

Facilities

**HISTORY OF THE TURTLE COVE ENVIRONMENTAL
RESEARCH STATION: THE FIRST TWO DECADES**
(with a bibliography of publications)

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INTRODUCTION

Field research stations are an integral part of environmental education and ecological research, and have been the sites of some of the most significant research advances in our understanding of the natural world. A network of such stations, most of which are loosely affiliated through the Organization of Biological Field Stations, are located throughout North America, as well as other parts of the world. The Turtle Cove Environmental Research Station (Fig. 1), located about two miles west of Lake Pontchartrain on the south shore of Pass Manchac (Fig. 2), has served as a field research and educational facility for southeastern Louisiana since 1981. Its focus has been the study of environmental characteristics of estuaries, wetlands, and adjacent freshwater and terrestrial habitats, with emphasis on the Lake Pontchartrain Basin. The facility, administered by Southeastern Louisiana University under a lease agreement with the Louisiana Wildlife and Fisheries Commission, has as its main structure a former hunting and fishing lodge built almost 100 years ago of the virgin cypress timber logged from the surrounding swamps. The large green building, with its striking clay tile roof, seems out-of-place among the small fishing camps of the Manchac area. Its 5000 square foot space includes a first floor research/classroom area, a second floor dormitory area, and a third floor conference/class room. In addition, there is a galvanized tin boat shed, a woodframe tool and storage shed (the Barn), a wooden boardwalk providing access to adjacent marsh habitats, and the station manager's house and boat shed next door.

The station is accessible only by water, so boats and a docking facility are maintained at the nearest road access five miles west of the research station along Galva Canal, just south of the community of Manchac. This site is headquarters of the Manchac Wildlife Management Area, over 8000 acres of public marshland managed by the Louisiana Department of Wildlife and Fisheries for hunting, trapping, and fishing.

FUNCTIONS AND SCOPE

Turtle Cove has served a number of functions. Its primary users have been biologists from Southeastern Louisiana University conducting research and courses on aquatic and wetland habitats of the Manchac marshes and the Lake Pontchartrain Basin. However, its mission has evolved and ex-



FIGURE 1. Turtle Cove Environmental Research Station, October 1995.

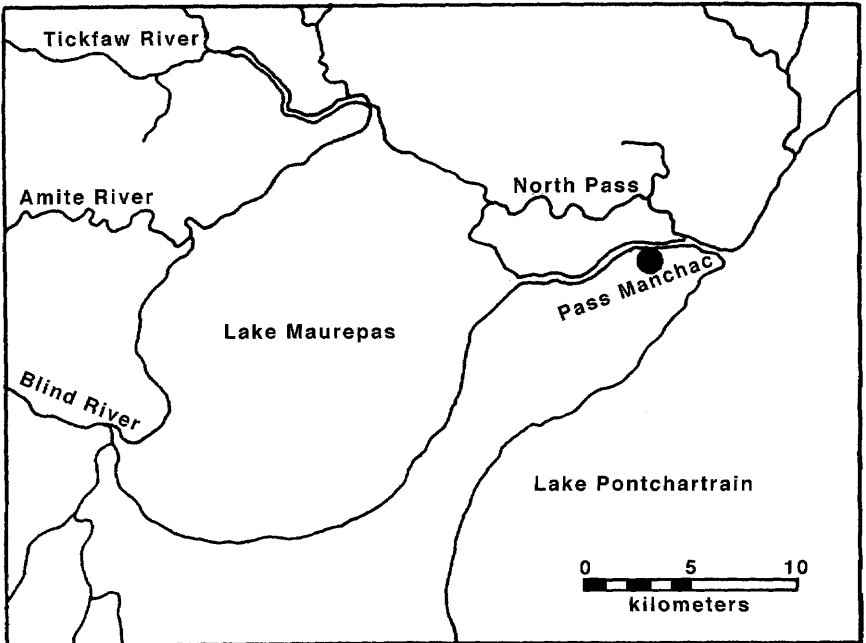


FIGURE 2. Map of the Manchac region, showing location of Turtle Cove Environmental Research Station (dot on south side of Pass Manchac).

