SANITATION GUIDE FOR LIMITED-USE SEPTIC SYSTEMS: ALTERNATIVE TREATMENT AND DISPERSION TECHNIQUES

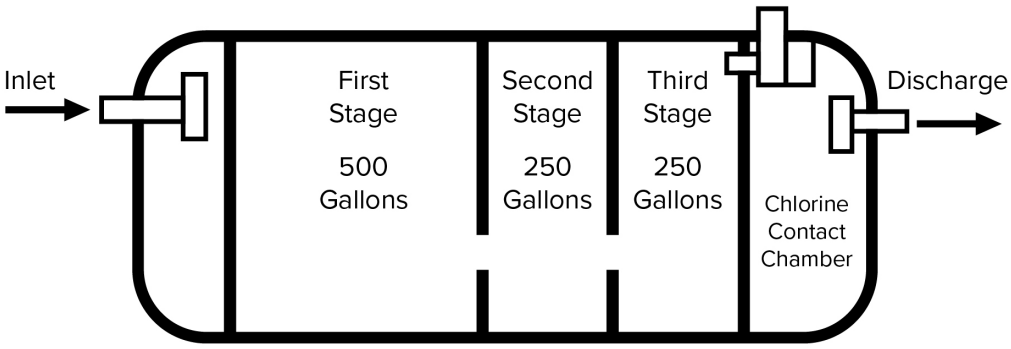
Geographically, Louisiana's coastal landscape provides ample opportunities for hunting, fishing, tourism and commercial industries. Though the impact of storms in recent years has dwindled coastal infrastructure and populations, many semipermanent camps or properties host activities throughout the year. A unique aspect of these locations is the wetland or marsh-based soil that lacks a foundation for permanent water infrastructure. The yearly saturation, high water table and susceptibility to erosion make a conventional septic system unfeasible. Due to the prevalence of these camps, the Louisiana Department of Health has regulations for nonwaterborne systems which are allowed where a dwelling is not served with water under pressure and is occupied less than four days a week. These limited-use sewerage systems also apply to houseboats found across many waterways. The design of most houseboats across the state makes manufacturing wastewater infrastructure difficult and requires specifically licensed contractors by the state to produce units to be used on vessels. The ability for houseboats to move from one location to another also makes the treatment of wastewater effluent imperative to reduce the risk of public health exposure and water quality pollution. Vessels that are permanently moored shall be connected to an approved sewage system for the given parish.

In either a camp or houseboat setting, the traditional discharge is directly into the water or wetland ecosystem. Wetland ecosystems are known to be great absorbers of nutrients and help convert organic material to more stable forms. This process is naturally occurring and is continuously fed by the surrounding environment. In areas of high-density camps or houseboats, care must be taken to ensure the safe discharge of effluent to protect water quality in our state's waterways. Discharge from septic systems can cause problems with higher concentrations of nutrients (nitrates and phosphates) which can lead to eutrophication or hypoxic zones in shallow, low-flow waterways. These nutrients stimulate the growth of algae blooms that will reduce the dissolved oxygen in the water as they decompose. This causes the hypoxic events for different levels of the water column. Ultimately if the aquatic species do not migrate to other areas, they will die along with vegetation due to a lack of dissolved oxygen in the water column. Along with the increased risk of hypoxic events from septic inputs, if not disinfected correctly, the human organic matter can add bacteria to the water and wetland ecosystems. Though there are naturally occurring bacteria in the environment, the harmful coliform bacteria and viruses found in fecal matter pose a public health risk for swimming, kayaking and other recreational activities. This makes proper treatment of camp and houseboat sewage a priority to maintain healthy ecosystems and clean water for communities downstream.

