



Figure 1. Jeff Van Vrancken (University of New Orleans) surveying Hurricane Katrina damage at one of his research locations.



After the Storm: Post-Katrina Reflections from AFS Members in Louisiana and Mississippi

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Jim Franks, and Franks and Perry are with the Gulf Coast Research Laboratory,
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The highest priority of a professional society should be that of service to and support of its members. In the American Fisheries Society (AFS), this is expressed in many and varied ways, but the foundation and framework for everything that we do is centered on ensuring that professionalism is maintained, and that opportunities for professional growth and enhancement for our members are advanced.

Because fisheries as a profession is by its nature fundamentally focused on promoting good relationships between people and natural resources, AFS is replete with members who have and express great sensitivity to human conditions and human experiences. Subsequently, AFS truly is a society in every sense of the word. We are profoundly interconnected with one another... and for most of us, these connections exist at several scales. We know no bounds when applauding the accomplishments of our colleagues and giving them due recognition. Likewise, when members suffer personal or corporate tragedy, phones, computers, and physical travel quickly

connect us to one another with expressions of caring, support, and compassion.

The collective impact of the 2005 hurricanes, especially those associated with Hurricane Katrina, took our concerns for colleagues to a level that we had not experienced before. An entire region of the United States was devastated. AFS knew that as a professional society we had no choice but to reach out to our colleagues in the storm-impacted areas. We were determined to keep and, where necessary, restore the time-honored connections among us.

A detailed history of the AFS response to Hurricanes Katrina and Rita was presented in the AFS-Sea Grant Symposium entitled "Mitigating Impacts of Natural Hazards on Fishery Ecosystems" during the 2007 AFS Annual Meeting in San Francisco (Heitman et al. in press). Although AFS extended disaster relief offers to AFS members throughout the Gulf Coast region of the United States, AFS members in Texas, Alabama, and Florida declined assistance, stating that AFS efforts should concentrate on the two states hardest hit by the storms: Louisiana and Mississippi. In this regard, AFS

provided travel support to AFS meetings (22 members—including 8 members to Society Annual Meetings) and complementary AFS memberships (218 members—including 56 at the Society level). Through an AFS virtual distribution center, AFS coordinated transport and delivery of donated library materials (to 7 facilities), research supplies (to 3 facilities), and research equipment such as boats, trailers, and outboard motors (to 3 facilities). Based on this experience, AFS procedures for disaster relief were developed and approved by the AFS Governing Board in 2007. These procedures are included as an appendix in Heitman et al. (in press).

Following such chapters in AFS history, it is important for us to step back and look at things from temporal distances. There are stories that need to be told. Through their telling, the stories become incorporated into our collective memory as a professional society. It is with this goal in mind that AFS solicited reflections from selected AFS members in Louisiana and Mississippi who were impacted by the storms and who were beneficiaries of the AFS Disaster Relief Program.

LOUISIANA REFLECTIONS

Marty O'Connell
University of New Orleans

The levee failures and associated flooding that followed Hurricane Katrina, and which caused massive destruction in southeastern Louisiana, severely impacted—but did not completely stop—fishery research being conducted by the Nekton Research Laboratory (NRL) at the University of New Orleans where I work as the lab's director. My wife Meg and I (both fish biologists) lost our home, our truck, and everything we owned to the flood. Fortunately, we were able to evacuate New Orleans on the day before the flooding, with laptops and data sticks in hand. Following the storm, and while living and working in a Federal Emergency Management Agency (FEMA) trailer, we worked on research and wrote manuscripts and a book chapter. This focus on professional aspects of our lives helped us keep our minds off of our personal tragedy. I also continued to teach an Internet course for the university. In the months that followed, we had to demolish and then rebuild our house. We also helped with the recovery of our destroyed neighborhood.

After Katrina we were determined to document the storm's impacts on estuarine environments and associated fisheries so that we would be able to track recovery processes. Even though our main research vessel, the *RV Cavalla*, was out of commission due to storm damage, and many of our other boats had been commandeered for rescue efforts, we were able to hobble together some equipment and began sampling in October 2005.

