the Shellcracker

FLORIDA CHAPTER OF THE AMERICAN FISHERIES SOCIETY

http://www.sdafs.org/flafs

April, 2012

President's Message:

Thank you to everyone who attended the 32nd annual meeting of the Florida Chapter of the American Fisheries Society (FLAFS). I don't know about you, but I certainly appreciated returning to the beauty of Seller's Lake and the laid-back atmosphere of the 4-H Camp. Even with the torrential downpour on Saturday night, we were still able to enjoy the bonfire thanks to the efforts of Camp Ocala's attentive staff.

Speakers during this year's symposium presented a wide variety of ideas on how to approach fish habitat use over environmental gradients. Our keynote speaker, Dr. Ernst Peebles (University of South Florida, College of Marine Science), described a conceptual model that addresses fish habitat use by incorporating performance metrics in addition to abundance, isolating habitat features by using assembled gradients, and identifying processes useful to management by combining multiple hypotheses. Using the FLAFS poster fish and namesake for our newsletter, the Shellcracker, Dr. Peebles demonstrated that although habitat suitability preferences may be commonly assumed by management agencies, organizing multiple hypotheses into a rational conceptual model can elucidate direct ecological trends and resolve correlated environmental conditions. We had a successful symposium and heard presentations on the effects of differing environmental gradients from salinity to oxygen to depth and new methodology to determine fish habitat use from modeling efforts to satellite tags to underwater cameras. The vast amount of information presented should keep us thinking about how to tackle these interrelated factors for some time to come.

In addition to the symposium, a tribute session was also organized for our recently departed friend, Jack Dequine, who has been recognized as a founding father of the Southern Division of the American Fisheries Society and a steadfast supporter of our chapter since its inception. Mike Allen and Travis Tuten shared their experiences with him professionally and personally, and there is no doubt that his presence was missed at this year's meeting. During the business meeting on February 22, 2012, we unanimously voted to rename the best student paper award after Jack Dequine to recognize his service to our chapter. There is an article memorializing his service to AFS in the March 2012 issue of *Fisheries* and another on the World Fishing Network website that puts his contributions to fisheries management in a historical context (April Fish Busters Bulletin).

Thanks to everyone for your symposium and contributed presentations. At this year's meeting we had representatives from state and federal agencies, and private research organizations. In addition, there were students (undergraduate and graduate level) and professors from seven universities; twenty-five of these students received travel grants and assisted throughout the meeting. We had great participation at this year's meeting with 60 presentations (19 poster, 41 oral) with students contributing to almost half of the research presented. I would also like to sincerely thank Linda Lombardi and Kevin Johnson for their many years of service to the Florida chapter in different capacities, congratulate our newly elected officers (see pages 2 and 8), and welcome Daryl Parkyn as our upcoming newsletter editor!

Looking towards the future, the executive committee is researching the possibility of hosting an American Fisheries Society national meeting, so stay tuned! If you are interested in being involved in this process or taking a leadership role, please contact me at kerry.flaherty@myfwc.com.

Sincerely,

Kerry Flaherty, Florida Chapter President

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Upcoming Events

May 7 – May 11, 2012: 6th World Fisheries Congress. Edinburgh, Scotland. www.fisheries.org/blog/6th-world-fisheries-congress-wfc-2012

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

Interested in contributing something to the Shellcracker? Email Daryl Parkyn at *dparkyn@ufl.edu* with any articles or information that you would like to be included in the next issue. The deadline for the next issue is June 30th, 2012, so start fishing...

Feature Article

Florida Freshwater Mussels Project

James D. Williams[1], Gary L. Warren[1] and Robert S. Butler[2]

Florida Fish and Wildlife Conservation Commission, Gainesville, Florida[1]
U.S. Fish and Wildlife Service, Asheville, North Carolina[2]

The objective of this project is to produce a comprehensive book summarizing the distribution, biology and ecology of the freshwater mussel fauna of Florida. To accomplish this, we sampled mussels from all the major drainages throughout the state, collected tissue for genetic analysis, preserved specimens for morphological and anatomical descriptions, and examined museum specimens to determine historical and recent distribution. The unionid mussel fauna of Florida has never been the subject of a comprehensive book; however, Heard (1979) did provide an identification guide. There are recent mussel books for other southeastern states: Alabama (Williams et al. 2008), Louisiana (Vidrine 1993) and Tennessee (Parmalee and Bogan 1998).

There are two families of native bivalve mollusks found throughout most inland waters of Florida, Unionidae (freshwater mussels) and Sphaeriidae (peaclams). Florida inland waters are inhabited by 60 species of unionid mussels and 16 species of nonunionid bivalves. In many freshwater habitats these mollusks form a significant component of the benthic community. Freshwater mussels are typically found in creeks, rivers, and lakes where they often form extensive beds. Mussels are preyed upon by several species of fishes, turtles, birds, and small mammals. Mussels in Florida range in size from about 1 to 5 inches (Figure 1). The peaclams inhabit small ponds, lakes, freshwater wetlands, canals, creeks and rivers, and are an important food of waterfowl and, to a lesser extent, fishes.

The 16 nonunionid bivalves belong to the families Cyrenidae (formerly Corbiculidae), Dreissenidae, Mactridae and Sphaeriidae. Members of these families differ from unionids in morphology, life history and ecology. A major difference is associated with life history in that most all unionids are dioecious, with a parasitic larval stage (glochidium) that requires a fish host in order to transform into a juvenile. After fertilization the glochidia are held in specialized water tubes in the gills of the mussel until they are released where they become parasitic, typically on the gills and fins of fishes. Most nonunionids brood their larval stage (veliger), but do not require a fish host for development and dispersal. The most noticeable nonunionid in the state is the nonindigenous Asian Clam, *Corbicula fluminea*, first discovered in Florida in 1960. Since its introduction in Florida it has invaded most freshwater ecosystems where it may attain densities of more than a thousand individuals per square meter.

