Dear Friend of Your Lake,

Do you have a concern about your lake and an interest in its future? If you have access to any type of boat, can spend two hours each month on your lake, and are willing to volunteer for at least a year, you might be eligible for the Florida LAKEWATCH volunteer program. Florida LAKEWATCH is currently the only research program gathering data on a wide variety of Florida’s lakes. However, without the help of volunteers, it would not be possible.

That’s why one of our goals for this year is to spend more time discussing LAKEWATCH data with you in this newsletter, at volunteer regional meetings held around the state (to which you will be invited), and at our new web site location. ***

Along with displaying tremendous dedication for collecting monthly water samples, Florida LAKEWATCH volunteers are also showing a keen interest in learning how to interpret their regular lake data reports.

Why learn about data?

With so many lakes in the state* and a wide variety of Florida’s lakes. However, without the help of volunteers, it would not be possible. ... on your monthly   data, and an annual report* access to lake experts (limnologists)* invitations to LAKEWATCH seminars* to shed a little light on what happens to LAKEWATCH “water-sicles” after they’ve left the volunteers’ hands.

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It’s All About Data

LAKEWATCH volunteers collect water samples every month and deliver them to strategically placed freezers at collection centers around the state. In the last issue of the newsletter (Fall 1997, Volume X), we provided a brief narrative of a day in the life of a water sample — to shed a little light on what happens to LAKEWATCH “water-sicles” after they’ve left the volunteers’ hands.

In this issue, we continue the theme by discussing the end result of thousands of hours of volunteer water collection and professional laboratory analysis — the data.

Remember your data packets* — those pages of tables, graphs, and numbers you receive once a year in the mail for annual regional LAKEWATCH meetings? In an effort to help you maximize your understanding of and ability to use LAKEWATCH data, we’ve put together the following data odyssey. Happy trails!

* Florida has more than 7,800 lakes that are 10 acres or greater in size.

** Limnology - the science that deals with the physical, chemical, and biological properties and features of fresh waters, especially lakes and ponds.

*** http://www.ifas.ufl.edu/~lakewatch/index.htm
I would like to personally thank you for giving me so much important information about my science fair project, “What Effect the Edibility of Fresh Water Mussels?” You helped me so much that I am now on my way to the state science fair.

Exclusion represent censure of any item, organization, individual, or institution by the University of Florida or the Florida LAKEWATCH program. Inclusion does not constitute endorsement, nor does any other written material include contributor's name, address and phone number. All submissions shall remain the property of Florida LAKEWATCH.

Letters to LAKEWATCH

Dear LAKEWATCH,

One of our members made a beautiful gingerbread house and we had a raffle that raised $100 toward our gift this year. The remainder of the proceeds came from selling hamburgers, hot dogs, and meatball subs.

Linda Temple,
The Lake Hickory Nut Homeowners Association

Changes at Keystone

As of early December, the Keystone Community Center in Hillsborough County was closed for renovation. The LAKEWATCH drop-off point has been moved to the Austin Davis Library near downtown. Keystone area LAKEWATCHers should deliver samples to the library and ask the librarian for directions to the storage area. Samples can also be taken to Nye Park in Lutz, FL.

Director Sandy Fisher

Eagle Eye, Inc. is at it again!

Eagle Eye, Inc. (EEI) students helped raise awareness about lakes in Highlands County by constructing placards for every lake in the county and carrying them in Avon Park’s holiday parade—which wearing LAKEWATCH hats and EEI shirts. The students walked alongside a float representing colonial holiday traditions and lysthes. The float was led by two members holding the EEI banner: Good job!

Director Sandy Fisher

Florida LAKEWATCH Has New (& evolving) Web Site!

Stay tuned to the LAKEWATCH web site and let us know what you think. Many areas still “under construction” but we are thrilled to be up and running — a major accomplishment for our new webmaster, Kathy Arner.

http://www.ifas.ufl.edu/~lakewatch/index.htm

Florida Lake Management Society (FLMS) is now online!

