

Fisheries, Wildlife, and Conservation Biology

Program Information and Faculty Achievements



ONLINE AT [HTTP://CNR.NCSU.EDU/FER/NEWS/FWCB_NEWSLETTER.PHP](http://CNR.NCSU.EDU/FER/NEWS/FWCB_NEWSLETTER.PHP) ♦ VOLUME 11, ISSUE 1 MARCH 1, 2014



Photos courtesy of the xxx

Dr. Chris Moorman, Dr. Liz Rutledge, Park Watson, Dr. Lara Pacifici, Gretchen Stokes, Dr. Nils Peterson, Dr. Larry Nielson, Melana Horton, Kyle Gilliland, Nicole Cianciulli, Tonya Godsey, Tyler Moody, Ethan Greene, Erin Latimer, Trevor Andrews, Davi Clarke, Joshua Hooks, Dr. Brett Hartis, James Wehbie, Matthew Andrews, Daniel Lee, Tyler Leggins, Todd Harrison, Kaleb Smith, Austin Warner, Gregory Sides, Dr. Chris DePerno.

2013 FALL GRADUATES

27 STUDENTS RECEIVE BACHELOR OF SCIENCE DEGREES;
9 GRADUATE DEGREES AWARDED

SEE FULL LIST OF GRADUATES, PAGE 2



Drs. Chris DePerno, Liz Rutledge, and Chris Moorman.

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2013 FALL GRADUATES

BACHELOR OF SCIENCE IN FISHERIES, WILDLIFE, AND CONSERVATION BIOLOGY

Elysha Anne Agne	Jordan Scott Nanney
Matthew Austin Andrews	Gregory Haywood Sides
Trevor Scott Andrews*	Kaleb Kayne Smith
Nicole Elizabeth Cianciulli	Gretchen Louise Stokes~***^
Davi Lynn Clark	Austin Lee Warner**
Nathan Kyle Gilliland	Robert Park Watson~*
Tanya Carissa Godsey	James David Wehbie
Ethan Jacob Greene**	
Todd Curtis Harrison	Summer Graduates:
Joshua Hudson Hooks	Michelle T. Franks
Melana Rose Horton~**	Lawrence Avery Kennard
Erin Elizabeth Latimer	Zeb Landon Robinson
Daniel Kelly Lee	Ross A. Snotherly
Tyler Wayne Leggins	Matthew Thomas Supple
Tyler Craig Moody	

*Cum Laude, **Magna Cum Laude, ***Summa Cum Laude, ^College Honors Program, ~ Student Ambassador

MASTER OF FISHERIES WILDLIFE, AND CONSERVATION BIOLOGY

Bryan Curtis Will/*Beth Gardner

MASTER OF SCIENCE IN FISHERIES, WILDLIFE, AND CONSERVATION BIOLOGY

Annemarie Prince/*Chris DePerno and Chris Moorman
Paul Joseph Taillie/*Chris Moorman and Nils Peterson

Summer Graduates:

Eric Lee Kilburg/*Chris Moorman and Chis DePerno
Ryan L. Klimstra/*Chris Moorman

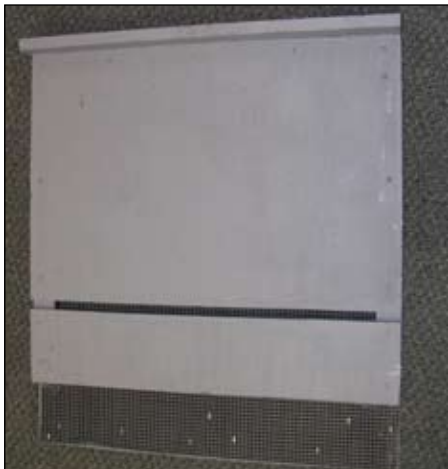
DOCTOR OF PHILOSOPHY IN FISHERIES, WILDLIFE, AND CONSERVATION BIOLOGY

Brett Michael Hartis/*Stacy Nelson
Aimee Pauline Rockhill/*Chris DePerno and Roger Powell
Martha Elizabeth Rutledge/*Chris DePerno and Chris Moorman

Summer Graduate:

Maria Baron Palamar/*Chris DePerno and Maria Correa
/*Major Advisor

ENHANCE WILDLIFE HABITAT



**Bat boxes and
wood duck boxes**

\$50



**You can help enhance wildlife
habitat in your backyard. All proceeds
benefit the Leopold Wildlife Club**

IF INTERESTED CONTACT DR. CHRIS DEPERNO (CHRIS_DEPERNO@NCSTATE.EDU)

A wealth of wildlife, right in the backyard

Dr. Roland Kays' is finding wildlife in Triangle backyards, with help from citizen scientists

Zoologist Roland Kays travels the world to study rare species, so he calls it a “cool surprise” to find a wealth of wildlife in the suburban backyards of Raleigh and Durham, N.C.

