

# CLONet

Coastal Lakes Observing Network

Season 2 Workshop

November 17<sup>th</sup> 2020

MONMOUTH  
UNIVERSITY

SCHOOL OF SCIENCE

Erin Conlon  
Citizen Science Coordinator  
Monmouth University  
Urban Coast Institute

MONMOUTH  
UNIVERSITY

URBAN COAST INSTITUTE

# Problems in Coastal Lakes

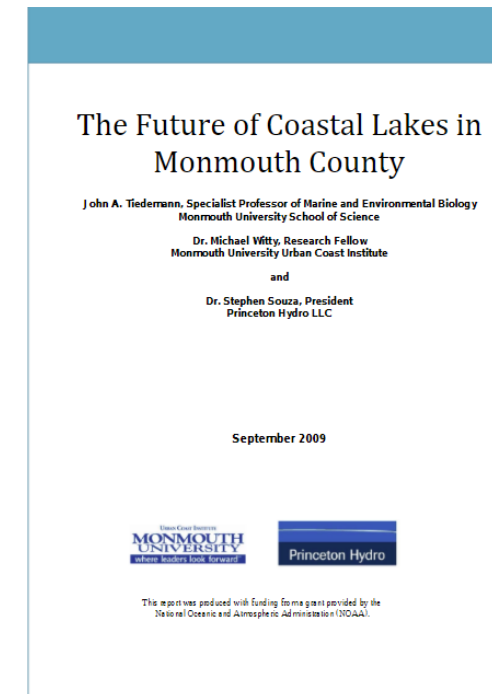
- Algal Overgrowth
- HABs
- Nutrients/  
Eutrophication
- Storm runoff
- Sediment in-fillings
- Microbial pollution
- Floatables



- Solutions must be made lake by lake

# History of Coastal Lake Work at Monmouth University

- 2008: Coastal Lakes Summit
  - Reviewed status of Monmouth County's coastal lakes, lake impairments/problems, and issues with lake management efforts
  - Lakes suffer from the same common issues
  - Disjointed path
- 2010: The Future of Coastal Lakes in Monmouth County
  - Outlined restoration techniques, best management practices, improved water quality, habitat quality, and overall coastal lake health
  - Recommended development and implementation of regional coastal lakes management strategy



# Superstorm Sandy 2012



- 2013: Hosted a Coastal Lakes Summit



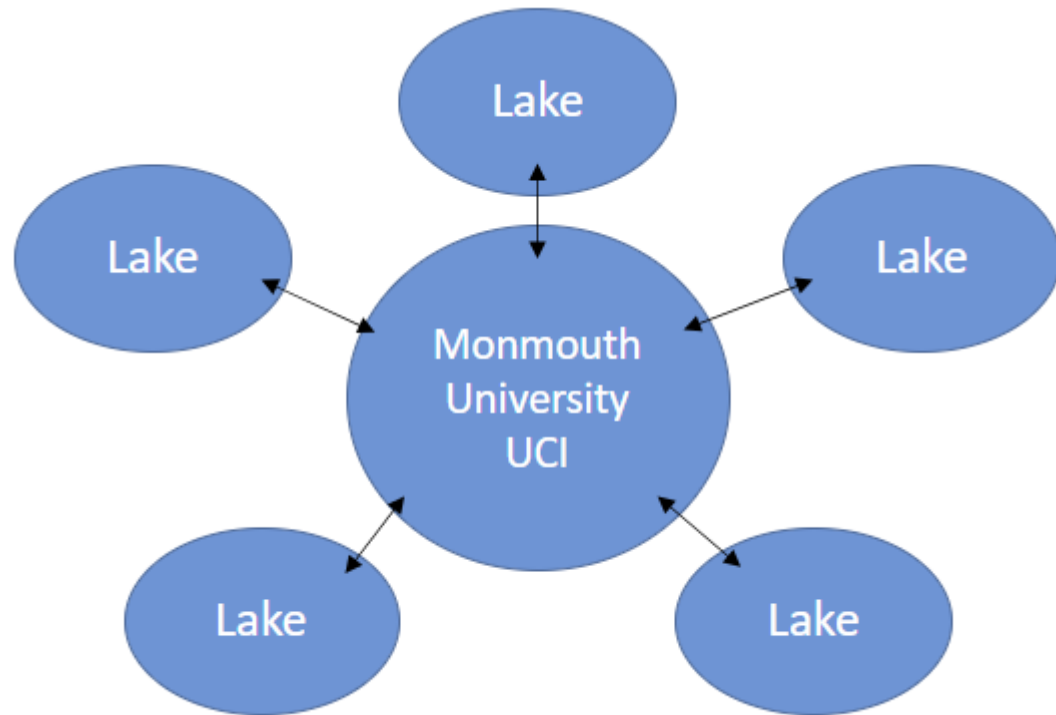


# CLONet Begins

- 2019: Coastal Lakes Summit
- Initiative of CLONet:
  - To foster the development of **community-based, participatory** research and restoration groups that will allow communities to address coastal lake issues based on their own knowledge and use of the underlying scientific data
- Goals:
  - Establish a water quality data base
  - Engage the community
  - End the "disjointed path" by opening communication between lake partners



