

WATER LOG

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MR-GO Flooding Lawsuit: The Final Chapter

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Beware of Attack Geese: Court Considers Liability in Pet Goose Attack

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*Cover photograph of the Mississippi River-Gulf Outlet
shipping canal in New Orleans, Louisiana;
courtesy of John McQuaid.*

*Contents photograph of a sunset over the Mississippi River;
courtesy of John McQuaid.*

• UPCOMING EVENTS •

Environmental, Energy, and Resources Law

23rd Fall Conference

October 28-31, 2015
Chicago, IL

<http://bit.ly/23rdfall>

National Working Waterfronts & Waterways Symposium

November 16-19, 2015
Tampa, FL

<http://conference.ifas.ufl.edu/nwwws>

Living Shorelines: Sound Science, Innovative Approaches, Connected Community

December 1-2, 2015
Hartford, CT

<http://bit.ly/livingshorelines15>

MR-GO Flooding Lawsuit: The Final Chapter

Autumn Breedon



Photograph of flooded homes after Hurricane Katrina in New Orleans, Louisiana; courtesy of Matt Ewalt.

With the tenth anniversary of Hurricane Katrina on the horizon, the court may have reached a final resolution in the Mississippi River Gulf Outlet (MR-GO) litigation. In October 2005, St. Bernard Parish, Louisiana, along with private property owners (collectively St. Bernard) filed a lawsuit against the U.S. Army Corps of Engineers (Corps) for damages suffered during and after Hurricane Katrina.

St. Bernard alleged that the Corps' MR-GO project led to an uncompensated governmental taking of property following multiple severe storms and hurricanes. The court was then faced with the question of whether flooding could be a type of governmental taking of land under the Fifth Amendment to the U.S. Constitution.

Background

In 1956, Congress authorized the Corps to construct a channel to create a shorter shipping route between the

Gulf of Mexico and New Orleans which would come to be known as the Mississippi River – Gulf Outlet or MR-GO.¹ In 1963, the Corps completed construction on the first two phases of the MR-GO: a 76 mile long, 36 feet deep, and 500 feet wide channel along with levees to prevent river overflow.² Over the subsequent years, from erosion and no maintenance efforts from the Corps, the MR-GO channel eventually reached an average width of 1,970 feet. This was well over three times its authorized width.

Prior to even beginning construction, the Corps was aware of the adverse effects of saltwater on freshwater wetlands and predicted that the excavation for the MR-GO could result in major ecological changes to the area. The increased salination as a result of the more direct channel for seawater led to decreased wetland plants, including cypress and other tree species, which in turn allowed for greater erosion and more open water.

The erosion of the wetlands and trees, which typically provide a natural barrier for storm surge by decreasing wave energy, cumulatively led to an increased storm surge. The specific geography of New Orleans and construction of the MR-GO caused what was called a funnel effect. A funnel effect had been described as a “superhighway” for storm surges with the potential to amplify water surges by 20-40% based on storm modeling. Letters and documents reflected in the Congressional record show that the Corps was aware of the effect of decreased wetlands and the funnel effect, yet nothing significant was done to prevent it.

Then on August 29, 2005, Hurricane Katrina made landfall. During the resulting storm surge and flooding, the Corps’ levees failed and much of New Orleans was destroyed or damaged. Somewhere between 68% and 98% of the homes in St. Bernard Parish and the Lower Ninth Ward were severely damaged or destroyed. Just four weeks after Hurricane Katrina devastated much of the Mississippi and Alabama coasts, Hurricane Rita – the most intense tropical cyclone ever recorded in the Gulf of Mexico— made landfall in Louisiana.

It has been noted that the failure to maintain the MR-GO was a contributing factor of breached levees and flooding in New Orleans following Katrina, Rita, and several other severe storms, evidenced by facts stating that the MR-GO had exceeded its 500 feet width appropriation to be 3,000 feet wide in at least one point.³ In 2009, the Corps closed the MR-GO as a result of the likelihood that storm surge would again cause flooding in subsequent hurricanes and severe storms.⁴

Following the damage, various property owners in the area filed a lawsuit against the Corps seeking monetary damages. So many cases alleging personal injury were filed following Hurricane Katrina that they were consolidated before a Louisiana district court. In November 2009, the district court found in favor of six plaintiffs seeking damages from the Corps for negligent failure to maintain and properly operate the MR-GO. The court ruled that the United States was liable for damages incurred in the aftermath of Hurricane Katrina due to failure to properly maintain the MR-GO resulting in the flooding of New Orleans. The Corps appealed the decision.

