meeting top world water experts, participating in seminars, visiting research and technical facilities and attending cultural and social events.

The finalists at the international Stockholm Junior Water Prize are the winners of national SJWP contests. The national and international competitions are open to young people up to the age of 20 who have conducted water-related projects focusing on local, regional, national or global topics of environmental, scientific, social or technological importance.



The international Stockholm Junior Water Prize winner receives a USD 5,000 award and a blue crystal sculpture in the shape of a water droplet. As a result of the competitions, thousands of young people around the world become interested in water.

HRH Crown Princess Victoria of Sweden is the Patron of the Stockholm Junior Water Prize.



Argentina

Hydrocarbon-degrading Microorganisms in the Port of Mar del Plata and an Application of Bioremediation

By José Agustín Ares, Mayra Lagarde, Eva de Miguel and Laura de Rosa

The economy of Mar del Plata, a seaside city, depends largely on tourism, the fishing industry and the functioning of the city's port. Due to diesel oil leakage and cleaning of the ships, the port's water is highly contaminated.

The group has studied the contamination of diesel oil, which is a mixture of hydrocarbons, e.g. polycyclic aromatic hydrocarbons (PAH), and a possible method to ameliorate it in the water. After having determined the amount of PAH in two places of the port, they compared the results to a zone considered free of contamination. The group proved the existence of hydrocarbon-degrading bacteria (HDB) in order to determine if the technique called bioremediation could be applied. Bioremediation uses the metabolic potential of microorganisms to degrade hydrocarbons.

The group was able to measure the amounts of phosphates and ammonium, which is necessary in order to use the bioremediation technique. They concluded that the application of the bioremediation technique could be the solution to the problem of pollution in the port of Mar del Plata.



Benin

Household Wastewater: A Second Life is Always Possible

By Fabrice Fanou-Ziaka, Ariel Francis Lawson and Adonis Megnizoun

Water is critical to life, but water supplies are unfortunately distributed unequally and water scarcity is a big problem in many parts of the world.

The group emphasise the importance for nations of stressing the consequences of excessive use of water, and the benefit of recovering wastewater. The project focuses on African countries, with a particular focus on Benin. The group found that it was necessary to put in place water purification plants and encourage households to be equipped with sumps where wastewater can be collected, treated and reused.

Besides the practical benefits from water purification plants, the expected results from the project are that new behaviours regarding water are adopted, a research and action programme is functioning and the project participates in environmental protection actions and wastewater treatment.

Australia

Water Treatment With Free-floating Aquatic Plants

By Nilmini Wijemunige

Increased phosphate levels in natural water bodies have a large impact on the environment. Humans are one of the main contributors to the increased amount of phosphate in waterways through the release of partially treated wastewater. The wastewater often has large quantities of nutrients, including phosphates.

Nilmini tested and compared the ability of *Salvinia auriculata* and *Azolla filiculoides* to absorb phosphates from water of two different phosphate concentrations and volumes. The plants were placed in separate nutrient-enriched solutions, and the phosphate concentrations of the solutions were tested every day. Both plants significantly reduced the amount of phosphate in the water, but the *Azolla* was generally more effective. A promising value of the free-floating aquatic plants is that they may be composted and used as fertilisers.

The results of this study show that free-floating aquatic plants could be utilised as an effective, environmentally friendly and inexpensive tool for reducing the effects of phosphate overload in the water environment.



Cameroon

Water Education and Awareness Promotion in Cameroon: A Youth Audience Approach

By Majorie Andzongo, Elizabeth Atang and Ferdie Musenja

The overall objective of this group's project is to generate awareness, understanding and appreciation of water issues in Cameroon, identify gaps in establishing adequate clean and safe water, and reduce the recent outbreak of water-borne diseases in the country.

The group, in starting a project to create awareness about biodiversity conservation in Cameroon, observed that water could not be neglected. Therefore, they introduced the Water and Education Promotion campaign. With its focus on children and youth, the campaign was seen as a method for developing a sustainable diversity within the region. The planned actions of the group included the use of songs, poems, stories and games to carry out water education and awareness in schools and communities in the region. The group visited several stakeholder groups, interviewed staff and collected resource materials.

Some of the achievements of this campaign thus far are the establishment of a Nature's Club, participation at workshops and seminars for children and teachers, and the production of books, audio cassettes, radio and television programmes.