“As scientists, we’ve traditionally thought of residential areas as non-habitat,” says Kays, a faculty member at NC State University and the North Carolina Museum of Natural Sciences. “But in fact we found that some backyards had more wildlife than the woods nearby.”

Kays’ latest research, published in the journal *Urban Ecosystems*, started as a citizen science project featured at the opening of the museum’s new Nature Research Center in 2012. Volunteers, including those with chicken coops near their homes, installed backyard camera traps to capture images of wildlife. Animals caught on film were identified by undergraduate wildlife students at NC State.

Although 5 percent of the world consists of developed urban areas, little research has focused on backyard wildlife, aside from studies of bird species, Kays says.

The North Carolina project, however, found an array of mammals in residential areas, with one important exception. “Fenced-in yards with dogs had little wildlife, though fenced yards without a dog had more,” Kays says.

Overall, though, cottontail rabbits, gray squirrels and Virginia opossums were more likely to be in backyards than in surrounding woodlots. Raccoons and gray foxes were found equally in both habitats.

Interestingly, raccoons were the predators most likely to hang around



Dr. Roland Kays

chicken coops. “It was not the fox in the henhouse in this case,” Kays says, with a chuckle. He adds that a camera trap caught one neighbor stealing eggs in her bathrobe, though human predators were not factored into the study.

Deer showed up only in woodlots, despite the fact that they’re garden pests in many cities. Only two bobcats and coyotes were spotted, in more rural areas, not an unexpected finding because larger predator species prefer less fragmented habitat than backyards. However, Kays was surprised that chipmunks were few and far between, probably because the region is on the edge of their geographic range.

Kays is now seeking volunteers for more comprehensive research on backyard wildlife funded by the Na-

tional Science Foundation. His goal is to expand the citizen science project to 1,500 locations over 18 months. He’s looking to sign up Triangle families and start mammal monitoring projects in middle schools. Kays is also seeking hunters, who may already own camera traps, to sign up. These motion-sensitive cameras are triggered to take short videos whenever a warm-blooded animal walks by. The cameras are silent, with an infrared flash, so animals are typically unaware of being photographed.

For more information about taking part in the study, visit the emammal website.

<http://emammal.wordpress.com/2014/02/07/new-emammal-opportunity-in-raleigh-area/>

American Fisheries Society creates John Miller Memorial Web Page



The American Fisheries Society recently put together an In Memoriam web site for Dr. John Maurice Miller.

Dr. Miller died June 27, 2013, at home in Cary of congestive heart failure. John was born in 1940 in Columbus, Indiana, to Maurice and Marianne Bessire Miller of Nashville, Indiana.

Miller came to NC State University as a Professor of Zoology in 1974 teaching, mentoring students, and conduct-

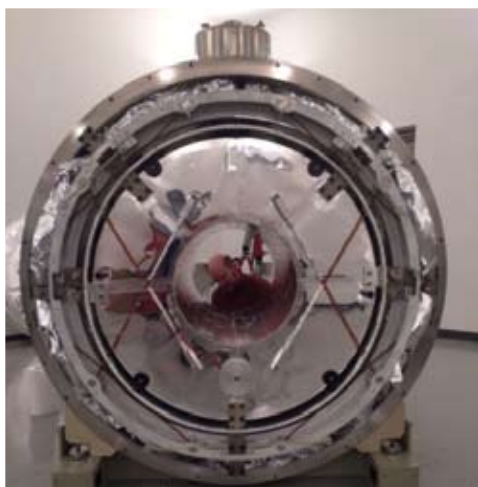
ing research on marine fisheries until his retirement in 2010. In addition to his students, John was energized professionally by friends and colleagues at NCSU, the National Marine Fisheries Service, Duke and UNC marine labs, U.S. Fish and Wildlife, NOAA, NC Division of Marine Fisheries and international colleagues—especially those focused on flatfish fisheries.

Please view the site below.

ONLINE: <http://americanfisheriessociety.org/in-memoriam-dr-john-maurice-miller/>

NEW MAGNETIC RESONANCE FACILITY COMPLETED

The new Marine Magnetic Resonance Facility at CMAST has been constructed and in process of installing the new magnets. This one of a kind facility is the first in the world to dedicate advanced MRI and MRS equipment to the examination of marine species. The facility was constructed with the support of an NSF facilities enhancement grant obtained by Drs. Dave Eggleston and Michael Stoskopf. The new facility will house a 4.7 T 40 cm bore horizontal imaging magnet capable of advanced study of the in situ physiology of marine organisms.



