the Shellcracker

FLORIDA CHAPTER OF THE AMERICAN FISHERIES SOCIETY

http://www.sdafs.org/flafs

April, 2008

President's Message:

Greetings, Florida AFS members. It does not seem possible that a month and a half have passed since the 2008 annual meeting. We had a few challenges to overcome, with the chief one being the unique issue of having to share the facility and the resultant last-minute scramble to find a suitable room for posters to be displayed. But all in all, I think the meeting came off well, mostly due to the hard work of Linda Lombardi-Carlson. I am sure someone else will step up if/when Linda actually keeps her word of "only one more year", but that person certainly will have big shoes to fill.

I was particularly pleased at the response I got from several marine folks who had not been regular attendees of Florida AFS meetings in recent years when they agreed to come give a talk in this year's symposium (Ecology and Conversation of Florida's Reef Fishes). Jim Bohnsack provided an energetic and informative kickoff with his keynote titled "The Future of Florida's Reef Fisheries: Challenges and Opportunities", which was followed by several other high quality and entertaining presentations. Due to having a marine-oriented symposium, the program was slanted a little in the marine direction this year (28/42 platform presentations and 13/18 posters had marine subjects), but I certainly learn new things every year from the freshwater talks I hear and I am hopeful that folks working in freshwater systems were able to take away some new ideas from the marine talks at this year's meeting. As has been the recent trend, student presentations were many and strong; 1/3 of platform talks and 1/2 of posters were presented by student authors. The future of the science and the Florida AFS chapter indeed looks bright.

One of the more interesting things that emerged at the 2008 meeting, from my perspective, was the interest expressed that the chapter take a larger role in advocating policy positions with regard to issues that have the potential for affecting environmental quality and fishes in Florida. I remembered that our parent society had struggled a bit with the issue of advocacy when I was a graduate student, so I went to the AFS website to see what kind of guidance existed with regard to criteria for advocacy at the parent society and state chapter levels. Not only did I find myriad policies I was largely ignorant of (32 issued in the past decade), but also a short history of AFS's 3-year struggle to address the issue of advocacy, as well as clear, succinct guidelines for producing position statements, legislative briefing statements, and resolutions at both the society and chapter levels (found at http://www.fisheries.org/afs/publicpolicyadvocacyguidelines.html). As issues begin to pop up for which members would like to advocate for certain policies, or simply to state Florida AFS's position on a given issue, I think educating ourselves a bit on the history of advocacy in our parent society and the guidelines it has adopted for promulgating position statements, etc. would be time well spent. This is especially true given the diversity of members' employers (e.g., agencies, universities, consultants, etc.) and potential issues of conflict of interest that might arise. Just something to think about…

Best Regards,
Will Patterson,
President, Florida AFS

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Upcoming Events

April 6-13: National Shellfisheries Association and 37th Annual Benthic Ecology Meeting. Providence, Rhode Island.

April 27-30: AFS Northeast Division Annual Meeting. Galloway, New Jersey.

May 4-8: Western Division of the AFS and the Oregon Chapter of the AFS Annual Meeting: Human Population Growth and Fisheries. Portland, Oregon.

June 7-11: 11th International Coral Reef Symposium. Fort Lauderdale, Florida.

New Titles

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.

Red Snapper Ecology and Fisheries in the U.S. Gulf of Mexico. William F. Patterson, III, James H. Cowan, Jr., Gary R. Fitzhugh, and David L. Nieland, editors. Published by the American Fisheries Society. December 2007.

Shark Nursery Grounds of the Gulf of Mexico and the East Coast Waters of the United States. Camilla T. McCandless, Nancy E. Kohler, and Harold L. Pratt, Jr., editors. Published by the American Fisheries Society. December 2007.

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

Feature Article

Relative abundance, growth, and mortality of five species of estuarine age-0 fish in relation to discharge of the Suwannee River, Florida

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Introduction

Understanding the relationships between river discharge and recruitment of estuarine fishes is especially important now due to hydrological alterations caused by anthropogenic water withdrawals. The human population in Florida has been increasing at an alarming rate. In 1900 Florida was one of the smallest states east of the Mississippi River, with a population of barely half a million. By 2000 Florida's population had grown to almost 16 million, making it the fourth largest state in the nation (Smith 2005). Freshwater resources are becoming threatened due to the rapidly increasing demands to meet both human consumption and agricultural needs (Browder 1991). As groundwater resources are depleted, surface waters such as rivers are receiving increasing attention to meet water demands. These hydrological alterations can result in major alterations to the natural seasonal discharge cycle of a river with implications to connected estuaries. Some developers, engineers, and politicians have been cited as stating that water reaching the ocean is a 'lost' resource (Drinkwater and Frank 1994). Besides population growth directly altering the natural variability of river discharge, global-scale atmospheric circulation anomalies and patterns such as El Niño and La Niña events have also caused unusual precipitation and drought, leading to variation in river discharge in Florida as well as many areas of the world (Molles and Dahm 1990).