Canada

The Bioremediation of Phenol Using the *Pseudomonas Putida* Bacteria

By Keira Hodgkinson and Christina Norris

Phenol is a highly corrosive and moderately toxic chemical. It is used in pesticides, air fresheners and in the petrochemical industry. It is one of the most common pollutants in the aquatic environment. The *Pseudomonas putida* is a genetically modified bacteria which convert phenol to carbon dioxide and water.

Christina and Keira have investigated under which conditions the bacteria are most effective. They tested how the bacteria would react to the different temperatures of 26°C, 30°C and 34°C. They also experimented with different kinds of second layers in the sample containers. Christina and Keira found that at 26°C the population of bacteria grew the fastest. The use of rubber beads as a second layer also proved to be an effective way to increase the bacteria population. The beads could also be washed and reused, while a liquid could only be used once.

This method of bioremediation was shown to be an effective way to clean aquatic environments from phenol and is probably useful also on a large scale.



China

Experiment and Research of “Black and Grey Water Separating” Treatment of Household Sewage and Mid-Water Regeneration

By Chen Haobin, Wu Jiawei and Pan Jingyi

Household sewage is mainly composed of “black water” – resulting from urine and faeces – and “grey water” – resulting from bathing and domestic washing. With their project, Chen, Wu and Pan proposed separating, at the household level, the black and grey water and treating it via a counter culture and acclimatisation of bio-film. They explored how to optimise the treatment of household sewage, both so that the ultimate impact on the environment would be minimised, and so that beneficial components could be reused.

As part of their project, they also conducted an overview of water and sewage treatment in small and medium-sized cities in the Zhujiang River Delta and learned that it is either inadequate or rarely practiced. Their black and grey water separation treatment process could be an efficient, energy saving and easily applicable form of household sewage treatment.

Chile

Control of Eutrophication of Coastal Waters by Using the Clam *Gari Solida* (Gray, 1828) (*Mollusca Bivalvia*): A Natural Filtration Technique

By Sergio Danilo Julio Galleguillos and Rodolfo Lazaro Poblete Villalobos

Aquaculture enterprises are increasing rapidly at both local and global levels. Sergio and Rodolfo have concentrated on one of the consequences of aquaculture in Chile. As a result of the intrinsic processes of the cultures, organic matter (OM) is produced and accumulated in the marine sediments. This can lead to environmental problems such as eutrophication. Eutrophication is the process by which a body of water becomes enriched in dissolved nutrients that stimulate the growth of aquatic plant life, usually resulting in the depletion of dissolved oxygen.

Sergio and Rodolfo proposed the use of a mollusc called *Gari solida* as a filtering tool at the industrial level to reduce the OM discharge in order to avoid eutrophication of the coastal waters. Through practical experimentation and a statistical analysis of the results, they determined the amount of OM deposited in samples of marine silt, with the presence and absence of clams, in order to determine the feasibility of using *Gari solida* as a filtration tool.

They showed that it can be used in both closed and open aquaculture systems that could be favoured by the natural features of the mollusc.

Denmark

The Level of Nitrate in the Subsoil Water of a Danish Island

By Jesper Roed Sørensen

Clean drinking water is essential for a healthy population. Although everyone in Denmark has access to clean water, the need to drill deeper into the ground to access it reveals a big problem: pollution by fertilisers and pesticides. When it rains, these infiltrate the surface and gain access to the subsoil water, or groundwater.

Jesper has studied the increasing level of nitrate in the Danish subsoil water as a side effect of the enormous increase in the level of fertiliser used on the Danish fields since the 1950s. By using a spectrophotometer, he has measured the concentration of nitrate in the subsoil water belonging to a small farm which has been polluted for many years. The results showed that the level of nitrate was over the standards set by the national Danish health and environmental institute, and should therefore be monitored closely. One possible solution is to plant trees around the wells so that they can absorb the nitrate with the roots over the years.

Estonia

Specific Properties of Waves From High-speed Ferries in the Coastal Area of Tallinn Bay:

An Application of the Cnoidal Wave Theory

By Reio Põder

The Baltic Sea is the largest brackish water body in the world and has a particularly vulnerable marine environment. Wakes from large high-speed ferries can cause serious environmental problems to the sea, such as severe shoreline erosion, harm to the aquatic wildlife and damage to structures and archaeological sites. The fast ferry traffic may even adversely impact the marine ecosystem.

