STOCKHOLM
JUNIOR WATER PRIZE

DISCOVER THE IDEAS THAT MADE IT TO THE TOP.

2016-2026

The **winners** of the INTERNATIONAL Competition and their **Projects**



STOCKHOLM
JUNIOR WATER PRIZE
Cyprus

National Organiser

MN WATER MUSEUM

Limassol District
Local Government Organisation



ANNUAL
COMPETITION
for students of Secondary and Technical Schools
on the subject of
water

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CALL FOR ENTRIES

Approved by the
Cyprus Ministry of Education, Sport & Youth

MINISTRY OF EDUCATION
SPORT AND YOUTH

With the support of the
Embassy of Sweden in Cyprus

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STUDENT
Moroti Adegboyega

CANADA

2026
STOCKHOLM
JUNIOR WATER PRIZE



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Ecoferroquatics: A Novel Autonomous Plastic Cleanup Platform Integrating AI, Robotics and a Biocompatibility-Oriented Magnetic Suspension

Plastic pollution threatens global ecosystems; aquatic plastic debris can fragment into smaller particles, be ingested by organisms, and transport associated chemicals through trophic levels. If aquatic plastic contamination is not stringently mitigated, both marine biodiversity and public health face significant, systemic risks. Existing remediation methods like nets, trawlers and filters often harm biological life and heavily rely on manual labour, maintenance and intervention. Plastic pollution cleanup needs to be selective and autonomous.

This project investigates whether an AI (Artificial Intelligence)-guided ferrofluid-assisted collection system can selectively remove plastic debris from water bodies. A new ferrofluid and magnetic drum system, which selectively remediates plastics, was created, and a plastic-targeting AI pilot was trained using a handmade dataset.

For validation, a controlled proof-of-concept study was done in a pool environment against multiple plastic polymers of varying sizes. After 9 trials, the robot had 51.85% removal efficiency and could collect 1.73 pieces of plastic per minute. The system outperformed a preliminary sieve-based baseline for microplastic-scale particles, illustrating the pass-through limitation of coarse mechanical screening.

The prototype demonstrates the viability of combining AI with ferrofluid-assisted remediation to clean up aquatic plastic contamination, while also identifying limitations that future iterations must overcome.

STUDENTS
Niklas Ruf
Jana Spiller

GERMANY

2025
STOCKHOLM
JUNIOR WATER PRIZE



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WarnMe – Early flood warning for everybody!

Flooding is an increasing concern worldwide, with more frequent and larger floods affecting communities. Yet on smaller streams, real-time data is often lacking, limiting the possibility of early warnings. Over four years of work, Ruf and Spiller created a network of sensors linked to an app that provides live alerts to both experts and the public. Their system is already being scaled up across their region in consultation with multiple partners. The Jury noted that the project “addresses a critical challenge we are seeing around the globe: more frequent and bigger floods. Yet on smaller streams, we often lack the data needed to provide real-time warnings. The students have not only built a functioning system and an app that notifies experts and the public, they are already working to scale this system across their region in consultation with numerous partners.”

STUDENTS
Christopher Whitfeld
Wenqi (Jonathan) Zhao

U.K.

2024
STOCKHOLM
JUNIOR WATER PRIZE



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PFASolve: An integrated framework for the detection and filtration of perfluoroalkyl substances from surface water in the Thames Basin

Focusing on the Thames Basin in the United Kingdom, Whitfeld and Zhao created a geospatial neural network that can predict PFAS values to within 10% of experimentally validated values. The students also designed and tested a point-of-use filtration device to be installed on taps, which can reduce PFAS concentration by 93%.
The Jury noted that Whitfeld and Zhao's project "finds a way to take data and turn it into actionable knowledge. [They have] identified PFAS hotspots using machine learning, field tested their results, developed a cost-effective filtration system, and reached out to local governments and environmental organizations to raise awareness."

STUDENT
Naomi Park

USA

2023
STOCKHOLM
JUNIOR WATER PRIZE



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Multi-Functional Remediation Framework (MF-RF)

The world's oceans have to deal with a lot: plastic waste, oil spills and increasing levels of carbon dioxide. Oceans absorb nearly one-third of airborne CO2 emissions, and they contain more than 170 trillion plastic particles. Every year, 1.3 million gallons (nearly 5 million liters) of crude oil are spilled into oceans.

