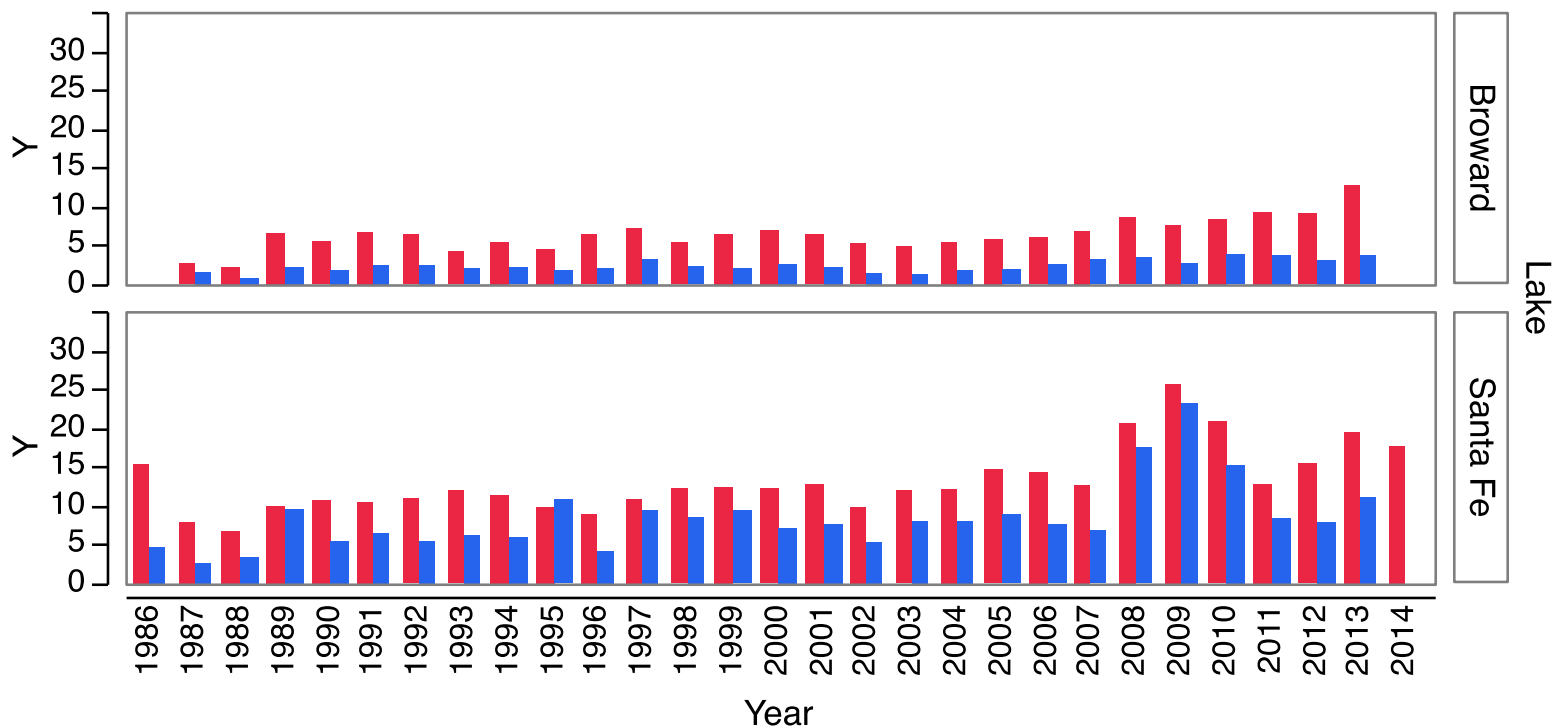


# Florida LAKEWATCH



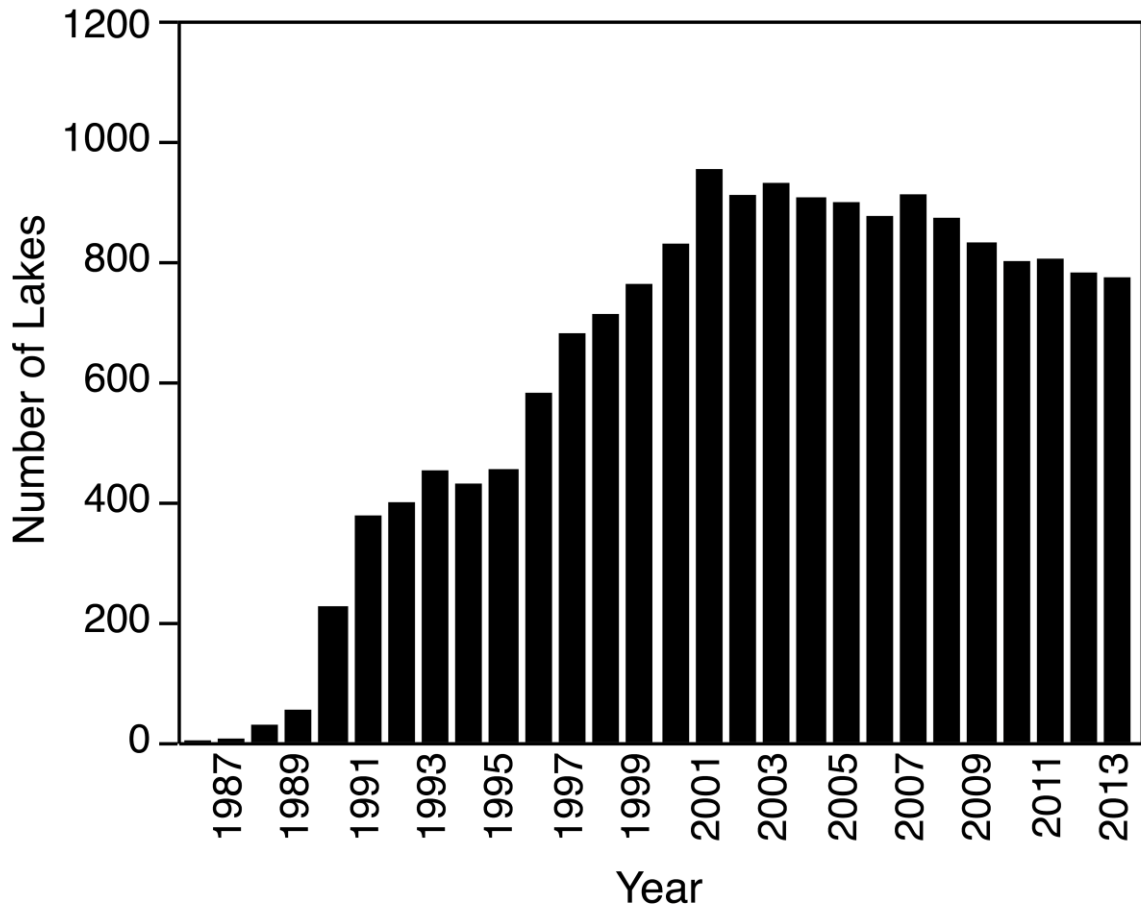
# Founder of Florida LAKEWATCH Dr. Daniel E. Canfield Jr. (1986)



**Phosphorus and Chlorophyll Data for Lake Broward and Santa Fe**

# Florida LAKEWATCH

## Interest Grew by Word-of-Mouth



# Florida LAKEWATCH Started With Research: Possibilities Using Volunteers

## Major First Objectives:

- 1) How is the limnology of Florida lakes impacted by changing geologic gradients everywhere apparent in Florida?
- 2) Are there trends in the water quality of Florida lakes in relation the natural background variance?

