

Florida



LAKEWATCH

Dedicated to Sharing Information About Water Management and the Florida LAKEWATCH Program Volume XXV 2003



Fred Hartwell

This photo of Lake Joiner was one of several images Fred Hartwell sent to LAKEWATCH as evidence of the natural treasures to be found in Washington County.

Happy 17th Birthday LAKEWATCH!

It's time to bake a cake and light the candles; this month, the Florida LAKEWATCH (FLW) program will be 17 years old! The first water sample was collected for FLW on August 16, 1986 and after that....well, the rest is history.¹

The first thing we'd like to do is thank our volunteers, including those who are still monitoring and others who have given their time and energy in prior years. Because of you, FLW is one of the largest, most successful volunteer water monitoring programs in the country — truly something to celebrate.

Through these 17 years, volunteers have sampled in 56 counties on a total of 1871 water bodies including 1213 lakes, 280 coastal sites, 204 river sites and nine springs.

An additional 165 “special” samples have also been collected and analyzed due to concerns from volunteers such as drainage outfalls, ditches, unusual rain events or algae blooms. (Note: Due to the tremendous volume of samples analyzed in our laboratory, FLW is only able to analyze a small number of these samples each year.)

Aside from just sheer sampling duties, the program has matured in other ways: we've developed active partnerships with a host of state, federal and private entities to better serve Florida's citizenry and to facilitate a constant flow of information and dialogue concerning water management. In 2002 alone, FLW partnered with four federal and 15 state agencies, 15 county and eight city governments, 18 parks and preserves, 25 UF/IFAS Cooperative Extension offices, ten private business and

professional organizations, six citizen groups, ten schools and 114 homeowner associations! We'd like to thank every single one of these groups/organizations for working with us, but it would take up the entire newsletter to do so. (We do try to acknowledge them in the newsletter, when possible.)

While we're in a thanking mode, there is one group of dedicated individuals who may not be as visible as our volunteers or regional coordinators, but their work is vital to the success of the program: FLW's

Continued on page 2.



UNIVERSITY OF
FLORIDA

Institute of Food and Agricultural Sciences

¹ See Volume XVI for more on how FLW began (i.e., Why LAKEWATCH Can't Be an Advocate).

laboratory technicians and bottle washers are the unsung heroes working behind the scenes to make water analysis possible:

- Senior Chemist Mary Stonecipher oversees the lab and keeps things running smoothly. She also calculates the data, enters all the Secchi depth measurements from your data sheets, and checks water chemistry results for any unusual results or “red flags” that may pop up.
- Tad DeGroat receives and sorts incoming water samples and prepares them for phosphorus and nitrogen analysis. He also processes samples for supplemental water chemistry (pH, alkalinity, conductivity, chloride, chlorophyll and color).
- John Douglas runs the tests for total nitrogen on each and every sample. He also keeps some of our more complicated instruments functioning.
- Kelly Schulz is responsible for analyzing samples for total phosphorus concentrations and performing color analysis.
- Wanda Garfield is responsible for processing chlorophyll filters for total chlorophyll measurements, as well as keeping the desiccant supply up to date. She also assists with supplemental samples.
- Kim Smith, Jonna Weaver, and James Weaver have the thankless job of washing every bottle and test tube—thousands per month!
- Christy Horsburgh, Sr. Biological Scientist, verifies the completed data and downloads it from the laboratory computer to her computer. She then formats it so that it is accessible to everyone including volunteers, state agencies, consultants, etc.

It’s impressive to say the least. But our work doesn’t end there. Once the data are safely stored in a database, our staff processes thousands of data requests each year, along with a number of information circulars, scientific publications, graduate student projects, etc. Not bad for a program that began with the simple idea that citizens could collect their own water samples and then work with scientists, politicians, water managers and others to increase our knowledge about Florida’s vast aquatic habitats. To coin a phrase, “it takes a village to manage a lake” and we’d like to thank everyone who has contributed and continues to contribute. Your efforts make this program a reality, year after year. So, Happy Birthday! We hope you’re enjoying your lake just a little bit more this month.

LAKEWATCH would also like to acknowledge the agencies, groups, and organizations that serve as collection centers for our water samples. Without use of these facilities, we would not be able to store and process thousands of samples across the state each month. Please take a few moments to read the list below and remember to thank these folks, if you have the chance. If we’ve forgotten anyone, please let us know so we can give credit where credit is due!

