

Florida



# LAKEWATCH

Dedicated to Sharing Information About Water Management and the Florida LAKEWATCH Program Volume XXII 2002

## National Monitoring Day Join in the Year of Clean Water Celebration!

October 18, 2002 marks the 30th anniversary of the signing of the Clean Water Act, and to celebrate, thousands of people across the nation will head out to their local waters to participate in a national water monitoring event. LAKEWATCH volunteers are encouraged to join them.

Four basic water quality parameters will be monitored: water temperature, dissolved oxygen, pH, turbidity/water clarity. Several of these are not part of LAKEWATCH's normal monitoring repertoire, so volunteers will need to purchase a special kit (see below).<sup>\*</sup> Should you decide not to buy the kit, you can still participate by entering your Secchi depth measurement for that day.

All participants are to register prior to October 18<sup>th</sup> by going to the web site listed below. On the day of the event, everyone is asked to report their results on-line, being sure to make note of the method(s) used for sampling. A report will be published later that will serve as encouragement for further environmental stewardship.

*The LaMotte sampling kits that volunteers will be using for this event were specifically chosen for their simplicity and safety. Step-by-step instructions are included. Kits can be purchased for \$ 16.75 (includes shipping) by clicking on the "Order Test Kit" link at the following website:*

***<http://www.yearofcleanwater.org/events/volunteer.htm>***

<sup>\*</sup> Kits are only available on the web.

**Monitoring**, continued on page 2.

## Volunteer Data vs Professional Data

# LAKEWATCH Makes the Cover!

While celebrating the Year of Clean Water, we thought it would be a great time to tell you about an important LAKEWATCH study that was featured in a recent issue of *Lake and Reservoir Management*, an international journal of the *North American Lake Management Society*.<sup>\*</sup>

The really cool part?

LAKEWATCH even made the cover!

We're particularly excited about this study because we think it goes a long way toward answering many of the concerns that have been raised over the years regarding volunteer-collected water quality data.

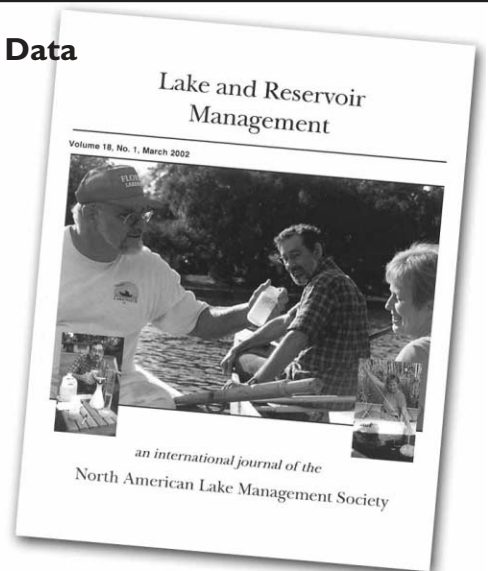
Due to limited space, we're unable to print the entire paper, so instead we're providing a brief summary (below), along with an open invitation for you to call the LAKEWATCH office if you would like a copy of the 9-page article. You can also download it directly from our website:

***<http://lakewatch.ifas.ufl.edu/>***

## The million dollar question: "Are there significant differences between water quality data collected by volunteers versus professional biologists?"

In 1991, LAKEWATCH endeavored to answer this question by comparing data from lakes that were sampled by research biologists from UF/IFAS' Department of Fisheries and Aquatic Sciences and also by trained LAKEWATCH citizen volunteers. For the 125 lakes sampled, there were no significant differences found between the

<sup>\*</sup> *Lake and Reservoir Management* 18 (1): pp 1-9. 2002. *North American Lake Management Society*.



values obtained by citizens versus biologists for total phosphorus (TP), total nitrogen (TN), and chlorophyll (CHL). See Figure A on page 2. In 11 out of 125 samples, there were a few differences noted for Secchi depth measurements (i.e., averaging less than a foot). However, when you consider that Secchi readings are mostly used as rough estimates, to be compared with CHL measurements, the differences are minor.

From these efforts, UF researchers concluded that volunteers could indeed provide data that were equivalent to those generated by professionals. This is especially true when the objective is to assess water quality for large numbers of lakes.

## Fresh vs Frozen Water Samples

LAKEWATCH decided early on to freeze water samples as it provided

**Data**, continued on page 2.



**UNIVERSITY OF  
FLORIDA**  
Institute of Food and Agricultural Sciences

**Data**, continued from page 1.

the greatest flexibility for both storing and delivering samples to the laboratory. Many volunteers live hours away from the UF/IFAS water chemistry lab, making it logistically impossible to collect and transport “fresh” water samples within a 24-hour time frame — not to mention the hardships it would impose on the water chemistry staff. Freezing also avoided the use of dangerous chemicals sometimes used to preserve water samples. But what about the quality of the samples?

