

Turtle Cove Environmental Research Station Southeastern Louisiana University

BIENNIAL REPORT FISCAL YEARS 2007/08 AND 2008/09



Photo of bulkhead replacement occurring in front of the Caretaker's Residence (foreground) and the Turtle Cove Lodge (background, left) at Pass Manchac. May 2009.

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Turtle Cove Environmental Research Station | www.selu.edu/turtlecove | 985.549.5008

Turtle Cove aims to promote environmental awareness in southeastern Louisiana; to encourage educators and their students to take an active role in environmental restoration and education; and to serve as a liaison among research scientists, educators and students, and the general public.

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EXECUTIVE SUMMARY

The Turtle Cove Environmental Research Station, which reports to the Dean of the College of Science & Technology, maintains a staff of two full-time people (Dr. Robert Moreau, Manager, and Hayden Reno, Caretaker/Facilities Technician) and one part-time person (Michael Greene, Biologist-on-Staff and Education/Outreach Coordinator at approximately 55% time). Other affiliated people include: Fred “Mars” Stouder, Marsh Restoration Coordinator who manages restoration grants; Dr. Lacy Landrum, Assistant Director of Southeastern’s Pontchartrain Basin Research Program and the Technology Transfer Specialist/Webmaster for Turtle Cove; and Tiffany McFalls, Biology Instructor, who assists in technology transfer and field research grants for Turtle Cove. The station also funds two graduate student positions to assist in its daily operations.

Given its award-winning and highly-recognized education/outreach program, along with an exceptional safety record, Turtle Cove serves as the regional hub for interdisciplinary environmental studies and wetland restoration. Although the faculty, staff, and students from the Department of Biological Sciences at Southeastern Louisiana University remain the station’s primary users, the users have become more interdisciplinary, coming from other Southeastern departments like History and Chemistry & Physics and from the surrounding universities, such as the University of New Orleans, Louisiana State University, Loyola University, and Tulane University.

Despite the devastating hurricanes in fall 2008, these past two years (FY 2007/08 and 2008/09) have shown the station’s steady recovery from the catastrophic hurricanes (Katrina and Rita) of 2005. Fiscal year 2008/09 produced a **combined total of 2,212 user days** (which includes **1,371 different individuals** and **92 different groups**). Also significant is the **\$4.8 million FEMA restoration project** now underway to rebuild the facilities at Pass Manchac, enabling the station to renew its teacher workshops and to house researchers needing overnight accommodations. Although the facilities at Pass Manchac have been structurally unstable and useless since the 2005 storms, the facilities at Galva Canal have allowed research and educational activities to continue and even flourish with new partnerships and programs developing with the Louisiana Department of Wildlife and Fisheries and the Lake Pontchartrain Basin Maritime Museum.

For example, Turtle Cove recently secured a NOAA grant to fund a new *Young Scientists Training Program at Galva Marsh*, bringing its **total of external funding to nearly one million dollars** since 2001. During the last two years, the Marsh Restoration Program, coordinated by Fred Mars Stouder, has established levees with over 5,000 Christmas trees and has planted almost the same number of seedlings and marsh grasses to prevent erosion and stabilize vulnerable wetlands; this work has been made possible by grants funded from the Louisiana Department of Natural Resources. New grant opportunities with both governmental and private entities have already been outlined and/or submitted with the promise of more fascinating research, education, and outreach activities.

Finally, recent recognition in the Baton Rouge newspaper, *The Advocate*, and the Hammond newspaper, *The Daily Star*, invites the community to learn more about Turtle Cove and how its activities contribute to the well being of the region, including its positive impact on the economy, as highlighted in the Environment and Life Sciences section of the *University of Louisiana System Economic and Community Impact Study* published in spring 2009.

I. CURRENT USE OF TURTLE COVE & FUTURE OUTLOOK

Despite the devastating hurricanes in fall 2008, these past two years (FY 2007/08 and 2008/09) have shown that the Turtle Cove Environmental Research Station continues its steady recovery from the catastrophic hurricanes (Katrina and Rita) of 2005. Fiscal year 2004/05 remains the station’s busiest year in history with nearly 3,000 user days of activity related to research, education, and outreach. However, Katrina shut down the station’s housing capabilities, experimental sites in the back marsh, and education/outreach programs as the bulkheads were pulled from the shore, and the Turtle Cove lodge was deemed structurally unsafe; the former pontoon boat was also destroyed.

Current Use

Even with these significant setbacks, activities continued with the boats that remained operable. In fact, due to the dedicated Turtle Cove staff, the new classroom at Galva Canal (funded by Southeastern and completed just prior to Katrina), and a bigger and better pontoon boat (funded by FEMA), the education/outreach and research activities have steadily reemerged, even in the wake of Hurricane Gustav. Fiscal year 2008/09 produced a **combined total of 2,212 user days** (which includes **1,371 different individuals** and **92 different groups**). Figure 1 shows the comprehensive use of Turtle Cove since work began in earnest in 1985. Details of the 12 different categories of research, education, and outreach activities are shown in Table 2 (page 10) for fiscal years 2007/08 and 2008/09, respectively, and in even greater detail in appendices A and B.

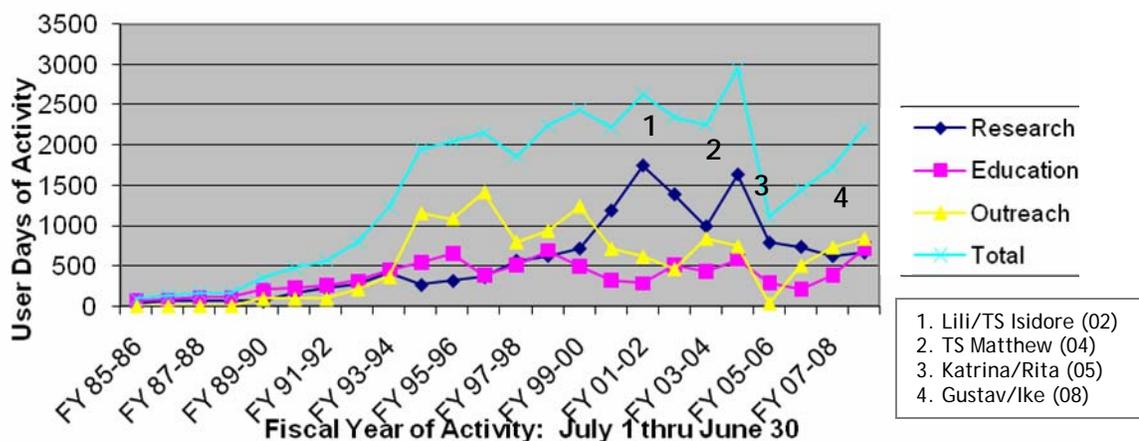


Figure 1: History of the Use of Turtle Cove ERS (FY 1984/85 - FY 2008/09). Note how more frequent and intense storms impact the number of activities (see numbers 1-4 and corresponding key). However, Turtle Cove continues to implement strategies that strengthen its ability to endure storms with minimal damage.

A Promising Future: The Manager’s Perspective

Turtle Cove is now entering its 25th year of active use as the environmental research, education, and outreach field station for Southeastern. During this time, it has evolved from a biological field station used only by a select few researchers, those specialized in wetland ecology and affiliated with Southeastern, to an interdisciplinary environmental outpost for researchers and educators in diverse fields and with diverse academic affiliations. People using Turtle Cove have specialized in biology,

chemistry, history, education, and economics and have come from both regional universities (e.g., Southeastern, Tulane, Loyola, UNO, LSU) and national ones, as far away as Defiance College in Ohio. In addition, the facilities have been used for university retreats, as well as meeting accommodations for governmental agencies, nonprofit organizations, and businesses.

The \$4.8 million FEMA restoration project that is now underway will result in the following:

- (1) A new steel-piling bulkhead for the entire facility on Pass Manchac with a 30-50 year life while also addressing estimates for increasing sea level rise.
- (2) New boardwalks behind the station that will be twice as wide (6 feet) as the original ones, thereby allowing researchers and educators to more easily access the marsh behind the station, the area known as the “outdoor laboratory.”
- (3) The raising and structural securing of the Turtle Cove Lodge for the first time in its history. The building was built in 1908 and will now be raised three feet to avoid annual flood events and to protect it from storm surge.
- (4) The complete demolition and rebuilding of the Caretaker’s Residence 16 feet above sea level.

In addition to these restorations, the University committed nearly \$500,000 to construct and outfit the new Research Boat Shed and Education/Office Complex at Galva Canal (commonly called the “Galva Boat Shed”); construction was completed just before Katrina, and the facility survived the subsequent storms relatively unharmed. See figures 2 and 3.



Figure 2: The “Galva Boat Shed” and Classroom, completed May 2005 and funded by Southeastern. The classroom upstairs is equipped with satellite internet service, several computers, and an LCD projector. The bathroom, shower, work area, and boat slips are downstairs.

This facility, which can house up to 10 boats (if hoists are employed in the future), has served as the “defacto

Turtle Cove” since Katrina. Researchers and educators use the classroom equipped with three computers, an LCD projector, white boards, conference room furnishings, and other instructive equipment and supplies, as well as a bathroom and shower facility, simple wet lab, two outdoor storage sheds, electrical and water outlets, concrete slab and well lit work areas under the boat shed, and a new parking area three times the size of the previous one. Finally, a recently acquired grant from NOAA (\$60,000) to develop a *Young Scientists Field Training Site in the Galva Marsh* adjacent to the parking lot will now provide an outdoor classroom area that will enable new experiments and educational activities.

Figure 3: Michael Greene, the Education/Outreach Coordinator and Biologist on Staff, conducts a lecture on wetland issues in the Galva Classroom after leading a canoeing trip for one of Dr. Debbie Dardis’s groups (summer 2008).



What all this means is that users of Turtle Cove facilities will soon have two sites to conduct their work: the original facilities on Pass Manchac that are accessible only by boat, and a similar (although more modest) set of facilities at Galva Canal accessible by car. Such complementary sites are extremely important for users who lack access to the water-based sites, and for special situations, such as after storms when one site might have weathered better than the other. Having two sites also doubles the capacity for overall use.

Many other reasons involving new people and partnerships indicate that Turtle Cove's best days are ahead. As of February 2009, the PBRP program has a new Assistant Director, Dr. Lacy Landrum, who contributes to Turtle Cove by maintaining the station's website and researching and writing grants. The Turtle Cove fleet of boats and motors, although aging somewhat, is in good condition and is highlighted by the two-year old pontoon boat (the "Pelican"), a 40 x 12 ft vessel able to carry up to 40 people. New partnerships with entities like the Lake Pontchartrain Basin Maritime Museum (LPBMM) and Defiance College (Ohio), and the re-establishment of older partnerships with groups like the UNO Wetland Education group (Pontchartrain Institute for Environmental Studies, or PIES) and Louisiana Department of Wildlife and Fisheries (LDWF) are producing new and exciting collaborations. Turtle Cove is also involved in campus environmental programs, like recycling and the sustainability initiative. Although the University and State are undergoing serious budget challenges at this time, the continual influx of external funds are helping to bridge the gap.



Figure 4: UNO wetlands educator Dinah Maygarden conducts restoration work and frequently collaborates with Turtle Cove on West Jones Island with a group of students. This group was led by Fred Stouder and Rob Moreau (not pictured) in spring 2009.

In fact, securing the NOAA grant means that Turtle Cove has achieved nearly one million dollars in external funding since 2001. External funds will be more important than ever as we endure the recession and decreased state coffers, so grant identification and writing will continue to be a major focus of all Turtle Cove staff. An NSF planning grant for Informal Science Education has already been submitted in collaboration with the LPBMM and UNO. We have also outlined grant narratives to seek funding from the Monsanto Fund and NOAA's B-Wet program for wetland restoration and education/outreach activities. Additionally, Southeastern's Development Foundation has recently laid the groundwork for contacts on funding ideas for us with the Greater New Orleans Foundation. For these reasons, the future of Turtle Cove is bright as we look forward to the multitude of opportunities that lie ahead.

II. 2008 HURRICANE GUSTAV/IKE IMPACTS, LOSSES, AND RECOVERY

Year 2008 was the first significant year for hurricane impacts in southeast Louisiana since the devastating storms of 2005. Hurricane Gustav came ashore on September 1, 2008, followed by Hurricane Ike on September 12, 2008.

Impacts

Hurricanes Gustav and Ike provided new and successive high-water marks on each occasion for Turtle Cove facilities and the Manchac region in general. Gustav produced significant flooding at the Galva Canal site facilities, the location of the “Galva Boat Shed,” as well as two portable storage sheds, both of which were raised significantly after Katrina/Rita; one of the sheds flooded due to the extreme water levels produced by Gustav and Ike. The Turtle Cove lodge, storage facility, and Caretaker’s Residence also flooded. The lodge sustained over four feet of water during Gustav and even more during Ike, which were both new records for flood levels. The flood waters left behind about two to three inches of siltation that had to be removed. Luckily, repairs had not yet begun at the Pass Manchac facilities from the damages caused by Katrina/Rita in 2005, so no further damages, other than siltation removal, were claimed after Gustav. Damage from Gustav and Ike to the Galva Canal parking area and storage shed and to the Turtle Cove lodge is depicted in figures 5-12 (all photos taken September 8, 2009 and September 10, 2009).



Figure 5: Entrance to Galva Canal parking area after Gustav.



Figure 6: Vegetative debris under the boat shed at Galva Canal.



