TAKING ACTION

BARATARIA-TERREBONNE NATIONAL ESTUARY PROGRAM 2020 TIDAL GRAPH CALENDAR



The BTNEP Management Conference

The Barataria-Terrebonne National Estuary Program (BTNEP) is directed by its Management Conference (BTNEP MC) which guides the implementation of the organization's Comprehensive Conservation and Management Plan (CCMP). The BTNEP MC consists of diverse stakeholders who collaborate to address the preservation and restoration of the estuary through a science-based, consensus-driven collaborative decision making process while addressing and supporting stakeholder interests. The long-term dialogue and continued commitment of this partnership drives the success of BTNEP.

Public involvement in the BTNEP process has been extensive and occurs on many levels. First has been the strategy of inclusion in which individuals from throughout the estuary have been invited to become active respective members of the BTNEP MC to assist in the Comprehensive Conservation and Management Plan formulation and implementation.

On another level BTNEP has been successfully using the strategy of information dissemination and encouraging active involvement in their projects. BTNEP provides a platform for citizens to be engaged on numerous levels.

BTNEP has Action Plan Teams, which help identify problems and come up with possible solutions. BTNEP hosts volunteer events such as restoration plantings and annual bayou and beach cleanups. BTNEP offers informal education activities as well as lessons for formal educators. All BTNEP MC meetings are free and open to the public. These types of events have all been instrumental in moving BTNEP forward. The overarching goal of BTNEP is to maintain multilevel, long-term, comprehensive watershed planning that improves the quality of life for people of the estuary.



BTNEP Management Conference Members

Our Management Conference is made up of a diverse group of interested stakeholders within our estuarine boundaries. Our membership includes divisions of federal, state, and local governments, academia, scientists, business, industry, fisheries, conservation organizations, agricultural interests, and related entities. Members of the BTNEP MC are listed below.

American Sugar Cane League Bayou Lafourche Freshwater District Cajun Music Preservation Society Coalition to Restore Coastal Louisiana **Coastal Protection and Restoration Authority Commercial Fisheries** Greater Lafourche Port Commission Iberville Parish **Jefferson Parish** Lafourche Parish Louisiana Association of Levee Boards Louisiana Department of Agriculture & Forestry Louisiana Department of Culture, Recreation & Tourism Louisiana Department of Economic Development Louisiana Department of Education Louisiana Department of Health & Hospitals Louisiana Department of Natural Resources Louisiana Department of Wildlife & Fisheries Louisiana Forestry Association Louisiana Governor's Office of Coastal Activities Louisiana Landowners Association Louisiana Mid-Continent Oil & Gas Association Louisiana Oil Spill Coordinators Office

Louisiana State University Ag Center Louisiana Universities Marine Consortium Louisiana Wildlife Federation Lowlander Center Louisiana Science Teacher's Association National Park Service Nicholls State University **Plaquemines** Parish Pointe Coupee Parish South Central Planning & Development Commission South Louisiana Economic Council South Louisiana Wetlands Discovery Center St. Charles Parish St. John Parish Terrebonne Parish The Nature Conservancy **US Army Corps of Engineers US Coast Guard US Environmental Protection Agency US Fish & Wildlife Service** US Geological Survey (USGS) **US National Marine Fisheries Service** USDA Natural Resources Conservation Service





Man Fishing by Lane Lefort

THE BARATARIA-TERREBONNE NATIONAL ESTUARYPROGRAM

¹ irst, an **estuary** is classified as an area where freshwater from rivers, streams, or bayous meets the saltwater of the sea such as the Gulf of Mexico. This mixing of water produces ecologically productive systems with rich natural resources. There are a wide range of habitat types found in estuaries such as marshes, swamps, and forested uplands.

he Barataria-Terrebonne National Estuary Program (BTNEP) area is located between the Mississippi and Atchafalaya rivers in southeast Louisiana. BTNEP works to protect and preserve the land, water, people, and culture that are so unique and valuable to the United States.

BTNEP and the stakeholders of the area have made a concerted effort to improve the estuary and tackle tough environmental problems since the early 1990s. This public-private partnership allows diverse groups to work together to reestablish a chemical, physical, and biological balance in the estuary and engages future generations to assist with the estuary's recovery.