The main purpose of Reio's project is to identify the possible differences between waves from high-speed ferries and wind waves, and to establish possible excessive influences of ship waves on the local environment. The recorded profiles of leading waves of wakes from high-speed ships were compared to theoretical profiles of cnoidal and linear (sine) waves. Maximum velocities of water particles in cnoidal waves are larger than in sine waves with the same height and length.

Results showed that specific features of cnoidal waves and their possible dangerous influence on the marine environment become evident when waves are very long. Both the length and height of waves generally increase with the ship speed and it is therefore necessary to impose speed restrictions to prevent adverse environmental impacts of fast ferry traffic.

Israel

Fluorescent Microbial Sensors for Toxicity Monitoring in Water

By Ron Neuman

Many water use systems in the world today suffer from the threat of possible chemical contamination. In his study, Ron examined the available methods for identification of such contaminations and then worked to improve some of these methods.

Today two types of microbial sensors are in use, either using a global response of an organism, or highly specific reactions. The former sensors suffer from inappropriate sensitivity, while the latter have excess specificity. Ron has worked at developing a sensor that avoids these two extremes. The goal was to find engineered bacteria with differential sensitivity that is readily available and cheap. These two elements make it relevant for less developed countries with deficiencies in laboratory infrastructure to use the method.



Germany

1,2,3 – Processor-supported Drinking Water Analysis

By Stefan Bartlewski

How can chloride, sulphates and calcium in beverages be determined fast and simply? Stefan developed a method, a simple titration, for which he only needs measuring flasks, pipettes and a conductivity measuring instrument.

In his project, Stefan aimed to test his Three-Point-Conductivity-Analysis method thoroughly in order to improve it and examine whether the procedure is applicable to determine quantities of other substances. He adds twice a surplus of titration to a sample solution. The results are calculated by three values: the conductivity of the origin solution and the two values after the precipitation. By this he shows that it is possible to establish proof of quantitatively hydrogen carbonate (HCO_3^-), chloride (Cl^-), sulphate (SO_4^{2-}) and calcium (Ca^{2+}).

Series of measurements with commercial mineral water showed that the results of this simple method come very near to the declaration on the label. This analysis can also function in strongly sugary beverages such as soft drinks as well as be automated easily.

Italy

In the Jungle of Mineral Waters

By Stefania Caputo, Federica Moretti and Monica Salvadori

The consumption of bottled mineral water has increased in recent years. Stefania, Federica and Monica wanted to examine whether the current trend of switching from tap water to bottled water can be justified by a higher quality and safety of mineral waters. They aimed to provide information about the characteristics of water and analyse the provisions and make a chemical-physical and bacteriological analysis in order to define the quality and safety of mineral waters in commerce.

They have also studied the legibility of the labels on the bottles and concluded that only 25% of the bottles attained "good" or "sufficient" with regard to information given and dimension and space on the labels. The analyses made, show that the microbiological and organoleptic quality depends on conservation conditions and on the time passed from bottling.

They determined that the quality of the examined mineral waters is close to the chemical composition of normal drinking water picked up in stratum (65% of tap waters). A guide for the purchase of mineral waters has also been elaborated by them.

Finalists

Japan

For Protecting the Life Sustaining Groundwater of Miyako Island: The Development of an Environmentally Friendly Organic Fertiliser Utilising Phosphorus Accumulated in the Soil

By *Tsutomu Kawahira, Daisuke Sunakawa and Kaori Yamaguchi*

The island Miyakojima does not have surface water resources and relies solely on groundwater for its freshwater needs. About 65% of its land area is used for agriculture, and the groundwater supply is therefore polluted with nitrate nitrogen resulting from the commercial fertiliser used in farming.

The group decided to investigate and develop an environmentally friendly organic fertiliser, with the ability to recycle the high density of non-soluble phosphorus accumulated in the soil by using bagasse (the dry, fibrous residue remaining after the extraction of juice from the crushed stalks of sugar cane), a biomass resource.

