



# **EPA Tools and Resources Webinar: An Introduction to Virtual Beach**

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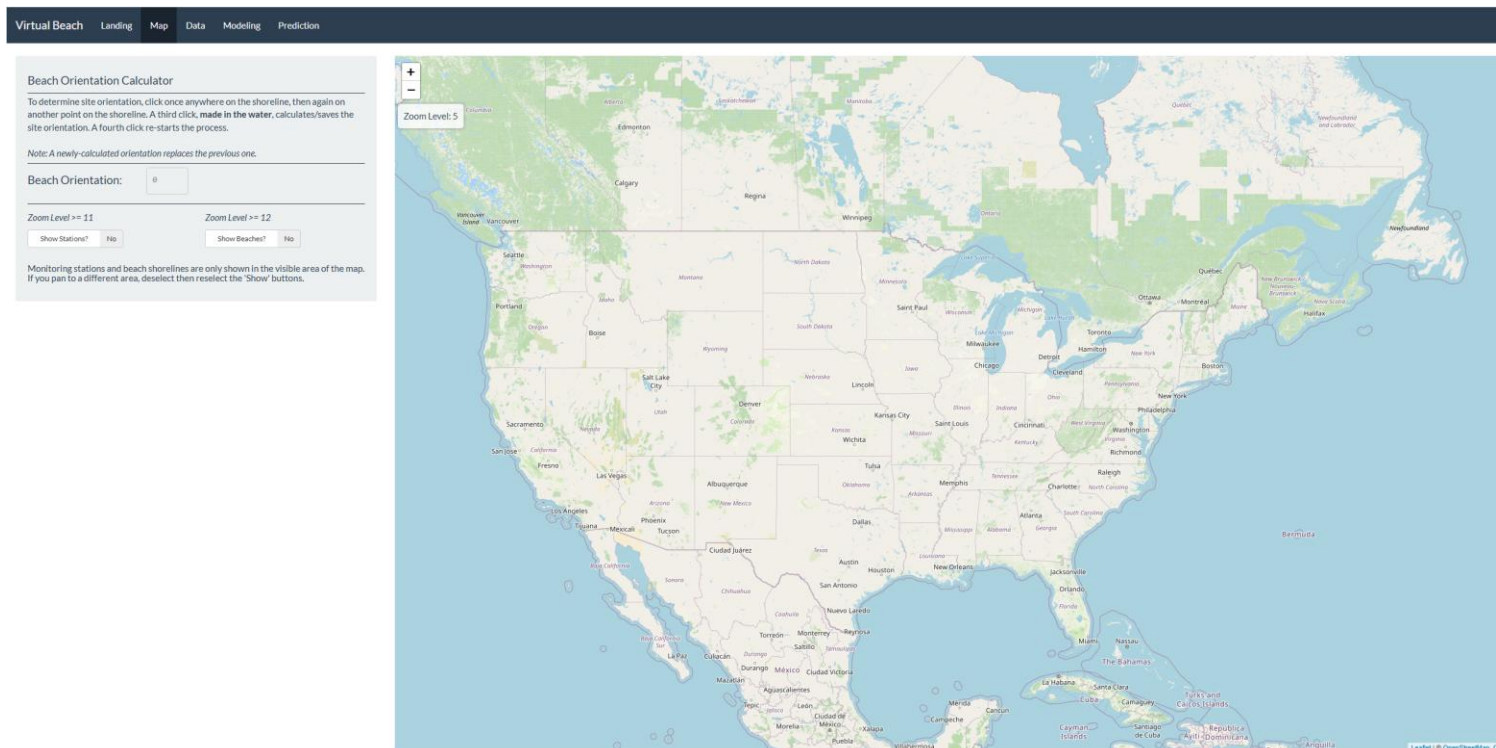
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# Problem

- Limited funds for mandated beach monitoring; developing models for effective water quality assessment paramount
- Without statistical models, decisions on beach closures made with limited information, leading to recreator risk or unnecessary beach closures
- 2000 BEACH Act amendment to the Clean Water Act:
  - EPA studies pathogens/indicators and issues criteria
  - Coastal states have 3 years to adopt issued standards
  - EPA provides grants for monitoring and assessment of recreational waters

# Approach

- Software toolkit that facilitates the development of predictive statistical models of water quality; inputs primarily easy to measure, readily available environmental covariates
- Helpful for users to have some statistical background, but separate model development and deployment/use functionality



Functionality  
Shoreline Mapping  
Data Pre-Processing  
Modeling  
Prediction

# Impact and Use

- Predictive statistical modeling approach for water quality used nationally (Great Lakes, Atlantic, Pacific, Gulf Coasts, Puerto Rico, Alaska); Ontario, Guam, Europe
- Modeling of water quality at shellfish harvesting areas in SC, NC, GA, FL: Southeast Coastal Ocean Observing Regional Association (SECOORA)
- Synergy with Office of Water's Water Quality Portal
- Version 3 developed in collaboration with USGS Water Science Center, Middleton, WI
- Modeling microcystin concentrations at public water intake sites: USGS Water Science Center in Columbus, OH

# **Shiny Virtual Beach (ShinyVB) DEMO**

# Take Home Messages

- Virtual Beach creates site-specific statistical models for the prediction of water quality indicators
- Simplifies/facilitates the model development process
- Desktop version available at: [epa.gov/hydrowq/virtual-beach-vb](https://epa.gov/hydrowq/virtual-beach-vb)
- Web-based version under development
- Training materials and support available

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