We examined fish responses to naturally variable river discharge from the Suwannee River estuary, Florida. This watershed is one of the few remaining large river systems in the United States with no major impoundments constructed within its drainage system. The Suwannee River has the second largest discharge in Florida, with an average discharge rate near the mouth of the river of 125 $m^3 s^{-1}$. We used long-term fishery-independent monitoring data to evaluate whether relative abundance, growth, and mortality of age-0 fish were related to river discharge at the Suwannee River estuary. Our objectives were to 1) determine if relative abundance of age-0 fish varied with seasonal river discharge between years and 2) assess potential mechanisms that might underlie any relations with river discharge by evaluating growth and mortality of each species. An evaluation of these relationships may have implications for setting policies governing water withdrawals for rivers and estuaries.

Methods

Data Collection

Spotted seatrout *Cynoscion nebulosus*, sand seatrout *Cynoscion arenarius*, red drum *Sciaenops ocellatus*, spot *Leiostomus xanthurus* (family Sciaenidae), and pinfish *Lagodon rhomboides* (family Sparidae) were collected in the Suwannee River estuary during monthly stratified-random sampling from January 1997 through December 2005. These fish species were selected due to their recreational or commercial importance and also because of their dependence upon estuary habitats during the juvenile life stage. Fish were collected in water depths ranging from 0.3 to 1.8 m using a center bag-seine measuring 21.3 m x 1.8 m with a 3.2-mm #35 knotless nylon Delta mesh.

Analysis

The annual relative abundance of age-0 fish (i.e., fish·100 m^{-2}) was estimated for each species within species-specific recruitment windows. A recruitment window was defined as the months when newly recruited fish settled out into the estuary and remained vulnerable to the sampling gear. Relationships between age-0 fish relative abundance and seasonal river discharge across years were assessed by multiple linear regression. To determine lagged effects of river discharge on relative abundance, seasonal river discharge used in regression models included individual seasons that occurred up to one year prior to, and during, recruitment windows for individual species.

Instantaneous daily growth and mortality rates were estimated for age-0 fish of each species by tracking cohort modes and abundances centered around those modes. To investigate the possibility of bias associated with gear vulnerability on growth and mortality estimates, we applied growth and mortality estimates to observed length -frequencies. Predicted length frequencies were overlain on observed length frequencies to evaluate the potential for fish to grow into or out of the gear at a rate different than that predicted.

Results and Discussion

Our study found the relative abundance of age-0 spotted seatrout and sand seatrout, two nearshore or estuarine spawners, were positively related to increases in seasonal river discharge. Both species spawn from spring through summer months. The positive relationship found between the relative abundance of spotted seatrout and sand seatrout to spring and summer river discharges respectively, may be attributed to the higher input of nutrients into the estuary which leads to greater primary and secondary production during summer months than during other seasons. Spotted seatrout was the only species that we analyzed that displayed an increase in relative abundance in the southern portion of the estuary during increased river discharge. This may have been because spotted seatrout were avoiding lower-salinity areas in order to reduce osmoregulatory stress, commonly found in marine species (Whitfield and Harrison 2003).

We found mixed relationships between relative abundance and seasonal river discharge for age-0 red drum, spot, and pinfish, three species that spawn offshore and depend upon ocean currents to transport their larvae back into the estuary. Abundances of red drum demonstrated a positive relationship with discharge. This species begins spawning during late summer when Suwannee River discharge rates are relatively low. Many species of marine fishes use changes in freshwater discharge as physical and chemical stimuli to initiate migration offshore for spawning and for passive transport of larvae towards estuaries (Champalbert and Koutsikopoulos 1995). As a result, high recruitment levels should be expected when high river discharge occurs during optimal periods for spawning success. No significant relationship was found between discharge and relative abundance of age-0 spot and a negative relationship was found between discharge and relative abundance of age-0 pinfish. Spot and pinfish spawn during winter and spring months when Suwannee River discharge is generally at its highest. Although increased river discharge can be important for nutrient input, extremely high freshwater discharge may actually flush out nutrients and even create a physical barrier to recruitment of fish, restricting the shoreward movement of their larvae (Costa et al. 2007).

Food supply is perhaps the most important biological factor influenced by changes in river discharge (Grimes and Finucane 1991). We found that sand seatrout, red drum, pinfish, and spot experienced higher growth during years with higher than normal river discharge, supporting the argument of enhanced feeding opportunities during increased river discharge. Spotted seatrout was the only species that grew slower during years with higher than normal river discharge.