Figure 7: Vegetative debris in boat slips under the boat shed at Galva Canal.



Figure 8: Two-three inches of silt on ground floor of Turtle Cove lodge.



Figure 9: Two-three inches of silt on floor in storage shed on Pass Manchac.



Figure 10: Portable Storage Shed #2 at Galva Canal that was raised three feet to avoid flooding.



Figure 11: Equipment and supply losses in Storage Shed #2.



Figure 12: Experimental cage sites behind Turtle Cove destroyed by Gustav, as they also had been by Katrina.

Losses and Recovery

A summary of the losses incurred from Hurricane Gustav follows and was reported to FEMA representatives via Camille Moniotte's office following the storm. (Hurricane Ike caused no additional damage than what was reported following Gustav.)

CATEGORY 1: Debris Removal and Immediate Repair Cost Contracts

[completed Fall 2008 by low-bidder Ladell Interest, DBA Larry Delatte of Ponchatoula, Louisiana]

- a. Debris Removal at Galva Canal and Pass Manchac Sites (\$11,850)
- b. Mud Removal from Pass Manchac Site (\$8,220)
- c. Repair and Re-Establishment of Portable Storage Shed at Galva Canal (\$3,120)

Total Contract: \$23,190

CATEGORY 2: Equipment Losses Reimbursed by FEMA

[purchases completed Spring 2009]

Equipment Losses	Low Bid Vendor (>\$1,000)	Cost
a. Cub Cadet Riding Lawnmower [comparable: #X300 17 hp/42" cut John Deer Riding Mower]	Michael Canal & Sons	\$2,319.20
b. 16 HP Go-Devil Engine	Go-Devil Manufacturer of LA, Inc. [sole source]	\$3,106.50
c. Pressure Washer [comparable: Honda 3 n 1 2600 PSI]	Lowe's	\$399.00
d. 2 Starter Boat Batteries, 850 amps	Broddick's [Hammond]	\$199.90
e. Battery Charger for Boat Battery	Pep Boys [Metairie]	\$49.99
f. Electric Rope Cutter Gun	Broddick's [Hammond]	\$57.29
g. 2 Fiberglass Pirogues, 14 ft	Puglia's [Metairie]	\$770.00

Total Cost: \$6,901.88

Also damaged by the 2008 storms were the experimental cages in the marsh behind Turtle Cove. Although these cages were first destroyed after Katrina/Rita, they were rebuilt for approximately \$60,000. Unfortunately, there were once again destroyed by Gustav/Ike. To mitigate future damages, the cages will be rebuilt using a different design. They will be more lengthy and "pointed" in an east-west direction to negate any debris surges from storm surge coming in (from the east) and out (from the west) of the marsh. The cost of rebuilding the cages varies from \$110,000 to \$148,000 depending on whether the work will begin before or after the main boardwalk is complete, a structure that will aid in transporting materials.

III. STATUS OF \$4.8 MILLION FEMA RECONSTRUCTION AFTER KATRINA/RITA

The restoration of Turtle Cove facilities and infrastructure at Pass Manchac from the damage caused by Hurricanes Katrina and Rita earnestly began in spring 2009, nearly four years after the storms. In retrospect, the long delay in work has been offset by the more extensive repairs to the bulkheads, boardwalks, and buildings, projects that were enhanced after scrutiny and oversight from the State Facility Planning in Baton Rouge and FEMA. The total monies approved by FEMA for the four major phases of the restoration are now \$4.8 million as compared to the initial \$1.7– 2.4 million estimated immediately after the storms. This increase in funds is due primarily to the State Facility Planning Office steering the project and assigning architects (Gasaway & Gasaway of Hammond) and engineers (with marine expertise for analyzing the underwater current effects on structures).

Table 1 summarizes the four restoration phases, their approved funding (which should be considered a good-faith, minimum estimate as issues might arise during construction that may increase costs), and status of work (including the Turtle Cove Manager's estimate of start and completion dates based on communications with State Facility Planning, architects, and engineers).

Table 1: Summary of the Phases for Restoring the Turtle Cove Facilities following Hurricanes Katrina and Rita

Phase	Description	Funding Approved by FEMA	Start Date	End Date
1	Bulkhead Replacement (see figure 13) Steel sheet piling and cap to address sea level rise [estimated 30-50 year life; 870 ft length includes Turtle Cove Lodge and Caretaker sites]	\$3.1 million	04/09	09/09
2	Boardwalks/Docks Replacement Boardwalks will be 6 ft wide and 2,700 ft long with an additional 200 ft of catwalks	\$450,000	06/09	12/09
3	Raising/Securing of Turtle Cove Lodge Raising bottom floor by 3 ft with an extra 2 ft underneath the 2 nd floor [includes new electrical, h-vac on ground floor; any problems on other floors created during the raising will be covered by FEMA]	\$800,000	Est. 10/09	Est. 08/10
4	Demolition/Rebuilding of Caretaker's Residence at 16 ft above sea level with similar square footage as original residence	\$450,000	Est. 12/09	Est. 12/10



Figure 13: Photo of bulkhead installation in front of Caretaker's Residence (same as bulkhead in front of Turtle Cove Lodge). The new bulkhead will be 18 inches higher than the previous one and will include a steel "cap" with cleats on top. Shown are the large, steel "H" pilings driven into the trench where the front porch of the Caretaker's Residence used to stand. These "tie-back" pilings will anchor the bulkhead walls, via steel cables, to prevent the walls from being "pushed out" once dredge spoil compacts behind the pilings (July 23, 2009).

IV. CURRENT STATUS OF FACILITIES AND PROGRAMS

Status of Facilities

Every facility on Pass Manchac—the Turtle Cove Lodge, Caretaker's Residence, boardwalks, and experimental cages—has been unusable since Hurricanes Katrina/Rita in 2005. Fortunately, the Galva Canal facilities have been in place since 2005 and have functioned as the research hub and meeting space for groups, lectures, classes, and other users of Turtle Cove resources. The Galva Canal facility, situated approximately 18 ft above sea level, is accessible by car and contains an office for the Caretaker/Facilities Technician (Hayden Reno) and a classroom that can accommodate 20 people (with an LCD projector, computers, satellite internet service, and printers). The downstairs facility is comprised of a bathroom with a field shower and three double-wide slips that can house five boats with the capacity for five more above the current slips if hoists are installed; one slip is used by the Sheriff of Tangipahoa Parish in an agreement made with Southeastern in 2005. This entire facility was constructed via funding from Southeastern and is much appreciated by the Turtle Cove staff and all its users.

After Hurricanes Gustav and Ike in 2008, the parking lot, storage sheds, and areas under the boat shed were further refurbished. Two loads of gravel were spread on the parking lot (cost of \$1,000), and the workspace/wet lab limestone section under the boat shed was replaced with concrete (approximately \$2,500 paid out of the Turtle Cove Development Foundation account). In addition, we elected to "self mitigate" Storage Shed #2 (which flooded during Gustav) by installing eight pilings six feet high to support the building; to fund these improvements, \$400 was paid out of the Turtle Cove budget, and the contractor making the repairs agreed to place the building on the pilings at no extra charge to his original \$3,300 quote. Storage Shed #1 (used by researchers and educators) did not flood as it remains on high ground and elevated another three feet. These measures have vastly improved the functional and aesthetic features of the site (see figures 14-19 for photos of the finished repairs).



Figures 14, 15, and 16: Two 15-yard loads of gravel and one dirt load (\$1,000), finished by Hayden Reno (Turtle Cove Caretaker/Facilities Technician) and his tractor (Oct 2008).



Figures 17 and 18: Twelve yards of concrete poured and finished underneath the boat shed where Michael Greene (Turtle Cove Education/Outreach Coordinator and Biologist on Staff) lectures and demonstrates wet-lab observations to groups (\$2,500) (Oct 2008).

Figure 19: Storage Shed #1 was raised 6 ft on pilings and provided ramp access (\$3,700) (Oct 2008).

History and Brief Description of Turtle Cove Programs and Use

Use of Turtle Cove has always been measured in terms of “user days of activity” that are categorized as Research, Education, or Outreach. For example, three people using a Turtle Cove boat for research is considered three user days of research activity. Another example would be 15 teachers at a teacher workshop, for two nights and three days at the Turtle Cove Lodge, would be considered 45 user days of education activity. A one-day school group of 30 K-12 students would be considered as 30 user days of outreach activity.

Turtle Cove’s history of use was built predominantly on its widely known and highly acclaimed education and outreach programs that began in 1985 and were developed throughout the 1990s when record levels of school groups were taken on group tours to the station via its original pontoon boat (the Turtle Cove “Buggy”). The program won an EPA award for excellence in 1999. Research activity, which had been relatively low, compared to education and outreach, quickly escalated in fiscal year 2001/02 with the start of the EPA-sponsored Pontchartrain Basin Research Program (PBRP) housed at Southeastern. Combined usage of the station peaked in FY 2004/05

with nearly 3,000 user days of research, education, and outreach activities (see figure 1, page 1, for a comprehensive summary of use for the past 24 years).

Education and Outreach Activities

In addition to providing facilities, boats, equipment, and other resources for researchers, one of the primary functions of Turtle Cove is to provide education and outreach services—based on information learned from the research activities—to students and the broader community. Michael Greene (Biologist on Staff and Education/Outreach Coordinator), who has been with Southeastern in various capacities related to education since 1995, is the main staff person responsible for these activities, which he accomplishes on a part-time basis (approximately 55% Turtle Cove and 45% teaching as a Biology Instructor). Robert Moreau (Manager), Hayden Reno (Caretaker and Facilities Technician), and Fred Stouder (Marsh Restoration Coordinator) assist with the education and outreach activities when needed. Although Turtle Cove has not been able to offer extended teacher workshops since the facilities at Pass Manchac was deemed structurally unstable in 2005, we have maintained other education and outreach activities while also offering one-day workshops.

Research Activities

Another major function of Turtle Cove is the research activities stemming from approximately 30 different faculty, staff, and students from Southeastern and other regional universities. These researchers use the station's facilities, boats, and other equipment when conducting projects in diverse areas including biology/wetland ecology, chemistry, history, education, and others. From Southeastern, the labs of Drs. Gary Shaffer (Wetland Ecology), Janice Bossart (Entomology), Brian Crother (Herpetology), Kyle Piller (Ichthyology), Debbie Dardis (Environmental Education), Ju Chou (Chemistry/Heavy Metal Contamination), Phil Voegel (Chemistry/Water-Quality Analysis), and Al Dranguet and Samuel Hyde (Environmental History) are examples of the types of research that are aided by the availability of Turtle Cove resources. Researchers from other universities have also used Turtle Cove resources for various activities, such as the work of Dr. Jim Wee of Loyola's Department of Biological Sciences that focuses on algae in the Lake Pontchartrain system. Finally, Turtle Cove staff also are involved in research activities themselves, such the Mitigation Project (PI Moreau, funded by PBRP) and the upcoming *Young Scientists Field Training Site* funded by NOAA. Attracting more researchers (and research dollars) remains a priority of the Turtle Cove staff.

Current Turtle Cove Programs and Use

Although Turtle Cove faced a huge setback when the facilities at Pass Manchac were deemed structurally unstable due to Hurricanes Katrina/Rita, the staff quickly modified the programs to use the Galva Canal facilities as the new base of operations. This flexibility has enabled us to maintain a steady number of education, outreach, and research activities. Data for these activities for the past two years (FY 07/08 and 08/09) is summarized in Table 2, and totaled 1,849 user days and 2,212 user days, respectively. The 12 categories provide a more detailed analysis of the type of use (standardized since FY 2001/2002). See appendices A and B for full details of use data such as individual events, contact information, and funds donated.

Table 2: Turtle Cove Use Activity Data for Research, Education, and Outreach for Fiscal Years 2007/08 and 2008/09

Type of Activity	# Diff. People		#User Days		# Diff. Groups		
	Fiscal Year	07/08	08/09	07/08	08/09	07/08	08/09
Research		233	219	680	663	30	29
1a: Turtle Cove ASB Program		25	0	25	0	1	0
1b: Turtle Cove-Marsh Restoration Program		125	130	135	164	11	13
1c: Southeastern-Biology Fac/Staff/Students		35	29	262	256	10	6
1d: Southeastern-Other Interdisciplinary		21	9	198	147	5	3
1e: Outside Research (Other Universities)		27	51	60	96	3	7
Education		379	357	379	714	19	23
2a: Courses taught at Turtle Cove		83	89	83	359	4	5
2b: Southeastern-Affiliated Field Trips		151	77	151	107	8	6
2c: Other Universities' Field Trips		55	124	55	124	3	8
2d: Workshops		90	67	90	124	4	4
Outreach		733	795	790	835	27	40
3a: General Groups		175	341	232	341	8	14
3b: K-12 Groups		535	265	535	265	17	10
3c: Professional Meetings/Retreats/etc.		23	189	23	229	2	16
Grand Total		1,345	1,371	1,849	2,212	76	92

For added information, figure 20 shows the most recent, 5-year average of use (fiscal years 2004/05 through 2008/09) categorized into research, education, and outreach activities.

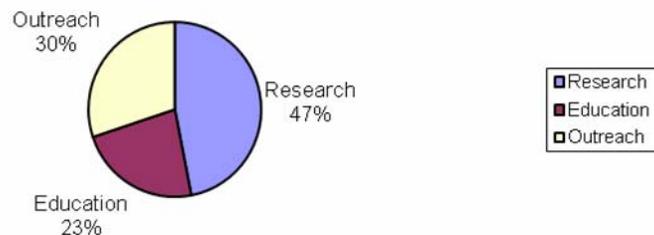


Figure 20: Most Recent, 5-year Average (FY 2004/05 - 2008/09) of Research, Education, and Outreach in terms of User Days of Activity.

