



United States 2021 Stockholm Junior Water Prize

State Winners

The following state winners have advanced to the U.S. Stockholm Junior Water Prize national competition, to be awarded June 12th, 2021

Alabama

Shemai'ya Peak

Water Quality and Conservation: Analysis of Samples from Local Water Ways

Stanhope Elmore High School

Teacher – Howard Babin

Sponsored by the Alabama Water Environment Association

Alaska

No Qualifying Entries

Sponsored by the Alaska Water Wastewater Management Association

Arizona

Anshul Verma

Detecting microbial contaminants in water using artificial intelligence and deep learning algorithms in order to prevent the spread of waterborne illnesses

Hamilton High School

Science Teacher – Sara Loutzenheiser

Sponsored by the AZ Water

Arkansas

Terrance Meinardus

A Nutrient Analysis and Algal Study of Rick's Pond, Hot Springs National Park
Arkansas School for Mathematics, Sciences, and the Arts
Science Teacher – Lindsey Waddell
Sponsored by the Arkansas Water Environment Association

California

Eshani Jha

Thiol Functionalized and Manganese Dioxide Doped Biochar for the Removal of
Toxic Organic and Inorganic Contaminants from Water
Lynbrook High School
Science Teacher – Isaac Pallone
Sponsored by the California Water Environment Association

Colorado

Gitanjali Rao

A novel way to detect lead in drinking water using carbon nanotubes
STEM School Highlands Ranch
Science Teacher – Kandace Lytle
Sponsored by the Rocky Mountain Water Environment Association

Connecticut

Elizabeth Wallace

Eco-friendly Remediation of Arsenic and Phosphates from Contaminated Water Resources
Using Iron Fortified Spinach Roots and Biochar
Greenwich High School
Science Teacher – Andrew Bramante
Sponsored by the New England Water Environment Association

Delaware

No Qualifying Entries

Sponsored by the Chesapeake Water Environment Association

District of Columbia

No Qualifying Entries

Sponsored by the Chesapeake Water Environment Association

Florida

Morgan Barnes

Analyzing In-situ Environmental Impacts on Long Term Durability, Cohesivity, and Viability Sodium Alginate
Immobilized Chlorella vulgaris Bioremediation Units (A Novel Third Year Study)
Canterbury School
Science Teacher – Kelly Percivall
Sponsored by the Florida Water Environment Association

Georgia

Gabrielle Wood

Sustainable Separation of Microplastics from Sediment
Rockdale Magnet School for Science and Technology
Science Teacher – Shelley Seagraves
Sponsored by the Georgia Association of Water Professionals

Hawaii

Christine Dong

An Experimental Approach on a Rapid, Cost Effective, and Energy Conserving Solution to
Separate Arsenic from Contaminated Water

Punahou School

Science Teacher – Emily McCarren

Sponsored by the Hawaii Water Environment Association

Idaho

Bailey Vanderwall & Camden Barger

Comparing the Success of Aquaponics to Hydroponics

Grangeville High School

Science Teacher – Shaun Bass

Sponsored by the Pacific Northwest Clean Water Association

Illinois

Meha Krishnareddigari and Riya Khandelwal

The Application of Fruit Peels in the Extraction of Nitrites from Water

Adlai E. Stevenson High School

Science Teacher – Christina Palffy

Sponsored by the Illinois Water Environment Association

Indiana

Andrew Lipton

Creating and Testing New Polymers to Remove the Environmental Toxin PFOA from Water

Jefferson High School

Science Teacher – Alyce Myers

Sponsored by the Indiana Water Environment Association

Iowa

Claire Gu

Predicting Harmful Algal Blooms in Iowa's Green Valley Lake Using a Machine Learning Model

Valley High School

Science Teacher – Karen Downing

Sponsored by the Iowa Water Environment Association

Kansas

No Qualifying Entries

Sponsored by the Kansas Water Environment Association

Kentucky

Varun Hariprasad

Developing a Novel Autonomous Robot for Cleaning Oil Spills in Water

Paul Laurence Dunbar High School

Science Teacher – Karen Young

Sponsored by the Clean Water Professionals of Kentucky and Tennessee

Louisiana

Richard Usdin

The Effect of CAFO Proximity on Water Quality of Inland Recreational Lakes in Southwest Michigan