New super conducting magnet being tested prior to pump down.

DR. MINTER TAKES POSITION AT GREAT PLAINS ZOO

Dr. JB. Minter, has taken a position as the Veterinarian for the Great Plains Zoo in Sioux City, North Dakota. Dr. Minter recently completed his residency in zoological medicine at NCSU and is board eligible for the American College of Zoological Medicine. The collection he now cares for includes pronghorn antelope, swift fox, red wolf, colobus monkeys, siamangs and lemurs, Amur tigers, Pallas cats and snow leopards, cheetah, black rhino, bongo and reticulated giraffe among many other interesting species. Dr. Minter has already become engaged in a river otter translocation project in North Dakota.



Dr. J.B. Minter

DR. MICHAEL STOSKOPF DELIVERS KEYNOTE ADDRESS AT ELASMOBRANCH SYMPOSIUM

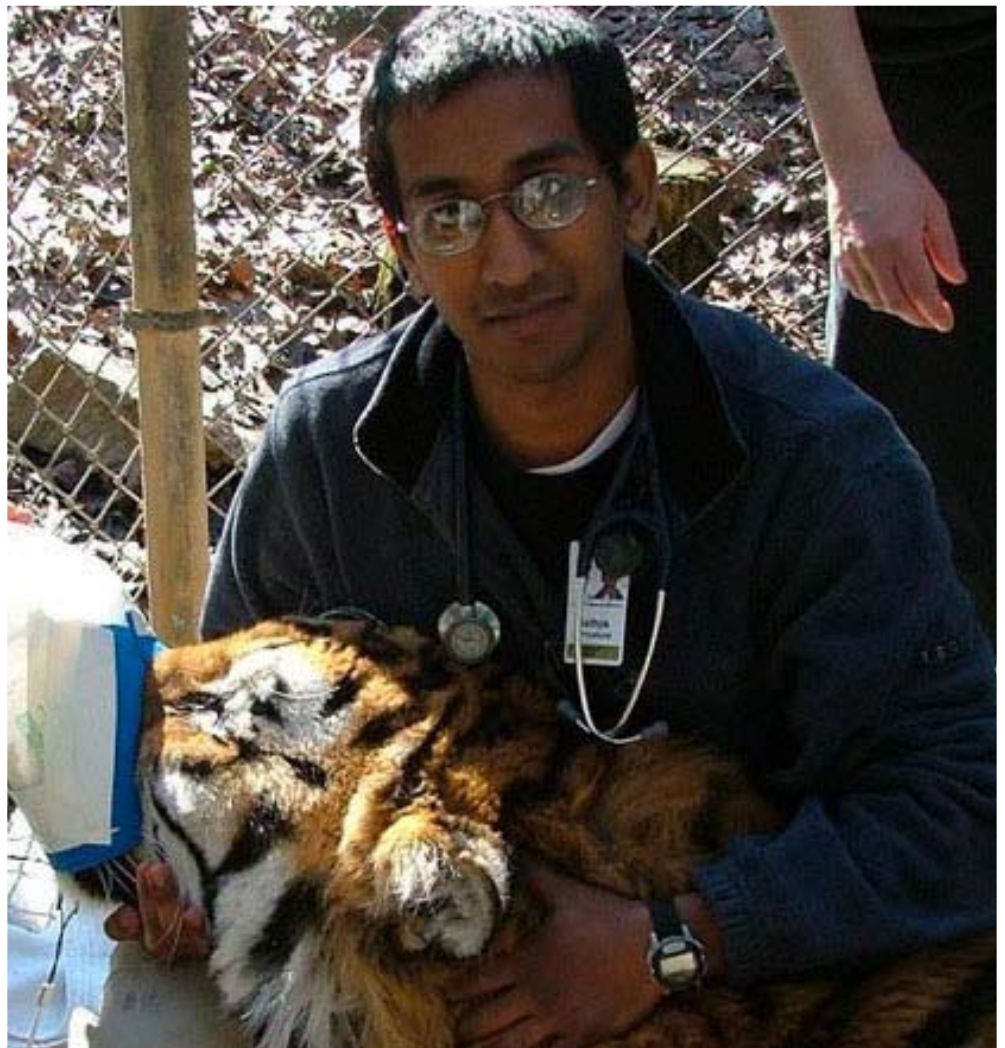
Dr. Michael Stoskopf, professor of wildlife and aquatic health in the Department of Clinical Sciences delivered a keynote address to the 2nd International Elasmobranch Symposium in Monterey, California in mid-November. The conference brings together specialists working with sharks and batoids from around the world and was attended by ap-

proximately 235 attendees from over 37 countries. The Symposium addressed key issues in elasmobranch conservation, health management and husbandry and is expected to generate a follow up volume to the highly acclaimed Elasmobranch Husbandry Manual which was published from the first symposium's efforts. Dr. Stoskopf's keynote examined the

progress that has been made since the first symposium a decade ago and then pointed to key areas where more research and study is needed to enhance elasmobranch health management. It was an excellent opportunity to connect with colleagues from Asia, Africa, Europe and around the world who are working on the cutting edge of elasmobranch management.