When reviewing the recent history of use data at Turtle Cove (also see figure 1 on page 1), it is important to recognize that Hurricanes Katrina (8/05) and Rita (9/05) eliminated 100% of the

education and outreach programs in fiscal year 2005/06 after they hit due to the damaged facilities and destroyed pontoon boat. Research use was also diminished in the months following the storms because of restrictions on waterways and hurricane-related boat storage issues. It was not until December of 2006 (FY 2006/07) that the new pontoon boat was received and ready for use and that the Outreach Program was resumed. In addition, some educational field trips (i.e., university class field trips) resumed as well, providing us with growth in both of those areas. Despite this major interruption in operation, and the necessity of completely redesigning the Outreach and Education programs to fit their new base at Galva Canal, both the Education and Outreach Programs are basically back to pre-Katrina levels of activity.

Due to the lack of overnight accommodations that were historically provided by Turtle Cove, teacher education workshops and other *overnight* education programs (e.g., multiple day/night university classes taught at the station, overnight field trips and retreats) remain unscheduled and have resulted in lower education use numbers until fiscal year 2008/09. Another activity suspended until the facilities are repaired is the Alternative Spring Break Program, run by Michael Greene, a program through which students have replanted approximately 10,000 cypress trees per year on Southeastern land in the Manchac Swamp since the late 1990s. But during the most recent fiscal year (2008/09), user days of activity for Education totaled 714, nearly double that of the previous three years following Katrina. In addition, the Outreach Program totaled 835 user days of activity, more than any since the 2005 storms. The entire Turtle Cove staff worked diligently to overcome the obstacles presented with such diminished facilities and equipment following the 2005 storms. Once the facilities at Pass Manchac are fully restored through the FEMA reconstruction efforts, the Education and Outreach programs should grow rapidly in future years.

New Programs, Partnerships, and Affiliations Developed

Several new and exciting programs, partnerships, and affiliations have developed during the past two fiscal years that help showcase how Turtle Cove and its staff provide interdisciplinary connections throughout the university and surrounding community.

1. Partnership with Lake Pontchartrain Basin Maritime Museum (LPBMM) – For the past two years, Turtle Cove staff has assisted the LPBMM in expanding its research, education, and outreach offerings. This partnership began with the “long-term loan” of Turtle Cove’s Black Boat, a 21 ft Reno Lake Skiff that the Museum has used extensively as its only major vessel to conduct work in and around the Museum site, particularly in restoring the Lighthouse. Museum Executive Director Dr. Jay Martin has formally noted his appreciation to then Provost Dr. John Crain on the benefits of having this vessel. Tentative plans are to have the vessel returned at the end of fiscal year 2009/10, depending on whether the Museum can secure funding to purchase a similar vessel.

In addition, starting in summer 2008, the Turtle Cove Pontoon Boat (the “Pelican”) has been used at the Museum site for approximately two months (usually from July 4th through Labor Day weekend) to take education/outreach groups out on the Tchefuncte River to discuss wetland issues in that region. The boat has also assisted the Museum’s ROV program, training school groups on how to use underwater robotic equipment and cameras to research shipwrecks and other underwater activities (see figure 21). Turtle Cove staff members Michael Greene, Fred Mars Stouder, and Hayden Reno have all assisted with

educational activities using the pontoon boat, as have Michaelyn Broussard and Tiffany McFalls of Southeastern's Department of Biological Sciences and long-time affiliates of Turtle Cove. Having the pontoon boat docked and in use at the Museum during the summer months has now become a new tradition and is one we hope to continue with the Museum for years to come, or at least until they can purchase their own pontoon boat.



Figure 21: Dr. Jay Martin of the Lake Pontchartrain Basin Maritime Museum and Dr. Mike Assodeu of Southeastern demonstrate ROV technology with a group of students off of the Museum's dock in summer 2008.

2. Informal Science Education NSF Proposal with LPBMM and UNO – An exciting new collaboration with both the aforementioned LPBMM and wetland educators at UNO's Pontchartrain Institute for Environmental Studies (PIES) has taken place through the submittal of an NSF Planning Grant for Informal Science Education. Titled *Informal Science Education in the Dynamic Estuarine Environment of Lake Pontchartrain: An ISE Planning Grant*, the proposal, if funded, will investigate using the wetland issues of the Lake Pontchartrain Basin as a program frame for disseminating STEM content via existing portable digital technology. Key partners Southeastern, UNO, and LPBMM will use their three locations, each with distinct marine environments, yet all encompassed within the boundaries of the lake, to provide comparative research, analysis, and interpretation of environmental science and cultural resources with significant STEM content. This project is seen as preliminary to a full proposal (multi-year, multi-million dollar) that will further public understanding of science and advance STEM literacy using three unique sites that have great potential for comparative research and education. Dr. Jay Martin (LPBMM) is taking the lead in organizing and promoting this effort. Dr. Robert Moreau (Southeastern) and Dinah Maygarden (UNO) are the lead personnel and co-PIs.
3. Educational Collaboration with the Louisiana Department of Wildlife and Fisheries – During the spring of 2009, a meeting with John Sturgis, Wildlife Division/Education Specialist with LDWF, produced plans to work together on creating the education program

that will be used for the new *Young Scientists Field Training Site at Galva Marsh*, which is a NOAA funded program discussed later in this report. Turtle Cove and LDWF personnel have been long-time partners as LDWF has leased us our facilities since 1981, but this new work moves the partnership forward, opening the door for potential collaboration that would provide more efficient delivery of educational programs at the Manchac Wildlife Management Area (WMA) where Turtle Cove and LDWF share resources.

4. Collaboration with Dr. Kyle Piller to Distribute an Educational Resource – Dr. Kyle Piller (Southeastern’s Department of Biological Sciences) was the PI on a poster production of the most common fishes of the Lake Pontchartrain Basin (see figure 22). This project was funded by the Lake Pontchartrain Basin Restoration Act Program (LPRAP) at a cost of \$25,055 to create 10,000 posters for distribution to K-12 children throughout the region. Dr. Robert Moreau (co-PI) and Turtle Cove staff have been distributing the posters, of which approximately 5,000 remain, to school and other groups as they participate in the education and outreach activities. Further information about the various species of fish on the poster and the project as a whole is provided in a letter accompanying each poster and on the Turtle Cove website (www.selu.edu/turtlecove > Research Activities > Fishes of the Basin). Materials such as these are valuable tools of science education, as well as publicizing the University, so we are exploring ideas and grant opportunities to fund similar posters (such as vegetation, birds, invertebrates, and mammals of the Basin).

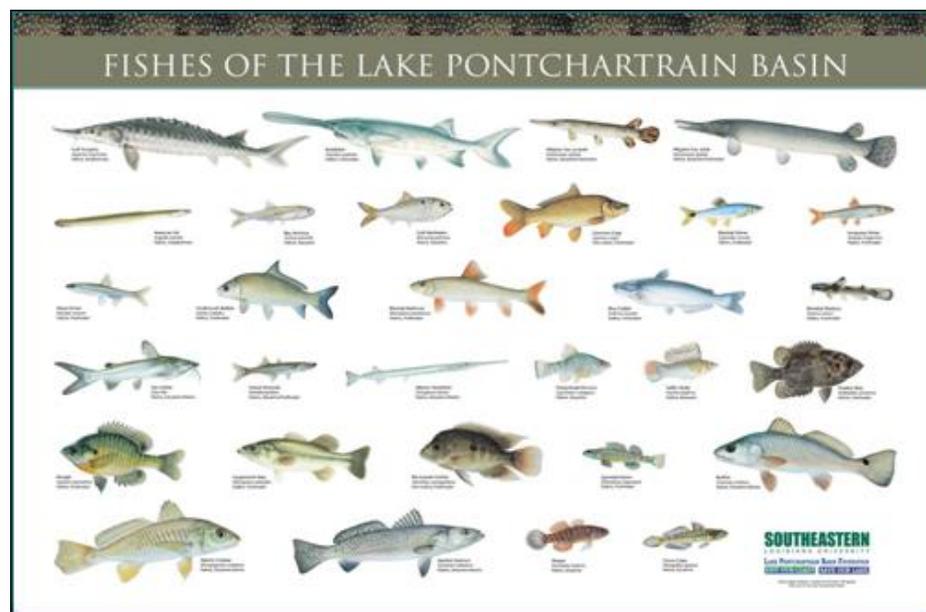


Figure 22: Fishes of the Lake Pontchartrain Basin poster produced by Dr. Kyle Piller (PI) of the Department of Biological Sciences at Southeastern. Robert Moreau serves as co-PI on the project and handles distributing the poster to groups coming through Turtle Cove’s education and outreach programs.

5. Research Activities by the Department of Chemistry & Physics – Drs. Phil Voegel and Ju Chou (faculty in Southeastern’s Department of Chemistry & Physics) began using Turtle Cove vessels to conduct their research in fiscal year 2007/08. Dr. Voegel conducted water-quality measurements (turbidity, temperature, pH, and salinity) along the southern shore of

Lake Pontchartrain before, during, and after the opening of the Bonnet Carré Spillway in spring 2008. Dr. Chou's lab has conducted water-quality sampling for heavy metals throughout the basin during the past year.



Figure 23: Members of Dr. Ju Chou's lab brave the cold on Turtle Cove's Blue Boat for a sampling run in spring 2009. Although Southeastern's Department of Biological Sciences remains the station's primary group of users (i.e., labs of Drs. Shaffer, Piller, Bossart, Crother and others), the station is becoming more interdisciplinary.

6. Herpetology Monitoring Project – New Turtle Cove graduate student Ryan Willis, under the guidance of Dr. Brian Crother (faculty in Southeastern's Department of Biological Sciences, and Assistant Dean of the College of Science & Technology) will revive a herpetology project that has been suspended for about a year. This project involves transect monitoring of seven sites, six of which are on the Manchac Wildlife Management Area (WMA) property with the remaining site on Alligator Island. Ryan has completed the boating safety class taught by Robert Moreau and will be relying on Turtle Cove's boats and equipment for this project.
7. Campus Sustainability Planning and Operations – Turtle Cove staff members Robert Moreau and Lacy Landrum have been involved in the new campus recycling effort, also serving as committee members of the new Campus Sustainability Program undertaken by Southeastern's Recycling Manager Ben Taylor. Turtle Cove donated \$50.00 to the recycling department to purchase a large recycling banner used at campus events. Drs. Moreau and Landrum are also assisting with grant research and writing to expand the recycling and other environmental efforts on campus. In spring of 2009, Dr. Moreau's classes in Environmental Management focused their group projects on conducting business plans for campus sustainability and other analyses that could be used in future efforts, such as the baseline evaluation of Southeastern's greenhouse gas emissions for inventory purposes. Ben Taylor and a member of the budget office (Hans Oberschmidt) attended the project presentations. Copies of all reports were given to Ben for use in his program development.
8. Collaboration with Defiance College – Dr. Douglas Kane, a biologist with Defiance College (Ohio), led a small team of students and other faculty members to Turtle Cove on two separate occasions (July and December 2008) to conduct educational and research activities focused on wetland issues. This effort was part of an honors program for qualified students. The students were responsible for conducting small-scale projects in the wetlands and/or developing various materials that could be used at either Defiance College or Southeastern (one example was an educational whitepaper explaining the socio-economic benefits of

wetland resources in Louisiana). Michael Greene and Fred Mars Stouder were responsible for coordinating Turtle Cove resources for this group. Dr. Kane has asked us to continue this relationship, and we are expecting another round of students and faculty in December 2009.

9. Collaboration with the University of Wisconsin-Madison, Institute for Environmental Studies – Since 2007, graduate students in the Water Resource Program at the University of Wisconsin-Madison’s Gaylord Institute for Environmental Studies have completed master’s degree projects on the wetland restoration of Bayou Bienvenue in the Central Wetlands of New Orleans East. Their research traces the natural and socio-economic impacts of restoring the “Triangle Wetlands” site at Bayou Bienvenue via wastewater effluent. Dr. Gary Shaffer (Southeastern) is a consultant on this project. But to gain a fundamental understanding of the area and hone their research approaches, the students have come to Turtle Cove to hear lectures on coastal wetland issues and to take field trips on the pontoon boat. The lectures described the major attributes of our coastal wetland loss problems, history, and potential solutions. The students have used Turtle Cove canoes and a mud boat (with the assistance of Fred Mars Stouder) for their work. This collaboration should continue as long as the students have funding for their projects.
10. Southeastern Development Foundation – On April 15, 2009, members of the Southeastern Development Foundation came to Galva Canal to hear a lecture describing Turtle Cove’s activities and the impacts of coastal wetland loss in Louisiana. The group then boarded the pontoon boat for a field trip through Pass Manchac. The successful trip prompted discussion between Robert Moreau and Development Foundation staff to consider offering this lecture and field trip to potential donors as broader outreach efforts.
11. Collaboration with Tulane School of Architecture – Faculty from the Tulane School of Architecture, Condula Rosen and Feldmeier Galyean, approached Turtle Cove regarding potential class projects for their students. Robert Moreau suggested the idea of designing an open-air pavilion that could be built at the end of the boardwalk either on Pass Manchac or at the boardwalks planned for the Galva Marsh. The project will result in professional design and drawings of a pavilion that we could then use as fundraising materials to support the actual construction. A pavilion at either of those two boardwalks would be beneficial to researchers and educators because it would provide relief from weather conditions (e.g., heat, rain, and lighting) along with serving as a place to conduct group training and discussion. This project should be complete by the end of the spring 2010 semester.

