Florida
LAKEWATCH

Dedicated to Sharing Information About Water Management and the Florida LAKEWATCH Program Volume XXVIII 2004

LAKEWATCH Taken to a New Level

Since the program began in 1986, Florida LAKEWATCH (FLW) has put together a top-notch team of regional coordinators and laboratory technicians who are dedicated to working with thousands of volunteers throughout the state. But it hasn't been easy. Serious budget cuts in recent years have resulted in a roller coaster ride for some of our staff and a bit of fancy footwork has been required to keep everyone onboard. And yet, here we are celebrating our 18th year, still going strong, and taking the program to a new level.

This year, in addition to our usual monitoring tasks, we are pursuing two major goals: First, we are working even harder to gain additional funding to make us stronger for the future, and secondly, we are making a concerted effort to leverage with other agencies and resources here at the University of Florida and throughout the state, so that we can potentially increase the number of lakes in the program and expand to coastal monitoring once again.

We've also done a little re-organizing and have successfully advanced each of our regional coordinators to new positions within UF/IFAS. Thanks to the knowledge they've gained from working with volunteers on all kinds of waterbodies, these individuals will now be sharing their expertise with UF/IFAS Cooperative Extension staff.* With only five FLW coordinators available, it can sometimes be difficult for us to serve (nearly) two-thousand volunteers, as well as the general public and water management personnel who call with questions on a daily basis. By partnering with the UF/IFAS Extension, we hope to provide expanded services and educational opportunities.

FLW Coordinators (clockwise from top-left) Dan Willis, Claude Brown, David Watson, Julie Terrell. Bottom left: UF/IFAS Extension Agent John Brenneman (left) visits with FLW Regional Coordinator Eric Schulz.

Some of our volunteers are already familiar with the Cooperative Extension Service as many of their county offices serve as collection centers. There are also a number of County Extension Agents who have been in front of the curve with their involvement in LAKEWATCH. One of them is John Brenneman, who serves in Hillsborough and Polk Counties. John and others like him, have been a tremendous asset to the LAKEWATCH program by conducting training sessions, holding lake and pond management seminars, and providing technical expertise to citizens when needed. It's what we call a win-win situation.

* *See sidebar on page 2 to learn more about the UF/IFAS Cooperative Extension Service.*

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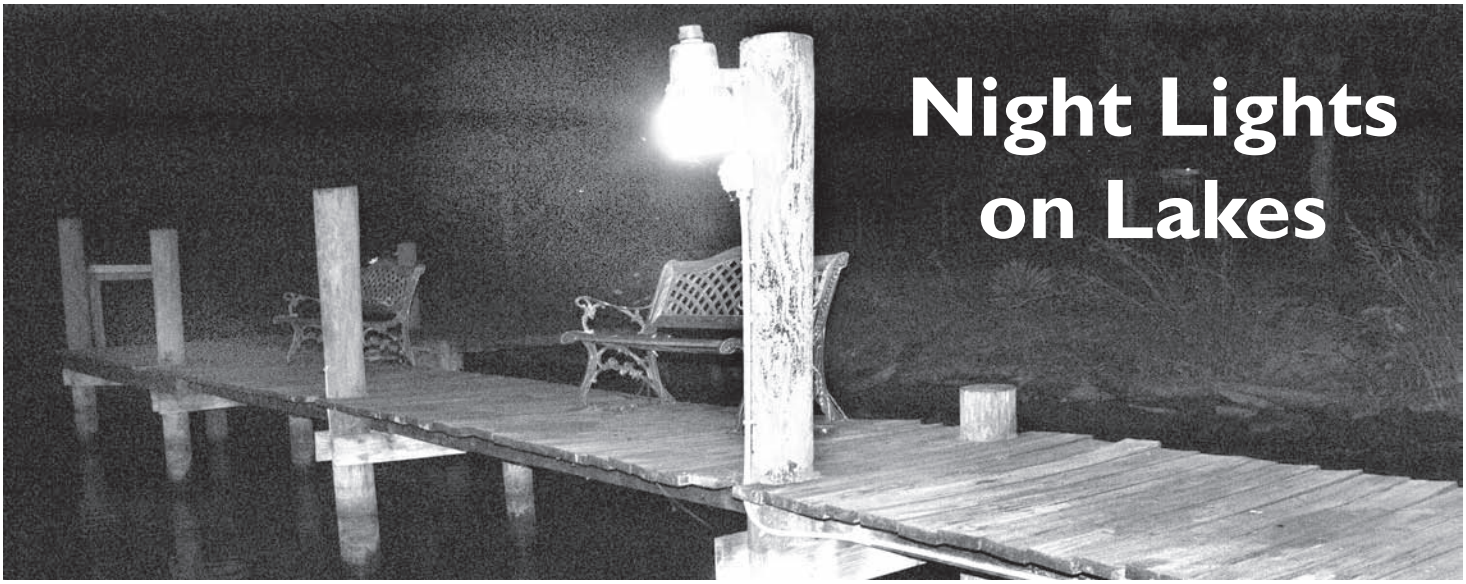