The family Unionidae in North America is represented by about 300 species (Turgeon et al. 1998) and 60 (about 20%) of these occur in Florida. The number of taxa in Florida may increase in the future with more detailed studies using molecular genetic markers to distinguish cryptic species. The Florida fauna is characterized by a large number of species endemic to the state and adjacent portions of southern Alabama and Georgia. Although the unionid fauna has been studied since the early 1800s, questions remain regarding the validity of several species. Very few genera and species have an adequate diagnosis and description based on anatomical characteristics of soft tissues. While identification can be difficult using conchological or shell characters, they are often easily separated using anatomical features of the soft parts.

Figure 1. *Toxolasma paulum* (upper) attains lengths up to 49 mm, and *Megalonaias nervosa* (lower) attains lengths up to 280 mm. Photographs by J.D. Williams.

Distribution data for Florida mussels was obtained by visiting museums with large mollusk collections. The Florida Museum of Natural History has the largest holdings of freshwater mussels from Florida streams, some of which were collected in the early 1900s. After thorough study of the material available in the Florida Museum, we visited other museums to obtain distribution data for Florida mussels—Academy of Natural Sciences, Philadelphia; Museum of Comparative Zoology, Harvard University, Boston; Smithsonian Institution, Washington, DC; and University of Michigan Museum of Zoology, Ann Arbor.

We sampled freshwater mussels (shells and live individuals) in all major drainages of Florida to delineate species distributions and obtain tissue for genetic studies. Sampling occurred throughout the year but was concentrated during the dry season when mussel populations are more easily sampled. Tissue samples for genetic studies were used to identify cryptic diversity, delineate species boundaries and determine taxonomic status for a number of poorly known species. This research was conducted at the University of Florida by PhD student Nate Johnson under the guidance of Dr. Jim Austin. The genetic studies utilized mitochondrial sequence data for both male and female mitotypes. Genetic data was evaluated for most mussels in the state and was critical in delineating species boundaries of several taxa which could not be identified with certainty based on morphological characters.

Most of the aquatic diversity in the inland waters of Florida is found in the panhandle and in northern peninsular regions from the Escambia River east to the Suwannee River. The unionids are no exception as there are 15 species known to occur in all of peninsular Florida south of the Suwannee and St. Marys rivers. In Florida the most diverse unionid fauna is in the Apalachicola River drainage (30 species) followed by the Choctawhatchee (25 species), Escambia (24 species), Ochlockonee (24 species), Yellow (16 species) and Suwannee (15 species) river drainages. Most species of mussels identified as "Species of Greatest Conservation Need in Florida" are concentrated in the panhandle region.

There are currently eight federally listed mussels, five endangered and three threatened, which occur or historically occurred in Florida. These mussels are found in one or more of the following drainages: Choctawhatchee, Chipola, Apalachicola, Ochlockonee and Suwannee rivers. In 2007 the U.S. Fish and Wildlife Service (USFWS) designated critical habitat for these eight listed mussels that included a total of 1,186 miles of streams, with approximately one-fourth of the stream miles in the Florida portions of the Apalachicola, Chipola, Ochlockonee and Suwannee River drainages and Econfina Creek. In 2011 the USFWS Panama City office proposed seven additional mussels for protection under provisions of the Endangered Species Act. These taxa occur in the Escambia, Yellow and Choctawhatchee River drainages of Alabama and Florida. Only one species, *Alasmidonta wrightiana*, which was endemic to the Ochlockonee River drainage in Florida, is believed to be extinct.

Available information on unionid mussels will be incorporated into accounts for inclusion in the Florida freshwater mussel book. The project is nearing completion and is projected to have a finalized manuscript ready to go to the publisher by early summer.

Literature Cited

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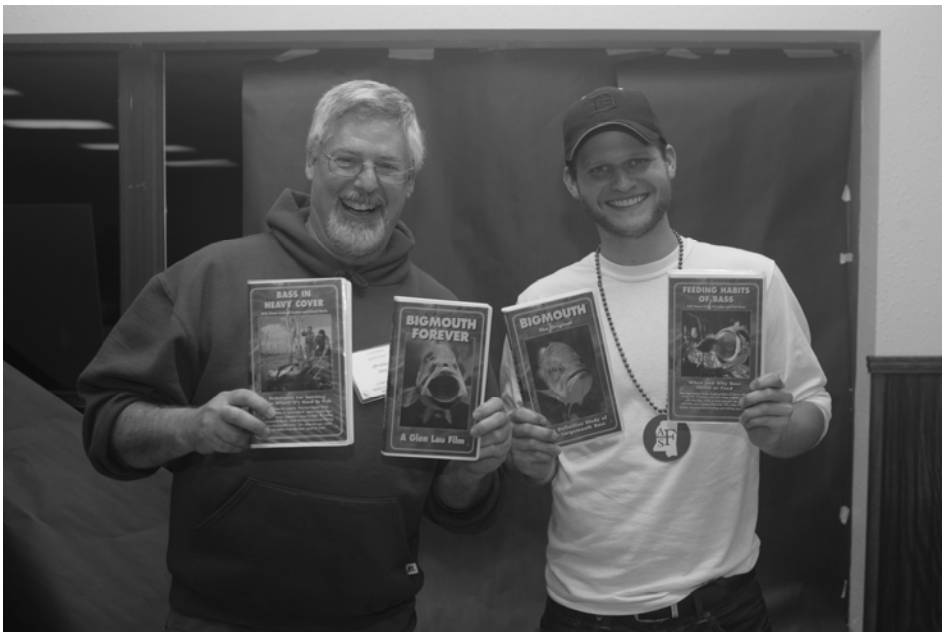
Parmalee, P.W., and A.E. Bogan. 1998. The Freshwater Mussels of Tennessee. The University of Tennessee Press, Knoxville. 328 pages.

