

# Empowering Young Water Scientists with the EarthEcho Water Challenge

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EarthEcho International



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# Overview

- EarthEcho Water Challenge Overview
- Water Quality Monitoring Resources
- Share Your Data
- Stories of Action
- Additional Resources





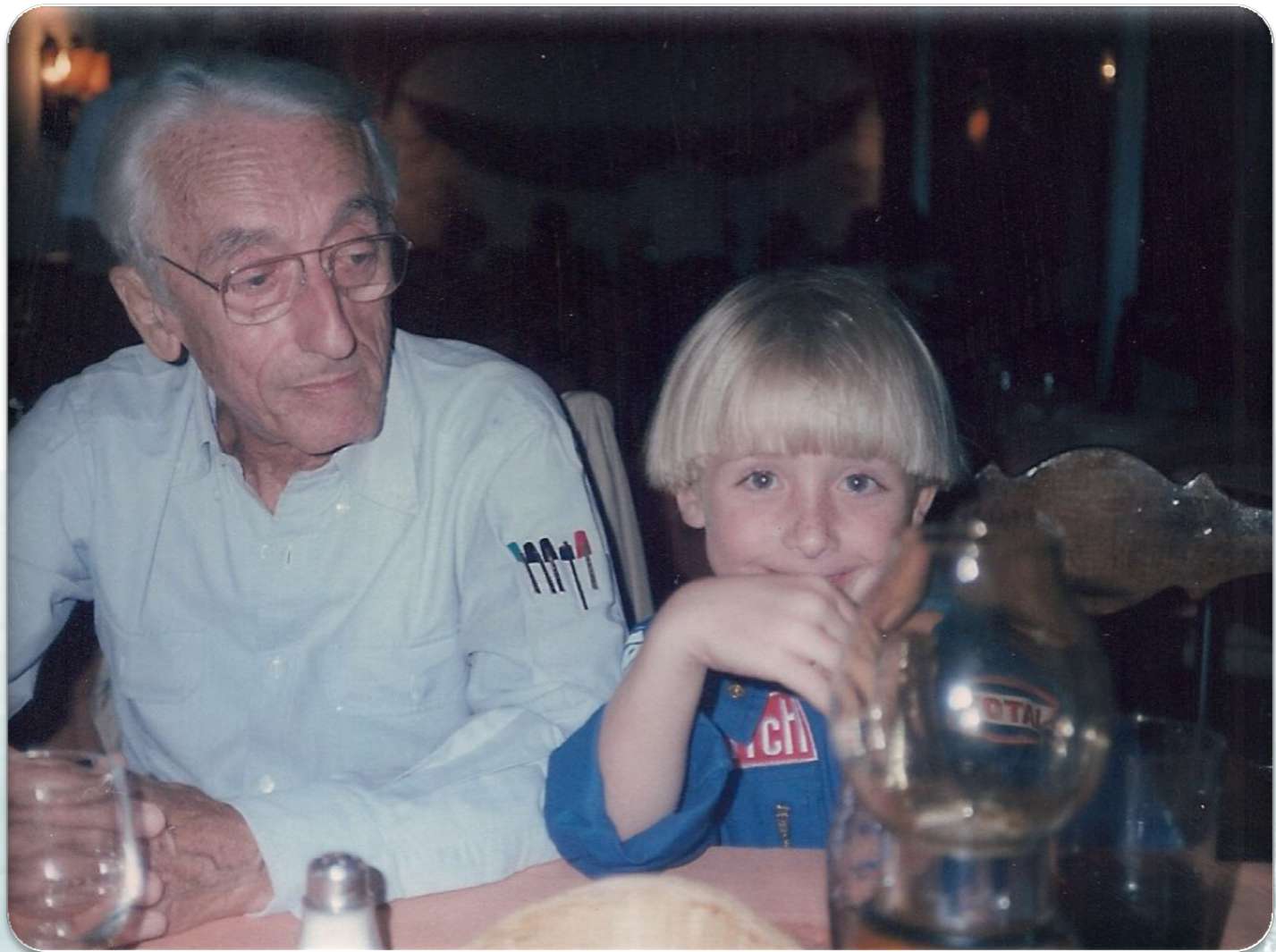
# Who's tuning in?