On our first day of sampling we assembled in our vehicles at the entrance of the damaged university. Along with Chris Schieble (senior biologist at the university and also the captain of the *RV Cavalla*), Meg, and me, the team that day included graduate students Kenny Blanke, Jeff Van Vrancken, Tom Lorenz, and Molly Dillender. Because of health hazards and extensive post-storm looting on campus, we were not allowed into our labs or offices to get equipment without getting permission and identification cards from armed guards stationed at the university's entrance. Once we received clearance, we were allowed 15 minutes to collect trawls, gillnets, and anything else we needed for sampling. This was all done with flashlights in the dark because many of the buildings still had no electricity.

Graduate students working in the NRL were particularly impacted by the storms in that not only were their lives put on hold during the disaster, but their research projects were also interrupted by the chaos that was all around them. For purposes of developing the after-storm reflections to share with AFS, I asked Jeff Van Vrancken and Lissa Lyncker to share their experiences.

After Hurricane Katrina passed, Jeff and his family went out to see how other family members had fared and whether their homes and other properties were still intact. Although there was some damage and a few close calls with downed trees and power lines, Jeff's house was

intact. His relief was only temporary. Although not sure about details, Jeff, along with other residents and refugees in the area, had a growing sense that something was wrong in New Orleans. They eventually learned from radio broadcasts that the twin spans of Interstate 10 were demolished, that Highway 11 and The Causeway (other routes into New Orleans) were closed indefinitely, and that the city (including his grandfather's home) was flooded.

...I did not know the fate of the university. For all I knew it was underwater. My thesis project was interrupted. The boat that I had used for sampling was commandeered by the National Guard and ruined. My sampling equipment was taken out of the laboratory or missing in action. The only classes available were online classes but we had no Internet. I really thought that I was done with school. In the meantime, I went to my other grandparents' house in Lacombe and started to help them clean up the mess of trees throughout the yard. When I got a break from cutting up trees, I would visit Bayou Lacombe, where my sampling sites were. That looked just as bad as my grandparents' yard. Even if I had had the equipment needed for my research, sampling just seemed impossible.

Figure 2. Lissa Lyncker (University of New Orleans) collecting blue crab samples following Hurricane Katrina.

So how did Katrina affect me? Well, I grew up on Irish Bayou, near Slidell, and most members of my family are com-



mercial fishermen, shrimpers, and crabbers. It is in this setting that I gained my love and respect for the species I study: blue crabs. Many people in the area where I grew up, including most of my family members, lost everything. So not only was school postponed and research put on hold, but we had to pull together to help clean up and get our lives back together. The majority of my family who lived in the area were and still are homeless even almost two years after the hurricane. My mom is still housing family members who are still pulling things back together.

By some miracle, my house, which is 10 feet off of the ground, was spared by the 12–15 foot storm surge. We had external damage, but really no internal damage... except for my room of course! The board blew off of my window and my window leaked. But you know, overall, we still felt very lucky. We were all safe and we have each other to help each other get back on our feet.

About a month after the storm, I drove to California to stay with a friend, and take online classes. There was no Internet for me here in New Orleans, but I did want to somewhat stay on track with my degree. I also kept in contact with my advisors, but my research was on hold. I guess I had a six-month or so set back. I could have probably graduated in 2006 or 2007 had Katrina not hit, but I'm O.K. with my situation. I came back to New Orleans and began again just like everyone else. What else could we do?

So this is where our fishery research stands here in southeastern Louisiana: we are still dealing with a devastated region, but we are moving ahead "just like everyone else." In closing, I am proud to mention that Jeff successfully defended his thesis in December 2007. Lissa is finishing her thesis and has taken a job with a local biological consulting firm.

I would also like to recognize some people and events that have helped the NRL personnel pull through all of this. In February 2007 we were able to attend the annual meeting of the Louisiana Chapter of the American Fishery Society at Nicholl's State University in Thibodaux. Jeff, Molly, and Lissa got to present some of their research findings and it was a great venue to get feedback and support from other fisheries students and biologists, especially those who were dealing with the impacts of Hurricane Rita. The AFS officers as well as fellow AFS members were wonderful hosts and we enjoyed a great party after the meeting with live Cajun music and some excellent local seafood (including some damn good raw oysters). The parent Society of AFS also has gone out of its way to help us professionally, providing much-needed financial support via travel grants to AFS meetings.