I his estuary produces a host of resources for the United States. Oysters, shrimp, finfish, goods transported through our ports, oil and gas and their related infrastructures are all integral to our country. This estuary also offers unique cultural experiences and one of a kind tourism opportunities.

Images by Lane Lefort

Barataria Basin Terrebonne Basin West Baton Rouge West Baton Rouge St. James St. John the Baptist St. Martin St. Martin

Map of the BTNEP Area

BTNEP offers a science-based consensus-driven stewardship approach to protecting the water and land which is focused on:

- pollution abatement to protect the health of plants, animals, and people,
- environmentally-responsible economic activity,
- environmentally-compatible infrastructure (such as roads, bridges, levees, railroads),
- comprehensive, integrated watershed planning among all users,
- harmonious use of the resources by many interests and resolution of user conflicts, and
- public education and informed citizen participation.



BTNEP staff and the BTNEP Management Conference hope that this year's calendar will provide you with a look into some of the many projects and activities going on in this National Estuary Program.









WATERSHED RESTORATION in the Barataria-Terrebonne National Estuary

The Barataria-Terrebonne National Estuary Program (BTNEP) is actively conducting watershed water quality restoration in the BTNEP program area. It is common for watersheds here to have excessive bacteria caused by high nutrient levels and pollutants. Excessive bacteria can make people sick after swimming. Excessive nutrients can cause algae blooms, lower dissolved oxygen, and cause fish kills. BTNEP has two priority watersheds that are being targeted for water quality restoration: **Bayou Folse** and **Bayou Lafourche**.

Lor watershed restoration to be properly understood, a host of water quality data has to be collected. BTNEP staff have been sampling in the Bayou Folse watershed since 2016 and began sampling in the Bayou Lafourche watershed in 2019. Measurements being collected include temperature, pH (acidity), dissolved oxygen, salinity, electrical conductivity, clarity (depth penetration of sunlight), water surface height, fecal coliform bacteria, organic nitrogen, inorganic nitrogen, and total phosphorus.

BTNEP is partnering with other agencies to increase efficiency and effectiveness, while also focusing on decreasing bacteria runoff from broken home sewage systems. A long BTNEP partner, the USDA's (U.S. Dept. of Agriculture) Natural Resources Conservation Service is focusing on decreasing bacteria runoff from cattle pastureland and nutrients from cattle and row crop agriculture. BTNEP, the Bayou Lafourche Freshwater District, and the South Central Planning and Development Commission will be providing free home sewage system inspections, information about how to maintain and improve home sewage systems, and helping homeowners to pay for broken sewage systems repairs. The Louisiana Department of Environmental Quality is providing funding for water quality monitoring and inspections. The Environmental Protection Agency's (EPA) Gulf of Mexico Program is providing funding to pay homeowners to help repair your broken home sewage system or want a free inspection, call (985) 665-1070.

Working together as partners, agencies, and citizens of the estuary is essential to protect our families, our water, and the environment.

(a) Bayou Folse sampling site by Siva Nunna (b) Water quality testing by Siva Nunna (c) Cattle in Bayou Folse by Siva Nunna (d) Runoff pollution education by Andrew Barron (e) Girl scout water quality education by Siva Nunna (f) Scenic Bayou Folse by Seth Moncrief (g) BTNEP Interns and Staff collecting parameters by Andrew Barron (h) Water sample collection by Seth Moncrief









BTNEP Stormwater Infiltration Basin and Pétanque Terrain

he BTNEP Stormwater Infiltration Basin and Pétanque Terrain is a novel idea that combines water filtration and water storage with increased recreational opportunities and economic benefits. With increased urban development of the bayou region, there has been an increase in impermeable surfaces, such as streets, parking lots, sidewalks, and rooftops leading to an increase in problems of managing stormwater. Impermeable surfaces such as cemented streets increase water runoff and decrease the natural process of groundwater recharge. Increased runoff can lead to increased flooding and pollution of surface waters, including bayous, rivers, and lakes that serve as drinking water sources.