- ➔ K-12 Classroom Educator
- ➔ Informal Educator
- ➔ University professor
- ➔ Researcher
- ➔ Government employee
- ➔ Other









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# 26 total private wells now affect officials say



By Beau Minnick

Published: October 4, 2017, 6:28 pm | Updated: October 5, 2017, 6:10 am

Savannah Morning News

## Septic tanks threaten water quality on Georgia's coast as sea levels rise

Septic tanks threaten water quality on Georgia's coast as sea levels rise ... Lakes, Gulf Coast and West Coast—along with Hawaii and Alaska.

3 days ago



# WHY WE DO WHAT WE DO



Monday, March 2, 2020 | Today's Paper | 74.903°

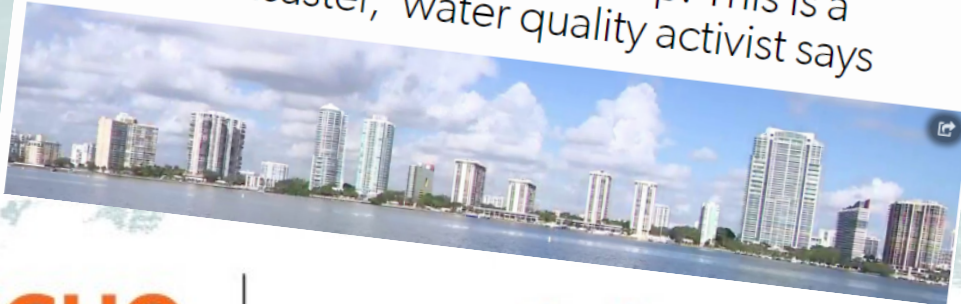
Hawaii News

## High bacteria counts in 2019

By Jessica Else The Garden Island | Tuesday, February 18, 2020, 12:05 a.m.

# Is Miami's beach water filled with poop? Volunteer testing proves it's so

'Our beaches are filled with poop. This is a recipe for disaster,' water quality activist says





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**INSPIRING YOUNG  
PEOPLE TO ACT NOW  
FOR A SUSTAINABLE  
FUTURE**

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# EarthEcho Water Challenge

Test



Protect



Share



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# Water Challenge Monitoring Kit

- water challenge monitoring kits are for testing surface water sources (rivers, lakes, streams, bays, etc.), not tap water.
- **2 types of kits:**
  - Basic Kit – 1 set of hardware and reagents for 50 tests
  - Classroom Kit – 5 sets of hardware and reagents for 50 tests
- Kits test for four key water quality parameters – pH, Temperature, Turbidity, and Dissolved Oxygen



# EarthEcho Water Challenge





# EEWC Kit Donation Program

- ➔ Available to non-profit/youth serving organizations or schools
- ➔ Commitment to enter data and share stories/updates
- ➔ Quarterly application review cycle



**Apply at [monitorwater.org/order-kits](http://monitorwater.org/order-kits)**



# Test



Testing for temperature tells us:

How hot or cold the water is.



Testing for turbidity tells us:



How clear the water is.

Testing for pH tells us:



How acidic or alkaline the water is.

Testing for dissolved oxygen tells us:



How much oxygen is available in the water.