The group selected and isolated a microorganism that could produce, from a soil consisting of weathered Ryukyu Limestone, organic acid to be used as a phosphorus dissolving bacterium. The group concluded that by using the organic fertiliser developed for the soil of Miyakojima Island, it is possible to recycle soil-accumulated phosphorus and reduce the nitrate contamination of the groundwater from the use of chemical fertiliser.

Lithuania

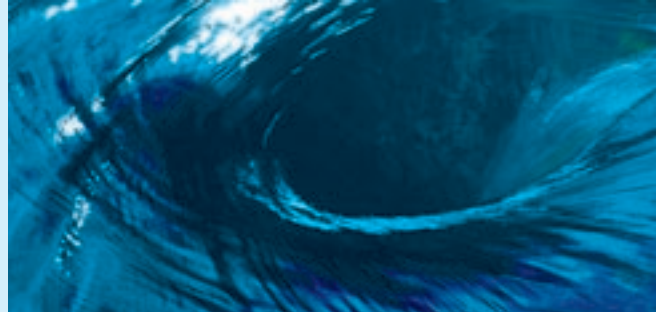
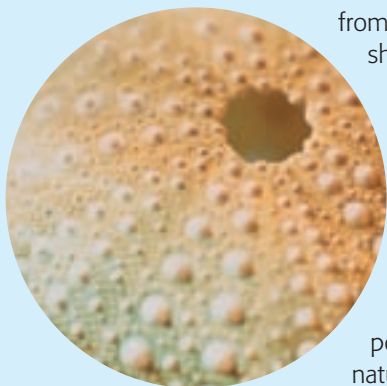
Studying of the Level of Contamination of the River Suderve's Basin and Estimation of its Environmental Conditions

By *Jelena Bazar and Natalya Buko*

The study of river basins is a holistic approach to the study of water and environmental problems. It has the advantage of including everything that influences the river both upstream and downstream.

Jelena and Natalya have done a study of the ecological state of the basin of the river Suderve. They used bioindicator methods and chemical analysis to determine the ecological state of the river. Water samples were taken from five different sites, and the results show levels of nitrate and phosphate concentrations that exceed the permissible levels. The concentrations of organic substances also showed a higher level than the permissible.

Besides the chemical and biological analysis, the study also focused on investigating anthropogenic influences in the basin and nature-protective actions.



Latvia

Do Not Believe Your Eyes! (Colorimetric Measurement of Phosphates' Content in Water as a Method for Identifying Point Sources of Pollution)

By *Maija Gutke and Žanete Sproge*

The first impression of a water body may be deceiving. What seems to be clean and safe water could be polluted. One can judge the presence of sewage in a water body from the concentration of phosphates, since synthetic detergents found in wastewater are composed of them.

Maija and Žanete took water samples from visible sewage discharge points and measured the concentration of phosphates. They used the colorimetric method – a quantitative chemical analysis by colour – to measure the phosphate, which they found to be high. Using this method, they thus made it possible to monitor natural water bodies and establish other point sources of pollution in a nearby lake.

They found out that the concentration of phosphate ions in the lake was also high and was caused by a previously unknown sewage discharge. Maija and Žanete further investigated the sewage impact on the eutrophication of the lake, and concluded that the lake's self-purification abilities prevented eutrophication even where the concentration of phosphate ions and organic matter was increased.

Mexico

Water Silos: An Alternative to Save Water on Agriculture

By *Miguel Oscar Chan Dzul*

Large amounts of water can be saved in agriculture. Miguel has studied the characteristics of radishes in a community near Valladolid in Mexico.

To satisfy the water needs and to compensate for the loss of water due to evaporation throughout the day, an average of 110 litres of water is used for every 10 m² of cultivated land. This water volume increases the more the crops grow.

In order to demonstrate the savings that can be achieved in agriculture, Miguel created two soil beds after a technique called 'ka'anche'. He used them with soil from the same bank and cultivated radishes in both of them, using equal amounts of horse manure as fertiliser. One of the soil beds was also equipped with cylinders of newspaper to reduce the loss of water through filtration and evaporation.

Test results showed that from the use of newspaper, a 50% water savings was achieved even though radish production was the same in comparison to the traditional farming.