DR. CHINNADURAI TAKES JOB WITH BROOKFIELD ZOO

Dr. Sathya Chinnadurai, (former NCSU Zoological Medicine Resident) has taken a position as veterinarian at the Brookfield Zoo in Chicago. Dr. Chinnadurai, completed his zoological medicine residency and an anesthesia residency at NCSU before joining the faculty of the College of Veterinary Medicine at Davis California. His new position allows him to use his clinical skills on the front lines working with a major collection that includes great apes, marine mammals, and over 450 species on the 217 acre Brookfield campus.



Dr. Sathya Chinnadurai

WILDLIFE STICKERS

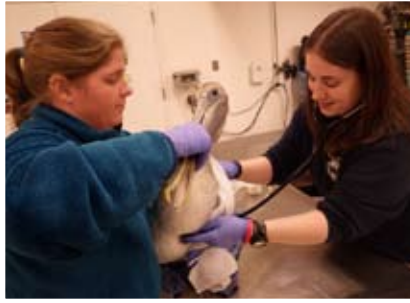
Show your support for the N.C. State Leopold Wildlife Club by purchasing a sticker for all of your vehicles. Stickers are \$7.

If interested contact Dr. Chris DePerno (chris_deperno@ncsu.edu)



NIEMUTH RECEIVES GRANT FOR SEA TURTLE RESEARCH

Dr. Jennifer Niemuth (PhD candidate) working with Dr. Stoskopf and Dr. Harms recently received a grant from the Bernice Barbour Foundation to support her research into the pathogenesis of cold stun syndrome in sea turtles. Dr. Niemuth, who is a 2013-2014 Global Change Fellow at NCSU's Climate Science Center hopes to improve our ability to predict and to mitigate cold stun events in endangered sea turtles.



Emily Christiansen (Left) and Jen Niemuth (right) examine an injured pelican.

KAREN BEASLEY SEA TURTLE RESCUE AND REHAB CENTER MOVES INTO NEW FACILITIES



Opening day at new sea turtle hospital.

The new sea turtle hospital in Topsail is in business and the Karen Beasley Sea Turtle Rescue and Rehabilitation Center is enjoying its new facilities. Dr. Craig Harms and the NCSU zoological medicine group provide the health care for the busy rehabilitation center, and Dr. Harms performed the first surgery in the new facility last month on a 30 year old female sea turtle with a damaged flipper to inaugurate the surgery facilities. Fifteen logger-

head turtles were transferred from the old facility to the new in October to initiate a new era of advanced sea turtle care. The new \$2 million facility has larger tanks, an improved salt water system, in addition to a radiology and surgery facility, and clinical laboratory. Learn more about the work at the sea turtle hospital at <http://seaturtlehospitalblog.com/about/> and more about the new facilities at <http://seaturtlehospitalblog.com/we-did-it/>

CMAST RESPONDING TO DOLPHIN MORTALITY

Faculty and residents based at CMAST have been responding to the Cetacean Morbilli Virus mortality event that has been killing dolphins off the Atlantic coast since mid-summer. *Cetacean morbillivirus* is a virus in the same family as the virus which causes human measles and has been responsible for mortality events in bottle nosed dolphin off the east coast in the past. The outbreak has been expected for some time, with the last outbreak of major dimension occurring from June 1987 through May of 1988. The pattern of the outbreak, starting in the north off the beaches of New York and working its way south has given the North Carolina Marine Mammal Stranding Network and the veterinary team led by Dr. Craig Harms, the opportunity to be organized in their response to the event. As of mid-November, 93% of over 150 bottlenose dolphin tested from NY, NJ, DE, ME, VA, NC, SC, and FL have been positive by PCR for morbillivirus. So far there is no conclusive evidence that the virus is causing clinical disease in other species of cetacean.

GJELTEMA PRESENTS TOAD RESEARCH IN PUERTO RICO

Dr. Jenessa Gjeltema (second year zoological medicine resident) recently returned from Puerto Rico where she presented her work on assessment of polycyclic aromatic hydrocarbon contamination in breeding pools used by Puerto Rican crested toads the Puerto Rican crested toad SSP meeting the first week in November. She is working under the direction of Dr. Damian Shea, Dr. Michael Stoskopf and others. The work published in *ISRN Toxicology* (doi: 10.5402/2012/3098553) describes the use of passive sampling devices to determine PAH contaminants in breeding pools at 3 sites where the endangered toads breed.