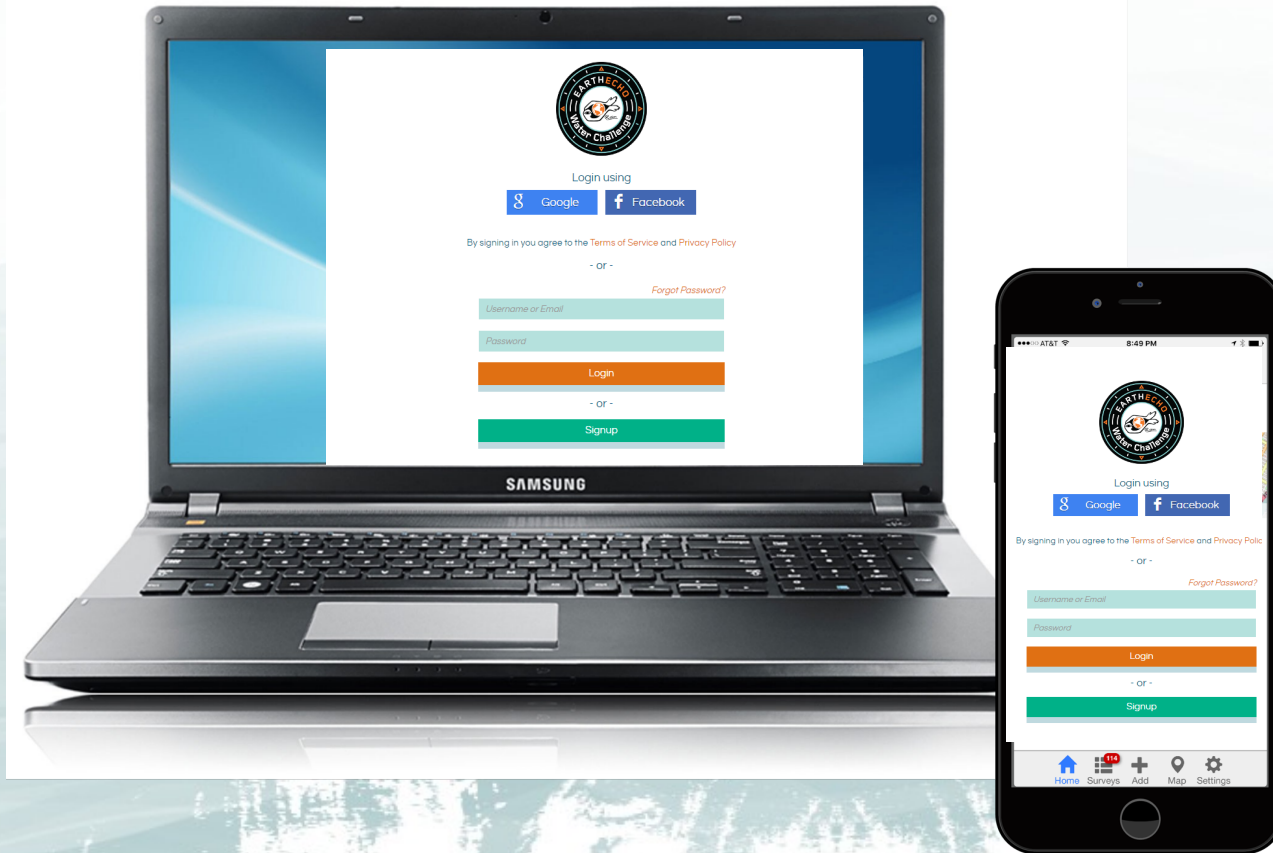
# Have you conducted water quality monitoring in your community?



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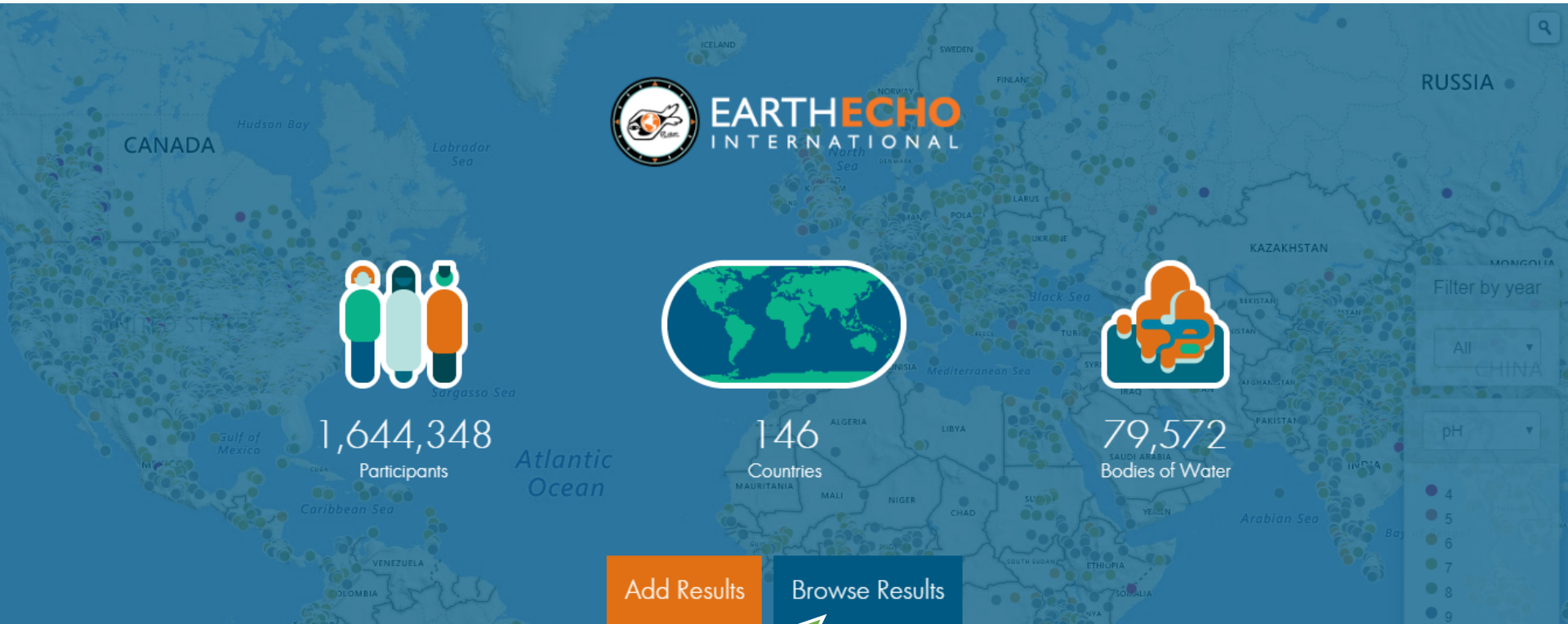
[www.earthecho.org](http://www.earthecho.org)