Night Lights on Lakes

Joe Richard

So, What Is "Extension"?

The term "extension" refers to hundreds of educational programs made available to Floridians every day, courtesy of the Cooperative Extension Service. The Service is a partnership of county, state, and federal governmental agencies working in coordination with the University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS) and selected programs at Florida Agricultural and Mechanical University (FAMU).

In keeping with the spirit of the University's original land grant college, the Extension Service provides outreach and training to the general public on a wide variety of topics including food safety, gardening, child and family development, consumer credit counseling, youth development, energy consumption, sustainable agriculture, competitiveness in world markets and natural resource conservation.

If you live in Florida, there's a good chance you've benefited from UF/IFAS Extension at some point in time — by attending the numerous (free) educational workshops held throughout the state, or from information found in UF/IFAS literature and bulletins. To learn more about it, see their Web site: ***http://ifas.ufl.edu/extension/ces.htm***

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At virtually every regional meeting, we receive questions from volunteers about various aspects of lake ecology and water management. We enjoy the questions because, undoubtedly, they allow us to learn something new right along with our volunteers. For example, one individual recently asked whether or not artificial nighttime light is having a detrimental effect on lakes. Hmmm. That was one we hadn't heard before. However, after a little digging, we found some interesting work being done by an aquatic ecologist at Wellesley College in Massachusetts:

In 1997, Marianne Moore and her research team began exploring the relationship between artificial nighttime light and the vertical migrations of *Daphnia*, freshwater zooplankton that feeds near the surface at night and typically relies on a reduction in sunlight as a signal to begin moving up through the water column each evening.

During a new moon phase (i.e., when no moonlight was detected), Moore compared the vertical movements of *Daphnia* within both black and clear plastic enclosures in a suburban lake near Boston, Massachusetts. The two types of enclosures were used to compare dark and light nighttime environments, respectively.

The study found that movements of the organisms were significantly greater in amplitude (e.g., two meters higher) and magnitude (e.g., 10-20 percent more individuals) within the black enclosures.

Because *Daphnia* responded in a more normal fashion within the black enclosures — which simulated a dark night — Moore and her colleagues concluded that light pollution reduces both the amplitude and magnitude of the organism's movements near the surface. As a result, Moore speculates that increased amounts of surface algae may be left unconsumed by the zooplankton and potentially lead to algal blooms and a change in water quality.

In related studies, Moore is now looking at the intensity and penetration of artificial light on lakes at night. Interestingly, the spectra of artificial light that was measured on both the urban and suburban lakes in her study were nearly identical. Both were dominated by light from the yellow part of the electro-magnetic spectrum and closely matched emissions from high pressure sodium street lamps, the most common lamp used in the U.S.

Moore suspects that levels of artificial light on urban lakes are similar to the light intensity emitted from a full moon, but this has yet to be determined. At the surface of Boston lakes, relative intensities of artificial light increased three- to six-fold along a suburban to urban gradient. Cloud cover increased incident levels of artificial light three- to four-fold.

