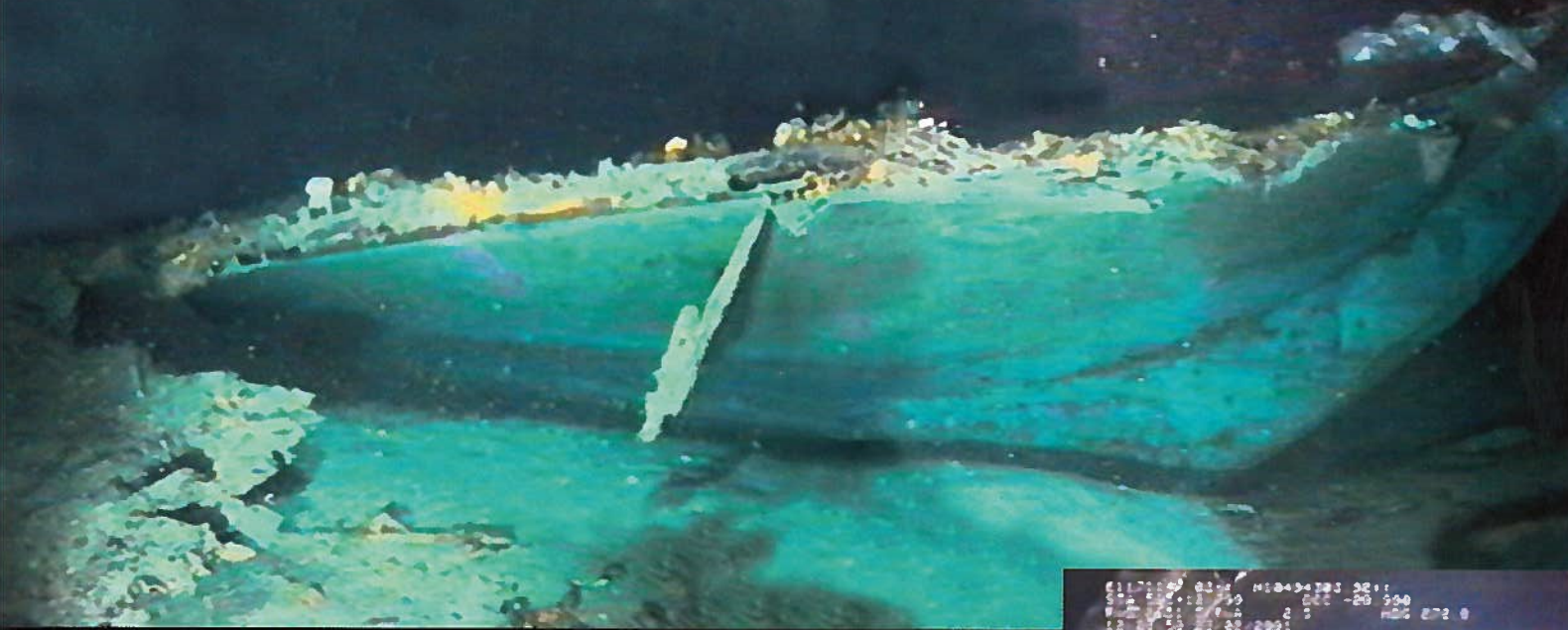


TEXAS SHORES



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Deep
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Kruse cruises into ports and harbors position

Jim Kruse, former Port of Brownsville Director and General Manager, became the new National Sea Grant Ports and Harbors specialist on Sept. 1. Serving as the focal point to enhance the activities associated with ports, harbors and other marine transportation issues, Kruse will assist in concentrating the resources of the national Sea Grant network into research and outreach endeavors. He plans to identify resources from other institutes to ensure a safe and successful national ports system.

"Jim's experience as a port director and consultant to the ports, harbors and waterways industry brings key resources to the national Sea Grant network and the work of the Texas Sea Grant College Program," said Dr. Robert Stickney, the Program's director.

Kruse said his goal is to develop "a reputation for the national Sea Grant network as the 'go to' organization for individuals in port administration and maritime activities facing difficult and complex issues."

While directly affiliated with Sea Grant, Kruse will also serve as the Director of the Center for Ports and Waterways (CPW) for the Texas Transportation Institute (TTI).

"Jim's mixture of personal and professional skills will help move the research program of the CPW forward," said Steve Roop, head of the Multi-modal Freight Transportation Research at TTI.

Kruse most recently worked as the regional program manager at the Foster Wheeler Environmental Corporation. He was responsible for port-related activities such as design, permitting, construction oversight and research, and he has served on numerous national, state and local boards and task forces.

The partnership between the TTI and the Texas Sea Grant College Program in outreach activities supplements the long-standing relationship between Sea Grant and Texas Cooperative Extension. According to Stickney, "The new relationship with TTI extends the talent and resources of Texas A&M University into the nation's coastal areas. It is a reflection of the pursuit of excellence at this institution and the Texas Sea Grant Program."

The Center for Ports and Waterways, established in 1995 by the Texas Legislature as a consortium of coastal universities, includes the Texas A&M campuses at College Station, Galveston and Corpus Christi, and The University of Texas at Brownsville. CPW uses the expertise of multidisciplinary teams representing all perspectives of engineering, economics, marine biology and geosciences to develop practical and cost-effective solutions to industry's challenges.

—Jean O'Dette

Shoreline conference opens Nov. 14 in Houston

Shoreline Conference 2002, the second annual meeting sponsored by the Texas Shore and Beach Assn. (TSBA), opens Nov. 14, 2002, at the Hobby Hilton Hotel in Houston.

"Creating Our Future" is the theme for the conference, which concludes on Nov. 15. Sessions will include a panel discussion of establishment of a standing technical advisory committee; state and federal funding for shoreline projects; Louisiana's restoration program; Texas beach nourishment strategies; the "Savng

America's Beaches" program; and the WRDA project in Texas.

All sessions are open to those involved in coastal county and state government as well as academicians and industry professionals.

The cut-off date for hotel reservations is Oct. 31, 2002. Anyone seeking further information should contact Patricia Newwsom, TSBA Executive Director, at (713) 467-8098 or by e-mail at TSBAnet@aol.com

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*It's probably
200 years old
— give or take
a few decades
— and it most*



*certainly is nearly 2,700 feet below the
surface of the Gulf of Mexico. Still, it*



*sparked an
expedition that
brought together
academicians,
marine business
interests, represen-*

*tatives of a number of different government
agencies and the U.S. Navy. The Mica
wreck hasn't given up its secrets yet, but*

*what it has
revealed has
only whetted
the appetites of
all those
involved in the
project.*



20 COASTAL LEGEND: TONY AMOS—A BORN OBSERVER

*He is, perhaps, Texas' most well-known
beachcomber. He came to the Port Aransas
in 1976 and
discovered
Mustang Island
with its birds ...
and its trash ...*



*and its people. He's been documenting his
discoveries since then and may have the
best data every collected on the life and
times of a coastal environment.*

24 AT THE WATER'S EDGE

*Since the days of the Karankawa in the
16th Century, Aransas County has been
home to a variety of inhabitants through-
out history.*

*Today, Indians
and pirates
have been
replaced by*

*fishermen who come for a different kind of
treasure.*



FRONT COVER — SONAR IMAGES COURTESY OF U.S. NAVY
BACK COVER — ©STEPHAN MYERS

TEXAS SHORES is published quarterly by the Texas Sea Grant College Program in an effort to promote a better understanding of the Texas marine environment. Sea Grant is a partnership of university, government and industry focusing on marine research, education and outreach. Nationally, Sea Grant began in 1966 with the passage of the Sea Grant Program and College Act. Patterned after the Land Grant Act of the 1860s, the Sea Grant concept is a broad-based scientific effort to better the world for all those living in and out of the sea.

In 1968, Texas A&M University received the distinction of being named among the nation's first six institutional award recipients. Three years later the school was designated a Sea Grant College. The university has a rich heritage of oceanography research dating back to 1949 when the program began. In addition, there is an ongoing program to get marine information to the public.



Sea Grant is a matching funds program. The Texas Sea Grant College Program itself is made possible through an institutional award from the National Oceanic and Atmospheric Administration, U.S. Department of Commerce, as well as appropriations from the Texas Legislature and local governments.

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An aerial night photograph of a pipeline system. The pipeline is illuminated from above, creating a bright, glowing line that branches out. A significant leak is visible as a bright, starburst-shaped glow where the pipeline crosses itself. The surrounding terrain is dark, with some faint, textured patterns visible.

*Pipeline
to history*

BY JIM HINEY

After 18 months of study and anticipation, Toby Jones was anxious to finally see in person the archaeological mystery he first found out about through a newspaper article. He had traveled far to come to this place in July 2002, and now he had a little less than a half mile to go.

It did not bother him that it was a half-mile straight down.

There, waiting in almost 2,700 feet of water lay a shipwreck found only through the wildest stroke of luck. Whether that luck was good or bad depends on who is talking.

The vessel is a 200-year-old or so copper-clad enigma that has yet to give up many of its secrets, despite a nautical archaeological expedition that brought together academicians, marine business interests, representatives of several different government agencies and the U.S. Navy's famed NR-1, the world's only nuclear powered research submarine.

It is dubbed the Mica wreck for the watery oil field where it was found — a discovery that would have eluded scientists if the contracted survey company had not been so incredibly accurate following the proposed route of a pipeline intended to carry products from the oil field to a production platform.

Jones, a graduate student in Texas A&M University's Nautical Archaeology Program, climbed into the NR-1 for his first of two dives to the Mica wreck site. At the end of the half-mile descent, the NR-1 deployed wheels from its underside, not unlike the landing gear of a plane.

With its wheels down, the NR-1 stood just a few feet higher than the Mica wreck, allowing the sub to thrust its observation deck above the hull of the ship. Until that point, Jones had watched the wreck appear on the sub's numerous control room monitors that received images from cameras in the sub's nose.

"We were staring at the monitors in the sub most of the time, so it didn't become real for me until I crawled down into the observation area," remembers Jones, who is writing his master's thesis on the Mica shipwreck project. "We were right over the wreck, and it was a greenish white color. You could see the edges of the ship. We were right over it, looking down into the wreck and you could see artifacts. It was hard to believe we were more than half a mile deep."

His elation was tempered with frustration as he saw part of a white bowl with a green line in it lying next to a bottle inside the ship's hull.

"I was five feet from it through the sub window and I couldn't do anything," he says with an annoyed smile. "It was disappointing, but we have all of that mapped, and it's not going anywhere so we may get back to it."

If and when Jones returns, he needs to carry with him a rabbit's foot or four-leaf clover or some other talisman of good fortune because in his first trip to the site a series of mishaps allowed the Mica wreck to conceal its identity from technologically superior mariners.

Still, the researchers who were there feel that they learned much from what they believe is one of the deepest attempted excavations in the world.

Deepwater nautical archaeology may not be the fad of the future, but it certainly offers some interesting possibilities. Depths that far exceed human endurance are the domains of remotely operated vehicles (ROVs). What they lack in dexterity they make up for in pressure resistance. It is a world that allows nautical archaeology to blend with oceanography, utilizing the best of both disciplines.

High-tech commercial divers can go no deeper than about 500 feet in specially

designed suits and breathe a mixture of oxygen and other gases. Nautical archaeologists rarely dive below 200 feet. It was U.S. Navy salvage divers working with archaeologists on the surface who carried out the much-publicized recovery of the turret from the *USS Monitor* in about 200 feet of Atlantic Ocean water.

Oceanographers, on the other hand, have little experience excavating shipwrecks but they've accumulated decades of knowledge about surveying the ocean floor at great depth with a variety of equipment.

Dr. Robert Ballard popularized deepwater nautical archaeology in 1985 when he found *Titanic* in 12,000 feet of water. While not as flashy as the *Titanic*, the *Mica* wreck offered some unique opportunities to oceanographers and nautical archaeologists from Texas A&M, who submitted an excavation proposal that was accepted by the federal government.

"We frequently deep tow sonar equipment to 10,000 feet or 12,000 feet, we deploy camera systems and we've worked on ROV systems and things of that nature in the past. So from a purely logistical standpoint the project needed to be managed by people who understood what was required to work at sea on these types of boats with these types of vehicles," says Brett Phaneuf, an oceanography graduate student at Texas A&M and operations manager for the *Mica* project. "But we had to have the archaeologists there as well to provide the archaeological control. It was a great synergy. Nobody had ever done anything like that before that we know of."

To date, nautical archaeologists have shown little interest in deepwater wreck sites because excavating them is "profoundly expensive and we've been finding fantastic wrecks in shallow water," says Phaneuf. "This project presented a great opportunity for us to break some eggs and see how we would go about conducting an excavation this deep."

As Ballard's experience points out, working on shipwrecks in deep water may not be common but it certainly is not without precedence. A man by the name of Tommy Thompson set out in the mid-1980s to find the 280-foot side-wheel steamer *SS Central America* and its cargo



A side-scan sonar image shows an oil pipeline running across the middle of the Mica shipwreck. Nautical archaeologists call the placement of the pipeline a fortunate mistake since the shipwreck probably would not have been discovered otherwise.

comprised in part by thousands of freshly minted \$20 Double Eagle gold coins from the San Francisco mint.