An infiltration basin is a human-made sump or hollow area in the ground where stormwater can be temporarily stored until it gradually infiltrates into the surrounding soil. This technique helps improve water quality and restore watershed

functions because it filters the stormwater through the soil, promotes groundwater recharge, and releases stormwater slowly. In Peltier Park in Thibodaux, BTNEP's Stormwater Infiltration Basin and Pétangue Terrain is estimated to hold about 8,600 gallons of water after each rainfall

event. In addition to retaining and storing stormwater within the infiltration basin, this terrain also serves as a surface for the game of pétangue (pay-tənk). Pétangue is the French outdoor game of target, similar to outdoor bowling. In this game, players standing in a ring throw hollow steel balls with an underhanded throw with the goal of trying to be the team closest to a small, wooden target ball. The game of Pétangue is suitable for all ages and all physical abilities including people with disabilities. As a popular social game easily picked up in an afternoon, the terrain can serve as a local meeting place for family and friends to gather and "pass a good time." With the addition of organized tournaments, tourist dollars can be brought into the local economy. This innovative idea combining environmental and recreational resources can be promoted regionally in the estuary and nationally throughout the country.

Images provided by Andrew Barron: (A) Player prepares to throw (B) Teams using the infiltration basin for gaming (C) Organized tournaments could bring tourism (D) Player demonstrates shooting technique.

Graphics produced by Joey Boquet with Southern Signs and Designs.

(A)



Stormwater Infiltration Basin and Petanque Terrain Top and Cut Away View







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Louisiana's barrier islands and headland beaches serve many important ecological, cultural, and economically significant functions. One of the most important ecological functions these beaches provide is that they serve as breeding and rearing habitats for a number of important nesting shorebird species. Suited specifically to use these sandy shores, tens of thousands of birds annually use these habitats to raise their young. Since much of this habitat has been negatively affected by land loss over time, concerns have grown over the impact these changes may present to nesting shorebirds. Shoreline erosion, sea level rise, and the occasional overtopping by storm surge all have impacted these habitats and the birds that depend on them for survival.

Beginning in 2005 and continuing to present time, BTNEP has conducted numerous scientist led, ground surveys designed to define population levels and distribution of a select suite of species of shorebirds. Most of the bird species that are a focus of these surveys are considered solitary nesters usually meaning there is some distance between breeding pairs. Wilson's Plover, Snowy Plover, and American Oystercatcher are examples of these solitary nesters. This contrasts against those considered colonial nesters where birds nest adjacent to each other, sometimes no more than just two to three feet away from other pairs. Least tern are considered colonial nesters.

These surveys are the first ground surveys ever initiated here in Louisiana. In 2005 and again in 2010 and 2015, BTNEP and its partners have gathered data for a select suite of ground-nesting shorebirds and seabirds across the coastal landscape. These surveys covered much of the entire coastal reaches of Louisiana from Mississippi to Texas. This information helps coastal engineers and bird biologist to understand the population size and the distribution of these birds. The data also provide a great baseline of information from which to compare future data to define trends associated with these species of shorebirds and seabirds.

Images provided by Richard Demay:: (A) Least Tern with Chicks, (B) Wilson Plover Female, (C) Least Tern With Chicks, and (D) Common Nighthawk



March 2020





LOUISIANA MASTER NATURALIST



The Louisiana Master Naturalist Association (LMNA) offers an opportunity for citizens to expand or sharpen their skills in natural history, with special focus on the diverse habitats of the Sportsman's Paradise - Louisiana.



LMNGNO Group, Davis Pond Diversion field Trip

The primary purpose of the LMNA is to offer a statewide program that educates Louisiana citizens about their precious flora and fauna as well as other aspects of their environment and ecosystems. Once certified, the Louisiana Master Naturalists are required to use their talents to educate others or assist programs that promote and protect Louisiana's natural heritage. Master Naturalists are required to complete a number of hours of volunteer service each year.