Turgeon, D.D., J.F. Quinn, A.E. Bogan, E.V. Coan, F.G. Hochberg, W.G. Lyons, P. Mikkelsen, R.J. Neves, C.F.E. Roper, G. Rosenberg, B. Roth, A. Scheltema, F.G. Thompson, M. Vecchione and J.D. Williams. 1998. Common and Scientific Names of Aquatic Invertebrates from the United States and Canada: Mollusks. Second edition. American Fisheries Society, Special Publication 26. 526 pages.

Vidrine, M.F. 1993. The Historical Distributions of Freshwater Mussels in Louisiana. Gail Q. Vidrine Collectibles, Eunice, Louisiana. 225 pages, 20 color plates, 7 tables, 136 maps.

Williams, J.D., A.E. Bogan and J.T. Garner. 2008. The Freshwater Mussels of Alabama and the Mobile Basin of Georgia, Mississippi, and Tennessee. University of Alabama Press, Tuscaloosa, Alabama. 908 pages.



Thanks to the following 2012 meeting student raffle prize donors:

GEORGE BARTON, LARRY AND DIANA CONNOR—Eustis, FL; BALLY HOO'S RESTAURANT, BEST WESTERN -- "GATEWAY GRAND", BRASINGTON'S ADVENTURE OUTFITTERS, FLORIDA MUSEUM OF NATURAL HISTORY, GARY'S TACKLE BOX, GAT0RS PLUS, PLAY-IT-AGAIN SPORTS, SATCHEL'S PIZZA, SPORTS AUTHORITY—Gainesville, FL; SANTA FE CANOE OUTPOST—High Springs, FL; WAL-MART—Inverness, FL; FISHING HEADQUARTERS, HELTER SKELETONS, STINGRAY OUTFITTERS, WEST MARINE—Jupiter, FL; INGRAMS MARINA—Lake Talquin, FL; HI-LINER FISHING PRODUCTS—Lighthouse Point, FL; BEEF O BRADY'S, WALMART—Lynn Haven, FL; CAPTAIN DOUG KASKA, CAPTAIN GLYN AUSTIN, CAPTAIN JAMIE GLASNER, CAPTAIN TERRY LAMIELLE—Melbourne, FL; P F CHANGS—Orlando, FL; CANOE SHOP, PAUL BRENT (ARTIST), PC MARINA, SAMS CLUB—Panama City, FL; BOAR'S HEAD RESTAURANT, CAPT. ANDERSON FISHING FLEET, CAPT. ANDERSON'S RESTAU-RANT, GULF WORLD MARINE PARK, HALF HITCH TACKLE, J. MICHAEL'S RESTAURANT, JUBILEE DEEP SEA FISHING, LA QUINTA INN, SUNJAMMERS KAYAK SHOP, TOURIST DEVELOPMENT COUN-CIL, WALMART, WEST MARINE—Panama City Beach, FL; EMILY ELLIS (ARTIST)—Santa Rosa Beach, FL; BILL JACKSON'S, CANOE COUNTRY OUTFITTERS, INC., DIANE PEEBLES (ARTIST), FWRI FISHERIES DEPENDENT MONITORING, FWRI SNOOK RESEARCH, LEW BULLOCK, SWEETWATER KAYAKS, WALMART—St. Petersburg, FL; FSU COASTAL AND MARINE LAB—St. Teresa, FL; FLORIDA SPORTS-MAN MAGAZINE—Stuart, FL; GLEN LAU, CAPTAIN J. R. MUNDINGER, WALLY HUGHES, WAL-MART—Tallahassee, FL; FLORIDA AQUARIUM, STEVE AND SHELBY BORTONE—Tampa, FL; WEST PALM BEACH FISHING CLUB—West Palm Beach, FL; FERNBANK NATURAL HISTORY MUSEUM, PANERA BREAD-HENDERSON MILL, PAPPADEAUX RESTAURANT—Atlanta, GA; TELLUS SCIENCE MUSEUM, Cartersville, GA; THE COLEMAN COMPANY—Kansas; CABELA'S—Nebraska; CRACKER BAR-REL, ACADEMY SPORTS, TENNESSEE AQUARIUM, FARMHOUSE RESTAURANT, HIWASSSEE RIVER RAIL ADVENTURE, CHICK FILET, DICK'S SPORTING GOODS, AMERICAN MUSEUM OF SCIENCE AND ENERGY, MUSIC ROAD HOTEL, BASS PRO SHOP, LOST SEA ADVENTURE—Tennessee; WINTERPLACE SKI RESORT—West Virginia

Thanks to the following 2012 meeting raffle committee and volunteers:

Committee: Alan Collins and Janice Kerns; **Volunteers**: Matt Badolato, Andrew Barbour, Steve and Shelby Bortone, Lew Bullock, Ed Camp, Alan Collins, Larry and Diana Connor, Jynessa Dutka-Gianelli, Andrew Dutterer, Kerry Flaherty, Kathy Guindon, Janice Kerns, Dave Kerstetter, Linda Lombardi, Eric Nagid, KJ Starzinger, Sarah Stevens, Andy Strickland, Travis Tuten, Bob Wattendorf, and Joy Young

Please volunteer next year and we'll make the 2013 Raffle even better!

Minutes of the 32nd Annual Meeting of the Florida Chapter American Fisheries Society
Business Meeting
February 22, 2012
4-H Camp Ocala, Altoona, Florida

President Dave Kerstetter called the business meeting to order at 7:07pm and established a quorum.

