

# **United States 2015 Stockholm Junior Water Prize**

## **State Winners**

### **Alabama**

#### **Megan Lange**

Removal of BTEX from Storm Water using Improved HDTMA Nano-Particle  
Enhanced Reactive Porous Concrete  
Auburn High School  
Teacher – Jacque Middleton  
Sponsored by the Alabama Water Environment Association

### **Alaska**

#### **Alta Dean**

Conclusions from an IV Year Research Study:  
Ocean Acidification in Prince William Sound, Alaska  
Colony High School  
Science Teacher – Dorrie Dean  
Sponsored by the Alaska Water Wastewater Management Association

### **Arizona**

#### **Amanda Minke**

An Engineered System for Filtering Pb<sup>2+</sup> using Chlorophyta - Phase 2  
Immaculate Heart High School  
Science Teacher – Danielle Abrames  
Sponsored by the AZ Water

### **Arkansas**

#### **Sophia Ly**

The pH Dependence of the Biosorption of Nickel (II) Ions by Escherichia coli  
Arkansas School for Mathematics, Sciences and the Arts  
Science Teacher – Dr. Fred Buzen  
Sponsored by the Arkansas Water Environment Association

### **California**

#### **Michele Eggleston**

Is It Clear? Is it Clean? Correlating Turbidity and Bacterial  
Contamination Using a Home Made Nephelometer  
Mt Everest Academy  
Science Teacher – Trudy Pachon  
Sponsored by the California Water Environment Association

### **Colorado**

#### **Hannah Fischer**

Pharmacoenvironmentology: Developing a Baseline for  
PPCP Contaminant Levels at the Monte Vista Wildlife Refuge  
Sierra Grande School  
Science Teacher – Judy Lopez  
Sponsored by the Rocky Mountain Water Environment Association

**Connecticut**

**Julia Ennis**

The Analysis of Clay Flocculation's Effect on the Benthic Zone Used as a  
Mitigation Technique for Harmful Algal Blooms (HABs)

Bridgeport Regional Aquaculture School

Science Teacher – Kirk Shadle

Sponsored by the New England Water Environment Association

**Delaware**

**Shalini Sundar**

Analyzing the Efficiency of Activated Carbon in Removing

Dissolved Painkillers from Drinking Water

The Charter School of Wilmington

Science Teacher – Timothy Carr

Sponsored by the Chesapeake Water Environment Association

**District of Columbia**

No Entries

Sponsored by the Chesapeake Water Environment Association

**Florida**

**Maria Elena Grimmitt**

Adsorption of Sulfamethazine from Environmentally Relevant Aqueous

Matrices onto Hypercrosslinked Adsorbent MN250

Oxbridge Academy of the Palm Beaches

Science Teacher – Kate Kilian

Sponsored by the Florida Water Environment Association

**Georgia**

**Aksai Vashi**

Waste-Based Runoff Pollutant Ion-Exchanging,

Biosorptive Permeable Barriers

Collins Hill High School

Science Teacher – Laura Herbid

Sponsored by the Georgia Association of Water Professionals

**Hawaii**

**Iokua Spennner**

Bioluminescent Bacteria as a Natural Water Pollution Indicator

Olomana School

Science Teacher – Ellen Schroeder

Sponsored by the Hawaii Water Environment Association

**Illinois**

**Ambria Benesch**

The Viability of a Mixed Bacterial Culture for Bioremediation of Heavy Metals,

Poly-Cyclic Hydrocarbons, and Volatile Organic Compounds

Niles North High School

Science Teacher – Susie Posnock

Sponsored by the Illinois Water Environment Association

**Indiana**

**Mohammed Amir Sankari**

Study and Effects of Escherichia coli 0157:H7

Contamination in Water Basins

Eman Schools

Science Teacher – Mia Sankari

Sponsored by the Indiana Water Environment Association

**Iowa**

**Kelsey Bryant**

The Effectiveness of Moringa oleifera in Purification of Turbid Water: Phase III

Central Lee High School

Science Teacher – Alicia Schiller

Sponsored by the Iowa Water Environment Association

**Kansas**

**Clara Towey**

The Effect of Rainfall on pH at the Goddard High School Outdoor

Wildlife Learning Site (OWLS) Pond

Goddard High School

Science Teacher - Marylee Ramsay

Sponsored by the Kansas Water Environment Association

**Kentucky**

**Ellen Kendall**

Evaluation of Heavy Metal Removal by Sodium Alginate Beads

Notre Dame Academy

Science Teacher – Terri Ann Perrino

Sponsored by the Kentucky-Tennessee Water Environment Association

**Louisiana**

**Natalie Bush**

Mitigation of Hypoxic Ecosystems Using Hemolymph Analysis of Callinectes sapidus  
and Procambarus clarkii in Relation to Spartina Grasses, Year 2.

