

# **United States 2012 Stockholm Junior Water Prize**

## **State Winners**

### **Alabama**

Jeremiah Penrod

Comparison of the Effectiveness of Homemade Water Filters and Commercial Brita Filter

Oakwood Adventist Academy

Teacher – Nanette Hiller

Sponsored by the Alabama Water Environment Association

### **Alaska**

Kevin Sigler

How Restoration Affects the Abundance of Juvenile Coho Salmon (*Oncorhynchus kisutch*)  
in an Urban Stream near Juneau, Alaska

NOAA Alaska Fisheries Science Center

Science Teacher – Bonita Nelson

Sponsored by the Alaska Water Wastewater Management Association

### **Arizona**

Isabella Gonzalez

The Effect of Anthropogenic Plastic Pollution on Marine Organisms:

Copepod *Acartia tonsa* and Polyethylene Microspheres

Tucson High Magnet

Science Teacher – Margaret Wilch

Sponsored by the AZ Water

### **Arkansas**

Sarthak Garg

Adverse Effects of Malathion on Brine Shrimp

Little Rock Central High School

Science Teacher – Patrick Foley

Sponsored by the Arkansas Water Environment Association

### **California**

Natalie Ng

Rapid Pathogen Detection in Drinking and Irrigation Water

Using Conductometric Biosensor Technology

Monta Vista High School

Science Teacher – Elizabeth McCracken

Sponsored by the California Water Environment Association

### **Colorado**

Kelli Lynch

Irradiation Extermination Part 3: A portable system to eliminate  
waterborne microorganisms

Rocky Mountain High School

Science Teacher – Mike Viney

Sponsored by the Rocky Mountain Water Environment Association

**Connecticut**

Nick Dorien

Remediation of Heavy Metals from River Water via a Novel Lemna Minor  
Activated On-Line Filtration System  
Greenwich High School  
Science Teacher – Andrew Bramante  
Sponsored by the New England Water Environment Association

**Florida**

Gabriela Canas

The Effects of Carbonic Anhydrase Activator L-carnosine in the  
Clade-D Symbiodinium microdricum  
Bishop Kenny High School  
Science Teacher – Vicky Schmidt  
Sponsored by the Florida Water Environment Association

**Georgia**

Sydney-Alyce Bourget

The Chronic Toxicity of Acetaminophen on Daphnia Magna  
Elite Scholars Academy  
Science Teacher – Linda Funkhouser  
Sponsored by the Georgia Association of Water Professionals

**Hawaii**

Chris Negillo

Testing the Uptake of Hexavalent Chromium by Phytoremediation of  
Lemna Minor at Varying Concentrations  
Waipahu High School  
Science Teacher – Michael Sana  
Sponsored by the Hawaii Water Environment Association

**Illinois**

Rachel Traisman

The Effect of Remediation of Oil by Bacteria, Dispersant,  
or Both, On the Hatch Rate of Brine Shrimp Eggs  
Niles West High School  
Science Teacher – Ruth Gleicher  
Sponsored by the Illinois Water Environment Association

**Indiana**

Eric Fein

Characterizing Engineered TiO<sub>2</sub> Nanoparticle Adhesion: Implications  
for Environmental Transport and Remediation  
John Adams High School  
Science Teacher – Nevin Longenecker  
Sponsored by the Indiana Water Environment Association

**Iowa**

Kelsey Bryant

SODIS: Solar Disinfection of Mississippi River Water  
Central Lee High School  
Science Teacher – Alicia Schiller  
Sponsored by the Iowa Water Pollution Control Association

**Kansas**

Brett Wagner

A Comparative Study of Scenedesmus dimorphus and Spirogyra Algae Species'  
Growth and Nitrate and Phosphate Removal in Municipal Wastewater  
Shawnee Mission South

Science Teacher - Jan Alderson

Sponsored by the Kansas Water Environment Association

**Kentucky**

Monica McFadden

Biobarrier Filtration of Water Contaminants

Notre Dame Academy

Science Teacher – Sr. Mary Ethel Parrott

Sponsored by the Kentucky-Tennessee Water Environment Association

**Louisiana**

Kristen Little and Layne Hardy

The Relationship of Algae, Dispersants, and Individual Components of Nutrients on the  
Degradation of Medium Crude Oil in High and Low Salinity Water