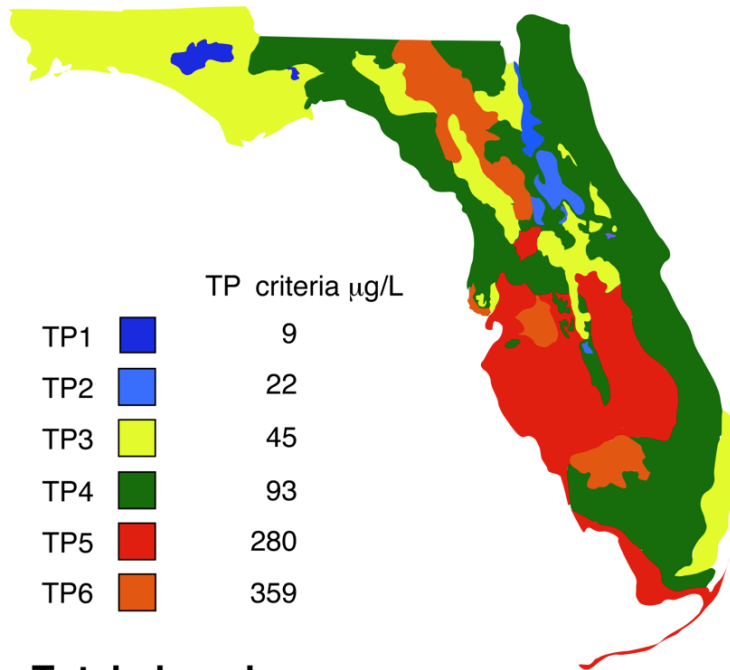
# **RESEARCH: How is the limnology of Florida lakes impacted by changing geologic gradients everywhere apparent in Florida?**

Bachmann, R. W., Bigham D. L., Hoyer M. V., Canfield D. E, Jr. 2012a. Factors determining the distributions of total phosphorus, total nitrogen and chlorophyll a in Florida lakes. *Lake Reserv Manage.* 28:10-26.

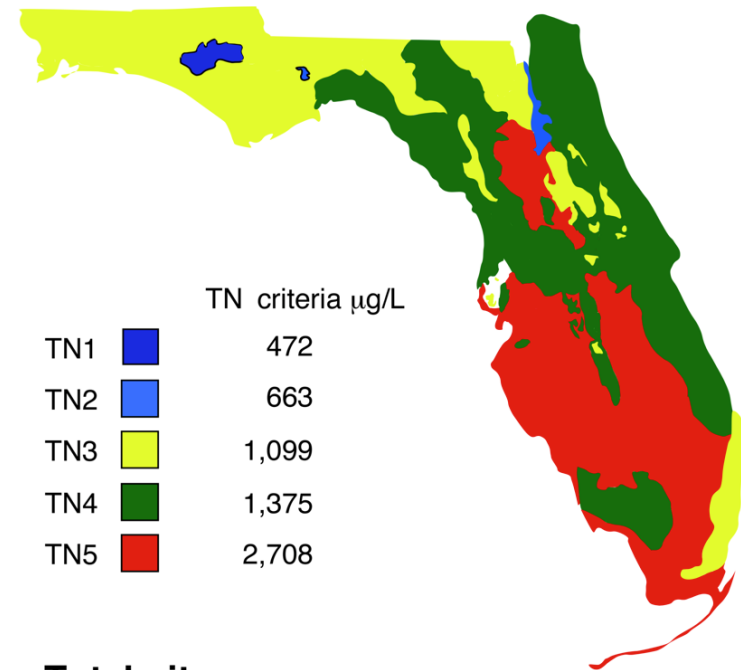
Bachmann, R. W., Bigham D. L., Hoyer M. V., Canfield D. E, Jr. 2012b. Phosphorus, nitrogen and the designated uses of Florida lakes. *Lake Reserv Manage.* 28:46-58.