# Overview of CLONet



- Identify common goals between groups
- Act as central leadership / coordination of group efforts
- Improve communication between lakes

# Sampling Kits

Volunteers are supplied with water quality sampling kits and trained to use:

- Conductivity / temperature pen
- pH Kit
- Dissolved Oxygen Kit
- Turbidity (Secchi Disk)

Sampling takes max 20-30 minutes on site



# Monmouth University CLONet Website

- Data is submitted online!
  - <https://www.monmouth.edu/clonet/field-data/>
- Citizen Science Coordinator will perform quality assurance of the data
  - Email: [econlon@monmouth.edu](mailto:econlon@monmouth.edu)
- Data will be publicly available

Monmouth University  
CLONet Watershed Biological Assessment  
Water Quality Field Data Sheet

Field Team Members: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Waterbody/Station: \_\_\_\_\_

Parameters:	Data:
Conductivity (µS)	
Water Temperature (°C)	
D.O. (mg/l)	
Turbidity (Secchi depth, in ft.)	
pH	
Depth (ft)	

Weather in past 24 hours:

☐ Storm (heavy rain)  
☐ Rain (steady rain)  
☐ Showers (intermittent rain)  
☐ Overcast  
☐ Clear/Sunny [Text Wrapping Break]

Notes: [Text Wrapping Break]

Weather now:  
Air temp (°F) = \_\_\_\_\_

☐ Storm (heavy rain)  
☐ Rain (steady rain)  
☐ Showers (intermittent rain)  
☐ Overcast  
☐ Clear/Sunny

Initials/Date (Field Review) \_\_\_\_\_

Initials/Date (QA/QC Review) \_\_\_\_\_

Upload data here please! <https://www.monmouth.edu/clonet/field-data/>



# Citizen Scientist Training Session: 2019



Photo Credit:  
Maria Riley

# Sampling Season 1 and 2

Time Period	Frequency	Samples
Jan - Mar	Every 2 Weeks	6
Apr - Oct	Weekly	28
Nov - Dec	Every 2 Weeks	4
Sum		38

Lakes	Stations	Samples	Time Frame
Deal Lake	9	105	7/27/2019-11/8/20
Lake Como	2	100	6/9/19-11/8/2020
Lake Takanassee	5	45	6/4/2019-11/6/2020
Spring Lake	2	30	6/5/2019-11/20/2019
Sunset Lake	4	46	6/1/2019-11/5/2020
Sylvan Lake	1	17	8/1/2019-4/5/2020
Wesley Lake	2	110	5/24/2019-11/6/2020

# Looking ahead to Season 3

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# Citizen Science Coordinator

- econlon@monmouth.edu
- Available for training / retraining sessions
  - No large group trainings as of right now
- Check data quality / review your field notes
  - Weekly from April – October, once every other week from November – March
- Troubleshooting problems can be quickly solved:
  - Provide calibration standards for conductivity pens
  - Replace kits that are giving odd readings
  - Provide new batteries
- Waste Disposal / New supplies
  - Faster collection / drop off times





# More Outreach!

- Capacity for outreach has increased due to the Citizen Science Coordinator position
- Improve communication between lakes
  - Facebook page
  - Any suggestions?
- Collaborations with other labs
  - DEP
  - Sterrett Lab at Monmouth University
- Zoom lake commission meetings
  - Try to find new volunteers



# Goals for Lakes New to CLONet

- Establish a lake group leader
- Find volunteers:
  - Local residents
  - School groups
  - Local summer camps
  - Scout troops
- Stay connected
- Most lakes need 1-3 samplers





# New Equipment!

Phycocyanin meter

- Donated by The Watershed Institute / NJDEP
- Handheld HAB meter will be provided to Katelyn Saldutti
  - Samples Deal Lake and Sunset lake
- Will give us a better understanding of HAB abundance in the lakes



# DEP / EPA Collaboration

- December 2020 - October 2021
- To develop HAB-risk indices for NJ lakes
- CLONet and Monmouth University will lead the coastal lake aspects
- Implementing new capabilities for lake monitoring, including
  - Cyanotoxin analysis
  - Cyanobacterial genetic analyses
  - Handheld HAB probe



# Quality Assurance Project Plan

- QAPP highlights:
  - Problems in coastal lakes
  - Training procedures / sampling methods for citizen scientists
  - Data monitoring
  - Data reporting / quality control
  - Data analysis
- Creation of a QAPP will provide leverage when applying for grants
- Living document

**Quality Assurance Project Plan for  
Coastal Lakes Observing Network (CLONet)**

Prepared by

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Monmouth University

Urban Coast Institute

2020

# Potential Funding



The Water Quality Restoration Grant Program (under DEP) is a potential source for 2022 / 2024 funds.

# One last thing

- We are working to make the sampling process as easy as it can be
  - Removed the nutrient testing kits
- HAB growing season is April-October
  - Can use the off-season months to improve CLONet
- If you're interested in training, or know someone who is, send me an email! I will get you set up: [econlon@monmouth.edu](mailto:econlon@monmouth.edu)



# Acknowledgements

- Thank you to the **Jules L. Plangere, Jr. Family Foundation** for a grant to the Monmouth University Urban Coast Institute supporting our CLONet project!
- Thanks to all of you for your enthusiasm, support and participation!