In September 2012, the U.S. Court of Appeals for the Fifth Circuit, on rehearing, found that the government was immune to the claims of the residents injured by operation of the MR-GO under the discretionary function exception to the Federal Torts Claims Act.⁵

In a claim independent of the consolidated district court case, St. Bernard Parish brought a complaint in U.S. Court of Federal Claims on October 17, 2005 under the Takings Clause of the Fifth Amendment of the Constitution alleging that the MR-GO caused flooding on their properties during and after Hurricane Katrina that constituted a taking of their land.⁶ This article addresses the court’s ruling on the claims brought in that case.

Temporal Taking

The Takings Clause of the Fifth Amendment provides that “private property [shall not] be taken for public use, without just compensation.”⁷ The U.S. Supreme Court has previously stated that this prohibition extends to property owned by state and local governments.⁸ A taking can also be temporary, meaning the government seizure of land for a temporary amount of time.

Where a temporary taking is alleged, as in this case, the property owner must establish: (1) a protectable property interest under state law; (2) the character of the property and the owners’ “reasonable-investment backed expectations;” (3) foreseeability; (4) causation; and (5) substantiality.⁹ The court easily found that St. Bernard established a protectable property interest under state law. The court was also satisfied that St. Bernard had met the second criteria related to the property owners’ reasonable expectations of their property by demonstrating that the public and property owners were not informed about the flooding risks to the area. However, the court required deeper analysis regarding the other three criteria.

Initially, the Corps alleged that “[f]looding experienced on a single occasion – even if attributable to government action – cannot constitute a taking.”¹⁰ The Corps continued by arguing that because the flooding events happened separately each time a subsequent hurricane or storm came through Louisiana, St. Bernard failed to establish a taking. The court, though, distinguished the current case from the previous cases the Corps cited. Rather, according to the court, the trial court

should consider the “character of the invasion” to determine whether a temporary taking by government-induced flooding occurred.¹¹ The court then looked at the specific facts of the St. Bernard case and found that the substantially increased MR-GO-induced storm surge during Hurricane Katrina had a “character” that evidences a taking. In addition, St. Bernard properties experienced “intermittent, but inevitably reoccurring” flooding thereafter until 2009 when the Corps closed the MR-GO. The court ultimately found a government taking may arise from one occasion of flooding, but a taking may also arise as a result of flooding that was “inevitably reoccurring.”¹²

In establishing foreseeability and a causal link for temporal taking, St. Bernard pointed to increased salinity, increased habitat/wetland loss, increased erosion, increased storm surge, and the funnel effect to show that the devastating flooding from the MR-GO was reasonably foreseeable. The Corps argued that an intervening and unpredictable natural force – like a hurricane or tropical storm – precludes the court from finding that the flooding was the direct, natural, and probable result of the MR-GO. However, the court explained that because the Corps set this chain of events into motion through authorized deviations from the plan, the fact that a later event may have “tipped the scale” does not break the chain of foreseeable results of the action.¹³ The court likened the actions to lighting a fire. While the Corps didn’t necessarily light the match in this case, they did supply the fuel. The court ruled that it was foreseeable for the Corps that the construction, expansion, operation, and failure to maintain the MR-GO had a causal link to flooding of properties in a hurricane or severe storm.¹⁴

Finally, in establishing substantiality, or the severity of damage, the court looked to the U.S. Supreme Court for a definition. The Supreme Court has defined substantiality in multiple ways, including an economic impact on the plaintiff’s property interest and the severity of the Corps’ interference with a property interest. The court found that the property owners in St. Bernard Parish provided ample evidence regarding flooding during hurricanes and severe storms, and that there was no question the flooding during Hurricane Katrina was severe. The property owners also established that their properties were flooded with no ability to access or use

them for a significant time following Hurricanes Katrina and Rita. For these reasons, the court determined that the flooding during Hurricane Katrina and subsequent hurricanes and severe storms “preempted” access and use of the properties, and the “preemption” was substantial and severe.