The ship was bound from California to New York when it sank in a hurricane about 160 miles off the coast of Cape Hatteras, N.C, taking with her 426 passengers and crew and her cargo of gold coins.

Thompson eventually found the wreck in September 1987, nearly 130 years to the day after the *Central America* sank, in about 8,500 feet of water. An engineer by training, Thompson specially designed much of the equipment used to recover the coins.

A little more than three years ago, an expedition funded by the Discovery Channel and led by diving expert Curt Newport found the *Liberty Bell 7* space capsule in 15,600 feet of water in the Atlantic Ocean.

Astronaut Virgil "Gus" Grissom rode the *Liberty Bell 7* atop a Mercury/Redstone rocket for a 15-minute trip into space on July 21, 1961 — duplicating the trip taken by Alan Shepard two months

earlier when he became the first American to reach space.

The difference in the two missions was that Grissom's space capsule was equipped with a window and new type of hatch that could be thrown clear of the capsule by exploding bolts.

As the capsule splashed down the bolts blew prematurely. Seawater cascaded into the capsule nearly trapping Grissom. He barely escaped before the capsule sank.

Newport's expedition found the *Liberty Bell 7* in May 1999 using side-scan sonar equipment and ROVs provided by Oceaneering, a commercial underwater services company. Oceaneering spokesman Jack Jurkoshek points out that his company's equipment not only located the capsule, it also attached the rigging needed to hoist it to the surface.

The *Central America*, *Liberty Bell 7* and *Mica* projects differ by intent. The *Central America* and *Liberty Bell 7* were salvage jobs, albeit for different purposes. Thompson spent a decade in court asserting his right to the coins, eventually winning 92 percent of the gold that his investor group is now selling.

The *Liberty Bell 7* is in the midst of a three-year tour to 12 museums and science centers across the country.

Phaneuf says the *Mica* project is clearly and most certainly an archaeological undertaking complete with photo records and site maps noting the precise positions of artifacts within the wreck, subsequent conservation and exhibition of artifacts brought to the surface and a scholarly report on the entire project.

There is no shortage of shipwrecks in the Gulf of Mexico. The oil and gas industry has discovered between 400 and 500 wreck sites during the normal course of business while laying pipelines and installing drilling equipment. Some of those wrecks are at depths of up to 8,000 feet.

Not all of the wrecks are what archaeologists consider historically significant, but the ones that are offer scientists a glimpse into our seafaring past.

"There are no floating ships like this anymore," says Jones of the *Mica* wreck. "There is something to be learned from this wreck, we just don't know what it is yet."

Humans and ships, or at least some form of watercraft, have been inextricably linked for thousands, perhaps hundreds of thousands of years. There is evidence, says nautical archaeologist Kevin Crisman, that 700,000 to 800,000 years ago our ancestors lived on some of the islands that dot the ocean between Vietnam and Australia.

“Even if you take into account dropped sea levels due to ice ages and so forth, these islands would not be accessible unless they got there on some kind of watercraft,” Crisman believes. “The distances were fairly great, so it wasn’t a case of grab a log and float over. We don’t have any idea how they got there, but clearly they didn’t walk there. They had to float there somehow and they had to float several miles. It doesn’t seem like something that would be a casual journey. There must have been some sort of concerted effort by these people. It’s neat because it suggests that seafaring is one of the early, really complex organized activities that humans undertook.”

Crisman, who teaches courses in both New World and Post Medieval seafaring at Texas A&M, dismisses the notion that primitive humans took part in primitive Carnival cruises, although he chuckles at the thought of a prehistoric Kathy Lee Gifford dancing on the bow of a dugout canoe.

In truth, seafaring was a very dangerous business until the last 150 years or so. The invention of better aids to navigation, such as lighthouses, and self-propulsion made traveling by boat much, much safer than it had been.

Given the vast array of human technological advances, such as the airplane, cars, computers, radio and television, Crisman puts shipping and its advances as the single most factor influencing development of civilizations, although he admits his decision is a bit biased.

“Who knows if there would even be any humans in North and South America if no ships or boats had ever existed,” he says.

The prevailing theory over the past few decades has been that people walked from Asia to North America across a land bridge exposed during an era of low sea levels. In Crisman’s mind, “The problem with that theory is that this was during the Ice Age, so

there were massive areas of glaciation that were covering up all of the logical spots where they would have been walking. What’s now Alaska and northwestern Canada would have been covered by a large sheet of ice. If they walked over that, what would they have been subsisting on?”

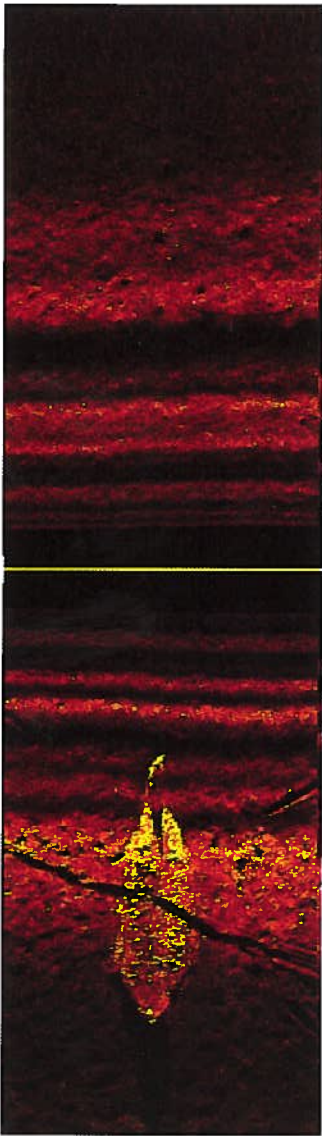
There have been theories that from time to time little valleys opened in the ice, allowing man’s ancestors to travel more easily across the ice and to find food. Crisman concedes that theory is possible “but more and more people are thinking that the earliest Americans weren’t stupid people. They were living adequately. There is nothing that would have prevented them from making boats and it would have been infinitely easier and faster to travel along the edge of these glaciers, and there would have been all sorts of resources in the sea they could have eaten. The great majority of Paleo-Indian sites are right along what would have been the coastal zones, which is where the food was. I believe they built boats, probably skin boats like native Alaskans do today. However, we may never know because those kinds of boats don’t last.”

Without doubt, ships and waterborne commerce played a significant role in building early civilizations. Nearly all of the ancient Near Eastern civilizations began on or near waterways. Crisman points out that the Samaritans lived on the Tigris and Euphrates rivers, the Egyptians lived on the Nile and the Greeks, whose empire included many small islands, were very dependent on water travel.

Shipping was not the sole reason the early great civilizations lived near water. Water is essential to all life, so naturally people gravitated toward good water supplies. The water also brought animal life that served as a source of food and provided water for crop irrigation. “But clearly, the ability to move food and goods was very important particularly to the Egyptians who needed to move bulk items, like stones used to build their monuments,” Crisman says.

A group of Texas A&M nautical archaeology students and teachers excavated a ship found in the southwest corner of Turkey in the early 1990s. The ship dated back to the 1300s and had valuable cargo on board. What was just as striking to the scientists is that

Very old men and the sea



they found evidence that cargo vessels had been in use for a long period of time prior to the 1300s.

“The consequences of ships and shipping are massive on human development if you think about where the world was 500 years ago with all of these cultures scattered throughout the world,” Crisman marvels. “In some cases these cultures were aware of each other and maybe even had very limited contact. Marco Polo was in China in the 13th Century, so Europeans were aware of China, but all of a sudden Vasco de Gama sails around the southern tip of Africa and reaches India and then within a couple decades the Portuguese are in China and all of a sudden these groups are in constant contact with each other. Our world today is based on those ships and explorers. They opened up foreign markets and imports. It was a tremendous leap in our consciousness of ourselves and our world. Think about how much has been learned in the past 500 years.”

It seems certain that economics and commerce were the major drivers behind most early globetrotting. More than mere pride and sense of adventure could persuade explorers to risk their lives in search of new lands or even venturing by sea to known lands far away. “I find it fascinating what people were willing to put up with to travel by ship,” Crisman marvels. “It was not a pleasure cruise. Reading accounts from people back then, to be on a ship for several months at a time with no place to go, does strange things to you. We were not designed to live in close proximity to others with no possibility of getting away from them.

“It was a terribly risky undertaking. We are so safety and health conscious now, relatively speaking. To undertake a voyage from Europe to China, I’m not sure I would have had the courage 300 years ago to do something like that. They faced diseases like rickets and scurvy, plus exotic diseases like Yellow Fever. Your chances of coming back were not very good.”

But the economic picture in Europe was not good, either, and the prospect of wealth outweighed the prospect of death. The Portuguese, for example, saw their sworn enemies, the Muslims in North Africa, getting slaves and goods from the interior of Africa. The Portuguese, whose tiny nation is perched on the Atlantic Ocean, believed they could also exploit the gold and ivory found in Africa’s interior by sailing down the African coast and marching inland.

The Portuguese were so successful that they kept pushing down the African coast until the 1480s when, ultimately, they reached the southern tip of the continent. They realized they could sail around Africa, opening up the East-

ern Asia markets, particularly the very profitable spice market. The Portuguese discovered they could transport far greater amounts of spices by ship than by overland animal convoy, thus beginning the country’s century-long domination of the spice trade in Europe.

As was the case with Europe and Asia, it is impossible to write the history of the New World over the past 500 years without including ships. The Spanish were the first to make it to the Americas and they found incredible wealth in the form of silver, gold, dyes, tobacco and plants like vanilla.

Crisman believes those early Spanish explorers, like Hernando Cortés in Mexico and Francisco Pizarro in Peru, did a huge disservice to many Europeans for centuries by finding civilizations that were very rich and easy to conquer. By 1600, other European countries decided that they wanted to try their hands at plundering the New World. Later explorers wrote accounts of hoping to find the same riches that the Spanish were bringing home, but few did.

“It’s the same urge that gets people to buy lottery tickets,” says Crisman. “Your chance of winning is pretty infinitesimal, but why not take a gamble. You may be the lucky one.”

American society has re-oriented itself away from the water in the past 150 years, once widespread use of trains gave people the ability to travel inland with relative ease. Today we see more cars, planes and trains than we do ships. Jump back 150 years or so, to the 1840s and earlier, before railroads became widespread, and any goods that had to move any real distance did so by ship.

Crisman refers to an equation he found in a book to describe the importance of marine transportation in the 19th Century. “One small sloop carrying 34 tons of cargo can be navigated by two men and a boy,” says Crisman. “The same load put on horseback would require something on the order of 350 horses plus the people needed to tend the horses and the food for the horses. The equation is stacked pretty heavily in favor of a ship.”

Even after railroads were established, people still relied heavily on the nation’s waterways to move commerce. The Erie Canal reached its peak traffic in the 1880s, some 40 years after the railroad boom began. The trend continues today. Far more commerce moves by ship and barge than by any other form of transportation.

“And it all began with mariners who explored new lands in hopes of finding something and persuading others to settle there and reap the harvest,” notes Crisman.

Have you ever had one of those days?

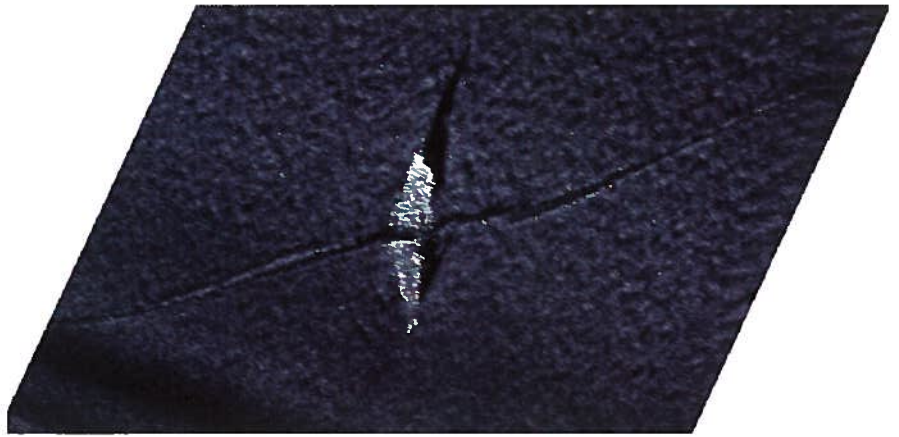
For the Mica wreck, that day began about 190 years ago, give or take a decade. What, if any, bad luck the ship experienced during her days on the surface may come to light one day if archaeologists learn her identity.

For now, no one knows for sure what this 65-foot-long ship was doing in the Gulf of Mexico about 30 miles southeast of the Mississippi River delta when disaster struck. Jones believes the ship was caught in a severe storm, although what remains of the vessel does not yield any clues to the reason she sank.

She rested in the cold and dark until early 2001, when she was run over by a pipeline in what Jones, Phaneuf and others characterize as fortunate accident.

