



Catching the Biggest Fish May Have Unintended Results

In all types of fishing, we almost always assume that the biggest fish are the best. We target the biggest fish with lures and bait and with nets that catch only larger individuals, and we often make regulations that require the smaller fish to be released. There are unquestionably positive results from some of these regulations, such as allowing individuals of a species to achieve spawning age before they can be taken. But many recent studies are showing that this approach is also having unintended consequences.

These studies have ranged from laboratory experiments in aquaria, to studies of cod across expansive ocean fishing grounds, to wide-ranging compilations of multiple studies on salmon and trout, to controlled studies of carefully stocked fish in lakes. The results are giving a very clear picture. Fishing pressure on the biggest fish often selects *against* the traits we favor: fast growth, active feeding behavior and large size. In essence, we are seeing that many fishing strategies are inducing evolutionary responses in fish populations, such as early maturation at small size and reduced fecundity.

In one study on North Atlantic cod, analysis revealed probable genetic changes in growth in this population in response to size-selective fishing. The main question being investigated was why cod stocks have not rebounded in areas where fishing pressure has been reduced. Results indicated that there had been genetic changes in growth rates in this population in response to size-selective fishing, accounting for the continued small size-at-age despite good conditions for growth and little fishing for over a decade.

In another revealing experiment, two small Canadian lakes were stocked with equal densities of two types of rainbow trout. One genotype was selected for its fast growth and aggressive feeding behavior (fast/bold) and the other for traits of slow growth and cautious behavior (slow/shy). The fish were the same size at stocking. Then both lakes were fished intensively, but evenly, with gill nets. Fifty percent of the fast/bold fish were captured, but only 30 percent of the slow/shy fish were taken. The authors stated that: "Given that growth is heritable in fishes, we speculate that evolution of slower growth rates attributable to behavioral vulnerability may be widespread in harvested fish populations. Our results indicate that commonly used minimum size-limits will not prevent overexploitation of fast-growing genotypes and individuals because of size independent growth-rate selection by fishing."

The next step will be to apply this knowledge to real-world fisheries management. Some research has already begun on how to best avoid these problems. Each fishery will require a somewhat different approach, since response to selective harvesting depends on specific life histories, varying environments and different community structures. In the future, managers will need to consider these factors of fisheries-induced evolution. Better genetics data will be required, along with sound understanding of existing ecological processes and changing aquatic environments.

-Glenn Thomas

Sources:

Detecting and managing fisheries-induced evolution. Anna Kuparinen and Juha Merilä. Evolutionary Applications. Vol 1, #2. pages 271-285. Published Online: 28 Apr 2008

Rapid depletion of genotypes with fast growth and bold personality traits from harvested fish populations. Peter A. Biro and John R. Post. Proceedings of the National Academy of Sciences of the USA. Vol. 105, no. 8, pages 2919–2922. February 26, 2008. www.pnas.org/cgi/doi/10.1073/pnas.0708159105

Evolutionary response to size-selective mortality in an exploited fish population. Douglas P. Swain, Alan F. Sinclair and J. Mark Hanson. Proceedings of the Royal Society of Biological Sciences. Volume 274, Number 1613. pages 1015-1022 April 22, 2007. <http://journals.royalsociety.org/content/x3043818184252t3/?p=f85105bdfc57442b842138fa097f48df&pi=0>

Calcasieu Trout Study Enters Final Stage

The last group of spotted seatrout was implanted with acoustic transmitters on Oct. 13th and 15th as part of a Calcasieu Lake study. Thirty four fish were captured by volunteer anglers and transported to the tagging vessel. Once transferred to the Louisiana Department of Wildlife and Fisheries vessel, *Ladyfish*, they were sedated, weighed and measured. A yellow dart tag was inserted near the fish's dorsal fin. Sex was determined either visually during surgical implant of an acoustic transmitter, by biopsy sample or by grunting/croaking during handling. Only male fish of the *Sciaenidae* (drum, redfish, croaker, seatrout...) family grunt.



Team Blue at the surgery table. From left: Kevin Savoie, Secretary Barham, Jody Callihan, Jerry Ferguson. Photo credit: Mandy Tumlin.

Once the transmitter was implanted and the incision stitched shut, the fish was placed in a holding tank with re-circulating water to recover. After 10 minutes, if the fish looked energetic it was released. This last group of fish brings the total number of acoustically implanted trout to more than 180. Survival is confirmed when a fish passes within 250 meters of one of the 55 acoustic receivers placed throughout the Calcasieu estuary. Survival rate of surgically implanted fish is good with more 80 percent of fish living for at least one month. Data will be collected for one more year.