Past-presidents of the Florida Chapter who were in attendance at the meeting were acknowledged and included: Wes Porak, Larry Connor, Bob Wattendorf, Rich McBride, Chuck Cichra, Eric Nagid, and Linda Lombardi. Officers and Past-presidents of other AFS organizations who were present at the meeting were acknowledged.

Dave Kerstetter asked and received approval of the 2011 business meeting minutes.

Travis Tuten (Secretary/Treasurer) presented the 2011 Treasurer's Report. He then presented the budget and profit from the 2011 SDAFS Meeting the Florida Chapter hosted in Tampa, FL, and also presented the income made from the raffle at the 2012 SDAFS Meeting, which included a $3,398.43 net income. He then acknowledged Larry Connor and Bob Wattendorf for all of their help with registration programs and internet services during his tenure as Secretary/Treasurer.

Larry Connor gave the current balance of the Rottmann Scholarship Fund. Assets of the Rottmann Scholarship Fund decreased from $24,017.50 on December 31, 2010 to $23,535.71 on December 31, 2011, which is a $481.79 decrease. Since the inception, the Fund has shown an 8.48% annual rate of return. Larry said we are not in a situation of increasing the cash awards at this time. He said that we are almost at that point and should consider it in the next few years.

Linda Lombardi (Past-president) came up to introduce the candidates for the officer elections. She then introduced Travis Tuten and Jeff Hill as the nominees for the incoming President-elect. Both Travis and Jeff stated a few things about themselves. Linda then introduced Cheree Steward and Chris Bradshaw as the nominees for Secretary/Treasurer. Cheree and Chris both said a few things about themselves. Ballots were passed out and a vote was taken.

Kevin Johnson spoke about the newsletter and gave thanks to everyone who had participated and contributed during his tenure as Newsletter Editor. He said he was ready to step down and asked that if anybody was interested in taking over, to let him or one of ex-com know. He then thanked Larry Connor and Bob Wattendorf for helping to distribute the newsletter and making it available on the web.

Janice Kerns (Raffle Co-coordinator) informed the members on the status of the raffle ticket sales. She announced that Alan Collins (Raffle Co-coordinaor) said there was over $6,000 in raffle prizes available. Janice said there was still time and urged people to buy tickets.

Larry Connor reported on the 2011 membership roster. He said it was a strange year because the Florida Chapter hosted the 2011 SDAFS Meeting and the Chapter did not collect membership dues with the meeting registration as we usually do. Also, many members who usually attend the Chapter's annual meetings and renew memberships at the meetings did not attend the SDAFS Meeting. He mentioned the Chapter decided to carry over members that usually pay dues at the annual meetings and continued to send newsletters and other materials to them. He said there were 123 people who paid their dues through the Society, 35 of which were students. The combined membership for 2010 and 2011 was 256 members.

Chuck Cichra announced the recipients of 2012 Travel Grants and Rottman Scholarships. He announced that there was a total of 25 travel grant recipients from 7 different schools. He stated that everyone who applied in 2012 received a grant and we had excess funds to provide additional grants, but not enough people applied. He then spoke about how much student involvement in the Chapter meetings has changed throughout the years, when there use to be no students and today it is heavily involved. Finally, he asked that all recipients of the 2012 Travel Grants stand to be recognized. The 25 recipients included students from Eckerd College (Corie Charpentier and Lauren Van Woodenberg), Florida Atlantic University (Joy Young), Florida State University (Lisa Hollensead and Chelsie Wagner), Florida Tech (Matt Badolato), Nova Southeastern University (Tiffany Weidner), University of Florida (Andrew Barbour, Christian Barrientos, Chelsey Campbell, Amanda Croteau, Morgan Edwards, Patrick Gardner, Crystal Hartman, Emily Haug, Larry Lawson, Geoffrey Smith, and Sarah Stephens), and University of South Florida (Dinorah Chacin, Michael Drexler, Alisha Gray, Brittany Hall, Joshua Kilborn, and Orian Tzadik).

Chuck Cichra then talked a little bit about Roger Rottmann and the Rottman Scholarship. He said that there were 8 judges this year and 7 candidates (3 MS's and 4 PhD's). He then announced the 2012 recipients of the Rottmann Scholarship along with their credentials. Chelsie Campbell (University of Florida) was given the Master of Science level Scholarship. Geoffrey Smith (University of Florida) was given the Doctor of Philosophy level Scholarship. Each recipient was given a certificate and a $500 check.

Eric Nagid came to the podium to speak about the Outstanding Achievement Award and Rich Cailteux Award. He spoke of the importance of the two awards and announced that there were no nominations for either award this year and encouraged people to nominate somebody if they were deserving of one of the awards.

Matt Badolato (2011 Student Sub-unit President) announced the new officers of the Student Sub-unit including Janice Kerns (University of Florida) as President, Carla Garreau (University of Florida) as Vice-president, and himself (Florida Tech) as Treasurer.

Dave Kerstetter then brought up old business. He spoke about the Chapter's discussion at the 2011 Business Meeting of possibly hosting the 2015 AFS Meeting in Florida. Dave asked who had been involved before. Chuck Cichra explained about the 1994 Meeting and how much work it was. Larry Connor said that he thought things have changed since then and suggested that the incoming president get a committee together to explore sites and look into getting it started because if we were to host it, we needed to get on it now. Jeff Hill then spoke and said we are right at the mark at when we need to get it started if we are going to do it. Eric Nagid than spoke and said we took two years to work on the 2011 SDAFS Meeting and asked if there were any other bids out there. Jeff Hill, who is on the AFS Governing Board, answered and said he did not know. Larry Connor said that it is generally hard to find bids for the AFS Meeting from Chapters in SDAFS. Wes Porak then spoke and commented about how big Florida is and said that larger states are expected to hold meetings more frequently, but at the same time we shouldn't stress ourselves out about it. Wes then made the point about how much work went into the 2011 SDAFS Meeting and that the AFS Meeting is an even bigger commitment and we should ask the major agencies involved if they would be supportive of the time commitment required from agency personnel to hold the meeting. Larry Connor than suggested to Kerry that the first thing needed to be done is see if we have support from our agencies and universities. Dave Kerstetter said he liked the idea of pushing our bid back and instead hold the meeting in 2016. Chris Bradshaw then made a motion to push it back to 2016 and start looking for potential places to hold it. The motion was seconded and a unanimous vote was made in favor of the motion.

