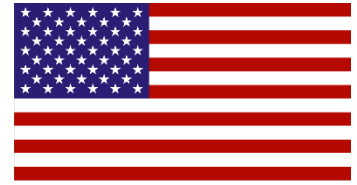




# Stockholm *Junior* Water Prize



## United States 2023 Stockholm Junior Water Prize

### State Winners



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The following state winners have advanced to the U.S. Stockholm Junior Water Prize national competition, to be awarded June 17<sup>th</sup>, 2023, at the Colorado School of Mines in Golden, Colorado.

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#### **Alabama**

##### **Mustafa Gurbuz & Adonay Mahatsente**

Cleaning Up the World's Oceans with ROV-Mounted DNN-Based Underwater Laser Image Recognition

Northridge High School

Science Teacher: Patricia Fuller

Sponsored by the Alabama Water Environment Association

#### **Alaska**

##### **Katie Mae Apatiki & Keralei Apassingok**

3D-Based Carbon/Mineral Filter for Water Contaminants Removal

John Apangalook High School

Science Teacher: Luzviminda Dinglasan

Sponsored by the Alaska Water Wastewater Management Association

**Arizona**

**Sruti Peddi**

FloodCast: Real-Time Flood Mapping and Prediction in Southeast Asia Using Remote Sensing Data

BASIS Scottsdale

Science Teacher: Shahnawaz Sinha

Sponsored by the AZ Water Association

**Arkansas**

**Aakash Bhattacharyya**

Novel Nanostructured Superhydrophilic Metal Surfaces by Simple Hot Water Treatment for Economic, Sustainable, and Effective Antibacterial Surfaces

Central High School

Science Teacher: Patrick Foley

Sponsored by the Arkansas Water Environment Association

**California**

**Kyle Tianshi**

Rapid Detection of Microplastics in Liquid: A Novel Light Scattering Method Using Fluorescence Emissions

The Cambridge School

Science Teacher: Melissa Mayne

Sponsored by the California Water Environment Association

**Colorado**

**Natalie Muro**

Buoy Wave Energy Converters Capture of Ocean Wave Energy

William J. Palmer High School

Science Teacher: Nathaniel Lohmann

Sponsored by the Rocky Mountain Water Environment Association

**Connecticut**

**Naomi Park**

Concurrent Removal of Rising, Soluble Ocean Carbon Dioxide and Oil-in-Water Contaminants via Multi-Functional Remediation Framework

Greenwich High School

Science Teacher: Andrew Bramante

Sponsored by: the New England Water Environment Association

**Delaware**

**No Qualifying Entries**

**Florida**

**Abhith Kasala**

Global Plastic Pollution: Ecotoxicological Effects of Microplastics on Aquatic Organisms and Novel Extraction Methods of Microplastics in Water Filtration

Gainesville High School

Science Teacher: Lisa Sauberan

Sponsored by the Florida Water Environment Association

**Georgia**

**Delila Harris**

The Biocidal Effectiveness of Silver Nanoparticles

Union Grove High School

Science Teacher: Mary Sears

Sponsored by the Georgia Association of Water Professionals

**Hawaii**

**Darwynn Ayling**

Liming the Ocean

Kalaheo High School

Science Teacher: Diana Chun

Sponsored by the Hawaii Water Environment Association

**Idaho**

**Adri Anderson**

Low-Cost, Solar Powered Water Purification to Turn Rain into your Gain

Grangeville High School

Science Teacher: Sean Bass

Sponsored by the Pacific Northwest Clean Water Association

**Illinois**

**Macy Putnam**

The Development of a Mobile, Arduino-Based Water Quality Testing Apparatus

Augusta Illinois Southeastern High School

Science Teacher: Kassie Henry

Sponsored by the Illinois Water Environment Association

**Indiana**

**Vidhatri Iyer**

A Rapid One-Step Filter-Based Detection Method for Nanoplastics in Wastewater Samples

University High School of Indiana

Science Teacher: Erica Posthuma

Indiana Water Environment Association

**Iowa**

**Kiersten Knobbe**

Using *Lutjanus Campechanus* Scales as a Biosorbent to Filter  $\text{Cu}^{2+}$ ,  $\text{Pb}^{2+}$  and  $\text{Cd}^{2+}$