Our results, however, do not support the contention that higher growth rates of juvenile fish lead to better survival, as is often found with larval fish (North and Houde 2001). In our study, red drum, sand seatrout, and pinfish mortalities increased with increasing river discharge, even though these species grew faster under the same physical conditions. There is some evidence in the literature supporting a relationship between high mortality rates and high growth rates in juvenile estuary-dependent species. Walters and Martell's (2004) foraging-arena theory suggests juvenile fish respond to changes in food concentrations to maintain constant growth. This theory assumes most predation occurs while fish are foraging, and this attempt to maintain constant growth likely results in linear increase in mortality with increasing juvenile density. Prey such as juvenile pinfish can hide from predators unless the prey density is so high that it forces that prey to spend more time foraging outside their preferred habitat, resulting in higher mortality. Cannibalism associated with high abundance is another major source of mortality common in early life stages that should be considered. Thus, our results indicate that it is possible for the faster growth associated with high river discharge to result in higher mortality for juvenile fishes.

Results of this study could assist managers in developing and implementing strategies to compensate for poor year-class production resulting from changes in river discharge. In areas where water-control devices (i.e., dams and levees) currently exist along major tributaries, managers could work with water-control authorities to manage water levels for greater fish production. This study has broad implications for assessing how river discharge influences recruitment of ecologically and recreationally important estuary-dependent species.

We gratefully acknowledge FWC personnel and volunteers at the Senator George G. Kirkpatrick Marine Laboratory in Cedar Key, Florida who have assisted with data collection and processing throughout the duration of this study. We also thank the USGS and SRWMD for discharge and precipitation data that they have made available in public domain. Support for this study was provided in part by funds from Florida Recreational Saltwater Fishing License sales and the Department of Interior, U.S. Fish and Wildlife Service, Federal Aid for Sport Fish Restoration project number F-43.

References

Browder, J. A. 1991. Watershed management and the importance of freshwater flow to estuaries, p. 7-22. *In* S. F. Treat and P. A. Clark (eds.). Proceedings, Tampa Bay Area Scientific Information Symposium 2, 1991 February 27-March 1, Tampa, Florida.

Champalbert, G. and C. Koutsikopoulos. 1995. Behavior transport and recruitment of Bay of Biscay sole (*Solea solea*): laboratory and field studies. Journal of the Marine Biological Association of the United Kingdom 75:93-108.

Costa, M. J., R. Vasconcelos, J. L. Costa, and H. N. Cabral. 2007. River flow influence on the fish community of the Tagus estuary (Portugal). Hydrobiologia 587:113- 123.

Drinkwater, K. F. and K. T. Frank. 1994. Effects of river regulation and diversion on marine fish and invertebrates. Aquatic Conservation. Freshwater and Marine Ecosystem 4: 135-151.

Grimes, C. B., and J. H. Finucane. 1991. Spatial distribution and abundance of larval and juvenile fish, chlorophyll and macrozooplankton around the Mississippi River discharge plume, and the role of the plume in fish recruitment. Marine Ecology Progress Series 75:109-119.

Molles, M. C. and C. N. Dahm. 1990. A perspective on El Niño and La Niña; global implications for stream ecology. Journal of the North American Benthological Society 9:68-76.
North. E, W., and E. D. Houde. 2001. Retention of white perch and striped bass larvae: Biological physical interactions in Chesapeake Bay estuarine turbidity maximum. Estuaries 24:756-769.
Smith. 2005. Florida Population Growth: Past, Present and Future. Bureau of Economics and Business Report. University of Florida. Gainesville, Florida.
Walters, C. J. and J. D. Martell. 2004. Fisheries ecology and management. Princeton University Press, Princeton, New Jersey.
Whitfield, A. K. and T. D. Harrison. 2003. River flow and fish abundance in a South Africa estuary. J. Fish Biol. 62:1467-1472.

Newsletter Hard Copy or Email Notification

During the 2008 Chapter Business Meeting, it was discussed that a majority of Florida Chapter members would like to receive an email notification when the Chapter Newsletters are available on our Chapter's website (www.sdafs.org/flafs/) rather than receive a hard copy in the mail.

If you wish to be taken **off** the hard copy mailing list and instead receive an email notifying the quarterly newsletter is available on line, then please send an email to:
Linda.Lombardi@noaa.gov, Subject: FL AFS email list

Thanks to the 2008 meeting raffle prize donors:

Whippoorwill Sportsman's Lodge (850) 875-2605, Rivermen Whitewater 1800-545-7238, Webster's Marine (850) 562-1052, Bell & Bates Home Center (850) 627-6115, Lake Talquin Lodge (850) 627-3822, Lazy Daze Campground (850) 575-2267, Joe Tomelleri (www.americanfishes.com), www.allamericanpokershirts.com, Coral Reef Scuba (850) 385-1323, Jerry's Bait and Tackle (850) 421-3248, Crum's Bait and Tackle (850) 984-5501, Ingram's Marina (850) 627-2241, Captain John Blouse (www.hookedupcharters.us), Captain Tom Van Horn (www.irl-fishing.com), Captain Brian Cutchins (www.laidbackcharters.com), Cabela's (www.cabelas.com), PowerPro (www.powerpro.com), Tru-Turn (www.truturnhooks.com), www.cwcrab.com, www.profishchum.com, Flying Fisherman Sunglasses (www.flyingfisherman.com), Talquin's First Cast (850) 627-5873, Mary Johnson – Mount Dora Framing, Sportsman's Paradise of Hosford, Fred Fisher (www.aquatic-impressions.com), J. Flowers, Diane Peebles – St. Petersburg, Owens Fishing and Marine, 935 N Bay St, Eustis, FL (352) 357-3030, Beall's Department Store, Highway 441, Eustis, FL, Lowe's Home Improvement, Highway 441, Mt. Dora, FL, Triangle Marine, Tavares, FL (www.trianglemarinecenter.com), Tractor Supply Company, Eustis, FL, Bill Jackson's -Pinellas Park (727) 576-4169, Gheenoe Boats –Titusville (321) 267-0091, B.A.S.S., Larry Connor, Academy Sports – Pensacola, Sears - Panama City, Bass Pro Shops –Destin, FL and Atlanta, GA, The Canoe Shop – Panama City, Captains Table Restaurant – Panama City, Panama City Marina, K-Mart - Panama City, Paul Brent Studios – Panama City, Sam's Club - Panama City, Sport's Authority - Panama City, Wal-Mart - Panama City and Panama City Beach, Half-Hitch Tackle – Panama City Beach, J. Michael's Restaurant – Panama City Beach, Sunjammer's Watersports – Panama City Beach, Jerry Anderson Fishing Fleet – Panama City Beach, www.myfwc.com

Minutes of the Florida Chapter of the American Fisheries Society
2008 Annual Business Meeting
Ocala, FL
February 20, 2008

The Florida Chapter Business meeting commenced at 7pm on Wednesday, February 20, 2008 at the Ocala 4H Camp in Altonna, FL.

Eric Nagid (President) began the meeting with acknowledging Past Presidents of the American Fisheries Society Southern Division: 1951-53 John 'Jack' Dequine, xxx-xxx Marty Hale, xxx-xxx Larry Connor, and Past Presidents of the Florida Chapter: 1986-87 Marty Hale, 1988-89 Wes Porak, 1994-95 Rich Cailteux, 1997-98 Larry Connor, 2001-02 Peter Hood, 2002-03 Kathy Guindon, 2004-05 Mike Allen, 2005-06 Rich McBride and 2006-07 Chuck Cichra that were present during the 28th Annual Meeting of Florida Chapter of the American Fisheries Society.

The 2007 Business Meeting Minutes were printed in the 2007 April issue of the FL AFS newsletter and were approved by all attending FL chapter members.

Linda Lombardi-Carlson (Secretary/Treasurer) presented the 2007 Treasurer Report (appearing in this newsletter p.8) and was approved by all attending FL chapter members.

Andy Strickland, Raffle Coordinator, provided an update on raffle sells, silent auction items, and acknowledged those present that assisted in gathering merchandise for the raffle: Nick Trippel ($500 check from BASS), Denise Renfro (Florida Coastal Conservation Association signed Gary Chen print), Mary Johnson (framing and labor costs of CCA print), Kathy Guidon (Diane Pebbles print and frame), and Alan Collins (numerous items from tackle, marinas, and department stores). Andy requested anyone that brought items for the raffle to provide the names of businesses to him so that the FL Chapter could appropriately express our gratitude to those individuals (see p.5).

Chuck Cichra presented this year's Student Travel Grants and Rottman Scholarship awards. The FL Chapter was able to provide student travel grants, from 2007 raffle profits, to 10 recipients (nine students from the University of Florida – Christian Barrientos, Aaron Bunch, Oliver 'Towns' Burgess, Edward Camp, Felipe Carvacho, Jared Flowers, John Hargrove, Matt Lauretta, Kevin Thompson and one student from the University of North Florida – Marc Hanke). Chuck provided a historical perspective of the Rottman Scholarship and presented certificates and monetary awards ($500 each) to this year's recipients: Doctor of Philosophy Zy Biesinger (UF, Dept of FAS) and Master of Science Jared Flowers (UF, Dept of FAS).

Student Sub-unit met prior to the FL chapter business meeting and elected new officials: Aaron Bunch (UF/Dept FAS) 2007 president-elect, now the 2008 president and Stuart Carlton (UF/SNRE/WEF) was elected as the 2008 Vice President/Treasure. Matt Catalano (past-president) informed the audience of the job board (in the poster room) that provided current job announcements and a list of state/federal/university websites for job opportunities.