The court went on to state that by 2004, a year prior to Hurricane Katrina, the Corps had to recognize that it was inevitable that a meteorological event could trigger the ticking time bomb created by a substantially expanded and eroded MR-GO. This knowledge, paired with the actual destruction following the storms, in the court’s opinion, constituted a governmental taking of land.

Conclusion

The concept that flooding can be a temporary taking is a relatively new application of the well-established legal concept of a Fifth Amendment taking. In reaching its conclusion, the court openly stated that it was not in the best interest of the Corps to further litigate this matter. After seven years of legal battle, the court concluded its opinion by stating “[i]t is time for this final chapter of the MR-GO story to come to an end.”¹⁵ 

Autumn Breeden is a 2017 J.D. Candidate at The University of Mississippi School of Law.

Endnotes

1. *St. Bernard Parish v. United States*, No. 05-1119L 2015 WL 2058969, at *1, 11 (Fed. Cl. May 1, 2015).
2. *Id.* at *2.
3. *Id.* at *53.
4. *Id.* at *2.
5. *In re Katrina Canal Breaches Consol. Litig.*, 2013 U.S. Dist. LEXIS 180464, at *91 (E.D. La. Dec. 20, 2013).
6. *St. Bernard Parish*, 2015 WL 2058969 at *1.
7. U.S. CONST. amend. V.
8. *St. Bernard Parish*, 2015 WL 2058969 at *37-38.
9. *Id.*
10. *Id.* at *45.
11. *St. Bernard Parish*, 2015 WL 2058969 at *64-65.
12. *Id.* at *65.
13. *Id.* at *66.
14. *Id.* at *44.
15. *Id.* at *74.

Beware of Attack Geese: Court Considers Liability in Pet Goose Attack

Autumn Breeden

A flock of geese; courtesy of Steven Lilley.

The definition of “pet” becomes broader every day as people begin keeping domesticated animals of all kinds on their property. Owning a pet comes with responsibilities, including keeping guests on your property safe from animal attacks. The Mississippi Supreme Court probably never imagined it would be determining whether a domesticated goose attack was comparable to a dog attack, but this case challenged the court to do just that.¹

Background

Donna Bailey and Janet Olier met through an online gardening message board. Olier was interested in Bailey’s plants and set up a time to visit Bailey’s home to view her plants. Bailey also owns a flock of geese that freely roam the yard. However, the geese are barricaded from entering the front porch or the house by large buckets of water.

Bailey’s yard had a “Beware-Attack Geese” sign posted, and she verbally warned Olier of the presence of the geese.

Despite Bailey’s warning, Olier wanted to view a plant and stepped from the safety of the porch into the yard while Bailey watched from the porch. Upon entering the yard, a large goose squawked at Olier and reached its neck out as if it meant to bite her chest. Olier retreated back to the safety of the front porch and expressed her fear of the geese to Bailey. Bailey assured Olier that the geese would not bite if Bailey was present and gave Olier a bamboo pole to fend off the birds.

After teaching Olier how to use the bamboo pole to fight off any geese, the two women entered the yard and Bailey attempted to lead the geese away from Olier. However, the geese noticed Olier and aggressively approached her squawking and hissing. Frightened by the

geese, Olier threw the pole to the ground. At this point, a goose reached out and bit Olier. Olier then turned to flee, tripped over the barricade intended to keep the geese off of the porch, and fell, breaking her arm. Olier sued Bailey in county court. The court held that Bailey fulfilled her duty to the guest on her property, and Olier appealed.