In one of her most recent papers, Moore writes that artificial nighttime light may be influencing the spatial distribution (i.e., the physical location) of many types of aquatic organisms including aquatic insects, fish and plankton.

For more about these studies, contact:

Dr. Marianne V. Moore
Department of Biological Sciences
106 Central Street / Wellesley College
Wellesley, MA 02481-8203
E-mail: mmoore@wellesley.edu

A LAKEWATCH Series...

1 2 3 4 5 6 7 8 9 10

Countless Ways to Use LAKEWATCH Data

Angler Diary Data Analyzed For First Time

Thanks to the generous efforts of 13 dedicated FLW volunteers, we now have hook and line fishing data from 219 separate "events," on 56 lakes. Angler Diary participants recently received a brief report from David Watson. It is the first full-scale analysis of the project since it began in 2000.

In addition to establishing baseline fisheries data for individual lakes, we were also able to gather some interesting catch rate information (aka *catch per unit effort* or CPUE). For example, we thought it was pretty impressive that participants in our angler diary project had higher catch rates than the state average for both largemouth bass and panfish (bluegill, redear and warmouth). FLW anglers caught an average of one largemouth bass per hour (0.90 CPUE), and almost 2 panfish per hour (1.87 CPUE), whereas the state averages are 0.34 and 1.7, respectively. Black crappie catches were a little less than the state average — about one fish per hour compared to the state average of 1.4 — which may be attributed to the fact that most anglers involved in our project were not targeting black crappie.

As promised, details related to each diary will remain confidential. However, we can share a few general observations: For black crappie fishing, Lake Lulu in Polk County had the best catch rate of 2.44 fish CPUE; for largemouth bass, Lake Minneola took the prize with an average of about six and a half bass per unit of effort; and for panfish, Lake Lulu in Polk County and Floral City Lake in Citrus County were just about tied in fishing catch rates of around six fish per unit of effort.

As David Watson observed recently, "Not only do our volunteers exceed at water monitoring, but we also have some very successful anglers in the program!" David encourages folks to continue to fill out angler diaries when they go fishing; it takes just a few minutes to measure and record your catch and the information can help us manage our fisheries more effectively. And besides, even a bad day of fishing is better than a good day at work!

Steve Weinsier

Larry Simon (left) and David Watson (right) get ready to scoop fish during an electro-fishing sampling session on Highland Lake in Miami-Dade County.

Half-way There:

FLW Continues Long-term Fish Study

At a time when legislators and taxpayers are asking for more efficiency within publicly-funded programs, one long-term research project stands out as a shining example of cooperation among agencies, educational institutions, and the state's citizenry. This year (2004) marks the half-way point of a 10-year fish population study that utilizes the talents of LAKEWATCH staff, volunteers, researchers at the UF/IFAS Department of Fisheries and Aquatic Sciences (FAS) and the Florida Fish and Wildlife Conservation Commission (FWC). Their goals are three-fold:

1) To examine long-term variation in fish populations from a range of lakes, as it relates to water chemistry;

2) To learn more about the interaction among fish populations in Florida lakes, and disseminate the information to the public;

3) To facilitate a cooperative partnership between citizens and individuals within water and wildlife management.

Due to financial constraints, the number of lakes involved in the study was limited to 32, all of which were specifically chosen to represent the diverse "lake types" found throughout the state (i.e., with a wide variety of trophic states and aquatic plant abundance).

Actual fish sampling duties continue to be shared by all the parties involved:

- FWC biologists and Dr. Mike Allen (FAS) sample fish and collect data using trawling techniques. They're also responsible for storing all the data for the project;
- FLW volunteers provide monthly water chemistry data;
- FLW staff do all the water chemistry analysis as well as aquatic plant sampling every other year, in each lake. They also prepare the annual reports and have generated bathymetric maps for nearly all of the lakes.
- FLW and FWC staff share in electrofishing duties and when feasible, volunteers assist and provide lake access.