Sharing the story of migratory birds



Photo by Mark Buckler

A great egret flies off wearing its new solar-powered GPS/GSM tracking device after being tagged on the Outer Banks of NC. This bird bred on Monkey Island near Corolla NC, and later flew due south to the Bahamas, then to Cuba, Jamaica, and eventually to Colombia, South American for the winter.

Migrating birds with GPS tracking tags tell amazing stories which can now be told in real-time as their locations are sent back to scientists through cell phone networks. A new FWCB project shares this excitement with school kids who adopt a bird, have it named after their principal, and get daily updates on where they go through the Movebank website or new smart-phone App. Over the first year, Great Egrets caught in North Carolina and equipped with these high tech GPS tags have flown as far north as Niagara Falls and as far south as Colombia South America. This project is a collaboration between FWCB professor Dr. Roland Kays, Dr. John Brzorad from Lenoir Rhyne University, Dr. Sara Schweitzer from the NC Wildlife Resources Commission, and a team of educators from the NC Museum of Natural Sciences. Recently, the team took a crew of NC teachers to Lake Mattamuskeet to learn first hand about the field techniques used by scientists; including trapping, observing, and tracking birds.



Photo by Roland Kays

Dr Sara Schweitzer (NC Wildlife Resources Commission) talks to teachers about the challenges of bird conservation.



Photo by Roland Kays

Teachers don waders to trek through ice into a wetland site that a GPS-tagged egret had earlier used for foraging.

Outstanding student achievement award

Congratulations to Augustin (Gus) Engman (FWCB Ph.D. student) for earning the Jimmie Pigg Memorial Outstanding Student Achievement Award “to recognize university students showing exceptional progress in their research, education and professional endeavors,” from the Southern Division of the American Fisheries Society, administered by the Warmwater Streams Technical Committee.

Gus is pursuing doctoral research in Puerto Rico stream and river ecosystems in the NC Cooperative Fish and Wildlife Research Unit and Department of Applied Ecology. Gus was presented with a plaque and monetary award at the Southern Division’s annual conference in Charleston, SC, January 22-26, 2014 (see photo). Also, Gus presented his research results at the conference in a presentation entitled “Lunar influences on recruitment phenology of Caribbean amphidromous fishes” that he coauthored with his advisor, Dr. Tom Kwak (Unit Leader and Professor), Dr. Jesse Fischer (Post-Doctoral Scholar), and Casey Grieshaber (Research Assistant).

A well-deserved award — Congratulations, Gus!



Mendy Willis, University of Florida

Gus Engman receives the Jimmie Pigg Memorial Outstanding Student Achievement Award from Brian Alford at the Southern Division of the American Fisheries Society conference.

MOORMAN NAMED UNIVERSITY FACULTY SCHOLAR

Chris Moorman, Coordinator of the Fisheries, Wildlife, and Conservation Biology Program, was named to the 2013-2014 class of University Faculty Scholars at NCSU. The University Faculty Scholars Program, established in 2012 by Chancellor Woodson to recognize and reward emerging academic leaders among NCSU faculty, identifies approximately 20 tenured or tenure-track faculty scholars each year. Faculty members selected as University Faculty Scholars will carry the title for a five-year period.



TIM ELLIS WINS BEST STUDENT PAPER AWARD

The 2014 Richard L. Noble Best Student Paper Award was awarded to Tim Ellis, a PhD student in the Fisheries, Wildlife, and Conservation Biology program at NCSU. Tim’s presentation, “Estimates of fishing and natural mortality rates of spotted seatrout from tag-return and survey data”, was co-authored by co-advisors Jeff Buckel and Joe Hightower as well as Ken Pollock. Tim’s results showed that natural mortality varied dramatically among years depending on winter severity. His results have already influenced management of this species and there are plans to incorporate his findings into the next stock assessment. In February 2014, the NC Division of Marine Fisheries implemented a four-month closure based on a severe cold stun event during January-February 2014.





SDAFS former president Mike Allen (left), NCSU SFS members Jared Flowers, Kelsey Lincoln, and Augustin Engman accepting the award.

