

the NATURALIST newsletter

Louisiana Master Naturalists, Greater New Orleans

Message from the President

We've all heard of older musically inclined folks' excitement about "getting the band back together!" LMNGNO has the same excitement now about a post-covid event of "getting the LMN chapters back together". It includes an increased number of offerings for field work as well as gatherings at our much beloved, and missed, membership meetings.

This excitement was palpable at our April membership meeting where we recognized Pon Dixson as the 2022 Percy Viosca Outstanding Master Naturalist and certified three new master naturalists in the aftermath of the most recent covid challenges. Attendees were all smiles, greeting and hugging members they may not have seen for a couple of years, all the while sharing stories of past adventures and stories about their workshop cohorts and flora and fauna learned back then and in the recent past.

We like to say that one of the prime values of being an active certified master naturalist is spending time with "like minded" nature enthusiasts. Covid has dampened those gatherings and we are hopeful we can return to our former ways of communing.

Hope to see many of you return to our wonderful organization. We've had great cohorts of naturalists in the classes since Covid began. I'll be on the lookout for you (and spiders, snakes, frogs, and more!).

Bob Thomas

In This Issue

- Message from the President
- Rendezvous 2022
- Spring Workshop to Elmer's Island
- Tabling Events
- Book Reviews
- Fault Slip Events in Louisiana's Coastal Plain



Limpkin

Aramus guarauna

*Observed at Joyce Wildlife Management Area, April 9, 2022
(Photo by Bill Van der Meer)*

Editor: *Bill Van der Meer*
bvanderm1@gmail.com

Rendezvous 2022

Rendezvous 2022 was held in Pineville, LA on April 1-3, 2022. The opening night keynote address began with Bob Thomas describing the early efforts and expansion of the state association to seven chapters covering all parts of the state.

Sixty Master Naturalists from seven chapters enjoyed three days of hiking, paddling canoes and kayaks, listening to birds and frogs, and searching for wildflowers and mushrooms. The LMNA planning committee recruited an interesting variety of speakers from all corners of the state. Our central location was an ideal spot to enjoy the longleaf pine ecosystems in nearby Kisatchie National Forest.

LMNGNO chapter members contributed many items to both the Silent Auction (chaired by LMNGNO members Belinda and Larry Janeski) and the Book Stall, both successful fundraisers for the state association. Two of our members, Angelle Arata and Troy Sampere contributed photos to the photo contest where Angelle's photo titled "Yoda," received the most votes in the nature close-up category.

-Janell Simpson



Bob Thomas and Angel Cutno (Spring 2022) discuss a find with mycologist David Lewis.



Left to right: Shuba Nataraj, Janna Wisnieski, and Donna Bertucci explore the woods at Camp Hardtner. (Photos by Janell Simpson)

Calendar:

Visit the Events Calendar in "Track It Forward" for upcoming events, meetings and volunteer opportunities,

also announced via email as they become available

The Louisiana Master Naturalists of Greater New Orleans is a community of citizens interested in engaging with the natural environment through education, stewardship and volunteering.



Spring Workshop to Elmer's Island Barrier Beach

by: Robert M. Rogers PhD

Workshop participants arrived on Elmer's Island in the early afternoon of April 8, 2022. The island is actually a sand spit extending along the Caminada Headland. The weather was perfect for a field trip with temperatures in the mid-seventies and clear, cloudless skies.

The first observations of the upper beach were of its flat profile. It was unfortunate to see this level beach profile, as a great deal of effort and money has gone into restoring the beach and building sand dunes. This was accomplished through the efforts of the Caminada Headland Beach and Dune Restoration Project completed in 2014. Sands brought in from Ship Shoal had slowly been converting the area back into a healthy ecosystem with high, vegetated sand dunes and a lengthy distance to the water's edge of the Gulf of Mexico. Unfortunately, the destructive forces of Hurricane Zeta in October of 2020 and Hurricane Ida in August of 2021 had returned the beach to its present low profile, similar to its appearance before the beach nourishment efforts.