panded to include a diversity of users and functions. Its prioritized goals have been defined as the following:

- *Scholarly research*—To enhance research activities of SLU faculty and students, and to attract regional, national, and international researchers.
- *University teaching*—To provide access to aquatic and wetland environments for field trips, summer courses, and special workshops.
- *Teacher training*—To provide opportunities for continuing education through summer programs and weekend workshops.
- *Public service*—To provide hands-on field experiences for K-12 students and other groups interested in wetland and aquatic environments.

EARLY HISTORY

The main Turtle Cove building was constructed in 1908 by Mr. Edward G. Schlieder of New Orleans as his private hunting and fishing lodge (Fig. 3). The Schlieder Lodge was built on private game preserve land of some 7000 acres bought in 1902 from the Chicago, St. Louis, and New Orleans Railroad Co. by Salmen Brick and Lumber Company (of which Mr. Schlieder was the first president). The area was extensively logged of its cypress and tupelo gum trees during that decade, and the scars of the logging "pullboat" activity are still clearly visible on aerial photographs (Fig. 4). The wetlands once dominated by baldcypress (*Taxodium distichum*) and tupelo gum (*Nyssa aquatica*) trees hundreds of years old became open marshes characterized by herbaceous plants such as bull tongue (*Sagittaria lancifolia*) and bulrushes (*Scirpus* spp.). The durability of old-growth cypress as a construction material is well-illustrated by the current condition of the Turtle Cove building, with its structural supports as sturdy today as they were almost 100 years ago. Toward the end of his life, Mr. Schlieder reportedly spent much of his time as a recluse at the Lodge, but in 1945, established the Edward G. Schlieder Educational Foundation. When he died at the age of 95 on May 12, 1948, his estate valued at \$2.6 million was left to the Foundation. Some local residents firmly believe that Mr. Schlieder's spirit still occupies the building.

In 1951, the Turtle Cove Club (a private hunting and fishing club) was formed to "promote and foster hunting, fishing and trapping, gun practice and social intercourse," and leased the "Schlieder Lodge" as their headquarters. According to the club's Articles of Incorporation, the first Board of Directors was made up of Wiley H. Sharp (President), Polk Hebert (Secretary-Treasurer), Ford M. Graham, and W. S. Rownd, all residents of Hammond, and W. P. Richardson (Vice President) of Metairie. The original "Turtle Cove" was a small indentation on the west shore of Lake Pontchartrain, and supposedly a favorite fishing site for club members. Thereafter the Schlieder Lodge became known as the Turtle Cove Camp, and was the site of numerous hunting and fishing-related social events sponsored by members of the Turtle Cove Club (Fig. 5).

In 1975, the Louisiana Department of Wildlife and Fisheries bought the surrounding 5,261 acres from the Schlieder Foundation to create the

