

the NEWS FROM THE UNIVERSITY OF FLORIDA • COLLEGE OF VETERINARY MEDICINE
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Clinicians, animal patients all benefiting from upgraded radiology service

BY MEREDITH WOODS

The radiology service is looking a little different these days thanks to the addition of a new faculty member and an assortment of new equipment and management systems that enhance both data collection and storage capacity. As a result, clinicians receive client images faster, radiologists can take more and better images of their animal patients, and the filmless image storage system reduces the likelihood of patient records being lost or misplaced.

Dr. Matthew Winter joined the service as assistant professor of radiology, department of small animal clinical sciences, in May. According to Dr. Michael Schaer, associate department chair and associate chief of staff of UF's small animal hospital, Winter is a great asset to the radiology team.

"We are most appreciative of all of his efforts and expertise that have brought us to the cutting edge of modern medical imaging, which has been so beneficial to our patients," Schaer said. "Caring much about the responsibility on his shoulders, Dr. Winter has proven to be of great value to our hospital and the college."

Winter's arrival supports one of the busier services at the small animal hospital. Currently, the radiology group takes images of approximately 750 small animal patients and 150 large animals every month. A group of nine technicians, two program assistants, two students, and one summer intern work with the radiologists to image patients and monitor the flow of animals through the service. Led by senior veterinary care manager Mary Wilson, the close knit team boasts over 150 years of combined experience in radiology.

"There's a great deal of camaraderie between the technicians and the clinicians," said Wilson. "The radiology group is a family. We really care about each other in this department."

Among their many responsibilities, radiology technicians and program assistants are tasked with the management of all the radiographic images that are processed on a daily basis. Three years ago, the CVM adopted a digital solution for radiography and purchased a computed radiography (CR) system as well as a Picture Archive and Communications System (PACS) from Kodak. CR allows for the capture of a digital radiographic image. This image is stored on PACS, a long term storage system and database that maintains records of all images taken at the CVM. In addition, the CVM purchased a radiology information system that allows for electronic generation of imaging requests, reports and charges. The addition of these electronic and digital resources has streamlined the efficiency of the diagnostic imaging section.

The Veterinary Medical Center is also making good use of two advanced diagnostic imaging tools: a 1.5 Tesla Toshiba Advantage magnetic resonance imaging unit (MRI) and a Toshiba Aquilion, 8-slice computed tomography (CT) scanner, which complement the full array of imaging services — including fluoroscopy, ultrasound, nuclear imaging, and radiography — already available to CVM animal patients.

The new CT scanner, which was made possible in part due to a generous donation from New York Yankees owner and racehorse aficionado George Steinbrenner, captures eight separate images in one rotation around the patient table, and can be upgraded to capture 16 images per rotation. By comparison, the previous scanner only took one image per rotation.

CT is used in imaging suspected nasal tumors and sinus masses, to check for primary and metastatic neoplastic disease (cancer), to aid in the diagnosis of neurological conditions, and to identify musculoskeletal problems. The increased speed of the new machine allows for advanced vascular imaging that was not possible with the previous scanner. CT is also used to plan radiation therapy procedures such as stereotactic radiosurgery for oncology patients. That procedure is often used to treat well defined cranial and nasal tumors in addition to certain types of bone tumors, such as osteosarcomas. Radiosurgery procedures are performed at the University of Florida McKnight Brain Institute, part of the University of Florida Health Science Center.

The MRI unit was installed just over a year ago. Used primarily for neurological imaging (brain and spinal cord), MRI is also used to diagnose orthopedic diseases involving bone, cartilage and ligament injury in small animal and equine patients.

Both the CT scanner and the MRI unit are designed for use with large and small animal patients. The MRI unit is equipped with a table to handle a variety of species, including horses. Since its arrival in March, clinicians have been using the CT scanner on small animal patients until the college is able to install a table equipped for large animal patients, which is anticipated in December 2007. In the meantime, the older CT scanner is still utilized for large animal patients.