Bachmann, R. W., Bigham D. L., Hoyer M. V., Canfield D. E, Jr. 2012c. A strategy for establishing numeric nutrient criteria for Florida lakes. *Lake Reserv Manage.* 28:84-92.

# RESEARCH: How is the limnology of Florida lakes impacted by changing geologic gradients everywhere apparent in Florida?

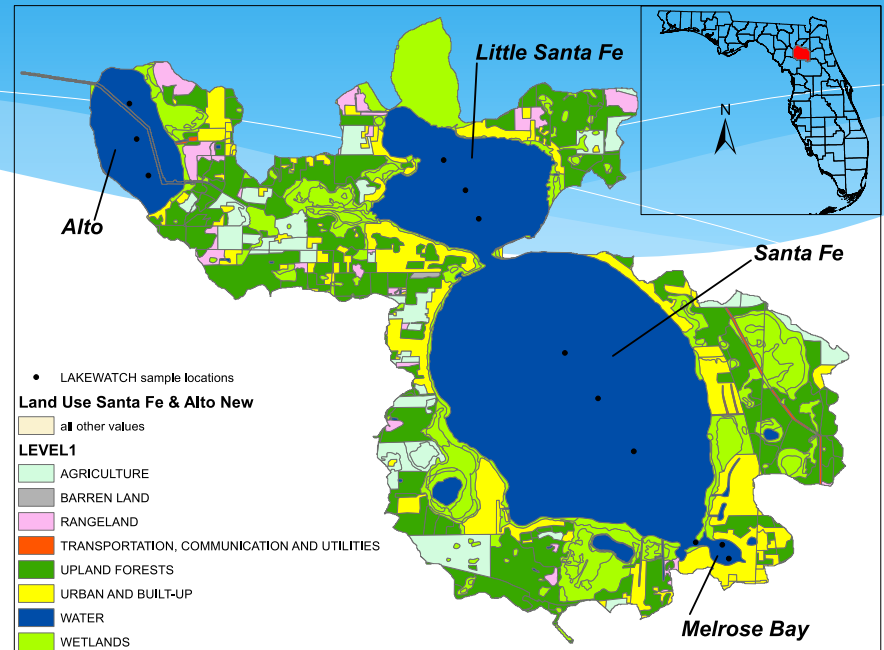
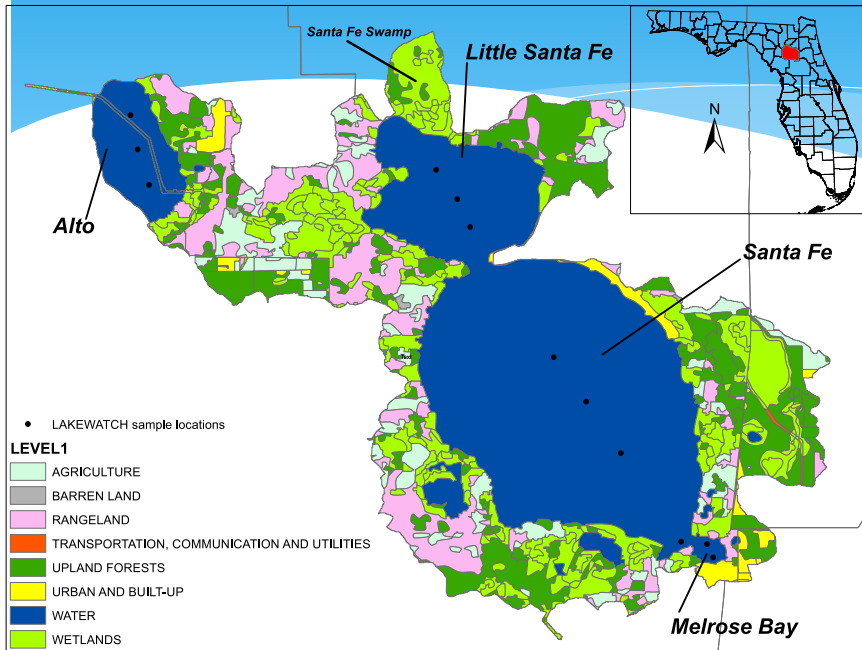


