Friends Of Istokpoga Newswire

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Managing Fish Populations with Size Limits

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One of the most common management questions that fisheries biologists hear from anglers is "why don't you put a size limit on this lake?". Size limits are used by fisheries managers to increase the number of fish in a lake, increase the number of large fish, or to provide fishing experiences desired by anglers such as catching a trophy fish. Size limits have the potential to increase the number of large fish in a lake (bass or speckled perch). However, size limits will not help every fish population, and they have the potential to reduce angler catch and harvest without any benefits of providing bigger fish. In this article, I will discuss factors that fisheries managers evaluate when considering a size limit on a fishery.

So what factors determine the success of a size limit? The three components that are critical are G, R, and M of the fish population (Growth, Recruitment, and Mortality). G, R, and M are measured by fisheries biologists and usually determine the success or failure of a length limit on any given lake or any given species. So let's talk about G, R, and M and describe how they affect fish populations.

Growth rates determine how long a fish takes to reach a given size, and they can be highly variable among water bodies. For example, in some lakes bass may attain 3 pounds in 1.5 to 3 years, which is considered rapid growth. In fast growing speckled perch populations, fish may reach 10 inches by age 2 or 3. Regulations on lakes with rapid growth will protect the fish from harvest, and they will quickly grow to a size preferred by anglers. Alternately, slow growing bass populations may not attain 3 pounds until age 4-6, and slow growing speckled perch may take 4-5 years to reach 10 inches. Stringent regulations on a slow-growing fish populations will protect fish from harvest and may cause bass abundance to increase. This can result in even slower growth due to low food availability per individual. Extreme cases of slow growth often occur in farm ponds where bass may nearly stop growing, resulting in very few large fish and many fish in the 10-12 inch size groups. Ponds with very slow growth would benefit from harvest by reducing bass abundance, increasing the amount of prey available per fish, which would improve growth rates. Slow growth also occurs for both bass and speckled perch in larger lakes, and size limits on these populations may be detrimental to production of large fish if growth rates are slow.

Mortality is measured as the percent of fish that die each year. Fisheries biologists usually divide total mortality into fishing mortality (the percent that die from harvest and hooking mortality) and natural mortality (the percent that die due to causes other than fishing). Size limits are the primary tool to manage mortality rates via changes in fishing mortality. Size limits will improve the number of large fish in lakes with high fishing mortality, assuming that growth rates are adequate for fish to reach a preferred adult size. However, in lakes where fishing mortality is low due to low fishing effort or high rates of catch-and-release, size limits will usually not improve the number of large fish in the population.

Recruitment is the number of young fish that survive to adulthood (usually one year old) each year. Recruitment also varies widely from lake to lake and across years in the same lake. Lakes with 20-40% coverage of aquatic plants usually have high bass recruitment, whereas lakes with little shoreline cover often have low to intermediate recruitment. Speckled perch recruitment is sometimes influenced by water levels, with good recruitment in high-water years. Lakes with high recruitment are often the best fisheries if growth rates are rapid and mortality rates are relatively low. This causes many fish to survive to a preferred size by anglers. However, high

recruitment can be detrimental if growth rates are slow, because slow growing populations will not benefit from the addition of many more hungry mouths to feed! Populations moderate to fast growth rates and high recruitment are often managed with slot limits, which encourage anglers to remove small fish and sustain adequate growth of fish in the protected slot.

Recruitment can fluctuate substantially on a given lake from year to year. Reductions in water levels often reduces the amount of cover for young fish and may result in poor survival, whereas period of high water may inundate shoreline cover and produce very strong year classes. Many of these fluctuations are out of the fishery biologists' control but will strongly affect the number of adult fish that are present in the population for several years. Most lakes exhibit recruitment fluctuations across years due to changing conditions across years, such as water level changes or weather patterns. Recruitment fluctuations cause abundance of adult fish to vary from year to year, and the fishing quality varies accordingly regardless of the size limit.

