

the Shellcracker



FLORIDA CHAPTER OF THE AMERICAN FISHERIES SOCIETY

<http://www.sdafs.org/flafs>

July, 2008

President's Message:

Greetings, Florida AFS members. After a generally mild spring, summer has arrived in the Panhandle with no uncertainty. Those of us who live and work in our state's northern reaches, such as myself, probably should not complain about heat and humidity, but we all should take proper precautions when conducting field work in the heart of summer. One way to cheat summer a bit is to head north, far north, such as to Ottawa, the host city of this year's AFS national meeting. I noticed that Florida AFS will be well-represented among presenters at this year's meeting, and I hope many others will be able to steal away for those few days in late August to take in some good talks, eat some good food, and catch up with colleagues who sometimes are spread far and wide.

One reason the heat has been on my mind recently is because for the first time in a few years I have been able to get out in the field quite a bit this summer. I got into fish biology because I love to be in the field sampling fish or fish habitat in some fashion or other, but, as others have expressed to me over the years, advancing careers sometimes translate to increased desk time, which in turn limits field time. This has been disappointing to me and I am glad that (over)commitments of the recent past years are getting fulfilled and I am now able to get out and touch a fish now and again. Another lesson that I am learning for myself, although it was first impressed upon me a few years back by an esteemed member of our Chapter who shall remain nameless, is that sometimes less is more. We hear about it all the time that the quest to build a career in many fields (e.g., business, the law, medicine, etc.) sometimes results in limited family time or limited time pursuing one's other passions. For those of us who have chosen fish biology as a career (or it chose us!), I think sometimes there is a danger in getting consumed by the job given that work and passion often are closely linked. For myself, that danger is most often manifested in over-committing to things because funding is never as certain as we would like and so many projects sound too interesting to pass up. But balance is key and we all need to find ways to recharge the batteries once in a while. Our annual state chapter meeting is a good way to do that, as are regional and national meetings, but if the job becomes a grind for anyone, try to remember why you got into this business to begin. And go touch a fish.

Beyond getting out in the field and actively conducting hands-on fish biology, mentoring students or interacting with the fishing public are other great ways to rejuvenate oneself. Our parent society clearly recognizes the value of such interactions, thus sponsors, along with several state and federal agencies, a great program that pairs promising high school students with professional biologists to introduce students to careers in fisheries: the 2008 Hutton Junior Fisheries Biology Program. In this edition of the Shellcracker, Kathy Guindon introduces us to Vaughn Crozier, a Hutton Scholarship winner who will be working with FWC fishery biologists in the coming year. Congrats to Vaughn on his scholarship and congrats to Kathy and others for undertaking what promises to be a rewarding experience for all.

Best Regards,
Will Patterson
President, Florida AFS



Getting in Touch

President

Will Patterson
University of West Florida
Department of Biology
11000 University Parkway,
Pensacola, FL 32514
Phone: (850) 857-6123
Email: wpatteson@uwf.edu

President-Elect

Debra Murie
University of Florida
7922 N.W. 71st St.
Gainesville, FL 32653
Phone: (352) 392-9617 ext. 245
Email: dmurie@ufl.edu

Secretary/Treasurer

Linda Lombardi-Carlson
NOAA Fisheries Service
3500 Delwood Beach Road
Panama City, FL 32408
Phone: (850) 234-6541 ext. 213
Email: linda.lombardi@noaa.gov

Newsletter Editor

Jaclyn Debicella Leonard
Madison Middle School
3375 Dairy Road
Titusville, FL 32796
phone: (321) 264-3120
Email: jackiedebo@hotmail.com

Past President

Eric Nagid
FWC
7922 N.W. 71st St.
Gainesville, FL 32653
phone: (352) 392-9617 ext. 240
email: eric.nagid@myFWC.com

Upcoming Events

July 20-25: Eighth International Wetland Conference. Cuiaba, Brazil.

July 23- 28: American Society of Ichthyologists and Herpetologists. Montreal, Canada.

July 28 – August 1: Eighth International Congress on the Biology of Fish. Portland, Oregon.

August 17-21: American Fisheries Society 138th Annual Meeting. Ottawa, Ontario Canada.

New Titles

Burbot: Ecology, Management, and Culture. Vaughn L. Paragamian and David H. Bennett, editors. 270 pages, Symposium 59. Published by the American Fisheries Society. February 2008.

Reconciling Fisheries with Conservation: Proceedings of the Fourth World Fisheries Congress. Jennifer Nielsen, Julian J. Dodson, Kevin Friedland, Troy R. Hamon, Jack Musick, and Eric Verspoor, editors. Published by the American Fisheries Society. March 2008.