The fortune pretty much stopped there. A series of mishaps and unforeseeable problems kept the excavation team from recovering artifacts they were depending on to help them identify the wreck. Some good did come out of the dives. Using the NR-1's cameras, Jones made a photo mosaic of the entire site, documenting the artifacts he could see. Jones and Crisman, who visited the wreck site on the sub's third and last dive, also noticed that the ship had two sets of chain plates and dead eyes — places on the hull where the lines holding the masts in place were anchored — meaning the ship most likely had two masts.

What is left of the hull (Jones believes the remains to be about 20 percent of the original ship) is clad in copper — a technique used to save the wooden hull from the devastation of wood boring marine organisms like teredo worms. Sheathing recovered from the site tests at 97.5 percent pure copper. Based on the state of metallurgy, Crisman has dated the ship's manufacture to somewhere between 1800 and 1825.



Cladding a ship in copper was tremendously expensive, so expensive that it was most commonly done by nations for their naval vessels and it was a treatment that would have had to be replaced every five years or so. But the Mica wreck does not fit any known military configuration.

Questions about the ship's identity and purpose would have been moot if not for the pinpoint accuracy of an underwater surveying contractor. Given the expanse of the floor of the Gulf of Mexico, a 65-foot boat could well go undiscovered indefinitely. But oil and gas giant ExxonMobil wanted to run an 8-inch steel pipeline from the Mica field to a British Petroleum production platform in the Gulf of Mexico.

As required by the Minerals Management Service (MMS) — the federal agency in charge of leasing mineral rights within the nation's territorial waters — the company undertook a side-scan sonar survey over the precise route of the pipeline. The surveying contractor hired by ExxonMobil had the task of checking for geologic and subsurface obstructions or features.

Side-scan sonar accurately describes the job of the machine — it scans the ocean floor to either side of the sonar equipment. By virtue of the fact that the equipment is towed about 30 feet above the sea floor, it creates a blind spot, or nadir, directly beneath the equipment.

As luck would have it, the proposed pipeline route neatly bisected the Mica wreck in very nearly the center of the ship, going from port to starboard.

“They were so precise in their positioning and running the sonar down the proposed center of the pipeline route that this wreck happened to fall right in the nadir of the

*‘One
of
those
fluky
things’*

survey,” says Dr. Jack Irion, an MMS marine archaeologist in New Orleans.

Reviews of the sonar images by both the contractor and the MMS showed nothing, so the pipeline was laid following the proposed path. A follow-up survey of the pipeline, using a video-equipped ROV, uncovered the wreck.

“It was one of those fluky things,” Crisman says as he smiles and shakes his head. “It was like laying a cable across a haystack and dropping it over a needle. The chances of laying a pipeline directly across the wreck are extremely small. They really didn’t do a lot of damage to the wreck. The sides are somewhat collapsed outward and obviously the pipeline had some impact, but it could have been much more damaging if they had run the pipeline across either end of the wreck. They could have really smashed it flat.”

ExxonMobil representatives quickly contacted the MMS and Irion.

As the mineral rights leasing agency for the federal government, the MMS is responsible for seeing that oil and gas companies comply with environmental regulations. Those regulations include protection of cultural resources — a mandate rooted in the National Historic Preservation Act.

That legislation “basically requires that every federal agency consider the effect of its permitting actions on archaeological or historical resources,” Irion explains.

For all he knew, the wreck could have been that of a modern shrimp boat, so Irion went to wreck site. The images he saw coming from the ROV’s camera left no doubt in his mind that the Mica wreck was historically significant.

Irion emphasizes that ExxonMobil followed every rule and regulation before it laid the pipeline. The odds that the pipeline would go through the middle of the ship are nothing short of astronomical. But the fact remained that this freak accident damaged a cultural resource and “we were required at that point to take action that would help alleviate or lessen that damage,” says Irion.



The NR-1, the world's only nuclear powered research submarine, takes on supplies from its tender ship, SSV Carolyn Chouest.

Officials from ExxonMobil and the MMS came up with four options — three of which involved moving or modifying the pipeline. Moving the pipeline would have been tremendously expensive for ExxonMobile and pose a danger to the wreck. Irion said he feared the pipeline could damage the wreck further if it was moved.

By mutual agreement, the pipeline stayed where it was and ExxonMobile agreed to pay \$250,000 to help scientists recover as much information as they could about the ship.

Phaneuf heard about wreck and began putting together a research proposal that brought together the expertise of Texas A&M’s Oceanography and Nautical Archaeology programs.

Phaneuf was also able to get dive time aboard the NR-1, a vessel that the U.S. Navy bills as “A one-of-a-kind submersible for one-of-a-kind missions,” says Lt. Phil Rosi, public affairs officer for Submarine Group 2.

It moves using four thrusters — two in front and two in back — and it has a manipulator arm that can be fitted with

a variety of cutting and gripping tools. The 150-foot sub carries video and still cameras, and it has powerful outside lights.

During its career the sub’s missions have included search, object recovery, geological survey, oceanographic research, and installation and maintenance of underwater equipment. Among the sub’s more well-known, and sad, missions was recovering debris from the Space Shuttle *Challenger* disaster in 1986.

“You can’t hire something like the NR-1,” says Phaneuf.

Crisman, a new world nautical archaeologist, heads the Mica Project for the Nautical Archaeology Department. He brings to the project expertise in shipwrecks that happened after the year 1500.

Dr. Bill Bryant, an expert in seafloor mapping, is leading the Oceanography Department’s efforts. For the past five years Bryant has considered a cooperative venture with the university’s Nautical Archaeology Department to create a graduate degree program in archaeological oceanography, and the Mica wreck presented an excellent opportunity to test some of his ideas.

For the time being, the situation was perfect. A fortunate accident revealed a shipwreck in deep water and the MMS needed the right scientists to study it. Scientists at Texas A&M had the skills and desire to attempt a deepwater excavation and were looking for the right wreck. By a quirk of fate, the perfect vessel for overseeing the excavation on the sea floor was already working in the Gulf of Mexico.

As Crisman puts it, “All of a sudden there was a happy conjunction of potential.”

That conjunction of potential was also very unusual for the MMS and Irion.

“We normally are not in the excavation business,” he says. “Our principle focus is management and preservation. Generally we will require that once a site is discovered it be avoided. In this case there was an unavoidable impact that occurred, so we had to respond to that.”

Unlike the state of Texas, which claims historic shipwrecks in state waters as public property, the federal government asserts no ownership over any shipwreck in its territorial waters.

“At this point they are still subject to the law of salvage and the law of finds, which is admiralty law,” Irion explains. “We don’t own these wrecks. They are not our property just as the sea floor isn’t, although we have the right to permit the extraction of the minerals underneath the sea floor. It puts us in somewhat of a difficult situation in that we don’t have a clear line of authority.”

The MMS has absolutely no authority over wrecks found by people outside the realm of oil and gas production. A case in point is *El Cazador* (The Hunter), a Spanish brig of war turned treasure ship that was bound from Vera Cruz to New Orleans when it sank about 50 miles off the Louisiana coast during a violent storm in 1783.

About 210 years later, Capt. Jerry Murphy was trawling for butterfish, a small silvery fish that gets its name from its rich taste, when his nets hit a snag. Murphy’s crew pulled the nets aboard his aptly named boat, *Mistake*, and dropped the contents to the deck. They immediately began to shout “Coins, coins.”

Murphy formed a salvage group that has retrieved and is trying to sell more than 5 tons of coins from the *El Cazador* wreck.

The timing of the Mica project was right for Jones. He had been a master’s degree student in nautical archaeology for just six weeks when he saw a *Houston Chronicle* article about the Mica discovery laying on a table. Jones was already fascinated by the possibilities of deepwater excavations and he was looking for a subject for his thesis project.

He read Texas A&M’s proposal to the MMS and noticed in it a suggestion that the final report on the excavation should be written as a master’s degree thesis. Four students applied to become part of the project “and I got lucky,” says Jones.



The NR-1, viewed through a porthole on the SSV Carolyn Chouest, is towed to the Mica wreck site.

A half mile deep

Crisman admits to being a little overwhelmed when the fieldwork began in mid-July 2002. He found himself on the *SSV Carolyn Chouest*, a massive 240-foot privately owned vessel built with the sole purpose of being the NR-1’s mother ship. The NR-1, her crew and an expensive ROV — the *Max Rover* — on loan from the Naval Oceanographic Office with three of its pilots were ready to perform the bulk of the excavation and site documentation work.

“As archaeologists, we’re used to going on a shoestring budget,” Crisman says. “We try to make the tape measures last until the end of the excavation and we use our wetsuit booties until they wear out. So it was an unusual confluence of people and technology that allowed us to use a nuclear powered submarine that was two and a half times the size of the wreck itself.”

The excavation plan was detailed: Use the cameras on the NR-1 to complete a photo mosaic. The ROV was tasked with retrieving artifacts, taking sediment samples in and around the

ship and retrieving samples of the biological life near the wreck. This was, after all, an archaeological oceanography expedition set on studying the wreck’s impact on the surrounding environment as well as studying the wreck itself. Sediment samples from inside the ship could yield pollen that would identify organic cargo onboard.

Retrieving artifacts was key to identifying the wreck. Regardless of whether it was a Navy ship or a commercial craft, the fact that it was clad in expensive copper meant someone valued it more than an ordinary ship of that time.

“We were hoping that its loss would have been recorded somewhere,” says Phaneuf. “We had a lot of confidence that if we could get some artifacts up, we could constrain the dates a little more tightly and get a name on the ship. Unfortunately we did not have that much luck.”

Jones accompanied the NR-1 on its first dive — a 30-hour mission to make a photo mosaic of the site and complete a side-scan sonar survey to make sure

there were no obstructions that could foul the sub's props or be a hazard to the ROV.

Working from the sub's control center, the size of which Jones likens to the inside of a Winnebago, the crew deftly landed the NR-1 on its wheels a short distance from the wreck and then drove it to the site. Once photographing was complete, the crew floated the sub to a different quarter of the site and completed the maneuver again.

From his perch in the observation area, Jones looked down into the wreck and saw a literal boatload of artifacts.

After the first dive, the decision was made that Jones would go along on the second dive and observe while the ROV was deployed to collect artifacts. As the sub landed near the wreck, Jones was amazed by the crew's navigation skills.

"These guys were so good that they put us in the tire tracks we made during the first dive," he says with a bit of awe still in his voice.

His excitement was short lived. Not long after the NR-1 landed on the sea floor the crew learned the *MAX Rover* ROV had been destroyed. For some unknown reason, the pilot lost control of the ROV and it was pulled into the *Carolyn Chouest's* spinning propellers. The NR-1 was recalled to the surface.

That accident ended any possibility of getting sediment and biological samples and of retrieving small artifacts from inside the ship. It seemed the ship's bad luck was beginning to rub off on the excavation team.

The ROV had been scheduled to remove the stern post from the back of the wreck. Although the rudder was long since gone, the archaeologists wanted to retrieve the gudgeons attached to the stern post. Gudgeons were metal loops that held the rudder in place and allowed it to pivot. More importantly they were most likely made of brass or a similar metal and probably had a maker's mark stamped on them. Finding a maker's mark would be a valuable clue in determining the ship's identity.



The cockpit of the NR-1 (top and center) is packed with sophisticated electronics that aid scientific research. One of the sub's video cameras catches a crab fight at almost 2,700 feet below the surface.



The excavation team decided that the NR-1 could probably retrieve the stern post and they sent Crisman down with the sub. In a maneuver that Crisman characterized as "ballet movements with a 400-ton vessel," the crew hovered above the wreck and gently let it drift into the sternpost, knocking over a four-foot section.

Then the crew used the sub's manipulator arm to grab the piece and remove it from the ship.

"If you had divers on the site working with tools, I don't think they could have done a smoother job removing the sternpost," says Crisman.

During portions of his dive, Crisman

shared Jones' sense of frustration as he looked through the sub's observation portholes into the wreck.

"I'm used to getting down there and digging in the mud to get my hands on the artifacts," he says. I knew if I could do a little digging and a little measuring we could learn something about this site. It's amazing how much of archaeology is tactile."

It is always dark when you are 2,700 feet deep in the sea. By an unfortunate coincidence, it was dark on the surface when the sub completed its mission at about 3 a.m. The divers needed to remove the sternpost from the manipulator arm and place it in a crane hoist,



The MAX Rover remotely operated vehicle, or ROV (upper left), was tasked with performing the vast majority of artifact retrieval. The excavation had to be scaled back significantly after the MAX Rover was accidentally pulled into the propeller blades (like those pictured top right) of the SSV Carolyn Chouest. The only remnants of the ROV were a mauled piece of Styrofoam (above) and a sliced umbilical cord (left).

Sustainable Seas Expeditions (SSE) to the pair of coral reefs that form his sanctuary about 100 miles offshore from the Texas-Louisiana border.

Schmahl had learned of the Mica wreck from Phaneuf months earlier, while the pair stood around the 2.6 million gallon wave tank at the Offshore Technology Research Center based at Texas A&M. They were watching people train to pilot the *Deep Worker* and the *Deep Rover* — one-man submersible vehicles that are the keys to the SSE.