As a result of the project, data will finally be available for assessing how fish populations change in lakes over time. Additionally, scientists hope to determine if certain lake characteristics (e.g., water chemistry, aquatic plant abundance and lake shape) are affecting the recruitment* of sportfish.

The timing has been ideal as the ten-year span for the study just happens to include several years' worth of data during extreme drought conditions. Data from these lakes should yield extremely useful information on the effects that low water conditions have on fish populations, versus "normal" and/or high water levels.

Director's Note: While we would love to be able to do these types of studies on many more lakes, it is simply not feasible. However, we would like to encourage folks to consider participating in our Angler Diary program, as another good way of gathering meaningful long-term fisheries data.

**Recruitment refers to the speed at which sportfish reach reproductive capability or enter a fishery.*

From the Water Lab

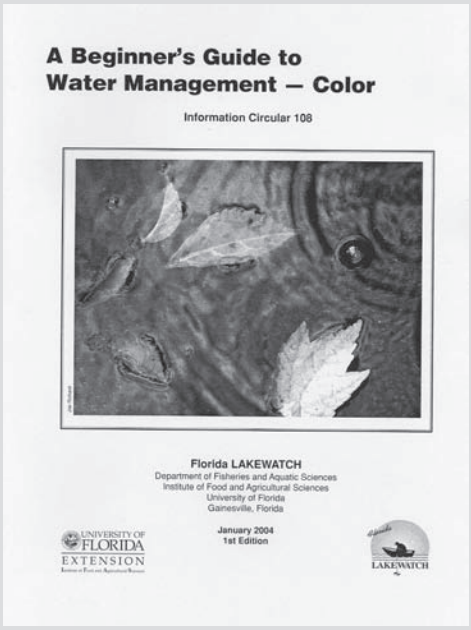
Before finishing your lake monitoring duties each month, please check your data sheet and water bottle labels for accuracy. Be sure to double-check the station locations and their numbers and remember that sampling stations should be consistent from month to month. In other words: Stations 1, 2, and 3 do not simply refer to the order in which you happen to collect samples on a given day, but should instead refer to fixed GPS locations. Thank you and keep up the good work!

No longer sampling?

If you are no longer able to monitor your lake, please let us know as soon as possible so that we can find a new volunteer to train and continue the work that you started! It will also enable us to maintain consistent data if we can train someone before the next sampling date arrives.

Kit Round-Up

If you are no longer able to sample and you have sampling materials that are in your way, collecting dust, let us help! Please give us a call and we'll make arrangements to pick up the materials so that we can re-vamp them and re-use them. Like everything else these days, the kits have become more expensive, so we need to be even more diligent in collecting and re-circulating the unused materials. Thanks for your help!



New Circular

A Beginner's Guide to Water Management — Color

(Information Circular # 108)

Aside from water clarity, the color of water in a lake is one of the main attributes that captures people's attention, particularly if the color begins to change. As this circular explains, such changes can affect more than just the visual appearance of a waterbody. In some instances, it can influence biological productivity, including the abundance of aquatic plants and/or algae.

The good news is that most color changes are the result of naturally occurring processes within the watershed or the lake itself. Topics of discussion include: apparent color, true color, suspended and dissolved substances, light attenuation, and nutrients. The last section provides two empirical models (equations) that can be used to determine if color in a waterbody is the result of algae or suspended solids.
32 pages. 1st Edition. January © 2004.

All active volunteers have been receiving these booklets along with their annual data packets. Call for additional copies or download an electronic copy from the Web site:

1-800-LAKEWATCH (525-3928)
http://lakewatch.ifas.ufl.edu/LWcirc.html

2003 Data Summary Complete

The 2003 Florida LAKEWATCH data book is complete and about to be distributed to various agencies and libraries throughout the state. This is the twelfth year that we've published this type of report which is basically a summarization of limnology data collected over the span of a year. The three-volume set includes water chemistry for 620 lakes, 125 river/creek stations, 5 springs and 156 saline stations — all monitored by FLW volunteers in 51 counties.