An anesthetized horse's leg is imaged using the new MRI unit.

(Photo courtesy of CVM radiology service)



A dog, under anesthesia, enters the CT scanner for diagnostic imaging.

(Photo courtesy of CVM radiology service)

Thanks to the newly improved diagnostic imaging technology available at the CVM, Winter foresees offering more advanced imaging services in the near future.

"We anticipate more vascular imaging with the new CT and MRI scanners, which will allow us to better diagnose vascular malformations and diseases," said Winter. "We look forward to performing more accurate, non-invasive tumor characterization and offering more interventional radiology procedures, such as chemoembolization and radiofrequency ablation. The three dimensional reconstructions and the manipulations of these images are also helpful for planning corrective orthopedic surgery for patients with skeletal malformations."

A graduate of Cornell University College of Veterinary Medicine, Winter completed his diagnostic imaging residency at Tufts University and was an assistant professor in radiology at Iowa State University prior to joining the faculty at the UF CVM.

"I was excited by the advanced imaging capabilities at the University of Florida. The UF veterinary college has one of the highest quality MRI units and CT scanners rivaling equipment at any other veterinary college, excellent traditional imaging capabilities, as well as a robust PACS and radiology information system," Winter said. "This investment shows that UF recognizes the importance of diagnostic imaging and its ability to interface with all specialties to improve patient care. Additionally, we have a skilled group of radiology technicians who are a pleasure to work with and who are unparalleled in the veterinary community. There's a lot of potential here for UF to have one of the best diagnostic imaging sections in the country."

Infectious disease specialist named UFRF professor



Dr. Tony Barbet

Anthony Barbet, Ph.D., an infectious disease specialist at the University of Florida College of Veterinary Medicine, has received a UF Research Foundation professorship. The professorships are awarded through the university's Division of Sponsored Research to tenured faculty members campuswide for distinguished research and scholarship. The honor includes a \$5,000 salary increase each year for three years and a one-time \$3,000 award for research support.

Barbet, a professor in the UF veterinary college's department of infectious diseases and pathology, specializes in tick-borne rickettsial diseases, a growing threat to human health. Such diseases occur worldwide, but are most common in temperate and subtropical regions. Barbet and his colleagues at the UF veterinary college have long studied the animal variations of many of these diseases, specifically anaplasmosis and ehrlichiosis.

While perhaps best known for their decades of research into heartwater, a devastating disease that affects cattle and other livestock, UF's team also has significantly contributed to the understanding of other rickettsial organisms in the same family. Barbet is currently focusing on understanding why these diseases are now spreading from animals to humans and how they persist in the environment. The research also involves developing new molecular approaches that may be applied to pinpoint and control both human and animal infections.

Barbet has been a member of UF's veterinary college faculty since 1986.

Graduate student to attend international conference on paratuberculosis



Pablo Pineda

A University of Florida College of Veterinary Medicine graduate student Pablo Pinedo has received the Richard Merkal Memorial Fellowship to attend the International Colloquium on Paratuberculosis, to be held Oct. 29-Nov. 2 in Tsukuba, Japan.

Pinedo is pursuing a Ph.D. under the supervision of Owen Rae, D.V.M., a professor in the department of large animal clinical sciences. Pinedo's travel and registration costs will be covered through the fellowship, which is sponsored by the International Association for Paratuberculosis. While at the event, Pinedo will give a presentation on his research, which focuses on genetic resistance to paratuberculosis -- also known as Johne's disease -- in beef and dairy cattle.

Paratuberculosis is a chronic, debilitating disease of ruminants characterized by progressive weight loss and profuse diarrhea. It resembles Crohn's disease in humans and produces high losses for the animal industry in the United States.

Veterinary graduate student to present poster at NIH research festival



Shasta McClenahan

The research findings of University of Florida veterinary graduate student Shasta McClenahan will be featured in a poster presentation slated for the second annual National Institutes of Health-sponsored National Graduate Student Research Festival, to be held Oct. 11-12 in Bethesda, Md.