Linda Lombardi returned to the podium and announced Travis Tuten as the new President-elect and Cheree Steward as the new Secretary/Treasurer.

Dave Kerstetter thanked the Chapter for the opportunity of serving as president and announced Kerry Flaherty as the new President and handed the meeting over to Kerry. Kerry presented Dave a plaque for recognition of his service as President of the Florida Chapter. Kerry also presented Matt Badolato a plaque for recognition of his service as President of the Student Sub-unit of the Florida Chapter.

Kerry Flaherty then announced new business. She spoke about Jack Dequine passing away and said that after his passing, there were a series of emails suggesting that we name the Best Student Paper Award after Jack, along with a plaque, and $100. The motion was made, seconded, and it was unanimously passed.

Kerry Flaherty then brought up the issue of the Chapter sponsoring the 2012 AFS Meeting. Travis Tuten moved that we sponsor $500 to the meeting. It was seconded and unanimously passed.

Kerry Flaherty also brought up sponsorship of the 2013 SDAFS Meeting. Larry Connor moved that we sponsor $500 to the meeting. It was seconded and unanimously passed.

Kerry then brought up sponsorship of the 2013 SDAFS Black Bass Symposium and called Wes Porak to the podium. Wes discussed the older black bass symposia and said that the 2013 Symposium is aimed at the lesser known black bass species that didn't get the attention in the first one. He asked for $500. Larry Connor moved that the Chapter sponsor $500, it was seconded, and unanimously passed.

Eric Nagid made a motion that we sponsor $250 to the Western Division Annual Meeting in Mexico. It was seconded and unanimously passed.

Jennifer Zimmerman (HACH Hydromet Representative) announced that the Florida Association of Environmental Professionals was starting a Gainesville Chapter and were looking for volunteers, both students and professionals, to be involved.

Kerry Flaherty then announced that the 4-H Camp Ocala staff made a make-shift bon-fire under the picnic pavilion because it was raining.

Kerry then adjourned the meeting at 8:18pm.

Treasurer's Report Florida Chapter AFS
Travis Tuten
1 January 2011 to 31 December 2011

	Checking	**Mutual Funds**	**Total**
January 1, 2011	$ 65,599.17	$ 11,743.34	$ 77,342.51
December 31, 2011	$ 20,767.04	$ 11,329.32	$ 32,096.36
Difference:	$(44,832.13)	$ (414.02)	$ (45,246.15)

Treasurer's Report (continued):

Credits:

Deposits (Morgan Stanley Smith Barney)	$ 53,272.61
Deposits (Wells Fargo)	$ 5,600.00
PayPal	$ 688.37
Dividend Income	$ 614.45
Total:	$ 60,175.43

Debits:

2011 SDAFS Meeting vender & supplies	$ (72,571.65)
2011 SDAFS Meeting profit shares to Division	$ (5,849.86)
Wells Fargo transfer to Morgan Stanley account	$ (21,339.41)
Rottmann Scholarship	$ (1,000.00)
2011 Raffle Costs	$ (814.03)
Dividend Reinvestments	$ (612.61)
Annual bank fees	$ (300.00)
AFS Liability Insurance	$ (150.00)
2012 Annual Meeting reservation	$ (870.00)
2011 AFS Meeting sponsorship	$ (500.00)
2012 SDAFS Meeting sponsorship	$ (1,000.00)
Total:	$(105,007.56)

2011 SDAFS Meeting Budget

Income

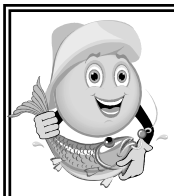
Sponsorships	$ 53,969.18
Registrations (409)	$ 32,750.00
Workshops (125)	$ 1,150.00
T-Shirts Sales	$ 2,100.00
Extra Social Tickets (10)	$ 570.00
SDAFS Reimbursements to Chapter	$ 986.15
Total	**$ 91,525.33**

Expenses

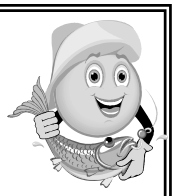
Hotel –Banquets/Breaks/Rooms/AV+Electric	$ 68,593.32
Meeting Supplies	$ 6,179.24
T-Shirts	$ 2,316.16
PayPal/AFS Credit Card Charges	$ 875.44
Entertainment – Dead Ichs and Leo Nico	$ 700.00
Computer Rentals	$ 500.00
Insurance from AFS	$ 150.00
Reimbursements to AFS/SDAFS	$ 188.56
Total	**$ 79,502.72**

Net Profit $ 12,022.61

Profit Distribution
Florida Chapter $ 6,261.30
Southern Division $ 5,761.30



2012 Annual Meeting Presentation Awards



Jack Dequine Student Paper Award

Best: Andrew Barbour (University of Florida), R. Boucek, and A. Adams. Effect of pulsed gastric lavage on apparent survival of a juvenile fish in a natural system.

Honorable Mention: Linda Lombardi (University of Florida), and H. Lyon. Evidence for hermaphroditism in Golden Tilefish (Lopholatilus chamaeleonticeps).