Businesses and Professional Organizations

Alligator Inn (Osceola)*
Grand Tours (Charlotte)
International Game Fish Assoc. (Broward)
Lake Placid Marine (Highlands)
Palm Coast Development (Flagler)

Citizen Groups

Choctawhatchee Basin Alliance
(Walton, Okaloosa)
St. Andrew Bay Resource Management
Association (Bay)

City and County Agencies

Casselberry Stormwater Utilities (Seminole)
Deering Estate at Cutler (Miami-Dade)
Keystone Heights-City Hall (Clay)
Lake County Growth Management (Lake)
Lake County Water Authority (Lake)
Lake Region Lakes Management District
(Polk)
Loxahatchee River District (Palm Beach)
Melrose Fire Station (Putnam)
Ocoee PPTD (Orange)
Orlando Stormwater Utility Bureau (Orange)
Sacred Heart Rescue (Walton)
Seminole County Fire Dept. (Seminole)
St. Joseph Bay Aquatic Preserve Apala-
chicola National Estuarine (Gulf)
Tropical Park (Miami-Dade)

Federal and State Agencies

Florida Keys National Marine Sanctuary
South Florida Water Management District
St. Johns River Water Management District
SW Florida Water Management District
U.S. Forest Service—Ocala National
Forest Visitors Center

Parks and Preserves

Boyd Hill Nature Park (Pinellas)
Camp Bayou Nature Preserve
(Hillsborough)
Conservancy of Southwest Florida (Collier)

Parks and Preserves (continued)

Crystal River Buffer Aquatic Preserve
(Citrus)
Gold Head Branch State Park (Clay)
Keystone Civic Association Park
(Hillsborough)
Lithia Springs Park (Hillsborough)
Maclay Gardens State Park (Leon)
Manatee Springs State Park (Levy)
Moccasin Lake Nature Park (Pinellas)
Nye Park (Hillsborough)
Sanibel-Captiva Conservation
Foundation and Tarpon Bay Lab (Lee)
Silver River State Park (Marion)

Schools

Okaloosa-Walton Community College
(Okaloosa, Walton)
Walker Memorial Junior Academy
(Highlands)

UF/IFAS Cooperative Extension Offices (listed by County)

Brevard, Citrus, Clay, Escambia, Flagler,
Hamilton, Highlands, Hillsborough,
Leon, Miami-Dade, Orange, Okeechobee,
Osceola, Santa Rosa, Seminole, St. Lucie,
Sumter, Taylor, Volusia, Wakulla,
Walton, and Washington

* County Location



“A lake cannot be all things to all people.”

While the statement above may not be too surprising, it's helpful to have numbers to back up a hypothesis and LAKEWATCH has done just that with its lake user survey project from last summer and fall (FLW VOL XXIV). Surveys were returned by volunteers from 116 lakes and, in recent months, the results have been processed and studied by our staff.

The project provided plenty of food for thought as well as fodder for a scientific paper that was written by FLW staff and submitted to Lake and Reservoir Management—an international peer-reviewed journal of the North American Lake Management Society (Hoyer, et. al).² As described in the paper, results from the survey show a strong connection between perceptions that lake users have about the physical properties of their lake water, the quality of the water and the actual trophic state of the lake.³

While the surveys were short and simple, with only two questions, the results are a little more complex. The first question on the survey (Question A) asked volunteers to describe the physical condition of their lake water on the same day they collected samples for LAKEWATCH. They were given five answers to choose from:

- 1) Crystal clear
- 2) Not quite crystal clear, a little algae visible.
- 3) Definite algal-related green, yellow, or brown coloration apparent in the water
- 4) High algal levels with limited water clarity and/or mild odor apparent.
- 5) Severely high algae levels with one or more of the following: massive amounts of floating scum on lake or washed up on shoreline; strong foul odor; or a fish kill.

Results from this first question showed that, in general, people's opinion about the physical condition of their lake water seemed to correlate with the actual amount of algae in water that day (i.e., measured as chlorophyll concentrations). However, it was interesting that for each of the five responses that people chose, there was a surprisingly wide range of chlorophyll concentrations. For instance, volunteers who described their water as “crystal clear” (response #1) submitted water samples that, when analyzed, contained chlorophyll concentrations ranging from less than one microgram per liter ($\mu\text{g/L}$) to 12 $\mu\text{g/L}$. People who described their lake as “not quite crystal clear” (response #2) also had a wide range of chlorophyll values for their lake samples - ranging from just over one $\mu\text{g/L}$ to



Jim Decker

Lake Reedy in Polk County

as high as 100 $\mu\text{g/L}$. As the authors pointed out in the paper, people's ideas about water clarity are obviously very different.