Limited-Use Sewage Systems

Conventional septic systems are designed for specific gallons per day effluent flow in residential settings based on rooms and fixtures. Though there are similarities between residential homes and camp/houseboats, there is still variability in usage, volume of water and available space which makes designing a septic unit difficult in these settings. Both the physical integrity of the fiberglass tanks and the biological processing of the anaerobic bacteria have constraints when

systems are used in irregular intervals, such as a camp only being utilized for weekend duck hunts during the season and a few occasional trips for fishing during the summer. The potential for fluctuating numbers of people at these locations throughout the year makes the physical capacity difficult to estimate. Standard limited-use systems are comprised of a first cell with a liquid capacity of 500 gallons and second/third cell capacity of 250 gallons. This is followed by a 100-gallon chlorine contact chamber to disinfect prior to discharge. The chlorination system should be equipped with an automatic cutoff to prevent flow from the third septic chamber if the chlorine supply is exhausted. This requires periodic maintenance to ensure chlorine is stocked. The total system allows for ample capacity for fluctuation in effluent volume at a dwelling occupied for less than four days a week. If the septic unit is too small for the variable use, it has the potential to fail and discharge untreated sewage into the environment. For the anaerobic bacteria, in the period of low-use and reduced organic material, the microbial population decreases and may not be able to adequately process higher-use, increased organic matter periods later in the year. To help mitigate the decrease in microbial activity, there are commercial products for septic systems that can help seed or cultivate bacteria to help efficiently process waste by increasing the number of bacteria in your unit. Limited-use systems are regulated and approved by the Louisiana Department of Health. There are specific manufacturers approved to build these systems, but some older ones may still be seen in the field from use before the formal approval process. For mechanical systems, it is important to understand the power needs of the unit. It is important to check with the manufacturer to understand the amount of power needed to process and if the unit requires a continuous power source.



Typical multi-compartment "camp" waste treatment system

Operating and Maintaining Systems

The following operational guidelines are important for any septic system, but camps and houseboats should take extra care to protect the efficiency of these units. For additional tips on best practices for septic systems, check out **What Types of Wastewater Do You Generate**. Some common issues that may create long-term problems for the treatment of septic systems include:

- Introducing unnecessary organic matter, nonbiodegradable plastics, fats, oils and greases to the septic systems. Some examples of the above items include food scraps, wrappers, hygiene products, cooking oils and fats from meat scraps. In most cases,

these waste products should be disposed of in a trash can instead of down the drain. Each of the products will cause various problems like increasing sludge material or clogging discharge pipes. This will require additional maintenance or pump-outs at marina sites.

- Motor oil, gasoline, diesel fuel or other petroleum products should never directly or indirectly enter the septic systems. This is common when washing your hands to get the residual product off after working on a boat or equipment. These projects add oil and grease to the floating layer and have the ability to clog the system. Additionally, harsh chemical products can be toxic to the bacteria breaking down the organic matter and resulting in improper treatment.

- Other chemicals such as antimicrobial soaps, disinfectant bleaches, concentrated cleaning materials or pesticides will have negative effects on the anaerobic bacteria treating the wastewater. If you are disinfecting a fish fillet table, it's best to wash it down with water and then wipe it with disinfectant wipes to dispose of in the trash can instead of putting the cleaning products down the drain. The bacteria can handle low concentrations of normal household cleaners, but large quantities could reduce the efficiency of the treatment processes.

- Water conservation practices should be utilized in camp and houseboat settings to reduce the volume added to the septic systems. A major issue in these cases could be leaks from pipes around the camp that cause unnecessary water to enter the system. In most cases, the appliances will be limited, but as more people come to the camp or boat, it's a good idea to monitor the high flow rates entering the tank. This means taking shorter showers or turning off water in the kitchen and bathroom when not in use. Wastewater can be classified as either "gray water" or "black water." Gray water is typically associated with bathing, showers, bathroom sinks, washing machines and dishwashers. This is the type of water that water conservation practices are more easily applied to. Black water commonly refers to toilets and kitchen sinks where there are higher loads of organic material (human or domestic food waste) that may contain harmful bacteria and other pathogens. For other ideas for water conservation see Better Water Practices for tips

The major signs of septic issues will be odor or backups into the main appliance. This would include sinks or toilets being clogged, not flushing or having water come back up the drain. Corrective action for issues may include checking power for mechanical systems or solid accumulation in tanks. For smaller systems, regular pumping can prevent systems from overflowing or failing. For houseboats, it's best to find a local marina that supports either full-service or self-service pump-out stations. For more tips and preventative maintenance hints on conventional septic systems, check out **Preventative Maintenance Tips and Warning Signs of Septic Issues for Homeowners.**

Regulations for Camps and Houseboats

The wastewater effluent generated from land-based camps are regulated by the Louisiana Department of Health while the houseboats wastewater management is under the jurisdiction of U.S. Coast Guard.