O. Comeaux High School

Science Teacher – Lisa Ranney

Sponsored by the Louisiana Water Environment Association

**Maine**

Will Benoit

Low cost water filtration using Nanofibrillated Cellulose

Bangor High School

Science Teacher - Cary James

Sponsored by the New England Water Environment Association

**Maryland**

Adam Berger and Colin Hambright

Water Purification

Sherwood High School

Science Teacher – James Douglas

Sponsored by the Chesapeake Water Environment Association

**Massachusetts**

Julia Knowles

Flushed Away with Gray: Engineering the Gray Water Toilet

Massachusetts Academy of Math and Science at WPI

Science Teacher – William Ellis

Sponsored by the New England Water Environment Association

**Michigan**

Andrea Pugh

Invasive To Innovative: Phragmites Biochar Production Analysis of its Ability  
to Immobilize Contaminants in Aqueous Solutions and Provide Nutrients in Soil

Saginaw High School

Science Teacher – Craig Coopersmith

Sponsored by the Michigan Water Environment Association

**Minnesota**

Rahul Mukherjee

Restoration of The Great Lakes: A Genetic Study on Zebra And Quagga Mussels  
To Unfold The Mystery of Calcium (Ca<sup>2+</sup>) Based Invasion And Its Survival

John Marshall High School

Science Teacher – Eric Stanslaski

Sponsored by the Central States Water Environment Association

**Mississippi**

Taide Ding

Developing a Parametric Model for Hurricane Wind  
and Storm Surge Prediction in the Gulf of Mexico

Oxford High School

Science Teacher – James Reidy

Sponsored by the Mississippi Water Environment Association

**Missouri**

Jenna Baber

A Study Determining the Effects of the Concentration of Silver in a Solution  
on the Inhibition Zone Produced for Bacillus licheniformis as Well as Identifying  
Possible Methodology Used for the Efficient Removal of Silver from a Solution

West Platte High School

Science Teacher – Janel Coulson

Sponsored by the Missouri Water Environment Association

**Montana**

Emilee Williams and Caroline Blacketer

A Comparison of Nitrogen-Related Diatoms  
in the Upper Clark Fork and Bitterroot Rivers

Sentinel High School

Science Teacher – Brett Taylor

Sponsored by the Montana Water Environment Association

**Nebraska**

Alisha Dunlap

Residual Atrazine Levels in Bottom Sediments of the Shell Creek  
and Its Effect on Amphibians

Newman Grove High School

Science Teacher – Karen Malmkar

Sponsored by the Nebraska Water Environment Association

**Nevada**

Kirsten Perry

An Evaluation of Tannins and Their Metal Adsorption Properties  
for the Remediation of Wastewater

Elko High School

Teacher – Brian Zeiszler

Sponsored by the Nevada Water Environment Association

**New Hampshire**

No Entries

Sponsored by the New England Water Environment Association

**New Jersey**

Mervy Michael

The Removal of Contaminants in Water Using  
Low Temperature Microplasma

Union City High School / Academy for Enrichment and Advancement  
Science Teacher – Nadia Makar

Sponsored by the New Jersey Water Environment Association

**New Mexico**

Serina Pack

“What Will Grow: Native Grass Research to Assist in Mining Reclamation  
and Addressing Contaminated Leachate Generation into Water Sources”

Cliff High School

Science Teacher – Katie Skaggs

Sponsored by the Rocky Mountain Water Environment Association

**New York**

Kunal Sangani

Modeling and Environmental Analysis of Hydraulic Fracturing in Upstate New York  
Fayetteville-Manlius High School

Science Teacher – Brian Concannon

Sponsored by the New York Water Environment Association

**North Carolina**

Avi Aggarwal

Effect of thiols on the environmental fate of silver nanoparticles

North Carolina School of Science and Mathematics

Science Teacher – Myra Halpin

Sponsored by the North Carolina Water Environment Association

**North Dakota**

Gage Metzen

Impact of Field Drainage Tile on River Water Quality

Hankinson High School

Science Teacher – Marcus Friskop

Sponsored by the North Dakota Water Environment Association

**Ohio**

Rachel Yurchisin

The Rocky River Watershed: A Tale of Two Branches

Padua Franciscan High School

Science Teacher – Seth Jennrich

Sponsored by the Ohio Water Environment Association

**Oklahoma**

Jenna Huling

Enhanced Adsorption of Arsenic on Aquifer Solids and Soil Phase II:  
Oxidative Treatment and Feasibility Assessment