Developed by Earle, the SSE is a partnership between the National Geographic Society and the National Oceanic and Atmospheric Administration (NOAA), and specifically with NOAA's National Marine Sanctuary Program.

The SSE comprises five years of underwater exploration and discovery in the marine world with special emphasis on the country's national marine sanctuaries.

Schmahl and Earle, the National Geographic Society's Explorer-in-Residence, were fascinated by Phaneuf's description of the Mica project. NOAA and the National Marine Sanctuary Program in general have made submerged cultural resources an important focus in recent years, says Schmahl. "Other sanctuaries are dedicating many resources and much effort toward studying submerged cultural resources," he continues, pointing to the work being done on the *Monitor* as an example.

but they could not do their job in the dark. Crisman and the rest of the NR-1 crew were forced to wait on the sea floor for light to break at dawn.

They began their ascent at about 6 a.m. and were within 150 feet of the surface when the sub lost hydraulic power to the manipulator arm.

"The arm went like this," Jones says as he gestures with his hand to mimic a mouth opening. "The whole four-foot piece drifted off into the ocean."

Its relatively flat profile acted like a wing. Despite weighing an estimated 200 pounds, the piece did not sink straight to the bottom. Instead it wafted downward like a leaf falling on a breezy day.

With the sub's manipulator arm inoperative, the mission ended and the team returned to shore with a promise from the crew that the sub would search for the sternpost once the hydraulic problem was fixed.

They lived up to their word, but the run of bad luck continued. The Navy's Lt. Phil Rosi said the NR-1 and its crew was unable to find the sternpost and they are not planning to return.

Disappointed but not defeated, Irion turned to G.P. Schmahl for help. Schmahl, manager of the Flower Garden Banks National Marine Sanctuary, was preparing to welcome famed ocean explorer Dr. Sylvia Earle and her



A manipulator arm holds a measuring pole next to the ExxonMobil pipeline (top) that instigated study of the Mica shipwreck. A video camera (bottom) captures footage of the wrecked ship's sternpost. A four-foot section of the sternpost that was removed from the boat was lost due to hydraulics problems before it reached the surface.

“But we did not intend to study or explore this particular shipwreck at the time,” Schmahl remembers.

Ironically, it was bad luck that led Phaneuf, Earle and Schmahl to meet at the wave tank. If the SSE had gone according to plan, Earle would have finished her exploration at the Flower Garden Banks in 1999. She accomplished a couple of dives then but bad weather forced her to scrap most of that project.

The SSE returned to Schmahl’s sanctuary in 2001. On the day the expedition was scheduled to leave port, Tropical Storm Allison brewed up in the Gulf of Mexico. In 2002 the SSE was going to concentrate research on the northern Gulf of Mexico, looking at a series of geologic features along the continental shelf between Florida and Texas, including the Flower Garden Banks.

Earle, Schmahl and the SSE docked in New Orleans on Aug. 8 to take part in a public event. During their stay, Irion contacted Schmahl and asked if the SSE would consider diving on the Mica site.

“They had just come back from their

mission with the NR-1 and they had a series of problems that prevented them from finishing their work there,” says Schmahl. “The specific thing they needed was collection of some artifacts that would help them positively identify the wreck.”

The *Deep Rover* was the best choice to accomplish the mission. It could dive to 3,300 feet, it is equipped with a manipulator arm and it carried collection baskets. Given NOAA’s interest in submerged cultural resources, Schmahl saw an opportunity to foster relations with the MMS and the respected nautical archaeology program at Texas A&M.

“We happened to be there at the right time with the technology needed to help them out and we were happy to do that,” says Schmahl.

Fortune was once again fleeting. The ship carrying the submersibles developed mechanical problems and could not be fixed before Earle was forced to leave for scheduled dives in Mexico. She had hoped to visit the Mica site in early September, when the SSE was scheduled to pass back through the northern Gulf of Mexico, but further ship problems ended the SSE’s work this year.

Phaneuf continues to pursue options to explore the Mica site further and retrieve artifacts. The wreck is located beneath a section of the Gulf of Mexico that is fairly heavily traveled by work and crew boats heading to and from offshore drilling operations. Phaneuf is in talks with two oilfield service companies about getting port bound boats carrying ROVs to stop at the wreck site for six or eight hours and try to retrieve artifacts.

So far the project has cost about \$350,000, says Phaneuf, and there is no way of telling how much more will be spent before scientists unravel the mystery of the ship’s identity, but it is money well spent.

“This is not just a boat with a pipeline through it,” Phaneuf explains. “It is a boat that tells us something about how they constructed ships. The construction of the ship will tell you a lot about the development of technology. Historically, and even today, ships tended to be the highest tech pieces of equipment on the planet. The latest, greatest and most technological developments went into ships because they traveled in a harsh environment and were the economic backbone of the country.”



Dr. Donny Hamilton holds a piece of the wood from La Belle. The reconstructed hull sits behind Hamilton in a specially constructed vat at the Conservation Research Laboratory.

High tech, low tech, no tech

Dr. Donny Hamilton walks through a converted firehouse at Texas A&M's Riverside Campus casually pointing at bits of history submerged in an assortment of water-filled tubs and laying on work tables. There are iron artifacts, encased in concrete-like blocks, from Hamilton's decade long excavation of Port Royal, Jamaica, once known as the "Wickedest City on Earth" before an earthquake plunged two-thirds of it underwater in 1692.

In another room, pieces of a coal car from a mine in California wait to be reassembled.

Remnants of flintlock guns taken from the wreck of what was probably a Texas Revolution era gunrunner discovered at the bottom of Matagorda Bay keep a graduate student's attention in an adjacent building.

"People send their most difficult stuff to us," says Hamilton, head of the university's nautical archaeology program, with more than a touch of pride in his voice.

Using a combination of high tech,

low tech and no tech tools, Hamilton has built Texas A&M's Conservation Research Laboratory (CLR) into the nation's foremost facility for conserving artifacts. Although the lab specializes in conserving artifacts that have been underwater for a great number of years, it occasionally takes on more terrestrial artifacts like the coal car.

A large outdoor tank, now covered by what was intended to be a greenhouse cover, holds perhaps the lab's most prized restoration project — what's left of the hull of the French explorer La Salle's personal ship, *La Belle*.

If and when the Mica wreck yields any artifacts, they will be brought to the CRL.

Counting individual beads and lead shot, CLR staffers have conserved more than 1 million artifacts recovered from *La Belle* during one of the state's more interesting excavations. A huge two-walled cofferdam was erected around the ship, which was mostly submerged in the mud about 12 feet under the bay's surface. Archaeologists then pumped

the water out of the cofferdam and undertook what was essentially a dry land excavation in the midst of the bay.

The last thing they did was dismantle the last vestige of the hull, cataloging each piece, and transport it to the CRL. There, Hamilton's staff of conservators cleaned and reassembled about 95 percent of the hull as excavated. The remaining 5 percent comprises what Hamilton characterizes as "fragmented planks."

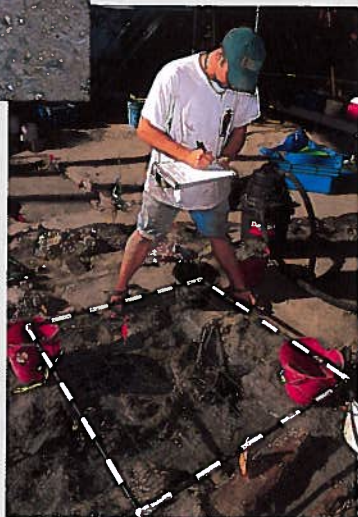
"There may not be enough fastener positions left on those pieces to put them back very well," he says. "Other pieces may have broken up during transportation so you are having to take these individual chunks and put them back together like a jigsaw puzzle."

For the time being, *La Belle* remains submerged, waiting for Hamilton to find funding to purchase the chemicals needed to finish treating her hull.

Funding, or the lack thereof, is the one constant at the CLR and, for that matter, throughout the field of nautical archaeology.



A cofferdam (top) held back the waters of Matagorda Bay, allowing archaeologists to excavate La Belle on dry land. Human bones (left) were among the artifacts recovered from the French explorer La Salle's flagship. A member of the excavation crew (below) makes notes after the bones were found in a marked grid.



“Nobody can afford conservation of artifacts from a shipwreck because it gets extremely expensive over the long term,” Hamilton says. “The way we are able to accomplish a lot of what we do is by getting donations from sponsors like chemical companies and then by incorporating the conservation into the academic program of Texas A&M. When I teach advanced conservation classes I have the students work on the artifacts from the different projects sent to us. This gets the artifacts treated with essentially no labor cost and the students get training in working with real artifacts.”

The CRL is a testament to Hamilton’s frugality and panhandling skills. Virtually all of the furniture, shelving and equipment in the lab came from the university’s surplus equipment department or from corporate donations. Equipment and systems that were not specifically designed for conservation work were modified to meet a need. For instance, donated Water Piks clean dirt from artifacts instead of loosening plaque-causing deposits from between teeth.

“To be a conservator around here with the type of materials we have to work with you have to be an electrician, a plumber, a mechanic, a chemist and an archaeologist,” says Hamilton. “All of these skills are rolled into one because with the budget we have we never have enough money to treat everything we have, so we have to stretch every dollar we have. We buy the component parts and tweak things to meet our needs. We do almost all of the fabricating around here to get it done as efficiently as possible.”

Artifacts from *La Belle* pose more difficult problems than those likely to be retrieved from the Mica wreck, both in type and amount. Copper and other non-ferrous metals used to build the Mica ship, as well as ceramics like the bowl that Jones spotted, survive well and need minimal conservation.

“In a marine environment the metal that survives the best is gold,” says Hamilton. “After gold is brass and bronze. After brass and bronze is copper. Next comes lead and pewter but iron is way on the bottom of the list. The copper in the Mica wreck seems to be in good condition.”

Conserving iron artifacts (*La Belle* yielded many of these) is a much different story. They are almost always encased in amorphous masses of minerals called “concretions,” a fitting term because they look like chunks of concrete. Concretions comprise the

minerals in the surrounding water and the byproducts created as the original metal corrodes.

It is the seawater and its effect on man-made objects that sets nautical archaeology apart from other archaeological disciplines, notes Hamilton.

“Nautical archaeology is the only branch of archaeology that is totally tied to the conservation laboratory. You cannot do the archaeology without the conservation laboratory,” Hamilton asserted. “You can go out and dig a land site, get the artifacts, identify them, take photographs and analyze them without doing much conservation.”

Conserving wood takes by far the most time. After hundreds of years underwater, water is about the only thing holding the timbers together. If they were exposed to air and allowed to dry, the timbers would most likely shrink and shrivel into nothing.

To preserve the wood, conservators must immerse the timbers in any one of several substances that will replace the water and stabilize the wood. *La Belle*'s hull is in the final stages of conservation. It awaits a long bath in the stabilizing chemicals. Depending on the chemicals that Hamilton uses, the hull will take three to five years to stabilize. After that it will take a full year for the hull to dry before it is sent to the Bob Bullock Museum in Austin.

Hamilton does not foresee having to change conservation techniques when dealing with artifacts from a deepwater wreck because there are no hard and fast conservation guidelines for any artifact in the first place.

“We have to adjust to the artifacts from any given wreck,” he explains. “We can't determine beforehand the technique until we see the artifact.”

That said, Hamilton believes wood from deepwater wrecks will survive better than wood from shallow wrecks because the organisms that normally break down wood are virtually non-existent at great depths.