Benjamin Franklin High School

Science Teacher – Sally Spahn
Sponsored by the Louisiana Water Environment Association

Maine
Ginny Hunt

Novel Detection Method for the Identification of Microplastics in the
Sediment of the Penobscot River Watershed
Bangor High School
Science Teacher – Barbara Stewart
Sponsored by the New England Water Environment Association

Maryland
Junzhi Xie

Phytoremediation: An Innovative Wastewater Treatment Method for Removal of Microplastic Particles
Richard Montgomery High School
Science Teacher - Bessy Albaugh
Sponsored by the Chesapeake Water Environment Association

Massachusetts
Maxim Attiogbe

A Novel, Generalized Approach to Colorimetric Water Testing Using a Mobile App
Massachusetts Academy of Math and Science
Science Teacher – Michael Barney
Sponsored by the New England Water Environment Association

Michigan
Jibraan Rahman

Improving Our Drinking H₂O - Effectiveness Of 6 Key Processes and Applications for Developing Nations
Canton High School
Science Teacher – Bridget Kocurek
Sponsored by the Michigan Water Environment Association

Minnesota
Rowan Rock

Wastewater Treatment: The Use of Mealworm Microbes to Isolate and
Identify Bacteria that can Biodegrade Polystyrene
Cloquet Senior High School
Science Teacher – Cynthia Welsh
Sponsored by the Central States Water Environment Association

Mississippi
Jessica Yan

Reinforced Lignin Foams with Higher Adsorption Capabilities
The Mississippi School for Mathematics and Science
Science Teacher – Tina Gibson
Sponsored by the Mississippi Water Environment Association

Missouri
Nicholas Faiferlick

Transformation of Marine Bacteria with the Ideonella sakaiensis Plasmid for

Enhanced Biodegradation of Polyethylene Terephthalate in Aquatic Ecosystems
Camdenton High School
Science Teacher – Christopher Reeves
Sponsored by the Missouri Water Environment Association

Montana

Jasper Thomas

How Beaver Dam Analogs Effect Sediment Depth and
Composition in a Low Order Stream in Lolo National Forest
Hellgate High School
Science Teacher – Willow Affleck
Sponsored by the Montana Water Environment Association

Nebraska

Samantha Chavira

Differentiation and Quantification of Microplastic Polymers in Water through the
Use of Spectrophotometry and Fluorometry
Lyons-Decatur Northeast Schools
Science Teacher – Paul Timm
Sponsored by the Nebraska Water Environment Association

Nevada

Noah Dee

F. I. S. H. I. N' (Finding Innovative Solutions to Help Inspire Nevada)
Spring Valley High School
Science Teacher - Felicia Bonanno
Sponsored by the Nevada Water Environment Association

New Hampshire

Abhinav Avvaru

An Economical Approach for Detecting Nitrates in Water at Homes
Nashua High School South
Teacher – Michelle Cohen
Sponsored by the New England Water Environment Association

New Jersey

Charlotte Michaluk

A Novel Ship Hull Coating: Mitigating Climate Change and Aquatic Invasive Species Transport
Hopewell Valley Central High School
Science Teacher – Brenda Peterson
Sponsored by the New Jersey Water Environment Association

New Mexico

Samantha Shaver

A Novel Method for Treatment of Greywater Using Recycled or Natural Materials
Rio Rancho High School
Science Teacher – Jennifer Miyashiro
Sponsored by the Rocky Mountain Water Environment Association

New York

Julius Yoh

The Optimization of Desalination and Ion-Removal Rate Through the Engineering of
Novel Turbulent Modular Designs in an Electrodialysis System
Manhasset High School
Science Teacher – Alison Huenger
Sponsored by the New York Water Environment Association

North Carolina

Sahil Azad

Identifying Natural Flocculating Proteins for Affordable Anti-Microbial Sand Filters
North Carolina School of Science and Mathematics
Science Teacher – Michael Bruno
Sponsored by the North Carolina Water Environment Association