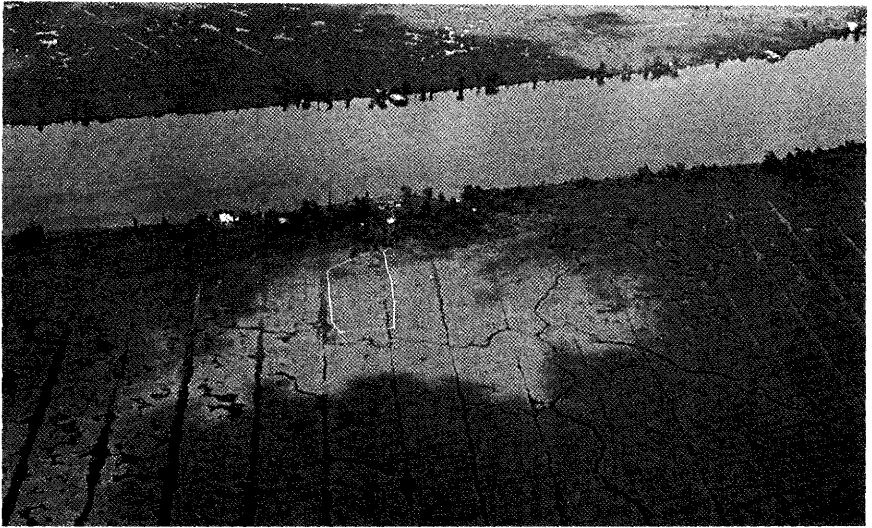


FIGURE 4. Aerial photo of Turtle Cove showing "pull-boat" scars on the marsh surface, September 1994.

laboratory and teaching facility. The university assumed control of Turtle Cove and the surrounding 10 acres in 1981, to establish the Turtle Cove Biological Research Station.

SOUTHEASTERN LOUISIANA UNIVERSITY ERA

The first attempts to establish a biological field station for the university were initiated in 1969, when the Department of Biological Sciences prepared "A Proposal for Establishment of an Estuarine Research Facility in the Lake Pontchartrain Area." Plans for the development of a port facility at Manchac were being discussed at the time and it was thought that a research facility could be developed in conjunction with the port. In 1973, a proposal requesting funding for construction of a marine biology labo-

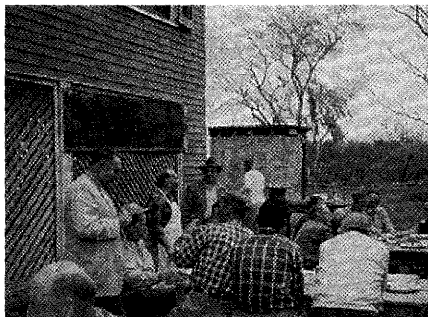


FIGURE 5. Social at the Turtle Cove Club, ca. 1950–1970.



FIGURE 3. Photos of the Schlieder Lodge, ca. 1920.

Manchac Wildlife Management Area. The Turtle Cove camp then became the management area headquarters. Additional acreage was purchased in 1977, to give the management area a total of 8,325 acres. Although the facility was occasionally used by Wildlife and Fisheries agents, especially during duck-hunting seasons, it was usually unoccupied and deteriorating from lack of maintenance, and was in need of extensive repair. It was therefore offered to Southeastern Louisiana University, to be used as a biological

ratory in the Manchac area was submitted to the Division of Administration. Unfortunately, these efforts were unsuccessful.

The concept was resurrected in 1980, when former SLU biology professor J. Larry Crain was Secretary of the State Department of Culture, Recreation and Tourism. Crain contacted the head of the Biology Department, Dr. Headley Adelman, regarding the Turtle Cove facility and its potential as a field station. The following year, a 99-year lease agreement between SLU and the Louisiana Wildlife and Fisheries Commission was signed, on July 13, 1981, giving the university control of the property until June 30, 2080. By the time of this agreement, Dr. Crain had become president of SLU. Professor Andy Friedrichs was appointed as coordinator of the field station "to develop and fully exploit teaching and research activities at Turtle Cove."

Very little progress in making the field station operational was accomplished until the following year, when capital outlay funds were obtained for roof repair, re-wiring, replacing flooring at ground level, and building a boat shed and docks. Funding was also provided for boats, laboratory equipment, and field sampling gear. Repairs were completed under the direction of Mr. Hartwell Fletcher of the university Physical Plant staff. Furnishings were mostly provided by recycling surplus dormitory furniture.

Also in 1982, Dr. Gary Childers became head of the Biology Department, and the first caretaker (or officially the Facilities and Grounds Guard) for Turtle Cove was hired, Mr. Steve Landrum. He was replaced by Mr. Mars "Tuff" Reno in 1983. During subsequent years Tuff and Barbara (his wife) were residents at Turtle Cove and worked together to keep the grass cut, clean the building, and provide security. The position of Director of Turtle Cove was approved in 1983, and a search resulted in the hiring of Dr. Robert W. Hastings as the first full-time director in July, 1984.

