Florida LAKEWATCH

Dedicated to Sharing Information About Water Management and the Florida LAKEWATCH Program Volume 56 (2012)



A LAKEWATCH volunteer collects total phosphorus and total nitrogen during her training session.

LAKEWATCH and FDEP Data Comparison Study

One of the uphill battles that volunteer monitoring programs have is getting professionals and/or the general public to understand how exceptional the Citizen Scientist collected data are and how the data can help with future management decisions. To that end, in 1991 Florida LAKEWATCH did a paired comparison where LAKEWATCH personnel took water samples and a Secchi depth reading on the same day as a volunteer. These paired comparisons were conducted on 125 lakes and the samples were analyzed for total phosphorus, total nitrogen and chlorophyll concentrations. In this study, water quality data produced by volunteer samplers following LAKEWATCH protocols

UFAS

was just as good as those samples collected by professional biologists and handled using standard methods preservation. sample One of drawback/concern of this study is that all of the samples both professional and volunteer collected were analyzed in the same LAKEWATCH laboratory.

To eliminate the above-mentioned concern, Florida LAKEWATCH working with Florida Department of Environmental Protection (FDEP) proposed a similar study. For this new study, professionals sampling the water and all sampling/analytical protocols would be from FDEP and the LAKEWATCH volunteer would continue to follow the standard LAKEWATCH protocol. The purpose of this study was to determine the comparability of water chemistry results (total nitrogen, total phosphorus, and chlorophyll) when these data were collected and analyzed using standard Florida LAKEWATCH (LW) and Florida Environmental Department of Protection (FDEP) field and laboratory methods.

Between September and November 2011, FDEP professional biologists

and LW volunteers sampled 27 Florida lakes ranging in lake trophic status. FDEP and LW samplers sampled the same lake on the same day with FDEP sampling three replicate samples from one-station and LW samplers sampling three stations spatially on each lake. FDEP used personnel their Standard Operating Procedures (SOPs) to collect samples and analyze them for total phosphorus, Kjeldahl Nitrogen and nitrite/nitrate nitrogen (NO2- N/NO_3-N) and chlorophyll (uncorrected and corrected for phaeophytin) concentrations. LW volunteers and personnel used their



Total phosphorus values from samples taken by FDEP biologist versus samples taken by LAKEWATCH volunteers.

SOPs to collect samples and analyze them for total phosphorus, total nitrogen and chlorophyll (uncorrected for phaeophytin) concentrations. FDEP's Kjeldahl Nitrogen and nitrite/nitrate nitrogen (NO₂-N/NO₃-N) were added together for comparison to LW's total nitrogen values.

For paired comparisons, FDEP's three replicate samples were averaged and compared to the one

LW sample collected from the corresponding station. The data were plotted against each other to see how comparable they were (see enclosed While figures). FDEP and LAKEWATCH are continuing to work on the comparison study and all final analyses, the figures presented here show that all of the data are extremely comparable. The correlations between total phosphorus (TP), total nitrogen (TN)

and chlorophyll (CHL) data collected by DEP and LAKEWATCH are almost one, about as good as one can expect!

When a report is finalized it will be posted on the LAKEWATCH web site. Thank you volunteers for continuing to collect valuable data that can be used to help properly manage our Florida aquatic resources.



Total nitrogen values from samples taken by FDEP biologist versus samples taken by LAKEWATCH volunteers .



Chlorophyll (uncorrected for phaeophytin values from samples taken by FDEP biologist versus samples taken by LAKEWATCH volunteers .

Why are nutrients so important? Part 3-Chlorophyll

In our last two issues of the Florida LAKEWATCH newsletter we have introduced you to the importance of monitoring for total phosphorus and total nitrogen both of which LAKEWATCH volunteers sample for on a regular basis. In this volume we would like to give you a little information on total chlorophyll to show you why the work of volunteers LAKEWATCH is SO important to the citizens of Florida. Total chlorophyll is sometimes abbreviated as CHL by Florida LAKEWATCH. In order to understand the importance of total chlorophyll we will first look at types of algae, and then some ways of measuring algae, and end up with the role of algae in waterbodies.