From the above discussion, it is clear that Growth, Mortality, and Recruitment will interact to determine the success of a regulation. Fish populations with fast growth, low mortality, and high recruitment will produce outstanding catches of both quality and trophy-sized fish. Lake Istokpoga supports premier largemouth bass and speckled perch fisheries, and this probably occurs due to quality habitat resulting in rapid growth and good recruitment in most years. Lakes that are not commonly associated with trophy fish or have low catch rates of quality fish may suffer from slow growth, high mortality, low recruitment, or a combination of these factors. You can probably think of some of these as well in Highlands County.

For lakes with slow growth, the only practical tool for reducing the abundance of small fish and improving growth rates is angler harvest. For some bass fisheries, this is a tool that has declined in effectiveness due to a strict catch-and-release ethic among bass anglers. In a period of about the last 15 years, bass anglers have changed from harvesting most legal fish to a strongly entrenched catch-and-release angling ethic. Most recent creel survey data has shown that over 70% of bass caught are released, even when the fish were legal to keep. Anglers have had a strong influence on the conservation of our fishery resources and have improved the abundance of preferred-size fish in many systems through catch-and-release.

However, I have found that many anglers believe that strict catch-and-release will improve all bass populations, or that a 10-inch size limit will improve all speckled perch fisheries. Regulations should be tailored for the management objectives of each lake, and viable management options depend on the G, M, and R for each population. Just as importantly, angler harvest rates should also change depending on G, M, and R for each population! Some lakes will benefit from complete catch and release, but lakes with slow growth or abundant small fish would benefit from selective harvest to reduce the number of small fish and improve growth rates.

Slot limits are used to encourage harvest of small fish, improve growth rates, and protect the large fish in a lake. However, complete catch-and-release by anglers on lakes with a slot limit may result in too many small fish and reduced growth rates. This can potentially be detrimental to producing trophy fish. Selective harvest of smaller fish can actually help some fisheries by increasing the available food per individual, improving growth rates, yet protecting large fish from harvest to allow them to reach trophy size.

In summary, size limits are a tool for fisheries managers and have the potential to improve catch of large fish and total harvest. However, size limits will not improve every population! Fishery managers in Florida use specific regulations to improve fisheries that have rapid growth and good recruitment, such as the 15-24 inch slot limit on bass at Lake Istokpoga. Conversely, other fisheries with slow or moderate growth are often managed with more liberal size limits to allow anglers to harvest slower growing fish. The potential for success depends on G, M, and R for each population! If you want more information, contact your local Florida Fish and Wildlife Conservation Commission biologist to ask about conditions for individual lakes. Good fishing!

Our March Annual Corporate Meeting

Our 2003 Annual Meeting was held on February 20 at the Lorida Community Center in Lorida Florida. The turn out for this meeting was light, but those there had a great time.

We held our annual election of directors (see below).

If you missed this meeting, you missed a very good presentation, '**Algae for the Lake User'** by Dr. Jennifer Brunty, Highlands County Soil and Water Conservation District, our guest speaker. Dr. Brunty told us about algae and what we can do to help the algae situation on Lake Istokpoga.

March 2003 marked our 5th year so we celebrated by serving a wonderful Cake.

Election of Officers

As mentioned above, we held our annual election of directors at the February 20 meeting. All of the 2002 directors, with the exception of Chris Monroe who declined to run again, were reelected. In addition, Jack Richie was elected as a director. All were elected by unanimous vote of the members present.

Following the general meeting, a brief meeting of the newly elected directors was held. During this meeting Bill Dwinell, Lake Placid, was reelected as President, Jim Wilkins, Lorida, was elected as Vice-president, Jack Richie, Lake Placid, was elected as Treasurer, and Jeanne Porter, Lorida, was reelected as Secretary.

Update from FFWCC

Beacham Furse
Biologist
Florida Fish & Wildlife Conservation Commission

Largemouth Radiotelemetry on Lake Istokpoga

The Florida Fish and Wildlife Conservation Commission's Division of Freshwater Fisheries began a radiotelemetry study on largemouth bass in Lake Istokpoga in October 2002. The study goal is to determine effects of aquatic habitat management practices and water level changes on largemouth bass in Istokpoga. Study objectives include evaluation of habitat use and movements associated with a whole-lake herbicide treatment of hydrilla conducted in March 2003 (before-treatment vs. after-treatment), evaluation of habitat use and movements associated with aquatic habitat enhancement activities (especially those areas enhanced during the 2001 drawdown project), and evaluation of habitat use and movements associated with regulated water level fluctuations (summer low/winter high). The study, which is being funded by the Division of Freshwater Fisheries Aquatic Resources Enhancement Section, will run through June 2005 at a cost of $70,000.