The same was true for the second question (Question B). Volunteers were asked to choose one of the following five responses that best described their opinion of how suitable their lake water was for recreation and aesthetic enjoyment:

- 1) Beautiful, couldn't be nicer
- 2) Very minor aesthetic problems; excellent for swimming
- 3) Swimming and aesthetic enjoyment slightly impaired due to the presence of algae
- 4) Desire to swim and level of enjoyment is substantially reduced due to the presence of algae
- 5) Swimming and aesthetic enjoyment of lake nearly impossible due to the presence of algae.

Again, responses showed a correlation between people's perception of water quality and the amount of algae in their lake at the time (i.e., the lake's trophic state). The survey results also suggest that there seems to be regional differences in people's opinions about water clarity and water quality: volunteers who live on lakes in the Central Valley Lake Region in Florida, an area with limited water clarity—due to the lakes being situated in nutrient rich soils—showed more acceptance toward algae in their lakes whereas those who live in the Trail Ridge Lake Region (i.e., an area with low nutrient soils and clear-water lakes), generally were less tolerant of high algae concentrations.⁴

This was not a surprise to FLW staff who have gotten to know hundreds of volunteers over the years, many of which have moved here from other states. As one would expect, people bring their opinions with them, and they are usually based on previous experience.

For example, someone from Iowa who is used to lakes with 1-foot visibility and is now living on a lake with an average 4-foot Secchi depth may have chosen answer number one for question B (beautiful, couldn't be better) and someone from Maine, who is used to lakes with 20-foot visibility and is now living on a lake with a 3-foot Secchi depth, might choose answer number four.

Aside from looking for relationships between lake user opinion and actual water chemistry, the study underscores questions that arise when we use the words water quality and water chemistry interchangeably, as if there is no difference between the two. In the paper, lead author Mark Hoyer makes the point that water quality can only be measured after first defining the desired use of the waterbody and also our preconceptions about what constitutes “good” water quality versus “bad.” In other words, “A lake cannot be all things to all people.”

Even though the LAKEWATCH study was done on a fairly small scale, it confirms what was learned in earlier lake user surveys conducted in Minnesota and Vermont (Smeltzer and Heiskary 1990). It's also helped FLW staff develop ideas for future surveys. In fact, FLW hopes to do more projects that will include a number of lake residents from each lake and also broaden the scope to include factors other than algae such as aquatic plants, fish, birds, etc.

Many thanks to the volunteers who participated in this project!

2 Mark V. Hoyer, Claude D. Brown, and Daniel E. Canfield, Jr. “Relations Between Water Chemistry and Water Quality as Defined by Lake Users in Florida.”

3 The phrase “trophic state” refers to a lake classification system. Using this system, a waterbody can be grouped into one of four categories based on its level of biological productivity (i.e., the amount of algae or plants). For this project, FLW used chlorophyll measurements as its criteria for determining trophic state, which was then compared with volunteer survey responses collected on the same sampling date. For more about trophic state see: <http://lakewatch.ifas.ufl.edu/circpdffolder/trophic.pdf>

4 Lake Regions are further defined in a report entitled *Lake Regions of Florida* (Griffith, G.E. et al. 1997). For a basic description of the project, see *Lake Regions: A Classification System*, available on-line at:

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

Volunteer Bulletin Board

Attention Volunteers: 'GPS' Coordinates Needed

When LAKEWATCH began, the cost of purchasing a Global Positioning System (GPS) device was in the thousands of dollars, making them out of reach for most volunteers and even our research staff. So, for a long time, only one lake location coordinate (latitude/longitude) has been recorded for each lake—usually Station #2 in the center of the lake—and it was estimated using geological survey maps, etc. As a result, many lakes have only one coordinate available and even that may not be representative of the exact location being sampled.