Julie Delabbio
Northwestern State University

My purpose with co-authoring this article for *Fisheries* is to tell the story of a determined undergraduate student, Pamela Collara, and how she has held fast to her dreams of becoming a biologist following Hurricane Katrina. Pam is, however, not an unusual Louisianan. The hurricane season of 2005 forced many people to examine what was important to them and to find out how much effort they were willing to expend to continue on, despite substantial obstacles.

Pam is currently a senior at Northwestern State University (NSU) in Natchitoches, Louisiana. Almost two years after Hurricane Katrina, Pam, like many Louisianans, still remains a hurricane refugee. Prior to the devastating hurricane season of 2005, Pam was a sophomore at the University of New Orleans in the biology program, living at home with her family in St. Bernard Parish, Louisiana. Her story is one of steadfast determination to complete her degree.

On 28 August, the day before Hurricane Katrina, Pam and her family evacuated their home by car to drive 12 hours to Mobile, Alabama (this normally is a 2.5-hour drive) to stay with relatives. There were 18 people staying in a 3-bedroom house for several weeks.

After the storm, Pam's family's house in Louisiana was standing but inundated by 12 feet of water. Pam stayed in Alabama for two weeks following the hurricane until, in an effort to alleviate a "dense family cluster," Pam moved on to Groveland, Florida, to stay with an uncle and to make plans as to what to do next.

Four months later, in December 2005, Pam moved on Missouri where she had more family. There, she lived in an apartment and began to attend University of Missouri in Columbia in the spring of 2006. However, the high cost of out-of-state tuition forced her to move back to Louisiana in July.

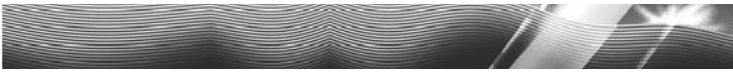
Her fourth move in less than a year brought her to back to Louisiana, to NSU to begin her junior year with a major in biology and a concentration in natural science. She was not able to return to her studies in New Orleans because even though the University of New Orleans had resumed its operations, there was very limited housing available at "student" prices.

Pamela is now a senior in the biology program at NSU. Upon completing her degree, she plans to pursue graduate studies in biology. She is currently a work-study student at the NSU Aquaculture Research Center in Marco, Louisiana. The center received donations from the ASF Disaster Relief Program (books and equipment) that are enabling Pamela to continue fieldwork in fisheries. It is this fieldwork experience, made possible by the ASF Disaster Relief Program, that has been instrumental in her decision to pursue graduate studies in biology.

MISSISSIPPI REFLECTIONS

**Mark S. Peterson, Jim Franks,
and Harriet Perry**
University of Southern Mississippi

When Katrina struck the Mississippi Gulf coast in August 2005, the storm severely impacted many Mississippi AFS members (some of whom were students at the time) professionally as well as personally. The University of Southern Mississippi's Gulf Coast Research Laboratory (GCRL) was so heavily damaged by the storm's high winds and 25-foot tidal surge that the replacement cost of destroyed infrastructure is estimated to exceed \$35 million. About 65 of the 200 staff and faculty, as well as 17 graduate students, were displaced from their offices, labs, or other facilities. Many GCRL employees lost historical data and/or professional materials, some of which date back 40 years. Also, the homes of 38 individuals, including 11 graduate students, were either completely destroyed or left uninhabitable. Responses from a GCRL graduate student survey indicated a number of them lost significant time towards graduation. This time loss ranged from 6 months to 2 years because of impacts from loss of electricity and thus their samples for molecular research, loss of wet-lab space to conduct their degree experiments, and loss of data files, personal literature, and books.