Walking toward the beach front (surf zone) revealed a variety of seashells, both marine and estuarine. Most of these shells had been fragmented by the heavy machinery used in the sand collection and distribution process of moving Ship Shoal sand to this headland.

It is interesting to note that much of this shell material was produced from organisms and processes when Ship Shoal had existed as an island approximately 20,000 years ago. From this time period, as evidenced by the depth of the shoal, sea level has risen nearly 30 meters.



Portrait of Spring 22 class participants capturing the dynamics of their collective reaction to 35+ mph winds by holding onto their hats or otherwise sheltering in place. -ed.

Note the flat beach profile produced by the destructive, leveling forces of Hurricanes Zeta and Ida. - (Photo by Bob Rogers)

Elmer's Island continued

Therefore, many of the marine organisms recovered represent fossil shells from a diverse insular ecosystem. Estuarine shells such as Eastern oysters and rangia clams are mixed with more offshore marine species such as Sundial shells, Lettered olives, and Scotch bonnets.

Farther along the beach toward the surf zone were scattered signs of early beach building such as fragments of Roseau cane (*Phragmites australis*) stem and root fibers along with other beach debris. Although the beach winds could be uncomfortably breezy, it was great for demonstrating the dynamic processes that shape the beach profile. Since the wind speed was around 35 knots and gusting higher, sand particles were actively being blown along the beach.

Through the process of saltation, sand particles were slowly piling up behind every fragment of shell or organic material. These raised areas of trapped matter provide substrate for the growth of the pioneer plant Sea rocket (*Cakile edentula*), as well as scattered clumps of Panic grass (*Panicum amarum*).

High tide on this day was around mid-afternoon and breaking waves fully inundated the intertidal zone. Within this swash zone,

Coquina clams burrow in the sand following the wave action. These clams fully use the process of thixotropy, the liquifying of sand, as waters move in to produce a softer sand, ideal for their moving up and down with the tides. The chimneys of Ghost shrimp (*Lepidophthalmus louisianensis*) were also noted in the shallow waters.

The beach area is obviously a dynamic area of shifting sand being transported by a number of processes. Sands are moved along the beach by offshore currents and carried ashore. Loose sand particles are then blown back on the beach by wind currents. They are then mixed with beach detritus and anchored by vegetation to form dunes. All these processes are dynamic, seasonal, and vary with a number of environmental factors.

In the future it will be interesting to see if the beach rebuilds itself and how stable it is. Already the hurricane season is nearing once again, and the beach is far from recovered from previous years. The erosional forces of the storms will compete with the building forces of the gentle summer winds. These forces will be instrumental in the future of Elmer's Island and its neighbor to this east, Louisiana's only residential island, Grand Isle.

A graphic demonstration of how high winds transport sand in a dynamic process of beach nourishment and sand dune building.

(Photo by Ann Rogers)



Tabling Events, A Volunteer Opportunity That's Fun

Dr. Mary Mysing Gubala would like to encourage all of you to consider participating in our Master Naturalist's tabling events. With venues like City Park's annual Spring and Garden Shows, Duck's Unlimited Greenwing event, Fishtival and the NPS "Spring in the Swamp" at Jean Lafitte Barataria Unit, it's an excellent opportunity to share your enthusiasm and knowledge about Louisiana's rich biodiversity and rack up some volunteer hours in the process. Sharing your knowledge with the public, getting to know other Master Naturalists and recruiting new Naturalists are some of the goals.

While working a table full of mammalian pelts, skulls, mollusk shells and turtle carapaces, it quickly becomes apparent about how popular our display is to children and adults alike. And it's a wonderful and highly effective way to satisfy our chapter's goals to advance awareness, understanding and stewardship of the natural environment by developing a corps of well-informed volunteers dedicated to conservation, education and service. In short, it's a great way to educate the public and have a lot of fun in the process! Have questions? Want to volunteer? Contact Mary at marygubala@bellsouth.net.