Now that GPS technology is considerably cheaper (around \$200), many volunteers have purchased them for their own use on lakes and along the coast. This means that many of you can help us out immensely by taking a few minutes during your next monitoring session to jot down the GPS coordinates for each station being sampled. This will allow us to provide a more accurate documentation of your monitoring sites on the LAKEWATCH database, as well as the U.S. EPA STORET database.

If you've already collected these numbers and turned them into your regional coordinator, please pat yourself on the back and accept our heartfelt thanks. If you don't have a GPS, there's a good chance your neighbor does and maybe he or she would be willing to join you on your next sampling session. (It's also a good way to introduce folks to LAKEWATCH!) Coordinates can be passed along to the LAKEWATCH Office in any of the following ways:

Phone: 1-800-LAKEWATCH (800-525-3928)
Fax: 352/392-4902
E-mail: lakewat@ufl.edu
Samples: Package it along with your monthly water samples.
Mail: Florida LAKEWATCH
7922 NW 71ST Street
Gainesville, FL 32653-3071

Thanks for your help !

Hot Off the Press! Information Circular 107 A Beginner's Guide to Water Management —

This 16-page publication was inspired by the many questions that lake volunteers and other lake residents have had regarding the causes of fish dying in their lake. In an effort to alleviate some of these concerns, as well as inform the general public, we've compiled a list of five of the most common natural causes of fish kills (low dissolved oxygen, spawning fatalities, mortality due to high water temperatures, diseases and parasites and toxic algae blooms). Human-induced fish kills are also covered along with the effects of fish stress—a component of virtually every fish kill situation. Should a fish kill occur in your area, the last section of the publication provides steps you can take to help determine the cause. A list of fish health diagnostic laboratories is provided on the back cover for those who want to take a more active role.

Look for your copy in your annual data packet, your annual Volunteer Appreciation Regional Meeting. You can also contact the FLW office, or by downloading a free copy (a PDF file).

<http://lakewatch.ifas.ufl.edu/LWcirc.html> Phone: 352/392-4902
E-mail: lakewat@ufl.edu

LAKEWATCH Data

In addition to our 17th birthday celebration, FLW is happy to announce that our data set is now available on STORET, a database administered by the Environmental Protection Agency (EPA). STORET is an acronym for STORage and RETrieval. It stores water quality data for the entire nation.

Thanks to Kyle Campbell and Sean Landry at the Florida Department of Environmental Design and Research, the LAKEWATCH's raw data has been made available on-line: <http://storet.dep.state.fl.us>. (Kyle and Sean are also the authors of the on-line water atlas for Hillsborough, Seminole and Polk counties.)

STORET is a primary data source used to create the annual Florida Water Quality Congress (305(b) report), which evaluates the status of water quality in Florida. Data from STORET are used, along with other sources, to evaluate water quality standards and require the development of new standards. STORET is also used in watershed analysis, monitoring program evaluation, public information requests, and evaluation of fishery restoration.

A word of advice: Don't be too upset if you have a hard time using STORET. It is quite cumbersome and even data professionals have a hard time using it. It is just one way citizens and scientists can access our data. We will continue to maintain its own database and makes data available to the public in a variety of basic easy-to-use formats: Summaries for each lake are available and provided electronically within a spreadsheet or a data table. The data is also formatted to be user friendly and include tables (lists of data) and graphs that provide a nice visual comparison of the water quality.

If you have any questions, comments, or concerns, please contact the STORET hotline: 1-800-424-9067 or visit: <http://storet.dep.state.fl.us>

If you would like to request data directly:

Phone: (800) LAKEWATCH (525-3928)
E-mail: lakewat@ufl.edu
Fax: (352) 392-4902

* For more on TMDLs, visit <http://www.dep.state.fl.us>

*Spencer
and Taylor
Smolen
help
sample
Lake Fuller
in Walton
County,
during the
summer.*



Phillip Ellis

Project COAST Update

For years, scientists have been documenting the influence that nutrients (phosphorus and nitrogen) have on chlorophyll concentrations (algae) in freshwater lakes. After much research, it can be said that, in general, phosphorus is the nutrient with the greatest potential for encouraging algal growth in freshwater systems. In recent years, scientists have been using this hard-earned knowledge to try and manage nutrient inputs, usually phosphorus, into lakes as a way of limiting algal growth. Sometimes they use the information to develop scientific models for predicting how their management activities will impact the biological productivity or “trophic status” of lakes.