On Wednesday, Oct. 15th, a special guest participated in the project. Robert Barham, Secretary of Louisiana Department of Wildlife and Fisheries, caught a couple of fish, transported them to the tagging vessel and observed the entire implanting and tagging process.



The trout "waiting room." Photo credit: Mandy Tumlin.

In early September, Jody Callihan, PhD student at LSU in charge of the project, was confronted with a monumental task. With Hurricane Gustav threatening to destroy the receivers throughout the estuary, he along with LDWF personnel removed and safely stored all receivers, buoys and concrete anchors. With Hurricane Ike coming through the following week, the receivers were not re-deployed until the last week of September. It will be interesting to see what effect Ike's huge storm surge has on these fish.

Boaters and fishermen are reminded not to tie off to or tamper with the yellow LSU research buoys.

Also, anglers are asked to release any yellow dart tagged spotted seatrout. If the fish is not able to be released please return the transmitter so it can be used again. To report the capture of a tagged fish call 1-800-891-3977 and give the tag number and date and location of capture. Fishermen providing this information will receive a Louisiana Sport Fish Tagging Program hat and t-shirt, and will be entered in an annual drawing for GPS units and cash prizes up to \$500.

Read more about the project at: www.seagrantfish.lsu.edu/pdfs/lagniappe/2007/05-01-2007.pdf or www.seagrantfish.lsu.edu/news/2007/fishtags.htm

- Kevin A. Savoie

New Information on Pesticides in Aquatic Systems

Salmonids in the Puget Sound's urban streams are being threatened, according to a recent report by the National Marine Fisheries Service (NMFS). Results from their study show that three insecticides, known as organophosphates, have detrimental effects towards these sensitive species. The insecticides diazinon, chlorpyrifos and malathion, are capable of disrupting salmonid sensory functions necessary for upstream migration. The neurotoxins affect the central nervous system, and with high concentrations, can be fatal.

Diazinon is an insecticide used on agricultural fields, and until 2004, was also available for home use. Chlorpyrifos is used on agricultural lands, as well as in and around households for pest control. Malathion has a wide variety of application uses, from agriculture to home and garden and mosquitoes to head lice. These chemicals are not only toxic in their applied form, but when broken down by the liver or by bacteria, they can become up to 100 times more potent.

Lagniappe Fisheries Newsletter

Editor: Glenn Thomas

Web coordinator: Melissa Dufour

Copy editor: Roy Kron

Layout/design: Jessica Schexnayder

These three organophosphates are not new to controversy. Last year, a study tied declining amphibian populations in the California Central Valley to these same chemicals. The organophosphates were shown to suppress acetylcholinesterase, an enzyme that helps control the nervous system. Too little of the enzyme results in uncontrollable neurological function and ultimately results in death by asphyxiation.

The NMFS will conduct follow up studies to investigate the impact of organophosphates on salmonids in the Northwest. They will outline usage recommendations for farmers and home users in their final report, due out this fall.

A prominent, and potentially problematic pesticide in Louisiana is atrazine, one of the most popular herbicides here and across the nation. Studied by the USGS in Terrebonne and the Florida parishes, atrazine is most prominent in Louisiana during the “spring flush,” when northern snow melt and rain wash the herbicide out of cornfields into the rivers. In flowing rivers, atrazine will quickly peak and then fall as it travels toward the Gulf. Slow-moving bayous, however, do not “flush” as easily and can lead to very high concentrations of locally-used atrazine during certain months of the year. Recent studies have shown that atrazine can be relatively long-lived in the water, and may be causing subtle changes in algal populations that can ultimately affect amphibians and fish.

