

Volunteer Monitoring in Western North Carolina

Presented by Barbara Wiggins
Wiggins Environmental Services

Lake Management Process

- Concern about lake conditions
- What is going on?
- State Monitoring?
- What can we do?
- And avoid paying a lot of money?

Lake Monitoring Complexity Steps

- Secchi Disk – visual observations
- Field – Dissolved oxygen, temperature profiles, pH
- Lab – bacteria, nutrients, solids, etc.
- Biological Problems

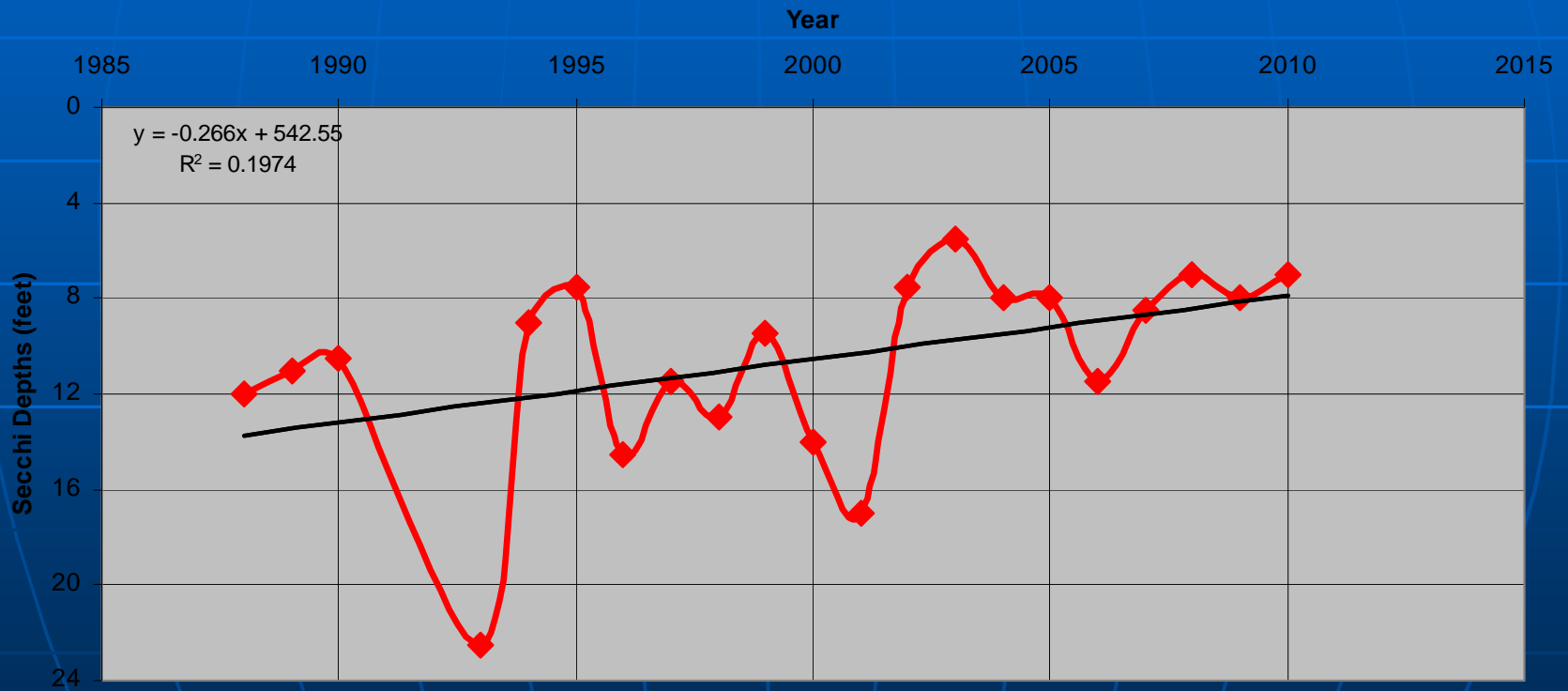
**VOLUNTEERS CAN
DO ALL OF THE
ABOVE!**

Friends of Lake Glenville

- 1996 - Lake Monitoring program first developed with Secchi disk
- 2000 – Stream monitoring through VWIN Program
- 2003 – Turbidity measurements started with field instrument
- 2009 – Water Quality Sonde for profile information