Other Ongoing Programs, Partnerships, and Affiliations

Turtle Cove is also affiliated with several restoration projects, water-quality monitoring projects, and other educational and outreach activities. These affiliations are in addition to the station’s regular research, education, and outreach activities.

Marsh Restoration Activities

Fred “Mars” Stouder, Turtle Cove Marsh Restoration Coordinator, has worked at the station since 1994 on a grant-funded basis from the Louisiana Department of Natural Resources (LDNR) on two projects: one through Tangipahoa Parish and the other through St. John the Baptist Parish. Both

projects involve deploying Christmas trees to vulnerable marsh areas (West Jones Island in Tangipahoa and “the Prairie” in St. John) that act as stabilizing levees to prevent further soil erosion and to create a nutrient-rich environment for seedlings. Once the levees are established, various marsh grasses, and in some cases cypress seedlings, are planted to further stabilize and reestablish vulnerable wetland areas. The St. John project has shown a tremendous acreage of land built as measured by annual photographs of the same areas (required by LDNR for reporting purposes). The Tangipahoa Parish project has also been successful in establishing Christmas tree levees on the shores of West Jones Island (see figure 24), but perpetual wave action somewhat dampens the project’s overall success.



Figure 24: Fred “Mars” Stouder and students using Turtle Cove pontoon boat to deploy Christmas trees and to plant marsh grasses on Southeastern’s property on West Jones Island. Note the brown levee of Christmas trees on the land to the left of the boat. Over time, grass grows through the trees, and sediments are trapped during tidal changes, thereby creating a “levee” effect that helps control erosion (spring 2009).

Table 3 summarizes data for these activities for the past two years and cumulatively since the inception of each project. Unfortunately, we have been told these grants will end after 2010 (although the projects were funded longer than most due to their annual success); however, we have already identified other funding avenues to continue this work.

Table 3: Summary of Marsh Restoration History at Turtle Cove, including Fiscal Years 2007/08 and 2008/09

	Tangipahoa Parish project life 2000-2009 funded at \$18,000 per year	St. John Parish project life 1994-2009 funded at \$18,000 per year
FY 2007/08 Plantings/Deployments		
Christmas Trees	3,100 (W. Jones Island)	0 (Prairie area)
Cypress Trees	0	0
Roseaucane	0	0
Bulrush	0	1,616
Cutgrass	0	0
Smooth Cord Grass	1,212	312
FY 2008/09 Plantings/Deployments		
Christmas Trees	2,000 (W. Jones Island)	0 (Prairie area)
Cypress Trees	0	0
Roseaucane	0	0
Bulrush	0	1,580
Cutgrass	0	0
Smooth Cord Grass	1,200	0
Cumulative Plantings/Deployments [program inception date through June 30, 2009]		
Christmas Trees	28,312 (W. Jones Island)	5,857 (Prairie area)
Cypress Trees	3,006	0
Roseaucane	986	1,460
Bulrush	200	12,715
Cutgrass	1,379	1,415
Smooth Cord Grass	3,874	312

Monitoring Partnerships

Turtle Cove maintains two partnerships for various monitoring programs in the wetland environment surrounding the facility. Monitoring of environmental data is, of course, one of the key requirements of a field station. These stations monitor various weather and water-quality data parameters for both researchers and the general public, along with providing data requirements for various agencies who fund the projects. In these two cases, Turtle Cove provides free use of boats to the technicians who maintain the sites. These technicians ensure that all the equipment works properly and provide full-service construction and maintenance of the online database that is available to everyone. These services have been estimated at approximately \$100,000 per year. The two stations with which Turtle Cove partners are as follows:

- (a) LUMCON/Tulane/Turtle Cove Partnership for Online Monitoring of Water Quality and Weather Data in the Lake Pontchartrain Basin – <http://www.lumcon.edu> (access via the NW Lake Pontchartrain map site)
- (b) The LSU Agri-Climate Center/Turtle Cove Monitoring site – <http://www.lsuagcenter.com/weather/weatherjump.asp?StationId=21>

A third partnership that ran from 2002 to 2008 was with the United States Geological Service (USGS); this partnership ended when USGS had to remove the monitoring equipment due to budget cuts in the agency's monitoring division. The data was available online, but the site is no longer active at http://waterdata.usgs.gov/la/nwis/uv/?site_no=301748090200900&PARAMeter.

In addition, the CRMS (Coast-wide Reference Monitoring System) utilizes some Turtle Cove properties to establish and maintain crucial monitoring equipment. This program is overseen and funded by the Louisiana Department of Natural Resources and the CWPPRA program.

Teacher Education Workshops (only one-day events since Katrina)

In addition to coordinating the standard education and outreach programs—such as scheduling and leading group tours on the pontoon boat and wetland field activities and classes— Michael Greene, Education/Outreach Coordinator and Biologist on Staff, has continued to facilitate workshops that include Turtle Cove as a field component. The traditional three-day teacher workshops that Turtle Cove has historically offered since 1991 have been suspended since the storms of 2005 due to the lack of overnight accommodations at the Turtle Cove lodge.

During the past two years, Dr. Debbie Dardis (Southeastern's Department of Biological Sciences) has taken some of her workshop classes to the Galva Canal classroom where teachers and other groups are trained in how to relate their classroom curricula to the real-world environmental problems faced locally. Teachers then return to Turtle Cove with their students, taking advantage of onsite wetland educational programs and using the pontoon boat to experience our wetlands. The workshop groups that Greene and Dardis have led during the past two years include: St. Tammany Math and Science Program, Coastal Roots Program, and Lafouche Parish Math and Science Program. Since the workshops began in 1991, Turtle Cove has offered nearly 60 workshops, with over 600 participants, impacting over 200,000 students in the region. So we look forward to completion of the FEMA restoration at Pass Manchac when the workshops can return to normal schedules and familiar facilities.

National Center for Appropriate Technology (NCAT)

NCAT is a national nonprofit that works on various environmental issues ranging from promotion of organic and local food production to alternative energy production and pollution prevention measures for non-point source pollution problems in waterways. In 2007, NCAT was allowed to lease a small office in Wilson Hall to establish their Southeast U.S. Office. This arrangement benefits both the University and NCAT in that the two entities might be able to collaborate on projects and have more of an advantage when applying for grant monies. Although no collaborative projects have happened yet, a meeting scheduled this summer (2009) will discuss plans for possible collaboration

on environmentally focused projects between Turtle Cove and NCAT personnel.

Safety Record and Annual Audits

Exceptional Safety Record

Throughout its 24-year existence, Turtle Cove has maintained an exceptional safety record with no significant accidents or incidents of any sort. This record is one of which the entire staff of Turtle Cove is extremely proud, given that most of our work, and our users' work, takes place in a water-based environment. The issue of safety is the most important concept stressed to all users of Turtle Cove. Boating safety classes, taught by Robert Moreau three times each year, and continuous updates of safety issues by Turtle Cove staff ensure safety is a priority for everyone using the station.

Annual Water Vessel Safety Audit

Turtle Cove's annual Water Vessel Safety Audits (by ORM personnel) are graded very well. In fact, a minor citation was easily corrected regarding the "dating and signing" of certain forms and placing all related water vessel safety information in the Turtle Cove Boating Safety Manual. A copy of the Turtle Cove Boating, Safety and Facility Use Manual can be found on the Turtle Cove website (www.selu.edu/turtlecove > Boats, Facilities, & Equipment > Policies, forms, and checklists).

Annual Physical Inventory Results

The annual physical inventory for Turtle Cove, comprised of over 100 items and valued at more than \$370,000, was successfully completed with all items accounted for and in good condition.

V. STAFF PROFESSIONAL DEVELOPMENT ACTIVITIES & ACCOMPLISHMENTS

For the past two years, the Turtle Cove staff has participated in professional development activities, such as regional conferences and meetings along with training sessions offered at Southeastern. The staff has also focused on identifying and submitting grants, of which several have been funded.

Grant Writing Results

A. New Grant Proposals and Contracts: Submitted, Selected, and Funded (3 for \$160,500)

- PI Fred Stouder with Co-PI and Budget Head Robert Moreau on *St. John the Baptist Wetlands Restoration Program*. Project Period is 01/01/2008 – 12/30/2010. (3-yr total of \$46,500). Funded by the Louisiana Department of Natural Resources. **Contract started and continuous since 1996; must be renewed every three years. This is its last series and will not be renewed after 2010.**
- PI Fred Stouder with Co-PI and Budget Head Robert Moreau on *Tangipahoa Parish Wetlands Restoration Program*. Project Period is 01/01/2008 – 12/30/2010. (3-yr total of \$54,000). Funded by the Louisiana Department of Natural Resources. **Contract started and**

continuous since 2000; must be renewed every three years. This is its last series and will not be renewed after 2010.

- PI Robert Moreau with Co-PIs Tiffany McFalls and Fred Stouder and five other participating Southeastern faculty/staff (M. Greene, M. Broussard, L. Landrum, F. Camp, and B. Wood) on *Establishment of an Education Training Program for Young Scientists and Ecosystem Tours for Community Leaders at Galva Canal Marsh and Manchac Swamp* (requested \$129,997). Funded by LPRA Year 7 (funds originate at NOAA). **Tentatively accepted for funding at \$60,000 pending final funding approval from NOAA, which should be received by August 1, 2009. Start date should be September 1, 2009.**

B. New Grant Proposals and Contracts: Submitted and Selected for Funding, but Funding Failed to Materialize (2 for \$74,812)

- PI Robert Moreau with Co-PIs Tiffany McFalls of Southeastern's Dept. of Biological Sciences and Thais Perkins, Assistant Director of Southeastern's PBRP, on *Expansion of PBRP's Seminar Series "Swamps to Savannas: The Environmental Health of the Ecosystems of the Northshore"* (requested \$8,036). Submitted 07/05/2007 to Lake Pontchartrain Basin Restoration Act Program (Year 6), originating as NOAA funds. **(Proposal accepted, but program funding did not materialize)**
- PI Robert Moreau with Co-PIs Michael Greene of Turtle Cove and Tiffany McFalls of Southeastern's Dept. of Biological Sciences, on *Establishment of an Educational Field Training Site for Young Scientists at Galva Canal Marsh* (requested \$66,776). Submitted 07/05/2007 to Lake Pontchartrain Basin Restoration Act Program (Year 6), originating as NOAA funds. **(Proposal accepted, but program funding did not materialize)**

C. New Grant Proposals Written and Submitted (awaiting word on funding) (2 for \$121,00)

- Co-PIs Robert Moreau, Dr. Jay Martin of Lake Pontchartrain Basin Maritime Museum, and Michaelyn Broussard of Southeastern's Dept. of Biological Sciences, with Fred Stouder also participating, on *Restoration of Tchefuncte Lighthouse Wetlands on Northshore of Lake Pontchartrain* (requested \$46,000). Submitted to Coypu Foundation on 07/07/2009.
- Co-PI Robert Moreau with Co-PI Dr. Jay Martin, and other primary participant Dinah Maygarden of UNO, on *Informal Science Education in the Dynamic Estuarine Environment of Lake Pontchartrain: An ISE Planning Grant*, NSF Solicitation #09-553 (requested \$75,000). Submitted 06/23/2009.

D. New Grant Proposals Submitted but Rejected for Funding (3 for \$178,400)

- Co-PI Robert Moreau with Co-PI Dr. Jay Martin of Lake Pontchartrain Basin Maritime Museum, and Michaelyn Broussard and Fred Stouder of Southeastern, on *Restoration of Tchefuncte Lighthouse Wetlands on Northshore of Lake Pontchartrain* (requested \$49,760). Submitted to Greater New Orleans Foundation on 01/22/2009. Rejected 04/2009.

- PI Robert Moreau with Co-PIs Tiffany McFalls and Michael Greene on *Establishment of an Educational Field Training Site for Young Scientists at Galva Canal Marsh* (\$71,041) for U.S. EPA Environmental Education Grant, submitted 12/2007. Rejected 5/23/2008.
- Co-PI Robert Moreau with PI Dr. Bonnie Lewis (Director, Florida Parishes Social Science Research Center; Professor of Sociology), and other Co-PIs Dr. John Boulahanis, Drs. David and Barbara Shwalb and Dr. Anna Kleiner (all with Southeastern's Dept. of Sociology and Criminal Justice) on *Predictors of Values, Beliefs, and Behaviors that Promote Pontchartrain Restoration and Sustainability for Three Accelerated Growth Parishes* (requested \$57,599), submitted 07/05/2007 for the Lake Pontchartrain Basin Restoration Act Program (Year 6), originating as NOAA funds.