***Check out our Parent Society's calendar at
<http://www.fisheries.org/Calendar.shtml>
for other events not listed here!***

PCB Monitoring on the Oriskany Reef (Part I: Project Background)

Jon W. Dodrill

Florida Fish and Wildlife Conservation Commission

May 17, 2006. Since 0530 hrs I had been standing on the bridge of a Navy command and control ship, the 226 foot long salvage vessel, M/V *Powhatan*. Well before dawn, the ship weighed anchor, moving from its night offshore anchorage through 2-3 ft seas under the power of two 5,000 h.p. Electric Motor Company locomotive diesels. We were 22.5 nautical miles southeast of Pensacola Pass off North-west Florida in the NE Gulf of Mexico. Since 0600, two converted 170 foot ghostly white *Asheville* class Vietnam era coastal patrol gunboats, the *Athena I* and *Athena II* carrying marine mammal and sea turtle environmental observers had been moving back and forth in a grid search pattern on either side of a 62 year old de-commissioned aircraft carrier, the ex-U.S.S. *Oriskany* (CVA-34). The 888 foot long 32,000 ton carrier lay motionless, under a clear mid morning sky. Around 1000 hrs the final radio calls came in to me from the environmental observers on the two *Athena* vessels. No marine mammals, sea turtles or any large mats of *Sargassum* weed possibly concealing juvenile turtles were visible near the *Oriskany*. Observers on the *Powhatan* confirmed the same. The two observer vessels backed off to a range of .8 nautical miles from the carrier. At 1025 hrs, following a one minute warning, the Navy's "Test Conductor" stood at a laptop computer on the *Powhatan*'s bridge. He gave a ten second count down and moved his hand and outstretched finger toward the lap top key board.

As the Test Conductor made a single keystroke, I heard a momentary muffled "whump!" coming from the direction of the aircraft carrier, now a half mile off. I saw an orange flash illuminate the opening of the aircraft elevator door that led into the cavernous empty aircraft hanger bay just below the flight deck. Rust-colored smoke briefly billowed out of the carrier's stack, the side elevator door opening and various other open hatches. Then, as the smoke drifted away, nothing more seemed to happen. The carrier, held in place by four 37,000 lb anchors, just floated there, seemingly unaffected. Twenty minutes later, there was still no obvious change.

Meanwhile, deep in the ship's interior, 750 lbs of shaped C4 explosives placed at 22 locations had done their job. The charges, connected to each other by 16,000 feet of detonating cord nearly simultaneously blasted open two bulkheads and the closed valves of 20 through-hull seawater intake (sea chest) pipes of various diameters (10-40 inches) connecting the hull exterior to the engine rooms and fire rooms. Thousands of tons of water poured unseen through these compromised seawater intake pipes into the vessel interior. The prior cutting of scores of bulkhead holes, opening hatches, and many other pre-sinking preparation actions facilitated the controlled flooding of nearly four thousand compartments. Gradually the great ship began to settle, first imperceptibly then progressively more rapidly by the stern as geysers of air mixed with water shot up. The ship listed to port, then momentarily righted itself in brief hesitation. When the water level reached the open hanger bay, the speed of sinking further accelerated. Foaming blue water swept up the flight deck towards the bow which had risen completely out of the water. A small boat lashed with breakaway cables to the same flight deck from which Navy Commander John McCain took off on his last combat mission, broke loose and floated free. This boat, intended for recovery, contained a metal box with all the electronic instrumentation associated with the remote ignition of the explosives and post blast monitoring.

At 1101 hours, the carrier's entire superstructure or "island" rising 159 feet above the keel, quickly disappeared from sight followed by the bow at 1102. Whereas a lesser carrier, the WWII era U.S.S. *Independence* CV-22, watertight integrity intact, survived two separate July 1946 Bikini Atoll atomic bomb blasts, the *Oriskany* sank in 37 minutes, the result of the intensive joint planning and modeling efforts of naval architects and demolitions experts.

The *Oriskany* is the largest vessel ever to be sunk intentionally for use as a shallow water artificial reef. Resting in the planned upright position on the bottom, the vessel's superstructure rises to within 68 feet of the surface, providing ample navigational clearance to meet U.S. Coast Guard and Army Corps of Engineers permit clearance requirements of 55 feet. The flight deck, at a depth of 137

feet represents a physical and visual depth barrier to open water recreational SCUBA divers, though portions of the vessel on down to the sea floor at 212 feet entice technical divers. The *Oriskany* was intentionally sunk to face south, bow toward the probable general direction of any approaching hurricane. A stability analysis predicted no movement of the ship in a 100 year return interval hurricane event. In January 2007, title to the ship and the Army Corps of Engineers artificial reef permit were transferred from FWC to Escambia County.

Today, the Oriskany Reef, as intended by FWC and Escambia County, is primarily utilized as an offshore fishing and diving destination. It is also considered to be a site of naval historical interest, and contributes a measurable economic benefit to Pensacola and adjacent NW Florida communities. Additionally, the reef provides three-dimensional structural habitat in an area of the West Florida shelf where less than 5% of the sea floor is exposed natural hard bottom.