In Florida, scientists have only recently begun to examine these same nutrient-chlorophyll relationships for the purpose of managing algal growth in nearshore coastal waters. But before they can be effective, one major question needs to be answered: are the nutrient-chlorophyll relationships that are already developed for freshwater lakes applicable to managing nearshore coastal waters? If so, Florida’s coastal areas could be managed with the same management tools that have been established for freshwater.

As many of you will remember, LAKEWATCH initiated a coastal monitoring effort in 2000, known as Project COAST, to try and gather data to answer that very question. For two intense years, COAST volunteers worked with FLW staff to survey more than 300 nearshore coastal sites around the entire state. Once the data were collected and the numbers “crunched,” the project revealed a rather interesting surprise, plenty of new questions, and it even inspired the publication of a research paper.⁵ The surprise: For some reason, the amount of chlorophyll “per unit of phosphorus” is about 75% less in algae sampled from Florida’s nearshore coastal

waters (i.e., compared to chlorophyll-phosphorus relationships found in freshwater lakes). While the study doesn’t offer an outright explanation for this phenomenon, it does a good job of documenting differences between phosphorus-chlorophyll relationships in marine waters versus freshwater lakes.

Another interesting finding from our first crack at examining coastal waters is the fact that, like freshwater lakes, phosphorus is probably the major limiting nutrient in nearshore coastal waters. In other words, if large amounts of phosphorus are introduced into nearshore coastal waters, it will most likely spur algal growth, but if the amount of phosphorus is limited, algal growth will be limited. This is interesting, considering that most coastal researchers believe that nitrogen is the primary limiting nutrient. While a lot of additional research needs to be done in the nearshore coastal waters of Florida, these two findings will help set the direction for future research.

The sad news is that funding for the Project COAST component of our program has not been continued due to state budget constraints. But the good news is that, we are dedicated to maintaining the ones we have started, even if we don’t have the funds to expand COAST. We are also convinced that the data we collect through this program will advance the limited knowledge that exists about our nearshore coastal waters and help in their management.

FLW owes a belated but enthusiastic thanks to all the volunteers who sampled and/or assisted our staff for this project, and who continue to sample their coastal waters. Your efforts are helping to forge a path toward better management of our state waters—both fresh and salt.

⁵ Mark V. Hoyer, Thomas K. Frazer, Sky K. Notestein, and Daniel E. Canfield, Jr. 2002. Nutrient, chlorophyll, and water clarity relationships in Florida’s nearshore coastal waters with comparisons to freshwater lakes. *Canadian Journal of Fisheries and Aquatic Sciences*. Volume 59. Number 6. pps1024-1031



Lake Stalworth, one of Florida’s unique dune lakes found in Walton County, is temporarily connected to the Gulf of Mexico, as shown here.

Phillip Ellis



Fish Kills

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which will be mailed or hand-delivered at your
u can also obtain a copy by calling or e-mailing
F file) off our website at:

one: 1-800-LAKEWATCH (1-800-525-3928)
@ufl.edu

Now on STORET

happy to announce that its complete water chemistry
ministered by the U.S. Environmental Protection
and RETreival and is a data repository used to

University of South Florida/Center for Community
has been uploaded to STORET and can be accessed
e the same talented individuals who put together an
lk counties.)

the National Water Quality Inventory Report to
f water quality in the nation every two years. Data
determine which of the state’s waters fail to meet
of Total Maximum Daily Loads (TMDLs)* It is
evaluation and planning, water quality standards
n of water quality conditions for habitat and

trouble navigating through the STORET system as
ve a hard time using it. But do not fear. STORET
ata. As always, LAKEWATCH continues to
o anyone who requests it. We provide it in three
e available on our web-site; raw data can be
packet can also be requested. The packets are
of numbers for each monitoring station) and also
ater chemistry from month to month.

rn about Florida STORET, call the EPA
/www.dep.state.fl.us/water/storet/index.htm.

ly from LAKEWATCH, contact us at:
5-3928) or (352) 392-4817

/water/tmdl.

Featured Fish:

Gizzard shad & threadfin shad

The term *shad* is commonly used by anglers to describe a variety of small forage fish that inhabit both saltwater and freshwater environments. While most shad species live in saltwater, there are a few that thrive in freshwater lakes—especially highly productive or *eutrophic* lakes.⁷ Gizzard shad and threadfin shad are two species commonly found in Florida lakes, and lately, they have become a hot topic within the state's water management circles.