The Louisiana Department of Health Sanitary Codes LAC Title 51, Part XIII, Subchapter B, Design and Construction Regulation outlines septic units including pit privy where water under pressure is not served, thus not allowing for conventional septic systems to be installed. Additionally, Sanitary Codes LAC, Title 51, Part XIII, Chapter 13, Special Applications (formerly Chapter 13, Subpart E), outlines limited-use systems. For other information regarding where water is not served under pressure, Sanitary Codes LAC Title 51, Part XIII, Chapter 11, Non-Waterborne Systems outlines general requirements. It is best in any case consult the state health officer to

ensure the design and installation will not cause a public health hazard or nuisance. Complaints may warrant an inspection by local sanitarians that could enforce fines for noncompliance.

The Sanitary Codes LAC Title 51, Part XIII, Chapter 13, Special Applications (formerly Chapter 13, Subpart E) also outlines, "vessels which are permanently moored shall be connected to an approved sewerage system." This is regulated by the Louisiana Department of Health until the vessel is not permanently moored.

The U.S. Coast Guard has federal law governing marine sewage requirements. The 33 CFR Part 159 - Marine Sanitation Device outlines the design and construction of marine sanitation devices and procedures for disposal. Vessels should be equipped with a U.S. Coast Guard-certified Type I, II or III Marine Sanitation Device. For maritime purposes, sewage is defined in 40 CFR Part 140 - Marine Sanitation Device Standards as "human body wastes and the waste from toilets, and other receptacles intended to receive or retain body waste." This sewage must be disposed of in proper locations and some marinas provide pump-out facilities for holding tanks.

While no one wants to contribute to sewage pollution of our waterways, recreational boaters are large contributors to the degradation of water quality from sewage discharge. Any discharge of untreated sewage by boaters is prohibited in all areas of navigable water in the United States by federal law. Taking proper actions for wastewater treatment can promote the preservation of Louisiana's natural systems and waterways for the future.

Louisiana Boat Sewage Disposal Facilities

Downtown Marina
City: Houma
Waterway: Bayou Terrebonne
Latitude: 29.599 N
Longitude: 90.711 W
Phone: 985-873-6428
Details: Self-service pump-out station
Fee: Free

Bowtie Marina
City: Lake Charles
Waterway: Contraband Bayou
Latitude: 30.204 N
Longitude: 93.240 W
Phone: 337-478-0130
Details: Full-service pump-out station
Fee: $20

Marina Del Ray
City: Madisonville
Waterway: Tchefuncte River
Latitude: 30.399 N
Longitude: 90.153 W
Phone: 985-845-4474
Details: Self-service pump-out station
Fee: $10

Marina Beau Chene
City: Mandeville
Waterway: Tchefuncte River
Latitude: 30.417 N
Longitude: 90.125 W
Phone: 985-845-3454
Details: Self-service pump-out station
Fee: $5

Mariners Village Marina
City: Mandeville
Waterway: Lake Pontchartrain
Latitude: 30.366 N
Longitude: 90.091 W
Phone: 985-626-1517
Details: Full-service pump-out station and portable toilet washdown station
Fee: $5

Forsythe Point
City: Monroe
Waterway: Ouachita River
Latitude: 32.518 N
Longitude: 92.133 W
Phone: 318-329-4101
Details: Full-service pump-out station
Fee: Free

Moon Lake Resort
City: Monroe
Waterway: Ouachita River
Latitude: 32.606 N
Longitude: 92.094 W
Phone: 318-322-2300
Details: Self-service pump-out station
Fee: Free

Lake End Park
City: Morgan City
Waterway: Lake Palourde
Latitude: 29.718 N
Longitude: 91.188 W
Phone: 985-380-4623
Details: Full-service pump-out station
Fee: $5