**Total phosphorus zones**



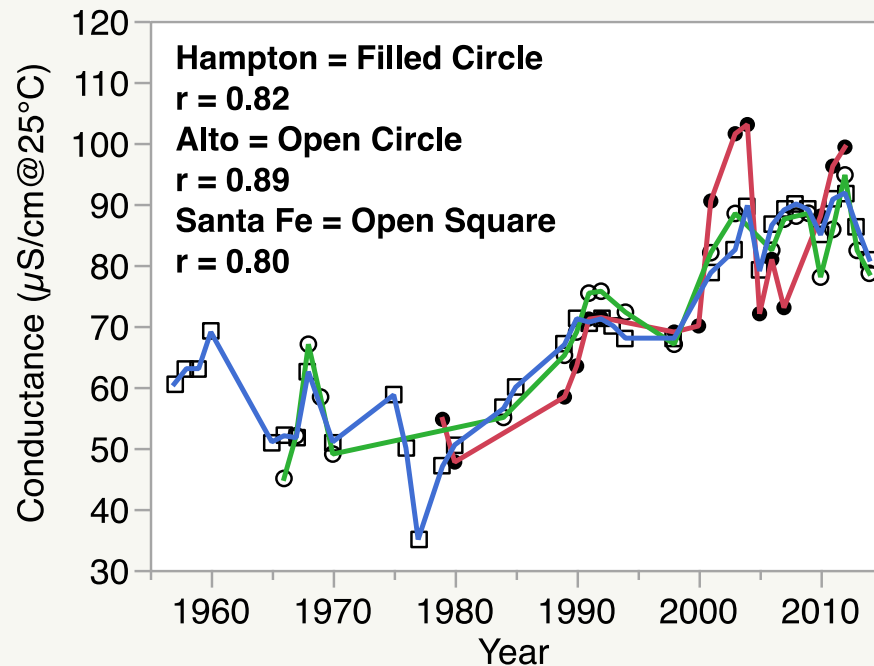
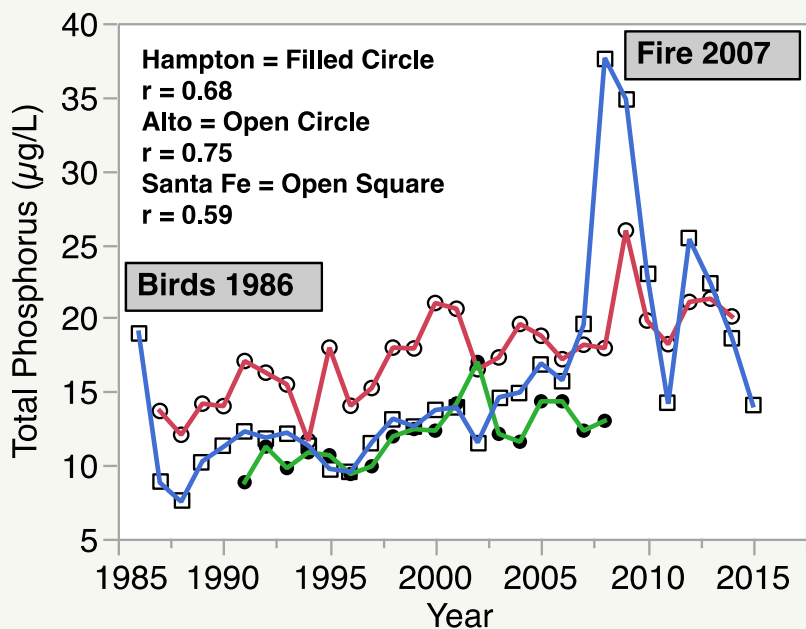
**Total nitrogen zones**