The creation of the Oriskany Reef was the culmination of three years of effort involving multiple agencies, consultants, two marine contractors, and extensive environmental review. The primary project partners were the Florida Fish and Wildlife Conservation Commission (FWC), Escambia County, and the Navy. The Navy was represented primarily by the Naval Sea Systems Command whose project managing entity was the Inactive Ships Program Office. This office is the Navy's agent for ship inactivation and reutilization. They coordinate the transitioning of ships from the fleet for storage and disposal, preserve Naval heritage through museum donations, protect the environment through ship dismantling and recycling, and most recently make available selected vessels for "enhancing marine ecosystems through artificial reefing" (Inactive Ships Program Mission Statement).

The Navy's overarching decommissioned military vessel disposal/transfer/recycling objective is to pursue the most cost effective or "best value" means of reducing the size of its inactive reserve fleet, thereby reducing long-term inactive fleet maintenance costs. At an estimated 2002 cost of \$24 million to subsidize the domestic scrapping of the *Oriskany*, the Navy planned to fund a turn key artificial reefing operation to sink the aircraft carrier as an artificial reef at a lesser cost.

Following the 2003 passage of enabling federal legislation (USC Title 10, Chapter 633, Section 7306b) that gave the Navy the authority to provide certain combatant ships for sinking as artificial reefs, the Inactive Ships Program identified the *Oriskany* as their first reefing candidate. After a distinguished 25 year career spanning the Korean War and Vietnam conflicts, the *Oriskany*, was decommissioned in 1975. Nearly three decades later, the "Mighty O" was one of the largest, oldest and most environmentally problematic ships remaining in the Navy's inactive reserve fleet. Contractors had defaulted on two prior contracts let to scrap the ship. The carrier had become a priority for removal from the inactive fleet. Foreign scrapping was not an option.

In response to an Oriskany notice of availability for reefing announcement, the Navy received and reviewed applications from the artificial reef programs of five states. FWC also internally evaluated five potential sink site locations within Florida. In April 2004 the Navy selected the joint FWC-Escambia County proposal to reef the *Oriskany* in an active and previously charted artificial reef site permitted to FWC in federal waters southeast of Pensacola, Florida. The open sand bottom deployment site within the permitted area was selected using side scan sonar, a drop-down video camera, and a ponar sediment grab.

Environmental Issues

Section 3516 of the National Defense Authorization Act for Fiscal Year 2004 required the Department of Transportation's Maritime Administration (MARAD) and USEPA to jointly develop guidance recommending environmental best management practices (BMPS) to be used in the preparation of vessels to be used as artificial reefs. Additionally under this Act the Secretary of the Navy is required to ensure that the preparation of a vessel stricken from the Naval Vessel Registry for use as an artificial reef is conducted in accordance with these BMPS and applicable environmental laws. One of the intents of the Act is to ensure that vessels prepared as artificial reefs "will be environmentally sound in their use as artificial reefs".

EPA chaired an interagency work group to develop best management practices to be used in the preparation of vessels for use as artificial reefs. This guidance document provided general clean-up performance goals and information on methods for achieving those goals. The finalized May 12, 2006 guidance document, whose draft was followed in the environmental preparation of the *Oriskany*, was "National Guidance: Best Management Practices for Preparing Vessels Intended to Create Artificial Reefs" (<http://www.epa.gov/owow/oceans/habitat/artificialreefs>).

EPA on their website stated: "The BMP guidance identifies materials or categories of materials of concern that may be present aboard vessels, identifies where these materials may be found, and describes their potential ad-

verse impacts if released into the marine environment. The materials of concern include: fuels and oil, asbestos, polychlorinated biphenyls (PCBs), paints, debris (e.g., vessel debris, floatables, and introduced material), and other materials (e.g., mercury, refrigerants). For each material or category of material of concern identified, this document provides a general clean-up performance goal and information on methods for addressing those goals.”

With a requirement that the draft BMPs be followed, the contract for the *Oriskany* environmental cleanup and preparation for sinking was let by the Navy’s Supervisor of Shipbuilding, Conversion and Repair (SUPSHIP, Bath, ME) to two partnering contractors, Resolve Marine Group (Fort Lauderdale, FL) and Esco Marine (Brownsville TX). In September, 2003, the contractors towed the *Oriskany* from the Maritime Administration’s inactive reserve fleet at Beaumont on the east Texas Gulf Coast to Texas Dock and Rail shipyard at Corpus Christi, TX. There, environmental cleanup and salvage of recyclable material to offset some of the cleaning costs took place.