Naomi Park wanted to find a solution that could help address all these problems at once, and she did it through her Multi-Functional Remediation Framework. It's basically a sponge that, when lowered into seawater, can absorb up to 92% of benzene from oil spills and up to 95% of CO2. As an added benefit for the environment, the material used to make the sponge comes from plastic Styrofoam waste.

Park's innovative solution won her the 2023 Stockholm Junior Water Prize, an international competition organized by the Stockholm International Water Institute. She also recently conducted original research at the Research Science Institute, a summer research program hosted by MIT for 100 outstanding high school students from around the world.

STUDENT
Annabelle M. Rayson

CANADA

2022
STOCKHOLM
JUNIOR WATER PRIZE



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How to treat and prevent harmful algae blooms

Harmful algae blooms plague aquatic ecosystems around the world. They impact water quality and ecosystem diversity, cause dead zones, and cost the fishing and tourism industries millions of dollars.
Rayson's father, a commercial fisherman, could no longer fish in certain areas due to harmful algae blooms, so her research to find a method to treat and prevent harmful algae blooms.
Rayson learned the concept of biomanipulation, and which species of zooplankton was best to treat and prevent algae blooms. For this, she was announced as winner of Stockholm Junior Water Prize, an international competition where students between the ages of 15 and 20 present solutions to major water challenges.

STUDENT
Eshani Jha

USA

2021
STOCKHOLM
JUNIOR WATER PRIZE



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Thiol Functionalized and Manganese Dioxide Doped Biochar for the Removal of Toxic Organic and Inorganic Contaminants from Water

The winner Eshani Jha is a student at Lynbrook High School in San José, California. She has done research on how to remove contaminants from our freshwater in a simple and cost-effective way. The process involves replacing active carbon with biochar for use in efficient and cheap water filters.

“I am honoured to receive this prize, particularly with so many excellent contributions from around the world. I hope we can work together in the years to come, for a better water world. We really are the future of water-related science,” said Jha.

Her invention targets certain classes of contaminants, particularly pesticides, emerging contaminants, and heavy metals. She explains that she has enhanced the biochar’s ability to act like a sponge for these contaminants, creating a ‘super sponge’.

Water contamination is a growing problem around the world, with new contaminants discovered and increasing concentrations of existing pollutants being recorded. The simplicity of this solution is that it addresses multiple, varied contaminants with a single device, and that device is potentially scalable to global use, with the added benefit of localized manufacture.

The Stockholm Junior Water Prize Jury

STUDENTS
Hiroki Matsuhashi
Takuma Miyaki

JAPAN

2020
STOCKHOLM
JUNIOR WATER PRIZE



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Controlling soil runoff and increasing food production by the functional water collection system using traditional Japanese soil solidification technology: “Ta-Ta-Ki

Hiroki Matsuhashi and Takuma Miyaki have developed a method to control soil runoff and increase food production, using the traditional Japanese soil solidification technology Tataki.
“This system is made of only inexpensive natural materials, so it is cheap and eco-friendly. We would like to spread this system to the world and solve water and food problems,” the duo said in a filmed presentation of their project.
The Jury noted that: “This year’s winners have proven that simple local solutions can solve water problems in a global context. Through systematic studies the contestants have developed methods to make water conservation and soil management more achievable. The contestants effectively combined scientific knowledge and experimentation to revolutionize the way water is collected, used, and conserved for agriculture in arid regions.”

STUDENT
Macinley Butson

AUSTRALIA

2019
STOCKHOLM
JUNIOR WATER PRIZE



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SODiS Sticker

Macinley Butson's project developed a new, novel and innovative ultraviolet sticker to accurately measure large UV exposures for solar disinfection of water. The SODIS sticker is capable of accurately measuring the solar UV exposure required to sanitize drinking water through two innovative products built together.
As an elated Macinley received her prize from H.R.H Crown Princess Victoria of Sweden;
"I am still in complete shock. There are no words to describe how I am feeling because I can't process what has just happened. Amazing people have inspired me so much this year and I never expected this outcome Everyone here is doing so much amazing things and I feel confident the future is in good hands and I will never forget the connections I made here in Stockholm" said Mackinley Butson
In their citation the Jury noted that: "This year's winning project addresses public health through renewable energy and water. The project embodies simplicity and affordability leaving no one behind. Water for society: including all! This invention is practical, ready and globally deployable. The project demonstrates experience and expertise by a dedicated and creative young scientist."