Professional Paper

Best: Phil Stevens (FWC), and G. Poulakis. Juvenile fish use of specific locations within the environmental gradients of coastal rivers.

Honorable Mention(s): Chris Bradshaw (FWC), and B. Sauls. Automated Video Assessment of Recreational Discards.

Ryan Rindone (Gulf of Mexico Fishery Management Council), G.T. Kellison, and S.A. Bortone. The Search for Juvenile Red Snapper Lutjanus campechanus in Southeastern US Atlantic Waters.

Student Poster

Best: Chelsey Campbell (University of Florida), D. Parkyn, and D. Murie. Otolith shape as a tool for examining stock structure in Gulf of Mexico greater amberjack.

Honorable Mention: Julie Vecchio (University of South Florida), and C. Stallings. Comparison of Reef Fish Assemblages Sampled Using Common Fishery-Independent Techniques.

Professional Poster

Best (two winners): Stafford, C., T.S. Switzer, Kerry Flaherty (FWC), R.E. Matheson, Jr., and R. Paperno. Geographic Variability in Seagrass-Associated Nekton Assemblages Determined by a Trawl Survey in the Eastern Gulf of Mexico.

Chris Gardner (NOAA), D. DeVries, P. Raley, and J. Brusher. Relationships between reef characteristics and reef fish community structure and demographics in the NE Gulf of Mexico as revealed by video and side scan sonar data.

Honorable Mention: Patrick Raley (NOAA), C. Gardner, H. Trowbridge, and D. DeVries. Distribution and characterization of hard bottom habitat in cross-shelf side scan transects in Apalachee Bay, Florida.

Power  Award – Linda Lombardi

Lamp  Award – Brent Winner

for "accidentally" dialing 911 twice, causing an officer to make a visit to the bon fire.

Student Section

Student Research Highlight

Preliminary Diet Analysis of the Red Lionfish (*Pterois spp.*) in Little Cayman, B.W.I.

Morgan Edwards[1], Thomas Frazer[1], and Charles Jacoby[2]

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Abstract

Two species of lionfish (*Pterois volitans* and *Pterois miles*) were introduced to the waters off the east coast of Florida in the 1980s. They spread rapidly and are now found along the Atlantic coast and throughout the Caribbean Sea and Gulf of Mexico. Known to be voracious predators, the addition of lionfish to these regions has elicited concern with regards to possible impacts on native species. Novel predation strategies make them extremely efficient predators to naïve prey (Albins and Lyons 2012). We collected lionfish on a weekly basis from Bloody Bay Marine Park in Little Cayman from January to December 2011 on SCUBA. Collection took place at approximately 17:00 h at a depth range of 15-30 m. Stomachs were soaked in 95% ethanol to disrupt digestive and degradation processes. Contents of stomachs were identified to lowest possible taxonomic level, and dried for three days at 75 degrees. Dry weights of all items were recorded. Lionfish were mostly piscivorous in the adult stage, and shrimp were an important component in diets of juveniles, which provided evidence of an ontogenetic shift in diet. Given the breadth of lionfish diets, they can be described as generalists, but several species recurred (juvenile creole wrasse, fairy basslets, and red night shrimp). This study provided insight into the diets of lionfish in the Caribbean, which provides insights into possible effects on native fauna.

Introduction

Two species of lionfish were introduced to the waters off of southeast Florida in the 1980s (Morris and Whitfield 2009). They rapidly spread up the east coast as far north as Cape Hatteras North Carolina, and they are now found throughout the Caribbean and Gulf of Mexico (Schofield 2009). Lionfish have become established members of the ichthyofauna in their invaded range, and concern regarding their effects on native ecosystems is wide-spread among scientists and affected communities (Albins and Hixon 2011). These concerns include competition with native species, predation on native species, and homogenization of reef communities (Morris and Whitfield 2009, Morris 2009).

Lionfish are considered to be voracious, generalist predators with the capacity to reduce recruitment of other reef fish on experimental patch reefs by 79% (Albins and Hixon 2008). Consumption of economically important species such as grouper and yellowtail snapper have been observed, however, these species did not comprise a significant portion of their diet (Morris and Akins 2009). Lionfish also may reduce populations of native herbivores needed to control the

overgrowth of algae on coral reefs (Morris and Whitfield 2009, Morris 2009). The potential impacts resulting from the lionfish invasion will vary depending on the local fish communities, the density of lionfish in specific areas, and the location of the invasion (Morris *et al.* 2008). Higher densities and larger body size in the invaded range may exacerbate their impacts (Whitfield *et al.* 2007).

Lionfish arrived in Little Cayman in February of 2008. Little Cayman is home to Bloody Bay Marine Park which generates important revenue as a staple dive attraction. Dive masters have focused removal efforts in this area with the intent of reducing lionfish encounters and ecological effects on this portion of the reef wall. The reefs of Little Cayman are considered some of the most pristine in the Caribbean due to the relatively small number of people living there, which translates into minimal human impact. The greatest threat faced by these relatively pristine reefs aside from global warming, may, in fact, be the presence of lionfish.

In an effort to better understand possible impacts of this invasion on prey assemblages in Little Cayman, we used stomach content analysis to identify which members of the assemblage are being consumed by lionfish.

Methods

The lionfish analyzed in this study were removed from Bloody Bay Marine Park during community culling events and donated to the University of Florida for diet analysis. Culls occurred on a weekly basis from January to December 2011 at approximately 16:30, until day length increased, at which point the time was moved to 17:00. Collections were carried out by SCUBA divers using Hawaiian sling-style spears, and fish were placed into a sealed bucket to transport back to the boat. Depth of collection ranged from approximately 15 to 30 m and dive time ranged from about 30 to 45 minutes. Fish were transported on ice to the Central Caribbean Marine Institute where processing occurred the next day.