Cypress Bend Park
City: Negreet
Waterway: Toledo Bend
Latitude: 31.420 N
Longitude: 93.679 W
Phone: 318-256-4118
Details: Full-service pump-out station and portable toilet washdown station
Fee: $5

Orleans Marina
City: New Orleans
Waterway: Lake Pontchartrain
Latitude: 30.024 N
Longitude: 90.119 W
Phone: 504-288-2351
Details: Self-service pump-out station
Fee: Free

Slidell Municipal Marina at Heritage Park
City: Slidell
Waterway: Bayou Liberty
Latitude: 30.280 N
Longitude: 89.784 W
Phone: 985-646-4371
Details: Self-service pump-out station
Fee: Free

Pleasure Point Landing
City: Toro
Waterway: Toledo Bend
Latitude: 31.242 N
Longitude: 93.581 W
Phone: 318-565-4810
Details: Full-service pump-out station and portable toilet washdown station
Fee: Free

Approved Vendors by Louisiana Department of Health

Prior to the existence of a formal approval process for limited-use systems, sewage treatment systems that met dimensional requirements in the Public Health – Sanitary Code could be used. Manufacturers of these three-cell "old' camp units are listed below and at https://ldh.la.gov/assets/oph/Center-EH/sanitarian/onsitewastewater/LimitedUseSystemsList09-15-2015Final.pdf.

- Advanced Fiberglass Products, P.O. Box 969, Gray, LA 70359, 985-447-1624
- Delta Environmental Products, 8263 Florida Blvd., Denham Springs, LA 70726, 225-665-6162
- Lacey's Digging and Fiberglass Works, 2400 Highway 471, Brandon, MS, 39042, 601-939-6511 or 601-829-2886
- Mo-Dad Companies LLC, 9000 Cook Road, Denham Springs, LA 70726, 225-665-2949
- Murphy Cormier General Contractor Inc., 2885 Highway 14 East, Lake Charles, LA 70607, 337-474-280
- Rogers Ready Mix LLC, 45232 Rogers Road, Hammond, LA 70401, 985-345-4096
- Southern Manufacturing Company, P.O. Box 790, Groves, TX 77619, 409-962-4501
- Wastewater Treatment of Louisiana, 17188 Airline Highway, Suite M-157, Prairieville, LA 70769, 225-673-3156

Additionally, Part XIII was amended Jan. 20, 1999, to provide a formal review and approval process for limited-use systems. The following have been specifically designated as approved manufacturers and systems by OPH/Engineering Services:

- Byrne, Rice and Turner Inc., 1172 Camp St., New Orleans, LA 70130, 504-525-7137
  - Model: Humphrey Model HF
- Houseboat Outlet, 329 Hardware Road, Broussard, LA 70518
  - Models: HBO-60 (The MSD Model 1200), LUS 75 (Revision to HBO-60), HBO-250, EMT
- Mo-Dad Companies LLC, 9000 Cook Road, Denham Springs, LA 70726, 225-665-2949
  - Model: MVC
- National Wastewater Systems Inc., 6754 Highway 90 East, Lake Charles, LA 70615, 337-439-0680
  - Model: Solar Air Camp Unit
- Owens Manufacturing and Specialty Co., 841 Vincent Road, Lafayette, LA 70508, 337-991-9568
  - Model Owens OW-A-HB
- Seahorse Manufacturing LLC, 5802 Paradise Lane, New Iberia, LA 70560, 337-365-9115
  - Model: Seahorse SMSD300

References

- https://www.epa.gov/sites/default/files/2021-06/documents/a_recreational_boaters_guide_to_vessel_sewage.pdf
- https://www.deq.louisiana.gov/page/louisiana-water-quality-integrated-report
- https://www.epa.gov/septic/types-septic-systems#septictank
- https://ldh.la.gov/page/wastewater
- https://www.wlf.louisiana.gov/page/boat-sewage-clean-vessel-act
- https://ldh.la.gov/assets/oph/Center-EH/sanitarian/onsitewastewater/LimitedUseSystemsList09-15-2015Final.pdf

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