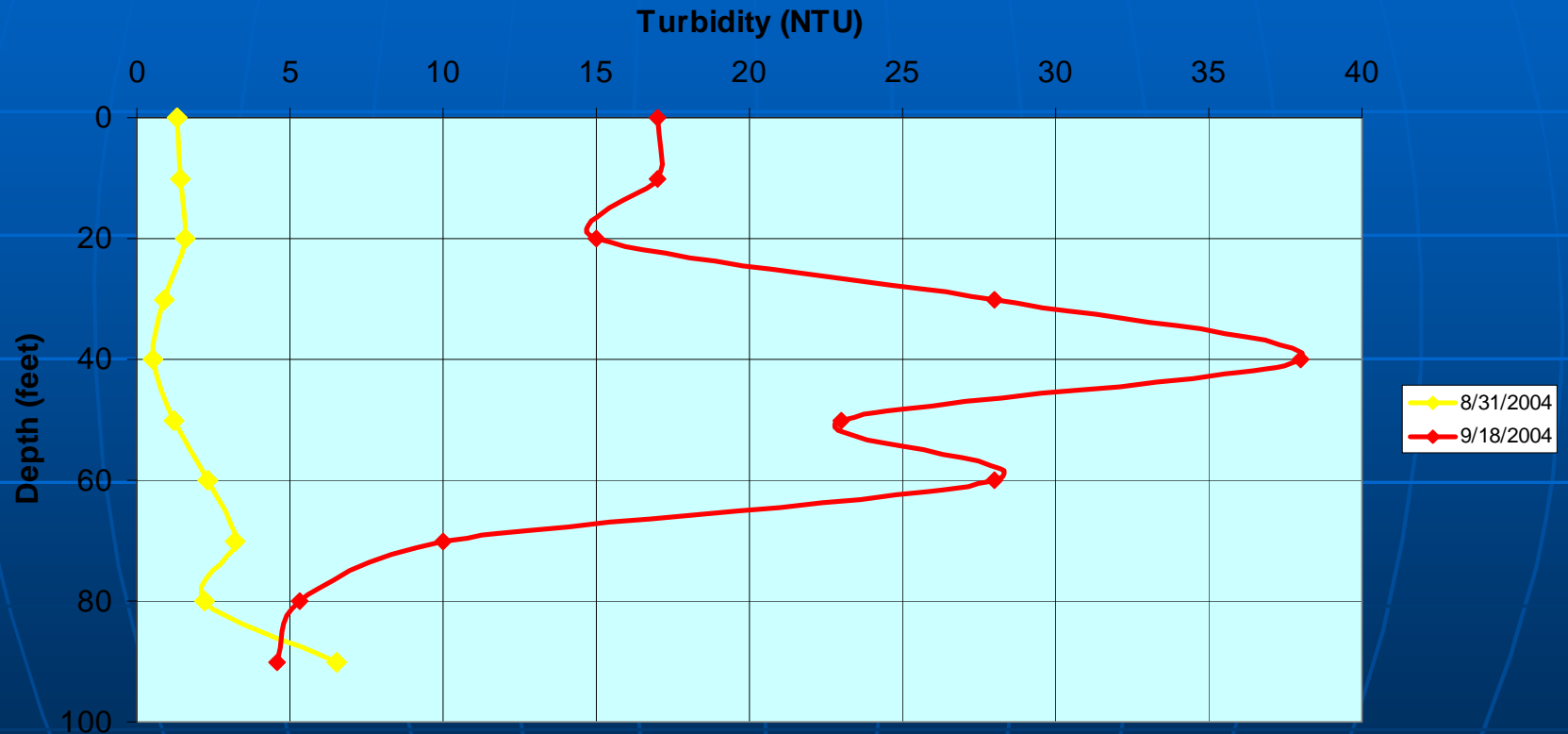
Secchi Disk Results

Lake Glenville Secchi depths: 1 August



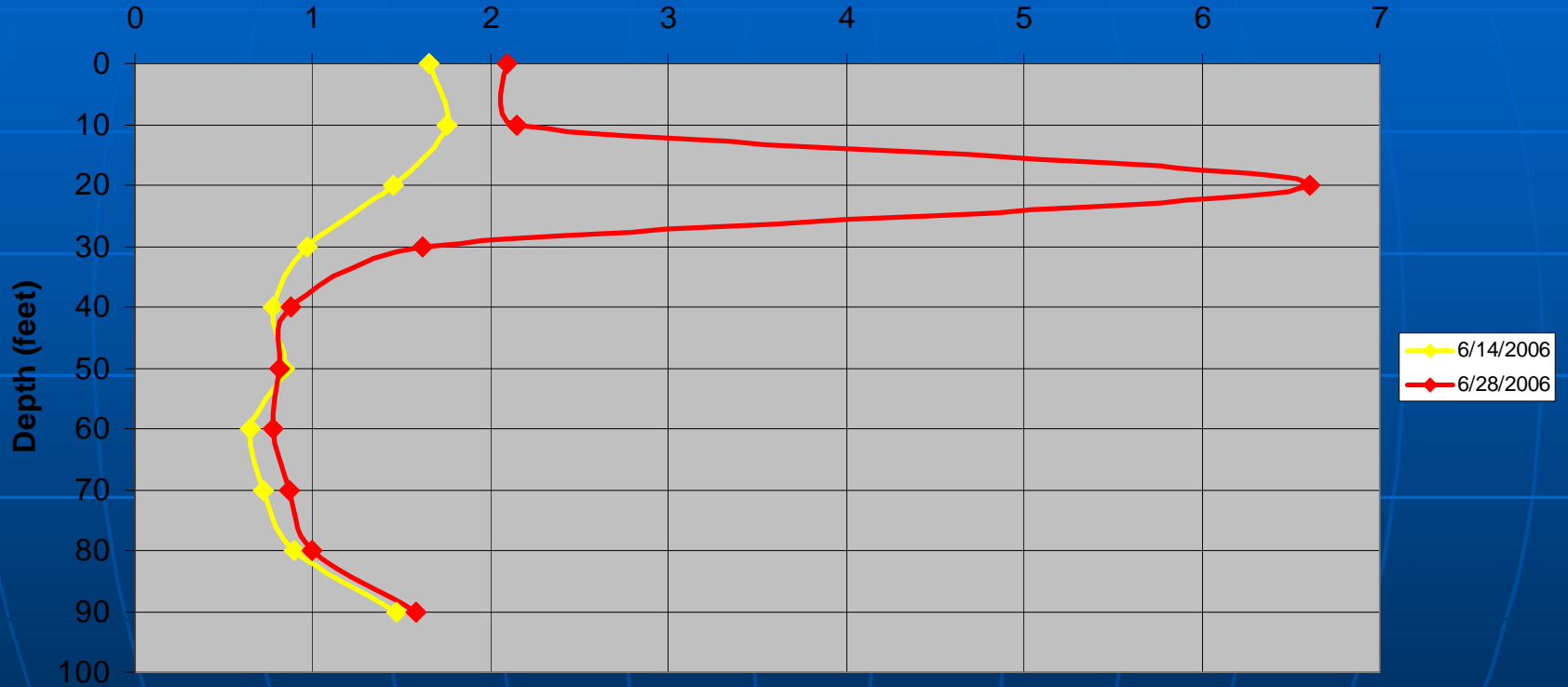
Turbidity Results

Effect of Hurricane Ivan



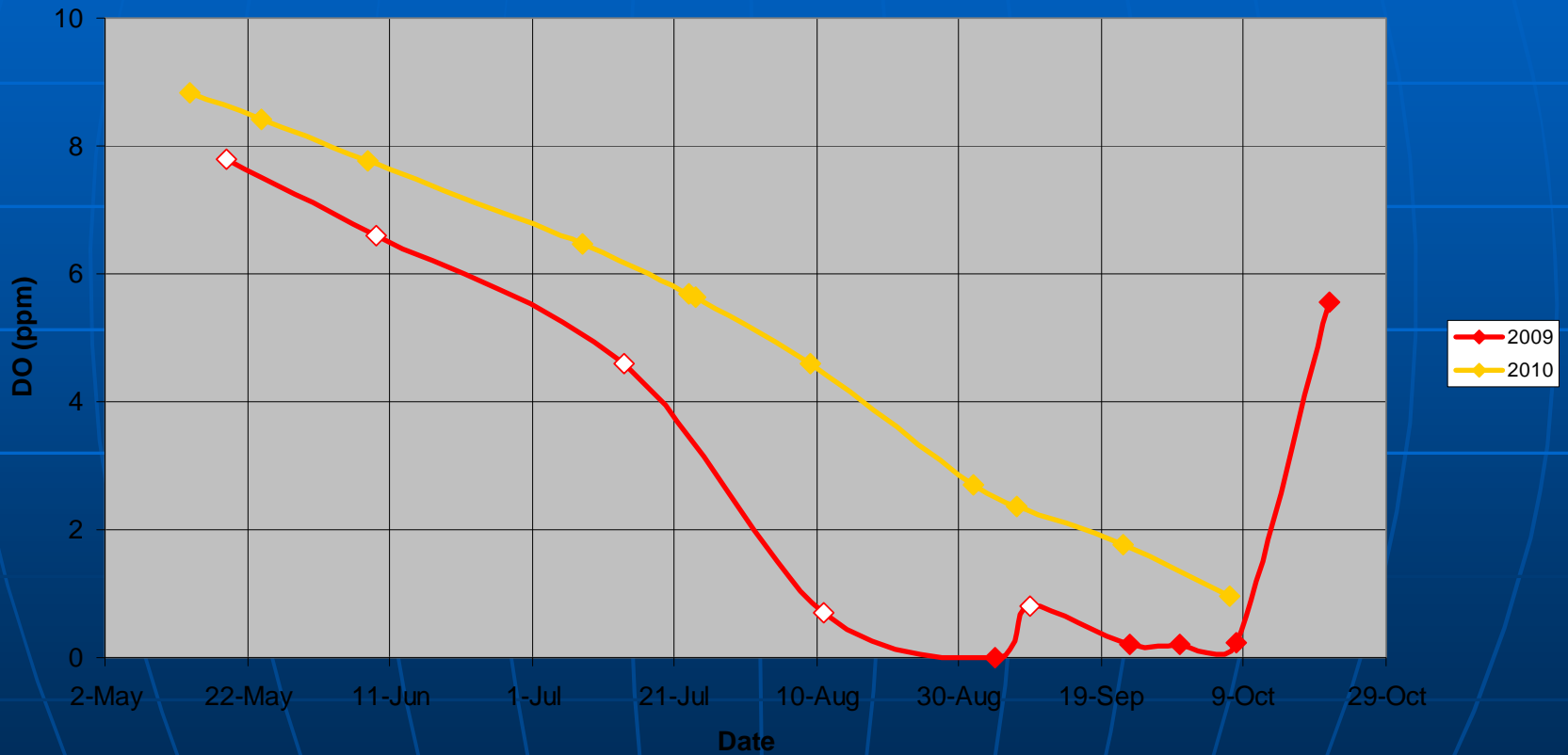
Rainstorm Effect

Turbidity (NTU)



Data Sonde

DO Depletion @ 20 Meters





Don Hansen, FOLG Volunteer Monitor

Cullasaja Club



Ravenel Lake Concerns

- Algae Growth
- Shallowing of lake
- Nutrient inputs from upstream sources (WWTP)

Ravenel Lake Monitoring

- Consultant recommended more Water Quality data to determine source of impacts