2008 FL chapter elections were presented by Chuck Cichra. There was only one nomination for President-Elect (Debra Murie, assistant professor, UF Dept FAS). Nominations were opened to the floor but no new candidates were presented therefore, nominations were closed by Larry Connor and seconded by Will Patterson. All FL chapter members were in favor in nominating Debra Murie as the 2008 president-elect.

Executive Committee for 2008 will be Will Patterson (President), Debra Murie (President-Elect), Eric Nagid (Past-President) and Linda Lombardi-Carlson (Secretary/Treasurer).
The meeting was then handed over to the 2008 President, Will Patterson.

New business
It was suggested that some FL chapter members would like to receive their FL AFS newsletter digitally instead of a hard copy in the mail. As shown in the 2007 Treasurer Report, the chapter spends 7% of their budget on bulk mailing and printing costs on the quarterly newsletters. Larry Connor explained that bulk mailing requires a minimum of 200 newsletters for a reduction in mailing costs. In addition, there have been problems with past list serves and with incorrect emails of current registered FL chapter members. A majority of the attending FL chapter members' opinion was that the chapter should become more 'green' and put forth the effort to create an email list to notify members when the newsletter is available on our website. It was decided that the chapter could not make any further decision until Jackie Debicella-Leonard, newsletter editor, was notified about this discussion.

Eric Nagid revisited past business relating to the Florida chapter's obligation to host the 2011 Southern Division Meeting. Eric opened the floor to those wanted to volunteer for the organization committee. There were no volunteers. Eric concluded that a committee would be organized in the future.

Two new awards were presented: Outstanding Achievement Award and Career Excellence Award. The descriptions of both of these awards were presented in the 2008 January issue of the FL chapter newsletter. There was some discussion on whether these awards would be monetary or not and how nominations would operate. Eric agreed all those points would be reviewed by a small committee of FL chapter members. Of the attending FL chapter members, there was no opposition in the creation of these two new awards.

Wes Porak proposed re-establishing the Florida Chapter Environmental Committee. This committee advocates issues effecting Florida's environment by lobbying state officials. All attending FL chapter members were in favor in re-establishing this committee.

This year's meeting had record attendance at 130 participants including 30 students from all degrees of education (undergraduate, masters and PhD). Students also accounted for half the contribution symposium presentations and half of the poster presentations.

The 2008 Florida Chapter Business meeting adjourned at 8pm.

2008 Annual Meeting Presentation Awards

Student Posters

Best	**Felipe Carvalho**, J. Pacheco, F. Hazin, D. Murie, and G. Burgess. Effects of hook type and soak time on shark catches for a pelagic longline fishery in the southwestern equatorial Atlantic Ocean
Runner-up	**Grant Olson** and W.A. Szelistowski. Adaptations of juvenile mangrove littorinids to decrease predation by the pufferfish, *Sphoeroides rosenblatti*

Non-Student Posters

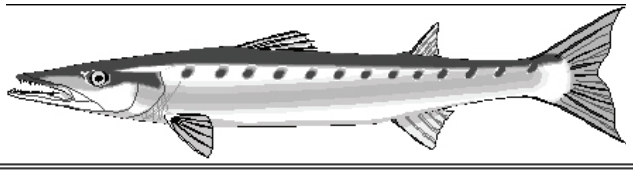
Best	**Melissa Cook** and L. Lombardi-Carlson. Reproductive seasonality and maturity of scamp, *Mycteroperca phenax*, from Florida's west coast
Runner-up	**Ryan Caillouet**, J. Vecchio, and S. Keenan, S. Methods of video and still frame analyses in assessing reef associated fishes

Student Platform Presentations

Best	**Kate Shepard**, W.F. Patterson, III, D.A. Devries, and C. Palmer. Estimating the contribution of Atlantic king mackerel *Scomberomorous cavalla* to winter mixed-stock fisheries in south Florida
Runner-up	**Klaus Huebert** and S. Sponaugle. Swimming trajectories of settlement-stage coral reef fish larvae in the Florida Keys

Non-student Platform Presentations

Best	**Carly Garreau** and D. Scheidt. Watercraft use patterns in the federally managed portions of Mosquito Lagoon, east-central Florida
Runner-up	**Julie Vecchio** and T. Switzer, T. Say Cheese! A pilot study to assess the use of stationary video camera arrays in monitoring reef-associated fish assemblages
Runner-up	**Kerry Flaherty**, B.L. Winner, T.S. Switzer. Catch and release mortality estimates for red drum in Tampa Bay, FL



2007 Treasurer's Report Florida Chapter AFS

1 January 2006 to 31 December 2007

	Checking	Mutual Funds	Total
January 1, 2007	$ 4,818.81	$ 10,674.27	$15,493.08
December 31, 2007	$ 5,411.90	$ 11,520.48	$16,932.38
Difference:	$ 593.09	$ 846.21	$ 1,439.30