AC/GC High School

Science Teacher: Jenniver Reed

Sponsored by the Iowa Water Environment Association

**Kansas**

**No Qualifying Entries**

**Kentucky**

**Zahra Chasmawala & Valerie Mohrmann**

Chemically Enhanced Natural Materials for Oil Spill Cleanup

duPont Manual High School

Science Teacher: Keri Polevchak

Sponsored by the Clean Water Professionals of Kentucky & Tennessee

**Louisiana**

**Arjun Desai**

The Efficacy of a Biomimetic Design Derived from *Stenocara gracilipes* in Efforts Maximize Water Collection and Alleviate Concerns with the Global Water Crisis

Caddo Parish Magnet High School

Science Teacher: Cecelia Carbo

Sponsored by the Louisiana Water Environment Association

### **Maine**

**Alexander Busko**

The Development of a Pour-Through Oil-Water Column Filter to Effectively Extract Microplastics from Water

Bangor High School

Science Teacher: Theodore Taylor

Sponsored by the New England Water Environment Association

### **Maryland**

**Jay Wankhede & Neel Bhattacharyya**

AntiBloom: A Novel Deep Learning-Powered Harmful Algal Bloom (HAB) Prediction Device

Poolesville High School

Science Teacher: Zachary Kingman

Sponsored by the Chesapeake Water Environment Association

### **Massachusetts**

**Hyeonki Lee**

Development of Cost-Effective, Sustainable Microbial Fuel Cells for Purifying Manure Polluted River

Northfield Mount Herman School

Science Teacher: Dominic Zhang

Sponsored by the New England Water Environment Association

**Michigan**

**David Roush & Alisha Gentz**

The Effect of Nozzle Size and Number of Runner Blades on a Micro Hydropower System

Macomb Mathematics Science Technology Center

Science Teacher: Jamie Hilliard

Sponsored by the Michigan Water Environment Association

**Minnesota**

**Johanna Bernu**

Disinfectant Properties of Nuphar advena: An Ethnopharmaceutical Approach

Cloquet Senior High School

Science Teacher: Cynthia Welsh

Sponsored by the Central States Water Environment Association

**Mississippi**

**No Qualifying Entries**

**Missouri**

**Maya Elliott**

A Ball-milled Biochar Alginate Filter: A Novel Approach to Water Quality

Lebanon High School

Science Teacher: Ryne Emerick

Sponsored by the Missouri Water Environment Association

**Montana**

**Grace Wandler**

Effects of Nutrient Concentrations on Attached Algae: Clark Fork River Case Study

Hellgate High School

Science Teacher: Willow Affleck

Sponsored by the Montana Water Environment Association

**Nebraska**

**Kiara McGuire**

Investigating the Use of Structural Supports to Optimize the Production of Algae

Ogalalla High School

Science Teacher: Jennifer Jones

Sponsored by the Nebraska Water Environment Association

**Nevada**

**Garret Ordonez**

Effectiveness of SNWA's (Southern Nevada Water Authority) Conservation Strategies on Xeriscaping in Single-Family Households

Foothill High School

Science Teacher: Regan Peterson

Sponsored by the Nevada Water Environment Association

**New Hampshire**

**Abhinav Avvaru**

An Economical and High Precision Approach for Nitrate Detection and Filtration to Ensure Quality Drinking Water

Nashua High School South

Science Teacher: Gwen Goodwin

Sponsored by the New England Water Environment Association



**New Jersey**

**Grace Leavitt**

Analysis of the Production and Utilization of Bioplastics Derived from Various Microalgae Species

Marine Academy of Technology and Environmental Science

Science Teacher: John Wnek

Sponsored by the New Jersey Water Environment Association

**New Mexico**

**Gianna Nilvo**

A Novel Under-Sink Engineered Device to Detect Acidic Chemicals to Convert to Biodiesel

School of Dreams Academy

Science Teacher: Jennifer Nilvo

Sponsored by the Rocky Mountain Water Environment Association

**New York**

**Leysha Esteves**

First Evidence of Microplastic Ingestion by Mixotrophic Dinoflagellate *Noctiluca scintillans* at the Base of the Marine Food Chain

Peekskill High School

Science Teacher: Erum Hadi

Sponsored by the New York Water Environment Association

**North Carolina**

**George Cheng**

HydroScan: A Low-Cost Microscope for Pathogenic Detection using Machine Learning and Convolutional Neural Networks