The Netherlands

The Effects of a Water Passage on the Habitability of Stagnated Lakes

By Aaron Oostdijk and Stephan de Regt

Het Veerse Meer is a lake which used to be directly connected to the sea, but due to a major flood it was cut off from the sea by two big dikes in order to control the water level. This caused the lake to stagnate and the number of species to decrease dramatically. When a saltwater area is cut off from the sea, the water becomes still and the chloride concentration will drop, giving the animals that live there a lessened chance of survival. This has happened to Het Veerse Meer.

The project of Aaron and Stephan is about the effects of a recent structure developed to create a controlled flow of water between the lake and the open sea, on the salinity and its fluctuations and by that the habitability of the water. The salinity should ideally be 13 grams of salt per litre chloride. That is not achieved according to Aaron and Stephan's measurements, although the number of species has increased and the concentration of salinity is stable.

The structure has thus improved the habitability of the water of Het Veerse Meer and is recommended for application in other countries. The major problem for the animals in the water was thus not only the level of salinity but its fluctuations.

Norway

Bugårdsdammen

By Petter Nord, Per Christian Olsen and Kim Anders Pettersson

Bugårdsdammen is a 125-year-old artificial pond in Sandefjord, Norway that is used for recreational purposes. During winter, the ice layer on top of the water hinders oxygen from entering the pond and result in fish kills.

Petter, Per and Kim Anders wanted to find out whether there is a way of getting oxygen into the pond and thereby improving the living conditions of the fish. The pond is also threatened by the overgrowth of algae due to people feeding ducks; both the food and the duck excrement are full of nitrogen, phosphorus and other nutrients. To measure the oxygen at several depths and locations in the pond, the group used an oximeter. For evaluation, analytical and reference purposes, the group used a report about classification of freshwater produced by Norwegian Environment Agency (SFT).

The group concluded that it was possible to provide oxygen to the pond with the help of a compressor. By placing the compressor under ground level with a cover on the top to let air out, big temperature fluctuations would be avoided.

Nigeria

Environmental Quality and Public Health Implications of Sources of Water Supplies at Awka Area of Nigeria

By Chioma Maryann Agbasi and Adaobi Ukamaka Okeke

In Awka area in Anambra State, Nigeria, the lack of clean water for domestic use is a problem.

In this study Maryann and Adaobi collected water samples from these sources and analysed it for physical, chemical and biological parameters. Some data indicate threats to public health and are a result of pollution or contamination from floods, erosion and waste disposal. Faecal coliforms and *Escherichia coli* bacteria were present in the samples at objectionable levels.

To avoid the negative effects on human health, Maryann and Adaobi recommend all water be treated before drinking and that personal hygiene becomes better when handling food and water. They urge everyone in the community to take their responsibility when handling water. Hopefully this will lead to a safer use of the common water resources.



Poland

Influence of the Waste-dumping Site in the Village of Siedliska on the Quality of Water in the Local Wells

By Izabela Dowolnia and Agnieszka Pukszta

Waste-dumping sites do often have a large impact on the local environment and can be a severe hazard to groundwater resources if not managed correctly.

Izabela and Agnieszka have investigated how a waste-dumping site in the vicinity of the villages Siedliska and Chrzanowo in Poland may have affected the groundwater used by inhabitants of the two villages.

This was done by analysing local wells in the area to test if the water is suitable for drinking. Both physiochemical and bacteriological properties of the water from six wells in the area were examined. They concluded that the water from the wells in the area is not suitable for drinking. As a result, the students urged the inhabitants to switch to the available water supply system. The study also included a survey concerning the awareness of the water quality and its impact on the environment and health. This resulted in an appeal to the authorities to continue with the campaign to raise awareness for water-related issues in the villages.

Finalists

Russian Federation

Some Features of Formation of Groundwater Used for Drinking Water Supply in Turukhansk Village

By *Natasha Chutova*

Throughout the history of the Turukhansk region, no hydro-geological or geo-ecological studies were conducted to investigate the groundwater used for drinking water supply.

The aim of Natasha's project was to study formations of groundwater used for drinking water supply, determine human-induced impacts on the hydrosphere, and analyse natural processes to protect groundwater against pollution by surface runoff. Her test results and analyses described some features of the formation of groundwater used for drinking water, located the aquifer feed zone and identified environmental pollutant impact on groundwater. The chemical analysis showed that the groundwater content in Turukhansk village remained unchanged throughout the period of its use for drinking water supply. It is not polluted by municipal waste thanks to the screening role of a clay confining bed.