For GCRL fisheries biologists Harriet Perry and Jim Franks, Hurricane Katrina was “d  ja vu all over again.” Both scientists had weathered Hurricane Camille in August 1969 at the GCRL. They participated in the long and slow recovery process following Hurricane Camille, and both were still employed at GCRL when Katrina struck in August of 2005. Both storms leveled buildings closest to the water as illustrated with this pre- and post-Katrina imagery (Figures 3 and 4), but unlike Camille, Katrina’s storm surge flooded most of the buildings still left standing. Recovering from Katrina was more difficult because a great number of staff, scientists, and faculty lost homes and personal possessions as well as their office and lab spaces, historical data, and professional materials.

The stories of many of the employees of GCRL range from almost no loss at all to loss of almost everything they had professionally and personally. For Jim, life in a small FEMA trailer still continues as he deals with insurance and rebuilding. Living in a FEMA trailer is no easy feat for Jim, who is 6’7” and unable to stand upright without hitting the ceiling. Harriet was faced with mucking out the fisheries offices and laboratories and at the same time operating a shelter in her home for friends who lost everything; feeding between 30 and 50 people became a nightly routine. Mark Peterson and his wife Nancy Brown-Peterson lost their home, camper, and almost all personal contents of their home, with 5 ft. of water as well as debris from other homes ending up in their house. Nine days later, the Peterson home burned to the ground. At GCRL where they both work, Mark lost his entire wet lab facility and two external buildings which housed all of his field equipment. His office building, where he and his graduate students worked, had 5–6 inches of muddy water in it. Luckily, they did not lose too much in the office building except for computers, file cabinets, some equipment, and a refrigerator. In contrast, Nancy did not lose much professionally as her building was not damaged or flooded. As with all scientists and staff at GCRL, however, much time was lost helping with the GCRL recovery efforts.

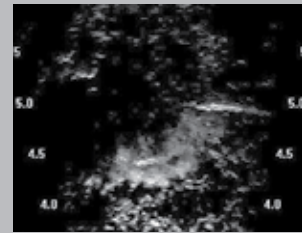
All fisheries research and management organizations on the Mississippi coast were severely impacted by the storm. Facilities of the Mississippi Department of Marine Resources (MDMR) in Biloxi and the NOAA National Marine Fisheries Service Laboratories in Pascagoula were totally destroyed, and the offices housing the Mississippi Department of Environmental Quality (MDEQ) were uninhabitable. Research personnel from those agencies were forced to move into trailers. Colleagues at the Grand Bay National Estuarine Research Reserve (NERR) site lost their offices and external buildings, as well as considerable equipment including their weather station which, when recovered, indicated the storm surge was 18 ft. at a location very near the Alabama state line. Luckily, only one employee suffered considerable flooding with a surge that went northward all the way to Highway 90, some 7 miles inland.

Within one week of the storm, personnel from GCRL’s Fisheries Center, MDMR, and MDEQ combined forces and pooled available equipment to initiate post-hurricane

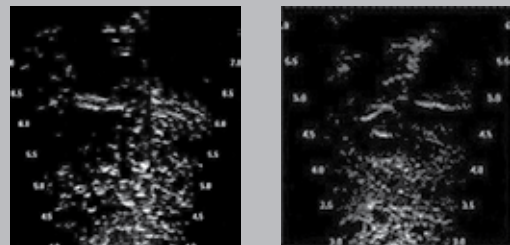
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Monitoring Behavior

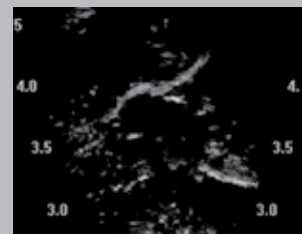
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resource assessments along the coast. Biological samples were processed at GCRL in a makeshift laboratory housed in a donated tent, and water samples were sent to the MDEQ in Jackson for analysis. The group was able to present their initial findings during a public workshop, as well as at the annual meeting of the Mississippi Chapter of the American Fisheries Society, six months after the hurricane.