Student Fisheries Society wins subunit award

The NCSU Student Fisheries Society (SFS), a student subunit of the American Fisheries Society (AFS), was recently recognized as the most outstanding student subunit in the Southern Division of AFS. The Southern Division was originally founded to allow a forum where southern states, including 15 southern states ranging from Texas to Maryland, could discuss research findings and management practices aside from the annual parent society meetings. Every year, the Outstanding Student Subunit Award goes to a subunit that has shown tremendous effort in maintaining a community presence and

strives to provide professional and educational opportunities for its members. This marks the seventh time in ten years that SFS has won the award. NCSU SFS was nominated for this award by Dr. Jim Rice for its accomplishments in a variety of outreach and educational activities in the past year. These activities ranged from judging science fairs and teaching kids how to fish, to assessing ponds for sport fish management, to funding several students to attend professional meetings. SFS membership continues to grow as students gain valuable experience and learn of new employment opportunities through

the ListServe (ncsu_sfs@lists.ncsu.edu). Congratulations to all SFS members and to all those who support SFS. The dedication of SFS members and the support they receive from the North Carolina Chapter as well as from NCSU faculty is what continues to make SFS truly one of the most outstanding student subunits in AFS.

Interested in joining? Visit our website (<http://clubs.ncsu.edu/sfs/home.html>) or come check out one of our meetings, held the first Tuesday of every month during the school year in the lobby of David Clark Labs at 5:30 pm.

Publications & Presentations



Research Publications

- Archambault, J. M., W. G. Cope, and T. J. Kwak.** 2014. Survival and behaviour of juvenile unionid mussels exposed to thermal stress and dewatering in the presence of a sediment temperature gradient. *Freshwater Biology* 59: 601-613.
- Bowling, S. A., C. E. Moorman, C. S. DePerno, and B. Gardner.** 2014. Influence of landscape composition on northern bobwhite population response to field border establishment. *Journal of Wildlife Management* 78:93-100.
- Byrd, B. L., A. A. Hohn, G. N. Lovewell, K. Altman, S. G. Barco, A. Friedlaender, C. A. Harms, W. A. McLellan, K. T. Moore, P. E. Rosel, and V. G. Thayer.** 2014. Strandings illustrate marine mammal biodiversity and human impacts off the coast of North Carolina, USA. *Fishery Bulletin* 112:1-23. doi: 10.7755/FB.112.1.1
- Christiansen, E. F., W. E. D. Piniak, L. A. Lester, and C. A. Harms.** 2013. Underwater anesthesia of diamondback terrapins (*Malaclemys terrapin*) for auditory evoked potential measurements. *Journal of the American Association for Laboratory Animal Science* 52:792-797.
- Fisk, J. M. II, T. J. Kwak, and R. J. Heise.** 2014. Modelling riverine habitat for robust redhorse: assessment for reintroduction of an imperilled species. *Fisheries Management and Ecology* 21: 57-67.
- Garner, A. B., T. J. Kwak, K. L. Manuel, and D. H. Barwick.** 2013. High-density grass carp stocking effects on a reservoir invasive plant and water quality. *Journal of Aquatic Plant Management* 51: 27-33.
- Harms, C. A., E. D. Jensen, F. I. Townsend, L. J. Hansen, L. H. Schwacke, and T. K. Rowles.** 2013. Electrocardiograms of bottlenose dolphins (*Tursiops truncatus*) out of water: habituated collection versus wild post-capture animals. *Journal of Zoo and Wildlife Medicine* 44: 970-979. <http://dx.doi.org/10.1638/2013-0093.1>
- Harms, C. A., W. A. McLellan, M. J. Moore, S. G. Barco, E. O. Clarke, V. G. Thayer, and T. K. Rowles.** 2014. Low residue euthanasia of stranded mysticetes. *Journal of Wildlife Diseases* 50:63-73. doi: 10.7589/2013-03-074
Featured in National Geographic Daily News: <http://news.nationalgeographic.com/news/2014/02/140205-whale-stranding-euthanasia-oceans-animals-medicine-science/>
- Harms, C. A., W. E. D. Piniak, S. A. Eckert, and E. M. Stringer.** 2014. Sedation and anesthesia of hatchling leatherback sea turtles (*Dermochelys coriacea*) for auditory evoked potential measurement in air and in water. *Journal of Zoo and Wildlife Medicine* 45:95-101.
- Jacques, C. N., J. A. Jenks, T. W. Grovenburg, R. W. Klaver, and C. S. DePerno.** 2014. Incorporating detection probability into Northern Great Plains pronghorn population estimates. *Journal of Wildlife Management* 78:164-174.
- Kays, R., and A. W. Parsons.** 2014. Mammals in and around suburban yards, and the attraction of chicken coops. *Urban Ecosystems*. doi: 10.1007/s11252-014-0347-2.
- Kwak, T. J., A. E. Engman, and J. R. Fischer.** 2013. Happy birthday little fish: Scientists use ear bones to age ceti. *La Regata* 9: 20 (Fishing/boating publication throughout the Caribbean).