Credits:

Deposits		$ 14,624.89
Dividends & Interest		$ 536.77
Other credits: capital gain		$ 573.00
	Total:	$ 15,734.66

Debits:

Annual Meeting vender & supplies		$ (10,440.73)
Funds to Purchase Securities		$ (806.00)
Newsletters & mailing		$ (1,192.89)
Rottmann Scholarship		$ (500.00)
Raffle Costs		$ (552.11)
AFS Disaster Relief Fund		$ (1,500.00)
AFS Liability Insurance		$ (150.00)
Annual bank fees		$ (68.46)
	Total:	$ (15,210.19)

2007 Balance	**$ 524.47**

Major Expense Categories:

Annual Meeting	72%
AFS: Disaster Relief and Insurance	11%
Newsletters	7%
Securities purchased	5%
Student scholarships & sponsorship	4%
Other: banking fees, etc.	>1%

2008 Survey Results

I appreciate the feedback that I received from the 2008 Annual Meeting Survey. I received 47 surveys from 28 professionals, 18 students and 1 retiree. The facilities and food were rated good/fair and the symposium/presentations were given an excellent mark. I received many helpful suggestions to assist in making next year an even better experience. I will attempt to resolve any issues brought to my attention with the 4H Camp Ocala event coordinator. If there are any other issues or comments, please do not hesitate to contact me.

Thanks again,
Linda Lombardi-Carlson
FL AFS Secretary/Treasurer
Email: Linda.Lombardi@noaa.gov

Here are a few comments toward the overall meeting/facility (all comments verbatim from surveys):

Please provide recycling bins. The new Environmental Committee could be in charge of taking the recyclables since the Ocala 4H Camp does not recycle. By tabling the decision on the electronic newsletter, you are costing the chapter $1000 in printing to save a few dollars in postage. It is past time to go electronic. It's sad there is more concern about newsletters than the environment. Your work is cut out for you. The Chum during the raffle is a little over the top…waste of time. Could use a ping-pong table. The raffle was the best one yet! Please designate a quite cabin for those who want to go to bed at a reasonable hour. Raffle suggestions: chum is good, nice prizes are good, tapes, hats and unwearable halter-top's/t-shirts are bad – don't solicit these types of items. I would change the location but don't know where to suggest.

2008 Annual Meeting Survey Results (n=47)
60% Professional, 38% Student, 2% Retiree
(All comments verbatim from surveys)

FACILITIES	Excellent	Good	Fair	Poor	Not applicable
BEDROOM	7%	**47%**	31%	9%	7%
BATHROOM	4%	**40%**	**42%**	7%	7%
CAFETARIA	9%	**51%**	31%	7%	2%
POSTER AREA	9%	**58%**	20%	13%	
GROUNDS	44%	**51%**	4%		

Comments/Suggestions: poster area could be bigger, poster area too noisy, mattress back breaker other wise bedroom fair, poster area better in past meetings but understand circumstances, need more space to view posters, bigger room for posters, poster area too small, no firewood??, cabin #6 had black mold in bathroom, poster area too small echoed, nice facility, shower had no water pressure, a lot of cockroaches, poster area too small, showers need some major maintenance, good lighting, clogged shower, shower faucet and water knobs falling off wall, small poster area hard to hear presenters, hot water ran out in shower, poster area a bit small, cabin was not clean 'crusty' stuff on floor, poster area small, need new location

FOOD	Excellent	Good	Fair	Poor	Not applicable
BREAKFAST	2%	**42%**	31%	13%	11%
LUNCH	4%	**36%**	**33%**	22%	4%
DINNER	9%	**36%**	**33%**	20%	4%
SNACKS	11%	**49%**	24%	2%	13%

Were there enough beverages provided throughout the meeting? 89% YES, 11% NO

Comments/Suggestions: can always use more beer, poor choice in after meeting beverages, more healthy alternatives, everything was great except the poor choice of cheap beer and inadequate quantity of beer, I love natural light, more fresh vegetables, less fatty options, short on sodas, chips, pretzels, and Smores please, ran out of sodas, meals were hit & miss, appreciate the fruits provided but more healthy snacks would be appreciated, ran out of beer, cookies were excellent, food portions were small and sometimes barely edible, dinner was awful the first night, more caffeine, not many healthy options, more vegetarian options, this place would be great if the food was better, value good, quality poor, French toast was ugly but salads were great, no enough soda available, more bottled water

SYMPOSIUM	Excellent	Good	Fair	Poor	Not applicable
RELEVANCE	**82%**	18%			
ARRANGEMENT	**60%**	38%	2%		
TIMELINESS	**67%**	31%			

Comments/Suggestions: Best talks ever, not much time for discussion, great job, it was good to know that people would get the hook if they went over their time, all of the talks were very interesting, love the meeting, mix-up fresh and marine presentations more, blocks of talks people left for and then returned (arrangement could be better?), do it again!