Spain

The Eurasian Otter, a Bioindicator Species?

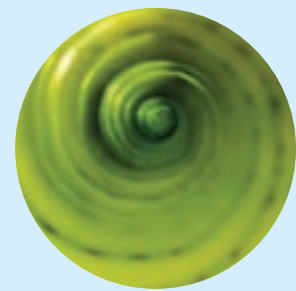
By *Raquel Cano Domingo and Yolanda Carcía Moreno*

Many ecological problems can be foreseen by studying indicator species which are sensitive to changes in their natural environment.

Raquel and Yolanda have investigated whether the Eurasian otter can be used as a bioindicator of the water quality in rivers. Over a long period, the otter population had decreased but is now coming back to the rivers in Catalonia.

To see if it is possible to determine a relationship between the recovery of the otter and improved water quality, they made several water quality analyses on different sites along the river Cardener. The water quality turned out to be very poor, which made them look for other explanations for the increase in otters.

During recent years the introduction of immigrant species, which are capable of living in degraded habitats, have become the otter's stable diet. This led them to the conclusion that the otter is not in itself an indicator of poor water quality. Instead its population decrease indicated a limiting of the food supply. A diminishing fish population in the rivers can be caused by poor water quality, but can also have other causes.



South Africa

Alien Buster 1,2,3

By *Jacques Deacon*

Trees of the *Prosopis* species are among the most widespread invasive trees in arid and semi arid zones of the world. The current *Prosopis* invasion covers 1.8 million hectares of South Africa and causes myriad environmental problems. *Prosopis* invasions closely track underground water aquifers and have a negative impact on the scarce groundwater resources.

Current eradication strategies usually cost more than the land itself. The purpose of Jacques' project was to develop an economical and effective apparatus suitable for mechanical, biological and chemical control methods.

Alien Buster 1 was found to be effective to gather seed-pods that then could be destroyed through exposure to biological agents in the form of beetles (*Algarobius prosopis* / *Neltemius arizonensis*), or used as fodder. Alien Buster 2 releases seed feeding beetles into the canopy of the tree where the seedlings are. Application of herbicides revealed Alien Buster 3 to be effective for foliar herbicide application, cut stump and stem injection and basal bark methods used at present on *Prosopis*.

This project revealed great potential for income generation from the good qualities of invasive species, economical and safe eradication operations and job creation in poor communities.

Sweden

Drip, Drop, Splish, Splash – a World Water Book

By *Ulrika Andersson, Sandra Johansson, Charlotte Naucclér and Agnes Willén*

The importance of water-related problems is indisputable, and though the young generation will have to deal with many of them, they often lack knowledge about water.

Ulrika, Sandra, Charlotte and Agnes decided to develop a book about water for children between the ages 6–11. After studying different aspects of water-related environmental problems, they started with the book. To find out what children know about water and what kind of material is already available, they sent out a questionnaire to primary schools. From this they decided to focus the book on five different areas: acidification of lakes (which is a big problem in the Scandinavian countries), water conservation, water abroad, unequally distributed water resources and the water cycle. During the writing process the text was read to focus groups of children to make sure it was comprehensible. Ulrika, Charlotte, Sandra and Agnes also sought guidance from authors, illustrators and scientists.

USA

The Environmental Impact of Aluminum Sulfate and Salicylic Acid Treated Poultry Litters on Forage Production and Watersheds

By Brandon Fimple

Eutrophication resulting from phosphate pollution is one of the most costly water quality problems in North America today. It causes algae overgrowth, which affects drinking water quality among other problems.

Brandon has in his research evaluated the effects of treated poultry litter fertilisers on forage production, runoff water phosphate levels and *Closterium* algae growth in an effort to find an environmentally protective litter treatment with effective algaecide properties.

Five poultry litter treatments were tested in each of the three procedures of the experiment. The results showed that the salicylic acid treatments increased forage production and decreased the algae production, but did not decrease the phosphate levels in the runoff water. The data indicated that the salicylic acid might have had a direct effect on the algae cells.

Overall, the data indicated that the 10% alum treated litter was the most effective litter treatment as it did not adversely affect forage production, significantly reduced runoff phosphate levels and adversely affected algae growth.