- William Sheftall IV

Sources:

<http://www.kitsapsun.com/news/2008/Aug/09/federal-report-pesticides-endanger-salmon/>
<http://articles.latimes.com/2000/dec/06/news/mn-61886>
<http://wihort.uwex.edu/landscape/DiazinonCanceled.htm>
<http://www.atsdr.cdc.gov/tfacts84.html>
<http://www.atsdr.cdc.gov/toxprofiles/phs154.html>
<http://www.sciencedaily.com/releases/2007/06/070623213748.htm>
<http://la.water.usgs.gov/pdfs/atrazine.pdf>
<http://www.npr.org/templates/story/story.php?storyId=96282292>

Compound in Oysters Effective in Preventing Cancer Growth

A compound found in oysters is effective in preventing the growth of cancer cells, according to an LSU AgCenter researcher. Ceramides - a lipid or fat compound - found in oysters, other animals and plants are currently in clinical trials to speed the healing process in patients undergoing chemotherapy. In a research paper recently presented at the Annual Meeting of the *Institute for Food Technology*, Jack Losso with the AgCenter’s Department of Food Science detailed his use of oyster ceramides to arrest breast cancer cells grown in test tubes and laboratory rats.

“This is incredibly exciting,” said Losso, whose research was funded by Louisiana Sea Grant and the AgCenter. “When we looked at cancer cells treated with ceramides, their growth had been inhibited and they were dying.”

Oyster ceramides fight both hormone-dependent and hormone-independent breast tumor cells in test tubes and kill them within 48 hours. In laboratory rats treated with oyster ceramides, blood vessel growth that simulates cancer cell growth and proliferation was reduced by 57 percent in seven days. No toxicity to the animals was reported.

Although the rats received concentrated ceramide injections, the compound can just as easily be taken orally in pill form, said Losso. Conceivably, an oyster-rich diet could aid in cancer prevention. "You could eat the oysters raw or cooked," said Losso. "But you can't grill with those popular counter-top grills that discard the fat. The ceramide is in the oil, which is lost when you use a grill that is tilted."

Although the compound is found in a variety of plants and animals, the type of ceramide differs on the species. Oysters, which are filter feeders, apparently collect ceramides in their bodies as they ingest phytoplankton.

Turtle Excluder Device Exemption Extended

The National Marine Fisheries Service (NMFS) has granted shrimp trawlers a temporary 30-day exemption from federal Turtle Excluder Device (TED) requirements in state and federal waters from the western end of Timbalier Island at approximately 90 degrees 33 minutes west longitude eastward to the Plaquemines/Jefferson Parish line at approximately 89 degrees 54 minutes west longitude and extending 15 nautical miles seaward.

Shrimp trawlers fishing in these waters are now exempt from federal TED requirements through 11:59 p.m. on Nov. 28, 2008. In lieu of TED's, this authorization requires shrimp trawlers to restrict tow times to 75 minutes. Tow times are measured from the time trawl doors enter the water until they are retrieved from the water according to NMFS.

This exemption from federal TED requirements will expire at 11:59 p.m. on Nov. 28, 2008, unless otherwise extended by NMFS. Federal regulations provide for the use of limited tow times as an alternative to the use of TEDs if determined "that the presence of debris or other special environmental conditions in a particular area makes trawling with TED-equipped nets impracticable."

This action follows NMFS consideration of a request made by LDWF to further extend an earlier temporary TED exemption which included state and federal waters from the Mississippi/Louisiana state line to the Louisiana/Texas state line seaward a distance of 20 miles which will expire on Nov. 26, 2008.

Shrimp trawlers who continue to use legal TEDs in the affected areas do not have to limit their tow times. NMFS encourages shrimp trawlers in the affected areas to continue to use TEDs if possible, however, shrimpers choosing to use tow-time limitations may not simply sew the TED flaps shut; they must remove the TEDs from the trawls.

NMFS will continue to monitor this situation. If monitoring indicates that debris is no longer a problem, then this authorization will be shortened. If debris continues to be a problem after the dates above, this authorization may be extended. Fishermen should monitor NOAA weather radio for announcements or contact the NMFS Southeast Regional Office at 727/824-5312.

Louisiana shrimp fishermen continue to report the presence of large amounts of storm related debris throughout the impacted area. This debris primarily consists not only of man-made debris but matted grasses, rooted clumps of marsh vegetation, Roseau cane and branches uprooted and displaced by the storms. The debris has severely impacted both shrimp catch and TED performance and has damaged fishing gear as well. For more information, contact LDWF Marine Fisheries: Martin Bourgeois at 225/765-2401 or mbourgeois@wlf.louisiana.gov.

Katrina / Rita Fisheries Assistance Program Deadline Extended

The Louisiana Department of Wildlife and Fisheries (LDWF) has extended the deadline to submit required forms for the Hurricane Katrina and Rita Federal Fisheries Economic Assistance program to Dec. 1, 2008. The program was created for prequalified (2004-2005) licensed resident commercial fishermen, certain commercial fishing vessel license holders, wholesale/retail seafood dealers and charter boat fishing guides impacted by Hurricanes Katrina and Rita.