McClenahan's research involves the isolation and characterization of caliciviruses from marine mammals. Caliciviruses can cause blisters on the flippers and in the mouths of marine mammals, and have caused spontaneous abortions in pregnant animals.

"These marine caliciviruses are unique in that they can move from the ocean into the terrestrial environment, where they infect many other animal species, livestock and even humans," McClenahan said.

Her project began as a collaboration with Alaska Veterinary Pathology Services and the Alaska Department of Fish and Game, which are investigating the declines in the Steller sea lion population in Alaska.

The event will be held at the NIH's main campus. One of the festival's goals is to help graduate students meet NIH investigators with whom they may wish to pursue postdoctoral training.

"Several hundred students from all over the country applied for this privilege, and those selected represent the 'creme-de-la-creme' of our future scientists," said Carlos Romero, Ph.D., a scientist in the department of infectious diseases and pathology at UF's College of Veterinary Medicine and McClenahan's graduate program supervisor.

Architects/engineers interview for small animal hospital design job

On Aug. 13, CVM administrators interviewed three potential candidates to provide architectural and engineering services for the new Veterinary Education and Clinical Research Center, a \$58 million, 90,000 square-foot facility that will include a major expansion of UF's small animal hospital.

The three firms interviewed included Zeidler & Associates, Flad & Associates, and Reynolds, Smith, and Hills. Officials anticipate hiring an architect for the 90,000 square-foot facility by fall, with groundbreaking likely to occur in September 2008.

"A new small animal hospital has been a dream of the college for many years, and much work went into the campaign to obtain private support, as well as to gain high priority for this project within the university," said the college's dean, Dr. Glen Hoffsis.

The original hospital opened in 1978 and has undergone no major renovation in 25 years. Hoffsis credited his predecessor, former college dean Joseph A. DiPietro for his "relentless work culminating in this success."

"The case for the need for the hospital was compelling, and this resulted in more than \$4 million in private gifts," Hoffsis said. "This degree of private support was a major factor in moving the project up the priority list within the university."

During the early months of 2007, the college successfully garnered the #1 priority ranking for new construction at UF. Following the legislative session in May, it became evident that only one new building would be funded for UF — the Veterinary Education and Clinical Research Center.

In addition, the college was able to obtain a 100 percent state match for the private gifts raised through a program known as the "Courtelis Match." This means that in addition to the appropriated \$49 million, more than \$8 million was added to the project for a total of \$58 million.

"This sounds like a huge sum, and it is," Hoffis said, adding that the cost of construction within the UF environment is "astronomical." And while initial funding hurdles have been cleared with recent legislative approvals, needs for equipment and programmatic expansion continue.

"We are offering naming opportunities and gifts will continue to be matched, so that contributions will be leveraged significantly," Hoffsis added.