Volunteers Karen Marshall (left) and M.A. Sheehan work the table at the 2022 Spring Garden Show at City Park's Botanical Gardens (photo by Mary Gubala)



Angelle Arata's photo titled "Yoda," received the most votes in the nature photo contest's close-up category at Rendezvous 2022.

Dryophytes (*Hyla*) *chrysoscelis*
cope's gray tree frog

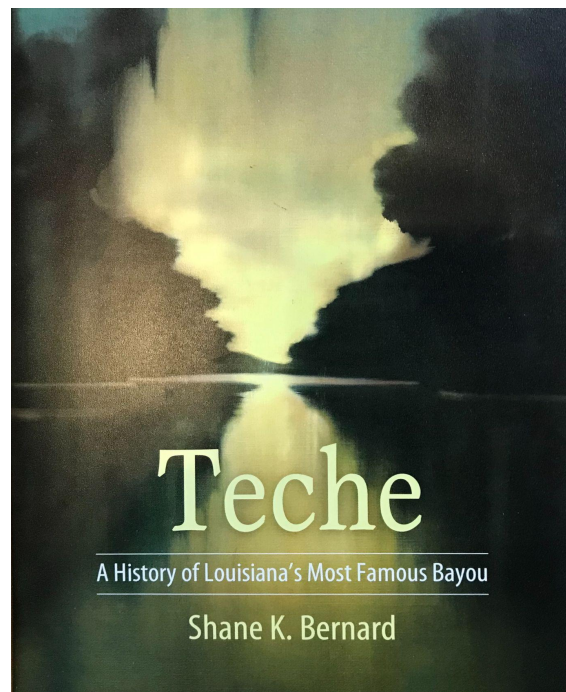
Book Review

by: Nicole Greene, PhD

I recently read two books on rivers which I thought would be interesting to review together. The first, *Teche*, is probably familiar to many readers since we read it for the Master Naturalist's Book Club a few months ago. The author, Shane Bernard, is a native of Lafayette, Louisiana. He is a Louisiana historian and curator of the McIlhenny Company in New Iberia. The second, *The Pull of the River*, is Matt Gaw. Gaw is a British journalist and naturalist who works for the Suffolk Wildlife Trust and whose writings have been published in top London newspapers.

You might ask then, what can these two books have in common? One covers the history of a particular bayou in Louisiana and the other covers thirteen different rivers in Britain including the Severn and the Thames. The answer is that both authors are avid canoeists, and both are deeply concerned with the present state of our waterways, whether in Louisiana or Britain, their pollution, preservation, and accessibility.

Shane Bernard divides *Teche* into two parts. In the first, he examines the origin of the name Teche and the extent of its course, arguing that it flows out of Bayou Courtableu at Port Barre in the north and ends in the town of Patterson in the south, flowing into the Lower Atchafalaya River and running for 125 miles through four parishes of Iberia, St. Landry, St. Martin, and St. Mary. Through extensive research, he examines the settlement of the Bayou first by the Opelousas, the Attakapas, and the Chitimacha



Shane K. Bernard, *Teche: A History of Louisiana's Most Famous Bayou*. University of Mississippi Press, 2016, 256 pp.

and then the Acadians in the eighteenth and nineteenth centuries. He describes the region's copious natural resources, which supported farming, ranching, sugar cane and sugar cane mills, as well as the production of cotton. The Civil War devastated the Bayou and the region, an event from which Bernard posits they have never completely recovered.