Ongoing External Funding Activities from Grants Received

Turtle Cove staff wrote or worked on the following nine grant-funded projects during fiscal years 2007/08 and 2008/09:

- PI Fred Stouder with Co-PI and Budget Head Robert Moreau on *St. John the Baptist Wetlands Restoration Program*. Project Period is 12/30/2008 – 12/30/2010. Awarded 3-yr total of \$46,500. Funded by the Louisiana Department of Natural Resources. Started and continuous since 1994. Work to be completed by 12/30/2010.
- PI Fred Stouder with Co-PI and Budget Head Robert Moreau on *Tangipahoa Parish Wetlands Restoration Program*. Project Period is 12/30/08 – 12/30/10. Awarded 3-yr total of \$54,000. Funded by the Louisiana Department of Natural Resources. Started and continuous since 2000. Work to be completed by 12/30/2010.
- Co-PI Robert Moreau with Budget Head Paul Keddy and Co-PI Tiffany McFalls of Southeastern's Dept. of Biological Sciences on *Restoring Our Vanishing Wetlands in Lake Pontchartrain: Scientific Research and Public Education at the Turtle Cove Environmental Research Station*. Awarded \$10,000. January 2007. Funded by the Freeport-McMoRan Foundation.
- PI Robert Moreau with Co-PIs Lacy Landrum, Thais Perkins, and Tiffany McFalls of Southeastern on *Technology Transfer and Outreach for Pontchartrain Basin Research Program (PBRP) Phase V*. Awarded \$36,000. August 2006. Funded by Southeastern's PBRP (funds originate from U.S. EPA). Expected completion date summer 2010.
- Co-PI Robert Moreau with PI Kyle Piller, Southeastern's Dept. of Biological Sciences, on *Education and Outreach Through Production of a "Fishes of the Lake Pontchartrain Basin" Poster*, beginning August 2006. (Awarded \$25,055). Funded by Southeastern's PBRP (funds originate from U.S. EPA). Work ongoing. Turtle Cove serves as poster distributor. Expected completion date summer 2010.
- PI Robert Moreau with Co-PIs Richard Campanella (Tulane/Xavier's Center for BioEnvironmental Research), Gary Shaffer and Bernard Wood (Southeastern's Dept. of Biological Sciences), Thais Perkins (formerly with PBRP), Lacy Landrum (PBRP), and Randy Myers (LDWF) on *Development of White Paper, How-To-Manual, Outreach Workshops and Website*

for Mitigation Banking in the Manchac/Maurepas Swamps, for Southeastern's Pontchartrain Basin Research Program. Awarded \$78,000. January 2006. Funded by Southeastern's PBRP (funds originate from U.S. EPA). Work ongoing. Expected completion date summer 2010.

- PI Michael Greene and Co-PI Thais Perkins on *Teacher Education Workshops and Web Based Internet Tools.* Awarded \$126,654. November 2005. Funded by the Lake Pontchartrain Basin Restoration Act program (LPBRA, Year 4). Work completed during FY 2007/08.
- PI Fred Stouder with Co-PI and Budget Head Robert Moreau on *St. John the Baptist Wetlands Restoration Program.* Project Period was 01/01/05 – 12/30/07. Awarded 3-yr total of \$46,500. Funded by the Louisiana Department of Natural Resources. Started and continuous since 1994. Work completed during FY 2007/08.
- PI Fred Stouder with Co-PI and Budget Head Robert Moreau on *Tangipahoa Parish Wetlands Restoration Program.* Project Period was 01/01/05 – 12/30/07. Awarded 3-yr total of \$54,000. Funded by the Louisiana Department of Natural Resources. Started and continuous since 2000. Work completed during FY 2007/08.

Publications and Reports

Shaffer, G.P, W.B. Wood, S.S. Hoepfner, **T.E. Perkins**, J.A. Zoller, and D. Kandalepas. In Review. "Degradation of Baldcypress – Water Tupelo Swamp to Marsh and Open Water in Southeastern Louisiana, USA: An Irreversible Trajectory?" *Journal of Coastal Research.*

Hoepfner, S., G. P. Shaffer, and **T. E. Perkins**. 2008. "Through Droughts and Hurricanes: Tree Mortality, Forest Structure, and Biomass Production in a Coastal Swamp Targeted for Restoration in the Mississippi River Deltaic Plain. *Forest Ecology and Management* 256: 937-948.

R. Moreau, R. Campanella, G. Shaffer, B. Wood, R. Myers, and **L. Landrum**. *Annual Report: Viability of Mitigation in the Lake Maurepas and Manchac Swamp Region.* Submitted to Science Advisory Committee of Southeastern Louisiana University's Pontchartrain Basin Research Program. March 9, 2009.

F. Stouder. *Annual Report on Turtle Cove Marsh Restoration Efforts in Tangipahoa Parish in the West Jones Island Area of Manchac Wildlife Management Area.* Submitted to Louisiana Department of Natural Resources. November 20, 2008. (2008 project year).

F. Stouder. *Annual Report on Turtle Cove Marsh Restoration Efforts in St. John The Baptist Parish in the Prairie Area of Manchac Wildlife Management Area.* Submitted to Louisiana Department of Natural Resources. October 16, 2008. (2008 project year).

R. Moreau, R. Campanella, G. Shaffer, B. Wood, **T. Perkins**, R. Myers, **M. Greene**, and **F. Stouder**. *Annual Report: Viability of Mitigation in the Lake Maurepas and Manchac Swamp Region.* Submitted to Science Advisory Committee of Southeastern Louisiana University's Pontchartrain Basin Research Program. September 21, 2007.

F. Stouder. *Annual Report on Turtle Cove Marsh Restoration Efforts in Tangipahoa Parish in the West Jones Island Area of Manchac Wildlife Management Area.* Submitted to Louisiana Department of Natural Resources. August 21, 2007. (2007 project year).

F. Stouder. *Annual Report on Turtle Cove Marsh Restoration Efforts in St. John The Baptist Parish in the Prairie Area of Manchac Wildlife Management Area.* Submitted to Louisiana Department of Natural Resources. July 26, 2007. (2007 project year).

Memberships and Offices Held in Professional Associations

Robert Moreau

Board Member: Bayou Rebirth (Wetlands Restoration Organization) (term: 2008-present)

Board Member: Environmental Research Consortium of Louisiana (ERCLA) (term: 2004-2007)

Courses Taught (under Turtle Cove Umbrella)

Robert Moreau

- (1) GBIO 690/MGMT 695: Environmental Management-The Greening of Business
 - a. Fall 2007 – 12 graduate students
 - b. Spring 2009 – 18 graduate students
- (2) GBIO 493/593: Controversies in Environmental Science (taught with Thais Perkins)
 - a. Spring 2008 – 13 undergraduate students
- (3) Turtle Cove Boating Safety Classes (6 classes with total of 54 faculty/staff/students)
 - a. Summer 2007 (7/18/07 at Wilson Hall – 3 faculty/staff/students)
 - b. Fall 2007 (9/07/07 at Wilson Hall – 15 faculty/staff/students)
 - c. Spring 2008 (2/08/08 at Wilson Hall – 15 faculty/staff/students)
 - d. Summer 2008 (7/11/08 at LPBMM – 3 faculty/staff/students)
 - e. Spring 2009 (2/20/09 at Wilson Hall – 13 faculty/staff/students)
 - f. Summer 2009 (6/4/09 at Galva Canal Classroom – 5 faculty/staff/students)

Lecture/Reviewer Invitations and Professional Association Meetings

Robert Moreau

- | | |
|--------------|--|
| Sept 5, 2007 | Guest Lecture at Loyola University's Institute for Environmental Communications seminar class (for Dr. Bob Thomas) on <i>The Economics of Environmentalism</i> . |
| Nov 5, 2008 | Guest Lecture at Loyola University's Institute for Environmental Communications seminar class (for Dr. Bob Thomas) on <i>The Economics of Environmentalism</i> . |
| Mar 27, 2009 | Guest Lecture at Lake Pontchartrain Basin Maritime Museum (Luncheon Lecture Series) on <i>Overview of the Turtle Cove Environmental Research Station and Historical Causes and Holistic Impacts of Wetland Loss in Coastal Louisiana</i> . |

March 2009 Invited to review draft paper by Dr. John Lopez on historical indicators of coastal wetland loss in Louisiana (requested by Dr. Denise Reed, UNO).

Michael Greene

2008 Attended regional conference for service-learning, “Gulf South Summit,” hosted in New Orleans by Tulane University.

2008 Served as an invited reviewer for the National Science Teachers Conference held in New Orleans (NSTA).

2008 Invited to attend Louisiana Science Teachers Association Annual Conference. Presented segment outlining the role of Turtle Cove in wetlands restoration issues and environmental education initiatives. Shreveport, LA (LSTA).

2008/09 Attended several CWPRA meetings detailing the Corps of Engineers plans for wetlands restoration projects, including Mississippi River diversions and the Morganza to the Gulf project.

Other Professional Development (includes Southeastern Trainings)

Robert Moreau

Feb 26, 2008 Attended Gulf of Mexico Workshop (LSU, School of Energy, Coast & the Environment) on developing new parameters for research needs over the next five years.

Apr 6-7, 2008 Attended Annual Tulane Environmental Conference (hosted by Tulane Environmental Law Society). Led field trip for participants on April 7, 2008 (lecture at Galva Classroom on *History and Impacts of Coastal Wetland Loss in Louisiana* followed by pontoon boat field trip down Pass Manchac).

Apr 17, 2008 In-house training for new PeopleSoft Financial System.

Dec 3-4, 2008 Attended Breaux Act Meeting on All State and Federal Agencies Updates on Coastal Wetland Programs and Projects (at UNO Lindsey Boggs facility).

Dec 5, 2008 Attended “404 Mitigation Conference” (for professionals involved in mitigation issues). Beau Rivage, Biloxi, MS.

Spring 2009 Grant Writing Seminar and Workshop Series (3 separate classes), provided by Dr. Jerald Ainsworth, Dean of Graduate Studies, Southeastern (in-house training).

Mar 16, 2009 OPR Training (Center for Faculty Excellence) on grant writing and related issues.

Apr 3-5, 2009 Attended Annual Tulane Environmental Conference (hosted by Tulane Environmental Law Society). Led field trip for participants on April 5, 2009 (lecture at Galva Classroom on *History and Impacts of Coastal Wetland Loss in Louisiana* followed by pontoon boat field trip down Pass Manchac).

Michael Greene

Spring 2008 Attended LUMCON photography workshop to help document coastal wetland loss through an artistic medium. The photographs are on permanent exhibition at

LUMCON and are a part of a traveling exhibition sponsored by the Turchin Center at Appalachian State University.

Spring 2009 Grant Writing Seminar and Workshop Series (3 separate classes) provided by Dr. Jerald Ainsworth, Dean, Graduate Studies, Southeastern (in-house training).

Lacy Landrum

Spring 2009 Grant Writing Seminar and Workshop Series (3 separate classes) provided by Dr. Jerald Ainsworth, Dean, Graduate Studies, Southeastern (in-house training).

Apr 3-5, 2009 Attended Annual Tulane Environmental Conference (hosted by Tulane Environmental Law Society).

Service—Departmental, School, and University Committees

Robert Moreau

- Campus Sustainability Committee (Ben Taylor group)
- Plant Science (proposed new curriculum) committee (Sid Guedry, committee leader)
- Served on hiring committee to select new Southeastern Recycling Coordinator (Ben Taylor selected, summer 2008).

Michael Greene

- Biology Department Communications Committee (member)
- Southeastern Louisiana University, Service Learning Organization (member)
- Louisiana Campus Compact, Service Learning Organization (member)
- Educators for Community Engagement (Steering Committee Member, 2000-present)
- Breakaway: The Spring Break Alternative, a program to involve students in Alternative Spring Break and Service-Learning Programs (Sponsoring member: 2000-present)

Service—Professional, Public, and Community Activities

Robert Moreau

Jul 20, 2007 Produced report entitled *Initiative for New Campus Paper Recycling Program at Southeastern Louisiana University* (to assist Administration in determination of types and ranges of recycling program to consider).

Sept 4, 2007 Guest Speaker for Thais Perkins' Environmental Awareness class (GBIO 281) on the *What does it Mean to Be a Green Business: Environmental Management in a new Century*.

Sept 19, 2007 Guest Speaker for GBIO 341 (Career Perspectives in Biology) on "Career Opportunities in Environmental Studies."

2008/09 Host of Southeastern's Cable Channel Program *Backyard Wonders*, which is a university-produced nature program. First episode: Reptiles and Amphibians (aired November 2008). Second episode: Growin' Local (will air August 2009). Copy of DVD provided upon request.

- Jan 28, 2009 Guest Speaker for GBIO 341 (Career Perspectives in Biology) on “Career Opportunities in Environmental Studies.”
- Mar 19-20, 2009 Judge for regional High School Science Fair.
- Mar 24, 2009 Interviewed for article in Baton Rouge newspaper, *The Advocate* (written on March 24, 2009) titled “Turtle Cove Closer to Taking Visitors” (discussing the \$4.8 million FEMA restoration of Turtle Cove facilities and infrastructure).
- Jun 21, 2009 Interviewed for article in Hammond newspaper, *The Daily Star* (written on June 21, 2009) titled “FEMA to Foot Bill for Storm Repairs” (again discussing the \$4.8 million FEMA restoration of Turtle Cove facilities and infrastructure).

Also led multiple field trips on Turtle Cove’s pontoon boat as part of the station’s education and outreach mission (see appendices A and B for details of group trips, numbers, and purpose).

Michael Greene

Led most of the field trips on Turtle Cove’s Pontoon Boat as part of the station’s education and outreach mission (see appendices A and B for details of group trips, numbers, and purpose).

Continued to monitor and survey the relative success rates of baldcypress saplings on Jones Island through the Jones Island Mitigation Project.