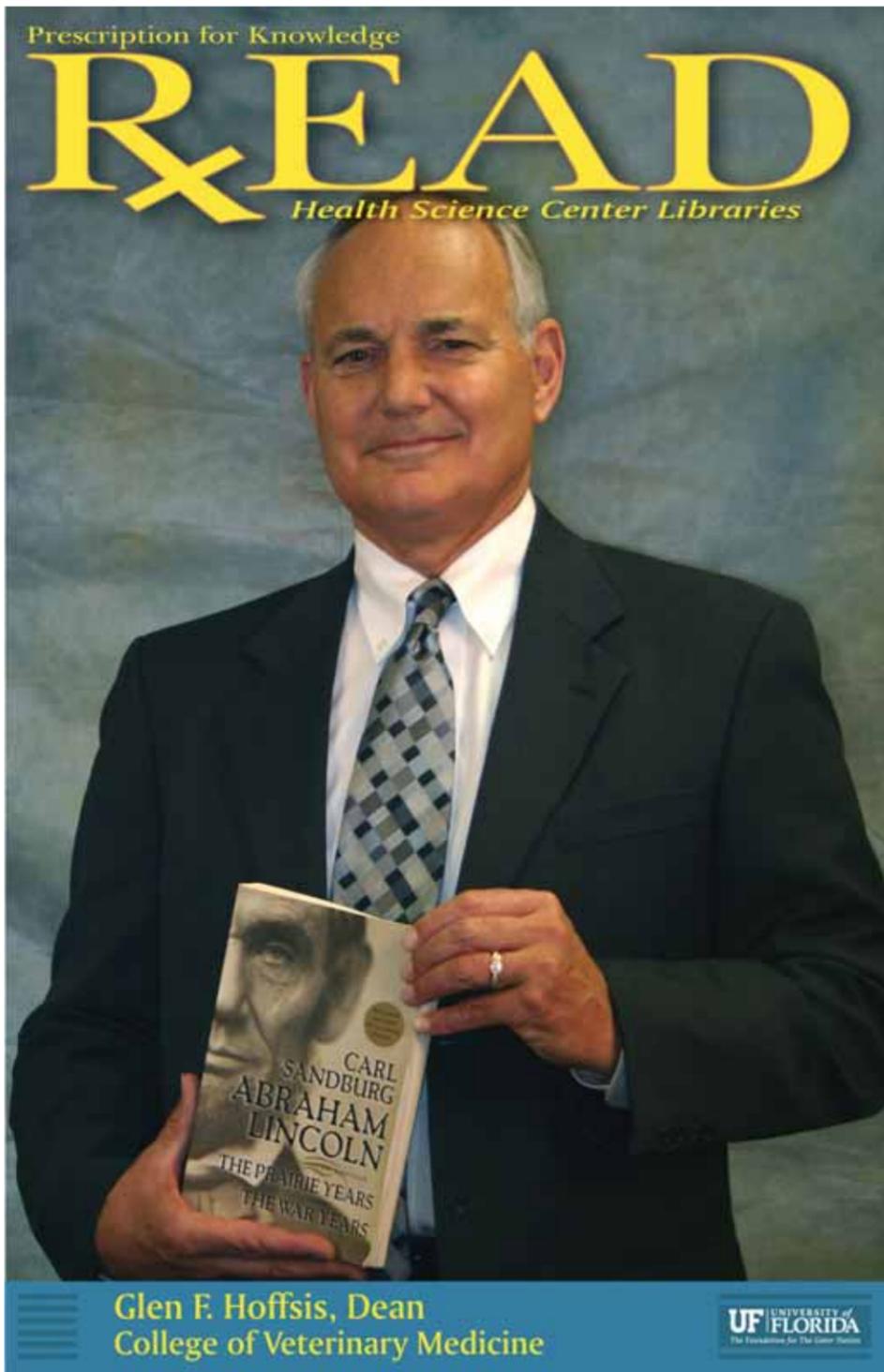
The new hospital will likely be a three-story building located immediately north of the existing small animal hospital, located at 2015 S.W. 16th Ave. in Gainesville. The building will triple the existing hospital square footage and will occupy nearly all of the existing small animal patient parking area, officials said. People transitioning from one area to the other should be able to do seamlessly.

Hospital client access and patient examination rooms all will be housed on the first floor. Separate waiting areas will be designed for dogs and cats. Within close access to these areas will be an intensive care unit and separate spaces for satellite digital radiography and ultrasonography, and for the hospital pharmacy.

The second floor will house a surgical operating suite, anesthesia preparation, monitoring and recovery areas, a rehabilitation/physical therapy suite, an endoscopy suite and a laundry area, as well as showers and lockers for veterinary staff.

The third floor will mostly consist of faculty offices and meeting rooms.

UF's College of Veterinary Medicine graduated its first class in 1980 and now boasts 2,080 alumni and 209 recipients of master of science or Ph.D. degrees.



Dean Glen Hoffis shared his comments about one of his favorite books for the Health Science Center's RxEAD: Prescription for Knowledge campaign. The book he chose to highlight was: "Abraham Lincoln: The Prairie Years" and "The War Years" by Carl Sandburg.