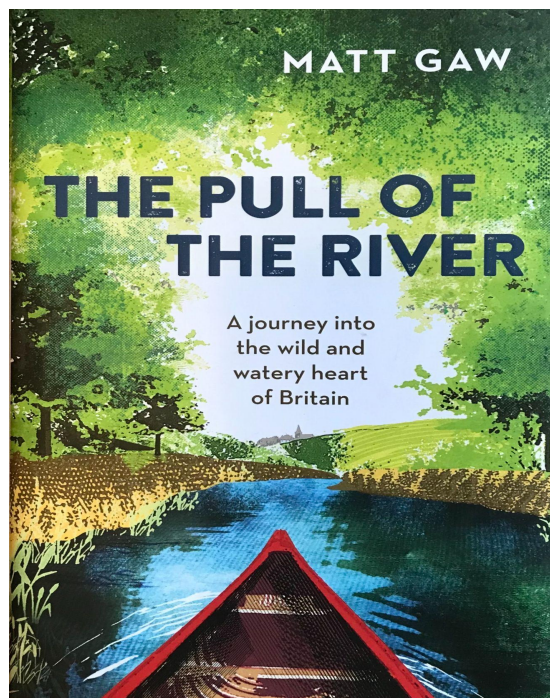
In the second half of the book, Bernard records his own navigation of the Teche in several stages with three or four friends and colleagues between 2011 and 2013.

Book Review, continued on next page

Book Review, continued

This brings us to our second book. In *The Pull of the River*, Matt Gaw recounts his own canoeing adventures, usually with his friend James Treadaway, along Britain's waterways. Each chapter is devoted to a different river, and with each new chapter, we see how Gaw's prowess as a canoeist develops and how he finally gains confidence, albeit with some trepidation, to navigate alone the River Otter in the west country.

Both Bernard and Gaw describe the many obstacles they encounter as canoeists: difficulty in finding suitable launching and landing areas, hostility of land owners along the waterways, pollution of all various descriptions, getting lost in side channels and tributaries, further complicated by the navigation perils of changing depth and river currents and the unpredictability of the weather. Both authors recount their experiences of capsizing their canoes midstream, alerting the reader to the preparation and skill required to undertake such adventures. A naturalist by profession, Gaw describes in some detail the natural environments he encounters during his journeys from the fens (reclaimed marshland) of Suffolk to the glens of Scotland, so although these British rivers are far removed from south Louisiana, naturalists will appreciate his descriptions of the fauna and flora he observes.



Matt Gaw. *The Pull of the River: A Journey into the Wild and Watery Heart of Britain*. London: Elliott and Thompson, 2018, 269 pp.

In many instances, he also comments on the geology of the region or the social history of former industrial sites which have left their mark upon the landscape. Gaw's descriptive prose is a joy to read while Bernard's volume is greatly enhanced by illustrations, photographs, and excellent maps. Both books will enlarge and spike readers' interest in waterways near and far.

The Southern Naturalist Podcast

The Southern Naturalist Podcast explores the interconnections of nature by providing listeners an immersive experience of what it feels like to be on the trail with the experts.

The SO NAT podcast will follow Dr. Bob Thomas and Dr. Aimée Thomas; along with special guests as they teach listeners the natural history, science and discuss their observations of natural areas across Louisiana.

**SO
NAT**

<https://www.loyno.edu/lucec/so-nat-podcast>

Causes and Effects of Fault Slip Events in Louisiana's Coastal Plain, A Geological Perspective

by: Chris McLindon, Consulting Geologist

Five years after his retirement Len Bahr, the former director of Louisiana's coastal program, made a blog post asking the rhetorical question "Where are the Geologists"? He wrote "Since its very inception in 1989 Louisiana's coastal restoration program has been dominated by coastal wetland ecologists like me, folks who deal in relatively short-term surface processes, not the long term geophysical and riverine processes that underlie the delta. In other words, the planning expertise has been dominated by those who deal primarily with surface processes on the visible veneer of the delta, not the riverine hydrodynamics and sedimentary processes that created the delta and the underlying tectonic processes and shallow and deep subsidence to which the delta ultimately responds."

The simplest answer to Len Bahr's question is that subsurface geology had become the purview of the oil and gas industry. Exploration geologists had little interest in depths above 2,000 feet, and ecologists, geomorphologists and even geotech engineers rarely evaluated below the surface more than a few of hundred feet.

The result was a subsurface "no man's land" across which almost nobody was thinking about the relationships between deeper tectonic processes and surface morphological processes.