North Dakota

Gavin Kratcha

An Analysis of Agricultural Tile Drainage and the Impact of Crop Residue Retention
Hankinson High School
Science Teacher – Patty Kratcha
Sponsored by the North Dakota Water Environment Association

Ohio

Laalitya Acharya

Nereid: Using a Convolutional Neural Network (CNN) Approach, an AI Technique, to Rapidly and
Accurately Detect Microbial Contamination That May Cause Water-Borne Diseases
William Mason High School
Science Teacher – Karen Young
Sponsored by the Ohio Water Environment Association

Oklahoma

Catherine Sheffield

What is the Effectiveness of Using Microfluidic Paper Analytical Device to
Test for Inorganics in Streams, Creeks, and Surface Runoff?
Bartlesville High School
Science Teacher – Gary Layman
Sponsored by the Oklahoma Water Environment Association

Oregon

Grace Sato

SAFE Water- Self Assemble-able Filter for Everyone
West Linn High School
Science Teacher – Danielle Grenier
Sponsored by the Pacific Northwest Clean Water Association

Pennsylvania

Rachel Bina

Minimizing Vibrio cholerae in Aquatic Ecosystems using Phage
North Allegheny Senior High School
Science Teacher – Bruce Allen
Sponsored by the Pennsylvania Water Environment Association

Puerto Rico
No Qualifying Entries

Sponsored by the Puerto Rico Water & Environment Association

Rhode Island
No Qualifying Entries

Sponsored by the New England Water Environment Association

South Carolina
Hannah Lieberman

See Level Rise

South Carolina Connections Academy

Science Teacher – Emily Phillips

Sponsored by the Water Environment Association of South Carolina

South Dakota
No Qualifying Entries

Sponsored by the South Dakota Water Environment Association

Tennessee
Ridhima Singh

Spatial Pattern and Correlation Analysis to Understand the Relationship of City Structure on the Urban Heat Island (UHI)

Intensity Across the US

Farragut High School

Science Teacher – Matthew Milligan

Sponsored by the Clean Water Professionals of Kentucky and Tennessee

Texas
Zhi-Wei Zeng

Facile Preparation of Superhydrophobic Melamine Sponge for Efficient Underwater Oil-water Separation

Zeng Home School

Science Teacher – Ying Feng

Sponsored by the Water Environment Association of Texas

U.S. Armed Forces Abroad
Willow Lewis

Just Keep Swimming: A Study of if Artemia salina's Activity Can Measure Water Toxicity

Kubasaki High School

Science Teacher - Jillian Eastman

Sponsored by the Water Environment Federation

Utah
Warren Ellsworth

A Novel Continuous Electrostatic-Capacitive Desalination System Inspired by Biomimicry of Marine Teleosts's Chlorine Cells Designed for Economical Saltwater Deionization

Hillcrest High School

Science Teacher – Andie Arnold

Sponsored by the Water Environment Association of Utah

Vermont

Hiba Ali

Functional Roles of Mysis and Amphipods Between Lake Basins Faced by Two Different Stressors:
Zebra Mussels and Cyanobacteria Blooms
South Burlington High School
Science Teacher – Nathaniel Moore
Sponsored by the New England Water Environment Association

Virgin Islands

No Qualifying Entries

Sponsored by the Seven Seas Water Corporation

Virginia

James Licato

Zeolite Composite Materials for the Simultaneous Removal of Pharmaceuticals,
Personal Care Products (PPCPs), and Perfluorinated Alkyl Substances (PFAS) in Water Treatment
Washington-Liberty High School
Science Teacher – Lourdes Sotomayor
Sponsored by the Virginia Water Environment Association

Washington

Taj Khandekar

Predicting Nitrogen Contamination in the Gulf of Mexico
Interlake High school
Science Teacher – Sameer Khandekar
Sponsored by the Pacific Northwest Clean Water Association

West Virginia

No Qualifying Entries

Sponsored by the West Virginia Water Environment Association

Wisconsin

Anna Wang

An Investigation into the Removal of Dyes and Plastic Microfibers from Wastewater
Madison West High School
Science Teacher – Eric Gettrust
Sponsored by the Central States Water Environment Association

Wyoming

No qualifying Entries

Sponsored by the Rocky Mountain Water Environment Association