Hoffis's comments follow:

"I wanted to read some of the works of our most celebrated writers and Carl Sandburg was one I'd never read. Most importantly, I wanted to know more about Lincoln, someone who had a unique and fascinating life.

"Finally, I like to learn leadership lessons from those who have actually been in the arena. In Lincoln, we have one of the greatest leaders in American history," Hoffis said.

The idea behind the "RxEAD: Prescription for Knowledge" campaign is to promote an ongoing positive relationship to the library with the faculty, staff and students via the fun and personal connection of a poster showing a love of reading and learning.

"It's based on a popular celebrity campaign from the American Library Association, which in 2004 we modified adding the 'Rx' for the Health Science Center, and then Smathers Library picked it up the next year. Now the posters are all over," said Ned Davis, the HSC library's marketing and publications coordinator.

Congratulations to new or soon-to-be specialists

Congratulations to the following individuals who have passed board examinations recently.

In small animal clinical sciences, Dr. Herb Maisenbacher, who completed his residency in cardiology in July, passed the certifying examination with the the American College of Veterinary Cardiology and received the second highest score on the exam; Dr. Nikki Hackendahl, who completed her residency in internal medicine in July, passed the American College of Veterinary Internal Medicine certifying exam; and Dr. Carrie Goldkamp, a third-year internal medicine resident, passed the ACVIM qualifying exam.

In large animal clinical sciences, theriogenology resident Dr. Adam Eichelberger passed his board examinations with the American College of Theriogenologists and Dr. Andre Shih, a former resident, now a faculty member in anesthesiology, passed his written examination for the American College of Veterinary Anesthesiology. Shih will take his oral examination in September. Dr. Nicholas Ernst passed his board examinations for the American College of Veterinary Surgeons.

In other news, the Office of Research and Graduate Studies reports that summer graduates from the program include Dr. Fiona P. Maunsell, who received her Ph.D. Maunsell was mentored by Dr. Mary Brown in the department of infectious diseases and pathology.

CVM data storage system is hot tech topic



Sommer Sharp's work on a virtual data storage system for UF's College of Veterinary Medicine was featured in Network World.

The computer system used to store all of the data produced at the UF College of Veterinary Medicine was the subject of recent media coverage. Network World magazine ran a story about the CVM's virtualization storage system for computer data in their May 2007 issue. The system, which was on the cutting edge of information technology when UF installed it back in October 2005, has streamlined backup capability for the huge amounts of data stored by the college.

Back in 2005, the college's informational technology (IT) department was struggling to find storage capacity for the voluminous amounts of computer data that had to be stored on the CVM system, which includes everything from radiographs to medical records and e-mails.

"In an environment where animal patients are treated 24 hours a day, it's critical to minimize the time the network is down for routine maintenance," said Sommer Sharp, computer systems programmer.

With the old system, the time required to back up files to tape was greater than the window available to do so, and the CVM's computer servers were not adequately meeting the storage demand.

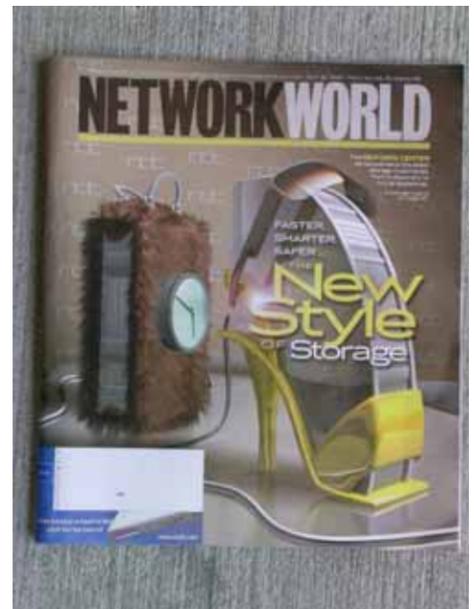
The IT group recognized that the CVM needed a new Storage Area Network. Working on a limited budget, Sharp concluded that the IT team would probably have to build its own storage system to stay in budget. That's when she learned about the Storage Virtualization Manager system made by LSI Logic.