This began to change in the early 21st century with the pioneering work of Harry Roberts at the LSU Coastal Studies Institute and Woody Gagliano of Coastal Environments, Inc. They were the first to use oil and gas industry data to bridge the subsurface gap and extrapolate geological faults to the surface. It was camp owner Pete Hebert who told Woody that he was certain the marshes around his camp on Bayou Ferrand west of Buras had sunk below the water's surface, and were not removed by erosion. Woody was able to get industry seismic profiles across the area, and mapped two faults that appeared to extend to the surface. He made profiles from auger borings across the surface escarpments, and demonstrated that the surface layers of marsh deposits were in fact offset across the faults. We now know that a subsidence event that had been experienced by Pete Hebert was recorded by the Grand Isle tide gauge, just few miles to the south. (**Figure 1**). There is a good case to be made that this was the result of a fault slip event. (**Figure 2**) Unlike earthquakes, fault slip events in a delta plain are "aseismic (no quaking) slow slip events". These events may range in magnitude from ruptures of the earth's surface with up to one foot of displacement to offsets that are so low that they manifest themselves as a vertical creeping motion.

By 2014 geologists at Tulane and UT Austin were using a 530-square mile industry 3-D survey to map subsurface geology in Plaquemines Parish not far from Hebert's camp.

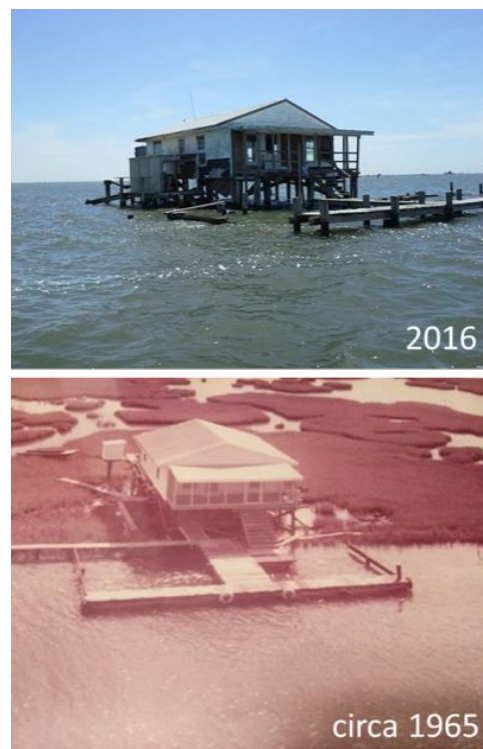


Figure 1

Fault Slip Events (continued)

Their study mapped 28 faults and found that “most of the seismically imaged faults appear to extend up to the modern land surface and some affect the modern delta morphology (where) several of these faults correspond to abrupt shifts from emergent wetlands to fully submerged areas of open water on the delta surface.” They found that the submergence of wetlands along the downthrown sides of faults that reached the surface was a major factor in causing wetlands loss. Since then ten research projects at UNO, Tulane and ULL have used 3-D seismic surveys to map faults that appear to extend to the surface. **(Figure 3)** Collectively this research is beginning to provide some of the answers that Len Bahr seemed to be looking for.