Twelve bass were implanted internally with radiotransmitters (about the size of an AA battery; cost = $155 each) in October and November 2002. These bass have a stainless steel antenna wire extending from their abdomens and a orange tag extending from their backs. Bass sizes range from 3.25 pounds to 8.75 pounds. Bass were captured by electrofishing in a variety of habitats (bulrush, cattail, hydrilla, pondweed, eel-grass, and spatterdock); however, general bass habitats are characterized by two habitat types (littoral [shallow-water] vs. limnetic [open water]) and two vegetation types (hydrilla vs. non-hydrilla). Bass are being tracked twice each week. Water quality parameters being tested at observed and previous locations include dissolved oxygen, water temperature, and turbidity. Water depth and habitat characteristics (plant species composition/abundance and substrate type) are also recorded.

Preliminary observations from the telemetry study include home areas (areas in which the bass are found 90% of the time or more) that range from a few acres to several hundred acres. Bass which frequent hydrilla and other submersed vegetation (primarily pondweed and eel-grass) exhibit smaller, better-defined home areas (including one fish that is never found more than 50 yards from an area baited and fished for shiners). These fish do not appear to differentiate between species of submersed vegetation (i.e., it doesn't seem to make a difference to the fish if the vegetation is pondweed or hydrilla). Several bass, although captured in emergent vegetation along littoral areas, are located most frequently in open water with little or no vegetation present. These fish have the largest home areas and often take "once-every-two-weeks" trips into shallow-water (<1.5 ft.) enhanced areas. In fact, many of the fish have traveled several miles from established home areas to areas within the areas enhanced during the drawdown or from harvester work to spawn or forage, including fish that are "living" offshore in the hydrilla. The area south of Henderson's Cove (Royce's Point) which was worked with the harvesters this winter had three "telemetry" bass

move into the cleared area within two weeks after the harvesters left.

If you catch a bass with an implanted transmitter, please note the number on the orange tag, release the fish at the spot you caught it, and report the catch by calling Beacham Furse at (863) 462-5190 between the hours of 8:00 AM and 5:00 PM, Monday - Friday.

Aquatic Weed Harvesting on Lake Istokpoga

The Florida Fish and Wildlife Conservation Commission's Division of Freshwater Fisheries conducted a tussock harvesting project on Lake Istokpoga this past winter. Harvesting work was conducted along Royce's Point south of Henderson's Cove. This area was selected as a work site because it was an area of extensive tussock coverage which was originally slated for tussock removal during the 2001 drawdown project (Water levels in the site during the drawdown precluded tussock removal at that time.). Work started on January 28, 2003 and ended March 9, 2003. A total of 30 acres of tussock and associated sediments were harvested and consolidated into one island, which was initially constructed during aquatic habitat enhancement activities in February 2002. Project cost was $188,000 ($6,266/acre). Funding for additional harvesting work has been requested for next fiscal year (July 2003 - June 2004). Proposed work would begin in November 2003 and concentrate on tussock removal around Henderson's Cove and along the Big Island Pass. If you have any questions concerning aquatic habitat enhancement on Lake Istokpoga (harvesting, drawdowns, herbicide treatment of cattail and other invasive plants, revegetation with bulrush and other native plants, etc.), please contact Beacham Furse at (863) 462-5190.

NOTE: Questions concerning management of hydrilla and floating plants (water lettuce and water hyacinth) should be directed to the Highlands County Aquatic Weed Control Project at (863) 402-7423 or the Department of Environmental Protection at (863) 534-7074.