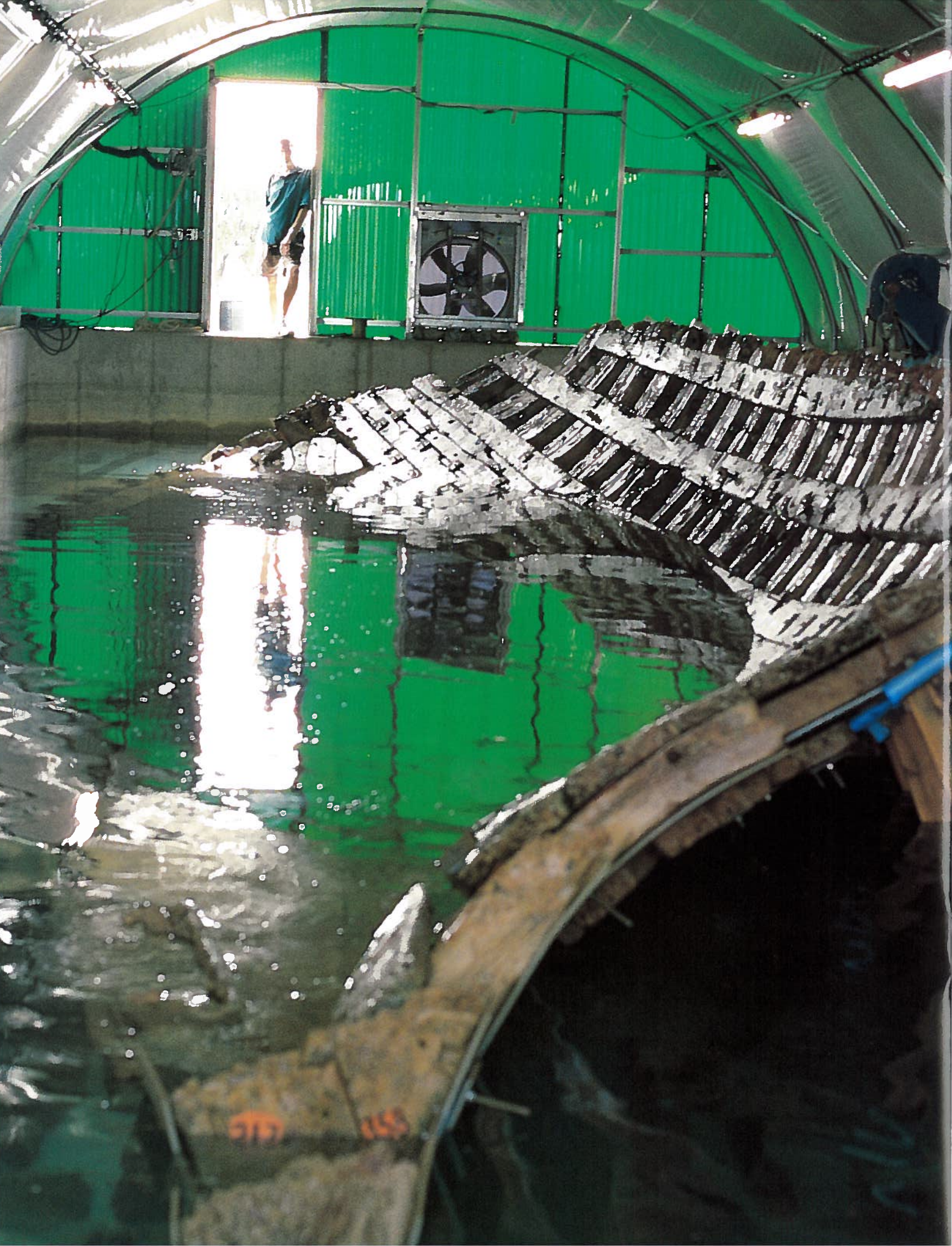
For Hamilton, deepwater wrecks pose a more important question than how to go about conserving artifacts.

“It opens up the question to what degree is it really archaeology when you have a wreck that is 4,000 feet or 8,000 feet deep?” he asks. “All you can do is go down there with an ROV and selectively pick up things. From my eye, I don't know whether this is really archaeology or not.”



Graduate student Toby Jones (top) looks over artifacts from the Mica wreck site in the Nautical Archaeology Department's Ship Reconstruction Laboratory. Conservator Dr. Helen DeWolf uses a magnifying glass to examine a fabric button recovered from La Belle.





Hamilton's uncertainty is well-founded. Scientists who take on deepwater wrecks do not strictly adhere to the doctrines of either nautical archaeology or oceanography. Instead, they must combine the best traits of both disciplines, becoming what Texas A&M's Dr. Bill Bryant calls archaeological oceanographers.

Bryant hopes to formalize that discipline in the next year or so by working with the university's nautical archaeology program to create master's and doctoral degree programs in archaeological oceanography.

The proposal must be approved by the university's administration and the state's Higher Education Coordinating Board, but it could become the first program of its kind in the country.

"The program will focus not only on what cultural materials in the seas can tell us about man's history, his use of the oceans, development of marine technology, development of society and of commerce, but also what can we deduce from these wreck sites about the ocean itself," says Phaneuf, one of two Texas A&M graduate students who are informally studying archaeological oceanography.

"We've got great temporal indicators if we can determine when these ships sank. We can study the growth on them — we can study them chemically and geologically. We can study the wrecks as part of the ocean itself, as an indicator of what has been happening in the ocean since they were deposited on the sea floor. It is also important to keep students in oceanography abreast of these things because as oceanographic researchers or energy industry professionals working out in the field, they may come across shipwrecks from time to time and they need to know what to do with them. The oil industry spends more money and more time on the sea floor I would think than every other major research institute combined. They have the financial imperative to be out there."

All of the oceanographers graduating from Texas A&M must train in four basic disciplines: chemical oceanography, physical oceanography, biological oceanography and geological oceanography.

Archaeological oceanographers will specialize in the geological oceanography because that discipline concentrates on studying the ocean floor.

Bryant believes archaeological oceanography will be a popular degree.

"Everyone wants to be an archaeologist," he believes. "It is a fascinating field, but the number of jobs is restricted. The other field is oceanography and obviously that is a fascinating field. So we are taking two interesting fields and combining them. It is a double attraction, there is no doubt about that.

"Even if the degree program doesn't get approved, we will still do what we are doing now: Trying to get archaeologists to come here and get an advanced degree in oceanography or getting oceanographers to go to the Nautical Archaeology Department to get an advanced degree."

Archaeological oceanography promises a holistic approach to studying objects on the sea floor — an approach that could save consumer dollars. Bryant's vision of the profession includes study of the organisms that inhabit deepwater wrecks and other man-made objects on the sea floor.

The floor of the Gulf of Mexico is fairly barren. Organisms that like to grow on firm structures gravitate toward the only hard substrate available — artificial reefs usually formed by shipwrecks or oilfield equipment.

Further study could prove that submerged oil and gas production equipment provide beneficial habitat for marine organisms. If that is the case, the government may relax or eliminate its requirement that energy companies go through the costly process of removing all of their production equipment when they abandon a well.

Bryant's proposed archaeological oceanography program will concentrate on the marine environment, particularly in the Gulf of Mexico and the Caribbean.

"There are a lot of interesting things in the Caribbean because of the old trade routes," he says. "There are a lot of people going out commercially now and looking at wrecks with ROVs. They want the gold. The only thing that restricts us is the cost of going to sea and doing deep sea research. If you use a submersible like the SRV Alvin in which bottom time costs \$10,000 per hour, I don't care what you are doing, it is going to cost you between \$20,000 and \$30,000 per day. If you blink too much, you've shot a couple hundred dollars."

A different degree of training



Graduate students Brett Phaneuf (left) and Toby Jones stop to look at a custom built scale model of La Belle on display at Texas A&M University's Nautical Archaeology Department.

Copper vs. cash

Despite the lack of artifacts, Toby Jones says he has learned much from the wreck that is the focus of his thesis project.

“Most likely, because of its location, it was sailing to or from New Orleans — we’ve assumed that much,” he says. “Because it was a coastal trader it was probably sailing from Galveston or Mobile, Ala. The fact that it’s copper clad makes it almost certainly a seagoing vessel. You would not have needed that copper cladding in freshwater. The

copper cladding is also very unusual because of the expense. It would be like chroming your entire car.

"I think it was a commercial boat that got stuck in a storm. It probably was not carrying a basic cargo. I think it was carrying a commodity or special goods like manufactured goods from New England."

Is that bit of conjecture worth \$350,000?

"You can make the money argument about any archaeological excavation," says MMS marine archaeologist Dr. Jack Irion. "The truth is that these sites are part of our history. They are part of who we are and what made us this way. Just look at the outcry when the Taliban started destroying Afghanistan's cultural heritage. Those were things that were lost forever."

There will certainly be deepwater wrecks that scientists will want to pursue, Crisman adds. For example, one of his fellow nautical archaeologists at Texas A&M, Dr. Shelley Wachsmann, is interested in finding a ship used by a wave of waterborne invaders who attacked the Middle East and Egypt between 2,500 BC and 3,000 BC.

"These people show up in hieroglyphics. They are very mysterious. Where did they come from? What compelled them to invade Egypt in the first place?" Crisman asks. "If you found a shipwreck site like that where you could look at the ceramics and determine where they were from, it would have the potential to tell us so much about a period or a ship technology that we know so little about. I think that is a justifiable thing."

Crisman concedes that there will always be a segment of the population — like the average guy who goes to work at a bank every day — that sees no need to spend money on archaeological research.

"Life didn't just appear here," says Crisman, countering the arguments of the mythical bank worker. "The planet didn't begin the day you were born. It has been going on for eons and we can learn something about it. A big part of what we need to do more of here is reaching out and getting this information to as many people as we can. It's tough because it's a busy world out there and now with cable and the flood of information to digest we still have to reach as many people as we can."

Our information-on-demand mentality

may relegate modern society to a vast black hole in history. Communication has become cheap and immediate at the expense of permanence. The 19th Century saw the advent of pulp-based paper that was fantastically cheaper than paper made from cotton or linen but also far more fragile because of its high acid content.

Pages from a 300-year-old manuscript are still crisp while those in a 100-year-old document crumble at the slightest touch. Computers and their constantly changing software have compounded the problem.

"We may find that our long-term imprint may be less in the big picture than people who lived 500 years ago or 3,000 years ago," envisions Crisman. "A lot of what we have is so ephemeral. Think of the eight-track tapes that you sold in a garage sale 20 years ago. All of the work I did on my dissertation was on a Macintosh 612K. I still have the disks but I'm not sure I can even open them anymore."

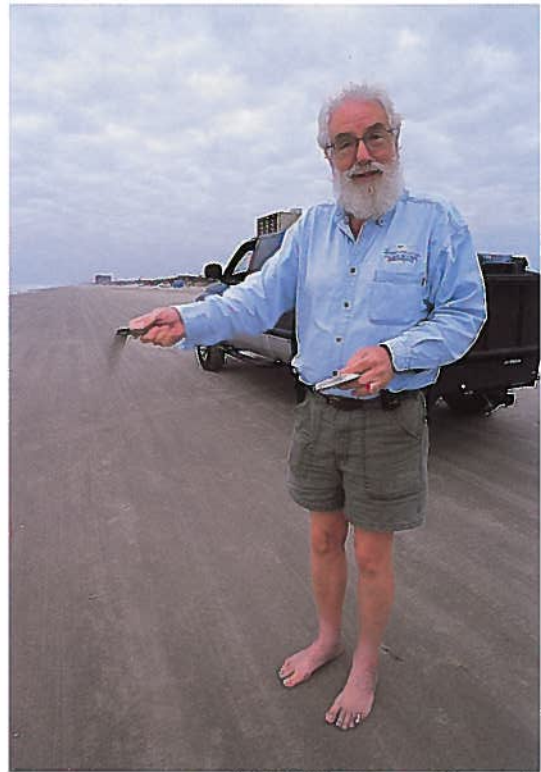
"In all of human history, the question every generation asks itself is, 'Why are we here, where have we come from and where are we going?' It's like we're sailing along in a rowboat. We row along but we can't really see where what's ahead except for some glances over our shoulder, but it is hard to get a distinct sense of what's ahead of us. We really see what's behind us and we have to use that to try to steer ourselves. We have to use our experiences from the past to try to steer ourselves in the future," Crisman believes. "Ultimately, we are studying people here. We may work on studying ships, but it really comes down to studying people. The more you study people, the more you realize that every generation lives through a lot of the same experiences. We only live for a finite amount of time before we die. We can pass along a certain amount of our experiences but a lot of the stories don't get passed along. Writing in human history is pretty recent. My focus is the past 500 years and there is so much that went on that didn't make it to writing."

"How does this make the jump to the guy in the bank?" Crisman asks. "He may not care but I think part of being a healthy society is to ask these questions, answer them to the best of our ability and try to share them with people to the best of our ability. We are not going to reach everybody, but the more people we can reach the better." ■

Coastal Legend: Tony Amos

A born observer

BY JIM HINEY



The blue pickup truck pulls off the last bit of pavement that is Beach Access Road 1 and onto the shoreline of Mustang Island, coming to a stop well within view of the forest of hotels and condominiums on the eastern edge of Port Aransas.

Its sole occupant steps barefoot onto the sand on this mild February 2002 morning, his white hair and abundant beard blowing in the sea breeze as he flashes an impish grin. He could easily be mistaken for Santa Claus — that is if Santa was a strapping 6 feet plus tall and spoke eloquently in a rich English accent.

Tony Amos has arrived to conduct his every-other-day survey of the 7.4-mile stretch of beach between Beach Access Road 1 and Beach Access Road 1A to the west. It is a trip he has made more than 3,300 times in the past 24 years.

The Spring 2002 issue of Texas Shores featured three of our State's Coastal Legends. This series continues in this issue with Tony Amos. Others will follow in future editions.

Just as Santa embodies the spirit of Christmas, Amos is the spirit of this beach.

Dressed in a blue oxford shirt, with “Palmer Station, Antarctica” emblazoned on the left chest, and olive drab shorts, Amos looks more like a beachcomber than a self-taught, well-respected scientist whose work has taken him to every ocean in the world and to Antarctica on an almost yearly basis since the 1960s.

It is 8 a.m. and Amos (who turned 65 in September 2002) is anxious to start his two-hour survey before returning to his job as senior research associate at The University of Texas Marine Science Institute in Port Aransas.