Research activities were stimulated in 1984 with a grant received from the Louisiana Department of Natural Resources, Coastal Zone Management Division, to conduct a comprehensive study on the water quality and faunal communities of Lake Maurepas. Dr. Childers was principal investigator. Others working on the project were professors Edward Nelson, Keith Bancroft, Andy Friedrichs, Troy Millican, and Robert Hastings, research associates Karolyn Mueller, David Turner, and Glenn Thomas, as well as several students. A final report was completed in 1985.

Subsequent years were challenging for Turtle Cove and the university. In 1985, the bottom fell out of the oil economy, meaning significant reductions in Louisiana state budgets, including those for higher education. Competition for limited state funding meant university budget cuts, and even some talk of closing Turtle Cove. Such meager times were to continue until about 1990. On the other hand, several positive events for Turtle Cove in 1985 included the donation of a 25-ft Boston Whaler research boat by Texaco, Inc. The vessel had been used by Getty Oil Company in survey work on Escambia Bay, Florida, and was made available to Turtle Cove

when Texaco bought Getty and declared the vessel surplus. The vessel called "Mr. Clean" by Getty was well-equipped with marine radio, radar, and LORAN, as well as a boom and winch. Turtle Cove re-christened the vessel "R/V *Callinectes*", the genus name of the blue crab (which means "beautiful swimmer"). Additional renovation work was completed in 1985, including the conversion of the third floor attic into a classroom/conference room, and the installation of a central heating and air conditioning system. Also in 1985, Dr. William F. Font was hired as a biology faculty member, and began research on parasitology at Turtle Cove. That year Turtle Cove became a member of the Organization of Biological Field Stations.

Hurricane Juan hit Louisiana in October 1985, with record high water in the Manchac area. The first floor of Turtle Cove was flooded with almost 3 ft. of muddy water for several days, which then receded to leave about 2 inches of mud on the floor. This event set a continuing policy of keeping valuable equipment off the first floor. Generally about once or twice per year floodwaters entered the building, but usually only to a depth of a few inches. Fortunately gaps in the pressure-treated floorboards made flushing out the mud a relatively easy task.

In 1986, graduate student Christopher G. Brantley, under the direction of Dr. Hastings, initiated studies on cypress restoration in the Manchac marshes. At first conducted on a relatively small scale and limited budget, cypress restoration was soon to become one of the most successful and on-going programs of Turtle Cove.

The first in-residence summer course (Estuarine Ecology) was taught at Turtle Cove by Dr. Hastings in 1986. In addition major repairs to the bulkhead in front of Turtle Cove were completed to reduce erosion of the shoreline that had become a serious concern. These repairs were conducted under the supervision of Mr. Hilton Hoover, known affectionately in the Manchac area as "Hurricane Hilton", although he was able to successfully complete the bulkhead with only a few trees knocked down.

Also in 1986, the boat shed and docking facility (to be shared with Louisiana Department of Wildlife and Fisheries) was completed on Galva Canal. Prior to this boats for Turtle Cove were parked in private boat slips on Galva Canal generously provided by the Gordon Anderson family.

Dr. Hastings and graduate students Steve Platt and Chris Brantley initiated studies on alligator populations in the Manchac area in 1987. These yielded some of the most significant and comprehensive data on food preferences of juvenile alligators. Studies on reproductive biology resulted in important data on the nesting success of alligators in the area, and especially on the mortality resulting from summer floods. Dr. Richard Seigel was hired as a biology faculty member and began other research on reptiles at Turtle Cove.