About Chlorophyll

Algae are a wide variety of tiny and often microscopic plants, or plant-like organisms, that live both in water and on land. If your management goals include the manipulation of algae in your waterbody, then the more you know about algae, the better.

Types of Algae

One common way to classify waterdwelling algae is to categorize them based on where they live. Using this system, three types of algae are commonly defined as follows:

• **phytoplankton** float freely in the water;

• **periphyton** are attached to aquatic vegetation or other structures; and

• **benthic algae** grow on the bottom or bottom sediments.

Algae may further be described as being **single-celled**; **colonial** (grouped together in colonies) or **filamentous** (appearing as hair-like strands). The most common forms of algae are also described by their colors: green, blue-green, red, and yellow. All these classifications may be used together. For example, to describe blue-green, hair- like algae that are attached to an underwater rock, you



The amount of and types of algae found in lakes (called phytoplankton community structure) changes with increased nutrient concentrations.

could refer to them as "blue-green filamentous periphyton." Free-floating algae, called **phytoplankton**, are further classified into three categories: **green algae**, **diatoms**, and **blue-green algae**.

The amount of and types of algae found in lakes (called phytoplankton community structure) changes with increased nutrient concentrations. In Florida, the phytoplankton of nutrientpoor lakes are often dominated by green algae; diatom abundance tends to be greatest in moderately nutrient-rich lakes; and blue-green algae (also called cyanobacteria) tend to be the predominate phytoplankton in nutrient-rich lakes.

Measuring Algae

In addition to describing types of algae, it's also useful to measure quantity. The amount of algae in a waterbody is called **algal biomass**. Scientists commonly make estimates of algal biomass based on two types of measurements — (1) chlorophyll concentrations and (2) counting and measuring individual algae. These are described as follows:

Chlorophyll Concentrations

Because almost all algae contain chlorophyll (the green pigment found in plants), the concentration of chlorophyll in a water sample is used to indicate the amount of algae or algal biomass present. Chlorophyll concentrations are expressed as units of micrograms per liter (abbreviated μg/L) or in milligrams per cubic meter mg/m^3). (abbreviated These are equivalent units of measure and either may be used to describe chlorophyll concentrations.

It should be remembered that collecting algae from water samples does not provide measurements for all types of algae, only the phytoplankton.

It's a common practice for scientists to use the phrases **chlorophyll concentration** or **chlorophyll** *a* **concentration** when they are referring to the amount of algae in a waterbody. **Chlorophyll** *a* is one of several types of chlorophyll, as are **chlorophyll** *b* and **chlorophyll** *c*. The measurement of all three of these types of chlorophyll in one water sample is referred to as a **total chlorophyll** concentration. In this article, all estimates of the amount of algal biomass in a waterbody will be based on total chlorophyll measurements.

Counting Individual Algae

In certain cases, scientists prefer to count individual algal organisms in a water sample. They typically identify the individual algae by genus and species, and then calculate cell volume by approximation to the nearest simple geometrical shape, such as a sphere or a cylinder. Using this information, the total biovolume of algae in any sample can be estimated.

The Role of Algae in Waterbodies

Regardless of what humans might think, algae are essential to aquatic systems. As a vital part of the food web, algae provide the food and oxygen necessary to support most aquatic animal life. Certain types of algae, such as the larger benthic forms, also provide habitat for aquatic organisms. On occasion, however, algae can become troublesome. For instance:

• The concentration of phytoplankton (free-floating algae) in the water strongly influences water clarity. Water clarity is commonly measured by using a Secchi (pronounced SEH-key) disc. A Secchi disc is a flat 8-inch diameter disc that has a cord attached through the center. The disc is lowered into the water and the depth at which it vanishes from sight is measured, usually in feet or meters. This measurement of the transparency of the water is called the Secchi depth. In waters with low concentrations of phytoplankton (less than $10 \mu g/L$). Secchi depths are generally greater than In waters with 10 feet. high concentrations of phytoplankton (greater than 40 µg/L), Secchi depths are typically less than 3 feet.