A number of scientists and lake managers are theorizing that both algae and phosphorus concentrations can be reduced in a lake by removing as many of these fish as possible. Their reasoning is based on three simple hypotheses:

- Because shad store phosphorus in their bodies, removing them from a lake would be a fairly easy way of reducing the overall amount of phosphorus in a lake system.
- Because shad populations feed primarily on zooplankton,⁸ some scientists theorize that, in nutrient-rich lakes, the food chain dynamic results in higher algal populations. (i.e., Algae are the main food source for zooplankton; so if zooplankton are consumed in large quantities, algae will be abundant.)
- Large schools of shad act as nutrient “pumps” because they are constantly

⁷ The term *eutrophic* is used to describe lakes with a high level of biological productivity, including large amounts of algae and/or aquatic plants. For the purposes of this article, it is used to describe lakes with large concentrations of algae (between 7 and 40 micrograms per liter [$\mu\text{g/L}$]).

⁸ Tiny free-floating animals that drift in the water current, mainly small crustaceans and fish larvae.

⁹ Martin Sondergaard, Erik Jeppesen, Jens Peder Jensen and Torben Lauridsen. *Lake Restoration in Denmark. Lakes & Reservoirs: Research and Management* 2000 5: 151-159.

¹⁰ Rotifers are minute aquatic multicellular organisms with a feathery wheel-like organ for feeding and locomotion; they are constituents of freshwater plankton. Source: WordNet (r) 1.6, (c) 1997 Princeton University.

11 Phytoplankton – Microscopic free-floating or drifting aquatic plant-like organisms;

Zooplankton – Tiny free-floating animals that drift in the water current, mainly small crustaceans and rotifers; **Detritus** – Dead or dying plant or animal material.



Gizzard shad (*Dorosoma cepedianum*)

Dr. Mike Allen



Threadfin shad (*Dorosoma petenense*)

FWC

disturbing bottom sediments in their search for food. Not only does this contribute to turbidity problems in a lake, but it also reintroduces nutrients that would otherwise would have settled to the bottom.

Based on these theories, a number of lake managers are wanting to remove large numbers of shad from nutrient-rich lakes, as a way of reducing algae. In fact, this very technique was recently tried on Lake Apopka in central Florida but the verdict is still out as to whether or not it had an impact; algae levels remain high in the lake and there is some question as to whether or not enough shad were removed for the effort to be successful. A lake restoration study done in Denmark, shows that 80% of a lake's shad population must be removed before algae concentrations can be lowered.⁹

Gizzard shad (*Dorosoma cepedianum*)

Both gizzard and threadfin shad are rather thin and flat, or laterally compressed as the scientists like to say. Gizzard shad are the larger of the two species, measuring up to 20 inches in length. With silvery scales and blue-green reflective hues shimmering along its back, it's a handsome fish, even if it is considered “just a bait fish.” A dark purple-blue spot can usually be found near the upper edge of its gill cover in young and small adults but is faint or absent in fully adult fish. At times, six to eight dark stripes are visible along its back and upper side. It has a saw-tooth or serrated edge along the bottom (i.e., its belly) with dusky or dark gray fins.

Both the gizzard shad and threadfin have a long thin ray at the base of the dorsal fin. However, gizzard shad are missing the small black specks found on a threadfin's chin or floor of the mouth.

This fish enjoys a wide distribution from the St. Lawrence River/Great Lakes area, throughout the Mississippi, Atlantic and the Gulf of Mexico. In Florida, they spawn in the spring as water temperatures increase, primarily from March to April. Its adhesive-like eggs are released into shallow open water or near aquatic vegetation. Large post-spawn die-offs are common with gizzard shad populations, sometimes causing alarm among lake residents. (For more on this, see our new Fish Kill circular at <http://lakewatch.ifas.ufl.edu/LWcirc.html>)

Young gizzard shad feed mostly on protozoa and rotifers.¹⁰ Adults eat phytoplankton, zooplankton, and detritus, which is one reason they tend to be found in “hard-water” nutrient rich lakes. They are most common in deep, open water of medium to large rivers, lakes and reservoirs, but have been known to swim up small rivers with well-developed pools. They are also found in brackish water.

Gizzard shad are not considered sport-fish. (Their habit of producing copious amounts of slime might have something to do with this.) However, young gizzard shad are an important primary food fish for largemouth bass, sunshine bass, and black crappie in many Florida lakes.