North Carolina School of Science and Mathematics

Science Teacher: Michael Cargill

Sponsored by NC One Water

**North Dakota**

**Malory Kemp**

Sustainable Solutions: Comparing Electrochemical vs Traditional Methods of Wastewater Remediation

Cavalier Public High School

Science Teacher: Deanna Grandalen

Sponsored by the North Dakota Water Environment Association

**Ohio**

**Elizabeth Theobald**

Trihalomethane Occurrence and Formation within Water Distribution Systems Impacting Public Schools

Archbold High School

Science Teacher: Cristin Hagans

Ohio Water Environment Association

**Oklahoma**

**Rylee Ruddick & Chloe Robbins**

Effects of FeHEDTA herbicide on cell regeneration in *Planaria dorotocephala*

Bartlesville High School

Science Teacher: Jessica Strain

Oklahoma Water Environment Association

**Oregon**

**Melinda Lin & Uma Grover**

What are the Effects of Cyanobacteria Blooms on Primary Productivity, Toxicity, and Microorganisms?

West Linn High School

Science Teacher: Danielle Schroeder

Sponsored by the Pacific Northwest Cleanwater Association

**Pennsylvania**

**Saranya Anantapantula**

Meta-analysis of Field Experiments & Experimentation of Gypsum, an Inexpensive and Natural Treatment, Towards Effective, Low-Cost, High-Efficacy Algal Bloom Control

Spring-Ford Area High School

Science Teacher: Walter Burgess

Sponsored by the Pennsylvania Water Environment Association

**Puerto Rico**

**Paola Robles**

MantH2O: A Multiparametric Water Quality Monitoring System Using Pixhawk ArduPilot

Colegio Rosa-Bell

Science Teacher: Yajaira Torres

Sponsored by the Puerto Rico Water Environment Association

**Rhode Island**

**No Qualifying Entries**

**South Carolina**

**Abdullah Amir**

The Effect of Different Concentrations of Bacillus subtilis on Spirulina platensis Growth in an Environment with Glyphosate

Spring Valley High School

Science Teacher: Michelle Wyatt

Sponsored by the Water Environment Association of South Carolina

**South Dakota**

**Kendyl Locken**

“Clean Snow” for Drinking Water vs. Water Quality Tests

Timber Lake High School

Science Teacher: Luann Lindskov

Sponsored by the South Dakota Water & Wastewater Association

**Tennessee**

**Duncan Arnold**

Analysis of Biofilms on Microplastics Sampled from Wastewater Treatment Plant Effluent

L&N STEM Academy

Science Teacher: Bryan Schultz

Sponsored by the Clean Water Professionals of Kentucky & Tennessee

**Texas**

**Rishab Ghosh**

An Analysis Into the Removal of Microplastics From Water Using Oil-based Ferrofluids

The Woodlands College Park College School

Science Teacher: Larissa Coffee

Sponsored by the Water Environment Association of Texas

**Utah**

**Krishnam Goel**

Harmful Algal Blooms Threaten Global Surface Water Sustainability - An Ecosystem-Based Study

West High School

Science Teacher: Hilary Thirlwell

Sponsored by the Water Environment Association of Utah

**Vermont**

**No Qualifying Entries**

**Virginia**

**Hannah Chen**

Predicting Life in Water Using Math: A Predictive Analysis of Chlorophyll-a Concentrations to Determine If a Body of Water Can Sustain Life

Grafton High School

Science Teacher: Margaret Harris-Shoates

Sponsored by the Virginia Water Environment Association

**Washington**

**Ria Bhutani**

The Effect of Introducing Caffeine into an Acidified Freshwater Environment on Planarian Regeneration

Forest Ridge School of the Sacred Heart

Science Teacher: Corina Rahmig

Sponsored by the Pacific Northwest Clean Water Association

**West Virginia**

**No Qualifying Entries**

**Wisconsin**

**Nathan Steinbach**

PFAS: Analyzing Multiple Methods of Elimination Through Various Algorithms

University School of Milwaukee

Science Teacher: Erin Heaney

Sponsored by the Central States Water Environment Association

**Wyoming**

**Riley Thomas**

Reducing Potential Groundwater Contamination from Coal Fly Ash: Developing a Unique  
Bentonite/Zeolite Matrix Barrier

Greybull High School

Science Teacher: Joel Kuper

Sponsored by the Rocky Mountain Water Environment Association