At about this time, the station caretaker Tuff Reno began a long battle with cancer that soon destroyed his health. For several months his wife Barbara was able to continue most of his tasks of cutting the grass and

cleaning the building, and Tuff's son ("Tuffy") moved in to help out. Tuff died on April 9, 1989.

A new caretaker, Mr. Hayden Reno, nephew of Mars Reno, was employed later in April. Hayden Reno became an extremely valuable employee, and eventually was doing much more than just "caretaking". In 1990, his position was upgraded, and he was given the title of Station Manager. He became involved with planning and designing new construction, maintaining the physical facilities in good condition, and providing safe boat transportation to groups visiting the station. In addition, he supervised physical plant crews that were frequently assigned to work on projects at the station. He demonstrated another significant talent in becoming the official gourmet cook preparing meals of seafood gumbo, alligator sauce piquant, fried catfish, or boiled crawfish for visiting groups at the station.

Another development in 1989 that greatly affected Turtle Cove was the creation of the Lake Pontchartrain Basin Foundation, dedicated to restoring water quality in Lake Pontchartrain. Almost immediately Turtle Cove and the Basin Foundation began working together on this important goal, and developing joint projects. This close relationship was to continue through the years.

In 1990, personnel from the Southern Forest Experiment Station began a study on cypress seedling survival in the Manchac marsh at Turtle Cove, and subsequently provided grants to continue some of this research and also build the first boardwalk into the marsh at Turtle Cove. The boardwalk greatly facilitated programs by providing convenient access into the marsh for researchers and visiting groups. Also in 1990, Dr. Gary P. Schaffer was hired as a faculty member in biology, and began his research program on cypress restoration at Turtle Cove. Through his extensive research, and that of his students, thousands of cypress seedlings were planted (Fig. 6), and factors affecting their survival, such as nutrient supply, elevation, nutria (*Myocastor coypus*) predation, and vegetative competition, were studied. The data were used to guide a major cypress restoration program, which should some day restore the major cypress forests that once dominated this environment.

In 1991, the first Weekend Workshop for Teachers was conducted at Turtle Cove in cooperation with the Lake Pontchartrain Basin Foundation, and with financial support from Freeport-McMoRan, Inc. The Workshops for Teachers were taught four times per year by Dr. Hastings, with assistance from Sharon Flanagan of Nunez Community College in Chalmette and Sue Ellen Lyons of Holy Cross High School in New Orleans. Groups of science teachers spent a weekend at the station to learn about environmental problems and ecological characteristics of the Lake Pontchartrain system, and were provided with resource materials to be used in their own classrooms for instruction in local biological and environmental subjects. These workshops impacted hundreds of thousands of students in the Pontchartrain Basin area schools. Many of the teachers developed their own "in-service"

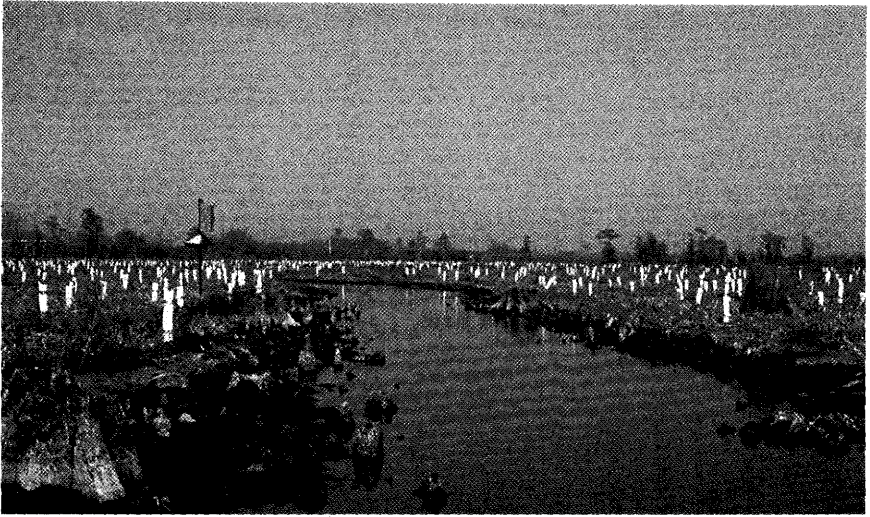


FIGURE 6. Cypress tree plantings in the Manchac marshes, with plastic "nutria excluder devices" to protect the seedlings from nutria predation, February 1996.

training programs to teach other teachers, making their impact even more significant.