Status of Largemouth Bass and Black Crappie Populations in Lake Istokpoga

Lake Istokpoga's largemouth bass population was evaluated with electrofishing gear at 20 fixed, historic sites in October 2002. Largemouth bass abundance or number of fish collected in the sample (n) = 281; catch per unit effort (CPUE) = 0.93 (catch rate as number of fish sampled per minute) fish/minute [f/min]) was similar to previous sample years. Young-of-the-year (YOY) bass were sampled at half the catch rate observed last fall (0.10 f/min vs. 0.21 f/min) and was the lowest YOY catch rate observed in the 16-year sampling history (since 1986) on Istokpoga. Protected, slot-size bass (15" - 24") were captured at the highest abundance (0.34 f/min) observed during any fall sampling period. These fish also made up 40% of the adult bass catch (≥8"), which is 82% higher than values observed prior to slot-limit implementation. The catch rate of "high-quality" (≥18") bass also increased from previous years (0.13 f/min) compared to pre-slot-regulation values (mean = 0.04 f/min). **Bottom line: Although the catch rates (i.e., numbers) of bass observed in electrofishing samples have remained more/less constant over the 16-year sampling period, we are seeing more slot-limit bass and high-quality bass since implementation of the 15" - 24" slot limit.**

Although YOY largemouth bass were not collected in high numbers in the fall 2002 largemouth bass electrofishing survey (0.10 f/min), largemouth bass were observed in good numbers (0.23 fish/min) in electrofishing samples within enhanced areas. Considering the locations of the fall electrofishing transects, which are collected along the outside margin of littoral habitat (the bulrush, cattail, and spatterdock which was the primary littoral fish habitat prior to the removal of tussock in the littoral area during the drawdown), it is possible that YOY bass are now utilizing the restored, shallow vegetated areas more than deeper, littoral-margin habitat. In an effort to address this issue, the Division of Freshwater Fisheries is currently working with the University of Florida on a statewide study to evaluate bass hatching duration and periodicity (when and how long bass spawn and hatch), YOY growth, and YOY food habits, of which Lake Istokpoga is included. This work will provide additional insight into the early life history of bass in the lake.

The black crappie population was evaluated with trawl gear in January 2003. In 50 minutes of trawl sampling on each lake, a total of 274 crappie (5.74 f/min) were collected. The 2002 yearclass of

crappie was very strong, making up 72% of the catch. The 2001 year-class was very weak with only 6 crappie collected (about 13 times lower than average). This low catch rate of age-2 (2001 yearclass) fish was expected due to low water levels during crappie spawning caused by the 2000-2001 drought and the associated drawdown on Istokpoga; however, because most anglers do not keep crappie less than 10 inches (a 3-year-old fish which is what crappie from the 2001 yearclass will be next year), the 2003-2004 crappie fishery will be very tough on anglers trying to find fish big enough to keep. A strong 2000 year-class helped mitigate for those problems this past year, but, because fishing effort for crappie was so high during the 2002-2003 crappie season, many of those fish were harvested. Bottom line: Because next year's crappie fishery will be so weak for traditionally harvestable size crappie (>10") and so many little crappie (<9") will be caught, we ask anglers to continue to restrict themselves to their self-imposed 10" minimum and keep only those fish you can really use.

You may ask yourself, "Would a 10" minimum size limit help the crappie fishery or have prevented this problem from occurring?". The answers are yes and no. A temporary 10" minimum size limit to cover next year's crappie season (October 1, 2003 through September 30, 2004) would help fight the temptation of many anglers to start keeping little (<9" or 2-year-old) crappie. If too many little crappie are harvested next year, it might depress the fishery for several years to come. That's why we are asking anglers to only keep bigger crappie. The "no" part of the answer is, although crappie grow fast and lots of crappie make it (recruit) into the fishery, thereby fitting part of the criteria for a 10" minimum (See Dr. Allen's article), a 10" limit would have nominal effects on the quality of the crappie fishery. Because most crappie harvested in Istokpoga are 10 inches or larger and are 3 years or older (60% - 80%), a 10" minimum would not limit harvest much. In fact, if you apply the "angler measurement error margin" that many wildlife officers employ (up to a half-inch under a minimum size; example = 9.5" crappie under a 10" minimum), about 85% of the crappie harvested in Istokpoga would be "legal" fish.

During the 2002-2003 fall/winter creel season, an estimated 3,581 bass were harvested (16% of those fish outside the slot limit that could have been harvested; 3,581 out of 21,721 "legal-size" bass). This number of harvested bass represents a 58% reduction in harvest compared to pre-slot-limit (14" minimum) data. Of the bass harvested, most (75%) are less than 14" with 13" bass being the most commonly harvested size (37%). Less than 1 percent of harvested bass are 10" or smaller. Only 5% of bass harvested are within the slot limit (illegal fish).