Vietnam

Water Contamination Reduction by Flora (primarily by knotweed) in La Duong Village, Hatay Province, Vietnam

By Trieu Tien Chuan

The development of new businesses and economic activities is often positive for the livelihoods of local people because it creates new jobs and income possibilities. Unfortunately, it often also creates local or even global environmental degradation.

In the village of La Duong, water resources are experiencing increasingly serious pollution. This can be attributed to the rapid expansion of animal husbandry (about 4900 pigs), local liquor distillation, and additionally, ten enterprises that operate around the village.

Trieu Tien investigated possible solutions to the problem of water pollution in the village, where industrial pollution contaminates the underground aquifers on which the villagers are dependent for drinking water.

The most important measure, he suggests, is the use of planted knotweed. As an activity, planting knotweed together can help raise the public awareness of water issues and joint participation in activities which help to save the village water resources.



The SJWP International Nominating Committee

Dr. Magnus Enell (Chair), Sweden

Mr. Björn von Euler, USA

Dr. Nighisty Ghezze, Sweden

Prof. Petr Grau, Czech Republic

Prof. Nuhu Hatibu, Tanzania

Prof. Saburo Matsui, Japan

Dr. Eeva-Liisa Poutanen, Finland

Associated Prof. Ines Restrepo-Tarquino, Colombia

Prof. Charles A. Sorber, USA

Ms. Christina Ritzl (Secretary), SIWI, Sweden

Stockholm Junior Water Prize Winners



2003 Finalists

2003

Claire Reid, South Africa, won the Stockholm Junior Water Prize for an innovative, practical, easily applicable technique for planting and successfully germinating seeds in water-scarce areas to improve rural and peri-urban livelihoods.

2002

Katherine Holt, USA, won the Stockholm Junior Water Prize for research that looked at how foreign species could be introduced to benefit the Chesapeake Bay while preserving the bay's native oyster species and meeting national environmental goals.

2001

Magnus Isacson, Johan Nilvebrant and Rasmus Öman from Sweden won the Prize for their innovative and relevant research on the use of natural materials to remove metals in leachate from landfills.

2000

Ashley Mulroy from the USA won the Prize for a contemporary project that investigated how inefficient wastewater treatment processes can lead not only to antibiotic contamination in American waterways, but also to progressive resistance among harmful bacteria to those same antibiotics that once controlled them.

1999

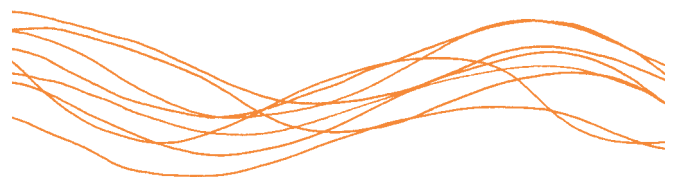
Rosa Lozano, Elisabeth Pozo and Rocío Ruiz from Spain won the Prize for an innovative project that used sea urchins, starfish and sea cucumbers to measure the effectiveness of an EU beach protection program on Spain's western Mediterranean coast.

1998

Robert Franke from Germany won the Prize for his design of the Aquakat, a solar-powered, flow-through reactor for the treatment of industrial wastewater.

1997

Stephen Tinnin from the USA became the first international Stockholm Junior Water Prize winner for research that investigated the correlation between the reproductive rate of sea urchins and water pollution.



Claire Reid, the 2003 Stockholm Jr. Water Prize winner from South Africa stands in front of her research for the development of "Reel Gardening", an innovative method of successfully germinating seeds in water-scarce areas of the world to help improve the livelihood of farmers.

www.ittfluidworld.com

The seeds of great discoveries are constantly floating around, but they only take root in minds well prepared to receive them.

- Joseph Henry



Water is the "stuff of life" and history will show that all of the participants who take part in this important competition are part of something far bigger and more vital than we can now fathom.

The contestants who have challenged themselves, their peers and our society to consider the importance of water are contributing mightily to a better world for everything in our biosphere.

That's why ITT Industries is the proud "Global Sponsor" of the International Stockholm Junior Water Prize since its inception in 1997.