This year's book is somewhat different in that all the basic water chemistry is compiled into Volume 1. Volumes 2 and 3 serve as an Appendixes and contain summaries from the Seasonal & Long-Term Trend Analyses being introduced this year. *Note: A summary of the Angler Diary Project is also included in Volume 1.*

This year's report will soon be available for viewing and downloading on our Web site and a limited number of compact disks (CDs) will also be available, upon request. Of course, the usual data packets (i.e., with all the raw data formatted into tables and graphs) can be obtained by request from the LAKEWATCH office.

Toll Free: 1-800-LAKEWATCH (525-3928)
Phone: (352) 392-4817
E-mail: lakewat@ufl.edu
Web site: http://lakewatch.ifas.ufl.edu

FYI: *A comprehensive summary of all FLW data collected from 1986 through 2001 is also available on the FLW Web site.*

Editor's Note: This year's data will soon be available on STORET, the Storage and Retrieval database administered by the U.S. Environmental Protection Agency and the Florida Department of Environmental Protection. Just like LAKEWATCH, the STORET database provides free, unlimited access to its data for all agencies and individuals. For more information, call 850/245-8335 or check out their Web site:

http://www.dep.state.fl.us/water/storet

ulletin Board

1994 - 2004

Secchi Dip-In Celebrates 10 Years

This year, the Great North American Secchi Dip-In will be ten years old and they have plenty to celebrate:

Their map of Dip-In activity in North America (www.dipin.kent.edu) continues to fill in with more than 28,000 transparency records from 6,222 waterbodies. They now have 100% coverage of at least one lake in every county in Massachusetts and Maine. Vermont and New Hampshire are missing only one county each.

While some data gaps do remain in the Southeast and arid West, there is now sufficient data to look at yearly trends in transparency for quite a few lakes. Thanks to the volunteers, there are more than 1,375 waterbodies with five or more years of data. Of these lakes, 53 exhibited significant decreases in transparency and 62 showed significant increases. (So far, investigations have not revealed what factors might explain the geographic distribution of these trends.)

The data are taken seriously and used to map transparency and to find changes of transparency over time. By working through pre-existing water monitoring programs, the Dip-In is able to provide quality data from trained volunteers across the continent.

Like the Dip-In, many volunteer monitoring programs are operating on a shoe-string budget, but with continued support from agencies like the U.S. EPA, the Dip-In will continue to provide the programs and their volunteers with a meaningful summertime event and useful information. The annual occurrence also reminds us that there is a great deal to be gained from working cooperatively to manage our water resources.

This year's Secchi Dip-In will take place June 26 - July 18.

For more information, check out their Web site: http://dipin.kent.edu/

Mark Hoyer

Lake Tohopekaliga Gets a Cleaning

Lakes have a habit of slowly filling in over the years. This process is known as **lake succession** and it begins the minute a lake is formed. In most cases, it takes many years before the process becomes noticeable. However, in Florida, there are numerous instances in which succession seems to be accelerating. An invasion of overly-aggressive aquatic plants, cultural eutrophication,* and lake water stabilization are three primary reasons cited for the acceleration.

All three factors have affected Lake Tohopekaliga, also known as "Lake Toho," part of the Kissimmee Chain-of-Lakes and long considered one of the state's best fishing lakes. Recently, scientists expressed concern that the rapid expansion of tussocks (floating mats of vegetation) and an accumulation of muck on the bottom threatened to affect the lake's ability to sustain a productive fishery. It was also hindering the ability of many people to use the lake.

And so plans were made by the Florida Fish and Wildlife Conservation Commission (FWC) to temporarily lower water levels so that accumulated organic matter could be scraped off the bottom and distributed on upland areas around the lake, when possible. Fortunately, a number of local ranchers welcomed the opportunity to spread the organic material on their pastures. However, due to logistical and financial restraints, not all of it could be moved upland. As a solution, the FWC proposed to use some of the material to build wildlife islands within the lake itself (known as "in-lake" disposal). When concerns were raised about the impact this might have on whole lake nutrient levels, chlorophyll concentrations, and general water chemistry, FLW staff were asked to participate in a two-year monitoring project that will help answer these questions. Data will be collected from specific locations near a number of the islands; the stations will be positioned in a straight line, at regular intervals, from the island out toward open-water and also near monitoring locations that are being sampled by FLW volunteers each month.