- Desire to get the most information for their funds
- Combination volunteer sampling and lab analysis through VWIN
- Minimal Training of volunteers, just water sampling

Monitoring Parameters

- Secchi disk
- Nitrogen
- Phosphorus
- Turbidity
- TSS
- Conductivity
- pH
- Alkalinity
- Metals (CU, ZN, PB)

Volunteer Water Information Network (VWIN)



CURRENT VWIN SPONSORS



PARTICIPATING ORGANIZATIONS:

- THE METROPOLITAN SEWERAGE DISTRICT
- THE BUNCOMBE COUNTY BOARD OF COMMISSIONERS
- THE BUNCOMBE COUNTY SOIL AND WATER CONSERVATION DISTRICT
- THE HENDERSON COUNTY BOARD OF COMMISSIONERS
- ENVIRONMENTAL AND CONSERVATION ORGANIZATION
- THE TOWN OF LAKE LURE
- HAYWOOD WATERWAYS ASSOCIATION
- THE MADISON COUNTY SOIL AND WATER CONSERVATION DISTRICT
- THE BUNCOMBE COUNTY SOIL AND WATER CONSERVATION DISTRICT
- THE FRIENDS OF LAKE GLENVILLE
- THE LAKE JAMES ENVIRONMENTAL ASSOCIATION
- THE HIWASSEE RIVER WATERSHED COALITION
- THE WATERSHED ASSOCIATION OF THE TUCKASEGEE RIVER
- THE MADISON COUNTY SOIL AND WATER CONSERVATION DISTRICT
- TOE RIVER VALLEY WATCH
- THE SEVEN LAKES WEST LANDOWNERS ASSOCIATION
- THE GARNER LAKE ASSOCIATION