National Organisers and Sponsors

Argentina: Asociacion Argentina de Ingeniería Sanitaria y Ciencias del Ambiente (AIDIS- Argentina), Sudamericana de Aguas S.A, Flygt Argentina S.A., ENOHSA, Subsecretaria de Recursos Hidricos de la Nación

Australia: Australian Water Association (AWA), Thames Water Projects Pty Ltd., Melbourne Water, Australian Water Services Pty Ltd., ITT Flygt Limited

Benin: Kajola Centre, City of Cotonou, Swedish Institute

Cameroon: Cameroon Vision Trust, The Water, Environment, Science and Technology (WEST) Fund

Canada: Western Canada Water Environment Assn., British Columbia Water and Wastewater Assn., Water Environment Assn. of Ontario, Réseau Environment, Atlantic Canada Water Works Assn., Water Environment Federation, Limestone District Board of Education

Chile: Dirección General de Aguas MOP, Aguas Andinas S.A., Diario El Mercurio, Minera Escondida, AIDIS Chile, Comité Chileno del PHI, SOCHID, Embajada de Suecia en Chile, Museo Nacional de Historia Natural, Escuela de Ingeniería de la U. de Chile, Escuela de Ingeniería de la U. de Católica, Facultad de Ingeniería de la U. de Concepcion

China: The Center for Environmental Education & Communications of State Environmental Protection Administration (SEPA CEEC), ITT Industries

Denmark: Unge Forskere

Estonia: Estonian Institute for Sustainable Development, Tallinn Water Ltd., Tallinn City Government, Estonian Institute for Sustainable Development

Germany: Stiftung Jugend Forscht e.V., Federal Department of Education and Science, The Ernst Sobotha Foundation

Israel: Faculty of Engineering at Tel Aviv University, Manuel and Raquel Klachky Fund for the SJWP Competition in Israel

Italy: Federazione delle Associazioni Scientifiche e Tecniche (FAST), Intel, Fondazione Lombardia per l'Ambiente, Foist

Japan: Japan Water Prize Committee (JWPC), EBARA Corporation, Hitachi Ltd., KUBOTA Corporation

Latvia: Education, Youth and Sports Department of Riga City Council, Riga Water

Lithuania: Ecological Club Žvejone, Nordic Council of Ministers Information Office in Lithuania

Mexico: FEMISCA (Mexican Federation of Environmental Engineering), The National Autonomous University of Mexico, Swedish-Mexican Chamber of Commerce, Kemwater de Mexico, Alfa Laval, ITT Industries, Tetra Pak, Ericsson Telecom, Sandvik, Swedish Foreign Trade Assn.

The Netherlands: The Young Water Action Team (YWAT), ITT Flygt, Aqua for All, Programme for the Netherlands Involvement in the Foreign Water Sector, Partners voor Water

Nigeria: National Environmental Watch and Service (NEWS), African Youth Movement on Environment, Nnamdi Azikiwe University, Aguata Local Government, Intercontinental Bank PLC, UBABUKE Oil Nig. Ltd., Heritage Group of Companies, Caltec Nig. Ltd., Clerico Construction Nig. Ltd., Nigerian Mineral Waters Ltd., FUSE Nig. Ltd., The Federal Polytechnic, The Anambra State/UNICEF Joint Water Project Unit, Harmony Specialist Hospital and Maternity, Total Fina Elf, Federal Ministry of Water Resources

Norway: Hydrologirådet, Norsk Vannforening, VA-yngre, Kaldnes Miljøteknologi AS, Kemira, Norges Vassdrags og Energidoktorat (NVE), Norsk Institutt for Vannforskning (NIVA)

Poland: Polish Foundation for the Protection of Water Resources, The Economic Chamber of "Polish Waterworks"

Russian Federation: Environmental Projects Consulting Institute, Swedish Institute, Ministry of Natural Resources, Dept. of Agriculture Councillor of the Dutch Embassy in Moscow, Krasnoyarsk Territory Administration, Environmental Projects Consulting Institute

South Africa: Department of Water Affairs and Forestry, Department of Education, WRP Consulting Engineers (Pty) Ltd., University of Cape Town, University of Natal, Cape Technikon

Spain: AGBAR Foundation (Centre d'Estudis i Investigació del Medi Ambient), Kemira Iberica S. A.

Sweden: Stockholm International Water Institute (SIWI), ITT Flygt AB

USA: Water Environment Federation (WEF), ITT Industries, The Coca-Cola Company

Vietnam: Swedish International Development Cooperation Agency (SIDA)

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