• Benthic algal blooms, filamentous algal blooms, and periphyton blooms can create accumulations along shorelines

and have the potential to interfere with recreational activities such as boating and fishing, as well as block lake access and navigation.

• Algal blooms can block sunlight, shading submersed aquatic plants which may be deemed desirable.

◆ An algal bloom can trigger a chain of events that can result in a fish kill. This is most likely to occur after several days of hot weather with overcast skies and is related to oxygen depletion in the water. It is not related to the toxicity of the algae.

When Are There Too Many Algae?

Algal blooms may be caused by human activities, or they may be naturally occurring. Sometimes, what seems to be an algal bloom is merely the result of wind blowing the algae into a cove or onto a downwind shore, concentrating it in a relatively small area. (This is known as windrowing.) Looking at algae from the non-scientific point of view, some people consider algae to be unsightly, particularly when it is abundant. For instance, a phytoplankton bloom can make water appear so murky that it's described as "pea soup."

In Florida, when chlorophyll concentrations reach a level over 40 μ g/L, some scientists will call it an algae bloom or algal bloom. The public, however, usually has a less scientific definition – often defining algal blooms as events in which more algae can be seen in the water than they are accustomed to seeing. In some cases, this may even be a relatively low amount.

Algae and Fish Kills

When algal biomass exceeds 100 µg/L (measured as chlorophyll concentrations), there is an increased probability of a fish kill. Fish kills, however, typically only occur after three or four cloudy days. During this time, algae consume oxygen rather than produce it because they don't have sunlight available to help them photosynthesize more oxygen. This can lead to oxygen depletion. Without oxygen, aquatic organisms, including fish, die. Chlorophyll concentrations below 100 µg/L generally do not

adversely affect fish and wildlife, but dead fish and wildlife can occasionally be found.

Health Concerns

Newspapers and magazines often present articles describing toxic algae. However, most algae are not toxic and pose very little danger to humans. It should be remembered that toxic algae can be found in all aquatic environments. Known health problems associated with algal blooms in lakes and ponds have generally been associated with high concentrations of three species of bluegreen algae: Anabaena flos-aquae, Microcystis aeruginosa, and Aphanizomenon flos- aquae. With few exceptions, only fish and invertebrates have died from the effects of these toxic algae.

In Florida, it is extremely rare for algae to cause human illness or death. People are more likely to suffer minor symptoms such as itching. However, several species of algae produce gases that have annoying or offensive odors, often a musty smell. These odiferous gases may cause health problems for some individuals with breathing difficulties.

To be prudent, people should inform their doctor if they are experiencing any health problems and live near a waterbody or use a waterbody often. This is critically important in recent years because there is an alga called *Pfiesteria* that is known to cause severe health problems. *Pfiesteria* tends to be found primarily in tidal waters. While prudence must be the watchword when using any waterbody, it must also be recognized that people will face a greater risk during their drive home from the grocery store than from *Pfiesteria* or any other algae.

As you can see, the monitoring of chlorophyll in a waterbody is very valuable to the responsable management of Florida's waterbodies. The contribution that Florida LAKEWATCH volunteers provide to the State of Florida is tremendous and is being noticed and appreciated by more and more State agencies, especially in these very tight budget times. Keep up the good work!

The Bright Side of North Florida's Drought

When Opportunity Knocks...



LAKEWATCH volunteer Del Suggs on Lake Minnehaha in Leon County can no longer take samples from his "lake."

A drawdown is a lake restoration technique that involves a periodic "dewatering" of a lake whereby approximately 45% or more of the lakebed is exposed to the sun and air for a prolonged length of time.

Drawdowns are used by lake managers as an especially effective way to consolidate organic and compact sediments in a lakebed. The newly hardened lake bottom makes a good substrate for macroinvertabrates and for fish to lay their eggs. These dry periods can also help to stimulate the growth of aquatic plants once the lake

waters return, creating ideal fish habitat. Fisheries biologist are especially fond of drawdowns as it is a proven technique for increasing the numbers and biomass of sport fish once the lake returns to its "normal" level.