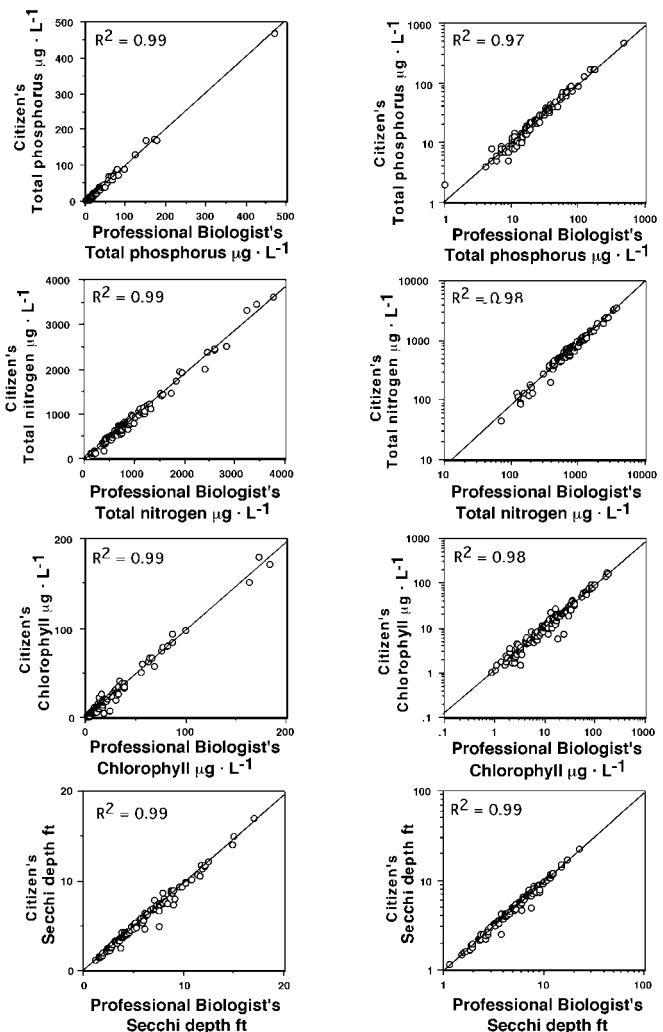
To determine if freezing was a valid means of preserving water samples prior to analysis, researchers used a rather involved testing regimen to compare fresh water samples with frozen samples that had been stored for a varying number of days (15, 30, 60, 90, 120 and 150). Little difference was found in the chemical measurements made for CHL, TP, TN, total alkalinity and specific conductance. Even samples that had been frozen for 150 days generally showed minimal differences. *Note: While it was no surprise, researchers also confirmed that freezing was not a good way to preserve pH samples (i.e. when the pH was  $\geq$  than 6.5); fresh samples are still recommended for pH.*

### Standard Method vs. Hot Ethanol

Prior to 1993, LAKEWATCH used Standard Method procedures when analyzing its chlorophyll samples, a process that involved the use of acetone as an “extractant.” After 1993, LAKEWATCH began to use hot ethanol to extract pigments, as it was less hazardous to human health, involved fewer problems with disposal, and was less time consuming to analyze. To ensure there was no difference between the two methods, researchers analyzed and compared 108 pairs of samples. Both methods produced equivalent results.

### Conclusion

Water monitoring is a serious undertaking for volunteers — people with busy lives. Florida LAKEWATCH learned long ago that the secret to a successful program is making things as easy and rewarding as possible for everyone involved. The fact that we now have ten years’ worth of monthly water monitoring data on over 200 lakes and five years’ worth on over 300 waterbodies is strong evidence of a successful game plan and some mighty dedicated individuals!



**Figure A** Mean lake Secchi disk depths, total phosphorus, total nitrogen, and chlorophyll values measured by citizen volunteers and those measured by professionals. (From *Lake and Reservoir Management* 18 (1): pp 1-9. 2002. North American Lake Management Society.)

**Monitoring**, continued from page 1.

National Monitoring Day **Join in the Year of Clean Water Celebration!**

**Q** If volunteers are testing for water temperature, dissolved oxygen, pH, and turbidity/water clarity on National Monitoring Day, then why doesn't LAKEWATCH monitor them on a regular basis?