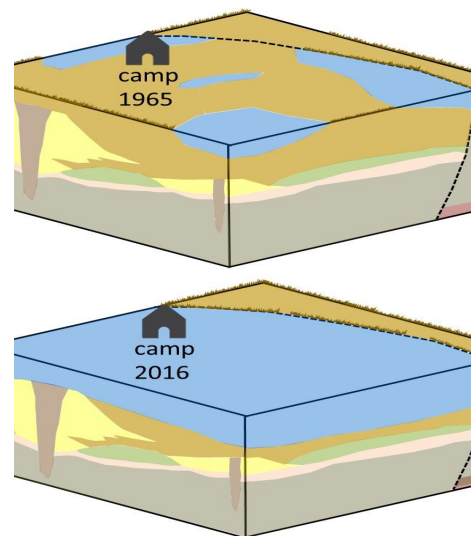


Figure 2

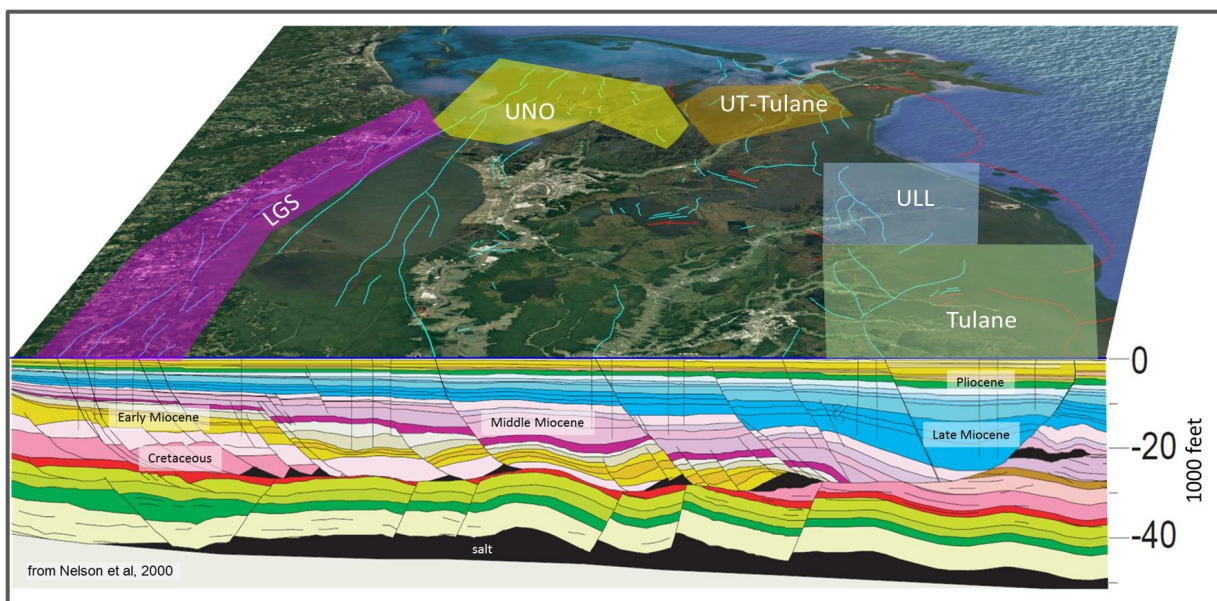


Figure 3

Wetlands loss in coastal Louisiana is best characterized as an event that generally peaked between 1970 and 1990. The map in **Figure 4** is an overlay of the surface traces of the known faults (cyan) and the distributary channel networks (dark blue) onto the USGS Land Area Change Map. The bright red and orange color patches delineate the hot spots of wetlands loss. The distributary channel networks are vestiges of the multiple historical lobes of the Mississippi River Delta.

The River changed course on average about once every 500 years, always seeking out the best place to deliver its sedimentary load. There appears to have been a genetic relationship between the fault traces and the fan-like architecture of the distributary channels. Each delta lobe tended to fan out across the faults it was crossing, perhaps because fault-driven subsidence provided the accommodation capacity that the river was seeking. Primary sedimentary loading would have occurred at the point where the channels cross the faults. Sedimentary loading may have provided a trigger mechanism for a fault slip event in the late 20th Century, which would in turn have caused submergence of the marsh surface along the fault.