So how do scientist and lake managers know about drawdowns? They've learned from the best example of allmother nature.

Geological studies of lakes tell us that drought events, in conjunction with periodic flooding, serve nature's way of ridding lakes of the detritus and excess muck that builds up over the years. Restrictions placed on many lakes for flood control have in some instances accelerated this build-up of material. Without a man-made drawdown every so often, the muck buildup can be problematic- even to the point of causing berms to form along a lakeshore.

The lesson here?

While this latest natural drawdown (a.k.a. drought) can be frustrating for lake residents and water enthusiasts, it's all part of nature's own management plan.

Red Drum

Sciaenops ocellatus

One of Florida's most popular sport fish, red drum is also one of the state's most widespread estuarine inhabitants. Red drum are prodigious spawners that may produce tens of millions of eggs each year. Their relative hardiness and prolific nature make them ideal candidates for rearing in hatcheries. Stringent fishing restrictions have been instrumental in restoring populations of this popular sport fish, which frequents practically all of the state's estuaries.

Description

Also called redfish, channel bass, spottail, and red bass, red drum are marine fish that are easily identified by the eyespot on the tail. Their common name aptly describes both reddish hue their and the "drumming" sound they make during spawning or when taken from the water. This drumming is produced by special muscles rubbing against the inflated air bladder, like fingers rubbing on a balloon.

Red drum are reddish-brown on the back, fading to white below. Juveniles have a copper or bronze tint. While most red drum have one distinctive black spot at the base of the tail, some have several spots; in 1997, a fish with hundreds of spots was identified as a red drum by fish biologists. The body is elongated and thick, with a gently arched back and sloping head.

The large scales on the upper body are rough, while those on the breast area are smooth. Red drum have two dorsal fins; the front fin has sharp spines, and the back dorsal fin has soft rays resembling a flat-top haircut. The tail of an adult is broad and either flat at the end or slightly concave. The long pectoral, or side, fins are the color of rust.

The colors of the red drum vary



Red drum are marine fish that are easily identified by the eyespot on the tail.

according to where the fish lives. Red drum in the Gulf of Mexico are a lighter red than those that reside in muddy bays. Occupants of white, sandy bottoms have light, muted tones. When a fish is taken from the water, it may turn a darker red.

Red drum in Florida may live 25 to 35 years. Reds on the Atlantic coast are generally larger than those on the gulf coast. Although the largest red drum ever caught weighed 92 pounds, the Florida record is 52 pounds, 5 ounces, for a fish taken in Cocoa in 1996. The largest red caught in Florida with fly fishing tackle was landed in 1995 in the Banana River and weighed 43 pounds.

Range

Red drum occur in the Atlantic Ocean from Massachusetts to Key West and throughout the Gulf of Mexico. They are rare in south Florida, along the Atlantic coast north of the Chesapeake Bay, and along the Mexican coast south of Vera Cruz. Most of their life cycle is spent in nearshore waters, so management of the red drum fishery is primarily a state responsibility rather than a federal one. Red drum thrive in a wide range of salinities, an adaptation that serves their versatile lifestyle well. The ability to tolerate low-salinity water depends on the size of the fish; juveniles are able to tolerate freshwater conditions, whereas larger fish prefer higher salinities. Red drum are also comfortable in a wide range of water temperatures, from 50°F to about 81.5°F. Small red drum can withstand a greater range, from about 36°F to 91°F. They are vulnerable to sudden drops in temperatures, however, and move into warmer, deeper waters during cold spells.

Life History

Given their relatively long life span, red drum mature at a young age. Males can spawn when they reach about two years of age and four pounds in weight, whereas females are sexually mature at about four years old and 13 pounds. They begin spawning in the fall, when waters start to cool and daylight hours decrease.