Duty Owed to Visitor

In determining what duty a landowner owes a visitor to their property, the court must first determine the status of the visitor. A person may be classified as a licensee or invitee when they are a guest on another person's property depending on the circumstances of their visit. The court defines a licensee as someone who "enters the property of another for his or her own convenience, pleasure or benefit pursuant to the license or implied permission of the owner."² On the other hand, an invitee is defined as a visitor who enters the property of another for their mutual benefit. An invitee is owed a higher standard of care by a landowner described as keeping the premises reasonable safe and, when not reasonably safe, to warn only where there is hidden danger.

On appeal, Olier claimed that she was an invitee because her visit to Bailey's property was to discuss their shared hobby, which is mutually beneficial. However, the court denied the claim of Olier as an invitee. Rather, the court found that Olier was a licensee, citing that Bailey gained no benefit from Olier's visit because while on the property Olier did nothing more than view plants and converse. Therefore, the standard of care that Bailey owned to Olier as a licensee was to refrain from "willfully or wantonly injuring" Bailey.

Additionally, a landowner owes a duty to a licensee to not "set traps for him by exposing him to hidden perils."³ On appeal, Olier claimed "the geese were a hidden danger, and that her being in the yard with them, with her access to the porch blocked by a wall of buckets, was tantamount to a trap."⁴ Further, Olier argued that Bailey possessed knowledge of geese, and their aggressive tendencies. In determining whether Bailey breached the duty of care owed to Olier, the court examined the facts of the case. The court noted that in this instance, the geese were not a hidden danger because Bailey had a sign warning visitors of their presence. The court also noted that the buckets were plainly visible, and Olier was aware



Photo of a goose; courtesy of Andriy Baransky.

of them, as she stepped over them to enter the yard the first time. There was no evidence in the record that Bailey either "knowingly or intentionally" allowed her geese to roam the yard for the purpose of biting Olier, or that she placed the buckets of water in such a manner that would constitute a hazard. The court held that Bailey did not breach her duty of care to Olier, who was a licensee as a matter of law.

The Dangerous-Propensity Rule

The Dangerous-Propensity Rule in Mississippi is interpreted to mean that an animal owner may be exposed to liability for an attack by their animal when: (1) there is some proof that the animal has exhibited some dangerous propensity or disposition that the owner was aware of, and (2) the attack was reasonably foreseeable. In previous cases regarding the Dangerous-Propensity Rule, the court found that a dog barking and chasing someone was sufficient to put an owner on notice of a possible attack.⁵

On appeal, Olier claimed that her encounter with the geese could be divided into two incidents: the first incident being the first time she entered the yard which resulted in her retreat to the porch, and the second incident being the attack which resulted in her injury. Her claim was that the first incident was enough to put Bailey on notice that an attack and injury were reasonably foreseeable.

To resolve this issue, the court considered whether the threatening behavior of one animal in a larger group of animals could put an owner on notice that all of the animals in the group were dangerous. The court reasoned that:

Whether a pack of dogs, a herd of rodeo cattle, a swarm of honey bees, or a gaggle of geese—when analyzing the behavior of any grouping of nonhuman creatures with a dangerous propensity *collectively*, it is unnecessary and counterintuitive to analyze the unique history of each and every creature in the unit.

Following this reasoning the court determined that Olier feared not the goose but the gaggle, the bamboo stick was provided for protection from *all* of the geese, and Bailey attempted to distract *all* of the geese. Taken together, the facts reasonably demonstrated that the goose attack was foreseeable and Olier was entitled to a rehearing of her case.

Conclusion

Never before has the state been asked to address the owner liability of nontraditional pets like geese, but as the definition of “pet” expands so does the law. The Mississippi Supreme Court remanded the case to the County Court of Jackson County for questions of fact regarding whether Bailey was on notice of the geese’s alleged dangerous propensity, whether the injury was reasonably foreseeable, and to reconsider whether the Dangerous-Propensity Rule in the state should include domestic fowl who threaten the safety of guests on property. ↗

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Endnotes

1. Olier v. Bailey, No. 2013-CA-01411-SCT, 2015 WL 1611772, at *1 (Miss. Apr. 9, 2015).
2. Massey v. Tingle, 867 So. 2d 235, 239 (Miss. 2004).
3. Marlon Inv. Co. v. Connor, 149 So. 2d 312, 315 (Miss. 1963).
4. *Olier*, 2015 WL 1611772 at *8.
5. Mongeon v. A&V Enterprises, Inc., 733 So. 2d 170, 172 (Miss. 1997).
6. *Olier*, 2015 WL 1611772 at *24.
7. *Id.* at *25.