LAKEWATCH does regularly monitor turbidity/water clarity. However, water temperature is not normally monitored as it is something that we can always access if needed, using air temperature readings that are widely available (i.e., In Florida's shallow water lakes, there is a strong correlation that exists between air temperature and water temperatures.) Additionally, dissolved oxygen and pH are not regularly monitored by LAKEWATCH as the materials required for the tests, for the degree of accuracy needed, are too expensive and the tests are more rigorous to perform than most people want to deal with.

The kits being used on October 18th (see sidebar on page 1) are designed for taking quick “general” measurements so that people of all ages and abilities can participate. And since the main objective of the event is to instill a greater awareness of the significance of water monitoring across the nation, accuracy is less important than participation. The data will help show national trends on a large scale and hopefully spur other groups around the country to create their own monitoring programs. So, even if the information isn't of quite the same caliber as LAKEWATCH data, participants can feel good knowing that they are helping to raise awareness about something that everyone depends on ~ clean water!

# Countless Ways to Use LAKEWATCH Data

## Florida LAKEWATCH now has more than a million data points in our database!

Even in today's world, the number is impressive. In fact, impressive soon turns to downright AMAZING when one stops to think of the sheer amount of energy behind every single data point collected by Florida LAKEWATCH volunteers. For every number, some dedicated soul braved wind, waves, alligators, bugs – you name it – to collect water samples and Secchi depth measurements on their lake or waterbody. Needless to say, we are extremely proud and grateful for all they have achieved. The following are just a few examples of the countless ways the data are being used.

### Raising the Bar

Water chemistry data collected on Lake Disston since 1992 revealed a lake of exceptional water quality. To gain additional protection for their lake, a small group of Florida LAKEWATCH (FLW) volunteers and residents petitioned for an *Outstanding Florida Water* designation. They would be the first grass-roots group in Florida to achieve this goal, something that was usually only achieved by governmental entities.



Little did they know, it would take eight years. But according to volunteer Ann Moore, it was worth it. "We feel that the most significant accomplishment is the fact that our LAKEWATCH data was substantial enough to convince state agencies that this waterbody was unique and the bar needed to be raised on future permitting standards."

### Scientific Research

University of Florida educators, researchers and students of all ages are finding a plethora of ways to use the surface water chemistry data. Since the program began in 1986, the data have been used or directly referenced in more than 40 reports, electronic databases, information circulars, scientific studies and papers. In many instances, information gained from these endeavors are changing the way lakes are being managed. For instance:

Π Researchers are studying the relationship between aquatic bird abundance and lake trophic state (i.e., the biological productivity of a lake). They are also documenting aquatic bird species richness as it compares to lake surface area. What are they finding?

According to data collected so far, there seems to be a direct relationship between lake trophic state and the number of birds

found on the waterbody. In short, eutrophic\* lakes tend to support more birds. There also seems to be a strong correlation between lake surface area and the number of bird species that use it (i.e., the larger the lake, the more bird species found).

Such information can help wildlife managers predict whether or not a lake has the abundance of bird life or bird species richness that it should. If the numbers are out of kilter, it may signal a problem.

Π Fisheries scientists are looking to see how fish populations are influenced by possible changes in water chemistry over time.

Π Numerous papers have been published concerning nutrients and lake ecology. The most recent paper looks at the relationship between lake trophic state and the abundance of aquatic macrophytes (plants) in Florida lakes. Another study has shown a strong correlation between lake area and depth and the potential for re-suspension of bottom sediments. It also found that lakes experiencing frequent re-suspension of bottom sediments tend to be more eutrophic.

\* *Eutrophic* is a greek word meaning "well fed." *Eutrophic lakes have a high level of biological productivity with chlorophyll concentrations ranging between 7 and 40 µg/L.*

Π LAKEWATCH is using what we've learned from the data to write a series of information circulars that are being used statewide by citizens, students, and water management professionals.

Π UF/IFAS researchers recently used data from 360 LAKEWATCH lakes for a study concerning nutrient-chlorophyll relationships. Thanks to the volume of data available, they were able to define a benchmark that can be used to set realistic goals for managing algae in lakes, through the

manipulation of nutrients. **For a complete listing of scientific papers, see our website:**  
<http://lakewatch.ifas.ufl.edu/>

## Florida LAKEWATCH

This newsletter is generated by the Florida LAKEWATCH program, within UF/IFAS' Department of Fisheries and Aquatic Sciences. Support for the LAKEWATCH program is provided by the Florida Legislature, grants and donations. For more information about LAKEWATCH, to inquire about volunteer training sessions, or to submit materials for inclusion in this publication, write to:

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**PO Box 110600**

**Gainesville, FL 32611**

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**(352) 392-9617 ext. 228**

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**<http://lakewatch.ifas.ufl.edu/>**

All unsolicited articles, photographs, artwork or other written material must include contributor's name, address and phone number. Opinions expressed are solely those of the individual contributor and do not necessarily reflect the opinion or policy of the Florida LAKEWATCH program. Inclusion does not constitute endorsement, nor does exclusion represent censure of any item, organization, individual, or institution by the University of Florida or the Florida LAKEWATCH program.