St. Joseph's Academy

Science Teacher – Linda Messina

Sponsored by the Louisiana Water Environment Association

**Maine**

**Paige Brown**

Identifying and Remediating the Sources of Pollution in Impaired Bangor Streams

Bangor High School

Science Teacher - Cary James

Sponsored by the New England Water Environment Association

**Maryland**

**Jack Andraka**

A Novel Paper Biosensor for Mobile Surveillance of Water Quality

North County High School

Science Teacher – Beth Kennedy

Sponsored by the Chesapeake Water Environment Association

**Massachusetts**

**Harshal Sheth and Nihar Sheth**

Developing a Water Efficient Irrigation Controller Using a  
Multivariate Logistic Regression Algorithm  
Westford Academy

Science Teacher – Wayne Kotary

Sponsored by the New England Water Environment Association

**Michigan**

**Jennie Yang and Richard Yang**

Filtering Water: Accelerated Sintering and Controlled Pore Sizes  
in Yttria-Stabilized Tetragonal Polycrystalline Zirconia Ceramic  
Troy High School

Science Teacher – Rebecca Brewer

Sponsored by the Michigan Water Environment Association

**Minnesota**

**Tayah Hanson**

The Power of Clay: The use of clay a possible pharmaceutical wastewater treatment  
removal method and the subsequent effect on germination and root length  
of Lactuca sativa (Grand Rapids Lettuce)

Cloquet Senior High School

Science Teacher – Cynthia Welsh

Sponsored by the Central States Water Environment Association

**Mississippi**

**Andrew Neely**

Redefinition of the Boiling Point Elevation Equation Through Consideration of Various Aspects  
of Solute Nature on the Magnitude of Ion-Dipole Interactions in Aqueous Solution

St. Andrew's Episcopal High School

Science Teacher – Roscoe Stribling

Sponsored by the Mississippi Water Environment Association

**Missouri**

**Tiffani Jones**

Using Sodium Alginate Beads as a Potential Delivery Mechanism for Distributing the  
Hydrocarbon-degrading Marine Bacterium - Alcanivorax borkumensis - to Deep Sea Oil Spills

Camdenton High School

Science Teacher – Christopher Reeves

Sponsored by the Missouri Water Environment Association

**Montana**

**Brenna DeMarois**

Use of a Tertiary Algae System to Remove Pharmaceuticals from Wastewater  
Sentinel High School

Science Teacher – Kate Dirksen

Sponsored by the Montana Water Environment Association

**Nebraska**

**Marcella Jurotich**

The Effect of a Riparian Buffer on Total Dissolved Solids,  
Sediment Depth, and Water Velocity in a Nebraska Agricultural Stream

Wayne Junior Senior High School

Science Teacher – Lee Brogie

Sponsored by the Nebraska Water Environment Association

**Nevada**

**No Entries**

Sponsored by the Nevada Water Environment Association

**New Hampshire**

**Erica Doucet**

The Effect of Coastal Restoration Techniques on Erosion

Pembroke Academy

Teacher – Donna Ray

Sponsored by the New England Water Environment Association

**New Jersey**

**William Lin**

The Effect of Biochar-Amended Mycofiltration

Techniques on Stormwater Runoff Quality

High Technology High School

Science Teacher – Michael Roche

Sponsored by the New Jersey Water Environment Association

**New Mexico**

**Akshay Jain and Priyanka Jain**

Solving the Water Crisis of the World: A Novel Method of Desalination of Sea Water

La Cueva High School

Science Teacher – Thomas Freyermuth

Sponsored by the Rocky Mountain Water Environment Association

**New York**

**Amanda Morel**

The Importance of Particle Association with Antibiotic Resistant Bacteria and  
Sewage-Related Bacteria in an Aquatic Environment

Pelham Memorial High School

Science Teacher – Steven Beltecas

Sponsored by the New York Water Environment Association

**North Carolina**

**Vibha Puri**

Enhanced Biosorption of Hexavalent Chromium in Monoionic

Solution by Chemically Treated Green Algae

North Carolina School of Science and Mathematics

Science Teacher – Myra Halpin

Sponsored by the North Carolina Water Environment Association

**North Dakota**

**Desa Sand**

Grazing For Rain

Ellendale High School

Science Teacher – Peter Sykora

Sponsored by the North Dakota Water Environment Association

**Ohio**

**Bluyé DeMessie**

Sustainable Water Cleaning System for Point-of-Use Household Application in  
Developing Countries to Remove Contaminants from Drinking Water

William Mason High School

Science Teacher – George Sorial

Sponsored by the Ohio Water Environment Association

**Oklahoma**

**Sarah Riley**

An Even More Fluid Idea: The study of water quality improvement  
in fluidized sand filters compared to drip sand filters.