The history, exploration, and development of Louisiana was built upon the great desire of humans to understand the wild plants, animals, and habitats of our state. As citizens of Louisiana, we must understand that the future of our culture and our state depends on the continued development of this vital knowledge. The LMNA Program is trying to create a group of motivated citizen scientists who understand the various aspects of the natural sciences. Citizen scientists directly benefit the state and society as a whole by being good stewards of the environment. For the Louisiana coastal region, it is imperative that citizens are educated in the science behind coastal land loss and its restoration. Citizen scientists can help to advocate for meaningful coastal and environmental restoration and are able to provide a scientific perspective on issues that affect their lives and the future of the state. By joining the LMNA you can learn about and explore the state's natural resources with likeminded people who are interested in nature. There is a statewide LMNA as well as eight regional chapters throughout the state that form the larger state organization. Find out how you can get involved at www. louisianamasternaturalist.org.

BTNEP is a proud partner of the LMNA program!

Images provided by BTNEP staff: (a) Anhinga (b-e) Activities of LMNA











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Scientist tags Red Knot by Delaina LeBlanc

 Γ rom April to early May, flocks of rusty red sandpipers begin to congregate on the shorelines of southeast Louisiana. This robin-sized sandpiper, known as the Red Knot (Calidris canutus), is a globally cosmopolitan species, capable of flying up to 4,000 miles nonstop over several days. In December of 2014, the U.S. Fish and Wildlife Service (USFWS) formally listed the *rufa* subspecies of Red Knot as threatened under the Endangered Species Act after surveys indicated a serious population decline. The Red Knot may spend the winter in locations as far south as Chile, then migrates in the spring to its breeding grounds in the Arctic up to 7,000 miles away. Southeast Louisiana serves as a stopover site during this long journey across the Gulf of Mexico twice a year, allowing the birds to rest and refuel before continuing their journey.

BTNEP began partnering with Coastal Bend Bays & Estuaries Program (CBBEP) of Corpus Christi in 2014 to better understand the status of the imperiled Red Knot in Louisiana. Over 200 birds have been captured and tagged, along with collection

of blood and feather samples, and the use of tracking devices to learn more about this endangered species that uses Louisiana's coast for part of its life cycle. The two most common places to see the birds are on Grand Isle and the Chandelier Islands.

he overall goal of this project is to identify the migration patterns of Red Knots that use Louisiana's coast. The data collected will allow teams of scientists to identify any connectivity between locations and draw conclusions about what may be threatening the species at any particular location. Learning about the challenges these birds face allows citizens to take action on our beaches and to partner with others to develop solutions in other locations these birds visit in their life cycle.

> (A) Red Knot by Matt Conn, (B) Comparing Wings by Delaina LeBlanc, (C) Tagged Red Knot by Barbara Keeler, (D) Red Knot Flying by Barbara Keeler, (E) Non-breeding plumage by Delaina LeBlanc, (F) Red Knots by Barbara Keeler



TRASH Jee Waters

he Barataria-Terrebonne National Estuary Program (BTNEP) works with EPA's Trash Free Waters program to reduce and prevent trash from entering U.S. waters and the oceans. Trash that is improperly disposed of on land or into water can have major environmental and economic impacts on states and communities throughout the country. Marine debris is a major concern for our ocean's inhabitants as 80% or more of trash in water comes from land-based human sources.

Common impacts from aquatic trash include:

- animal entanglement or ingestion, sometimes resulting in the death of dolphins, whales, turtles, sea birds, fish, and more;
- possible human health risks of ingesting microplastics from drinking water and eating fish;
- pollutant and virus transportation;
- reducing the aesthetic, recreational, and economic values of rivers, beaches and marine resources;
- habitat destruction; and
- more taxpayer dollars spent on cleanup.

BTNEP's Bayou Lafourche Cleanup is held annually in March and involves hundreds of volunteers removing trash and debris from Bayou Lafourche from the town of Donaldsonville to the community of Leeville, Louisiana (90+ miles). This event started in 2012 and volunteers are still removing over 22 tons of debris from the bayou annually. Water heaters, tvs, boats, plastic bottles, sofas, bags, toys, and styrofoam are just some of the items that are removed. With Bayou Lafourche as the drinking water source for over 300,000 people, this volunteer event is our most valuable trash-free water event.

BTNEP also has a Marine Debris Education and Prevention Program aimed at high school students from within the Estuary program area. Students are bussed monthly to Elmer's Island to participate in an accumulation study for marine debris. They research, collect, count, sort and record all trash found. They also brainstorm ways to prevent marine debris. Over the 4 years the program has existed, over 2,500 students have participated in this program.