We recorded total length, weight, and sex of each fish, then removed stomachs and placed them in whirl packs with 95% ethanol to stop digestive processes and keep stomach contents from degrading. Otoliths also were removed, rinsed in fresh water, dried, and read whole using a dissecting microscope and reflected light. Stomach contents were later removed and classified to the lowest possible taxonomic level using a dissecting microscope and Humann and Deloach (2002) as an identification guide. Each item was then placed into a pre-weighed tin and dried in an oven at 75°F for three days prior to being weighed.

Results

The sizes of lionfish sampled ranged from 64 to 391 mm TL, and the habitat sampled was almost exclusively reef wall. A total of 1914 stomachs were analyzed, and of those, 475 stomachs were empty (~25%). Over 50 species of fish and crustaceans were observed in the diets of lionfish suggesting a generalist, carnivorous diet (Table 1). Over 50% of diet items were unidentifiable fish or shrimp matter, and only 24% of diet items could be identified to any useful taxonomic level. Diet items comprised 64% fish, 35% crustaceans, and less than 1% gastropods. Several species continued to recur including: creole wrasse (N= 68 stomachs), fairy basslets (N= 86 stomachs), and red night shrimp (N= 138 stomachs). On average, dry weights of male diets (0.21 g) were twice that of females (0.10 g). Age data linked to stomachs via a unique identifier showed ontogenetic shifts in diets. The proportion of shrimp found in diets declined as the fish aged, with diets becoming mostly comprised of small fish (Figure 1).

Discussion

Arrington et al. (2002) found that the percentage of empty stomachs can be associated with trophic status and, to some degree, geographic location. Piscivorous fish that consume whole prey, such as lionfish, and those that provide parental care had the highest overall percentage of empty stomachs. When geographic location was taken into account, Arrington et al. (2002) found that the proportion of empty stomachs in Central and South America was just under 30%, corroborating the results from our study. The large percentage of highly digested material may be due to a peak in lionfish feeding in the morning hours (Morris and Atkins 2009). Fish for this study were collected in the early evening, and any prey items consumed in the morning would have had ample time to begin digesting by the time we sampled.

Muñoz et al. (2011) also found lionfish from hard bottom reefs in the southeastern U.S. were generally piscivorous. While our study did not complete surveys of prey assemblages to relate what was found in lionfish diets to what was available, Muñoz et al. (2011) did find that prey items appeared to be consumed according to what was locally abundant. We can infer from this information that lionfish in the Caribbean are likely to select prey in the same manner. Lionfish also are known to be opportunistic, further supporting the concept that they might consume locally abundant prey (Muñoz et al. 2011).
Male diets weighed twice that of females on average. This difference is most likely due to males attaining larger body sizes than females. The largest male lionfish was 391 mm TL, and the largest female was 333 mm TL.

Morris and Atkins (2009) found a similar proportion of fish and crustaceans in lionfish diets from the Bahamian Archipelago. Also noted in their study was the presence of an ontogenetic shift; shrimp representing a larger proportion of diet items in younger size classes, and fish becoming more important in the diets as fish grow. We noted the same shift in this study, but we were able to show that older lionfish ate more shrimp as opposed to placing lionfish in size classes (Figure 1).

This study provides insight into the feeding habits of lionfish in the Caribbean. Seasonal bias should not be present in our analysis since the fish were collected every week over a year-long period. Feeding habits and important prey species will most likely change with availability of local prey, and diet studies should continue throughout the invaded area. It is also important to monitor changes in diet over time because it may indicate changes in the availability of locally abundant prey. Diet analysis may be a way to corroborate changes in fish assemblages and possible effects predatory lionfish are having on invaded ecosystems.

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Table 1 Items Identified in Stomach Contents (January-December 2011)

Fish

Common Name:	Lowest Taxonomic Classification	Frequency (stomachs)
Ocean Surgeonfish	*Acanthurus bahianus*	2
Longsnout Butterflyfish	*Chaetodon aculeatus*	2
Butterflyfish	Chaetodontidae	2
Grunt	*Haemulon*	2
Cocoa Damselfish	*Pomacentrus variabilis*	1
Threespot Damselfish	*Pomacentrus planifrons*	1
Bicolor Damselfish	*Pomacentrus partitus*	8
Damselfish	*Pomacentridae*	4
Blue Chromis	*Chromis cyanea*	11
Brown Chromis	*Chromis multilineata*	7
Hamlet	*Hypoplectrus*	1
Graysby Grouper	*Epinephelus cruentatus*	1
Grouper	Serranidae	13
Peppermint Bass	*Liopropoma rubre*	19
Harlequin Bass	*Serranus tigrinus*	3
Lantern Bass	*Serranus baldwini*	1
Wrasse Basslet	*Liopropoma eukrines*	1
Fairy Basslet	*Gramma loreto*	86
Blackcap Basslet	*Gramma melacara*	1
Parrotfish	Scaridae	9
Redband Parrotfish (Juv.)	*Sparisoma aurofrenatum*	1
Stoplight Parrotfish (Juv.)	*Sparisoma viride*	4
Princess Parrotfish (Juv.)	*Scarus taeniopterus*	4
Stiped Parrotfish (Juv.)	*Scarus croicensis*	2
Creole Wrasse (Juv.)	*Clepticus parrae*	68
Yellowhead Wrasse (Juv.)	*Halichoeres garnoti*	12
Bluehead Wrasse (Juv.)	*Thalassoma bifasciatum*	15
Squirrelfish	Holocentridae	11
Longjaw Squirrelfish	*Neoniphon marianus*	2
Cardinalfish	Apogonidae	20
Belted Cardinalfish	*Apogon townsendi*	7
Flamefish	*Apogon maculatus*	1
Goby	Gobiidae	16
Masked/Glass Goby	*Coryphopterus spp.*	5
Cleaning Goby	*Gobiosoma genie*	1
Seminole Goby	*Microgobius carri*	2
Blenny	Labrisomidae	12
Diamond Blenny	*Malacoctenus boehlkei*	1
Saddled Blenny	*Malacoctenus triangulatus*	32
Arrow Blenny	*Lucayablennius zingaro*	2
Barfin Blenny	*Malacoctenus versicolor*	1
Red Lizardfish	*Synodus synodus*	4
Trumpetfish	*Aulostomus maculatus*	7
Slender Filefish	*Monacanthus tuckeri*	13
Red Spotted Hawkfish	*Amblycirrhitus pinos*	3
Unknown Fish		595