WATER LOG: IMPORTANT ANNOUNCEMENT

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Mississippi's Continuing Battle over Lands Held in Public Trust

L. Kyle Williams

Sunset on East Beach in Ocean Springs, Mississippi; courtesy of Jay Fox Photos.



The Mississippi Supreme Court recently reviewed an ongoing dispute over the ownership of "East Beach" in Ocean Springs, Mississippi.¹ The dispute centers around whether the upland landowners or the government own the strip of sandy beach located between the upland and the waters of the Mississippi Sound. The area is locally known as "East Beach." Crucial to the ownership determination is whether this sandy area falls within the scope of the public trust doctrine.

Background

Clyde H. Gunn, D. Neil Harris, and Vecie Michelle Harris, waterfront property owners in East Beach, filed suit to confirm title to a sand beach located to the south of a road and seawall in Ocean Springs, Mississippi. Previously, Harris and Gunn had separately filed for an injunction to prevent the City of Ocean Springs from constructing a sidewalk on the beach in front of their properties. The State of Mississippi, the County of

Jackson, and the City of Ocean Springs claim title to the same land. The court granted partial summary judgment in favor of Gunn and Harris and found that the sand beach was not public trust tidelands. The court also vested title to the sand beach in fee simple in Gunn and Harris, subject to prescriptive easements to the City and County for maintenance.

In doing so, the trial court reasoned that, under the Public Trust Tidelands Act, the mean high water line as of July 1973 determined the boundary between public trust lands and the properties of Gunn and Harris. In Mississippi, where land is accumulated due to avulsion or artificial or non-natural means, it remains in the possession of the upland private landowner. According to the trial court, the State had failed to demonstrate that the beach—adjoining the Gunn and Harris properties—was not artificially constructed pursuant to a legislative enactment. The State, County, and City appealed.

Mississippi's Public Trust

The Public Trust Doctrine preserves certain lands, which are subject to the ebb and flow of the tide, for public use. This helps to ensure the public will maintain access to the nation's waters for reasonable use and enjoyment. The lands were originally held by the Crown, then the Union, and finally were transferred to the States at the time they joined the Union. For this reason, the public trust doctrine is largely a creature of state law and may vary slightly by state. In Mississippi, the state holds title to all submerged lands below the mean high tide line.

Mississippi is unique in that it has enacted a state law to govern the tideland areas. Under the Mississippi Public Trust Tidelands Act, “the beds and shores of the sea and its tidally affected arms and tributaries are held in public trust for the use of all people.”² The Mississippi Public Trust Tidelands Act was passed to alleviate confusion over waterfront boundaries. It established that fixed boundaries (hardened shoreline) constructed before 1973 could remain in the hands of the waterfront property owner. For all other shores (like marshes and wetland areas), the waterfront property lines will continue to migrate with erosion, accretion, and avulsion. The Mississippi Secretary of State manages these lands. Current lands held in public trust are depicted in the Secretary of State’s Map of Public Trust Tidelands, completed in December of 1994.

East Beach: Public or Private

Several issues were raised on appeal, one of which was the allowance of testimony by the State’s expert. The trial court had not allowed the affidavit of Dr. George Cole, on behalf of the State, into the evidence. Dr. Cole’s affidavit showed that, in his opinion, the shoreline was located inland of the seawall’s location prior to the construction of the seawall. Only after the construction of the seawall and public renourishment of the beach did the shoreline migrate towards the sea, extending the sandy beach. This testimony, had it been admitted, would have favored the State’s position. However, the trial court had excluded his testimony. On appeal, the Supreme Court held that the chancellor abused his discretion in striking the affidavit of Dr. Cole and that, in the future, the State should have an opportunity to respond to requests to strike the testimony of witnesses.