With the growing success of the teacher workshops, educators in the region began to recognize Turtle Cove as an outstanding resource for class field trips. Its importance as a field trip site for area schools and other groups grew exponentially during the early 1990's, until requests exceeded the staff's ability to meet the demand. The number of visiting groups had to be limited, but such educational outreach continued to be an important part of the Turtle Cove mission. During these visits, students were given an overview of research and educational programs being conducted at Turtle Cove, and information on environmental concerns in the Lake Pontchartrain Basin. Turtle Cove also became the site of a cooperative project with the Sierra Club Inner City Outings program, and hosted numerous groups of disadvantaged kids from New Orleans for outdoor experiences. The kids were given opportunities for "fun" activities such as fishing and canoeing, but also participated in educational activities such as environmental games and species identification. Turtle Cove likewise became a popular field trip site for university summer programs such as Upward Bound. Largely because of these successful programs in environmental education, Dr. Hastings was chosen to receive the 1993 Conservation Educator of the Year Award presented by the Louisiana Wildlife Federation, the 1997 Coastal Stewardship Award for Education presented by the Coalition to Restore Coastal Louisiana, the 1998 Award for Excellence in Environmental Education presented by the U.S. Environmental Protection Agency Region 6, and the 2002 National Wetlands Award for Education/Outreach presented by the Environmental Law Institute.

Also in 1991, the station manager's house was renovated and a major addition completed, with most of the work accomplished by Hayden Reno. In addition, the 38' pontoon boat was acquired, providing a convenient means of transporting larger groups (up to 30) to the station.

Initially Turtle Cove had been administered through the SLU Biology Department, and biology faculty and students continued to be the primary users of the facility. However, because of the increased use by other departments, including history, chemistry, English, art, music, and education, and the diversity of programs being developed, Turtle Cove was recognized as a separate department under the College of Arts and Sciences in 1992, and was renamed the Turtle Cove Environmental Research Station. Mr. Daniel Llewellyn was employed as Assistant Director in July 1992.

In 1993 and 1994, major renovations on the main building were completed, funded in part by a grant from the Schlieder Foundation. These included repairs of the clay tile roof, replacement of electrical wiring, improved bath facilities, installation of ceiling fans, and installation of a sea-water filtration system. In addition, an extension of the boardwalk as a loop into the marsh was completed.

Project Delta (funded through the Louisiana Systemic Initiatives Program) was conducted in 1992 with active involvement of Drs. Hastings and Shaffer, in cooperation with SLU College of Education personnel. Its successor, Project Cypress, was continued by Dr. Shaffer and Mr. Ernie Simoneaux for several summer sessions, with participation of Turtle Cove personnel in course projects and field trips. Both of these programs involved the integration of science, mathematics, and technology by utilizing innovative constructivist teaching methods.

In 1994, a graduate assistant was assigned to work at Turtle Cove, and biology graduate student Michaelyn Broussard became the first student hired in that position. Also that year, the Turtle Cove logo and T-shirt designs were created by Robert Hastings and Julie Ruckstuhl, artist with the university Office of Public Information. Turtle Cove t-shirts became a popular item for purchase by the numerous visitors to the station and were an important source of additional revenue to support Turtle Cove programs.