Ada High School

Science Teacher – Scott Huling

Sponsored by the Oklahoma Water Environment Association

**Oregon**

Ajay Krishnan

Optimizing the Microbial Fuel Cell-Microbial Electrolysis Cell Coupled System for Sustainable Hydrogen Gas Production, Electricity Generation, and Improved Wastewater Treatment

Oregon Episcopal School

Science Teacher – Bevin Daglen

Sponsored by the Pacific Northwest Clean Water Association

**Pennsylvania**

Sarah Thompson

Marcellus Shale Drilling: The Effects of Hydraulic Fracturing Fluid Components on the Physiology and Feeding Efficiency of the Aquatic Indicator Species *Daphnia magna*

Hempfield High School

Science Teacher – Neal Kuhn

Sponsored by the Pennsylvania Water Environment Association

**Puerto Rico**

Maria del Mar Fletcher

Limnological Study of Mavilla, Dos Bocas and Cibuco Rivers

Trough Presence of Bacteria & Micro-Invertebrates

Colegio Marista

Science Teacher – Isabel Perez

Sponsored by the Puerto Rico Water & Environment Association

**Rhode Island**

Margaret Antonio

Implementing Hydropower in City Water Pipes

Immaculate Conception Academy

Science Teacher – Maria Knuth

Sponsored by the New England Water Environment Association

**South Carolina**

Himabindu Vinnakota

The effects of both *Sargassum* and *Aspergillus niger* on the biosorption of lead (Pb) from water

Spring Valley High School

Science Teacher – Donna McGehee

Sponsored by the Water Environment Association of South Carolina

**South Dakota**

Matthew Hummel

Navibot: Phase V O.R.C.A.

Florence High School

Science Teacher – Jim Chilson

Sponsored by the South Dakota Water Environment Association

**Tennessee**

Darby Schumacher

A Filter Today Keeps Pollutants Away

Baylor School

Science Teacher – Kathleen Schumacher

Sponsored by the Kentucky-Tennessee Water Environment Association

**Texas**

Sharjeel Syed

Duckweed's Salty: A Third Year Study of Duckweed

and a Novel Approach to Desalination

John Jay Science and Engineering Academy

Science Teacher – Jay Sumpter

Sponsored by the Water Environment Association of Texas

**Utah**

Andrew Ross and Jed Grow

The Passive Acquisition of a Viable Source of Bio-Electricity from

the Electrical Reservoir Contained in Wastewater

Clearfield High School

Science Teacher – Bruce Staley

Sponsored by the Water Environment Association of Utah

**Vermont**

Basundhara Mukherjee

The Effect of Different Flow Rates in a Sand Filter to Purify Water

South Burlington High School

Science Teacher - Curtis Belton

Sponsored by the New England Water Environment Association

**Virgin Islands**

Willow Nelson

Marina Bacteria

The Good Hope School

Science Teacher – Jane Coles

Sponsored by the Virgin Island Water and Power Authority

**Virginia**

Catherine Mitchell and Andrea Green

Assessing Oil Spill Cleanup: The Ecological Ramifications of Chemical Treatments

H-B Woodlawn Secondary Program

Science Teacher – William Van Evera

Sponsored by the Virginia Water Environment Association

**Washington**

Anjani Patel

Cleaning Up Various Oil Spills Using Bioremediation

Cedarcrest High School

Science Teacher – Bruce Murdock

Sponsored by the Pacific Northwest Clean Water Association

**West Virginia**

Michael Pracht

The Effect of Human Hair and Oil-Only Polypropylene Sorbent  
Material on Remediation of Fresh Water Surface Oil Spills

Paw Paw High School

Science Teacher – Carol Coryea

Sponsored by the West Virginia Water Environment Association

**Wisconsin**

Filip Josifovski and Thomas Schneider

Nanoparticles in Potable and Aquatic Freshwater: Novel Study by  
Transmission Electron Microscopy and X-Ray Spectroscopy

Nicolet High School

Science Teacher – Gary Stresman

Sponsored by the Central States Water Environment Association

**Wyoming**

Travis Sylvester

Saving the Big Horn National Lake for Aquatic Habitat, Power Generation,  
Recreation, and Flood Control Benefits

Greybull High School

Science Teacher - Joel Kuper

Sponsored by the Rocky Mountain Water Environment Association