# Volunteer Bulletin Board

## Dear Volunteers,

Thank you for taking the time to fill out the Lake Survey Response forms from our last newsletter (Volume XXI). So far, a total of 102 lakes are represented and 170 surveys were returned from 24 counties.

## There is still time to participate.

LAKEWATCH will be accepting surveys through November. Survey forms and instructions are posted on our website homepage at:

<http://lakewatch.ifas.ufl.edu/>

If you don't have access to a computer, call us and we can fax or mail the form to you. Results from this survey will help us determine what people's perceptions are of their lake and then compare the information with the actual water chemistry data. A report will be available some time in the Spring of 2003. Thanks again for your help and keep up the great work!

— the LAKEWATCH crew

## We salute our 5- and 10-year volunteers!

*If you've been sampling for 5 years or more and were unable to attend a regional meeting, call us so we can send you a 5- or 10-year LAKEWATCH pin.*



**Orange County volunteers**

**Putnam County volunteers**

*The dedication of individuals, like these pictured here from Orange County (left) and Putnam County (right), has been successful. All of these folks have been monitoring between five and 10 years — some of them even longer! Baker, Ed Brackney, Margaret Horne, Gene Spears, Arthur Whitehill and Jack Mitchell. Right photo: John & Mary Ann Lyles, Suzanne and Jack Fry, John Yocum and Bill McGuffy.*



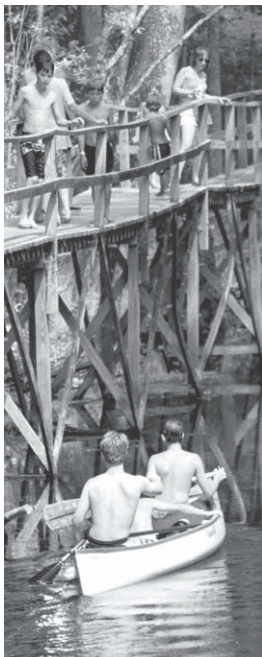
*Tad DeGroat in the water lab.*

## Notice to all active volunteers: Keep those samples flowing!

Please be sure to deliver all frozen water and chlorophyll samples to your collection center as soon as possible. This will enable us to pick up the samples and process them in a timely manner and prepare the annual data reports on schedule.

Thanks for your help!

## A Gateway to Florida's Watersheds



Joe Richard

Florida's first on-line lake atlas project began in Hillsborough County a few years back and has recently been replaced by a brand new site that encompasses the entire watershed, including rivers and ponds. But that's not all! Polk and Seminole county watershed atlases have also been developed and posted on the same website: **Wateratlas.org**

This immense undertaking was done by the Florida Center for Community Design and Research at the University of South Florida, in partnership with several local, state, and federal government agencies. The goal is to design a comprehensive data resource, eventually covering the State of Florida. In doing so, all of watershed atlases have their own distinct look but share the same basic format:

- ▯ An interactive MAP allows users to look up data from specific lakes, rivers or watersheds;
- ▯ A MANAGEMENT link provides up-to-date information about construction, maintenance and management projects associated with each watershed;
- ▯ RESEARCH links provide access to data that are available for the various waterbodies in the area. Users can download an Excel spreadsheet of data for water quality, hydrology, and/or rainfall, or even generate a graph of the information!
- ▯ An EDUCATION link provides access to literature about watershed management, etc.

Atlases are also being developed for Lake County and Southwest Florida and will be up and running soon, so be sure to check out the website periodically.

**Editor's Note: While perusing the research links at these sites, you may notice that much of the data are provided by Florida LAKEWATCH! 😊**

# Volunteer Bulletin Board



Left photo: Elaine Pennington, Art Dutton, Harry Andes, Dick Tiffany, Jack Russell, Ken & June Jones,

... are the reason why LAKEWATCH has been so successful. Left photo: Elaine Pennington, Art Dutton, Harry Andes, Dick Tiffany, Jack Russell, Ken & June Jones,

## October 2 - 4 Florida's 27<sup>th</sup> Annual Conference on Water Management

Hyatt Regency / Miami

This year's theme: "Celebrating Florida's Diversity: Our People and Resources."