BTNEP, Nicholls State University, and the Louisiana Department of Wildlife and Fisheries coordinate the Annual Coastal Cleanup on Elmer's Island in conjunction with the International Coastal Cleanup sponsored by the Ocean Conservancy.



Marine Debris Education and Prevention Program volunteer lays out a transect



All debris gets weighed before disposal

Images provided by Seth Moncrief

June 2020





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PROTHONOTARY





The Prothonotary Warbler (Protonotaria citrea) is a Nearctic-Neotropical migratory songbird species that breeds in bottomland hardwood/forested wetland habitats throughout eastern North America and winters primarily in coastal mangrove and river valley



Prothonotary Warbler by Natalie Waters

habitats within Central America and northern South America. Recent research conducted by Prothonotary Warbler Working Group members indicates the majority of the species population winters in northern Colombia, in an area about one-fifth the size of their breeding range.

The Prothonotary Warbler population has declined by 40 percent since the 1960s and it is listed as a species of concern within the United States. The most critical threat to the species is the destruction of suitable habitat within its breeding, migratory, and wintering range. Additional threats include: pollution, pesticides, changes in hydrology, building and window collisions, Brown-headed Cowbird parasitism, and climate change.

In an effort to implement conservation actions and to collaborate with other conservation organizations primary goals for the species, BTNEP initiated its Prothonotary Warbler project in the spring of 2016. BTNEP conservation actions include the establishment of nest box trails throughout the estuary, nest monitoring and data collection, community outreach, and to sponsor the use of geolocators to identify connectivity between breeding and wintering grounds. BTNEP constructed and installed 86 nest boxes across 4 different sites within the estuary; the project boxes have provided prothonotary warblers a place to nest and raise more than 800 young.

(A) Female Prothonotary Warbler feeding recently fledged chick by Natalie Waters (B) Prothonotary warbler nestlings by Natalie Waters (C) Banding and releasing a prothonotary warbler by Wendy Billiot (D) Prothonotary Warbler female carrying nest matieral by Natalie Waters



HABITAT RESTORATION AT GRAND ISLE STATE PARK



Chinese Tallow Removal and Native Plant Restoration

Commonly known as Louisiana's "first line of defense," the barrier islands and barrier shorelines of coastal Louisiana are indeed the first to receive major impacts from landfalling tropical storms and hurricanes while also receiving the brunt of oil spills and other toxic releases from the industrially bustling northern Gulf of Mexico.

Grand Isle, Louisiana's only inhabited barrier island, faces yet another threat; that from invasive species. Invasive species are exotic organisms whose introduction cause or threaten damage to the local ecology, economy, or human health. Grand Isle contains some of the last remaining wooded barrier island habitat in Louisiana, and these maritime forests are threatened by the invasive Chinese tallow tree (*Triadica sebifera*). Chinese tallow grows rapidly, produces seeds prolifically, and outcompetes native tree species for sunlight, water, and space. It produces dense monocultures that exclude native vegetation, and this causes severe habitat degradation for birds and other wildlife, as well as loss of habitat value for human uses. I he geological and ecological integrity of barrier islands must be maintained to insure their continued existence and their critical role in protecting coastal communities from the impacts of storms and spills. To fight this invasion, the Barataria-Terrebonne Estuary Foundation (BTEF) and the Department of Justice stepped in to provide funding for a project in partnership with the Louisiana Office of State Parks to remove the invader and reintroduce natives.

In this project, large Chinese tallow trees were cut down and a sustained program of treatments with herbicides was applied to the stumps of the tree to prevent regrowth. Additionally, the smaller tallow trees were uprooted. The treated areas were then planted with native tree seedlings to restore the habitat functions and values, and greatly improve the island's sustainability and resilience to future impacts from both storms and spills. Thousands of Chinese tallow have now been removed from Grand Isle State Park and hundreds of red mulberry and live oak native seedlings have been planted in their place. Many areas of the park have seen a dynamic change in the canopy cover in just the first year of the project.

I his project can serve as an example of how resources can be applied to manage invasive species and how planting new native trees can help in plant succession.