# Trend Analyses and Potential Cultural Eutrophication?



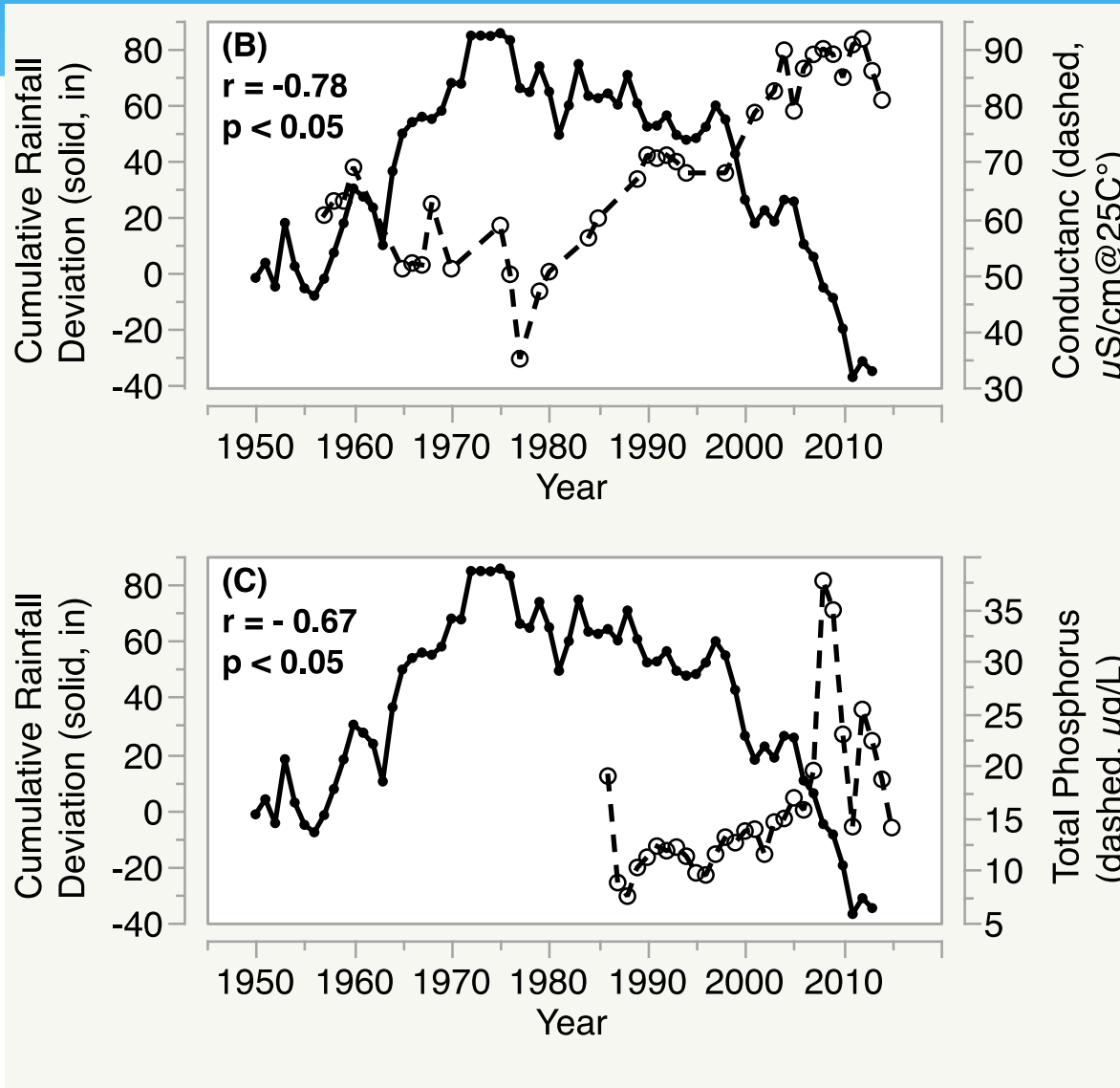
Land Use Change 1988-2009	Alto	Santa Fe
% Change Ag	-36	-58
% Change Forest	4	32
% Change Urban	65	444
% Change Wet Land	11	-14