WITH FINANCIAL SUPPORT FROM:

- THE PIGEON RIVER FUND
- THE Z.SMITH REYNOLDS FOUNDATION
- THE UNIVERSITY OF NORTH CAROLINA AT ASHEVILLE

PARAMETERS ANALYZED FOR STREAMS

- pH and Alkalinity - Analyzing for the effects of acid deposition and a streams ability to cope with acid inputs
- Turbidity and Total Suspended Solids (Water Clarity and Stream Sedimentation) - Analyzing for the effects of surface runoff and stream bank erosion
- Conductivity and Heavy Metals - Analyzing for the effects of urban runoff and industrial pollution
- Nutrients - Analyzing for the effects of wastewater effluent, septic system drainage, trout farm effluent, and surface runoff from agriculture, yards, and gardens

PARAMETERS ANALYZED FOR LAKES

- TEMPERATURE
- DISSOLVED OXYGEN
- SECCHI DEPTH
- TOTAL PHOSPHORUS
- ORTHOPHOSPHATE
- AMMONIA-NITROGEN
- NITRATE/NITRITE-NITROGEN



HOW DATA IS BEING USED

- Provide data on streams for groups seeking grant funds to improve water quality, and monitoring grant funded project sites to detect changes in water quality
- Provide data on stream sedimentation for local groups to push for local erosion control ordinances
- Provide information on point and non-point sources of pollution by placing sites up and downstream of possible sources
- Provide comparison data from year to year and from other streams and lakes
- Provide additional information to the state for inclusion in regional watershed management plans



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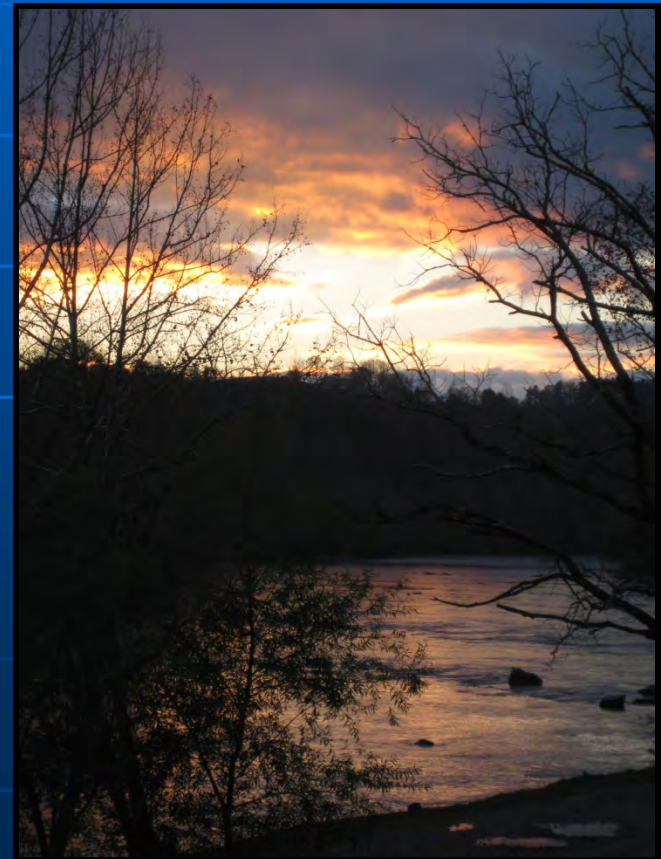
A PROJECT OF:

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We are not alone!

THE

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M

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THE NATIONAL NEWSLETTER OF VOLUNTEER WATERSHED MONITORING

Volume 17, Number 1 • Winter 2005

metadata

helping *data* live *longer*, go *farther*

by Eleanor Ely

National Organization of Volunteer Monitoring Groups

- How to get started
- What to monitor
- How to monitor (choices)
- Make sure the data is good (QA/QC)
- What to do with the data once you collect it!
- How to utilize the data to protect your lakes

The National Newsletter of Volunteer Water Quality Monitoring Volunteer Monitor

- www.EPA.gov/OWOW/volunteer/vm_index.html

QUESTIONS?

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