He drives at a snail’s pace, his right hand on the steering wheel and his left hand occasionally typing on an antiquated computer balanced on his knee. Amos slows and points out a bunch of Valentine roses left in a wet heap on the beach.

“What shall I call it?” he asks himself almost under his breath. “I’ll call it ‘Veggie.’”

“A sad bunch of Valentine roses lying limply on the beach,” he says while typing the same thing on the 24-

year-old Hewlett-Packard 75D that he has owned since 1984. This is a wordy entry for a man who tries to be “as efficient as possible” when recording his observations. The computer has only 24 K of memory and 13 K of that is taken up by the computer program Amos wrote specifically for his beach survey.

Accuracy counts as he records observations in more than 100 categories of items. Amos programmed his trusty Hewlett-Packard so that a single tap on a particular key records the sighting of a human (broken down into singles and couples), a particular species of bird (he was the first person to record a Stejneger’s Petrel in the Atlantic Ocean region, which includes the Gulf of Mexico) or a type of trash (glass bottles on the beach make him question human intelligence).

A few more finger strokes add notes about circumstances and behaviors. “I’ve seen people doing things that you don’t want to talk about in family publications,” he says with a bit of a frown.

At every one-mile interval he measures the beach width. His data show that he has walked more than

1,600 miles “sideways” from the surf to the dunes. “You know, I hold the world’s record for walking sideways on a beach,” he beams.

At the midway point in his survey, in the shadow of the Gulf Shores condominium, he measures humidity, wind speed and direction, and the surf’s temperature and salinity. Every now and then along the breadth of the beach, Amos runs into an old friend.

“That’s Hook Foot,” he says as he spots a laughing gull with no foot at the end of one leg.

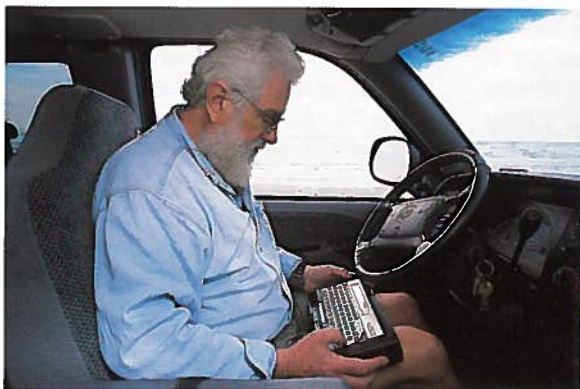
“No, it’s his left leg (missing a foot),” Amos corrects himself. “That’s Left Hook Foot.”

Despite the wide variety of his observations, Amos is best known for cataloging the type and amount of beach trash — whether left by revelers or washed in with the tide — on his adopted stretch of beach. His reputation as the beach trash guru unfairly one-dimensionalizes a man who is “very intelligent and very committed to the work he’s done,” says Andi Wickham, who met Amos 13 years ago when she began working at UTMSI as his research assistant.

Wickham is now the rehabilitation coordinator of UTMSI’s Animal Rehabilitation Keep, also known by the descriptive acronym “ARK.” The ARK is an Amos idea that was born out of his beach survey.

“I started finding injured dolphins, turtles and birds,” he says. “Because we had the beginnings of a facility here (at UTMSI) in the form of some tanks that had not been used in a long while, I started to rehabilitate the animals and the ARK grew from there because we got more and more animals coming in. They were not only the ones I found but also the ones that people called up and told us about.”

Amos has an endearing sense of humor



Amos records his data on his 24-year-old “laptop” as he drives down the beach.

that Wickham describes as a “very British, dry sense of humor,” which is evident in the running commentary he keeps throughout his beach survey.

“Somebody’s shoes — it’s a very common thing,” he says as he stops to take a look at a pair left in the sand. “Those won’t fit me.”

Though brilliant, he is “scattered at the same time,” says Wickham.

“I remember one time he walked up to me and said, ‘Andi, would you get a set of my keys from (his wife) Lynn and go down the road? I locked my keys in my car and, by the way, you might want to hurry because I left the motor running.’ That was a typical Tony comment because it was very nonchalant and very matter-of-fact.”

He is graced with a quiet charm and inner confidence that draws people to him, making him a natural teacher. Always in the middle of one project or another, Amos is seemingly never too busy to answer questions from the countless people who stop him on the beach or spot him in area businesses.

“He has a very sensitive kind of naiveté to him, too, more than most men I’ve met,” says Wickham. “He has an innocence that you wouldn’t expect from someone who has done the traveling and work that he’s done in every ocean in the world.”

Amos is affable and genteel, but long-time friend and marine mammal stranding veteran Linda Price-May says he “doesn’t suffer fools very often” — even if every so often he feels he is the fool.

As the survey continues on this February morning, Amos hurriedly corrects an error he made while counting shorebirds wading in the surf. “That’s not what you wanted to do, you twit,” he reprimands himself.

He has published scores of scholarly papers on a variety of subjects (he characterizes his research interest as being “all over the place”) and his fellow scientists speak of his work with the respect accorded the most prominent Ph.D.s

Yet Amos never earned a doctorate, or a master’s or bachelor’s degree for



For all his joking about holding the “world’s record for walking sideways on a beach,” Amos may have the most accurate and complete data available on Mustang Island.

that matter — a fact that greatly surprises most people.

“It never crossed my mind that he wasn’t a Ph.D. until one time, during the stranding of a dolphin, I referred to him as Dr. Amos,” remembers Price-May, who is now the Corpus Christi Region coordinator of the Texas Marine Mammal Stranding Network. “He corrected me immediately.”

Amos admits that he used to think about pursuing a college education but it never fit in his busy schedule. “I decided after awhile that I probably would never actually go and get a degree. I spend all of my time measuring the ocean and the environment.”

Tony Amos was born in London and at 17 left England with his father, his younger sister and a brother after his mother’s death. The family moved to Bermuda where his father, a television engineer who had worked with the famed Scottish television pioneer John Logie Baird, worked on a project to build projection color televisions for the masses — a lofty goal in 1954.

“It was going to hang on the wall, sell for \$300 and be really cheap,” says Amos, who originally wanted to follow in his father’s footsteps. “In the 1950s we didn’t have foresight into the future, but that was actually the basis of Sony’s color projection television.”

While in Bermuda, Amos befriended oceanographers from Columbia University who frequently conducted research in the waters around the island using their three-masted schooner *Vema*. The *Vema* was the fourth of five progressively larger yachts built for wealthy financier E.F. Hutton. By a quirk of fate, the fifth yacht — a wedding present from Hutton to his bride, Marjorie Merriweather Post — would affect Amos’ life decades later.

The color television project did not succeed in Bermuda and by the early 1960s Amos grew tired of working in television there. He accepted an invitation from his oceanographer friends who felt certain that, given his background in electronics, they could get him a job on one of the university’s research ships.

“It was the beginning of an era where scientists in oceanography were using electronic data gathering techniques instead of more manual methods like simple thermometers,” Amos says. “I already had a beard at the time I went in for my inter-



Amos peers into an ice formation in Antarctica during a recent trip. Antarctica was the site of his first research voyage and he has returned frequently since the 1960s.

view. The gentleman interviewing me said, ‘You look like an oceanographer. Where would you like to go? The Indian Ocean or the Antarctic?’ I chose the Antarctic and I’ve essentially been going there ever since. I had an opportunity to work with some of the first electronic instruments used in oceanographic work to measure temperature, and salinity at great pressures.”

When Amos eventually did sail to the Indian Ocean a few years later, it changed the course of his life. Several hundred miles off the coast of India the ship he was on encountered a phenomenon that Amos describes as “a great front in the middle of the ocean.”

“It was calm weather and a calm sea and all of a sudden there were waves breaking and biological activity and floating things like Coca-Cola bottles and debris and natural stuff and sea snakes. It was amazing,” he says with an excitement that has lasted 40 years. “It was a front between some really fresh water from the great river systems of India — but it was way out in the Indian Ocean, hundreds of miles out to sea — meeting the more salty water of the Indian Ocean and creating a very interesting biological situation. I did lots of measurements across the area. The chief scientist on that cruise said, ‘Why don’t you write about it?’ I said, ‘I can’t, I’m just a technician.’ He said, ‘Well, I

encourage you to write it up.’

“I did and I gave my first paper at an American Geophysical Union meeting in Washington, D.C., in 1965 or 1966. From then on I decided that I could not only measure the ocean but I could perhaps try to understand what the measurements meant.”

Amos spent 14 years working for Columbia University and its Lamont Geological Observatory (now the Lamont-Douherty Earth Observatory). He left the university in 1976 because his wife, Lynn, had an opportunity to work for her former boss, Dr. Oswald Roels. At the time, Roels was the director of a small research center located in a sleepy Texas fishing town called Port Aransas.

“As I had made all of the decisions in our lives at that time I thought, ‘Alright, we’ll go to Texas,’” Amos remembers. “I will admit that when I first came here I was not too happy with my decision to leave. The Lamont Geological Observatory was located on the palisades — big cliffs overlooking the Hudson River north of New York City. We had hills and trees and snow. We had seasons. I rather liked all of those things. When we came here we had no hills and no trees. We did have seasons, but there were only two of them.

“I wasn’t too happy with what I saw here,” he continues. “But I got to know some people here and they convinced me

to stay and it is probably the best decision I've made. I soon learned that this is a real dynamic environment and it is vulnerable to certain things. I felt that perhaps I could contribute to the well-being of this place by beginning to understand what makes it work."

Birds were a good place to start.

During his time in New York, Amos was fond of taking morning strolls through the forest near the university to birdwatch. It was during these hikes that he began taking along a notebook and recording his observations. Almost 300 notebooks now fill a glass cabinet in his office.

"I knew there was beautiful bird life here, more variety than in the northeast," says Amos. "The problem was how to go and observe them in the early mornings. I started by going out in the tidal flats but there were too many birds all scattered about. Then I discovered the shoreline, where the birds were rather neatly stacked up along the edge of the beach. They were quite countable."

For most of his life, Amos has been intrigued by change over time, particularly the passing of seasons. "It is the passage of the seasons that make the quality of life as we know it," he says, quoting his favorite portion of Nathaniel Bowditch's early 1800s text, *American Practical Navigator*.

Transitioning seasons cause some birds to go through different plumages and stimulate others to come and go. Human encroachment, especially in the coastal zone, also causes changes — usually ones that threaten the natural environment.

In April 1978 it was "pretty obvious, with all of the 'For sale' signs going up near the beach, that this place was about to be developed. So I decided I would make it a more formal scientific endeavor, but it is still enjoyable."

His survey soon expanded to include people, cars, dogs and even helicopters that, in the heyday of the offshore oil industry, frequently buzzed the beaches prompting migration-weary birds to take back to the sky. The oil bust of the mid-1980s brought about a bit of revenge for the birds.

"My study has shown the demise of the helicopter as a coastal species, although since the inception of the Ingleside mine warfare facility (near Corpus Christi) and certain recent events, we've

seen more helicopters," he says, smiling broadly. "They are coming back into vogue."

Amos has had to abandon the survey a handful of times — a few of those fraught with danger. He has dedicated five vehicles to his survey. The first was the Peugeot 504 diesel sedan he and Lynn brought with them from New York.

"It was a nice sedan," he recalls. "My wife really didn't forgive me for killing that car by taking it on the beach. But during its final years or months or even



Very little escapes Amos' notice as he makes his daily rounds on "his" beach.

weeks, I was in the middle of a thunderstorm. Sometimes zaps of lightning come very close, and this was one of those times.

"My hair stood on end, and the radio went warrreeeeeeooooorrr," he howls like a broken siren. "Then absolutely everything in the vehicle died except the clock, which hadn't worked in two years. Suddenly it started ticking again."

Amos' office at UTMSI is a showcase for his anti-garbage campaign. His shelves are home to a self-collected gallery of ordinary and extraordinary rubbish (his collection of toilet bowl cleaner bottles from around the world is legendary).

Perhaps the most romantic of all beach trash is a message in a bottle. Amos has experienced this zenith in emotion 51 times on his stretch of surveyed beach. He has answered as many messages as he can but two stick out in his memory.

"In late January 2000 I found a message from a German gentleman who was on board a ship called the *Sea Cloud*," he

says, noting that the *Sea Cloud* began life as the fifth and largest of E.F. Hutton's luxurious yachts. It was eventually sold to a German company, restored for service as a small cruise ship and renamed the *Sea Cloud*.

"Once a year, they go from the Canary Islands to Barbados, and that is their Atlantic cruise. They do that in late November. This gentleman had put this message in a bottle in the tropical Atlantic in November of 1998. It had taken 400 and something days and had traveled 4,000 miles to get here."

Amos and his newfound pen pal began corresponding. It turns out that the gentleman, like Amos, lives on a barrier island — one of a chain that stretches from Holland to Denmark. As luck would have it, Amos was scheduled to attend a meeting in Holland later in 2000. He carried the note back to its author, who owns a hotel on the island of Sylt. The gentleman insisted on entertaining Amos for a couple of days, thus launching a new friendship.