If you have any questions or comments, please contact Beacham Furse at (863) 462-5190.

Results of the of the full-lake Hydrilla treatment should be known by Mid-May

Full Lake Hydrilla Treatment

Did you notice the helicopters flying over Lake Istokpoga during March. They were treating the lake with Sonar, a slow release herbicide, to kill the fast growing Hydrilla that is taking over the lake again.

If you haven't been to the south end of the lake you might not know just how bad it is getting, but if you have, then you will see how we need this treatment.

According to Vicki Pontius, Parks and Recreation Director for Highlands County, "a full lake treatment is being done, not just the south end, as was reported in a local newspaper. This year the work is in 3 treatments, March 11, March 17, and March 31. There will be less labor involved since some of the herbicide is coming in 1000-pound bags rather than 40# buckets. A total of 2400 acres will be treated, which means that 24,000 acres of the lake is effectively treated.

There is also a change in the herbicide being used. In addition to the Sonar SRP, we will be using some Sonar PR this year. This is a rapid-release formulation of Sonar, which will distribute faster than the Sonar SRP, a slow release pellet.

The grab samples, or test plots, will begin about one month following the treatments, giving the herbicide time to release into the water and start doing its job."

It takes a while for the effects of the sonar to be visible. The full results will not be know until about six or eight weeks after the final treatment.

FFWCC Enforcement

Lt. Dale Knapp
Florida Fish and Wildlife Conservation Commission

Our last year on the Lake Istokpoga Fish Management Area revealed a slight increase of violations over the previous year, 160 citations and warnings for 2002-2003 compared to 144 tickets in 2001-2002. This increase was attributed to more arrests for taking over the bag limit of speckled perch (15). The majority of the remainder of the arrests were for fishing without a license (23) and boating infractions (12). The other arrests included alligator, duck hunting, slot bass cases and one boating under the influence arrest. The bulk of the warnings were for license and boating infractions.

Lake Level Dropping

Bill Dwinell
President
Friends of Istokpoga Lake Association, Inc.

According to the Lake Istokpoga Regulation schedule, the lake level will begin going down early in April. As most of you know the level of Lake Istokpoga is controlled by "The Regulation Schedule". Lake Istokpoga has been controlled by the current schedule since 1991. The regulation schedule was developed by the U. S. Army Corps of Engineers (USACE) when the S-68 structure was built. The South Florida Water Management District (SFWMD) is responsible for managing the lake level according to this schedule.

According to the schedule, the water level will be lowered beginning April 1 and will reach the summer level about June 1. Right now the lake level is at 39.5 ft. mean sea level (msl). The normal maximum summer level is 38.25 ft. msl. The level during summer can go even lower if conditions warrant. During dry weather it can go as low as 37.0 ft. msl. If the lake level does go as low as 37.0 ft. msl, then all withdrawals from the lake are stopped. Under normal conditions the lake should not drop below 37.5 ft. msl during the summer. This is a drop of two feet from where it is in the winter.

The lake is allowed to start refilling about August 1 and should reach the full winter level about October 1.

As many of you know, many of our canals on Lake Istokpoga are pretty shallow and some are impassable during the summer months because of the low water level. If you have your boat on one of these canal an wish to take it out of the water for summer, you should pay close attention to the dropping water levels. Don't get caught by waiting too long.

If you wish to keep a close watch on the levels you can check them at the USACE web site at **http://www.saj.usace.army.mil/h2o/plots/isthp.gif** for a graph of the lake level that is updated daily. This graph also shows the regulation schedule so you can see what the plan is suppose to be. You can also reach this site from the Friends of Istokpoga Lake Association, Inc. website on our Links Page.

If you have any questions about the Lake Istokpoga regulation schedule, send us an e-mail at friends@istokpoga.org and we will try to find you an answer.

Cypress Trees in Lake Istokpoga

Bill Dwinell
President
Friends of Istokpoga Lake Association, Inc.