To date, LDWF has dispensed \$18.8 million to more than 3,700 qualified applicants. In May 2008, LDWF mailed nearly 9,000 information packets to individuals and entities that were determined prequalified for the program. Although some eligible participants have chosen not to participate, approximately 1,700 eligible participants have failed to submit necessary documents.

“In consideration of the number of participants who have not responded, LDWF has extended this deadline to provide added economic opportunity to those in the Louisiana fishing industry,” said LDWF Secretary Robert Barham.

LDWF is providing \$28.2 million in assistance to the state’s commercial fishing and charter boat industries through a \$41.3 million federal fisheries economic assistance grant from the National Oceanic and Atmospheric Administration through the Gulf States Marine Fisheries Commission. Louisiana resident commercial fishermen, certain commercial fishing vessel license holders and wholesale/retail seafood dealers with trip ticket recorded sales or purchases of seafood during the 12-month period (Sept. 1, 2004-Aug. 31, 2005) prior to Hurricane Katrina as well as Louisiana resident charter boat operators who held a LDWF charter boat fishing guide license in the qualifying period (Sept. 1, 2004-Aug. 31, 2005) qualify for some level of personal assistance.

LDWF requires trip tickets to collect commercial landings and associated information by trip. Trip tickets dated during the eligible period but submitted after Sept. 1, 2007, will not be considered.

LDWF is administering the distribution of personal assistance payments to qualified resident charter boat fishing guides, commercial resident shrimp, oyster, crab, and saltwater finfish fishermen and certain commercial fishing vessel license holders in the shrimp, oyster, saltwater fish and menhaden fisheries and wholesale/retail seafood dealers and freshwater finfish and wild crawfish fishermen who resided in the 27 LDWF- defined hurricane impacted parishes using trip ticket report records.

The South Central Planning and Development Commission (SCPDC) and affiliated planning districts are receiving and processing all information about this assistance program and anyone who is qualified to receive assistance and has not received a packet should contact the SCPDC as soon as possible by calling 800/630-3791 (toll-free) or 985/655-1051 (local), or mailing SCPDC at P.O. Box 1240, Gray, LA 70359-9902, or visiting the SCPDC Web site at www.scpdc.org/fisheriesassistance. Any questions concerning eligibility, requests for information, etc. should also be directed to the SCPDC.

Many eligible participants have moved or been displaced by the Hurricanes Katrina and Rita, as well as Gustav and Ike, and have not renewed their fishing licenses, leaving LDWF with out-dated address information. LDWF is examining all available databases in order to contact non-respondents and suggests that anyone knowing these qualifying participants urge them to contact the SCPDC as soon as possible. For more information, contact Martin Bourgeois, LDWF Marine Fisheries Division, ph. 225/765-2401 or mbourgeois@wlf.louisiana.gov.

New Disaster Assistance at Outreach Center in Belle Chasse

The Business Counseling Center network, established by Louisiana Economic Development (LED) to assist businesses impacted by the recent hurricanes, will set up an outreach center at the Southeast Louisiana Fisheries Assistance Center in Belle Chasse. The center was originally created by Seedco Financial as a “one-stop shop” for financial and technical assistance services for fisheries with the goal of supporting the stabilization, formalization and long-term growth of the industry.

Other Louisiana Business Counseling Centers are located in Baton Rouge, Metairie, Thibodaux and Carencro. See also LouisianaForward.com/BizHelp, or call 504/831-3730.

U.S. Small Business Administration (SBA) and LSBDC-Greater New Orleans Region will offer business owners and residents assistance with SBA disaster loans and business consulting. No appointments are necessary. The outreach center will be open Mondays through Thursdays, through Nov. 13, 8:30 a.m. to 5:00 p.m. at:

The Southeast Louisiana Fisheries Assistance Center
 212 Avenue G (near the Belle Chasse Ferry)
 Belle Chasse, LA 70037
 504/392-2455 or 504/520-5727
 Dates of Operation: 11/3-11/6; 11/10-11/13

Services Offered at the Outreach Center include SBA Disaster Loan Assistance: SBA is the federal government’s primary source of money for the long-term rebuilding of disaster-damaged private property. SBA helps homeowners, renters, businesses of all sizes, and private non-profit organizations fund repairs or rebuilding efforts, and cover the cost of replacing lost or disaster-damaged personal property. These disaster loans cover uninsured and uncompensated losses and do not duplicate benefits of other agencies or organizations. For information about SBA programs, call 800/659-2955 (TTY 800/877-8339).