The Court next considered whether there was adequate evidence in the record to determine ownership of the sandy beach. After a lengthy recitation of the historical development of public trust law within Mississippi, the Court weighed the merits of the instant case. The State had introduced several articles of evidence on appeal, including letters between the Jackson County Board of Supervisors and the U.S. Army Corps of Engineers requesting and granting permission to “construct a sand beach 200 to 300 feet wide by 11,700 feet long, *in the Mississippi Sound, fronting Ocean Springs, Mississippi.*”³ In addition, the evidence included aerial photographs of East Beach in 1942 and 1958, as well as an agreement previously signed by Gunn, where he “*agree[d] that the adjacent sand beach from the seawall to the mean high water mark is Public Trust Lands and shall be open to public use and public access.*”⁴ The Court additionally stated that the maps prepared by the Secretary of State “[d]enotes approximate location of mean high water line in areas where the current location of said line (or the toe of the seawall in areas where beach renourishment has occurred) is the boundary of public trust lands.”⁵ Further, as provided by the prior judicial decisions, the 1973 water line is not controlling with regard to sand beaches created by filling in tidelands.

Where there is no discrepancy as to pertinent facts, the court can enter summary judgment—a finding for a particular party without completion of a full trial. The Court found that the State had produced evidence that raised genuine factual issues as to whether or not the sand beaches were created by filling in tidelands, including the letters, photographs, and Gunn's signed tidelands lease where he agreed the beach was considered tidelands held in public trust by the State and open to public use. In writing the opinion, the Court said summary judgement should be granted with great caution, especially here, where both private and public interests are greatly affected. The Court found Gunn and Harris, burdened with demonstrating there was no genuine issue of material fact, came short of meeting their burden. Accordingly, the Court reversed the trial court's decision to grant partial summary judgment and remanded the case back to the trial court for a full trial.

Conclusion

The Court ruled the case should proceed to a full trial on the merits, as the State's evidence had created genuine factual issues as to whether East Beach—encompassing the property in question—had been formed by artificially filling the tidelands. Due to Mississippi's geography—adjoining the Gulf of Mexico, the Mississippi River and their tributaries—disputes involving public trust lands will likely remain before the courts. The responsibility of ensuring public trust land remains open for the reasonable use and enjoyment of the public is a great one. Therefore, a private claim to lands potentially within the public trust must be treated with great caution and care. ↗

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Endnotes

1. *Hosemann v. Harris*, 2015 WL 1485011 (Miss. April 2, 2015).
2. Miss. CODE ANN. § 29-15-5 (1989).
3. *Hosemann v. Harris*, 2015 WL 1485011 at *8 (emphasis in original).
4. *Id.* (emphasis in original).
5. *Id.* at *9.

2015 Mississippi Legislative Update



Barrier Islands

Senate Bill 2438 authorizes the secretary of state, with the approval of the governor, to negotiate with the United States and its agencies, including the National Park Service, for an in-kind exchange of land on Cat Island. Approved April 20, 2015.

Invasive Species

House Bill 839 prohibits the cultivation of potentially invasive nonnative plant species, except under the special permit requirement for plantings in excess of one acre for the purpose of controlling the cultivation of nonnative plant species for fuel production by the Department of Agriculture and Commerce. The bill's purpose is to control and restrict the planting and cultivation of nonnative plants, which may become invasive or create a nuisance. Approved March 12, 2015.

Oyster Leases

House Bill 879 revises the authority of the Mississippi Commission on Marine Resources to lease bottoms for oyster cultivation. In addition, the bill increases the maximum acreage of bottoms allowed to be leased by any individual, corporation, partnership, or association from 100 to 500 acres. Furthermore, the bill increases lease terms from one to five years and provides for an additional five-year renewal lease. Finally, House Bill 879 removes the total limitation of the number of years for renewal. Approved March 23, 2015.

Seafood Licenses

Senate Bill 2516 authorizes the Commission on Marine Resources to suspend the license of a person for being out of compliance with an order for support, to revoke the license of a person violating seafood laws, failing to comply with a summons, or failing to pay a fine. Approved March 18, 2015.