The best part is that Lake Toho already has 20 years' worth of water chemistry data, collected by the South Florida Water Management District and other agencies. With such a strong baseline of information, it will be much easier to see if this new approach to muck removal can be used for other lakes, with similar problems. (Editor's note: This is a perfect example of the value of baseline data!)

After a long year of hard work, the islands are just about complete and by early this summer, water levels will be allowed to rise once again. Undoubtedly, anglers and lake enthusiasts will be glad to be back in the saddle again, and enjoying one of Florida's premier lakes. Stay tuned!

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* ***Cultural eutrophication*** *is the accelerated nutrification of a lake resulting from human activities.*

Featured Fish:
Green Sunfish and Georgia Giants®

For a while now, we've been featuring native fish species commonly found in Florida freshwater environments. For this issue, we thought we'd inform you of a couple of non-native bream species that you DON'T want in your lake or pond.

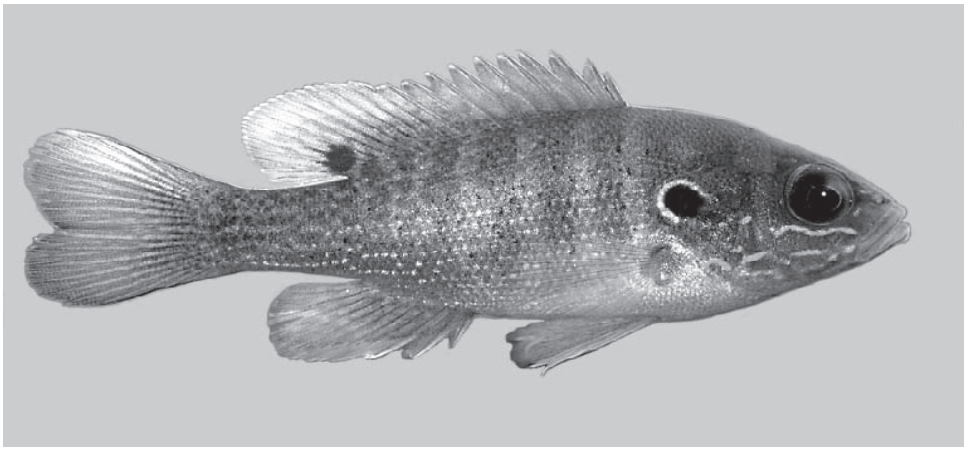
The **green sunfish** *(Lepomis cyanellus)* is considered to be undesirable for several reasons. For starters, they are so prolific that they eventually over-produce and, as a result, become stunted in size. (i.e., They become so numerous that the waterbody can no longer provide enough food for adequate growth.) Their large mouth enables them to prey on young bass, crappie, etc. and sometimes out-compete native Florida bream for food. It also has a bad habit of breeding with other species of bream, which results in a weaker gene pool for the state's fish populations.

These fish are originally from the Mississippi River basin, a somewhat hostile environment full of hungry catfish and constant water level fluctuations, which might explain their hyper reproductive tendencies (i.e., as a survival mechanism).

The green sunfish is a slender bodied fish with dimensions that are a little different from most sunfishes; other related species tend to be deeper bodied, whereas the green sunfish is shorter from the snout to the beginning of its dorsal fin. Its mouth gape size is relatively large, extending to the middle of the eye. Its back is blue-green in color with mottled yellow-green streaks. Gill covers are dark but have a light yellowish margin. The same is true for their fins. They can grow to about 12 inches in dimension and up to about 2 pounds in weight, though one biologist commented that such a fish would be considered a "whopper." Such large fish are usually found in new ponds or rivers, prior to the effects of inevitable overcrowding.

While it may appear to be a handsome and rather innocuous fish, the green sunfish can wreak havoc in a pond or lake. As alluded to earlier, these fish may NOT be imported, sold, possessed or transported in Florida.