Have you noticed that there are no young cypress trees in Lake Istokpoga? Well, neither did I, but Mike McMillian did. Yeah, we have some on the shoreline, but very few in the lake.

Mike noticed some seedlings sprouting in the southeast part of the lake during the draw down in 2001 while working on the lake doing his osprey research. He set up 10 small study sites and tagged 10 seedlings at each site, 100 cypress seedlings in all. These were all trees that started on their own because the water level was down much lower than it had been in many years. The results were not what he hoped for, in fact, 100% of them died when the water levels returned to normal at the completion of the draw down.

Mike has noticed a few cypress trees on the western side of the lake, within the shallow water, coming in since the draw down. So there are a few that are reestablishing themselves. But none of these are in the southeastern part of the lake where a great many old trees currently stand. This is the area of most concern to Mike.

You may ask why this is happening. The reason is the lake regulation schedule. The lake levels are too deep for the cypress trees to get established, even during the summer when the levels are lower.

Initial investigations by Mike and the Friends of Istokpoga Lake Association, Inc. indicate that the trees will probably survive if no more than 1/3 of their stem is covered in water for long periods of time. That means that to plant a cypress tree in 2 feet of water, the tree must be 6 to 8 feet tall, and for 4 feet of water the tree must be 12 to 15 feet tall.

Together, we are looking into the possibility of planting some cypress trees within Lake Istokpoga. We haven't made any decisions to actually do any planting at this time, nor have we had any specific discussions on where we would plant them if we were to decide it is a worthwhile project.

We have had some preliminary discussions with Florida Fish and Wildlife Conservation Commission (FFWCC) about planting some trees on the "wildlife islands" created during the draw down, and we have received an encouraging response. We see this activity as secondary to reestablishing trees within the lake. By planting cypress trees on some of these islands we can create some nice habitat for wildlife and turn them into real wildlife islands.

Cypress trees can live for 300 to 500 years. With the current tight control on the lake levels we may never see any new trees within the lake. As it stands right now, there will be no cypress trees in Lake Istokpoga in the distant future unless we do something about it now. As we see it, only intervention by man can remedy this man-made problem.

We will update you on this project as it develops.

Our Next Meeting

Our next general meeting is scheduled for Thursday, May 22, at the Lorida Community Center, Lorida Florida, at 7:00 PM.

Our Guest Speaker will be Merritt O'Brien, President of Ridge Trails Association. He will outline the fifteen year plan for Highlands County Blueways, Greenways, Trails and Bikeways. If you aren't familiar with this plan, don't miss this meeting.

We will also have an update on the effectiveness of the March full-lake hydrilla treatment.

Mike McMillian will also give us an update on the osprey population around Lake Istokpoga

Refreshments will be served at 6:45 PM. For more information call us at 219-0082.

Our Summer Schedule

As you probably know, we do not hold board of directors meetings or general meetings during the summer months. We also do not mail any newsletters during the summer. Look for our next newsletter in the fall with an announcement of our Fall General Meeting.

Contact Information for Friends of Istokpoga Lake Association, Inc.

Have you ever thought of contacting the Friends of Istokpoga Lake Association, Inc. and did not know how to do it?

Here are several ways to contact us:

- Telephone: 863-219-0082 (beeper)
- Fax: 863-465-2982
- Website: www.istokpoga.org or www.istokpoga.com
- E-mail: friends@istokpoga.org or friends@istokpoga.com or friendsofistokpoga@hotmail.com

We hope you will contact us anytime you have a question or concern about Lake Istokpoga. When calling our beeper you can leave a voice message, or key in your phone number. In either case we will call you back as soon as possible.

Glades Electric Coop Annual Meeting

We had a very successful time at the Glades Electric Coop Annual Meeting in Okeechobee on March 22. We want to thank all of our members who stopped by and said hello to us. We signed up quite a few new members and got several renewals from our current members. All-in-all we consider the meeting a great success.

You may not be aware that Friends of Istokpoga Lake Association, Inc. gives away a $100 bill each year at this meeting. We give away one raffle ticket to anyone stopping by our table, plus we give away extra tickets to anyone joining or renewing their membership.

This year Mr. Paul Bowers of Sebring was the lucky winner.