A year later, almost in the same place, Amos found another message from a passenger on the *Sea Cloud*, one from the 1999 cruise. According to the message, it was placed in the water on the eleventh hour of the eleventh day of the eleventh month of 1999, which was the anniversary of the armistice that ended World War I. The message had taken more than 500 days to travel almost 5,000 miles. The author, a gentleman from Boston, did not reply when Amos wrote back, but that did not diminish Amos' astonishment at finding two notes cast from the same ship in different years.

"What this illustrates to me is the amazing connectivity of the ocean. Can you imagine 5,000 miles and all of those days that both of those things were floating a year apart, basically on the same path? They had to go through the north equatorial current into the Caribbean, out through the Yucatan straits, along the loop current and then spin off somehow and come to our coastline.

"This year I got an email message from my friend (in Sylt) and he says, 'I am now on *Sea Cloud II*. I have just put a message in a bottle and guess what? I've addressed it to you,'" Amos says. "If I find that bottle, it will have to go into the Guinness Book of World Records."

(Continued on page 29)

At the Water's Edge

TEXT AND PHOTOS BY
JEAN O'DETTE

Editor's Note: In an effort to identify the coastal issues facing the state, Texas Shores is publishing a series of articles profiling each coastal county. The series continues with a look at those issues facing Aransas County.



The beam of the Aransas lighthouse once illuminated bays that arguably are being threatened today by the closure of Cedar Bayou and Vinson's Slough (top inset).

Aransas County: Tide to the Sea

Pilot Tom Taylor believes ancient pirate treasure lies buried on the islands beneath him. On a hazy morning in August, Taylor soars through the Aransas County skies in his single-engine Cessna plane examining the terrain below. Looking at this seemingly untouched landscape, it is hard to imagine that this land has held the footprints of so many.

From Karankawa Indians (documented by Spanish explorer Cabeza de Vaca in 1528) to such pirates as Jean Lafitte and French explorer, Sieur de La Salle, Aransas County has been the home to a wide variety of inhabitants throughout history. Today, the pirate ships and exploration vessels have been replaced by fishermen who come to the waters of Aransas for a different kind of treasure.

Aransas, once part of Refugio County, came into its own in 1871. The third smallest county in Texas, Aransas stretches for 161,280 acres, of which almost half is covered by water. The land ends to the south at Aransas Pass and to the north at the Aransas National Wildlife Refuge. The water begins in the bays formed by the barrier islands of Matagorda and San Jose. Hundreds of fisherman can be seen in these protected bays on a daily basis.

It's easy to see why with nearly half of the county underwater, Aransas is tied to the sea. It also explains why fishing dominates this area. In the 1970s, commercial fishing was king; now recreational fishing has taken over.

Ed Hegen, Coastal Fisheries Regional Di-

rector for the Texas Parks and Wildlife Department (TPWD), understands the changes in the fishing industry. He says that there are fisherman still making money commercially but the total amount is insignificant in the big picture.

Today, TPWD is limiting the number of fishing licenses it issues and buying back as many as possible. "We started with 3,000 bay and bait licenses; we're down to a little over 2,000 and our goal is to probably reduce that number in half," says Hegen. "Basically we're trying to take the pressure off the resource; allow for a commercial harvest, yet do it in a controlled fashion."

Even with this limited entry, Leslie "Bubba" Casterline, of Casterline Fish Co., still sees problems. "What we thought would happen with this buy back thing is the people who couldn't catch anything would sell their licenses and the ones that were left would be ok – but that isn't the case."

"We're seeing people who were our customer base who don't know what the future will bring," says Casterline. "A lot of the older fisherman are retiring, and the younger ones are finding something else to do. To me, it's a lot more drastic than what I ever expected."

Casterline, the third and possibly last generation to run the family business, has seen a lot of change since growing up in Fulton as a young boy. Old photographs line the wall of the weathered Fish Company and tell a tale of a fishing era wild and new with exploration.



Old photos of the family business remind Leslie "Bubba" Casterline and his relatives of fishing days long past.

"There's a lot of stuff happening that most people didn't expect," says Casterline of the rapid decline in commercial fishing.

There are also other factors affecting the resource such as the environment, nature and things that can't be controlled by the fishermen "As far as the shrimp, we've been impacted by the imports that have been coming in that are just killing our price and then if you have an off-season it's hard even to survive," Casterline says. "What we're seeing is people who can't catch shrimp selling their license and selling out."

Casterline, the last local industrial giant in the world of commercial fishing, admits that it won't be long until he, too, makes the decision to turn his fish company on the water's edge into a restaurant. As Casterline looks from photograph to photograph it is plain to see that giving up the family business will be more than difficult.

Diane Probst, Executive Director of the Rockport-Fulton Chamber of Commerce has already seen several local fishermen go into other trades. Many go into the restaurant business while others she knows have started their own companies such as construction and hair cutting. "Instead of going elsewhere they are just finding other businesses to do – finding another trade," says Probst.

While commercial fishing is slowing down, recreational fishing couldn't be hitting a bigger boom. According to Hegen, 25 percent of bay fishing in the state of Texas occurs in Aransas Bay.

"Texas Research Station employees tell me that while bay fishing has increased 50 percent in the state of Texas in the last 10 years, it has increased 350 percent in Aransas bay," says Hegen. "That's an astronomical impact on this community."

Rockport Judge Glenn Guillory also knows

the impact of recreational fishing. "We want to keep sports fishing viable here. It is vital to the community. Both from a tourism and economic standpoint," say Guillory.

Sport fishing is just one lure that brings many people to the area. Birding, climate and the coastal air also appeal to many people. "Rockport is no longer the best-kept secret in the state of Texas. It used to be. There are many people all over the state who remember coming here as children with their parents and grandparents," says Guillory. "People have a very fond memory of Rockport,"

Guillory explains that 30 years ago Rockport was just an out-of-the-way, sleepy little fishing village. He says that today the major industries are tourism and retirement. "We are one of, if not the, fastest growing counties in the state of Texas in the last 10 years. This growth has been driven by the migration of retirees to the coast, and the interest from people outside the community in improving their quality of life."

"We, of course, desperately want to keep the quality of life that we have here. That's what most of us came here for. But with the growth of the community that's going to be very difficult to do," adds Guillory.

An additional facet of this growth are the hundreds of "Winter Texans" that migrate south each year as the climate gets colder up north. Between the months of October and April, every RV park in the county is booked with out-of-towners – more and more of whom are deciding to stay.

Winter Texans don't just include people. In fact, some of the most highly anticipated guests to the region come all the way from northern Canada, and the locals invite as many as will make the journey. The endangered whooping crane settles on the edge of the county on Blackjack Peninsula each winter to feed and rest from its Canadian migration. Traveling more than 2,500 miles twice a year, the Aransas National Wildlife Refuge is their only winter home.

The population of whoopers has been on a decline due to the drainage of wetlands, conversion of grasslands into agriculture and hunting. In 1890, it was estimated that there were only 1,400 in existence. Today, those numbers have dropped to less than 200, but Charlie Holbrook of the Aransas National Wildlife Refuge says that, fortunately, in the last few years the number of cranes appears to be on the rise.



Bookcases display some of Judge Glenn Guillory's own glass creations in his Rockport office.

Hummingbirds hover at feeders in the lawns of Aransas locals during the Hummer Bird Festival each September.



Thousands of visitors come from all over the world every year just to see these magnificent birds that stand nearly 5 feet tall. The tallest bird in North America, whoopers are named for their loud vocalizations. They mate for life and usually lay 2 eggs at a

time. Their average lifespan is 25 years in the wild and 35 to 40 years in captivity.

The Texas coast has always meant good grazing for the whoopers who find their fill primarily in wetland areas. Although they enjoy crawfish, frogs and large insects, it is estimated that 80 percent to 90 percent of the whooping crane's diet consists of blue crab. This is another reason the cranes have been coming to this area since before recorded time.

An abundance of blue crab along with shrimp, other crabs and finfish can be found in the bays between the mainland of Aransas County and the barrier islands of Matagorda and San Jose. In the past, this marine life has traditionally migrated in between the bays into the Gulf. According to the studies of marine biologist Earnest Simmons, millions of larval crabs have traditionally passed into bays from the Gulf via Cedar Bayou during late February and early March,

Cedar Bayou, a natural waterway between Matagorda and San Jose Island, is currently closed due to sand silting from nature and human involvement. Jim Smarr and Randy Davis of the Recreational Fishing Alliance fear that the closing of this tidal passage will affect the blue crab population, and, in turn, affect the diet of the whooping crane.

The Aransas Wildlife Refuge has been investigating the issue too. Holbrook explains that the cranes have nowhere else to go for the winter. "If their food supply is depleted, they

can't just cruise to the next McDonald's. Something like the closing of the bayou could devastate their already fragile existence," says Holbrook.

Smarr, Texas State Chairman of the Recreational Fishing Alliance, says Aransas Bay and Mesquite Bay are directly affected by the closure of Cedar Bayou and Vinson's Slough (the adjoining pass). "In the long run if Vinson's Slough isn't re-opened we're looking at another situation like you have in the Bahia Grande (located in Cameron County; *Texas Shores*, Summer 2002) where the wetlands are completely dried up."

TPWD records show that Cedar Bayou has already been dredged three times and each time it has re-closed. Hegen thinks having the pass open is beneficial, but he's still skeptical of a successful dredging.

"The bottom line is: 'Is Cedar bayou going to stay open?'" Ed Hegen says, "No. If you want to dredge it go ahead and dredge it. Is it going to fill back in? Yeah."

Smarr and Davis feel differently. They acknowledge that the pass has filled back in, but they say there are more factors involved. Davis says Cedar Bayou stayed open on its own from 1959, when it was dredged 200 feet wide and 15 feet deep. It stayed open until 1979 when it was artificially closed by bulldozers because of the Ixtoc oil spill. Davis believes that if it had been properly re-dredged after the oil spill the pass wouldn't be closed today.

According to Smarr, the pass was re-dredged in 1987 at 60 feet wide and 6 feet deep. "At that point we had a problem because there was not enough hydrology working to keep it open without Vinson's Slough. The pass was re-dredged too small again in 1995."

They also say that they have heard of no opposition to re-opening the pass. "There just aren't enough people who know about it yet or understand the damage it could potentially do to the ecosystem here," says Smarr.

Neither Smarr nor Davis could estimate the cost of re-opening the Bayou. They say the first step is to get the General Land Office to plot on a map exactly where the state-owned land is so they know where they can actually dredge. They say that the Corps of Engineers would possibly match funding from local sources. Smarr estimates that several hundred thousand dollars would be donated from fishing organizations alone.

The Aransas National Wildlife Refuge has also agreed to give a one-time exception to the rule of no dredging while the whooping cranes are here because they feel it is that important to get that fresh saltwater inflow in and the food chain re-established.

Coupled with the largest bird in North America, Aransas County also boasts of showing its best hospitality to the smallest bird in North America, the hummingbird. In fact, the tiny bird is so popular that an entire festival has been named for it.

For 14 years, the town of Rockport has been celebrating the hummingbird on a weekend in September at the Hummer Bird Festival. Many area residents open up their gardens to the public for hummingbird observations where hundreds of the tiny winged creatures can be viewed. And this event is no small thing; nearly one million dollars is pumped into the economy from this festival each year, making the Hummer Bird Festival the single most profitable event in the county.

Probst and the Rockport-Fulton Chamber of Commerce are directly involved with the organization of the Festival. "We're teaching our community to remember our natural resource; don't forget about it or plow right over it. It's a focus on nature, and it attracts people from all over the world," says Probst.

Possibly the next most successful community endeavor is housed in an old building behind the county courthouse. This would be "Castaways," a not-so-ordinary thrift shop established in 1970s by some crafty ladies. Run completely by volunteers, the shop is open six days a week. Five community churches run the shop one day a week and the shop itself has volunteers there two days. "We raised just over \$30,000 this month," says Jean Kappler, the shop president. "And this was a slow month!" she adds with a wink.

The donation center attached to the shop is a bustling warehouse of volunteers pushing shopping carts stuffed with a plethora of well-kept odds-and-ends and sorting through the masses of contributions.

"I've enjoyed working here; it's fun," says Kappler. "It gets me out of the house. This is a new community for me – we came here because of my husband's health. Castaways gives me a chance to be a part of the community and feel like I'm giving back"

With 106 active philanthropic organizations, volunteer opportunities like Castaways abound in Rockport. Yet another port of activity is the Maritime Museum. Home to a replica of LaSalle's *LaBelle* (the French explorer's sunken ship), it was named the official Maritime Museum for the state of Texas in 1997.

The museum provides the community much more than just a place to look at interesting nautical artifacts. Kathy Roberts-Douglas, the museum's executive director explains that the museum is a hub for a variety of community

projects and involvement. "We are pleased to provide volunteer opportunities to the community and feature a lecture series to inform and educate our residents on the history and environment in which they live," says Roberts-Douglas.

Another hub for community creativity and talent is the Center for Arts. The center itself is a manifestation of this talent. Located on the water's edge, the center is tastefully done and conducive to art in progress with a pottery workroom and art studio.