Most red drum spawn near passes and inlets. However, reds in the Everglades area may travel farther offshore; those in Brevard County's Mosquito and northern Indian River lagoons stay within the estuary to spawn. Spawning season in the Gulf of Mexico runs from August to mid-November, peaking in September. Atlantic stocks of red drum may begin spawning as early as July and continue through December, peaking in September or October. Spawning is often triggered by new- or fullmoon phases.

Red drum have a very energetic and elaborate courtship ritual. Beginning in the late afternoon, males follow females for hours at a time, drumming loudly and butting them. Often, several males pursue a single female. The colors on the males dramatically intensify during courtship; their bellies turn stark white and their flanks and backs turn bronze. Just after dark, the animals shudder, and the female releases a milky cloud of eggs and the male a cloud of sperm into the water. Females may shed 1 million eggs in a single spawn—enough to fill a quart jar- and they may spawn every three to five days. Over an entire spawning season, these prolific fish may produce tens of millions of eggs, although very few will survive to adulthood.

The fertilized eggs, about 1 millimeter in diameter, are clear and contain tiny oil globules that keep the eggs afloat as they are carried shoreward by tidal currents. Within 20 to 30 hours, tiny larval fish hatch from the eggs. Each fish has an attached yolk sac, which provides nutrients during the first three days of life. After the yolk sac is completely absorbed, the larval red drum feed on mostly microscopic floating animals called plankton, which sustain the tiny larvae on their journey into the estuarine nursery areas. An early, severe winter following spawning can make the larvae sluggish and unable to capture plankton for food. fragile larvae The are also susceptible to changes in salinity and grow best in salinities of about 30%. After this stage, which lasts about $2^{1/2}$ weeks, gradual salinity variations are not a serious problem.

Inside the estuary, the juveniles settle along the edges of thickly vegetated seagrass beds and other vegetation because these small fish need protection until their fins develop enough for them to swim and their mouth parts develop enough for them to feed on the bottom. When they are about one inch long, the young fish begin to gather in schools. They grow rapidly in their first year, as much as one inch or more a month. By the end of their first year, they may be 13 to 14 inches long. Red drum continue to grow throughout their lives, although once they reach about three feet long, they gain more in girth than in length as they age.

Young-of-the-year juveniles (fish less than one year old) move in and out of backwater channels and canals as they develop. Juvenile red drum may remain in the estuary for up to four years. As adults, red drum move out of the estuaries and join large aggregations of sexually mature fish. While some inshore spawning occurs, most red drum spawn in nearshore waters at the entrance to an estuary.

In general, Florida red drum are not long-distance travelers and tend to remain in the same geographic area in which they were spawned. In tagging studies of immature red drum on Florida's gulf coast, 50% to 85% were recaptured within six miles of their original release site.

Although they sometimes feed at the surface or in midwater, red drum are primarily bottom feeders. Indeed, in shallow water, they can often be seen browsing head-down with their tails out of the water-a behavior called "tailing." Their fondness for tasty crabs and shrimp probably contributes to their own delicate flavor and tender white meat. Red drum locate food by both eyesight and touch, through vacuuming or biting the bottom.

As red drum grow, their food preferences change. Small juveniles select copepods and other tiny crustaceans, whereas larger juveniles target crabs and fish. During their first two years, they favor a diet of crabs; after that, fish also become a favored food item. Red drum feed primarily in the early morning and late afternoon and are voracious eaters whose penchant for lunging at almost any natural bait endears them to fishermen.

Mangroves and marsh grasses indirectly play a critical role in the diet of red drum in southwest and south Florida. Fish, crabs, and shrimp feed on mangrove leaves that fall into the water and decay, and red drum feast on the fish, crabs, and shrimp. This cycle is part of an intricate, lifesustaining food web that reverberates throughout estuarine systems. Because estuaries are vital nursery grounds for red drum, deterioration of water quality or loss of suitable habitat in these areas may limit the number of young fish that become reproductive adults.

Economic Importance

As early as the 1700s, individuals caught red drum for food and recreation off the Atlantic Seaboard from Virginia to Georgia. In Florida, red drum were caught mainly for sustenance until the growth of transportation networks and markets allowed fish to be shipped long distances. A commercial fishery for red drum began in the 1850s. Since the early 1980s, however, the majority of red drum caught in Florida have been taken by recreational anglers. For example, the recreational harvest in 1985 totaled 2.3 million pounds, while the commercial harvest accounted for less than half a million pounds.