The system enables data to be quickly saved to disk during routine backup periods. Data is then copied from disk to tape. Since the data is already stored on the disks, the time consuming process of transferring data from disk to tape doesn't require any additional system down time.

The CVM was an early adopter of the new technology, and LSI Logic featured the veterinary school in a technology case study that was featured in trade publications. Earlier this spring, Sharp received a call from Network World magazine inquiring about the new system. Sharp was then invited to speak about virtualization and how it improved data storage at the CVM at a Virtualization Summit for technology executives held in Boston in June.

"When we began the project we didn't realize that we were doing anything cutting edge. It was just a solution to meet the needs that came in under budget," Sharp said. "We're doing our part to keep back-end processes up to speed with front end processes to support cutting edge veterinary programs."

To read the story online, please visit: <http://www.networkworld.com/supp/2007/ndc3/052107-storage-virtualization-case-study.html>.



The Veterinary Page is the UF College of Veterinary Medicine's internal newsletter. Please submit story ideas to Sarah Carey, editor, at: careys@vetmed.ufl.edu or call (352) 392-2213, ext. 5206.

Something's Fishy

UF researchers collaborate with private laboratory to analyze effects of environmental pollutants on bull sharks

BY MEREDITH WOODS
PR INTERN

Sending commonly prescribed medications down the drain is taking a bite out of the environment -- at least when it comes to shark habitat, University of Florida veterinarians warn. In fact, the combination of flushing unused medications and the natural excretion of drug residue from antidepressants, cholesterol-regulating drugs and contraceptives into wastewater systems is having repercussions on aquatic animal life in general.

Now researchers at UF's College of Veterinary Medicine's Analytical Toxicology Core Laboratory, in collaboration with Mote Marine Laboratory in Sarasota, are studying the bull shark's exposure to pharmaceutical drug residue found in the waters of the Caloosahatchee River. Because bull sharks are able to survive in both saltwater and freshwater environments, compared with strictly saltwater sharks they are in closer and more frequent contact with humans. This also means that bull sharks are frequently exposed to wastewater pollutants found in freshwater basins. In southwest Florida, young bull sharks often use the freshwater Caloosahatchee River as a breeding area, and the river's proximity to Fort Myers and nearby water treatment facilities make it a prime location for studying pharmaceutical pollution exposure in the species.



Dr. Nancy Szabo

Scientists agree that the relationship between the ATCL and other research institutions is important because it utilizes the strengths of the different organizations.

Scientists are trying to determine if exposure to prescription residue contaminates affects the growth and reproduction of young bull sharks.

Marine biologist Jim Gelsleichter, of the Mote Marine Laboratory, is testing for the presence and levels of human drug contaminants in bull shark blood. He is also working to tag bull sharks in the river basin with passive sampling devices -- silicone rubber discs that collect chemical samples in the water for later examination. When sharks are caught by local anglers or by the Mote team on subsequent research expeditions, the tags are retrieved and sent to UF's Analytical Toxicology Core Laboratory (ATCL) for analysis.

The laboratory provides comprehensive analytical support to on-campus and off-campus researchers requiring qualitative and quantitative chemical analyses to meet study objectives. The laboratory is unique in that it specializes in non-routine analysis, so researchers turn to the ATCL when they require distinct analytical techniques.

"If a client requests a routine assay, I refer him or her to a lab that specializes in that area," said Nancy Szabo, laboratory director. "The type of work we do requires a lot of effort, and one has to have the expertise available to know where to even begin."

Szabo added that the laboratory's ability to support the type of cutting-edge research conducted on the UF campus - where most researchers request that unique analytical methods be used -- is "a good match."