The conference will provide a forum for state and local leaders to discuss the challenges facing water policymakers at the local, state, federal and international levels. Conference attendees will also have an opportunity to choose one of three half-day tours to an environmental restoration sight in South Florida. State and local officials, representatives from academia, members of the business community and any interested persons are invited to attend.

Advance registration: \$195 per person  
For more information, visit the website at [http://www.mcraeco.com/acowm\\_conf.html](http://www.mcraeco.com/acowm_conf.html)

Phone: 1-800-259-2318 or  
(850) 906-0099

### Congratulations ~

to Claude Brown, LAKEWATCH Regional Coordinator, for receiving the 2001-2002 Protecting Awesome Watershed Stewardship Award (aka PAWS) from the Dunnellon Middle School this past Spring. Claude has been teaching the students about water quality monitoring.

## An Invitation to Contribute to FWC's Strategic Planning Process

### Dear LAKEWATCH Volunteer,

The Florida Fish and Wildlife Conservation Commission (FWC) is currently developing a long-range strategic management plan that encompasses all of Florida's natural resources, including both freshwater and marine environments, terrestrial habitats and wildlife. This is extremely important as it will determine how things will be handled for the next decade. On August 16, 2002 I was fortunate to be able to represent Florida LAKEWATCH in this process.



Over 120 different stakeholders were present at the meeting, contributing excellent ideas that will most certainly be considered when FWC finalizes their plan. A few of the highlights that came out of the meeting:

- 1) FWC management decisions need to be based on science;
- 2) FWC needs to be proactive in management;
- 3) FWC needs to partner with other groups to be more effective;
- 4) New and additional funding sources are needed to finance FWC services that have historically been largely supported by the sale of fishing and hunting licenses.

Another phase of the FWC's strategic planning process is to request input from the users of Florida's natural resources. To achieve this goal, they have developed a citizen survey that can be filled out on-line at the FWC website: <http://floridaconservation.org/>. It will be available through Thanksgiving (November 28, 2002).

Because Florida LAKEWATCH has always enjoyed a positive working relationship with the FWC, I am asking that you consider taking part by completing a survey. In my opinion, no one is more qualified to contribute to this process than LAKEWATCH volunteers, individuals like yourselves who are already 1) collecting science-based data for management decisions, 2) proactive, volunteering your time, 3) willing to partner with other groups like the University of Florida, and 4) helping state budgets by making monitoring cost effective.

If you don't have access to a computer, we can print a hard copy of the survey and fax it or mail it to you.

I thank you all for your hard work and dedication.

**Mark Hoyer**

Program Leader / Florida LAKEWATCH Program

## Retiring from monitoring duties?

While we always regret losing a dedicated volunteer, we understand that sometimes there's just too much to do in a day or other commitments have made it impossible for you to continue. We want you to know that we are truly grateful for the contribution of time, dedication, and personal expense that you have given as a volunteer. Your efforts have helped build one of the largest water chemistry databases in the country and this legacy will be used for years to come by biologists, community planners, legislators, students, citizens — you name it!

But before you pass on the torch, we do have one favor to ask. Please be sure to call us so that we can arrange to collect your sampling materials and also let us know if you can think of someone that may be interested in carrying on your monitoring efforts. (Remember, as part of our sampling protocol, all new volunteers must be trained by LAKEWATCH staff only.)

Thanks again for your diligence and a job well done! **FLW**

# Featured Fish

## Bowfin ~ *Amia calva*

**Common names:** blackfish, cypress trout, mudfish, mud pike, grinnel, swamp bass, Choupique (in Louisiana)

While it won't win any beauty contests, the bowfin does have one claim to fame: It's currently the only known living representative of an ancient family of fishes known as the *Amiiformes*, the same fish identified in fossils from the middle Mesozoic era, more than 100 million years ago!

Their ability to extract oxygen from air, as well as water, also sets them apart from their contemporaries. A special air-bladder, that functions somewhat like a lung, allows these fish to survive in waters that are uninhabitable to most other fish. When oxygen levels drop, the bowfin simply swims to the surface and gulps a mouthful of air when needed.

### Description and Distribution

Bowfin are recognized by their flattened head, long, stout body and rounded tail. Its body is olive-green above, shading to pale yellow or cream on the belly. Several dark brown, horizontal bars are often evident on the cheeks. Males have a dark spot with a bright orange halo on the upper part of the tail fin. (The spot is absent or inconspicuous on females.) Its rather large mouth is full of small sharp teeth and punctuated by two short tube-like barbels, located near the nostrils.

Found throughout Florida, bowfin also occur through a broad section of the U.S., including the St. Lawrence and Ottawa rivers, the Great Lakes, the Mississippi basin, all the

way to Texas, and along the Coastal Plains from Alabama to eastern Pennsylvania.