SBA deadlines are:

- For Hurricane Gustav related damage: Nov. 3rd, 2008
- For Hurricane Gustav related economic injury: June 2nd, 2009
- For Hurricane Ike related damage: Nov. 12th, 2008
- For Hurricane Ike related economic injury: June 15th, 2009

Seedco Financial Services assistance is also available. Seedco includes below-market interest rate loans used for working capital, debt consolidation and expansion; training and advisory services, including financial management, marketing and business planning. Services can accommodate limited-English populations.

Business Consulting assistance is available: LSBDC’s business consultants offer confidential business consulting, including: business assessment, business recovery/continuity strategy and marketing; and loan preparation assistance, including help with preparing cash flow and financial statements and supporting loan documentation.

Public Comment on Shallow-Water Grouper Amendment Announced

NOAA Fisheries Service is seeking public comment on Amendment 30B to the Fishery Management Plan for the Reef Fish Resources of the Gulf of Mexico. The Gulf of Mexico Fishery Management Council has submitted Amendment 30B to NOAA Fisheries Service for review, approval and implementation.

The purpose of Amendment 30B is to end overfishing of gag, revise red grouper management measures as a result of changes in the stock condition, establish annual catch limits and accountability measures for gag and red grouper, manage the shallow-water grouper fishery to achieve optimum yield, and improve the effectiveness of federal management measures. Specific details for Amendment 30B can be found at <http://sero.nmfs.noaa.gov> or <http://gulfcouncil.org>.

Proposed accountability measures for gag and red grouper give the NOAA Fisheries Service assistant administrator the authority to shorten the fishing season for a particular sector if that sector's landings go over the annual catch limits. The recreational accountability measure would provide the assistant administrator the authority to shorten the fishing year in the following year if the limit is exceeded, while the commercial accountability measure would give the assistant administrator the authority to shorten the fishing season within the fishing year and in the following year if the commercial limit is exceeded. Recreational annual catch limits would be defined as multi-year running average landings, with exception of the first year that would use only 2009 landings.

Written comments must be received no later than 5 p.m. (Eastern Time) on Dec. 29, 2008. You may submit comments by any of the following methods: You can submit written comments, identified by NOAA-NMFS-2008-0203, by any of the following methods: electronic submissions Federal e-rulemaking portal: <http://www.regulations.gov>, fax- 727/824-5308, or mail- Peter Hood, Southeast Regional Office, NOAA Fisheries Service, 263 13th Avenue South, St. Petersburg, FL 33701. Electronic copies of Amendment 30B can be found on the Council's website, <http://www.gulfcouncil.org>, or by contacting the Council at 2203 North Lois Avenue, Suite 1100, Tampa, FL 33607.

THE GUMBO POT

Ken's Chargrilled Oystalettas

1 pint shucked oysters
½ cup shredded mozzarella cheese
½ cup Italian bread crumbs
½ cup Parmesan cheese
20 slices pepperoni
Garlic butter
Olive Salad mix
Toasted (thin) slices French bread

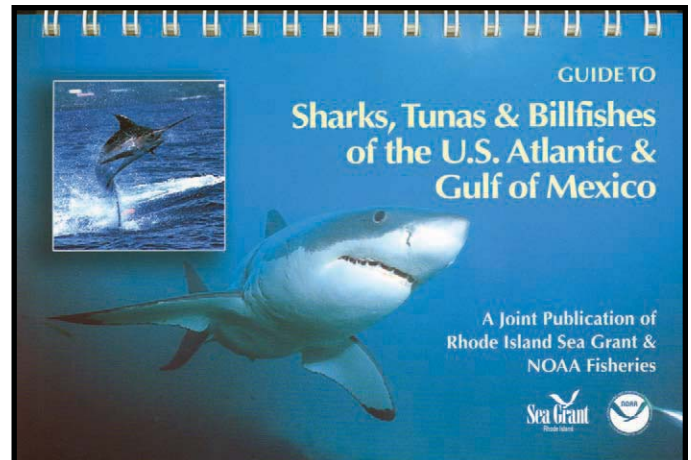
This is a recipe for char-grilled oysters, but instead of grilling oysters on the half shell, use shucked oysters and grill in an iron cornbread muffin pan. Really saves a lot of time!

