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
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