Table 1 (continued) Items Identified in Stomach Contents (January-December 2011)		
Shrimp		
Common Name:	**Lowest Taxonomic Classification**	**Frequency (stomachs)**
Swollen Claw Mantis Shrimp	*Neogonodactylus oerstedii*	17
Dark Mantis Shrimp	*Neogonodactylus curacaoensis*	5
Spotted Cleaner Shrimp	*Periclimenes yucatanicus*	1
Stenopodidae	Stenopodidae	2
Red Night Shrimp	*Cinetorhynchus manningi*	138
Mysid Shrimp	Mysidae	6
Unknown Shrimp		382
Crab		
Blotched Swimming Crab	Portunus spinimanus	1
Portunidae	Portunidae	1
Unknown Crab		14
Gastropod		
Unknown Gastropod		1

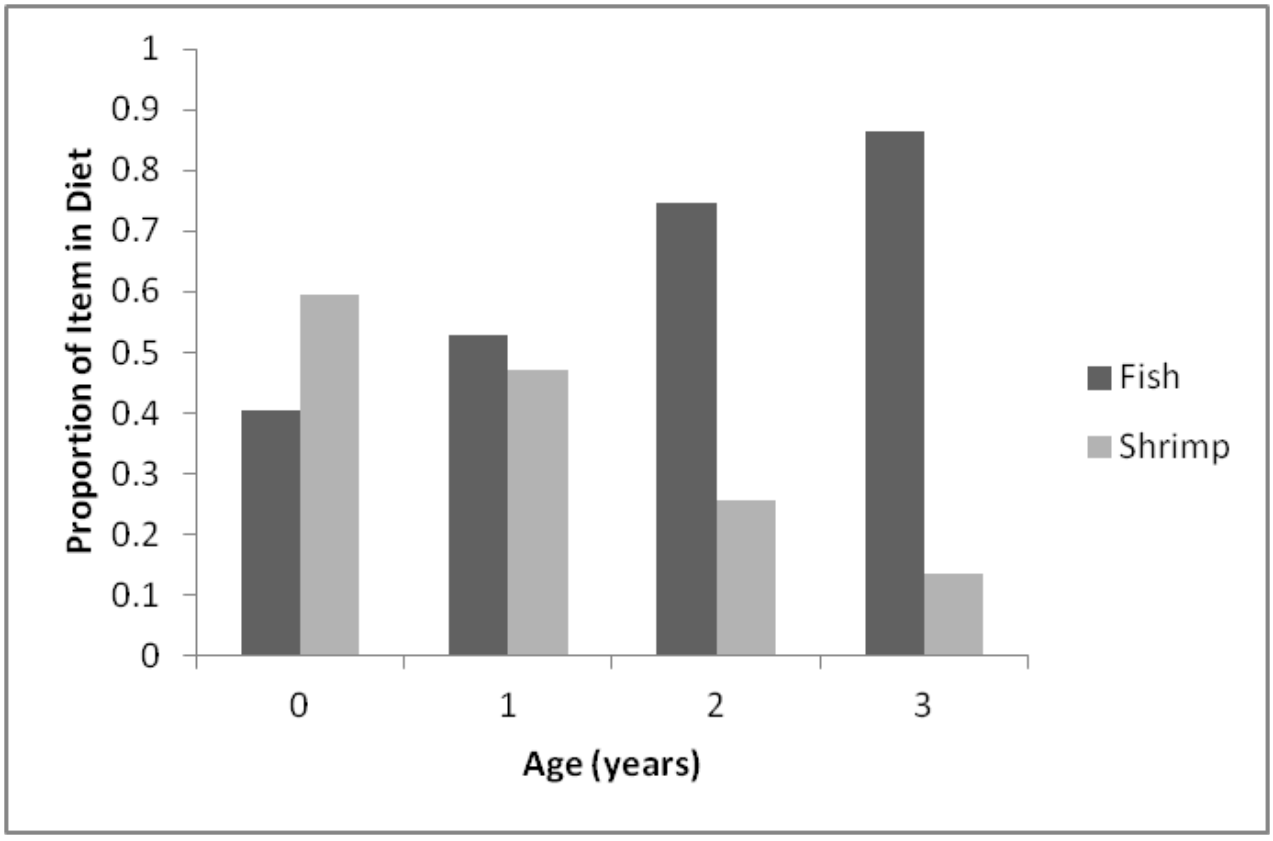

Figure 1: Proportion of fish and shrimp in diets by age of lionfish.

ROTTMANN SCHOLARSHIP RECIPIENTS!!!

The Doctoral-level recipient is Geoffrey H. Smith (pictured left), University of Florida, School of Forest Resources and Conservation, Program in Fisheries and Aquatic Science. His advisor is Deb Murie.

The Masters-level recipient is Chelsey A. Campbell (pictured right), University of Florida, School of Forest Resources and Conservation, Program in Fisheries and Aquatic Sciences. Her advisor is Daryl Parkyn.

Student Sub-unit News

Your new officers:

Student Sub-Unit President	Vice President	Treasurer
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