Volunteers help with native tree planting. Images by Seth Moncrief and Matt Benoit













Native Plant Program

he Barataria-Terrebonne National Estuary Program (BTNEP) created its own Native Plant Program over 10 years ago to supply native plants to restoration planting projects BTNEP implements with its many volunteers both locally and from across the nation. BTNEP grows out native plants at their Native Plant Production Facility located on the Nicholls State University Farm in Thibodaux, LA. The facility includes a 6400 sq.ft. shadehouse and 1500 sq. ft. greenhouse in which BTNEP germinates and grows out herbaceous and woody plant species used for restoration projects within the estuaries. Herbaceous species grown out at the facility include marshhay cordgrass, seashore paspalum, and salt grass as well as other beneficial species. These grasses hold the soil together and provide habitat for fish and wildlife in marsh,

ridge, and beach dune habitats. BTNEP's predominate restoration work, though, revolves around the collection of native woody species seed, its germination and grow out for use in plantings on barrier islands and ridges in maritime environments. The woody plants selected are species beneficial to the Neotropical migratory songbirds as they traverse the Mississippi Flyway each spring and fall. Maritime ridges provide elevation above a saltwater environment that allows beneficial freshwater woody species to grow and fresh water to pool in an otherwise inhospitable environment. The native woody plants provide food, protection, and a place to rest for the birds on their long journey. Some of the species used include live oak, red mulberry, hackberry, yaupon, wax myrtle, persimmon, Hercules-club, roughleaf dogwood, honeylocust, and American beautyberry.

Images A-E by Matt Benoit and Seth Moncrief: (A) Propagation table and shadehouse, (B) University of Richmond SEEDS group uppotting wax myrtle, (C) Woody plants growing out in shadehouse, (D) Shell volunteer marsh grass planting, (E) Wax myrtle seeds, (F) Vintage black mulberry plant illustration from rawpixel.com creative commons

September 2020



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Discover the Estuary

In 2017, BTNEP staff members applied for and received a Bayou Community Foundation grant to help facilitate the purchase of 13 canoes. The canoes create expanded opportunities to take volunteers and participants further into the estuary to learn more about the ecology of the ecosystem. In addition to BTNEP's annual Paddle Bayou Lafourche event, the canoe investment allows BTNEP to educate the public about the value of Louisiana's wetlands and create stewardship and pride for the environment. On October 12, 2018, BTNEP hosted the first annual "Discover the Estuary" paddle. The paddle event brought adventurers down beautiful Bayou Chevreuil and into Lac des Allemands. The paddle paired a fun activity with education including viewing a Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) coastal restoration project titled Hydrologic Restoration and Vegetative Plantings in the Des Allemands Swamp (BA-34-2). In recognition of the local waterway importance, BTNEP also developed "A Paddle Guide to Louisiana's Barataria-Terrebonne National Estuary" using Environmental Protection Agency (EPA) funds. The guide was created as a tool for finding appropriate paddling routes for volunteer education and to facilitate responsible

and safe ecotourism types of recreational opportunities. Located on page 14 of BTNEP's paddle guide, the "Southern Lake Verret" day trip was chosen as the "Discover the Estuary" paddle in 2019. This paddle highlighted the nature and beauty of the cypress and tupelo dominated swamps and provides a glimpse of life on a bayou.



(A) Group photo at lunch stop by Seth Moncrief (B) Veteran paddling instruction by Seth Moncrief (C) Bayou bliss by Matt Benoit (D) Lac des Allemands by Matt Benoit (E) Resting before the home stretch by Seth Moncrief (F) Racing to the finish by Matt Benoit



INVASION OF THE Copple Small





A serious threat to our estuary's living resources involves exotic plants and animals that are introduced into our ecosystem. Freed from the natural system of checks and balances in their native habitat, exotic organisms can thrive and reproduce explosively. Without management, the introduced species can proliferate and expand their range causing problems for



native inhabitants. The bountiful productivity of the BTNEP estuary and our mild climate unfortunately serves as an efficient host for the introduced species allowing them to thrive and become invasive.