A related fish, known as the **Georgia Giant,®** is a hybrid bream that is also a big no-no in Florida. The exact species used to produce this fish have not been made public, but it is suspected to be a cross between a green sunfish *(Lepomis cyanellus)* and a bluegill *(Lepomis macrochirus)*. Like the green sunfish, Georgia Giant® bream exhibit very fast growth. However, unlike the former, the hybrid bream is capable of reaching extremely large sizes — up to five pounds!



FWC

Green sunfish *(Lepomis cyanellus)* are prohibited in Florida.

Because the Georgia Giant® is a hybrid, people are often under the mistaken impression that it is sterile. It is not and when it reproduces subsequent generations are affected by the green sunfish genes. (This very characteristic is what makes its presence prohibited in Florida waters.) However, due to their easy accessibility from private fish hatcheries and on-line sources, many people do not realize that it is illegal to put these fish into any Florida lake or pond — even privately owned waterbodies.

One such incident occurred recently in North Central Florida when a lakefront homeowner bought and released a number of Georgia Giant® bream into a canal. Fortunately, when the fish were released, the canal had been temporarily blocked off from the adjacent lake with a sheet pile dam (for other unrelated reasons). This allowed state wildlife agency personnel to transfer as many native fish as possible from the canal back into the lake, before treating the illegally stocked portion with rotenone (a poison) to kill off the hybrid bream.

It's easy to see why these fish are tempting to the small pond owner or private lake resident, as they can grow up to five pounds and put up a respectable fight on light tackle. It's also an attractive fish, similar to a bluegill in appearance, but with more green and turquoise blue coloration in the face. However, once they start breeding on their own, their offspring revert slowly back to less desirable characteristics.

Like all the species within the sunfish family, both the green sunfish and Georgia Giant® start off eating zooplankton and then begin to consume macro-invertebrates (bugs, worms, etc.) as they grow larger. Eventually, they are able to prey on small fish.

For a listing of other prohibited fish species for Florida waters, check out the Florida Fish and Wildlife Conservation Commission Web site:

http://myfwc.com/fishing/fishes/prohibited.html

FWC

This hybrid bream, the **Georgia Giant,®** is also prohibited throughout Florida.

Featured Bird:
Black-Necked Stilt

Bird watchers who frequent wetland areas or shallow ponds and lakes have most likely encountered a **Black-Necked Stilt**; if they happened to be near a nest, it was sure to be a memorable experience as these birds are fearless when it comes to defending their young. Circling and diving right at their target, the Black-Necked Stilt is famous for antagonizing intruders with an aggressive physical display and a loud, incessant "yip, yip, yip" cry of alarm. It's an impressive show of force for a bird that looks like it might blow right over in a strong breeze.

The Black-Necked Stilt is both striking and delicate in appearance. It is a member of a small family of shorebirds (stilts and avocets) that are found around the world. All are essentially long-legged, long-billed, and decorated with various patterns of black and white. The Black-Necked Stilt is one of seven stilt species, all of which have reddish colored legs.

Breeding males have glossy black coloration on their wings, back, and the back of their neck, and a pink tinge on the breast. Non-breeding males lack the glossiness and pink tinge. Adult females have a brown tinge to the back. Juveniles have brown upper-parts with buff feather margins and a white trailing edge to the wing in flight. A white spot above its eye distinguishes the Black-Necked Stilt from the Hawaiian Stilt, a subspecies.

These birds are commonly found along the margins of shallow inland ponds and lakes in open country. While they are often associated with American Avocets, the Black-Necked Stilt will also use wetlands with more emergent vegetation such as flooded fields. It has been noted by observant bird-watchers that Black-Necked Stilts seem to prefer freshwater ponds and wetlands whereas Avocets are most often found near saltwater environments. During migration however, Stilts may visit coastal mud flats.

Being rather gregarious birds, they spread out while foraging and roost in small groups of up to 50 individuals. During the breeding season and in winter, Black-Necked Stilts are strongly territorial; adults commonly participate in joint anti-predator behavior. One of these behaviors, known as the "popcorn display" consists of a group of adults encircling a ground predator and hopping side to side while flapping their wings.