The bull shark study is the most recent collaboration between Mote Marine and the ATCL. The two groups have worked together for the past nine years on various studies. Szabo explained that in the case of the bull shark study, which is supported by the Charlotte Harbor National Estuary Program and a grant from the National Oceanic and Atmospheric Administration to the National Shark Research Foundation, the ATCL worked with Mote Marine Laboratory to design the experiment and continues to help adapt the experimental methods as needed to ensure that valid results are produced.

When the blood and -- if recaptured -- silicone-rubber discs from the bull sharks arrive in the ATCL laboratory, Szabo's team goes to work to determine the variety and concentration of chemicals present in the bull shark's environment by analyzing the animals' blood and tissue samples. After the samples are processed and the data collected, Szabo summarizes the results for Mote Marine researchers and team members discuss the information and seek to publish it. To date, the collaboration between Gelsleichter and Szabo has resulted in three published articles and one manuscript that is currently under review.

The relationship between the ATCL and other research institutions is important because it utilizes the strengths of the different organizations, the scientists agreed.

"ATCL is clearly a leader in the analysis of environmental contaminants and it is important to have such expertise on a project that seeks to break new ground in assessing environmental risks of emerging contaminants of concern," Gelsleichter said. "At the same time, Mote is obviously a leader in shark research and the nation's center for such studies.

"Our collaborative efforts have provided new data on the environmental quality of essential fish habitat for the U.S. shark populations," he added. "This information is necessary for NOAA fisheries to manage and conserve these populations from an ecosystem perspective."

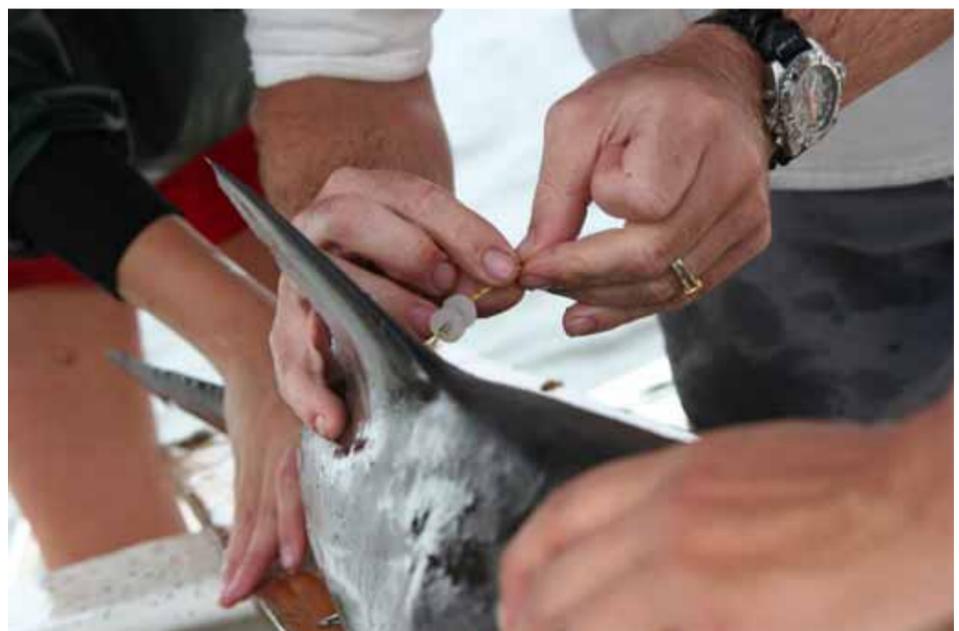
Photos courtesy of Mote Marine Lab



Mote Senior Biologist John Tyminski measures bull shark (left) while Principal Investigator Dr. Jim Gelsleichter prepares to draw blood.



Mote senior biologist John Tyminski tags a bull shark while Mote intern Lisa Arneson, left, and Principal Investigator Dr. Jim Gelsleichter, right, hold the animal. Mote interns Christelle Abadia, rear left, and Kristina Knight, rear right, record data and observe the tagging process. All interns are supported by Mote's NSF-funded Research Experiences for Undergraduates Program.



Mote senior biologist John Tyminski secures silicone rubber discs to a nylon dart tag.