STUDENTS
Caleb Liow Jia Le
Johnny Xiao Hong Yu

SINGAPORE

2018
STOCKHOLM
JUNIOR WATER PRIZE



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A Novel, Eco-friendly Synthesis of Reduced Graphene Oxide (rGO) from Durian Rind and Sugarcane Bagasse for Water Filters

In their project, Caleb Liow Jia Le and Johnny Xiao Hong Yu developed a new method to produce reduced graphene oxide (rGO), a material that has huge potential to purify water. Using durian rind and sugarcane bagasse the students found a more environmentally friendly and cheaper method for producing rGO.

The Stockholm Junior Water Prize goes to the winners of an international annual competition with more than 10,000 entries from all over the world. H.R.H. Crown Princess Victoria of Sweden is the Patron of the prize.
In its citation, the Jury highlighted the wide local benefits of the students' method: "This year's winning project inspires communities to find local solutions to improve water quality and resource recovery. The project developed a leading edge, inexpensive, and widely applicable method to clean water. Further development of this method will lead to public health and ecosystems protection. Therefore, the project embodies the themes of 2018 World Water Week – Water, Ecosystems and Human Development. The winning project has included concepts of circular economy, nanotechnology, and green chemistry. The project's success will set new trends in the way we filter water."

STUDENTS
Ryan Thorpe
Rachel Chang

USA

2017
STOCKHOLM
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Novel approach to rapidly and sensitively detect and purify water contaminated with Shigella, E. coli, Salmonella and Cholera

In its citation, the Jury said: “This year’s winning project embodies the fundamental principle of providing safe drinking water. The winner’s motivation is to eliminate millions of human deaths each year. The project developed a unique, rapid, and sensitive method to identify, quantify and control water contaminants.”
The students constructed a system that detects and purifies water contaminated with Shigella, E. coli, Salmonella, and Cholera more rapidly and sensitively than conventional methods. Their system detects as little as one reproductive bacteria colony per litre instantaneously and eliminates bacterial presence in approximately ten seconds. In contrast, conventional methods have detection limits of up to 1000 colonies and take one to two days. The students’ novel approach could prevent the contraction and outbreak of waterborne diseases and expand potable water throughout the world.
The Jury was impressed by the winners, in particular their “exceptional intelligence, enthusiasm and true passion for water and human health.”
“This method is applicable to both developed and developing world. The winning project has used fundamental science in an elegant way to address pathogenic bacteria in drinking water. The project has the potential to revolutionize the future of water quality,” the Jury said further.

STUDENTS
Sureeporn Triphetprapa
Thidarat Phianchat
Kanjana Komkla

THAILAND

2016
STOCKHOLM
JUNIOR WATER PRIZE



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Natural innovative water retention Mimicry Bromeliad (Aechmea aculeatosepala)

By examining the efficacy of natural water collection by plants – especially in terms of the shape of plants that collect and capture water – Sureeporn Triphetprapa, Thidarat Phianchat and Kanjana Komkla built a device that mimics the water retention of the Bromeliad plant. The device has also been installed on rubber trees on rubber plantations. For this, they have been awarded the 2016 Stockholm Junior Water Prize, showcasing that nature is the best teacher.

The Jury was impressed by the winners, in particular their exceptional creativity, unrelenting diligence, enthusiasm and true passion for water.

“The theme of the 2016 World Water Week is Water for Sustainable Growth. The winning project addresses future water security and rural livelihoods using an elegant leap-frog technology which looks simple, but its beauty masks its complexity! The project embodies the theme well through its journey from the idea to application,” the Jury said in its citation.

“It has already proven to be scalable and is now being tested in the field, by hundreds of farmers, who are now benefiting from the inspiration from beautiful plants which have an exceptional capacity to collect and store water.”

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JUNIOR WATER PRIZE



Find out more about past winners and their projects, dating back to the first Stockholm Junior Water Prize in 1995.

The world stage of water science is waiting. Could your team be next?

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