You can access FLMS from the LAKEWATCH web site under the section called “Links for Lake People” or you can tap in at direct:

http://www.nalms.org/flms/index.htm

Attention Nye Park Collection Center Users

Replacement water sampling supplies (empty bottle packets) will be located on the BOTTOM two shelves of the stand-up freezer each month.

Please remember to place your frozen samples on the TOP two shelves until the shelves are full. Once these shelves are full, please place your frozen samples on the BOTTOM two shelves BEHIND the replacement supplies so other volunteers can easily find them.

[Note: Desiccant will be stored on the freezer door shelf, along with the new filter packets.

FLMS newsletter is generated by the Florida LAKEWATCH project, within the Department of Fisheries and Aquatic Sciences of the Institute of Food and Agricultural Sciences (IFAS) at the University of Florida (UFL). Support for the LAKEWATCH program is provided by the Florida Legislature, grants and donations.

For more information about LAKEWATCH, to inquire about volunteer training seminars, or to send materials for inclusion in this publication, write to:

Florida LAKEWATCH

1922 NW 7th Blvd
Gainesville, FL 32607
or call 1-800-LAKEWATCH (525-3928)
350-303-9677 ext. 228

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Director Sandy Fisher presented special LAKEWATCH shirts (with our new FLW logo) to Herb and Sue Sauls recently for their dedicated lake monitoring efforts. They have sampled lakes Francis and Redwater in Highlands County since July of 1991!

LAKEWATCH regional coordinators will be making their annual verification calls in the coming weeks, so please don’t hang up! The calls are our way of “touching base” to be sure you have everything you need, to answer any question you might have, and to verify your correct mailing address, phone number, and any other pertinent information for our volunteer data base.

Volunteers that do have questions for us are encouraged to write down their questions ahead of time so they’ll be ready when we call. Your patience is appreciated.

Volunteer Bulletin Board

FLMS has two members holding the EEI banner. Good job!

Linda Temple, the Lake Hickory Nut Homeowners Association

Dear LAKEWATCH,

Once again our Lake Hickory Nut Country Fair was a huge success. We were able to raise $357 for our gift to Florida LAKEWATCH. One of our members made a beautiful gingerbread house and we had a raffle that raised $100 toward our gift this year. The remainder of the proceeds came from selling hamburgers, hot dogs, and meatball subs.

One of the most powerful ways to help you know where to form lake associations of lake residents. Waiting until a crisis occurs is often too late. An association can focus on developing networks for communication and education among the members so that when you need to communicate in a hurry and act, you can. It can also facilitate the development of relationships with government and regulatory people who may come into contact with U.S. Environmental Protection Agency. Both the Lake Region report and posters are the culmination of a three-year project to document regional differences in the water chemistry of Florida lakes.

As a result of the project, 47 lake regions were identified and mapped out based on similar environmental factors. The resulting Florida LAKEWATCH Has New (& evolving) Web Site!

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Spelled with a capital “S” the term Secchi refers to the name of an Italian astronomer who is credited for devising discs made of white glass, and (also) by Bob Carlson of Kent State University in Ohio points out in his article about Secchi disks. **Why is a Secchi disk used?**

With this simple bit of knowledge under your belt you’re now ready for the next step — looking at your LAKEWATCH data and learning to spot trends and patterns. Look for a continuation of our data odyssey in the next LAKEWATCH newsletter. FLW

**LAKEWATCH volunteers are asking some great questions these days as we’ve decided to include them in our newsletter as well. Send us your question(s) and receive a Secchi disk key chain for sharing your curiosity. (See the LAKEWATCH address on page 8 in “Dear Friend of Your Lake.”)**

**Answer** — We have enormous tadpoles (6 to 8 inches in length from nose to tail tip) in the shallows of our lake. What kind of frog do they transform into?