Would you oppose an increase in early and/or late registration fees? 12% YES, 88% NO

Student Section

Site fidelity and movement of reef fishes tagged at unreported artificial reef sites off northwest Florida

Dustin T. Addis
University of West Florida
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Artificial reefs are manmade structures typically built with a goal of promoting growth of aquatic life in areas of limited hardbottom habitat and/or to enhance fishing opportunities. Increased catch rates usually follow new reef creation, which user groups and fishery managers have typically assumed indicates that reefs increase fish production (Lindberg 1997). However, there is an ongoing debate as to whether artificial reefs function to enhance production of aquatic species or if they are more likely to aggregate individuals from surrounding areas, thus making them more susceptible to fishing mortality. Recent scientific studies have shown that artificial reefs likely do not function exclusively as either attractors or producers, but rather their location on a continuum between those two end points is a function of several factors (e.g., site fidelity, reef dependency, habitat limitation, and degree of exploitation) (Bohnsack 1989). Among the more important factors for evaluating the ecological function of artificial reefs is whether fishes associated with reefs display high site fidelity and limited movement (Bohnsack 1989). Fishes that display low site fidelity and have limited reef dependency are less likely to display an enhancement effect with the creation of artificial reefs. Furthermore, fishes that display greater movement may actually have increased exposure to fishing mortality as they move between less and more targeted areas (Crowder *et al*. 2001).

Minimizing fishing mortality appears to be key if reef fish production is to be enhanced by the creation of artificial reefs (Patterson and Cowan 2003; Strelcheck *et al*. 2007). Taking the approach of deploying artificial reefs and not disclosing the location to the public, the FWC constructed 525 unpublished artificial reefs equally divided among four designated Large Area Artificial Reef Sites (LAARS) off northwest Florida in spring 2003. The main objective of the program was to build reef sites that might serve as harvest refugia, thus mitigate against high fishing mortality rates for reef fishes in the region. In fall 2004, we began a study to examine the ecological function of a subset of these unpublished, hence unfished, reef sites within the Escambia East LAARS off Pensacola, Florida. The objective of the ongoing work has been to assess site fidelity and estimate movement of fishes associated with unpublished artificial reef sites, as well as to estimate species-specific size distributions from concurrent remotely operated vehicle (ROV) video sampling at study reefs.

Fish were captured at reefs (n = 9) located between 15 and 20 miles south of Pensacola, Florida, USA. Once over a given site, 5 fishermen targeted fish to be tagged for 30 minutes. Fish were brought to the surface at an approximate rate of 1 m sec^{-1}. Fish were immediately removed from hooks and placed into a 475-L cooler filled with constantly recycling seawater. Fish were removed from the holding tank and measured to the nearest mm fork length (FL) and/or total length (TL). Fish were tagged with an internal anchor tag inserted into a small (<5 mm) incision in the abdominal cavity, and then released. Anchor tags were marked with the word "REWARD", an identifying tag number, and a toll free number to report tag recoveries. The tagging study was advertised in several media outlets to the recreational and commercial fishing communities, encouraging fisherman to report tag recoveries. Those who reported a tag recovery received a $10 reward per tag and were entered into a $500 annual lottery of all tag returnees. Tag recovery information was obtained from those who called the toll-free number: tag number, location of recapture (GPS or LORAN-C coordinates if available), date of catch, and fish length. Recapture location was plotted in a geographic information system (GIS) for tag recoveries for which sufficient detail in recapture location was reported by fishermen. Fish movement was estimated from the straight-line distance between site of tagging and reported location of recapture.

A total of 3,110 fish were tagged with internal anchor tags on quarterly tagging trips from March 2005 to December 2007. The most frequently tagged species were red snapper (n = 2,114), red porgy (n = 422), gray triggerfish (n = 267), gag (n = 101), and vermillion snapper (n = 84). Eighty-six tagged individuals were recaptured at tagging reefs on subsequent tagging trips, with red snapper, gray triggerfish and grouper recaptures being 44, 30, and 9,

respectively. Fishers reported a total of 197 fish caught away from tagging sites, with 139 red snapper, 22 gray triggerfish, and 20 grouper recaptures reported (Fig. 1). Mean distance (SD) moved by recaptured red snapper was 25.3 (4.2) km, while lower mean distances were estimated for gray triggerfish 7.8 (2.7) km and groupers 14.5 (7.5) km. Size of fishes present at reef sites was estimated with a laser scaler attached to a remotely operated vehicle with which study sites were video sampled quarterly. The vast majority of red snapper (91%) observed at study sites (n=3072) were below the recreational fishery's legal size limit (406 mm TL), while little more than half (59%) of the gray triggerfish measured (n=518) were below that species' legal size limit (305 mm FL). The percentage of groupers (64%) below the legal size that were present (n=244) at study sites was intermediate to that of red snapper and gray triggerfish.