Publications & Presentations



- Lashley, M. A., M. C. Chitwood, A. Prince, M. E. Elfelt, E. Kilburg, C. S. DePerno, and C. E. Moorman.** 2014. Subtle effects of a managed fire regime: a case study in the longleaf pine ecosystem. *Ecological Indicators* 38:212-217.
- Li, Z., T. Kin, H. Lei, R. Kays, and M. C. Crofoot.** 2013. Attraction and avoidance detection from movements. *Proc. 2014 International Conference on Very Large Data Bases (VLDB'14/PVLDB)*:157–168.
- Mascarelli, P. E., M. McQuillan, C. A. Harms, R. V. Harms, and E. B. Breitschwerdt.** 2014. *Bartonella henselae* and *Bartonella koehlerae* DNA in birds [letter]. *Emerging Infectious Diseases* 20:491-492. <http://dx.doi.org/10.3201/eid2003.130563>
- Monzón, J., R. Kays, and D. E. Dykhuizen.** 2013. Assessment of coyote–wolf–dog admixture using ancestry-informative diagnostic SNPs. *Molecular Ecology*. doi: 10.1111/mec.12570.
- Moorman, C. E., C. J. Plush, D. Orr, and C. Reberg-Horton.** 2013. Beneficial insect borders provide upland northern bobwhite brood habitat. *PLOS ONE* 8(12):e83815. doi:10.1371/journal.pone.0083815.
- Nelson, T. C., P. Doukakis, S. T. Lindley, A. D. Schreier, J. E. Hightower, L.R. Hildebrand, R.E. Whitlock, M.A.H. Webb.** 2013. Research tools to investigate movements, migrations, and life history of sturgeons (*Acipenseridae*), with an emphasis on marine-oriented populations. *PLoS ONE* 8(8): e71552. doi:10.1371/journal.pone.0071552.
- Palamar, M. B., M. N. Peterson, C. S. DePerno, and M. T. Correa.** 2013. Assessing rabies knowledge and perceptions among ethnic minorities in Greensboro, North Carolina. *Journal of Wildlife Management* 77:1321-1326.
- Posner, L. P., K. M. Baily, E. Y. Richardson, A. A. Motsinger-Reif, and C. A. Harms.** 2013. Alfaxalone anesthesia in bullfrogs (*Lithobates catesbeiana*) by injection or immersion. *Journal of Zoo and Wildlife Medicine* 44: 965-971. <http://dx.doi.org/10.1638/2013-0090R.1>
- Suselbeek, L., W.J. Emsens, B. T. Hirsch, R. Kays, J. M. Rowcliffe, V. Zamora-Gutierrez, and P. A. Jansen.** 2014. Food acquisition and predator avoidance in a Neotropical rodent. *Animal Behaviour* 88:41–48.

Research Presentations

- Brownell, P., J. Ellis, J. E. Hightower, R. W. Laney, A. L. LaRoche III, D. Michaelson, K. Rawls, F. Rohde, G. Wright, and B. Wynne.** 2014. Reconnecting American eels to the upper Roanoke basin. Southern Division, American Fisheries Society, Charleston, South Carolina.
- Chitwood, M. C., M. A. Lashley, J. C. Kilgo, K. H. Pollock, C. E. Moorman, and C. S. DePerno.** 2014. Sibling and plant community influence survival of white-tailed deer neonates. 37th Annual Meeting of the Southeast Deer Study Group. Athens, Georgia.