The response of the AFS parent Society, Southern Division AFS, and various AFS Chapters was outstanding. Their help and assistance relative to replacement of journals, books, supplies, and travel to state Chapter and parent Society AFS meetings was vitally important in terms of staying “professionally” connected at a time of utter chaos. Mark was assisted with travel to the Lake Placid Annual Meeting where he co-authored three talks, chaired a session, and was co-chair of an invited symposium. The meeting was great and was well received at a time when he needed to focus on other things besides the loss and to regain his professional identity. He was one of three scientists at GCRL, including Jim Franks and Bruce Comyns, who lost their homes and entire lab infrastructure—making recovery that much more painful. Jim received travel support for the Mississippi Chapter meeting in 2007, and he and colleagues Read Hendon and Eric Hoffmayer, both Mississippi AFS Chapter members, received travel support to the AFS Annual Meeting in San Francisco (2007) where they gave presentations.

The outreach and support provided to those of us who were impacted at many levels exemplifies the significance of being a member of AFS and demonstrated to us the value our professional society placed on each of us as individual members. We can not overemphasize how important it was to us to have AFS reach out to us in a time of personal and professional need. The task of rebuilding has been and will continue to be a long one. More than two years later, we are still adjusting to the “new normal” on the Mississippi coast and wonder what future hurricane seasons will bring.

AFS HURRICANE RELIEF TASK FORCE REFLECTIONS

Donald C. Jackson
Mississippi State University

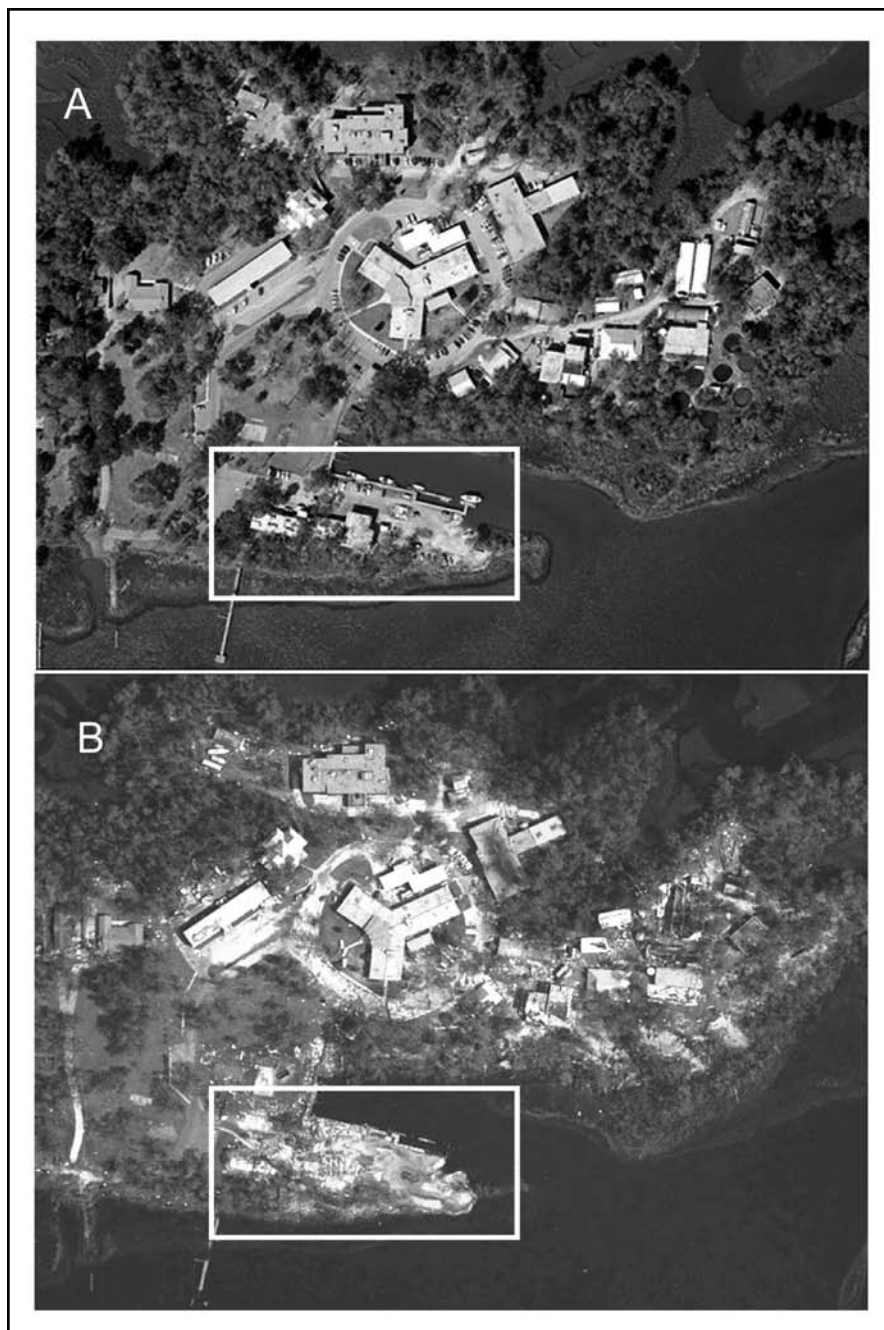
Hurricanes Katrina and Rita were still very powerful storms when they