**LAKEWATCH volunteers instruct their volunteers to use the following technique:**

1. LAKEWATCH monitors four components of lake water (for space reasons, we’ll refer to them as the big four throughout this article): water clarity > chlorophyll > total nitrogen > total phosphorus.
2. The short answer to why we monitor the big four is because lake specialists tell us to; they are these four factors that are stirred up from the bottom. By knowing the basic core of information they need to manage lakes.
3. To understand the long answer, we need a short course in how lakes works — starting with a definition of limnology.

Limonology - the science that deals with the physical, chemical, and biological properties of bodies of fresh waters, especially lakes and ponds.

In a perfect world, limnologists* would have both time and funding to gather information about all three of these basic scientific lake properties (see below):

**Physical properties** include the physical shape of the lake (depth, shoreline, and locations)

**Chemical properties** include nutrients (such as phosphorus and nitrogen), oxygen levels, temperature, alkalinity, etc.

**Biological properties** include all living and dead organisms in a lake — algae, plants, invertebrates, fish, and mammals.

In reality, gathering baseline data for every one of these properties is both prohibitively expensive and time-consuming. Professionals that can provide an overall “picture” of how a lake system functions, giving limnologists** what they need.

Yes, there are many other lake issues (mercury concentrations, oxygen levels, bacteria counts) that need to be addressed in Florida. **Obtaining the basic core (the big four) of information about a lake can help determine whether professionals are the right people to address these issues** concerned with, and provideData toward an Answers to a variety of questions these days as we’ve decided to include them in our newsletter as well. Send us your question(s) and receive a Secchi disk key chain for sharing your curiosity. (See the LAKEWATCH address on page 8 in “Dear Friend of Your Lake.”)

**Why measure total phosphorus? (abbreviated as “TP”?)**

Phosphorus is a nutrient found in lake water. We measure total phosphorus because phosphorus is one of several essential building blocks* required for plant and algae growth in a lake. The amount of total phosphorus in lake water gives us an idea of the amount of plants and algae that can be expected to grow in a lake system. (Sooner or later, questions regarding lake systems always seem to return to a lake’s ability to support life, starting with plants and algae.)

Lakes containing low levels of total phosphorus tend to have low amounts of plants and algae. Lakes containing high levels tend to have more plants and algae. This is valuable information for a lake resident who wants to go fishing. It is also valuable information for anyone interested in managing the amount of fish and wildlife in a lake (we’ll be particularly interested in this member of the big four).

Why do we want to estimate the amount of algae in a lake? For several reasons.

**Reason #1**. The amount of algae in a lake can help explain why one lake is “greener” than another. Questions concerning lake water color are probably asked more than any others and may have inspired the practice of limnology in the first place.

**Reason #2**. As mentioned earlier, the amount of chlorophyll (algae) in a lake can affect water clarity. Lake residents and/or lake managers can use this information to develop a lake management plan specifically geared toward water clarity issues.

**Reason #3**. The amount of algae in a lake is referred to by limnologists as primary production. The amount of primary production occurring in a lake gives us an idea of a lake’s ability to support populations of zooplankton*, fish, birds, and reptiles. Lake residents interested in managing the amount of fish and wildlife in a lake will be particularly interested in this member of the big four.

chlamydomonas - small aquatic invertebrate animals that live in open water

We measure water clarity because when compared with your other LAKEWATCH data, Secchi disk measurements can help determine if any of the above factors are affecting your lake’s water clarity. This is especially important if you are wanting to manage water clarity (for safe swimming or diving, or managing a fishery, etc.).

Secchi disk measurements can be done quickly, easily and cheaply. In a pinch, a homemade Secchi disk can be fashioned from something as simple as a white Frisbee boiled to a small weight and attached to a cord.

**Why measure chlorophyll?**

Measuring chlorophyll is an indirect way of estimating the amount of algae in a lake. How does one indirectly estimate something? The dynamic chlorophyll/ algae data provides a perfect example.