Even those individuals who have thriving businesses in the area find time to give some of their creativity to the county. Mike Sargent, innkeeper at the historical Hoopes' House Bed and Breakfast, donated his own time and collected money from the community to beautify the median downtown with whisky-barrels planted with palm trees and flowers. Through all sorts of opposition, Sargent never gave up his vision his project and after seven years of watering each barrel on his own time with his own equipment, the City of Rockport has agreed to take over the care and upkeep of his beautification project.

This self-motivation seems to be a common trait to the residents of Aransas County. Leaving no community member out, even the County Judge dabbles in the art of glass blowing. And every home in Rockport-Fulton seems to be adorned with some painting or piece of original art.

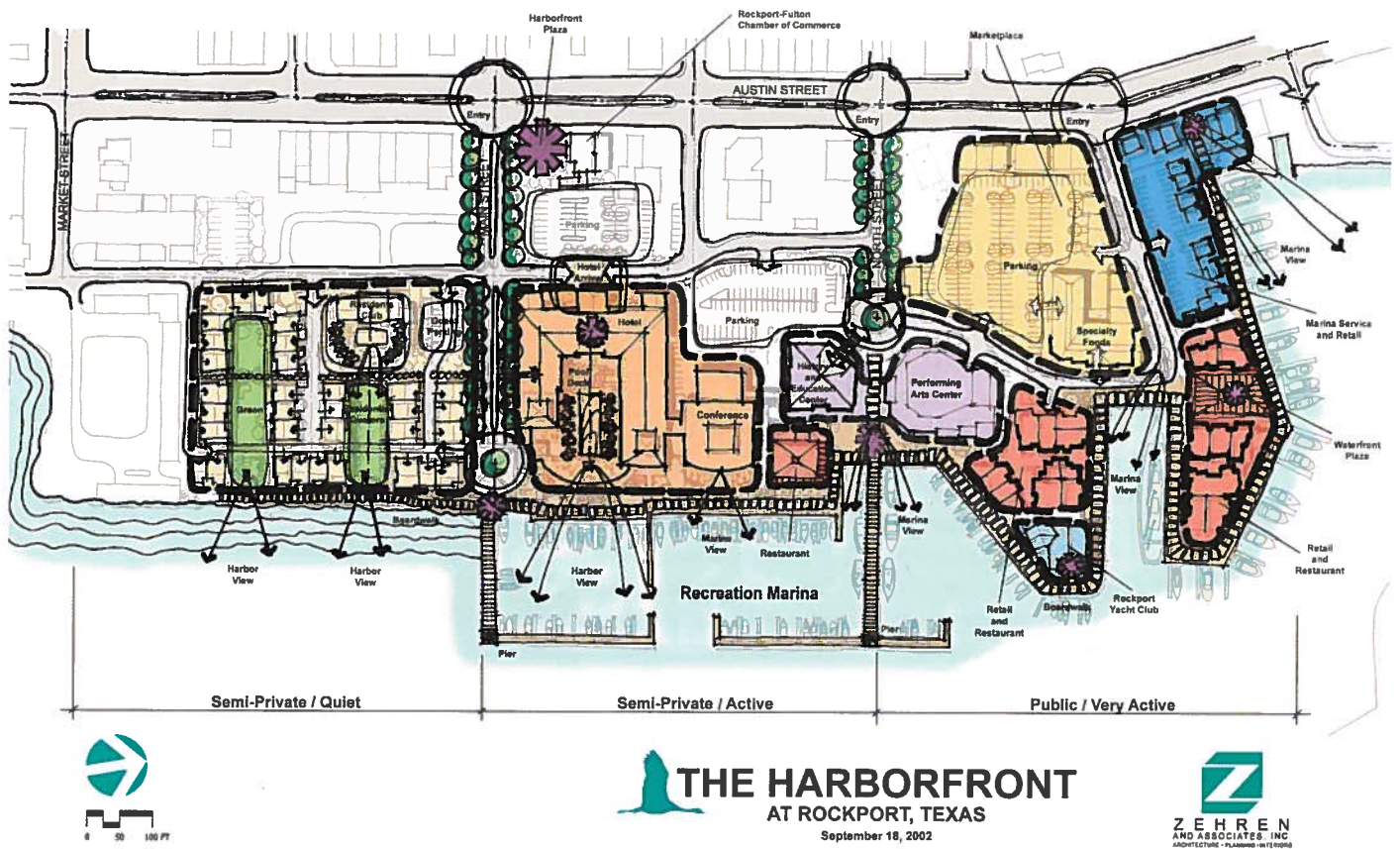
"This community is very diverse," says Judge Guillory. "We have people who have lived here all their lives, and we have people who have moved in recently. What makes this community different from any other in the state of Texas is the people – they're enjoyable, imaginative and extremely active."

Probst agrees. "I've heard people say 'I don't want any more people to move here because it will change the town.' And they are forgetting about the people that were here before them who said the same thing," says Probst. "You can't stop it; you can't close the gate. It's just a beautiful area and it's going to keep attracting new people."

"I think that the added benefits that you get with growth are a positive. Probst says there are now better school facilities and the economy is pumped-up. The drawbacks include



Banana boxes full of donated clothing line the wall behind Jean Kappler at Castaways Thrift Shop.



THE HARBORFRONT
AT ROCKPORT, TEXAS
September 18, 2002



increased city planning and development, more red lights and additional roads, such as the proposed I-35 Bypass and Copano Causeway extension.

The new bypass is a hot topic for most residents of Aransas County. Any of the three proposed development routes will inevitably affect someone's home, driving course or daily life in some way. Funding has been received to complete a four-lane highway from Corpus Christi to the middle of Aransas County.

Several meetings have been held about the completion of the freeway and the funding to the causeway. The two-lane causeway over Copano bay is scheduled to be four-lane in the next 5 to 10 years.

Guillory explains, "TXDot (Texas Department of Transportation) feels the need to determine where that connection will go from 36 to the causeway, because they can't design the causeway until they know how to connect it to the freeway. That of course is competing with the wonderful trees and habitats that we have in the community. It's also competing with the displacement of people no matter which route it follows, and it's important from a safety standpoint. So those issues are being dealt with by the community right now — it's still a work in progress."

With the increase in population, residents feel this bypass could also make or break the livelihood of the historical downtown area. If businesses start building out around the bypass, the downtown district could become obsolete as is the case in other small towns where major highways bypass the old town center.

There may be a unique solution to this future possibility however. Louis Robinson, a prominent developer of Rockport Harborfront Co., has proposed plans to build a distinctive complex on the waterfront of Rockport Harbor. The proposed site, primarily owned by Perry Bass, encompasses 12 acres on the waterfront. Many residents expressed excitement about this new development because of its historical elements.

The proposal includes the re-creation of the county's old courthouse and hotel. Robinson says he got the idea for the development while reading the book *ARANSAS: The Life of a Coastal County*. "I got the concept for re-creating the Victorian Hotel and Courthouse from the pictures of the old buildings," he says. "I think the old school house would be a great historical center."

Robinson says that the key to the expansion is bringing more tourists into the area and centering the activity on downtown. "The development is intended to draw in a lot more visitors to the downtown area, bringing more business to the pre-existing 'mom and pop shops' — not taking business away," says Robinson.

Judge Guillory feels this type of development would have a very positive impact on tax-base sales, tax revenue and on jobs. "We have development and growth pains just like any community and our challenge is to keep that growth manageable. We're not going to stop growth obviously, and we don't want to," says Guillory. "We want to keep growth at a level that's sustainable and that is the best growth you can have."

The harbor front area would include retail space, a 200-room hotel, marina and offices. Robinson says he would like to see a historical center as the hub of the development. "At present there is no venue for learning about the area's past. As well as provide a long-lasting economic base for the community, this project will bring the history to the forefront," says Robinson. "This county is rich in history; that is the real treasure to be discovered here." ■

Coastal Legend: Tony Amos

(Continued from page 23)

The man who has become the *de facto* guardian of this stretch of sand — and to a certain extent all beaches — admits that he rarely visits the shoreline just for fun.

“I don’t like lying on the beach, although having had grandkids here I will go to the beach with them and go swimming. It’s quite pleasant and I quite like that,” he says. “I walk on the beach for exercise and other reasons. In fact, I make sure that I don’t bring my binoculars when I do that just so that I’m not induced to peer at birds. But I’m not one who comes to the beach just to put a towel down and lay there and drink beer or whatever people do on the beach.

“There are the times that I get on the beach (for the survey) and think, ‘Oh no, not again,’ but I always seem to find something slightly different both in nature and in the people that provide some interest. The challenge is to see these changes that inevitably take place and what happens to the environment.”

A phone call interrupts Amos’ morning routine, which is a bit of a misnomer because there is very little that is routine about him or his life. A woman from New England-based Horizon Marine is on the line about one of the company’s satellite buoys. The buoys track currents and measure other ocean conditions. They are valuable instruments that occasionally wash up on the beach, so the company offers a \$100 reward to anyone who finds one.

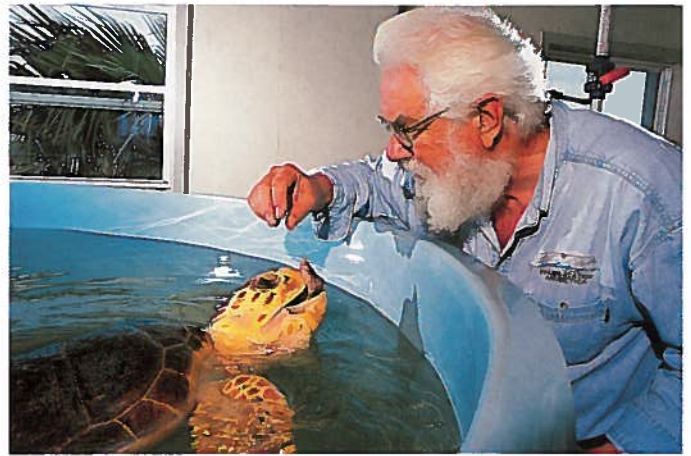
In this case, a tourist from Wales who was visiting the Texas coast reported finding one of the buoys. When told of the reward, he asked Horizon Marine to give the money to a charity of his choice.

The company picked the ARK — another passion in Amos’ life.

He has come across more than one disabled animal, particularly stranded sea turtles and wounded birds, during the course of his 24-year survey. Whenever possible, Amos used what spare resources he could find at UTMSI or afford out of his own pocket to nurse the animals back to health. Word of his rehabilitation work spread, prompting people to call him with injured animal sightings, that is if they did not bring him the animals themselves. Soon he was recruiting volunteers to help.

Sometime during the 1980s — he does not remember exactly when — Amos found himself sitting next to a gentleman “in the friendliest bar in town.

“I was known for doing this kind of (rehabilitation) work with turtles and this gent asked me if I ever needed any financial help,” Amos remembers. “I said, ‘Sure, I can always use something.’ At that time all of the money more or less came from our own pockets. The gent said, ‘I’ll write you a check.’ When I looked at it, it was for \$3,000. The next day I called the man up because I thought perhaps he had put too many zeros in or perhaps he did this in a state that he shouldn’t have done this. He said, ‘No, that’s fine. I really meant to do that.’ Using that money I bought



Tony Amos offers a squid to one of the turtles in ARK’s rehabilitation facility at UTMSI.

a small recirculating seawater system and had the maintenance people here at UTMSI enclose an existing concrete pad that had been used for salinity experiments. We purchased some tanks and that was the beginning of the ARK.”

Today the ARK comprises a collection of cages and tanks in and around a three-year-old building on the UTMSI campus. Its main mission is to rehabilitate sick sea turtles and large aquatic birds, although Amos rarely turns away any animal.

“At one point or another we have handled almost every species of bird found in this area,” says Wickham. “We also get animals from as far away as Kingsville and Victoria, and we’ve gotten a sea turtle from as far away as Ireland. Without the ARK these animals would have perished.”

Whenever possible, the animals are released back into the wild. Those that are permanently disabled are found new homes. Some of the ARK’s patients have ended up in zoos as far away as Colorado and New Jersey.

If nothing else, people should be impressed with Amos’ persistence and work ethic. The longevity of his beach survey alone is testament to his tenacity and stamina.

“He has been doing this work for so many years. As he does it, he is educating anybody who happens to be around. He is doing two and three jobs at a time and he is always educating people,” says Price-May.

“Tony doesn’t know this, but he has encouraged so many students to carry on with studies that maybe they were starting to give up on, because he never gives up. He keeps plugging away. He’s too busy working to realize that he cuts a swath through the world as he moves through it and he touches many lives,” she says before paying Amos her greatest tribute. “He is someone whom I’ve patterned myself after. I hope to at least be one tiny bit like him one day.”

Sitting in his office, surrounded by 40 years worth of reminders of his work, Amos smiles broadly and then turns serious when asked the obligatory get-inside-your-mind question: If through magic or divine intervention you were given the opportunity to live your life over again and be anything you wanted to be, what would you do?

“I’d do exactly what I’m doing now,” he says with surety. “My career has saved my life and vice versa. I can’t imagine doing anything else.” ■

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