One of these introduced species making Louisiana its new home is the apple snail. The apple snail has been dramatically increasing its range within the BTES and into other basins in Louisiana. It is likely to have impacts on submerged aquatic vegetation, which will in turn have impacts on fisheries habitat, water quality, and aesthetics. The apple snail is also likely displacing native mollusks, and may even have human health impacts, as it is a potential host for a parasite called rat lung worm that can infect humans. Management actions are extremely limited at this point. BTNEP and the Nicholls State University Biology Department are collaborating on a project to increase knowledge of the present range, reproductive rate, and depredation rate of apple snails in order to inform and help develop management actions. BTNEP and the U.S. Geological Survey, through the Wetlands and Aquatic Research Center are researching ways to control the species.

BTNEP also supports current invasive species management efforts for other invasive species including but not limited to: Chinese tallow, nutria, hydrilla, common and giant salvinia, and Cuban sedge.

(A) Limpkins seen in Louisiana predating on apple snails by Rob Dobbs, (B) Pink egg masses by Andrew Barron, (C) Scientists gather to plan actions for controlling invasive species, (D) Apple snail just under the water surface by Jacoby Carter.









VOLUNTEER PROGRAM

Operating since the 1990s, BTNEP's Volunteer Program works to educate the public about issues concerning coastal Louisiana through hands-on involvement in habitat restoration efforts. In areas heavily affected by sea level rise and subsidence, there is a relentless effort to conserve and/or restore habitat that are vital to the flora and fauna of the Barataria-Terrebonne Estuarine System. Through several different BTNEP partners in coastal restoration, degraded or lost land gets recreated and/or restored. While it is important that this land is restored, BTNEP believes it's also important to plant native trees and grasses where appropriate to improve habitat for wildlife and also to create resilient new land. To accomplish this goal, the use of volunteers is essential in our efforts to restore habitat in the BTES.

Annually, BTNEP coordinates hundreds of volunteers to participate in native vegetation plantings as well as coastal and inland debris cleanups. Our volunteers come from all across the nation to help restore areas affected by coastal land loss as well as to learn about the ecological and economic importance of coastal Louisiana. It is important to BTNEP to recruit diverse groups of volunteers to serve as communicators of the issues we face but also the valuable resources that coastal Louisiana provides for the nation.

BTNEP VOLUNTEERS ARE A TRUE GIFT TO THE ESTUARY!!

Images by Seth Moncrief and Matt Benoit: (A) Derelict crab trap removal (B) Native marsh grass planting (C) Volunteers unloading plants (D) Volunteers planting marsh grasses (E) Group photo after successful planting



How to know if YOU are a BTNEP Volunteer?

Homo sapien (AKA Estuaris restoratis, workhorse, coastal steward, etc.)

The BTNEP Volunteer is a unique subspecies of bipedal hominids (humans) that is easily identified as *E. restoratis* by a restorative behavior and good attitude.

Identifying characteristics include but are not limited to:

- knowing the definition of estuary,
- a willingness to get their hands dirty and have fun volunteering,
- an in-depth knowledge of planting thousands of trees/plants in a single day, and
- a broad understanding of Louisiana's importance to the United States.

The Barataria-Terrebonne National Estuary Program has been successfully running a training program to maximize the efficiency and effectiveness of these new "volunteers". As an added benefit, BTNEP volunteers help to accomplish lofty goals of restoring habitat in the Barataria-Terrebonne Estuarine System.

December 2020



Louisiana salt marsh by Seth Moncrief

7 5 12 13 14 19 20 21 24 25 26 27 28 S 2

8 9 14 15 16 21 22 23 25 26 27 28 29 30

> High Tide: December 14 9:23 p.m. • 1.3 ft.

Low Tide: December 15 9:10 a.m. • -0.7 ft.

ARATARIA-TERREBONNE NATIONAL ESTUARY PROGRAM Barataria-Terrebonne National Estuary Program

P.O. Box 2663. Nicholls State University. N. Babington Hall, Room 105, Thibodaux, LA 70310 1.800.259.0869 • www.BTNEP.org

TIDE CORRECTIONS

To find the best time to fish your favorite locations, find a location that is closest to your area and add or subtract the time from the corresponding daily prediction.