Fault Slip Events (continued)

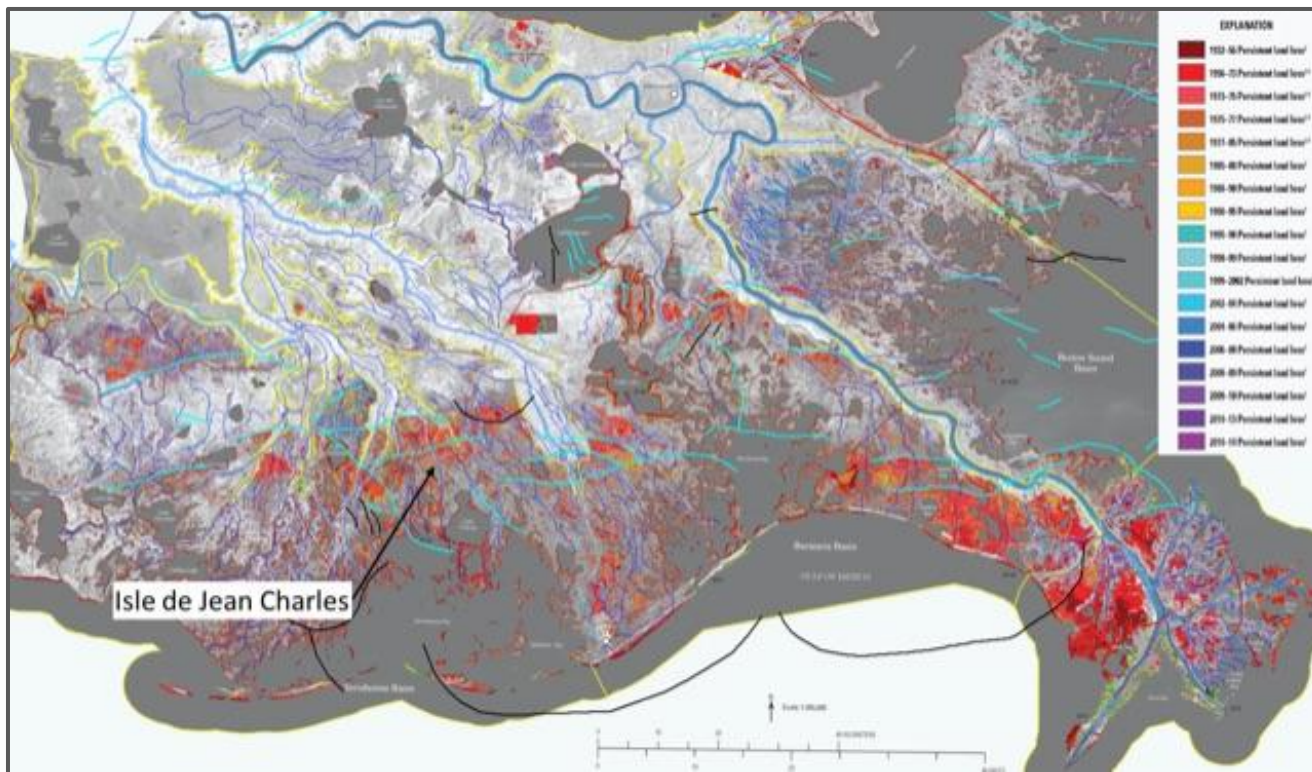


Figure 4

The Native American community of Isle de Jean Charles in Terrebonne Parish, located on the map in **Figure 4**, is within one of the hot spots of wetlands loss of the late 20th Century. Subsidence rates along faults in this area have been estimated to have been as high as 20 millimeters per year during the submergence. The US Department of Housing and Urban Development has provided funding for the relocation of the residents of the community under a program intended to help those impacted by climate change. Several major media outlets have designated the residents of Isle de Jean Charles as “America’s first climate refugees”. While the funding program is an important and effective means of providing for relocation, it is important not to lose sight of the subsurface geological processes that contributed to the submergence of this community.

It may turn out that it can be demonstrated with some certainty that the late 20th Century wetlands loss event was associated with a subsidence event caused by fault slip. Much more work is needed in this area of research, and hopefully there will be many more conversations between geologists and ecologists about the relationships between surface and subsurface processes.

Editor’s Note: On January 26, 2022 the author presented a seminar to LMNGNO members titled “Faulting in the Barataria Basin” upon which this article is based. To view the recording visit: <https://youtu.be/vvsTGGXWn58>