In 1994, the first of a series of annual grants from the Louisiana Department of Natural Resources funded the St. John the Baptist Parish Coastal Wetlands Restoration Program. Research assistant Mars Stouder became the primary manager of this program for several years. The project involved the annual collection of discarded Christmas trees to be placed in eroded areas of the Manchac Wildlife Management Area to reduce the rate of erosion, and to increase sedimentation and build marshes being lost to subsidence and sea level rise. In addition to restoring threatened wetlands, the program also reduced the excessive burden of thousands of trees that would otherwise occupy space in sanitary landfills.

Toward the end of 1994, over 275 acres of marshland on Jones Island were donated to Turtle Cove for preservation and wetlands research. Most

of the land was located on the west end of the island adjacent to Lake Maurepas (west of the Interstate 55 Canal), but also included were 83 waterfront lots scattered around the perimeter of Jones Island. An additional 586 acres in this area was donated to the university in 1996. This land has been used as an additional site for cypress planting and marsh restoration research.

In 1995, an external review of Turtle Cove programs was conducted by individuals with extensive experience working at other field stations. Their excellent recommendations to enhance programs at Turtle Cove did much to improve its function as a productive university facility. Most of their recommendations involved increases in staffing, construction of new facilities, and additional operating funds. In response to the review, the SLU administration focused on Turtle Cove as a priority department needing enhanced support and development. Subsequently an enhancement proposal was written describing a multi-million dollar construction plan for the facility, to increase research and educational space and to provide additional housing for visiting researchers and students. In addition, personnel from the Office of Public Information, along with Turtle Cove personnel, produced an excellent video describing Turtle Cove programs and enhancement plans. A brochure describing Turtle Cove research and educational programs was prepared. Preliminary architectural plans were drafted, to be followed by a fund-raising campaign. Unfortunately the university administration changed its focus shortly thereafter and this Turtle Cove effort was never given top priority; and the necessary funding was never provided.

However, the assistant director position was upgraded to fulltime (formerly only $\frac{1}{4}$ time to Turtle Cove). In this expanded position, the assistant director (Dan Llewellyn) became primarily responsible for assisting with research projects conducted at the station, supervising boat maintenance, and collecting routine monitoring data on water quality. A second graduate assistant was provided for Turtle Cove in September 1995. Although some additional funding was provided for equipment purchases, such as computers, microscopes, spectrophotometer, and new boat motors, construction funds were never obtained.

Dr. Gary Shaffer and his students continued their cypress restoration research, and in 1995, Dr. Shaffer and Michael Greene (his former student) began developing a plan in conjunction with the U.S. Army Corps of Engineers and the Louisiana Department of Natural Resources to have wetlands in the Manchac area designated as a mitigation site. This was to eventually involve the planting of thousands of cypress trees in the Manchac Wildlife Management Area and on Jones Island. In 1998 Greene was to begin recruiting Alternative Spring Break groups from other universities (initially Vanderbilt University and the University of Miami) to help with the cypress planting. Many students willingly volunteered to forego the bacchanalian pleasures usually associated with college spring breaks for the more productive but laborious activities of planting cypress seedlings in the

Manchac marshes. These efforts have resulted in the planting of 10's of thousands of cypress in the wetlands surrounding Turtle Cove (Fig. 6).

Restoration of an old boat shed dating from the Schlieder era was completed in 1995 with another Schlieder Foundation grant, resulting in a workshop and storage room for canoes and pirogues, affectionately referred to as "The Barn". Also, Dr. Hastings conducted the first of several summer workshops for students of the Louisiana School for Math, Science, and the Arts. These advanced placement high school students spent a week at Turtle Cove studying the ecological characteristics of the Lake Pontchartrain estuarine ecosystem and conducting research projects at the station.

During 1996, Turtle Cove staff helped to organize and hosted the Third Lake Pontchartrain "Basics of the Basin" Research Symposium held May 30–31, 1996 at SLU. Seven papers presented at the conference involved work conducted at Turtle Cove. During the summer of that year, Dr. Hastings taught the first of several summer Marine Biology field courses conducted "in-residence" at Turtle Cove. These courses involved groups of students living at the station for several weeks during the summer studying marine biology and participating in field projects in the waters and wetlands surrounding Turtle Cove (followed by a field trip to west Florida).