Threadfin shad (*Dorosoma petenense*)

Threadfin shad have a more pointed snout and its mouth is located right at the end (i.e., a “terminal mouth”) whereas the gizzard shad's mouth is located just below the snout. Growing to around nine inches at most, threadfin shad are the smaller of the two fish. Their yellow fins provide the most obvious distinguishing characteristic from the gizzard shad. Also, threadfin shad have small black specks on its chin or floor of the mouth. Something the gizzard shad does not have.

Young threadfin shad eat virtually the same food as the gizzard shad and therefore is also commonly found in nutrient rich lakes, backwaters, and pools in medium to large rivers. They're usually found in open water over sand, mud or debris.

The cattle egret (*Bubulcus ibis*) is the land-lubber of the heron family, mostly foraging for its food in dry or moist upland habitats at the feet of large cattle or behind mowers or tractors. Their unique feeding technique is dependent on capturing insects disturbed when large animals and/or machines pass by. In fact, of all its wading bird cousins, the cattle egret is the least dependent on aquatic animals for food. (Grasshoppers are a favorite food item.) And yet, even though they're rarely seen wading in water, cattle egrets seem to prefer nesting or roosting in trees and bushes that are right next to a waterbody or very close by. Often they'll outnumber all other wading bird species in an area.

Sporting a yellow bill, yellow eyes, and relatively short black legs, the cattle egret is about the same size as the snowy egret. Its dark black feet provide one sure way to distinguish it from the snowy, which is famous for its yellow "slippers." In breeding plumage, the cattle egret develops rust colored wisps of feathers on its head, back and chest. Because it is similar in appearance to a number of waders (e.g., the snowy egret, or the little blue heron in its juvenile phase), the Cattle Egret is sometimes maligned by bird watching novices who initially think they are setting their sights on a wading bird only to watch it land in an open field or on the back of a cow—a very un-cool thing for a wading bird to do.

Traveling in flocks, these birds are a familiar sight along Florida's roadsides, pastures, and prairies. They are thought to have made their way from their native South Africa to northern sections of South America on the winds of a tropical storm. Once there, they were able to expand their range both north and south and are now somewhat infamous for their rapid expansion into North America. Virtually unknown in the United States until 1942, the Cattle Egret now breeds from New England west to southern Ontario and Minnesota, and south through central Texas into Mexico. It also summers regularly in Arizona, New Mexico, and California. It was first reported in Florida at Clewiston in Hendry County in 1941 or 1942 (Crosby 1972). Within twenty years, breeding populations were reported throughout most of the state.



Dan Sudia

Cattle egret (*Bubulcus ibis*)

Their nests consist of a platforms of sticks that hold two to 5 blue-green eggs, which hatch in 21 to 24 days. Once hatched, the young fledge in 40 to 45 days. Nesting generally occurs during late spring and summer, somewhat later than other wading birds.

Because they like to roost in large numbers near water, the cattle egret is capable of causing a nutrient problem for some lakes, as bird droppings can raise a lake's nitrogen concentrations rather effectively.

Even though these birds are considered an exotic species, there is some concern among bird enthusiasts that breeding numbers may be dwindling. Comparisons of statewide colony surveys from 1976-78 and 1986-89 suggest a dramatic decline in breeding numbers; however, the magnitude of the decline is difficult to estimate

due to differing methods in the two surveys (Runde et al. 1991). Causes for the decline could be due to loss of wetlands for breeding habitat, conversion of agricultural pastures to other uses, and the nomadic movements of birds to other breeding locations in the United States.

Sources

Florida's Breeding Bird Atlas
<http://wildflorida.org/bba/CAEG.htm>
Author: Bruce Anderson

The Wild Things website
FGCU (Florida Gulf Coast University)
<http://wildthings.fgcu.edu/transcripts/script140.html>; Author: Jerry Jackson

Florida's Fabulous Waterbirds: Their Stories
Third Edition 1983 (c) National Art Services, Inc.; Author: Winston Williams

You may have noticed that fish and bird names used in the newsletter appear by their common name first (e.g., gizzard shad) and then are followed by the scientific name (e.g., *Dorosoma cepedianum*). Because the common name of an animal may vary from place to place, some people, especially scientists, like to rely on the scientific name for identification. Scientific names generally consist of two Latin-based words; both of which are italicized. For example, the scientific name for the gizzard shad is *Dorosoma cepedianum*. The first word — *Dorosoma* — refers to the genus group that the fish belongs to; it will always be capitalized. The second word — *cepedianum* — refers to a smaller, more specific group within the genus *Dorosoma*, and so it is not capitalized. At times, you may see a three-part scientific name. This is used for animals identified as a subspecies.