In the 1970s, red drum populations in Florida began to decline. In fact, red drum apparently disappeared from Biscayne Bay—possibly because of declining water quality, loss of habitat, and diversion of freshwater flows. The surging popularity of spicy, blackened redfish on restaurant menus in the early 1980s resulted in similar declines throughout the U.S. Gulf of Mexico coast.

Management Efforts

Beginning in 1986, the state and federal governments began enacting regulations to protect red drum, culminating in reduced recreational catches and a complete ban on commercial harvests in Florida in 1989. After the regulations were enacted, annual landings of red drum were reduced from 2.1 million fish in the mid-1980s to about 250,000 in 1993. Recreational harvests are still allowed year-round, but there are bag and size limits. Since 1993, recreational harvests have increased because more sport fishermen have targeted this rapidly growing, easily accessible nearshore species, but the growing emphasis on catch-andfishing may release lower recreational landings in future years.

Since 1988, scientists with the Florida Fish and Wildlife Conservation Commission's (FWC) Fish and Wildlife Research Institute have reared red drum in the state fish hatchery at Port Manatee in order to assess the feasibility of releasing these fish into the wild as a management tool. Using 20-to 30pound red drum caught in the wild as brood stock, the scientists manipulate water temperature and the periods of light and dark in order to fool the fish's biological clock so that the fish will spawn on demand. The eggs are carefully tended until they hatch about 24 hours after spawning. The resulting larvae are raised to juveniles of various sizes and are then released into the wild, where their survival is evaluated; scientists hope that this research will produce a viable method of rebuilding native stocks. From 1988 through December 2004, more than 6 million juvenile red drum were released into Tampa Bay, Sarasota Bay, Biscayne Bay, Indian River, and estuarine areas of Collier and Volusia counties.



Beginning in 1986, the state and federal governments began enacting regulations to protect red drum, culminating in reduced recreational catches and a complete ban on commercial harvests in Florida in 1989.

Three sizes of hatchery-raised red drum have been released: juveniles from 1 to 1.5 inches long, juveniles 3 to 4 inches long, and juveniles 6 inches or longer. The smallest group is only about thirty days old, and the largest juveniles are about 6 months old. By studying how well these various age groups do on their own, researchers expect to determine which size will be both economical to produce and reasonably able to survive in the wild.

Information from anglers is important in tracking the success of the hatchery program. In Biscayne Bay, scientists were successful in establishing a small population of hatchery-reared red drum to replace a wild one that was either very small to start with or had virtually disappeared decades ago. Many of the hatchery-reared red drum are equipped with special tags; information printed on the tag asks the angler who hooks the fish to provide FWC scientists with data about the catch. Through this program, researchers have determined that about 17% of the

hatchery-raised fish released in the Indian River were caught and reported by anglers, whereas 0.42% of the larger red drum released in Biscayne Bay have been captured and reported by fishermen.

A fisheries-independent monitoring program supplements this effort by sampling for hatchery-reared juveniles too small to be caught by fishermen. This program also provides important information about which habitat types are more likely to be vital to the survival of these young fish.

Fishing license revenue and the federal Sport Fish Restoration Program are important sources of funding for sport fish research. The Sport Fish Restoration Program is a "user pays/user benefits" system funded by a tax on sales of recreational fishing equipment and boat fuel. The program supplies three dollars for every one dollar provided by the state for projects that improve fishing and boating opportunities.

For more information about the new regulations concerning this species see the Volunteer Bulletin Board on page 9.



www.whozoo.com

Volunteer Bulletin Board

Collection Center Changes in Lake and Pasco Counties

The Collection Center at the Ocala National Forest Fire Dispatch Office (off of State Road 19) has been moved. The new location is at:

Ocala National Forest Pittman Visitor Center 45621 County Road 19 Altoona, FL 32702.