Because of their ability to survive in low oxygen situations, it's often assumed that these fish prefer swamps, sloughs and pools, backwaters of lowland streams. However, LAKEWATCH data has shown that in Florida, bowfin are found in many different types of lakes in the north central part of the state.

They stalk their prey, mostly fish and crayfish, using their sight and sense of smell.

Spawning occurs during the Spring when males clear out a nesting area from the heavy aquatic vegetation, where one or more females lay eggs at night. After that, it's up to the males to guard the eggs and protect the young. It's the only primitive fish species known to provide such care. Bowfin tend to grow rapidly and can reach lengths of over three feet and weigh more than 15 pounds.

Despite its excellent fighting capabilities, the bowfin is considered a nuisance by many freshwater anglers. However, it does have a few fans. Some biologists theorize that the bowfin's voracious appetite helps to control panfish populations and other non-game fish, and prevent stunting.\*

Bowfin meat is soft and jelly-like, but good to eat if prepared properly (smoked, fried, or stewed). In Louisiana, bowfin roe (eggs) are considered a delicacy. A few individuals have even begun to market "Cajun caviar" as a "distinctive and lively flavored" substitute for Russian sturgeon caviar, which sells for \$100 - \$200 a pound wholesale. At \$50 a pound, bowfin caviar is certainly a bargain!

### Sources used for this article:

Π Florida Fish & Wildlife Conservation Commission <<http://floridafisheries.com/fishes/index.html>>

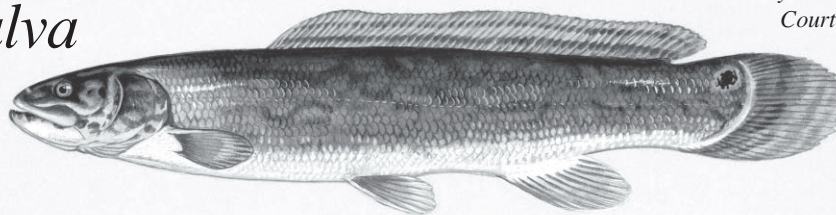
Π Wisconsin Sea Grant <<http://seagrant.wisc.edu/greatlakesfish/bowfin.html>>

Π Louisiana State University <[http://www.nativefish.org/Articles/Bowfin Culture.html](http://www.nativefish.org/Articles/Bowfin%20Culture.html)>

Π *Handbook of Common Freshwater Fish in Florida Lakes*. Mark V. Hoyer and Daniel E. Canfield, Jr. University of Florida. 1994.

\* *Stunting refers to slow growth rates in fish, which occurs when high numbers of fish, similar in size, are all eating from the same food source.*

Illustration by Duane River, Jr.  
Courtesy of FWC



### Angler Diary Update

So far, 22 angler diaries have been returned to the Florida LAKEWATCH (FLW) office, with a total of 31 lakes represented. Aside from the usual data, we've also discovered that FLW anglers appear to have better luck in catching largemouth bass (LMB) than the state average; volunteers caught .98 LMB per hour of angling effort versus the state average which ranges between 0.2 and 0.5 LMB per hour. For more information or to request an Angler Diary for yourself, contact:

David Watson/Florida LAKEWATCH  
7922 NW 71st Street  
Gainesville, FL 32653  
Phone: 1-800-LAKEWATCH (525-3928)  
E-mail: [dlwatson@ufl.edu](mailto:dlwatson@ufl.edu)

### A Star Angler in Our Midst!

Our LAKEWATCH hats are off to Al Smith who has fished nearly 20 lakes and turned in eight Angler Diaries since July of last year. His secret? "I have a great job," says Al, "I drive a tractor-trailer four days a week and after I get my honey-do list done — it's fishing time!"

Al spends a lot of time fishing the Butler Chain and West Lake Toho (Tohopekaliga) but Walk-in Water down by Lake Wales and Crescent Lake in Crescent City are two of his favorites. He also admits that he'll go anywhere to fish and loves to fish new lakes. Quite the angling enthusiast, Al founded the South Lake Bass Anglers Fishing Club in February of 1999, which now has over 35 members. He encourages everyone in the club to participate in the Angler Diary Program as he feels it will help fisheries managers put strong management programs into place and "keep fishing at its highest level."

We couldn't have said it any better. Many thanks to all participants and keep up the great work!

**FLW**



Eric Nagaid

LAKEWATCH program director Mark Hoyer with a trophy bowfin.