In selecting the *Oriskany* as their initial pilot artificial reefing project, the Navy recognized that the ship was going to be a challenging vessel to environmentally remediate and prepare for sinking as an artificial reef. Before they were banned from use in 1975, PCBs, primarily in a solid state, were used in various materials on military vessels because of their heat resistant fire retardant qualities, and ability to maintain flexibility in rubber products. PCBs are classified as persistent organic pollutants (POPs), environmental health hazards, and suspected carcinogens ubiquitous in food, animal tissue (particularly lipids), soils/sediments in terrestrial, marine, and freshwater environments. The USEPA considers PCBs to be a “probable” human carcinogen though to date documentation of a direct link of PCB ingestion with creation of cancer causing tumors has been demonstrated only in lab animals. PCBs are capable of bio accumulating through trophic level transfer in top-level predators like fish and marine mammals that are part of the marine food chain. From a human health perspective, there are concerns about human exposure to PCBs particularly in the case of recreational fishermen, subsistence fishers, or at risk elements of the population (pregnant women, children) consuming over an extended period, fish and shellfish products that may have bio-accumulated PCBs.

PCB-containing materials were identified aboard the *Oriskany* through the Navy’s routine sampling protocol during the ship de-activation process. PCBs were found in bulkhead insulation, rubber products, paints, electrical cable insulation, ventilation gaskets, and lubricants on board the *Oriskany*. Particularly problematic to address were going to be the solid polychlorinated biphenyls (PCBs) at regulated levels above 50 parts per million (ppm) distributed in a solid matrix primarily in the thousands of feet of wire cable insulation and in fiberglass bulkhead insulation. The Navy believed that some of this solid PCB containing material located at levels below the hanger bay (main deck) could not cost effectively be removed without totally dismantling the ship and scrapping it at a greater anticipated expense.

The Navy proposed to leave some of this PCB containing material in the interior of the ship at the conclusion of their environmental remediation. In order to do this they had to get approval from the EPA to sink the ship with PCB bulk product above the regulated levels of 50 ppm still on board. On April 28, 2004 the Navy submitted to EPA an application requesting to dispose of PCB bulk product waste under 40 CFR Part 761.62(c). EPA under the authority of the Toxic Substances Control Act regulations (TSCA), based on a case-by-case review, may authorize disposal of PCB bulk product at concentrations greater than or equal to 50 parts per million. The standard for issuance of risk-based PCB disposal approvals under 40 CFR part 761.62(c) is a finding by EPA of “no unreasonable risk or injury to health or the environment.” To make this risk-based determination, EPA considers not only the effects of PCBs on health and the environment (including the degree of uncertainty in the risk assessments) but also the economic consequences and benefits of disposal.

The burden of proof was on the Navy. Their task, which involved the presentation and subsequent refining of several million dollars worth of supporting documents that had been under development for several years, was to demonstrate to the EPA that PCBs leaching over time into the marine environment from shipboard materials (mainly cable insulation and bulkhead insulation) left in the interior of the *Oriskany* below the main deck once sunk as a reef would not pose an unreasonable risk of injury to human health and the environment. That effort and subsequent EPA review and evaluation took another 21 months. The results of the internal and external EPA review, subsequent requirements for PCB monitoring and initial monitoring results will be covered in a future Part II installment of PCB monitoring on the *Oriskany* Reef.

FLAFS welcomes Vaughn Crozier to the chapter, our 2008 Hutton Scholarship Award Winner

Vaughn Crozier has been chosen as one of the 36 students who will participate in the 2008 Hutton Junior Fisheries Biology Program, an innovative education program sponsored by the American Fisheries Society (AFS). Vaughn will be a junior at Gibbs High School in the fall and is enrolled in the Pinellas County Center for the Arts. Vaughn will be working with his mentor, Kathy Guindon at the FWC's Fish and Wildlife Research Institute, for a summer-long, hands-on experience in fisheries science.

Vaughn will be completely immersed in the projects of the Marine Fisheries Research Section, working predominantly on the physiology research grant evaluating the sub-lethal effects of catch-and-release angling on tarpon. He will also be assisting with the statewide tarpon genetics recapture program.

The Hutton Program was designed to stimulate interest in careers in fisheries science and management among minorities and female high school students. The application process, however, is open to all sophomore, junior, and senior high school students. Each student chosen for the program is awarded a \$3,000 scholarship.

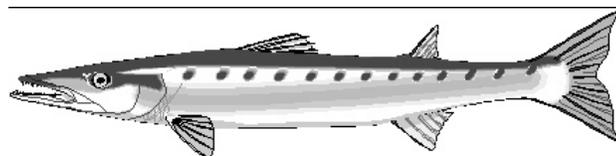
In the Hutton's seventh year, AFS received 118 student applications from across the country and Mexico, and selected 36 applicants to receive scholarships and mentorships. Twelve of these students participated in previous summers and are returning for another year. For most students, the Hutton Program is their first exposure to a professional work setting where they learn what qualities are necessary to be successful in that environment and the importance of being able to function well as part of a team.