2015 Alabama Legislative Update



Community Resilience

Senate Bill 220 allows a county, municipality, or improvement district to adopt a program to issue bonds, notes, or other types of financing methods to finance improvements to certain real properties through assessments on the property tax bill, for the purpose of increasing energy efficiency and community resilience to storm-related events. The bill authorizes a local government to impose assessments in order to fund qualifying improvements for qualified projects and requires a local government to designate areas where projects would be completed. Further, the bill provides that assessments are a lien on real property, and provides for enforcement and further oversight by the state. Approved June 12, 2015.

Dredging

Senate Bill 122 establishes the Navigable Waters Dredging Fund for the dredging of the navigable waters of this state and for sediment reuse. The bill provides that the fund shall be administered by the Alabama Department of Environmental Management. Approved June 9, 2015.

Marine Resources

House Bill 312 authorizes the Commissioner of the Department of Conservation and Natural Resources to require possession of an endorsement or stamp in order to harvest specific species or species groups of marine resources pursuant to requirements and fees established by rule. Approved June 11, 2015.

Senate Bill 58 designates the Brown Shrimp as the official State Crustacean of Alabama. Approved May 5, 2015.

Wind Energy

House Bill 629 seeks to require any person to obtain a permit from the applicable local governing body prior to installing or operating a wind energy conversion system in DeKalb County. The Bill requires compliance with applicable zoning, provides for an application process for a permit, requires the certification of systems by a licensed engineer with certain experience, provides for regulations for the design, construction, and operation of wind energy conversion systems, and provides for the removal of abandoned systems. Approved June 5, 2015.

Past Choices, Present Day Actions: A History of Water Management

Stephen Deal

Urban places can be viewed as collective exercises in problem solving; a series of solutions, both simple and complex, to the challenges nature imposes on human settlement patterns. One of these challenges is the seasonal flow of water, primarily from rain but also from coastal systems such as tides. Today that problem is managed primarily by floodplain managers and engineering techniques such as detention ponds and spillways. Prior generations did not have the benefit of carefully engineered stormwater systems, so many of the solutions were essentially simple, low tech, and context-sensitive. Many of these solutions inform the present-day techniques of Low Impact Development (LID). Yet on further inspection, these historic stormwater fixes are more than just individual techniques. They are a seamless integration of user-friendly spaces with the careful management of water flow and quality.

Legacy of Frederick Law Olmsted

Our examination of past exercises in managing water flow begins with the man many consider the father of modern Landscape Architecture, Frederick Law Olmsted. Though his career largely predates modern planning, few people exerted as much influence on the neighborhood patterns of America's cities in the late 19th and early 20th centuries as Olmsted. Olmsted designed countless parks and neighborhoods during his life, but for the purposes of brevity, this article will focus on two of his projects: Riverside Illinois and the Back Bay Fens.

Riverside, Illinois is not simply green space; it is a fully realized neighborhood. Conceived in the late 1860s on 1,600 acres west of Chicago, Riverside might be considered one of America's first suburbs.¹ With its expansive parks and well-integrated street network, it is also a fully realized community. Here, Olmsted first

implemented many of the techniques that would become hallmarks of his neighborhood design philosophy. The street design in Olmsted's Riverside was curvilinear and it followed the contours of the terrain. Though this was not an engineering necessity on Illinois' flat prairie landscape, later communities that built in this curvilinear pattern were able to cut down on grading by having roads that followed the contours of the land. The public parks and common areas in Riverside also corresponded to important natural features, though in this instance it was creeks and rivers. In Olmsted's design for Riverside, the entire floodplain of the Des Plaines River was reserved for public use. Though rivers and other riparian corridors were largely reserved for scenic use in Riverside, Olmsted would pursue tons of other projects, some of which called for a more comprehensive understanding of utilizing natural systems for human mitigation efforts. In Boston, in the year 1878, he would be presented with just such a challenge.²