To make the "oystaletta". Place oysters in oiled cast-iron muffin pan. Add 1-2 pieces pepperoni, garlic butter, parmesan, bread crumbs, olive salad mix (like on the muffaletta), with mozzarella on top. Grill over hot coals for about 10 minutes. Serve on a toasted thin slice of French bread. Don't spill the ceramides (see page 4-5 in this issue).

This is rich! 1 pint feeds 4 people (including Ken's neighbor from Chalmette, who approved heartily).

Perfect for Holiday Gift Giving

- Content reviewed by species specific experts for accuracy
- Concise species descriptions for rapid identification of 44 species of sharks, tunas, and billfishes found in the U.S. Atlantic, Gulf of Mexico and Caribbean Sea
- Descriptive pages providing information on size, distinguishing characteristics, geographical distribution, habitat and similar species
- Full-color photographs of each species, as well as field photographs, body profiles and comparison pages to aid in identification
- Waterproof paper and spiral binding for durability in field use



Price: \$28 including s/h

Please make check or money order payable to: *Louisiana Sea Grant College Program*
Mail order to: Jessica Schexnayder, Louisiana Sea Grant College Program,
Louisiana State University, 105 Sea Grant Building, Baton Rouge, LA 70803-7507



For more information, contact your local extension agent:



David Bourgeois – Area Agent (Fisheries)
Lafourche & Terrebonne Parishes
Phone: (985) 873-6495
E-mail: dbourgeois@agctr.lsu.edu

Thu Bui – Assistant Extension Agent, Fisheries
St. Mary, Iberia, and Vermilion Parishes
St. Mary Parish Court House
500 Main Street Rm. 314
Franklin, LA 70538-6199
Phone: (337) 828-4100, ext. 300
Fax: (337) 828-0616
TBui@agcenter.lsu.edu

Carol D. Franze – Associate Area Agent
Southeast Region
21549 Old Covington Hwy
Hammond, LA 70403
Phone: (985) 543-4129
Email: cfranze@agcenter.lsu.edu

Albert 'Rusty' Gaudé – Area Agent (Fisheries)
Plaquemines, St. Bernard, and Orleans Parishes
Phone: (504) 433-3664
E-mail: agaude@agctr.lsu.edu

Thomas Hymel – Watershed Educator
Iberia, St. Martin, Lafayette, Vermilion,
St. Landry, & Avoyelles Parishes
Phone: (337) 276-5527
E-mail: thymel@agctr.lsu.edu

Lucina Lampila – Associate Professor
111 Food Science Bldg.
Louisiana State University
Baton Rouge, LA 70803-7507
Phone: (225) 578-5207
Fax: (225) 578-5300
llampila@agcenter.lsu.edu

Kevin Savoie – Area Agent (Southwest Region)
Natural Resources-Fisheries
Phone: (337) 475-8812
E-mail: ksavoie@agctr.lsu.edu

Mark Schexnayder – Coastal Advisor (Fisheries)
St. John, St. Charles, Jefferson & parts of Orleans Parishes
Phone: (504) 838-1170
E-mail: mschexnayder@agctr.lsu.edu

Mark Shirley – Area Agent (Aquaculture & Coastal Resources)
Jefferson Davis, Vermilion, Acadia, St. Landry, Evangeline,
Cameron, Calcasieu, Lafayette, Beauregard, & Allen Parishes
Phone: (337) 898-4335
E-mail: mshirley@agctr.lsu.edu

Research and Extension Programs

Agriculture
Economic/Community Development
Environment/Natural Resources
Families/Nutrition/Health
4-H Youth Programs

For questions or comments about a story, contact Lagniappe editor Glenn Thomas at gthomas@agctr.lsu.edu.

R. Glenn Thomas, Ph.D.
Associate Professor Fisheries
School of Renewable Natural Resources
Room 227 RNR Bldg., LSU
Phone: 225.578.0771 Fax: 225. 578.4227
Baton Rouge, LA 70803
gthomas@agctr.lsu.edu
Web site: www.lsuagcenter.com



A State Partner in the Cooperative Extension System

The LSU Agricultural Center is a statewide campus of the LSU System and provides equal opportunities in programs and employment. Louisiana State University and A. & M. College, Louisiana parish governing bodies, Southern University, and United States Department of Agriculture cooperating.