This summer, Hutton Scholars will be working with their mentors in 22 states, including Alaska, Arizona, California, Colorado, Connecticut, Delaware, Florida, Idaho, Indiana, Iowa, Kansas, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, New York, Oklahoma, Texas, Washington, and Wisconsin.

Financial support for the 2008 Hutton Program is being provided by NOAA Fisheries, U.S. Fish and Wildlife Service, Arkansas Game & Fish Commission, Wisconsin Department of Natural Resources and other federal and state organizations. The program also receives support from the Education Section of AFS and several other AFS subunits, including the North Central Division, Northeastern Division, Western Division, Alaska Chapter, California-Nevada Chapter, North Carolina Chapter, Montana Chapter and Wisconsin Chapter, as well as many AFS individual members.

Other Hutton Program partners include the National Association of Biology Teachers, the Mississippi-Alabama Sea Grant Consortium, the University of Arkansas at Pine Bluff, and the University of Alaska at Fairbanks.

For information on the American Fisheries Society and the Hutton Junior Fisheries Biology Program, please visit the AFS website at www.fisheries.org.



Student Section

THE IMPORTANCE OF FLOODPLAIN CONNECTIVITY TO FISH POPULATIONS IN THE APALACHICOLA RIVER, FLORIDA

O. Towns Burgess
Department of Fisheries and Aquatic Sciences
University of Florida

The role of large-river floodplains and their connection to mainstem river channels is a major theme in riverine ecology (Gunderson 1968; Welcomme 1995; Tockner et al. 1998). Floodplains generally accumulate and store nutrients during low-flow seasons and release these nutrients into mainstem river systems during high flows, thus providing much of the primary production that supports these aquatic ecosystems (Junk et al. 1989). Additionally, floodplains are thought to play an important role in the life stages of many lotic fish species. Some fish species may use floodplain systems as spawning grounds during high water flow periods and juvenile fish are believed to use this habitat as a nursery ground (Shaeffer and Nickum 1986; Copp 1989).

Although improving connectivity and inundation of floodplains has been shown to enhance fish populations (Rood et al. 2003) and evidence suggests the importance of floodplain habitat to lotic fish species (Agostinho et al. 2001), few studies have examined the spatiotemporal use of floodplain habitats by adult fishes and correlated this use with spawning behavior. This represents an under-studied aspect of floodplain-mainstem connectivity that may provide guidance to management agencies charged with making decisions related to restoring lotic systems. In addition, few if any studies have determined if floodplain systems function independently of mainstem systems or if the two systems are part of a larger, integrated system. Understanding the interaction between floodplain and mainstem rivers and the fish communities associated with these systems is a critical component to implementing effective management policies. The purpose of this study was to investigate the importance of floodplain-mainstem connectivity to fish populations in the Apalachicola River, Florida, by focusing on the following objectives: (1) to determine seasonal movement patterns and habitat use of adult fishes in the floodplain and mainstem systems, (2) to examine possible correlations of seasonal habitat use by adult fishes with spawning events as inferred from larval fish collections in the floodplain and mainstem, and (3) to determine if mainstem and floodplain fish populations are independent or linked based on results of the first two study objectives.

This study focuses on an area in the non-tidal lower reach of the Apalachicola River. Within this reach are two floodplain systems on the east side of the river: River Styx and Battle Bend. River Styx enters the Apalachicola River at river kilometer (RKM) 56.9 and is a relatively undisturbed tributary floodplain system that is connected to the mainstem by a series of seasonal and perennial sloughs. Battle Bend (RKM 46.3) is a floodplain oxbow lake that was originally cut off from the mainstem river in 1969 by the US Army Corp of Engineers as part of a series of meander cutoffs and bend easings for navigation purposes. Vemco® sonic telemetry tags were surgically implanted in largemouth bass *Micropterus salmoides*, spotted bass *Micropterus punctulatus*, spotted suckers *Minytrema melanops*, and redear sunfish *Lepomis microlophus* during both years. Channel catfish *Ictalurus punctatus* were also tagged during the second field season. Arrays of passive Vemco® VR2 receivers were deployed in River Styx, the mainstem of the Apalachicola River, and in sloughs connecting these systems for the 2006 monitoring season. Additional receivers were added to the Battle Bend region after debris removal and channelization was completed during the 2007 monitoring season. Receivers record date, time, and tag number of telemetered fish when they are within the reception range of the receivers. A custom-designed floating light trap was used to collect larval, postlarval, and early juvenile fishes during both field seasons.