The new collection center will be open Tuesday through Sunday. The freezer is located on the back porch of the building and can be accessed by volunteers through the visitor center.

The Collection Center at the East Pasco Adventist Academy has been moved. The new location is:

Pasco IFAS Extension Office 36702 State Road 52 Dade City, FL 33525

Contact: Mary Lee or BJ Jarvis

352-518-0231

The new collection center will be open Monday through Friday 8 AM to 5PM.

Red Drum

Bag limit increase in Northern Florida

After 20 years of strict red drum management rules, recreational anglers along Florida's northern coast will soon reap the reward.

In November 2011, the Florida Fish and Wildlife Conservation Commission amended the rule for red drum by increasing the bag limit in northern parts of Florida from Escambia through Pasco Counties and Nassau through Flagler Counties, a move that will increase fishing opportunities for recreational anglers in Florida.

Harvesters in the northern counties listed can harvest two red drum per day starting February 1, 2012. Before the rule change, recreational harvesters could only take one fish. In southern Florida counties, the bag limit remains at one red drum.

The bag limit was increased for the northern parts of Florida because the red drum population in these areas is healthy and thriving. As a popular species to catch and eat, the red drum stocks are monitored regularly by scientists at the Commission's Fish and Wildlife Research Institute in St. Petersburg. The red drum population in Florida has been increasing since the early 1990s, when strict regulations were established in an effort to reverse its declining population.

Fishermen in Florida can be proud of the red drum fishery. The bag limit increase will allow anglers to enjoy the fish that was managed for 20 years to grow to what it is today.

Outstanding LAKEWATCH Volunteer



Gary Morey brousing over literature at the Broward/Miami-Dade LAKEWATCH Regional meeting

Dr. Garland Eugene "Gary" Morey Jr. was trained to sample Lake Cliff in Broward County for LAKEWATCH on June 9, 2000. Gary successfully collected 354 water samples for 118 monthly sample dates. The lake is located in Ft Lauderdale at GPS coordinates of 26° 6' 21.42" / 80° 7' 52.2".

Gary was born in Syracuse, New York and graduated from Cicero High School. His undergraduate studies were completed at Cornell University his medical degree was at Upstate Medical Center. He started his first medical practices in Onley, VA. He later moved to Florida and practiced in Marathon and Big Pine Key. Then he moved to Pompano Beach and opened his own practice as well as creating his Family Practice & Clinic in Ft Lauderdale. There Gary became the first HIV infectious Disease Physician in Broward County. He also cofounded Care Resources, Inc., South Florida's oldest and largest HIV/AIDS service organization.

After retiring from his practice in 1994 he continued serving others in his community and beyond. Gary suffered from his own esophagus cancer and in 2000 and had to have a laryngectomy. Gary began working hard with different

groups in South Florida, such the New Voice Club (aka " the hole in the neck gang") where he was one of the directors. This group helps others to learn to talk and live with throat cancer. He traveled all across South Florida visiting schools to show children the dangers of smoking. He also worked with the Ryan White PLWHA program and the Footsteps in the Sand Community Foundation of Broward. He volunteered with center one, South Florida Aids Network, and the Broward County HIV Planning Council. As you can see Gary was an advocate for people in need and gave it his all to help.



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This newsletter is generated by the Florida LAKEWATCH program, within UF/IFAS. 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:

Florida LAKEWATCH Fisheries and Aquatic Sciences School of Forest Resources and Conservation 7922 NW 71st Street Gainesville, FL 32653 orcall 1-800-LAKEWATCH (800-525-3928) (352) 392-4817 E-mail: f1-lakewatch@uf1.edu http://lakewatch.ifas.uf1.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. Gary passed away August 1, 2011 at the age of 57. His life partner, William Silver; father, Garland Sr., beloved brother, Donald; sister, Linda Thomas, and his 4 nephews survive him. Everyone who knew Gary loved and appreciated him. He was a unique person and he will be greatly missed by his family and all the people that new him. We want to acknowledge Gary's time and effort he gave to his career, community, and his patients.