passed over the Mississippi State University (MSU) main campus, which is located over 300 miles from the Gulf Coast. Sustained tropical storm force winds, hurricane force gusts, and numerous small tornadoes caused substantial damage to the university and to the surround-

Figure 3.

(A) Aerial view of GCRL pre-Katrina with a white box outlining the area where the Hopkins complex (main teaching buildings) was located along with the physical plant building and the boat basin.

(B) Aerial view after Hurricane Katrina showing the destruction of the Hopkins complex, physical plant and numerous buildings on campus. Note the loss of and damage to trees and damage to the other buildings at GCRL.



ing community. Just after dawn on the day following Hurricane Katrina, I made it to my office on campus to check for damage. As I walked into my office, the telephone was ringing. AFS Past President Carl Burger was on the line, checking on his AFS colleagues at MSU. The very first connection that I had

with the outside world after the storm was an AFS connection.

Shortly thereafter, during the 2005 Annual Meeting in Anchorage, then AFS President Chris Kohler approached me and asked me if I would organize and lead an AFS Hurricane Relief Task Force to be sure that AFS members in the impacted

region would be able to stay connected professionally with support services provided by AFS. I accepted the appointment and literally within days was riding a wave of support from AFS members from throughout North America and extending out into the far corners of the world.

As was emphasized in the Louisiana and Mississippi reflections above, the most important aspect of the AFS hurricane relief effort was that of knowing that our colleagues cared...cared enough to reach out...cared enough to know that we needed to stay focused and connected professionally. Humanitarian assistance came from other quarters. We didn't need that from AFS. We needed professional assistance: with meetings, publications, communication networks, and travel support. These things provided us something to hold on to tightly in a time of trial.

AFS came through for us. It brought its "can do...will do" progressive mindset to bear on the challenge and, coupled with absolute selflessness, jumped headlong into the fray. There was never hesitation among members individually or among Units at all levels of AFS in doing what needed to be done to support AFS members professionally during the months following the storms. AFS had the resources and the organizational structure to make it happen. But more than anything else, the one thing that stands out in my mind as I reflect on those days is the incredible flood of shared humanity in AFS that overwhelmed the floods from the storms.

And so, on behalf of the Mississippi Chapter AFS (my home Chapter) and the Southern Division AFS (my home Division), thank you.

REFERENCES

- Heitman, J. F., D. C. Jackson, D. Pender and R. L. Curry.** (in press). Development and implementation of the American Fisheries Society disaster relief program. Proceedings of the American Fisheries Society—Sea Grant Symposium: Mitigating Impacts of Natural Hazards on Fishery Ecosystems. American Fisheries Society, Bethesda, Maryland.

Figure 4.

(A) View of the Hopkins buildings (main teaching buildings) and GCRL physical plant area from the northwest pre-Katrina.

(B) View of the same area from the west post-Katrina showing only the remaining slabs.