Their diet often consists of aquatic invertebrates such as polychaetes,* crustaceans, snails, and a variety of insects including beetles, caddisflies, mosquito larvae, and grasshoppers. They sometimes eat tadpoles, tiny fish, and seeds from aquatic plants. Their long thin bill allows them to pluck food from the surface or probe in soft mud while wading in shallow water, sometimes up to their bellies.

Breeding pairs form on wintering grounds, during migration, or on breeding grounds. The pairs remain monogamous throughout the breeding season. Both sexes choose the nest site, which is often on a small island in the marsh. The nest consists of a shallow depression, scraped out of the ground or low-lying vegetation. It is often lined with small stones, shells, or bits of dried wood. Lining is added throughout incubation especially in wetter spots where plant material is used to build up the nest. The female typically lays four eggs, and both sexes incubate and care for their young. Incubation takes about 25 days.

Chicks are able to leave the nest within one to two hours of hatching and can fly within 28 - 32 days. Family groups remain together well beyond the time when the young can fly. Juveniles gather in small groups prior to departure from breeding areas. Pairs normally have one brood per season.

Like many other wetland species in Florida, the Black-Necked Stilt flourishes in the upper St. Johns River marshes, Cape Canaveral, Tampa Bay, Charlotte Harbor, the phosphate mines of Polk and Hillsborough counties, and the Water Conservation Areas of western Palm Beach County. It also does well on the southeastern coast of the state and in the Keys. A confirmed nesting in the highly saline environment of the Marquesas Keys off Key West was unexpected.

In the United States, they can be found from Oregon, Idaho, Utah, Colorado, New Mexico, and Kansas and along both the Atlantic and Gulf coasts. From there, they are known to venture (and breed) south through most of Middle America and South America, and also in the West Indies.

Many thanks to Seattle Audubon Society for permission to use excerpts from their article on Black-Necked Stilts:
http://www.birdweb.org/

***** *A polychaete is a form of bristle worm that lives in soft mud or rocky environments within the sea floor. There are about 10,000 species included in the polychaete family; a few occur in fresh water.*

Mark Hoyer

Black-Necked Stilt *(Himantopus mexicanus)*

A handsome trio!

LAKEWATCHer David Jenner took this classic photo of Bob Forbes, a fellow volunteer and veteran of the program, posing with his four-legged assistants. (Hugo is on the left and Chanel on the right.) These merry boaters are on their way to sample the waters of Lake Carlton in Orange County. The boat is a 1965 Correct Craft, appropriately dubbed the *Kennelcraft*. Bob notes that the dogs have a carpeted gang-plank for climbing into the boat and a carpeted platform over the port-side seat, near the dashboard for sight-seeing.

Youth Education

LAKEWATCH would like to recognize two of its coordinators and several laboratory staff who have been working hard as Teaching Assistants for Dr. Canfield's Introduction to Fisheries class each Spring, for several years now.

In addition to their normal duties as Regional Coordinators, **Claude Brown** and **Eric Schulz** have assisted in teaching the laboratory portion of the class which involves both field work and time lecturing in the lab. Also, several laboratory technicians, **Tad DeGroat**, **Wanda Garfield** and **Kelly Schulz** have been instrumental in helping students learn the procedures required to analyze water chemistry.

It's just one more example of how the next generation is benefiting from the knowledge and expertise LAKEWATCH has acquired over the years — with the help of its volunteers, of course.

Amy Richard

Student Jim Blush practices laboratory methods for conducting chloride titrations, in the UF/IFAS water chemistry laboratory at the Department of Fisheries and Aquatic Sciences.

Florida LAKEWATCH

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Editor / Florida LAKEWATCH
PO Box 110600
Gainesville, FL 32611
or call
1-800-LAKEWATCH (800-525-3928)
(352) 392-9617 ext. 228
E-mail: lakewat@ufl.edu
http://lakewatch.ifas.ufl.edu/

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