Continue to renovate and re-design the “Wilson Hall Wetlands Research Lab” (room 127). The lab will be a facility to sort and classify organisms identified as part of a project spanning the width of Lake Pontchartrain transecting correlating shoreline vegetation with invertebrate fauna.

Thais Perkins (left Southeastern in summer 2008 to take a job at University of Texas)

Volunteer for Al Gore’s Climate Project; (delivered climate change lectures to private and civic groups and schools during 2007 and 2008).

Lacy Landrum (hired in February 2009)

Volunteers in development of Southeastern’s Recycling website and in grant research and writing for Southeastern’s Campus Sustainability program.

Serves as Board Member on the Friends of the Southeastern Library.

Notable News

Turtle Cove was highlighted as an economic stimulator and positive contributor to the quality of life in the region in the Environment and Life Sciences section of the *University of Louisiana System Economic and Community Impact Study* published in spring 2009. Several recent articles in the Baton Rouge newspaper, *The Advocate*, and the Hammond newspaper, *The Daily Star*, have described Turtle Cove’s activities and the restoration of the facilities at Pass Manchac. This internal and external publicity shows how Turtle Cove benefits Southeastern, offering unique educational and research activities while, in turn, projecting a positive image to the community. See appendix C for highlights from this publicity.

In February 2009, Dr. Lacy Landrum joined Southeastern (see figure 25), assuming the twin positions of Assistant Director of Southeastern's Pontchartrain Basin Research Program (PBRP) and as the Technology Specialist for Turtle Cove. She graduated from Oklahoma State University, and her dissertation recently won an award for best in its category. In her short time here, Lacy has totally reconfigured the website, aided in the research and writing of grant proposals, and assumed many of the administrative duties in the Wilson Hall offices for Turtle Cove. She is currently pursuing relationships with the Louisiana School for the Deaf and the Louisiana School for the Blind to create appropriate accommodations for these students to benefit from the educational activities offered at Turtle Cove.



Figure 25: Lacy Landrum, the newly hired Assistant Director for PBRP and Technology Specialist for Turtle Cove. Lacy is in Wilson Hall107 (x2268, lacy.landrum@selu.edu).

VI. APPENDICES

Appendix A: Turtle Cove Use Information for FY 2007/08

Appendix B: Turtle Cove Use Information for FY 2008/09

Appendix C: Recent Publicity for Turtle Cove

Appendix A

Summary of Use of Turtle Cove Facility and Vessels: Fiscal Year 2007-2008

FY 2007-2008

Date(s) of Trip	Type of Trip	Trip Leader	School or Group	# Different Persons	User Days	Amt. Gas and/or Donations	Fees
Code 1a: Southeastern Research-Turtle Cove (ASB Planting Program)							
3/28/2008	2c: 1 day	Greene	Stanford (ASB field trip)	25	25	\$	-
Totals for Research-TC (ASB Plantings)				25	25		-
Code 1b: Southeastern Research-Turtle Cove (Marsh Restoration Program)							
						\$	-
02/02/08	1b: Marsh Restoratio	Stouder/Moreau	Various Volunteers	8	8	\$	-
02/08/08	1b: Marsh Restoratio	Stouder/Moreau	Various Volunteers	10	10	\$	-
02/22/08	1b: Marsh Restoratio	Stouder/Moreau	Various Volunteers	10	10	\$	-
02/26/08	1b: Marsh Restoratio	Stouder/Moreau	Various Volunteers	5	5	\$	-
02/29/08	1b: Marsh Restoratio	Stouder/Moreau	Various Volunteers	5	5	\$	-
03/15/08	1b: Marsh Restoratio	Stouder/Moreau	Various Volunteers	1	1	\$	-
03/26/08	1b: Marsh Restoratio	Stouder/Moreau	Tulane Architecture Class (Dan Ethredge Group)	20	20	\$	100.00
04/06/08	1b: Marsh Restoratio	Stouder/Moreau	Tulane Env. Mgt. Class	11	11	\$	-
04/19/08	1b: Marsh Restoratio	Stouder/Moreau	Tulane Green Club	10	10	\$	-
06/20/08	1b: Marsh Restoratio	Stouder	Bayou Rebirth	25	25	\$	-
	Other 1b: Marsh Restoratio	Fred Stouder	misc. non-group trips	20	30	\$	-
Totals for Research-TC (Marsh Restoration Program)				125	135	\$	100.00
Code 1c: Southeastern Research-Biology Faculty/Staff/Students							
FY 07/08	1c: Research	Bossart/Poche	Bossart Lab-11 trips (avg. 3 persons p	3	33	\$	555.00
FY 07/08	1c: Research	Keddy/McFalls	Keddy Lab-11 trips (avg. 3 persons pr	3	33	\$	550.00
FY 07/08	1c:	McFalls	McFalls research-5 trips (avg. 3 persc	3	15	\$	1,000.00
FY 07/08	1c: Research	Shafe/Wood	Shafe Lab-47 trips (avg. 3 persons/tr	6	141	\$	1,970.00
FY 07/08	1c: Research	Misc. Projects/Stude	Misc (10 trips) Projects/Students	10	30	\$	1,900.00
FY 07/08	1c: Research	Unfunded Trips (10)	Unfunded Trips (10)	10	10	\$	-
Totals for Research-Biology Faculty/Staff/Students				35	262	\$	5,975.00
<i>(noted via Gas Reimbursement Invoices and Boat Reservation Forms)</i>							

Appendix A

Summary of Use of Turtle Cove Facility and Vessels: Fiscal Year 2007-2008

Code 1d: Southeastern Research-Other Interdisciplinary

04/25/08 1d: Environmental Hi Moreau	Sam Hyde	Filming	6	6	\$	-
06/17/08 1d: Film (Environmer Moreau	SE Channel	(Backyard Wonders)	6	6	\$	-
Other (FY 07/08 1d: Heavy Metal	Chou Lab (4 trips, 3 SLU Chemistry Dept.		3	12	\$	480.00
Other (FY 07/08 1d: Water Quality	Voegel Lab (38 trips SLU Chemistry Dept.		3	114	\$	3,078.00
Other (FY 07/08 1d: Lighthouse/Shipv Jay Martin (20 trips) LPBMM			3	60	\$	-

Totals for Research-Other Interdisciplinary **5 groups** **21** **198** **\$** **3,558.00**

Code 1e: Outside Research

10/15/2007 1e: 1 day	Hayden Reno	Loyola Biology (Jim Wee)	4	4	Reno	
6/16/2008 1e: 1 day	Hayden Reno	Gulf Engineers & Consultants (w/USA	20	20	\$	300.00
FY 07/08 1e: 12 days	LUMCON	LUMCON (weather/water quality mon	3	36	\$	-

Totals for Outside Research **3 groups** **27** **60** **\$** **300.00**

Code 2a: Education-Courses Taught at Turtle Cove

07/18/07 2a: 1 day	Rob Moreau	Boating Safety (Spring 07)	3	3	\$	-
09/07/07 2a: 1 day	Rob Moreau	Boating Safety (Fall 07)	15	15	\$	-
02/08/08 2a: 1 day	Rob Moreau	Boating Safety (Spring 08)	15	15	\$	-
02/13/08 2a: 1day	Rob Moreau	Professional Aspects of Biology (lectu	50	50	\$	-

Totals for Education-Courses Taught at Turtle Cove **4 groups (class)** **83** **83** **\$** **-**

Code 2b: Education-Southeastern-Related Field Trips

11/07/07 2b: 1 day	Rob Moreau	SLU-Env. Mgt. Class	11	11	\$	-
02/25/08 2b: 1 day	Michael Greene	French Club	20	20	\$	-
03/11/08 2b: Lecture in Classr	Rob Moreau	Molly McGraw Class	40	40	\$	-
03/26/08 2b: 1 day	Michael Greene	Karin Eberhardt pre-trip	2	2	\$	-
04/04/08 2b: 1 day	Michael Greene	Karin Eberhardt Art 362 class	15	15	\$	-
05/07/08 2b: 1 day	Moreau/Perkins	Env. Controversies Class	13	13	\$	-
6/19/08 2d: 1 day	Michael Greene	Dardis class	25	25	\$	-
6/27/08 2d: 1 day	Michael Greene	Dardis class	25	25	\$	-

Appendix A

Summary of Use of Turtle Cove Facility and Vessels: Fiscal Year 2007-2008

Totals for Education-Southeastern Field Trips		8 groups	151	151	\$	-
Code 2c: Education-Other Universities' Field Trips						
10/26/2007	2c: 1 day	Moreau	Tulane (Bob Reimer's class)	20	20	\$ -
3/17/2008	2c: 1 day	Moreau	U.W.-Madison WRM students	15	15	\$ -
4/12/2008	2c: 1 day	Greene	USM Geography Class	20	20	\$ -
Totals for Education-Other Universities' Field Trips		3 groups	55	55		-
Code 2d: Education-Workshops						
02/16/08	2d: 1 day	Michael Greene	St. Tammany Math/Science Partners	20	20	\$ -
03/05/08	2d: 1 day	Rachel Zechenelly	LDWF Search&Rescue Course	20	20	\$ -
03/05/08	2d: 1 day	Rachel Zechenelly	LDWF Search&Rescue Course	20	20	\$ -
06/13/08	2d: 1 day	Michael Greene	Coastal Roots Program	30	30	\$ 170.00
Totals for Education-Workshops		4 groups	90	90	\$	170.00
Code 3a: Outreach-General Groups						
12/12/2007	3a: 1 day	Rob Moreau	The Conservation Fund	35	35	\$ 350.00
1/27/2008	3a: 1 day	Rob Moreau	GRN Volunteer Group	20	20	\$ -
2/14/2008	3a: 1 day	Rob Moreau	Colleen/Shafe Restoration Group	20	20	\$ -
3/25/2008	3a: 1 day	Rob Moreau	Mott Foundation (pre-trip)	2	2	\$ -
4/6/2008	3a: 1 day	Rob Moreau	Tulane Environmental Conference Fic	35	35	\$ -
4/11/2008	3a: 1 day	Michael Greene	Birdfest	30	30	\$ -
6/2/2008	3a: 1 day	Michael Greene	Bayou Rebirth	30	30	\$ -
FY 07/08	3a: Various	Jay Martin (20 trips)	LPBMM	3	60	\$ -
Totals for Outreach-General Groups		8 groups	175	232	\$	350.00
Code 3b: Outreach-K-12 Groups						
9/1/2007	3b: 1 day	Michael Greene	Lusher	35	35	\$ 350.00
9/3/2007	3b: 1 day	Michael Greene	Lusher	35	35	\$ 350.00
10/29/2007	3b: 1 day	Michael Greene	Lusher	35	35	\$ 418.00
9/19/2007	3b: 1 day	Michael Greene	ARBAH Homeschool	35	35	\$ 120.00
10/31/2007	3b: 1 day	Michael Greene	Lusher	35	35	\$ 280.00

Appendix A

Summary of Use of Turtle Cove Facility and Vessels: Fiscal Year 2007-2008

11/5/2007 3b: 1 day	Rob Moreau	West St. John's High	35	35	\$	-
12/14/2007 3b: 1 day	Michael Greene	Pontchatoula High	30	30	\$	-
1/25/2008 3b: 1 day	Michael Greene	Grace Baptist Church	20	20	\$	200.00
3/19/2008 3b: 1 day	Michael Greene	Pontchatoula High	41	41	\$	200.00
4/16/2008 3b: 1 day	Michael Greene	Franklinton Jr. High	30	30	\$	300.00
4/18/2008 3b: 1 day	Michael Greene	McGhee School	30	30	\$	300.00
4/21/2008 3b: 1 day	Michael Greene	Green Charter School	30	30	\$	110.00
4/23/2008 3b: 1 day	Michael Greene	Springfield High School	31	31	\$	180.00
4/28/2008 3b: 1 day	Michael Greene	Franklinton Jr. High	30	30	\$	300.00
4/30/2008 3b: 1 day	Michael Greene	St. Philip/Paul Episcopal School	23	23	\$	230.00
6/2/2008 3b: 1 day	Michael Greene	Lafayette Academy	30	30	\$	-
6/4/2008 3b: 1 day	Michael Greene	McGhee School	30	30	\$	500.00
Totals for Outreach-K-12 Groups			17 groups	535	535	\$ 3,838.00
Code 3c: Outreach-Professional Meetings/Retreats						
4/10/2008 3c: 1 day	Rob Moreau	Tulane Water Resource Program	3	3	\$	-
6/30/2008 3c: 1 day	Michael Greene	LSU Ag Center	20	20	\$	100.00
Totals for Outreach-Professional Meetings/Retreats			2 groups	23	23	\$ 100.00
OTHER MISC. CASH DONATIONS					\$	400.00
Grand Totals of Use:						
Research:			233	680	\$	9,933.00
Education:			379	379	\$	4,858.00
Outreach:			733	790	\$	100.00
Grand Total of All Use:			1,345	1,849	\$	14,891.00