# RESEARCH: Are there trends in the water quality of Florida lakes in relation the natural background variance?

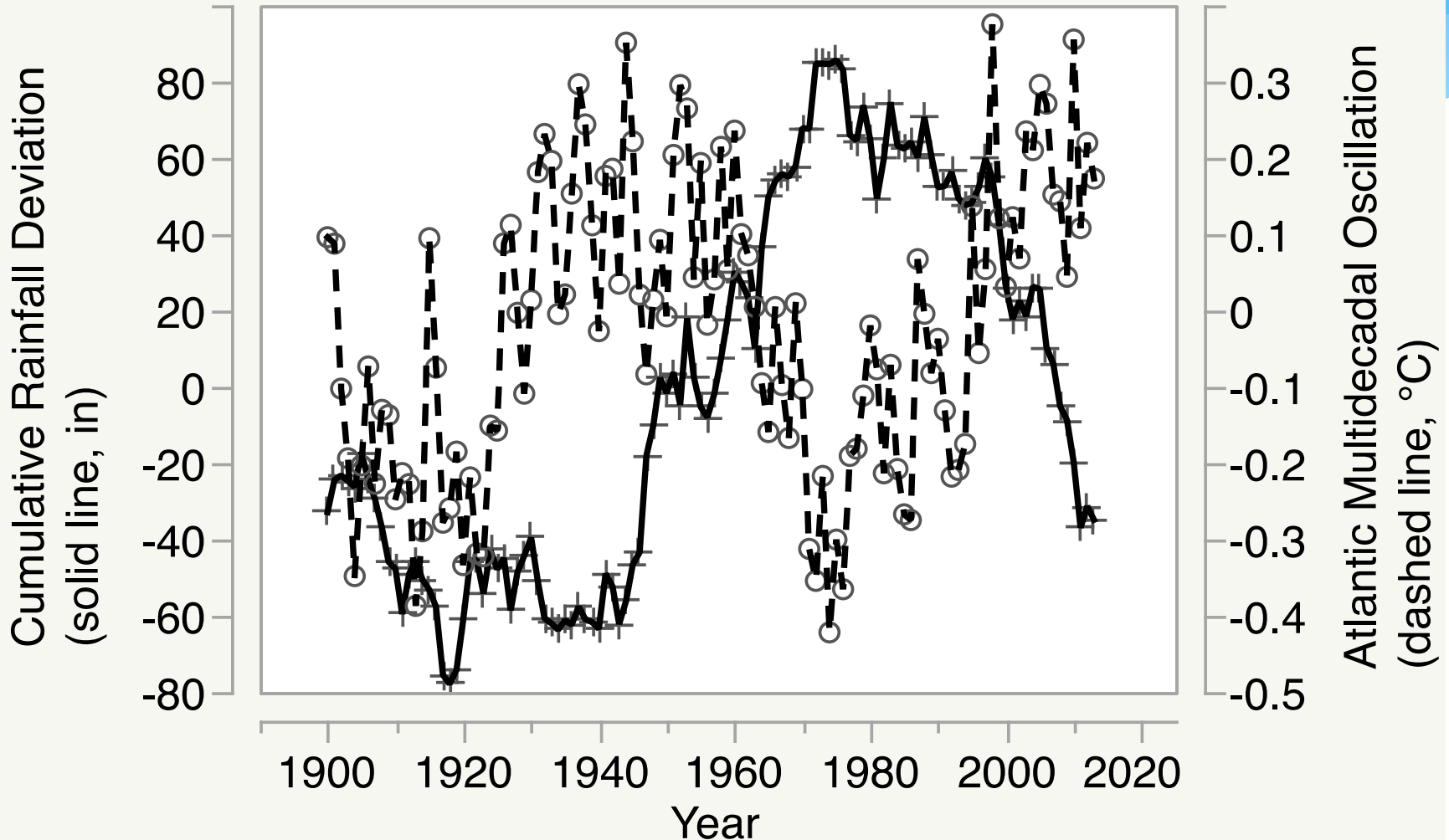




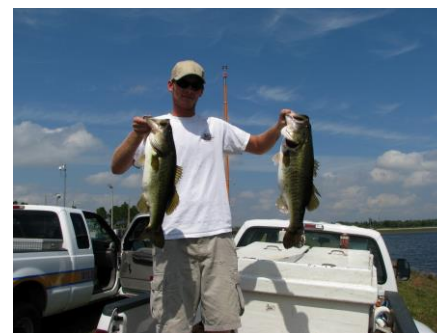
# RESEARCH: Are there trends



# RESEARCH: Are there trends Rainfall, Gainesville Airport



# TEACHING: Florida LAKEWATCH Needed Help (Students/Professionals) to Work With Volunteers



# To Keep Volunteers Engaged: LAKEWATCH Needed Strong EXTENSION/OUTREACH



Dedicated to Sharing Information About Water Management and the Florida LAKEWATCH Program Volume 62 (2013)

## Why is My Lake Turning Dark?



Colored water in the outflow from a coastal dune lake in the Florida Panhandle.

Submitted photograph from LAKEWATCH volunteer





# To Keep Volunteers Engaged: LAKEWATCH Needed Strong EXTENSION/OUTREACH



# Eventually LAKEWATCH's Mission Statement Evolved Into:

University Land Grant Mission:

- 1) Research
- 2) Teaching
- 3) Extension



# Florida

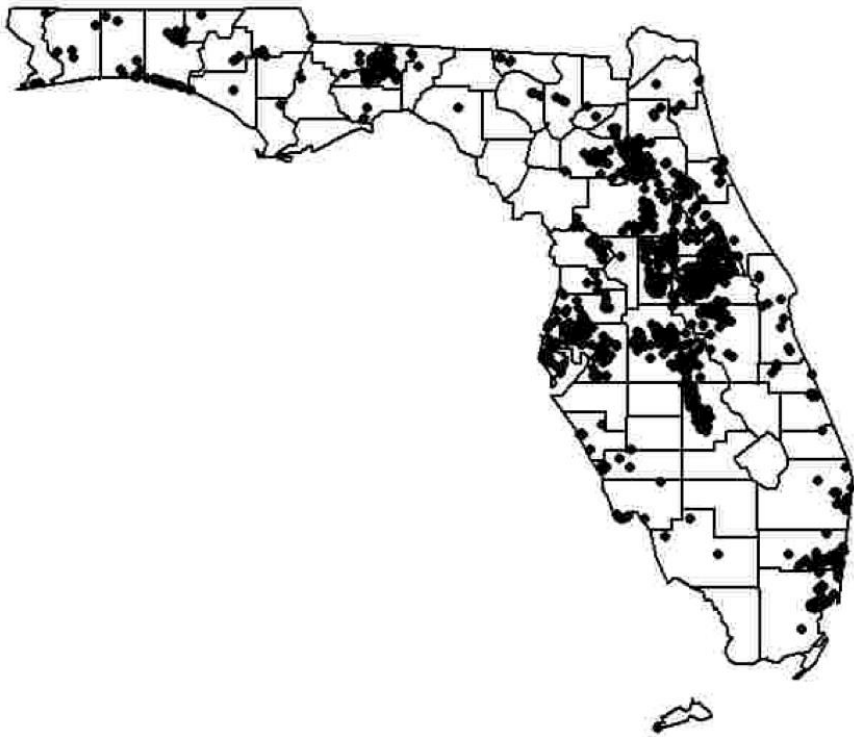


# LAKEWATCH

**Volunteer Monitoring  
Program (1986 to 2014)**

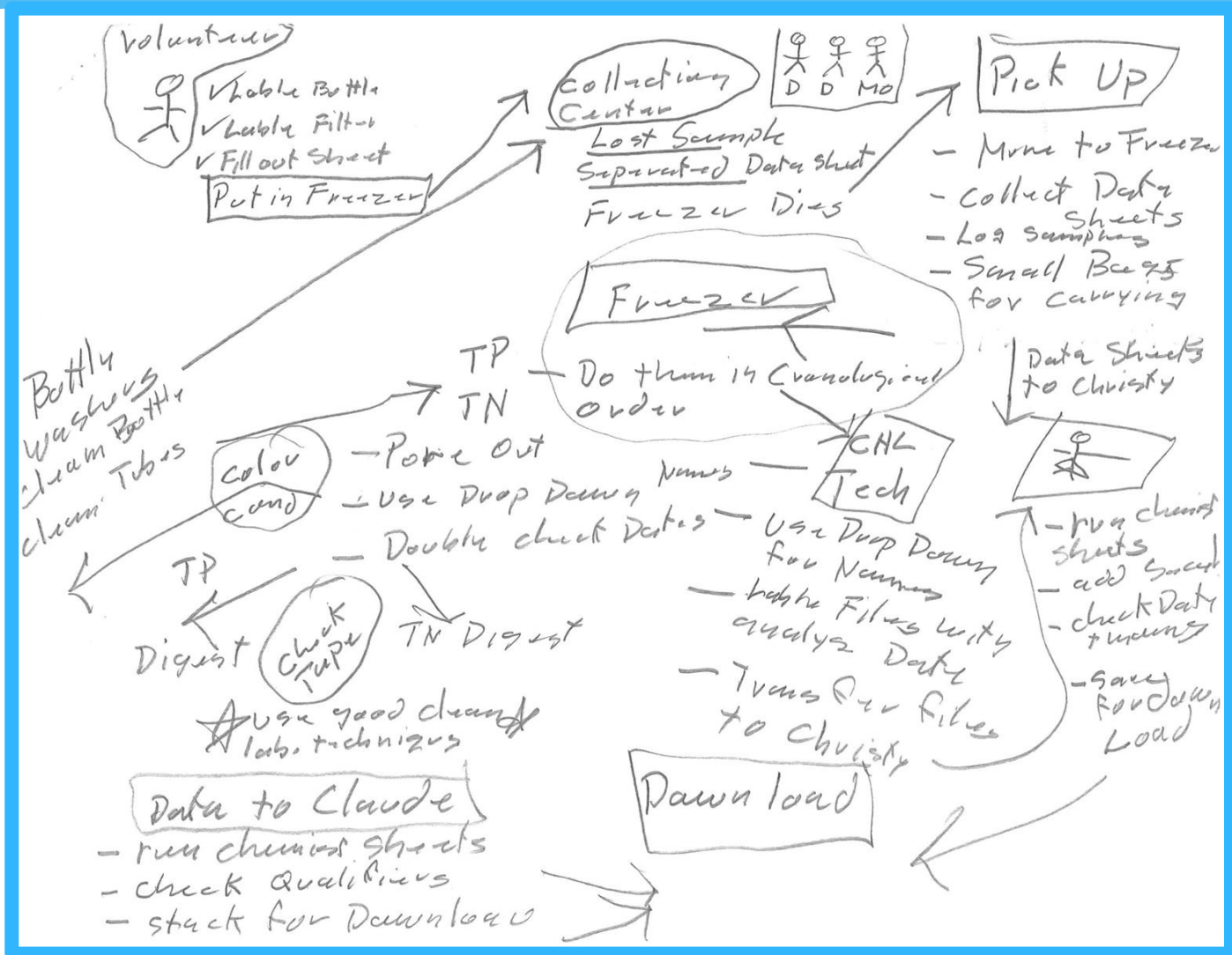
**Director Mark Hoyer**

**Currently maintaining  
580 Lakes, 129 Coastal  
Sites, 124 River Sites  
and 5 Springs**





# New Director of Florida LAKEWATCH Mark Hoyer (2013) Reorganizes





**Dedicated to Sharing Information About Water Management and the Florida LAKEWATCH Program Volume 70 (2015)**

## **LAKEWATCH's 2015-2016 Budget Gets a Well Needed/Deserved Boost**

By Mark Hoyer, LAKEWATCH Director



LAKEWATCH

The Florida LAKEWATCH staff at a staff meeting in Gainesville.

# LAKEWATCH Major Hurdles Along the Way and into the Future: QA/QC and Funding

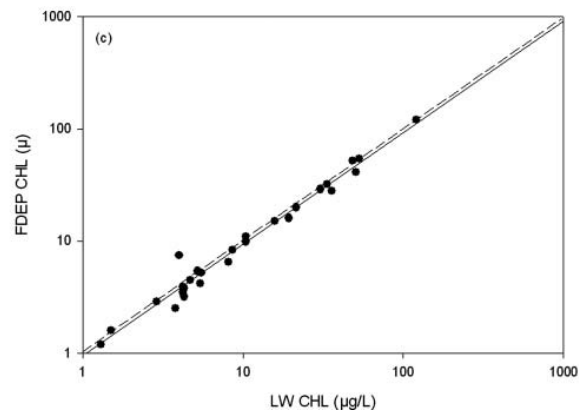
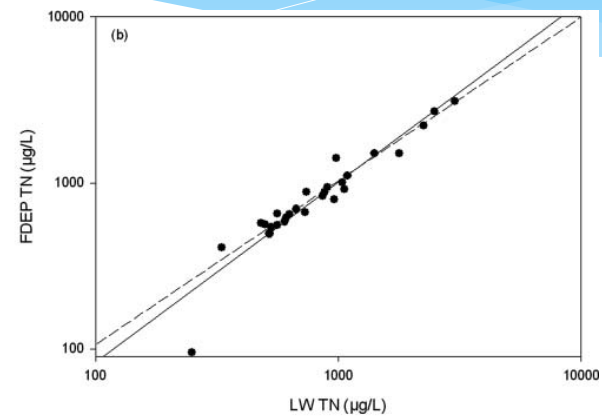
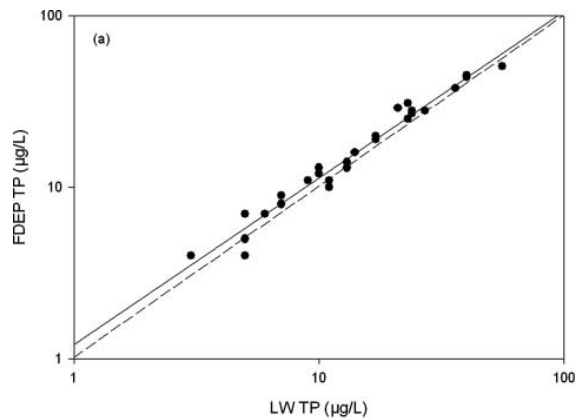
- 1) Convincing professionals from agencies and governmental officials that well trained volunteers can collect scientific grade data that can be used for research and regulation if needed (QA/QC).
- 2) Finding funding sources that understand the value of long-term data for management and that are willing to pay the price.