In 1997, Dan Llewellyn resigned as assistant director to take a job with Louisiana Department of Natural Resources. The following year, Dr. Robert Moreau was hired to take his place.

Also in 1997, Turtle Cove was given a grant by the National Science Foundation to conduct a Planning Workshop for Field Stations. The workshop was held February 17–20, 1998. A team of 12 scientists and other professionals from across the country, all of whom had extensive experience at field stations, met with SLU personnel to discuss current Turtle Cove operations and recommendations for the future development of Turtle Cove. The final report entitled "Planning Activities for the Turtle Cove Environmental Research Station" was completed in April by workshop coordinator Susan Lohr. The report again emphasized the critical need for additional funding, improved facilities, and additional staff.

During 1998–99, an addition to the boat shed at Galva Canal was completed, providing additional covered slips for the protection of a growing fleet of boats. The adjacent parking area was also expanded and a new dock for the pontoon boat was constructed. The pontoon boat was also improved with several significant modifications.

During 1999, the Turtle Cove weather station was upgraded with assistance from James Finney, research associate at Louisiana State University Agricultural Center, making it compatible with the 15-station Louisiana AgriClimatic Information System; and also making Turtle Cove weather data available through the Internet.

In Fall 1999, ecologist Dr. Paul Keddy became the first holder of the Edward G. Schlieder Endowed Chair for Environmental Studies at South-

eastern Louisiana University. He immediately began plans for developing a research program based in part on the wetlands of the Turtle Cove area.

A Turtle Cove Open House was held November 6, 1999 with some 175 people attending. Several items of artwork contributed by SLU faculty and staff were unveiled at the open house, and performances of music, dance, and poetry were performed on the dock at Turtle Cove as part of "Turtle Cove Suite" (a Fanfare event organized by Dr. Don Marshall of the SLU Art Department).

During 1999–2000, a major renovation of the main Turtle Cove building was conducted, including complete rewiring, installation of exterior wall insulation, installation of quality cypress paneling, new second floor bathroom facilities, installation of two new bathrooms on the ground floor, air conditioning of the ground floor classroom area, and repainting all interior walls. New furniture including beds, tables, couches, and chairs were also installed.

During its first two decades, from 1981 to 2000, Turtle Cove became an important facility for research and educational activities in the upper Lake Pontchartrain Basin. This was accomplished in spite of chronic budget constraints, in large part because of the dedicated service of an excellent staff. Turtle Cove has been used by scientists and students from numerous universities, and personnel from state and federal agencies, and has been visited by thousands of school kids and others. Some measure of its success and productivity may be evident from the following bibliography of its publications and reports. The dedicated service of Dr. Hastings as the first Director of Turtle Cove during this initial period of its development was recognized in August 2000, when he was awarded the SLU President's Award for Excellence in Service. Shortly thereafter Dr. Robert W. Hastings' tenure as Director came to an end. This history, and the first two decades of Turtle Cove Environmental Research Station, end with that event. Dr. Hastings left SLU in January 2002, to become Director of the Alabama Natural Heritage Program.

Turtle Cove and its programs have always been a source of publicity and pride for the university. However, that pride did not always translate into proper support, and the facility continually suffered from insufficient funding and staffing, a problem that seems to be characteristic of field stations and other "off-campus" facilities. Usually located at remote sites, field stations are out-of-sight, and therefore often out-of-mind, exacerbating the funding shortfall. Turtle Cove has tremendous potential. But its future will depend upon proper support from the university administration. It will continue to be a productive facility, but it could be an exceptional facility with increased support and commitment to recognize its true potential.

PUBLICATIONS OF TURTLE COVE ENVIRONMENTAL RESEARCH STATION

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