Appendix B

Summary of Use of Turtle Cove Facility and Vessels: Fiscal Year 2008-2009

FY 2008-2009

Date(s) of Trip	Type of Trip	Trip Leader	School or Group	# Different People	User Days	Amt. Gas Fees and/or Donations
Code 1a: Southeastern Research-Turtle Cove (ASB Planting Program)						
Totals for Research-TC (ASB Plantings)				0	0	-
Code 1b: Southeastern Research-Turtle Cove (Marsh Restoration Program)						
07/08/08	1b: Planning Trip for Ma	Fred Stouder	Bayou Rebirth (Colleen Morgan)	3	3	\$ -
07/11/08	1b: Marsh Restoration	Fred Stouder	Bayou Rebirth (Colleen Morgan)	20	20	\$ -
07/12/08	1b: Marsh Restoration	Fred Stouder	Bayou Rebirth (Colleen Morgan)	25	25	\$ -
11/04/08	1b: Marsh Restoration	Fred Stouder	Re-Con trip for Dan Ethridge Group	2	2	\$ -
11/05/08	1b: Marsh Restoration	Fred Stouder	Dan Ethredge Class from Tulane	20	20	\$ -
02/16/09	1b: Marsh Restoration	Fred Stouder	Tulane Students	15	15	\$ -
03/11/09	1b: Marsh Restoration	Fred Stouder	Various Volunteers	3	3	\$ -
03/13/09	1b: Marsh Restoration	Fred Stouder	Various Volunteers	3	3	\$ -
03/24/09	1b: Marsh Restoration	Fred Stouder	Various Volunteers	3	3	\$ -
04/28/09	1b: Marsh Restoration	Stouder/Moreau	Dinah Maygarden UNO K-12	20	20	\$ -
05/11/09	1b: Marsh Restoration	Stouder/Moreau	Various Volunteers	3	20	\$ -
05/12/09	1b: Marsh Restoration	Stouder/Moreau	Various Volunteers	3	20	\$ -
	Other 1b: Marsh Restoration	Fred Stouder	misc. non-group trips	10	10	\$ -
Totals for Research-TC (Marsh Restoration Program)				130	164	\$ -
Code 1c: Southeastern Research-Biology Faculty/Staff/Students						
FY 08/09	1c: Research	Bossart/Clark	Bossart Lab-22 trips (avg. 3 persons/trip)	3	66	\$ 920.00
FY 08/09	1c: Research	Shafe/Wood	Shafe Lab-40 (avg. 3 persons/trip)	6	120	\$ 1,970.00
FY 08/09	1c: Research	Misc. Projects/Studer	Misc (10 trips) Projects/Students	10	30	\$ -
FY 08/09	1c: Research	Unfunded Trips	Unfunded Trips (10): Chris Murray, etc. wh	10	40	\$ -
Totals for Research-Biology Faculty/Staff/Students				29	256	\$ 2,890.00
<i>(noted via Gas Reimbursement Invoices and Boat Reservation Forms)</i>						

Appendix B

Summary of Use of Turtle Cove Facility and Vessels: Fiscal Year 2008-2009

Code 1d: Southeastern Research-Other Interdisciplinary

Other (FY 08/09 1d: Heavy Metal	Chou Lab (18 trips, 3 SLU Chemistry Dept.	3	54	\$	1,985.00
Other (FY 08/09 1d: Water Quality	Voegel Lab (11 trips, SLU Chemistry Dept.	3	33	\$	550.00
Other (FY 08/09 1d: Lighthouse/Shipwre	Jay Martin (20 trips) LPBMM	3	60	\$	-

Totals for Southeastern Research-Other Interdisciplinary 3 groups **9 147 \$ 2,535.00**

Code 1e: Outside Research

7/15/2008 1d: Planning trip	Greene/Stouder	Defiance College team	5	5	\$	-
9/25/2008 1d: Sampling trip	Greene/Jim Wee	Jim Wee of Loyola Aquatic Microbiology cl:	10	10	\$	240.00
10/30/2008 1d: Sampling trip	Greene/Jim Wee	Jim Wee of Loyola Aquatic Microbiology cl:	10	10	\$	360.00
12/15-12/19/08 1d: Wetland Research	Greene/Stoude/More	Defiance College team	4	16	\$	-
3/19/2009 1d: Wetland Research	Moreau/Reno/Wee	Jim Wee and Guests	4	4	\$	75.00
5/11/2009 1d: 1 day	Hayden Reno	GEC Consulting Group	15	15	\$	500.00
FY 08/09 1e: 12 days	LUMCON	LUMCON (weather/water quality monitorin)	3	36	\$	-

Totals: Outside Research 7 groups **51 96 \$ 1,175.00**

Code 2a: Education-Courses Taught at (or about or thru) Turtle Cove

7/11/2008 2a: 1 day	Rob Moreau	Boating Safety at LPBMM	3	3	\$	-
2/20/2009 2a: 1 day	Rob Moreau	Boating Safety in Wilson Hall	13	13	\$	-
6/4/2009 2a: 1 day	Rob Moreau	Boating Safety at Galva Classroom	5	5	\$	-
01/28/09 2a: 1day	Rob Moreau w/Rand	Professional Aspects of Biology (lecture on	50	50	\$	-
Spring Semeste 2a: 16 days	Rob Moreau	Environmental Manaegment	18	288	\$	-

Totals for Education-Courses Taught at Turtle Cove 5 groups (class) **89 359 \$ -**

Code 2b: Education-Southeastern-Related Field Trips

10/23/2008 2b: 1 day	Michael Greene	Molly McGraw's Geography Class	10	10	\$	-
11/17/2008 2b: 1 day	Michael Greene	Becky Parton, Hancock - College of Ed--lc	4	4	\$	-
2/17/2009 2b: 1 day	Rob Moreau	Rob's Env. Mgt. class	19	19	\$	-
3/13/2009 2b: 1 day	Michael Greene	SLU Honors Course	4	4	\$	-
3/27/2009 2b: 1 day	Michael Greene	Gerald McNeil Geography Class	30	30	\$	-

Appendix B

Summary of Use of Turtle Cove Facility and Vessels: Fiscal Year 2008-2009

Spring Semeste 2b: 4 days	Kyle Piller	Fisheries Class	10	40		
Totals for Education-Southeastern Field Trips		6 groups	77	107	\$	-
Code 2c: Education-Other Universities Field Trips						
9/28/2008 2c: 1 day	Rob Moreau	Tulane Env. Mgt. class	10	10	\$	-
10/24/2008 2c: 1 day	Rob Moreau	Bob Reimber's Tulane Class	12	12	\$	-
11/8/2008 2c: 1 day	Michael Greene	Tulane Students Canoe/Field Trip	20	20	\$	120.00
11/22/2008 2c: 1 day	Rob Moreau	Tulane Env. Mgt. class	10	10	\$	-
1/30/2009 2c: 1 day	Gary Shaffer/Bern W	Shafe's Wetland Ecology Class	15	15	\$	-
3/17/2009 2c: 1 day	Stouder/Maygarden	U.W. Canoe Trip (Shell Bank Bayou)	23	23	\$	-
3/20/2009 2c: 1 day	Michael Greene	U.W. and Edgewater College	23	23	\$	-
5/5/2009 2c: 1 day	Stouder/Maygarden	UNO Env. Evolutionary Biology	11	11	\$	-
Totals for Education-Other Universities' Field Trips		8 groups	124	124	\$	120.00
Code 2d: Education-Workshops						
7/16/2008 2d: 1 day	Greene/Dardis	Lafouche Parish MSP Educators	20	20	\$	-
10/16/2008 2d: 1 day	Michael Greene	Pre-conference field study for teachers atte	20	20	\$	190.00
2/28/2009 2d: 1 day	Rob Moreau	Tulane Sociology class	24	24	\$	-
FY 08/09 2d: 20 day trips	Jay Martin	LPBMM	3	60	\$	-
Totals for Education-Workshops		4 groups	67	124	\$	190.00
Code 3a: Outreach-General Groups						
7/10/2008 3a: 1 day	Greene/Dardis	EPA folks	20	20	\$	-
7/24/2008 3a: 1 day	Stouder/Greene	Youth Environmental Summit	25	25	\$	-
8/8/2008 3a: 1 day	Moreau/Stouder	Madisonville Lighthouse Fundraiser	28	28	\$	-
10/18/2008 3a: 1 day	Michael Greene	Wooden Boat Festival	35	35	\$	-
10/18/2008 3a: 1 day	Jay Martin	Wooden Boat Festival	35	35	\$	-
10/19/2008 3a: 1 day	Rob Moreau	Wooden Boat Festival	35	35	\$	-
3/6/2009 3a: 1 day	Michael Greene	Tulane Env. Law	20	20	\$	-
3/27/2009 3a: 1 day	Rob Moreau	LPBMM (brown bag lunch)	20	20	\$	-
4/5/2009 3a: 1 day	Rob Moreau	Tulane Env. Law Conference	20	20	\$	50.00

Appendix B

Summary of Use of Turtle Cove Facility and Vessels: Fiscal Year 2008-2009

4/17/2009 3a: 1 day	Rob Moreau	Birdfest	30	30		
4/20/2009 3a: 1 day	Jay Martin	Outreach Group	25	25	\$	-
4/22/2009 3a: 1 day	Rob Moreau	Entergy Land Donation	20	20	\$	-
5/1/2009 3a: 1 day	Michael Greene	Common Ground	20	20	\$	-
6/4/2009 3a: 1 day	Rob Moreau	Woman's Social Outing Club	8	8	\$	200.00
Totals for Outreach-General Groups		14 groups	341	341	\$	250.00
Code 3b: Outreach-K-12 Groups						
08/27/08 3b: 1 day	Martin/Stouder	Various-Underwater Robotics Demonstrati	35	35	\$	-
10/31/08 3b: 1 day	Michael Greene	Ben Franklin Middle School	18	18	\$	10.00
11/14/2008 3b: 1 day	Fred Stouder	Recon-Trip for UNO Env. Education Prorar	5	5	\$	-
11/17/2008 3b: 1 day	Fred Stouder	UNO Env. Education Proram	20	20	\$	-
4/9/2009 3b: 1 day	Michael Greene	Doyle Elemetnary	16	16	\$	-
4/23/2009 3b: 1 day	Michael Greene	Frost School	23	23	\$	-
4/24/2009 3b: 1 day	Michael Greene	Maurepas School	39	39	\$	240.00
4/29/2009 3b: 1 day	Michael Greene	Springfield Science Club	29	29	\$	230.00
5/7/2009 3b: 1 day	Michael Greene	St. Luke School	40	40	\$	150.00
5/8/2009 3b: 1 day	Michael Greene	St. Luke School	40	40	\$	150.00
Totals for Outreach-K-12 Groups		10 groups	265	265	\$	780.00
Code 3c: Outreach-Professional Meetings/Retreats/Open Houses/Filming Backyard Wonders (includes use of Galva Classroom)						
7/1/2008 3c: 1 day	Kapunsinski/Moreau	Backyard Wonders	5	5	\$	-
7/27/2008 3c: 1 day	Rob Moreau	Phycological Society of America	10	10	\$	360.00
8/10/2008 3c: 1 day	Rob Moreau	NOAA Sea Grant Fellows trip #1	20	20	\$	-
8/10/2008 3c: 1 day	Rob Moreau	NOAA Sea Grant Fellows trip #2	20	20	\$	-
8/16/2008 3c: 1 day	Rob Moreau	Holy Cross Neighborhood Association Retr	20	20	\$	-
10/9/2008 3c: 1 day	Rob Moreau	Bayou Rebirth Board Meeting (Classroom	7	7	\$	-
10/16/2008 3c: 1 day	Rob Moreau	Bayou Rebirth Board Meeting (Classroom	7	7	\$	-
11/18/2008 3c: 1 day	Rob Moreau	LPBF Retreat/Meeting	4	4	\$	-
11/19-11/21/08 3c: 3 days	Rachel Zechnelley	LDWF Cadet Training/Meeting	20	60	\$	-
12/19/2008 3c: 1 day	Rob Moreau	Jerald Ainsworth and Dennis trip	2	2	\$	-
2/14/2009 3c: 1 day	Rachel Zechnelley	LDWF Cadet Training/Meeting	20	20	\$	-

Appendix B

Summary of Use of Turtle Cove Facility and Vessels: Fiscal Year 2008-2009

2/28/2009 3c: (1 day	Rob Moreau	LA Academy of Sciences trip	4	4	\$	-
3/23/2009 3c: (1 day	Rob Moreau	Walton Fund Board Meeting Scouting Trip	4	4	\$	100.00
4/9/2009 3c: (1 day	Rob Moreau	LDWF Rep. (John Stourges)	5	5	\$	-
4/15/2009 3c: (1 day	Rob Moreau	SLU Development Foundation trip	16	16	\$	-
4/22/2009 3c: (1 day	Rob Moreau	Entergy Land Media Day	25	25	\$	-
Totals for Outreach-Professional Meetings/Retreats		16 groups	189	229	\$	460.00
OTHER MISC. CASH DONATIONS					\$	300.00
Grand Totals of Use:						
Research:			219	663	\$	6,600.00
Education:			357	714	\$	2,100.00
Outreach:			795	835	\$	200.00
Grand Total of All Use:			1,371	2,212	\$	8,900.00

Appendix C: Recent Publicity for Turtle Cove

Article in Baton Rouge Newspaper, *The Advocate*, dated March 24, 2009

Article in Hammond Newspaper, *The Daily Star*, dated June 21, 2009

Excerpt highlighting Turtle Cove, from the Environment and Life Sciences section of the *University of Louisiana System Economic and Community Impact Study*, published spring 2009

Article in the Baton Rouge Newspaper, *The Advocate*

THE ADVOCATE METRO

SECTION **B**
TUESDAY
MARCH 24, 2009

Lottery 2B
Around Acadiana 3B
Opinion 6B
Weather 8B

Turtle Cove closer to taking visitors

BY BOB ANDERSON
Florida Parishes bureau

TURTLE COVE — More than three years after Hurricane Katrina wrecked Turtle Cove, teachers and students may soon be able to return for weekends of hands-dirty ecological experience.