Grove High School

Science Teacher – Kelli Steen

Sponsored by the Oklahoma Water Environment Association

**Oregon**

**Sahil Veeramoney**

The Development of an Oleophilic and Hydrophobic Polystyrene Synthetic Polymer  
Coated Cotton for High Efficiency Marine Oil Spill Absorption

Oregon Episcopal School

Science Teacher – Bevin Daglen

Sponsored by the Pacific Northwest Clean Water Association

**Pennsylvania**

**May Wang**

A Practical Solution for Remediating Bisphenol A Contaminants in Wastewater  
Council Rock High School

Science Teacher – Joseph Warwick

Sponsored by the Pennsylvania Water Environment Association

**Puerto Rico**

**Vincent Hwang**

Pervious concrete: Mix design optimization of fly ash nanogeopolymer  
and bioremediation of fecal coliform-containing water

Southwestern Educational Society (SES)

Science Teacher – Evelyn Montalvo

Sponsored by the Puerto Rico Water & Environment Association

**Rhode Island**

**Morgan Kane**

Can the Use of Natural Aquifers

Mt. Hope High School

Science Teacher – Joseph Koger

Sponsored by the New England Water Environment Association

**South Carolina**

**Rakib Siddique**

Development of Novel and Cost-effective Adsorbents for  
Wastewater Treatment Using the Common Dandelion

Spring Valley High School

Science Teacher – Michelle Spigner

Sponsored by the Water Environment Association of South Carolina

**South Dakota**

**Dhwani Kharel and Kia Witt**

A Novel Disinfectant: Sphagnum Moss for Coliform and Turbidity Reduction

Brookings High School

Science Teacher – Kelly Riedell

Sponsored by the South Dakota Water Environment Association

**Tennessee**

Ayushi Sinha

Zebra Mussels: The Effect of the Surface on Zebra Mussel Attachment

Girls Preparatory School

Science Teacher – Tracie Durham

Sponsored by the Kentucky-Tennessee Water Environment Association

**Texas**

**Perry Alagappan**

Novel Renewable Filter for Heavy Metal Removal: A Practical Application of  
Functionalized Multi-Walled Carbon Nanotubes

Clear Lake High School

Science Teacher – Brenda Pinchbeck

Sponsored by the Water Environment Association of Texas

**Utah**

**Merry Joseph**

A Novel Terracotta Water Filtration System for the Removal of Arsenate (V) and  
Microbiological Organisms present in Brackish Water

Hillcrest High School

Science Teacher – Alexander Mettler

Sponsored by the Water Environment Association of Utah

**Vermont**

**Nick Knudsen**

The Levels and Sources of Escherichia coli in Lake Champlain  
and the Surrounding Watershed

South Burlington High School

Science Teacher - Curtis Belton

Sponsored by the New England Water Environment Association

**Virgin Islands**

**Alexandra Starr**

The Presence of Bacteria in Fresh and Saltwater in Salt River Bay National Historical Park  
& Ecological Preserve: Could it indicate contamination from human activities?

The Good Hope School

Science Teacher – Jane Coles

Sponsored by the Seven Seas Water Corporation

**Virginia**

**Kelly Devens**

Utilizing a Piezoelectric Crystal Tree to Harvest Electrical Energy from Rain Water

Roanoke Valley Governor's School

Science Teacher – Brent Holt

Sponsored by the Virginia Water Environment Association

**Washington**

**Sabreen Mohammed**

Projecting Mercury Flux Due to Arctic Sea Ice Melt with Machine Learning

STEM High School

Science Teacher – Mike Town

Sponsored by the Pacific Northwest Clean Water Association

**West Virginia**

**Andy Orellana and Ever Rivas**

Fishing In Biofilter

Musselman High School

Science Teacher – Cindy Raines

Sponsored by the West Virginia Water Environment Association

**Wisconsin**

**Jennah Durbin and Kayla Johnson**

*Carcinus maenas* in the Mudflat of the Little River

Cumberland High School

Science Teacher – Laura Jackson

Sponsored by the Central States Water Environment Association

**Wyoming**

**Shelby Schainost**

What's In Your Water?

Southeast High School

Science Teacher – Jo Gronewold

Sponsored by the Rocky Mountain Water Environment Association