## White Pelican ~ *Pelecanus erythrorhynchos*

### Common names: American white pelican, rough-billed pelican

Even if the weather doesn't always signal the coming of winter here in Florida, the arrival of the White pelican will. After spending the summer months breeding in the mountain lakes of Montana and Utah, large flocks of these birds can be seen making their way back to sunny Florida each autumn. In fact, they are hard to miss: Huge white birds flying in formation, heads drawn back with enormous orange bills resting on their chest, wingtips slowly beating against the evening sky... For some birdwatchers, their annual return ranks right up there with the sandhill crane.

### Description and Distribution

One of the world's largest birds, the White pelican is between 125 cm to 175 cm long (50 to 70 inches); it weighs between 5 and 8 kilograms (11 and 18 pounds); and has a wingspan of up to 3 meters (8 - 9.5 feet). Because of their size and high energy food requirements, these birds are mostly found on highly productive, hypereutrophic lakes where large quantities of fish can be found. It's estimated that individual birds can consume up to about two kilograms of fish per day (+ 4.5 pounds).

Removed from the U.S. list of threatened species in 1987, the White pelican has made a comeback in recent years. However, populations are still below pre-settlement times and individual colonies tend to fluctuate due to human influences. The 1995 North American Breeding Bird Survey reports approximately 400,000 fledged White pelicans in the continental range: 250,000 breeding adults plus an estimated 150,000 pre-breeding 1 and 2-year chicks.

Unlike their Brown pelican cousins who like to dive for food, White pelicans fish in groups, herding schools of fish and then slurping them up while swimming. Using its large *gular* pouch to scoop water (up to 20 liters of water at a time!), they strain out their food which includes young fish, salamanders, frogs and aquatic invertebrates.

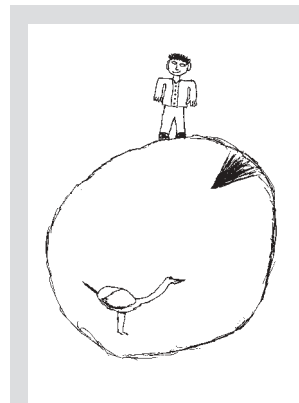


Dr. Dan Stadia

Unfortunately, their healthy appetite has gotten them into trouble with recreational and commercial fishermen who accuse the birds of eating too many fish. Some individuals even go as far as shooting them. (Gunshot wounds are the largest single known cause of mortality for these birds.) The truth is, in Florida, the White pelican consumes mostly gizzard and threadfin shad — species of little value to either fishing group.

Mature adults are snow white in color with pale yellow breast feathers, and as mentioned earlier, their bills are quite large. The top portion is salmon colored and the bottom portion, which contains the gular pouch, is orange — a perfect match for their reddish-orange legs and feet. Breeding birds develop vertical knobs or plates on the top portion of their bill that are thought to be used as “targets” for other adult birds to zero in on when fighting, leaving their gular pouches (below) free from injury.

Immature birds are “dusky” overall with a streaked dark crown but as they mature, their feathering becomes mostly white with black wingtips.



### Sources used for this article:

- Π *Field Guide to the Birds of North America*. National Geographic Society. Second Ed 1987.
- Π <http://www.nps.gov/ever/eco/wpelican.htm>
- Π *The Audubon Society Encyclopedia of North American Birds*, 1980.

### Bird Monitoring Update

In response to requests from citizen volunteers, Florida LAKEWATCH launched a bird survey project a couple of years ago and we're glad we did. Yet again, volunteers are proving to be a practical and efficient way to gather data on Florida's aquatic bird populations — especially when they are already on their lake collecting water samples! So far, we have about 35 participants and are actively recruiting more.

### Why monitor birds?

A considerable number of bird species are known to utilize lakes, and yet few studies have directly quantified numbers or examined long-term or seasonal trends in diversity and abundance. There are plenty of studies related to birds and wetlands, but very little information related to lakes. Over the long term, LAKEWATCH monitoring efforts will help us detect changes in the types and numbers of birds using Florida lakes and develop future management strategies.

LAKEWATCH also hopes to continue empowering citizens to take an active role in the management and conservation of their natural resources. Interested in joining our bird survey program? Call Eric Schulz at 1-800-LAKEWATCH (525-3928).

### Eagle Eye Update

Mr. Kinsey's 5th grade class, from Walker Memorial Junior Academy in Highlands County, was pleased with the different types of birds they found during their participation in the LAKEWATCH bird survey this year (2001-2002). Students surveyed Lake Lillian for six months and counted a total of 253 birds, belonging to 28 species. They sent the data to the Florida LAKEWATCH where it will be added to our growing bird survey database. Student Sarah Weinzirl summed things up pretty well: “It's cool because we don't only see birds, we learn what kind they are too.”