# Log your Monitoring Data



[www.monitorwater.org](http://www.monitorwater.org)

# Share





[www.monitorwater.org](http://www.monitorwater.org)






# Share








 Add a Site

 Add Results

Logged in as: SeanRussell (EarthEcho Water Challenge)

-  Data Upload: complete a few seconds ago
-  Image Upload: complete a few seconds ago
-  Offline Sync: complete a few seconds ago

[Sync Now](#)

-  Back
-  Home
-  Results
-  Leaders
-  Map
-  Settings

[www.monitorwater.org](http://www.monitorwater.org)

# Share – Add a Site

## Add a Site

Name - Name used locally to refer to the surface water site \*

Description - Additional information to help locate or describe the surface water site

Surface Water Type

GPS Location - Latitude/longitude of the site \*

Set location using:

*No Location Set* ?

[Advanced Location Settings...](#)

Back Home Results Leaders Map Settings

[www.monitorwater.org](http://www.monitorwater.org)



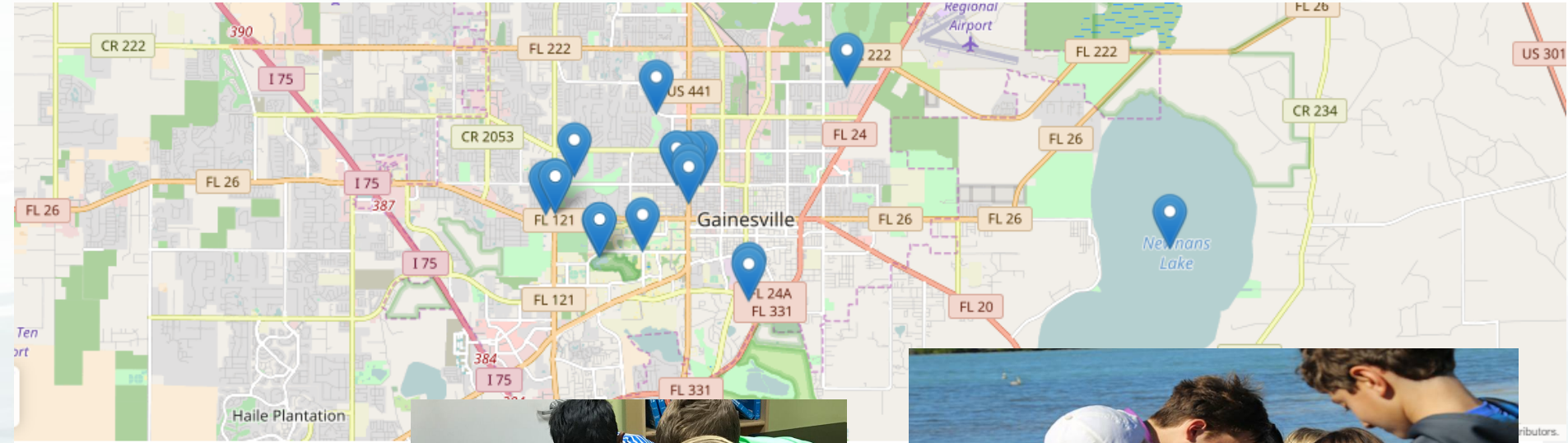
# Share – Add Results

- ➔ Select your site
- ➔ Date and time of monitoring
- ➔ Number of participants
- ➔ Water Quality Results
- ➔ Environmental Conditions
- ➔ Photos/Observations
- ➔ Macroinvertebrate data
- ➔ Action beyond monitoring



[www.monitorwater.org](http://www.monitorwater.org)

# Share

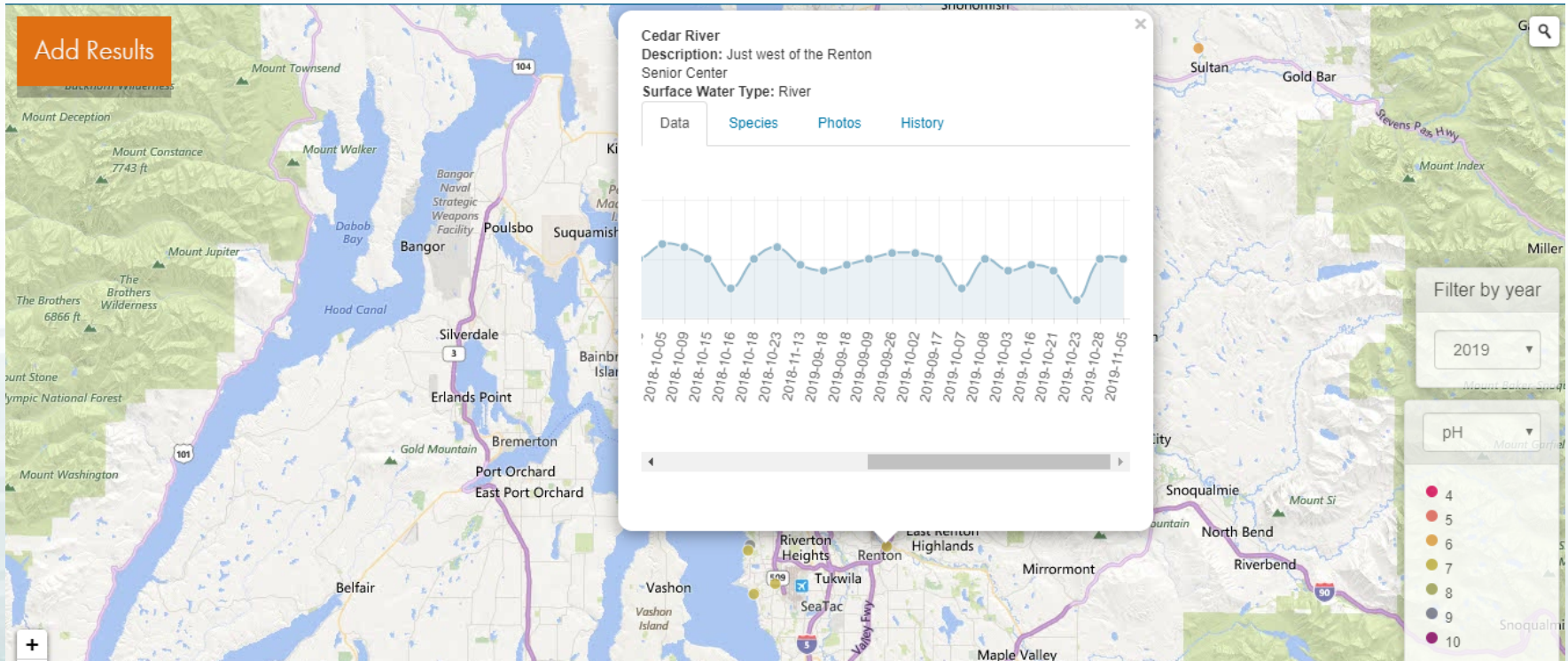


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# Share – Explore the Data













# Data Analysis

- ➔ Download full Excel sheets of historical EEWC Data
- ➔ Work to analyze/graph data
- ➔ Identify trends with current and historical data