The 100-year-old building with adjacent boardwalks into the marsh also will return to its role as a base camp for wetland researchers, marsh-restoration experts and volunteers trying to preserve the marsh between Lakes Pontchartrain and Maurepas and to regenerate the cypress swamp that dominated the area until loggers clear-cut it more than 100 years ago.

The Federal Emergency Management Agency committed almost \$5 million to repair the facility, a cornerstone of wetland research and environmental education for Southeastern Louisiana University, said Rob Moreau, director of the site.

Storm damage to the historic building and its boardwalks, bulkheads and research plots shut down much of the research at the Pass Manchac site, said Gary Shaffer, a longtime researcher who has worked at the facility.

That research, ranging from sedimentation to the destruction of wetlands by nutria, is important in dealing with managing the state's wetland loss, he said.

Shaffer said he hopes new re-



Photo courtesy Southeastern Louisiana University by CLAUDE LEVET

Turtle Cove Director Rob Moreau, left, and Station Manager Hayden Reno earlier this month survey some of the destroyed boardwalks that researchers and students used to reach wetlands restoration-related research projects. New boardwalks to be built will be wider.

search with redesigned experiments can be in operation by this summer.

Another important role the facility played before Katrina was as a site for educating students and teachers who spent weekends at the site learning about Louisiana's wetland environment, said Michael Greene,

the SLU biologist who oversees that educational operation.

Science teachers took weekend trips to the three-story cypress lodge, where they learned about the flora and fauna surrounding them.

"They got the total experience" of immersion into the bounty and fragileness of the

wetlands, Greene said.

Elementary school students also had a chance to get their hands dirty in the marsh while learning to identify plants and animals and gaining an understanding of the wetland loss problem that faces Louisiana.

College students from across the country came to the site to

learn more about wetlands and to volunteer in wetland preservation projects, Moreau said.

Hurricanes Katrina and Rita did extensive damage to the boardwalks that lead into the marsh and from which both the educators and researchers

➤ See **TURTLE COVE**, page 2B



Advocate staff photo by BOB ANDERSON

Contractors have moved a barge of equipment to the 100-year-old Turtle Cove building, which will be restored to continue providing a base for Southeastern Louisiana University wetland researchers and for educational programs.

TURTLE COVE

Continued from page 1B

worked.

The storms also damaged the bulkheads that protect the site and the sliver of high land at the edge of the marsh and the lodge that has perched there for 100 years.

The building shifted during the 5-foot hurricane surge and was left unusable, Moreau said.

FEMA has committed to spend about \$800,000 repairing the three-story building. That will include raising the structure 3 feet on large helical screw pilings that will level it and stabilize the foundation, Moreau said.

Among other things, FEMA will spend about \$3 million repairing the bulkhead and docks, \$600,000 replacing the boardwalks and \$400,000 on an elevated building where the caretaker of the site will reside, Moreau said.

Rather than the narrow boardwalks that previously ran through the research plots, the new boardwalks will be 6 feet wide, Moreau said.

That will make it possible for researchers to use four-wheelers to haul materials to the research plots. Previously that had to be done by hand or with wheelbarrows, he said.

It's cheaper for contractors to build the wider boardwalks, because they too can move materials more easily on the boardwalks as they add to them, Moreau said.

The planned work has been well-engineered and is "going to be done right," Moreau said. "It will be a much stronger facility; one that will be able to withstand future storms.

"We can't get (the repairs) done too soon," Moreau said as he surveyed the rapid erosion that has occurred since the



Advocate map

Inability to use the lodge has curtailed work by scientists and volunteers to restore what was once a massive cypress swamp.

hurricanes undercut the bulkheads.

Despite the destruction from hurricanes Katrina and Rita, researchers patched together a few new experiments, but those were wiped out by Hurricane Gustav, Shaffer said.

The new research pens will be reconfigured to be less vulnerable to hurricane surges, he said.

Inability to use the lodge, which can be reached only by boat, has curtailed work by scientists and volunteers to restore what was once a massive cypress swamp and to protect the deteriorating marsh left in its place after logging in the late 1800s and early 1900s.

In the Turtle Cove area, practically all the cypress was logged for a radius of about 20



Photo courtesy Southeastern Louisiana University by CLAUDE LEVET
Turtle Cove Director Rob Moreau walks along the banks of Pass Manchac at Turtle Cove earlier this month, where erosion has eaten away land since the destruction of bulkheads during hurricanes Katrina and Rita. The construction of more than 830 feet of new bulkheads is now under way.

miles, Moreau said. Scientists are trying to replant parts of that swamp and are seeking to determine the best ways to protect the young trees from saltwater and nutria.

One of the things researchers will work on is how to repair the myriad logging ditches cut through what had been cypress swamp.

Those ditches, which are still clearly visible in what is now marsh, disrupt the natural flow of water and provide pathways for damaging salt water to enter the marshes, Shaffer said.

That research shows promise and could help not only this area, but other denuded cypress swamps, he said.

The Sunday Star

HAMMOND, LA | SUNDAY, JUNE 21, 2009



Photo courtesy of Turtle Cove Research Station

DAMAGED BY STORMS — Work is under way to repair the bulkhead and docks damaged by hurricanes at Turtle Cove Research Station. FEMA is picking up the \$2.9 million tab.

FEMA to foot bill for storm repairs

By SYLVIA SCHON
Daily Star Staff Writer

MANCHAC — The Turtle Cove Research Station complex is getting a major shot in the arm after heavy damage in hurricanes Katrina, Rita, Gustave and Ike.

Turtle Cove is a hub for scientific research into fisheries, water quality, cypress tree preservation, weather, wetlands, animal habitat and other environmental topics for Southeastern Louisiana University as well as Loyola, LSU, Tulane, ULL and UNO.

FEMA has allotted \$5 million for repairs that are now under way. Work will start this fall on the main building.

"I have no complaints about FEMA," said Robert Moreau, Turtle Cove manager for Southeastern Louisiana University. "They have been wonderful to us. We are going to be much better off, thanks to FEMA ... We've already got a new pontoon boat."

Work is about half finished on bulkheads and docks, with FEMA picking up the \$2.9 million tab.

Another \$400,000 has been granted to replace roughly 2,700 feet of boardwalks, which will be

wider and stronger than the originals.

The "tricky" part of the repairs will be raising Turtle Cove 3 feet to sit atop screw-in pylons. The estimated cost of that project is \$800,000, Moreau said. He expects that part of the work to begin in the fall.

Moreau said that may be difficult because the three-story building is 100 years old.

It was built in 1908 by Edward Schlieder, a logger out of New Orleans who called it the Turtle Cove Hunting Club. It was donated by his estate to the state in the 1960s along with 9,000 acres of wildlife-rich marsh land.

The land became a wildlife management area.

SLU got a 99-year lease for the building from Wildlife and Fisheries, and the cooperation and mutual benefit between the two agencies has been great over the years, Moreau said.

Turtle Cove hosts some 35 research and education efforts each year as well as public outreach with tours in the pontoon boat.

The three-story camp has been shut down since Katrina because of the damage. But some research



Photo by Sylvia Schon

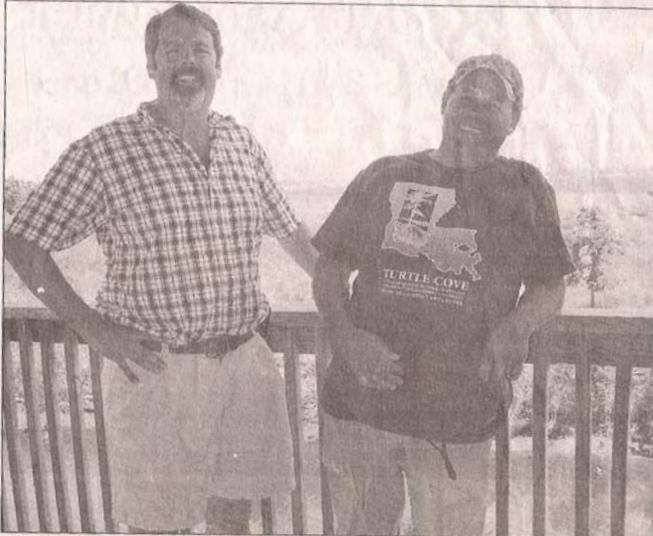
PROTECTED WILDLIFE — "I love my job," says Turtle Cove Manager Robert Moreau, who studied to be an accountant then followed his heart to a doctorate in environmental studies. Beside him is a stuffed river otter, a protected species of the Manchac marsh.

and education projects have been hosted at the "office" facility on Galva Canal in Manchac.

The research that goes on at

Turtle Cove is vital to the environment, but also the economy, according to Moreau, who holds

See **FEMA**, 7A



MARSH STUDY — Robert Moreau, Turtle Cove Research Station manager, and Hayden Reno, caretaker, survey the wild marsh laboratory of the Manchac marsh.

Photo by Sylvia Schon

FEMA TO FOOT BILLS

Continued from page 1A

a doctorate in environmental study.

"As we lose our wetlands, we are losing money big time. Our state and national economies are taking a hit," Moreau said.

Twenty-five to 40 percent of the nation's seafood comes from coastal Louisiana, depending on the type of seafood.

Wetlands, which serve as natural fish nurseries, drainage and storm surge protection has a \$1 billion annual impact for the state with fishing boat and gear purchases, gas, fishing licenses, bait, beer and all the other things that go along with fishing.

Moreau said wetlands are invaluable for storm surge protection. Just under three miles of wetlands can reduce a storm surge by a

foot.

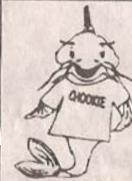
"That number is probably higher now," he said.

FEMA's help toward keeping the research going is much appreciated.

"Grant money is more important than ever because of state budget cuts," Moreau said.

It's too soon to tell whether state budget cuts will impact the research station, he added.

Call Reporter Sylvia Schon at 254-7832.



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and retention of Louisiana’s young and educated population.”

Environment and Life Sciences

There are at least 24 documented environmental and life sciences programs at UL System campuses. Southeastern’s Turtle Cove Environmental Research Station is a good example. Located on Pass Manchac between lakes Pontchartrain and Maurepas, the facility serves as a field base for scientists conducting scholarly research on wetland ecology, cypress forest restoration, marine biology, and the chemistry and physics of the wetland environment. The facility, which is undergoing reconstruction following Hurricane Katrina with the use of FEMA funds, also serves as a valuable venue for wetland education of area teachers and their students and the general public.

Cultural Development

Preserving Louisiana’s heritage and enhancing the culture of its citizens is evident in the 27 documented cultural development programs UL System schools offer.

For example, the Creole Heritage Resource Center at Northwestern State University promotes, fosters and engages in activities and endeavors that relate to Louisiana Creoles and their culture, which complements their Louisiana Folklife Center, the Natchitoches-NSU Folk Festival, the Regional Archaeology Program and the Cultural Resource Office.

At Southeastern, the Columbia Theatre is an 850-seat performing arts venue which presents a season of cultural activities. Its anchor festival Fanfare encompasses the entire month of October. Their Visual Arts and Curatorial Research Center coordinates creation of visual arts exhibitions in the university art galleries and at other exhibition spaces in the state.

Education, Health and Human Services

Education, health and human services are areas where the University of Louisiana System excels, as evidenced by 86 documented outreach programs.

At the University of Louisiana at Monroe, dental hygiene students provide services to the community, including the use of a mobile service unit to reach out to those who cannot come to the campus. McNeese State University’s Community Health Services Projects include the Immunization clinic that is offered through their College of Nursing, the Kay Dore Counseling Center which provides affordable counseling services to the community, the McNeese Autism program, and a summer session reading clinic that offers each student a reading coach.

ULM was named the state’s premier provider for the Louisiana Leader Fellows program, funded by the Wallace Foundation. External auditors recognized ULM for its ability to “develop an innovative model that will effectively address the unique needs of the students and geographically-dispersed areas.”

UL Lafayette’s outreach efforts include providing digital storytelling programs to elementary school students. The programs provide opportunities for the university’s teacher candidates to practice their skills in facilitating technology-enhanced language instruction.

Conclusion

University of Louisiana System’s eight universities are dedicated to building a knowledge-based economy to ensure Louisiana’s future vitality.

UL System campus communities have vested stakeholders who have long recognized and pursued the potential of our institutions. Whether it is alumni who are determined to repay the dividends they have earned through their education, community leaders who see their university’s role as essential to progress, or businesses and industries that could not flourish without the consistent injection of our qualified graduates, all serve to cement the strong partnerships that have evolved between each UL System campus and the community to which it belongs.

These partnerships have generated cooperative opportunities for meaningful research and service that enhance the efforts of corporate, civic and governmental leaders alike by fostering networking, supporting the creation of new ideas and technology, and offering professional-quality business applications to entrepreneurial endeavors.

Every region of Louisiana has access to the training, support, insight and empowerment that is offered through the vast resources of intellectual capital at the eight UL System campuses. Although each campus is enormously different, the unique make-up of our universities as well as the mutual commitment that each shares with its surrounding community is inherently evident in the service and outreach efforts that are consistently offered to promote local success and achievement.

Through research and service, the UL System is an economic engine that sustains innovation and growth across our state. A wide range of entities exist at each UL System university to contribute directly and indirectly to the economic and social prosperity of its surrounding region.