Youth Education

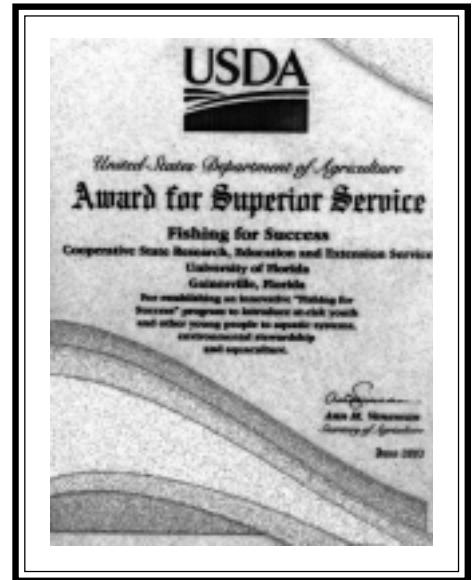
Fishing For Success Earns Top Award

Our very own Fishing For Success (FFS) program is proud to announce that it was recently awarded the USDA's highest recognition for outstanding contributions to agriculture and consumers. The award was given for "Enhancing the Capacity of All Rural Residents, Communities and Businesses to Prosper."

FFS Co-director, Dr. Dan Canfield, Jr. traveled to Washington to accept the award on behalf of the FFS team. The 57th Secretary's Honor Awards Ceremony was held on June 13.

Fishing For Success (FFS) is a multi-faceted public outreach program that introduces children of all ages to Florida's freshwater environments. Using fishing as the "hook," FFS connects youth with the challenge and fun of fishing, as well as career opportunities in the fields of fisheries and environmental sciences. Last year, the program served more than 13,000 youth and their families.

For more information, contact Steve Caton at 392-9617 ext 270 or Amy Richard at ext 228.



LAKEWATCHer Wins Disney's American Teacher of the Year Award

Gail McGoogan was surprised when she heard her name called out as Disney's American Teacher of the Year, but we weren't. Mrs. McGoogan is a fourth grade teacher at the Narcoossee Community School in St. Cloud, Florida (Osceola County) and like many FLW volunteers, she is passionate about helping her community. In her case, this includes an incredible dedication to teaching.

LAKEWATCH is just one of the many projects she's introduced to students. As Principal Bill Dwyer said, "She's very creative. She goes the extra step to try to have her kids experience the lesson that's being presented." In addition to sampling Cypress Lake with her class—as part of an on-going lesson in freshwater ecology and stewardship—students and their parents have been involved in planting and tending butterfly gardens; building pioneer cabins and Seminole chickee hut as part of a "living" museum; and most recently, they hosted an all-night school slumber party so students could participate in an international video conferencing project that put them in touch with their peers in 21 of the world's 24 time zones. Of course, we were delighted to hear that students in Nepal, Uzbekistan, Japan, Australia, etc. have all learned about LAKEWATCH as a result.

McGoogan, earned top honors as the "outstanding" elementary teacher in this year's Disney's American Teacher Awards. She was among 32 teachers who were chosen

from across the nation, out of more than 185,000 nominees! Winners were honored in July at a Disneyland ceremony in California.

A former dance instructor, Mrs. McGoogan decided to go to college for a teaching degree in her 50s and is now a 10-year veteran of Osceola County schools. She's won numerous accolades for her imaginative hands-on approach to teaching. She hopes to use the \$10,000 school prize money on a project that will benefit her students and the community, including expansion of their involvement with water monitoring and other aquatic education projects.

Mrs. McGoogan attributes her success to three simple words, a mantra of sorts: Passion, Patience and Partnerships. As she says so eloquently, "My passion is that students learn. Patience ensures that job gets done. Yet nothing would be possible without partnerships with parents and others."



Mrs. Gail McGoogan, one of Disney's American Teachers of the Year, with Mickey Mouse.

Florida LAKEWATCH

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