It is clear from habitat use (Figure 1), movement, and spawn timing results (Figure 2), that floodplain and mainstem habitats do not function as independent systems. Results from this study indicate that at least some proportion of the adults from each species studied used both habitats during a given year. With the exception of channel catfish (none captured in light traps), there is also strong evidence that each of the species was using floodplain habitat as spawning grounds. There also is evidence that these same species will spawn in mainstem habitat, but in the case of *Micropterus* spp., *Lepomis* spp., and *Minytrema melanops*, a greater proportion of larval catches occurred in the floodplain versus mainstem habitat. Although adults of these species studied may have evolved to use floodplain habitat as spawning grounds and juveniles may use this habitat as rearing grounds, this study was not designed to determine if access to floodplain habitat is required for these species. Previous studies have linked floodplain inundation with in-

creased yield of fishes in riverine system (Bayley 1991; Agostinho and Zalewski 1995); however, results from this study are not able to make such claims. We did find that, by reconnecting historical portions of the Apalachicola River (Battle Bend) at a range of riverine flows, these backwater habitats will be used by some species immediately; an important result for managers in this system. Other species, such as spotted suckers, may not immediately utilize these backwater habitats for spawning ground, potentially because of unsuitable habitat conditions. However, maintaining the connection of floodplain habitat to the mainstem river, and allowing for the natural interaction of these floodplains with the mainstem may improve the conditions of these backwater habitats. In the future, it is possible that species such as spotted suckers may find that this habitat is suitable for a spawning site.

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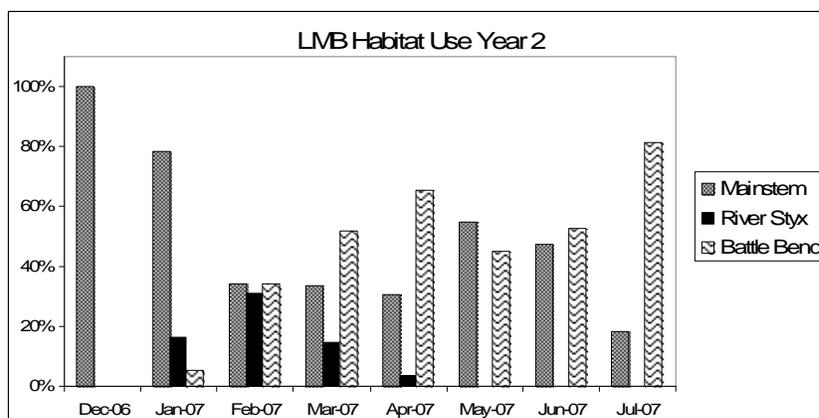
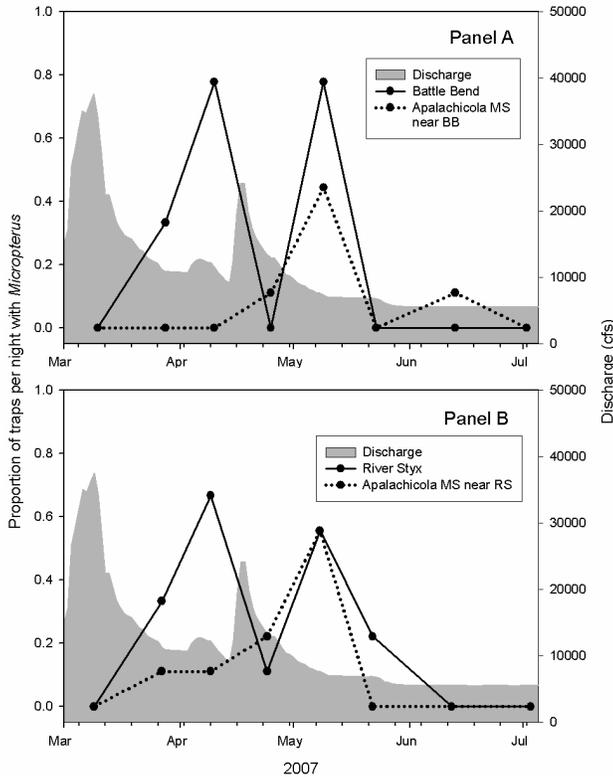


Figure 1. The monthly proportion of largemouth bass hits in the mainstem of the Apalachicola River (gray bars), in River Styx (black bars), and in Battle Bend (zig zag bars) during the second field season-2007.

Micropterus Light Trap Catches - 2007



LAKE GUNTERSVILLE, Ala. (June 17, 2008) - There aren't many college sports where schools of all sizes can truly be competitive against one another but fishing is one of them. That point was made again last weekend at the Southern Collegiate Bass Fishing Series (SCBFS) championship held on Alabama's Lake Guntersville when the University of Montevallo (Ala.) finished tops among a field that included traditional powerhouses like Auburn, Ole Miss and Georgia. The Montevallo team and many of the others from the Guntersville tournament will also compete in the 2008 Boat U.S. National Collegiate Bass Fishing scheduled for this fall on Texas' Lake Lewisville. Registration is open from now until Aug. 1 for school-sanctioned fishing clubs to enter the national championship scheduled for Sept. 18-20. Event rules and eligibility can be found by visiting www.foxcollegesports.com.