## Reports

Browse past monitoring year reports and data sets

<i>Year</i>	<i>Reports</i>	<i>Data</i>
<b>2017</b>	 Download	 Download
<b>2016</b>	 Download	 Download
<b>2015</b>	 Download	 Download
<b>2014</b>	 Download	 Download
<b>2013</b>	 Download	 Download

[www.monitorwater.org/tools/reports](http://www.monitorwater.org/tools/reports)

# Share

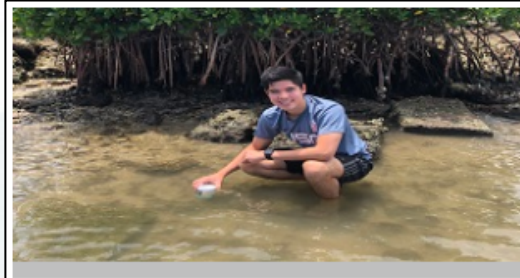
## Tell Us Your Story!



### Connecting Community with Salmon

January 10, 2020

Queen of Peace School students highlight their efforts to raise and release Chinook salmon and their work on the EarthEcho Water Challenge.



### Improving Water Quality with Mangroves

July 15, 2019

EarthEcho Water Challenge Ambassador Nicolas Lama highlights the importance of improving water health by protecting mangrove ecosystems.



### Monitoring Water in Yucatan Cenotes

April 10, 2019

Dr. Kristin Landry-Montes shares highlights from InHerit's work to engage Mayan youth in water monitoring in the Yucatan.

## #MonitorWater

[monitorwater.org/news/submit-story](https://monitorwater.org/news/submit-story)

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# Protect





# Protect





# Protect





# Protect







# Protect



## Graphic Data & Analyzing Trends in Water Quality

Adapted from Healthy Water, Healthy People Educators Guide – [www.projectwet.org](http://www.projectwet.org)

Students use a topographic map to explore the concept of a watershed and then apply that knowledge to watershed monitoring. Students will discern the difference in value between an individual data set collected at one place and time on a watershed versus a series of water quality data sets collected at various points along a watershed over time.

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## Down the Drain: An ACTION GUIDE for Water Quality

Written by Cathryn Berger Kaye, M.A.



A program of EarthEcho International  
[www.earthecho.org](http://www.earthecho.org)



## From Design to Data: Water Quality Monitoring

### Summary

Students create a study design, then analyze the data to simulate the process of water quality monitoring.

Vocabulary: indicator, monitoring, parameter



Adapted from Healthy Water, Healthy People Educators Guide  
[www.projectwet.org](http://www.projectwet.org)

Grade Level: 6-8, ages 11-14

Subject Areas: Chemistry, Environmental Science, General Science

### Duration:

Preparation: 20 minutes

Activity: Part I: 50 minutes, Part II: 50 minutes

Setting: Classroom

Skills: Gather, Analyze, Interpret, Present

### Objectives

Students will:

- investigate the process of water monitoring;
- develop a study design that leads to a monitoring project;
- design an investigation to answer a research question;
- collect and analyze data and develop findings, conclusions, and recommendations from that data.

### Materials

- Copies of Table Monitoring Worksheet Student Copy Page
- Copy of Table Monitoring Goals Teacher Copy Page
- Ruler; tape measure and graduated cylinders (optional) to measure changes in objects
- Copies of Kallang River Worksheet Student Copy Page
- Copies of Kallang River Data Set Student Copy Page
- Copies of Kallang River Overview Student Copy Page
- Graphing paper (optional)

### Background

Bodies of water are complex systems containing many measurable variables. These variables can serve as indicators of water quality and watershed health. In a perfect world we would monitor every measurable parameter, at all times, and at all points of a watershed. Of course, this is impossible and impractical. Instead, decisions must be made about what parts of a complex system will be measured, when and where

© Project WET Foundation, 2011

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# monitorwater.org/protect



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➔ Please feel free to contact me with any additional questions:

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941-468-7285

➔ Explore our resources:

[www.earthecho.org](http://www.earthecho.org)

[www.monitorwater.org](http://www.monitorwater.org)

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