# Comparison Studies Confirmed the Quality of LAKEWATCH Data

Canfield, D. E. Jr., C. D. Brown, R. W. Bachmann, and M. V. Hoyer. 2002. Volunteer lake monitoring: testing the reliability of data collected by the Florida LAKEWATCH program. *Lake and Reservoir Management* 18: 1-9.

Hoyer, M. V., N. Wellendorf, R. Frydenborg, D. Bartlett, and D. E. Canfield, Jr. 2012. A comparison between professionally (Florida Department of Environmental Protection) and volunteer (Florida LAKEWATCH) collected trophic state chemistry data in Florida. *Lake Reservoir Management*. 28: 277-281.

# Comparison Studies LAKEWATCH and FDEP



# Recent Study Yielded Site Specific Approval from FDEP

## Alternative Site-Specific and Limited-Use Methods Approval for Florida LAKEWATCH

### *FDEP Aquatic Ecology and Quality Assurance Section July 2013*

The Florida Department of Environmental Protection (DEP) Aquatic Ecology and Quality Assurance Section (AEQAS), at the request of the DEP Division of Environmental Assessment and Restoration, has reviewed method validation information and approved site-specific methods for alternative sample preservation and maximum holding time for total nitrogen (TN), total phosphorus (TP) and chlorophyll a (CHLA) samples, and a limited-use alternative method for the laboratory preparation of chlorophyll samples, collected for Florida LAKEWATCH projects, as further explained below. Florida LAKEWATCH (LW) is a surface water monitoring program coordinated by the Department of Fisheries and Aquatic Sciences at the University of Florida, and is located at 7922 NW 71st Street, Gainesville, FL, 32653. This document describes the criteria and references used to evaluate the methods, in support of an approval order for alternative methods as required in Rules 62-160.220(7)(a) and 62-160.330(6)(a), F.A.C. (DEP. 12/3/08). The bases for the approvals are described below, and meet the requirements for alternative method approvals in DEP SOP FA 1000, subparts FA 2210 – FA 2230 (DEP. 3/31/08) and New and Alternative Laboratory Methods, DEP-QA-001/01 (DEP. 2004).

# Must Continue to Showcased LAKEWATCH Data With Peer Reviewed Publications



- Lake and Reservoir Management: 10
- Hydrobiologia: 8
- Canadian Journal of Fisheries and Aquatic Science: 3
- Transactions of American Fisheries Society: 3
- Journal Fish Biology: 1
- Journal Aquatic Plant Management: 2
- Freshwater Biology: 1
- Limnology and Oceanography: 1
- Ecology: 1

# Questions (532) Asked at LAKEWATCH Regional Meetings (2007 to 2014)

<b>Aquatic Plants</b>	<b>Fish and Wildlife</b>	<b>Water Level/Access</b>	<b>Water Quality</b>	<b>Lake Uses</b>
Plants (121)	Exotic Species (55)	Lake Water Level (95)	Water Clarity (31)	Swimming Areas (6)
Grass Carp (41)	Sportfish Fish (40)	Sediments (13)	Algae (16)	Jet Skis/Boats (5)
Herbicides (19)	Aquatic Birds (28)	Hurricanes (3)	Color (12)	Trash (4)
Tussocks (4)			Storm Water (9)	Irrigation (2)
	<b>TOTAL 123 (23%)</b>	<b>TOTAL 111 (21%)</b>	Waste Water (9)	
<b>TOTAL 185 (35%)</b>			Bacteria (6)	<b>TOTAL 17 (3%)</b>
			Fertilizers (5)	
			Heavy Metals (3)	
			Oxygen (3)	
			Trends (1)	
			Pesticides (1)	
			<b>TOTAL 96 (18%)</b>	





# Florida LAKEWATCH Funding \$\$\$\$



Hillsborough County  
Florida



[sfwmd.gov](http://sfwmd.gov)





# LAKEWATCH Awards

Distinguished Service Award (2014) - SFRC University of Florida  
Vision Award (2014) –National Water Quality Monitoring Council







Not a Master Gardener but a Work in Progress!