Figure 2. Plots of *Micropterus* spp. light trap catch through time for all sampling areas during 2007. Panel A depicts catch at Battle Bend and in the mainstem (MS) near Battle Bend. Panel B depicts catch at River Styx and in the mainstem near River Styx. Discharge is denoted by a grey area plot in cubic feet per second (cfs) and scaled along the secondary y-axis.

Student Subunit Updates

As fisheries students we have it pretty good. We conduct field work in some beautiful locations, and oftentimes our work leads to management and conservation of our aquatic resources. So...take pride in what you do as a student!

If any students are interested in being involved in a student sub-unit outreach activity (e.g., beach clean-up) please email me, ajbunch@ufl.edu. Updates have been made to the student website. If anyone would like to add any content from their school's fisheries organization, feel free to contact Stuart Carlton, stuart.carlton@ufl.edu. Students interested in being highlighted in upcoming issues of the *Shellcracker*, please contact me.

Many of the students involved in the Florida Chapter and Student Sub-unit are members of the graduate student organization, Students United in the Research of Fisheries (SURF), within the Program of Fisheries and Aquatic Sciences at UF. We would like to invite you to Gainesville for a seminar presented by Dr. Ray Hilborn from the University of Washington on Friday, November 14, 2008 at 3:00 pm. Location is TBA. We are very pleased to have him join us and we hope you can attend. See his webpage at <http://www.fish.washington.edu/people/rayh/> for more information regarding his research interests. Further details will be available in the next issue of the *Shellcracker*. Have a great summer!

Happy Fishing,
 Aaron Bunch,
 President, Florida Student Sub-unit

Several books to read and thereby delay writing your thesis

By Richard S. McBride

Author byline: Dr. McBride completed graduate school over a decade ago but he still remembers the good times; he is now a Supervisory Fishery Research Biologist for the National Marine Fisheries Service, at the Woods Hole lab in Massachusetts.

Before ‘The Simpsons’ appeared on television, Matt Groening produced some rather offbeat cartoons that I used to follow in the ‘*Chicago Reader*’, back in the day. I remember one early Groening cartoon where an anthropomorphic rabbit, struggling to complete graduate school, arrived at a clever tactic: ‘Read another book!’

I do not condone the rabbit’s notion completely, but there are several books that I would recommend to graduate students, each of which potentially could delay the completion of your thesis draft. Nonetheless, I believe that by reading any of the books referred to below, you will eventually write a better thesis draft, and, in the long term, you will improve your ability to communicate professionally. So, go ahead, set aside your thesis for a moment and read on.

The most obvious book to recommend is ‘*Writing for Fishery Journals*’ (Hunter, 1990). In addition to providing targeted information about writing for fishery journals, this edited volume contains helpful advice on a broad range of issues such as: common stylistic errors to avoid; problems with gray literature; presentation and analysis of data; and the process of submitting, reviewing, and revising manuscripts. The plethora of advice in this book touches on both practical and philosophical issues. For example, the chapter on graphic display of data provides 21 different figure types. In another chapter, which gives an insightful appraisal of the peer-review process, advice is given on how to objectively choose the right journal and how to respond to negative criticism in a manner that will positively influence the editor and reviewers. There are also two chapters introducing the topic of applied statistics and the interpretation of common fishery analyses. At 102 pages, this is a pithy volume that may become a well-worn reference for graduate students in fisheries, not the least because this is one of the recommended style guides for American Fisheries Society journals (<http://www.fisheries.org/afs/publications/styleguides/style1.pdf>).

There is also a book entitled: ‘*How to Write and Publish a Scientific Paper*’. No kidding. I read the first edition of this book in college (Day, 1979) and found it easy to read, succinct and filled with just enough humor to get through what is inherently a rather dry subject. This self-proclaimed ‘cookbook’ dispenses straightforward explanations for the many idiosyncrasies of this particular form of technical writing. There is specific, helpful advice on how to write every element of a manuscript; not just to write the obvious sections, such as the abstract or the methods, but also your address and the acknowledgements. Most creditably, the writing style in this book leads by examples and the information is applicable to many scientific fields. Many stylistic recommendations are covered, such as: the dynamics of verb tense throughout a manuscript; examples of common symbols used for editing proofs; tables showing the proper use of abbreviation, acronyms, and symbols; and even ‘The ten commandments of good writing’. Most useful, too, there is an excellent index to navigate back into the book when you refer to it later. In writing this article, I scanned the web to find that his book is now in its 6th edition (Day and Gastel, 2006). This new edition contains much more information, such as how to write grant proposals; how to prepare your curriculum vitae; how to write (or ask for!) a letter of recommendation; and how to provide peer review.