AREA	LOW (Hours:Minutes)	High (Hours:Minutes)
Shell Beach, Lake Borgne	+5:10	+4:01
Chandeleur Lighthouse	+0:38	+0:05
Venice, Grand Pass	+1:28	+1:06
Southwest Pass, Delta	-0:29	-1:29
Empire Jetty	-1:35	-2:03
Bastian Island	+0:22	-0:19
Quatre Bayou Pass	+0:27	+1:18
Independence Island	+2:09	+1:29
Caminada Pass	+1:44	+1:14
Timbalier Island	+0:33	-0:41
Cocodrie, Terrebonne Bay	+2:50	+1:10
Wine Island	+1:12	+0:08
Raccoon Point	-0:10	-1:03
Ship Shoal Light	-1:40	-2:54

Charts in this calendar are intended for use solely as a reference quide to Louisiana fishing. It is not intended for navigational use. BTNEP makes no warranty, expressed or implied, with respect to the accuracy or completeness of the information contained in these charts. BTNEP assumes no liability with respect to the use of any information contained in this document.

BTNEP THANKS...



BARATARIA-**FERREBONNE** FOUNDATION



2020 Moon Phase Calendar Icons

2020 TIDAL GRAPH CALENDAR

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Front cover photo by Seth Moncrief Back cover background photo by Lane Lefort

FISHING REGULATIONS

This is not a comprehensive or official copy of the laws in effect and should not be utilized as such. Size and creel limit regulations are presented for selected species only. These species as well as other species may be managed by seasons, quotas and permits. Different regulations for bass, catfish and crappie may apply within specific areas. Contact the Louisiana Department of Wildlife and Fisheries (LDWF) for specific information.

FRESHWATER SPECIES

SPECIES	SIZE LIMIT	DAILY LIMIT	
Large mouth and Spotted Bass***	None	10	
(False River located in Pointe Coupee Parish)	14" Minimum (TL)	5	
Crappie (Sac-a-lait)	None	50	
Striped or Hybrid Striped Bass	None: 2 ouer 30" (TL)	5 (Any combination)	
White Bass	None	50	
Yellow Bass	None	50	
Channel Catfish	25 less than 11" (TL)	100 7 100 total of	
Blue Catfish	25 less than 12" (TL)	100 – these three	
Flathead Catfish (Spotted, Yellow or Opelousas)	25 less than 14" (TL)	100 _ species	
Freshwater Drum (Gaspergou)	12" Minimum (TL)	25	

SALTWATER SPECIES

SPECIES	SIZE LIMIT	DAILY LIMIT	
Speckled Trout*	12" Minimum (TL)	25	
(Cameron & Calcasieu Parishes**)	12" Minimum (TL), two over 25"	15	
Red Fish*	16" Minimum (TL), one over 27"	5	
Black Drum	16" Minimum (TL), one over 27"	5	
Southern Flounder	None	10	
Greater Amberiack	State & Federal Reg. 30" Min. (FL)	1	
Cobia (Lina or Lemon Fish)	State & Federal Reg. 33" Min. (FL)	2	
King Mackerel	State & Federal Reg. 24" Min. (FL)	3	
Spanish Mackerel	State & Federal Reg. 12" Min. (FL)	15	
Red Snapper***	State & Federal Reg. 16" Min. (TL)	***	

* For Red Drum (Redfish) and Spotted Seatrout (Speckled Trout): Recreational saltwater anglers may possess a two day bag limit on land; however, no person shall be in possession of over the daily bag limit in any one day or while fishing on the water, unless that recreational saltwater angler is aboard a trawler engaged in commercial fishing for a consecutive period of longer than 25 hours.

** (Cameron & Calcasieu Parishes) Daily take and possession limit of 15 Spotted Seatrout (Speckled Trout): no person shall possess, regardless of where taken, more than two spotted seatrout exceeding 25 total inches in length, which are considered part of the daily bag and possession limit in state and coastal territorial waters South of 1-10 at the Louisiana/Texas border to its junction with LA HWY 171, south to Hwy's 14 and 27 near Holmwood, south along Hwy. 27 to Hwy. 82 to the Gulf of Mexico.

*** There are specific regulations for Bass, Red Snapper and Shark. Contact the LDWF for more information.

FORK LENGTH (FL): Tip of snout to fork of tail. TOTAL Length (TL): Tip of snout to tip of tail.

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