Overall, results indicate that red snapper displayed lower site fidelity to and greater movement from unreported artificial reef sites than did gray triggerfish; grouper site fidelity and movement were intermediate to red snapper and gray triggerfish parameters. It appears higher movement observed in red snapper made that species vulnerable to high recreational fishing mortality at artificial and natural reefs in the region. This inference is supported by the lack of legal-sized red snapper at study sites yet the abundance of legal-sized gray triggerfish. Triggerfish displayed much higher site fidelity to and limited dispersion from study reefs, thus were likely not as exposed to F as red snapper. Therefore, unreported artificial reef sites may not serve as effective harvest refugia for species that display low site fidelity and move between fished and unfished areas.

Our continuing research involves a much more intensive and quantitative modeling effort to examine the ecological function of additional reefs (n = 27) off the coast of northwest Florida. Additional tag and recapture data will be used to directly estimate site fidelity and dispersion (*e.g.*, Patterson and Cowan 2003), which in turn will serve as inputs to community dynamics models. Our central goal is to model the ecological function of artificial reefs off northwest Florida, and to be able to predict under what type of scenarios they are likely to accomplish the management goal of increasing reef fish biomass.

References

Bohnsack, J.A. 1989. Are high densities of fishes at artificial reefs the result of habitat limitation of behaveoral preference? *Bul letin of Marine Science* **44**:631-644.

Crowder, L.B., S.J. Lyman, W.F. Figueira, and J. Priddy. 2000. Source-sink population dynamics and the problem of siting marine reserves. *Bulletin of Marine Science* **66**:799-820.

Lindberg, W.J. 1997. Can science solve the attraction versus production debate? *Fisheries* **22**:10-13.

Patterson, W.F., III, and J.H. Cowan, Jr. 2003. Site fidelity and dispersion of red snapper associated with artificial reefs in the northern Gulf of Mexico. Pages 181-194 in: D. Stanley and A. Scarborough-Bull, (eds.). *Fisheries, Reefs, and Offshore Development*. American Fisheries Society. Bethesda, Maryland.

Strelcheck, A.J, J.H. Cowan, Jr. and W.F. Patterson, III. 2007. Site fidelity, movement, and growth of red snapper, *Lutjanus campechanus*: Implications for artificial reef management. in: W.F. Patterson, III, J.H. Cowan, Jr., D.A. Nieland, and G.R. Gitzhugh, (eds.). *Population Ecology and Fisheries of U.S. Gulf of Mexico Red Snapper*. American Fisher ies Society. Bethesda, Maryland.

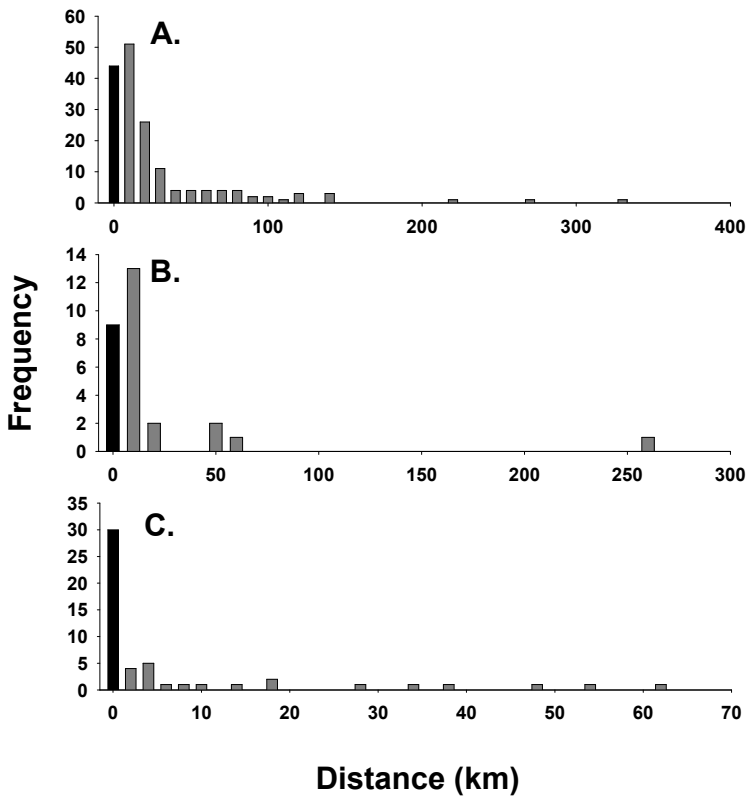

Figure 1. Frequency distributions of movement observed in A) red snapper, B) groupers, and C) gray triggerfish. Recaptures made on subsequent tagging trips are shown black (zero movement).

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