The quintessential book on the rather broad subject of writing is ‘*The Elements of Style*’. It was originally written in 1918; it is now in a fourth edition; there is even a special illustrated edition; and it can be accessed via the worldwide web (<http://www.bartleby.com/141/>). My copy (Strunk and White, 1972) has been read cover to cover, loaned out, returned, reread, periodically rechecked, and is dogeared after 35 years. It is a very short book – my copy is only 78 pages – and it makes no effort to be comprehensive regarding its topic; still, it manages to cover many aspects of grammar and composition very well, and it offers lucid tips on how to develop an effective style of writing. As far as I know, Mr. Strunk invented the technique of putting contrasting examples of writing side by side so that the weakness of poor writing jumps off the page. In the spirit of this book, which exposes the principle to ‘omit needless words’, I say: ‘read it!’ This book has the potential to improve your writing within only a few hours.

You have probably heard of the recent, North American edition of ‘*Eats, Shoots & Leaves*’ (Truss, 2003), which became a #1 ‘*New York Times*’ bestseller. Ms. Truss is intensely devoted to the execution of proper grammar in everyday life, and her passion shows in many ways, such as when she revels in several centuries of obscure history regarding the development of English grammar. As a biologist, one who understands the importance of standardized taxonomic nomenclature, I could readily understand Ms. Truss’ plea to standardize the use of punctuation marks. There are whole chapters on the apostrophe, the comma, the hyphen, and a slew of other punctuation marks are covered in due course. Still, I found this book somewhat marred by its heavy handedness. For example, green grocers are repeatedly belittled as having poor grammatical skills, as if the English language is threatened by this retailing profession’s lack of academic prowess. In another particularly amusing story, the author relates her experience standing on a London street holding a long stick with an apostrophe attached to the end. She waved the stick in front of a billboard in a manner to ‘correct’ a missing punctuation mark. I found nothing remarkable about how city dwellers avoided and ignored her, basically someone wielding a big stick on an urban sidewalk. In contrast, the author interpreted the pedestrians avoidance of her actions to be evidence that the English language is in serious retreat. Regardless, the book is, naturally, well written and worth the read.

A perfect antidote to the polemics of Truss' book is *'Grammar Snobs are Great Big Meanies'* (Casagrande, 2006). Ms. Casagrande bravely takes aim at Ms. Truss and a number of other highly regarded but often pedantic aficionados of the English language. In doing so, she offers a welcome perspective on the dynamic, living, and even imperfect qualities of the language. This book dispels the notion that one must completely acquiesce to the recommendations of editors and reviewers, but not without emphasizing that one should learn the rules before attempting to break with them. Ms. Casagrande seems more forgiving of those who are grammatically ignorant, at least until the high and mighty grammatical elite can get their story straight. This is a refreshing message for all of us still working to find our own voice in writing.

Not everyone plans to publish a thesis but virtually everyone anticipates landing a job after completing their degree. Improving your writing skills will serve you well for either objective, but the next book I recommend is focused more on the latter: developing your personal career track. *'The AFS Guide to Fisheries Employment'* (Hewitt et al., 2006) encompasses a broad spectrum of career steps, including pursuing undergraduate and graduate education, and employment in academia, government, non-governmental agencies, and the private sector. It has additional chapters on developing a resume or curriculum vitae, employment in aquaculture, working outside the U.S., becoming an administrator, and the value of professional societies. I picked up my copy at the trade show of the recent AFS annual meeting. At the time, I was actually on the other side of this book's purpose, as I was the selecting official for a position that I had recently advertised on www.USAJOBS.com. When I read the chapter on *'Fisheries Employment in the U.S. Federal Government'*, I was impressed with how effectively it promoted the benefits of civil service and how it covered the major milestones of applying and securing a federal job in fisheries. This is an excellent book for students to read as early as possible, in order to secure a broad overview of fisheries employment and thereby to be prepared for opportunities to professionally engage with a potential employer.

In his book, *'The 7 Habits of Highly Effective People'*, author Stephen Covey recommends taking the time to 'Sharpen the Saw'. He speaks of this as a holistic process of renewal, but part of the specific advice he offers is that 'Reading good literature on a regular basis is a good way to renew your mind.' (<http://leaderu.com/clinstitute/habits/habit7.html>) I agree, so follow Covey's model of renewal, not the rabbit's model of delay. None of the books I recommend here are unwieldy tomes, but if you actually do read all six this year, you may significantly delay completion of your thesis. So, go ahead but pace yourself. I hope that my review of these books allows you to choose, for example, the one book that best targets some specific weakness or immediate need of your own.

The books I have chosen to review are simply those I have found to be enjoyable and educational to read. If Mr. Groening's rabbit was writing this article, I am sure that he would have two or three times as many books to recommend. In fact, I came across several other interesting titles while perusing the web, and if you have another book to recommend, I encourage you to submit a short review to 'The Shellcracker' to share this information. But don't get carried away. Last I heard, the rabbit is still in graduate school and is successful only at avoiding his major professor!

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Interested in contributing something to the Shell-Cracker? Email Jackie Debicella Leonard at jackiedebo@hotmail.com with any articles or information that you would like to be included in the next issue. The deadline for the next issue is September 30th, 2008.

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