Chlorophyll is a green pigment in algae that allows the algae to make food using sunlight. In effect, most algae are so dependent upon chlorophyll pigments for survival that measuring chlorophyll concentrations in lake water is a handy way to estimate the amount of algae in your lake.

So why do we want to estimate the amount of algae in a lake? Other essential nutrients include phosphorus and nitrogen have to be estimated.

(Continued on page 6)
**What are “data” anyway?**

*Data:* something accepted as a base for inference; a fact on which reasoning is based.

Data: plural of datum; facts or numerical figures from which conclusions can be inferred; information.

“Data.” The term itself doesn’t easily conjure up visions of grandeur. However, upon closer inspection, it quickly becomes apparent how powerful data can be. Just ask the folks that depend on it daily — Wall Street investors, sports fans, teachers, politicians, physicians, business managers, biologists, and lake managers — to shape public policy, diagnose diseases, predict weather patterns, set prices on the stock market, and to create lake management plans.

So what are data? As the definition suggests (see above), data are simply numbers — thousands upon thousands of numbers. In the case of LAKEWATCH data, they are recorded and compiled in spreadsheet form in a computer.

These numbers we call data are “worth their weight in gold” to both professionals and citizens needing information for managing lakes, particularly if the numbers have been accumulated at regular intervals for a period of years. This is precisely why monthly LAKEWATCH data, collected sometimes for many years, are so valuable.

**LAKEWATCH Data**

How Can I Get The Data?

Periodic summaries from the waterchemistry laboratory are provided for each individual lake as assembled once a year. The packets are made available to LAKEWATCH volunteers or anyone who requests the information. The packets include three sections:

- a report including one table and one graph for each of the four parameters measured,
- a letter of explanation from your regional coordinator which summarizes your lake’s biological productivity and compares your lake to other lakes in its region.**

How Can I Get The Data?

Call us!** Requests will be handled by our LAKEWATCH regional coordinators who can explain your data as well as help you decide which format is best for you.

** LAKEWATCH Data Books contain data on every lake monitored for the year. For space reasons only monthly averages from the different monitoring station locations are provided for each of the “big four” parameters measured, instead of listing numbers for every single station sampled that year. The book also includes an assortment of useful information compiled from a variety of other sources including latitude/longitude of each lake and lake region information which consists of brief descriptions of each lake’s geology and hydrology. Lake acreage, plant survey information, bathymetric maps*** and supplemental water chemistry data are included for some, but not all, of the lakes. (Are you lake anglers paying attention? This is useful information for finding the big ones!) The data books’ only drawback is that there are limited quantities printed each year. The good news? These books are available for your use at many county extension offices, all water management district headquaters and all nine state university libraries. (See the reference librarian for assistance.) Please let us know of any location where you think it would be used, and we will try to place the books there. You may not need to see the entire book (the 1996 Data book contained 784 lakes), but may only be interested in one or two lakes. In that case, you can always call our toll-free message line (1-800-525-3928) and request photocopies. We can fax or mail the information to you.

** LAKEWATCH Data Books are available to anyone who requests it, regardless of their scientific background. Different formats are offered according to how it will be used.

Raw data or numbers, can be provided on computer disk (most lake management professionals request data in this format), as an email attachment, or as a printout on paper (hard copy). In the future, we hope to make the data downloadable from our LAKEWATCH website.

LAKEWATCH is always open to your suggestions for customizing data formats to better fit your needs. Call us with your ideas (1-800-525-3928).

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Free Lake Insurance

Many volunteers regard their data packet as a valuable collection of “hard numbers” concerning their lake, and file it away as a sort of insurance policy for the professionals to use if the need should arise.

Having actual data guarantees that you can legitimately document the current conditions in your lake for comparison with lake conditions in the future. (You will not have to rely on memory or anecdotal observations, which are often viewed with a skeptical eye by regulatory agency personnel and government.)

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