## City of Orlando Uses Secchi Disks to Increase Awareness

In response to Mayor Glenda Hood's Proclamation of Lake Appreciation Week (June 30 through July 7, 2002), Orlando city commissioners were invited to jump on-board with the City's Environmental Specialists and participate in this year's 9th Annual Great North American Secchi Dip-In. Three commissioners "took the bait" and learned about Secchi disks and water clarity that day.



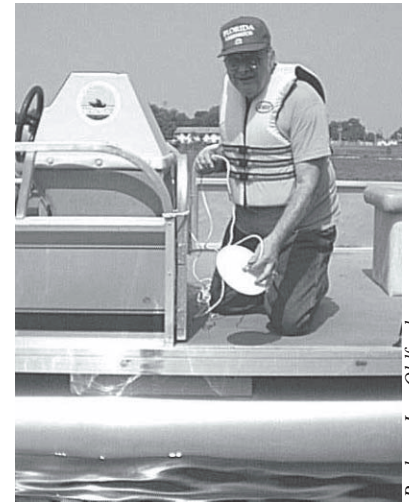
Commissioner Patty Sheehan, from District 4, accompanied Environmental Specialist Ronnie Long on Lake Davis. District 1 Commissioner Phil Diamond joined Christy Wood on Lake Wade. And as pictured here, Orlando's Public Awareness Specialist Maurice Gioseffi worked with Commissioner Vicki Vargo from District 3, and her daughter Anne Marie.

What a great way to increase awareness about local lakes and related water issues!

### Good job LAKEWATCHers!

Only two states out-did us in this year's Dip-In (Minnesota and Wisconsin). Results can be viewed at the Dip-in Website:

<http://dipin.kent.edu/announce.htm>



Barbara Lee Oldford

Harry Oldford sent us this photo of his participation in the Great American Secchi Dip-In this summer. Harry and his photographer, Barbara Lee Oldford, monitor the Lake of the Woods in Seminole County.

## What You Should Know About Amoebas

Every summer, questions surface about an aquatic amoeba (*Naegleria fowleri*) with a bad reputation. Over the past 30 years, there have been 34 deaths recorded in the United States due to exposure to this nasty little organism. Fifteen were in Florida. While these statistics may seem pretty scary, it's good to know that the chances of coming in contact with *Naegleria* are slim. Health officials estimate that there is only one case reported for every 2.5 million hours that people spend in Florida's freshwaters. Drowning and boating accidents pose much more of a threat. With that said however, we'd still like to provide a few tips on how one can decrease the chances of exposure even more.

### The first thing you should know...

is that there are many types of amoebas, but only certain species cause disease. *Naegleria fowleri* is thought to exist in virtually every lake and river around the world, with the exception of Antarctica. They're also found in spas, hot tubs, 'thermally enriched' waters and poorly chlorinated swimming pools. So, if you're thinking of avoiding all of the aquatic environments mentioned above, you might get a little lonely, especially in Florida.



Joe Richard

### How To Avoid *Naegleria*?

The best way to prevent exposure is to avoid stirring up bottom sediments, as this is where the amoeba lives and feeds on detritus from fallen leaves, dead plants, etc. Once bottom sediments are disturbed and mixed into the water column,

they could enter into a swimmer's ear or nasal passage, where it follows the olfactory nerve and gains entry into the brain, causing Primary Amoebic Meningoencephalitis (PAM).

It's important to note that swimmers who have contracted PAM usually got it after rooting around on the lake's bottom, in heavy silt. This can easily be prevented by keeping one's face away from the bottom of a lake (river, canal, etc.) and by keeping swimmers from jumping off a pier or dock located in shallow water — or any

activities that might disrupt bottom sediments. Young children are at the highest risk of exposure as they tend to engage in such activities. However, everyone can be further protected by wearing ear plugs and a nose clip or a dive mask (that covers the nose) when swimming. Remember, exposure to bottom sediments is the MOST important factor that increases chances for infection.

During most of the year, concentrations of *Naegleria* are rarely high enough to cause public health problems. However, as water temperatures rise during late summer (82-86° F), it does provide a more accommodating environment for the amoeba to feed and multiply. So if possible, you might consider avoiding swimming during this time.

### Diagnosis

Early diagnosis is a must. In the two known cases where patients survived infection from *Naegleria*, the family doctor recognized the symptoms immediately and was quick to react with some serious antibiotics. Persons complaining of severe headaches, rigidity of the neck, impaired sense of smell and taste, nausea, vomiting and/or a high fever and who have been swimming in a lake or freshwater environment should be taken to a doctor. If the treatment is to be effective, it needs to be administered quickly.

**Note:** You can't get PAM by eating fish from a lake.