Publications & Presentations



- Ellis, T. A., J. A. Buckel, J. E. Hightower, and K. H. Pollock.** 2014. Estimates of fishing and natural mortality rates of spotted seatrout from tag-return and survey data. North Carolina Chapter, American Fisheries Society, Durham, North Carolina.
- Ellis, T. A., J. A. Buckel, J. E. Hightower, and K.H. Pollock.** 2014. Estimates of fishing and natural mortality rates of spotted seatrout from tag-return, telemetry, and survey data. Southern Division, American Fisheries Society, Charleston, South Carolina.
- Engman, A. C., T. J. Kwak, J. R. Fischer, and C. A. Grieshaber.** 2014. Recruitment phenology of Caribbean amphidromous fishes. Annual Meeting of the North Carolina Chapter of the American Fisheries Society, Durham, North Carolina.
- Engman, A. C., T. J. Kwak, J. R. Fischer, and C. A. Grieshaber.** 2014. Lunar influences on recruitment phenology of Caribbean amphidromous fishes. Annual Meeting of the Southern Division of the American Fisheries Society, Charleston, South Carolina.
- Flowers, H. J., and J. E. Hightower.** 2014. Estimating sturgeon abundance in the Carolinas using side-scan sonar and Bayesian models. Southern Division, American Fisheries Society, Charleston, South Carolina.
- Harris, J. E., and J. E. Hightower.** 2014. Estimating fishing and natural mortality rates of Albemarle Sound striped bass. Southern Division, American Fisheries Society, Charleston, South Carolina.
- Ivasauskas, T. J. and T. J. Kwak.** 2014. Techniques for sampling larval and juvenile fishes in Appalachian Mountain rivers. Annual Meeting of the North Carolina Chapter of the American Fisheries Society, Durham, North Carolina.
- Kerns, J., M. Allen, and J. E. Hightower.** 2014. Dissecting mortality components for recreational fisheries with high rates of released fish. Southern Division, American Fisheries Society, Charleston, South Carolina.
- Lashley, M. A., M. C., Chitwood, M. T. Biggerstaff, D. L. Morina, C. E. Moorman, and C. S. DePerno.** 2014. White-tailed deer vigilance: Social and environmental factors. 37th Annual Meeting of the Southeast Deer Study Group. Athens, Georgia.
- Rudershausen, P. J., J. A. Buckel, J. E. Hightower, M. A. Dueker, T. Dubreuil, M. J. O'Donnell, S. J. Poland, and B. H. Letcher.** 2014. Comparison of mummichog abundance among anthropogenically altered saltmarsh creeks in coastal North Carolina, USA. Southern Division, American Fisheries Society, Charleston, South Carolina.
- Rudershausen, P. J., J. A. Buckel, and J. E. Hightower.** 2014. Discard mortality of a U.S. South Atlantic reef fish estimated from surface and bottom tagging. Southern Division, American Fisheries Society, Charleston, South Carolina.

Extension/Education Activities

- DePerno, C. S.** 2013. Mole and vole control in the garden. Presented to 40 individuals of the MacGregor Downs Garden Club, MacGregor Downs Country Club, Cary, North Carolina.



READ BACK ISSUES ONLINE

If you missed the last issue of the Fisheries and Wildlife newsletter you can catch up on back issues on the department's Web site under the news tab.

http://cnr.ncsu.edu/fer/news/FWCB_newsletter.php

ORGANIZATIONS AND OPPORTUNITIES

North Carolina State University Fisheries, Wildlife, and Conservation Biology students and faculty are active in a number of peer and industry organizations devoted to aspects of Fisheries, Wildlife, and Conservation Biology.

The Leopold Wildlife Club offers students the opportunity to network and learn from professionals in wildlife science and management. Meetings are held twice a month and typically feature speakers on a variety of topics. Past speakers have included falconers, fishing guides, taxidermists, decoy carvers and more.

The Student Fisheries Society is a sub-unit of the North Carolina Chapter of the American Fisheries Society. It encourages the exchange of fisheries and aquatic science information among students, faculty and regional professionals while also providing career guidance to students. The American Fisheries Society is the oldest and largest not-for-profit professional society for government, academic and industry scientists associated with conservation, development and management of fishery resources in North America.

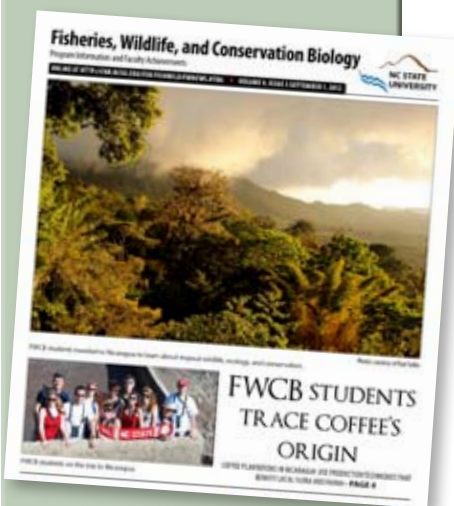
The NC Chapter of The Wildlife Society provides a forum for wildlife professionals and others to interact to improve wildlife conservation and management while fostering high professional standards and ethics within all related fields. It is an acknowledged source of current scientific information and expertise and acts as a collective voice on matters relating to wildlife biology, management, education and policy.

SUMMER CAMP STUDENT ENDOWMENTS

Please consider giving to our two Summer Camp student endowments. These endowments help undergraduate students attend the Fisheries and Wildlife Summer Camp. For more information on how to contribute, contact **Dr. Chris Moorman** at 919-515-5578 or chris_moorman@ncsu.edu

PHIL DOERR ENDOWMENT FUND

Also, you may consider giving to the **Phil Doerr Endowment Fund**. The endowment, established with the North Carolina Natural Resources Foundation, will be used to fund an annual award to assist undergraduate or graduate student(s) in gaining valuable field experience. For more information on how to contribute, contact **Dr. Chris Moorman** at 919-515-5578 or chris_moorman@ncsu.edu



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Got a story idea or a great photo?

Send your article submissions or pictures of North Carolina's native wildlife to stevecallen1@gmail.com.