In Boston's Back Bay neighborhood, he was tasked with designing a space that would essentially serve as a giant holding area for seasonal floodwaters.³ Sewage was something of a problem in Boston at the time and Olmsted sized up the site as more of a sanitary improvement rather than a park. The project was also unique because it essentially involved the restoration of the saltwater marsh located on the site. Once completed, the restored, 30-acre tidal basin could accommodate up to 20 additional acres of water. Since the project was designed more for sewage and flood control, the types of amenities were mostly intended for passive recreation, such as walkways. Later on, a Charles River dam project transformed the saltwater environment of the Back Bay Fens to a freshwater one, which prompted the city to make substantial revisions to Olmsted's design. Though



Photo of Riverside, Illinois; courtesy of James Quinn.

little of Olmsted's original plan remains, the story of the Back Bay Fens is a pioneering example of how passive recreational features can also serve as retention and filtering areas for excess water.

Going with the Flow

Olmsted's neighborhood and park designs were not the earliest attempts at adjusting to the seasonal ebbs and flows of water. Cities throughout the ages have incorporated various context-sensitive approaches to this particular problem, some quite familiar to us, others not so much. One unique historical approach can be found in Paraty, Brazil. The city of Paraty, with its high levels of rainfall and an elevation profile below sea level, has a rather precarious relationship with the water.⁴ Perhaps this is why the city founders decided to embrace this relationship in a most unusual way, by designing a town that would purposefully flood during certain high tide events. Nearly a foot of water will fill the street during these events. For the early residents of Paraty this was considered a benefit, since the tidal events served a

valuable role as a kind of street cleaning mechanism. Also, because of the regular occurrence of these events, buildings in Paraty are elevated a foot above the cobblestone streets, so building owners do not have to worry about the high tides intruding into their homes.

Another way cities have engaged in water management is through the creation of man-made canals. Few places utilize canals with quite the skill and element of craft that Amsterdam has. Arguably the most ambitious era of canal building occurred during the 16th and 17th centuries when Amsterdam was a thriving center of mercantile trade.⁵ Initially, the city was surrounded by only one canal, the Singel, which served a dual purpose as a natural form of defense and as drainage for the city. As the city continued to prosper, it began expanding beyond the initial boundaries, and what followed was an ambitious engineering feat balancing the need for drainage with the city's continued economic expansion. The expansion of the city took place in increments, starting with the construction of a new defense canal, the Singelgracht, which expanded the city's area by some 800 meters. This

defense canal made possible the addition of three new canals, which were in a series of concentric arcs and matched the original morphology of the Singel, which was the old defense canal for the medieval city. Eventually backfilling was performed to make for suitable building sites. Word eventually spread to other European countries of Amsterdam's techniques for water management and soon other cities were incorporating these water management techniques into their urban fabric. Amsterdam's manmade canals and design philosophy show how a holistic approach to water management can create suitable receiving areas for density and the high economic and social value of the canals ensures that people have a vested interest in seeing that these systems work properly and efficiently.

Historic Techniques Inform Modern-Day Planning

These practices extend into the modern day. In Atlanta, Fourth Ward Park is a new public centerpiece that has taken the spot of a former brownfield, but it is also cleverly designed to perform a more utilitarian function. The park essentially serves as a giant retention basin for stormwater that can handle runoff from more than 300 city acres. In addition, some of the retained and filtered stormwater gets reused in the park's recreational amenities, such as the two-acre lake.⁶ Elsewhere, in an Alabama New Urbanist community known as "The Waters," the builders echoed design principles used in Riverside by creating a street grid that corresponds with the natural contours of the land.⁷ Rather than undertaking extensive grading, one prominent hillock in the community was transformed into a community landmark. The bothersome hillock became the site of a new community chapel and a neighborhood focal point. To the north, the City of Toronto takes a cue from Olmsted's Back Bay Fens by having a flood control dike that is carefully integrated into the community as a brand new park.⁸ Underground pipes and a cistern help collect rain and flood water, which can then be used to irrigate the park's natural scenery.

Conclusion

The biggest problem with current stormwater management techniques is not necessarily efficiency or intent, but rather community ownership of the issue.

Most forms of stormwater infrastructure, such as drains and floodways are generally hidden from view. In other instances, stormwater infrastructure such as retention or detention ponds have the possibility of being ignored by homeowners and developers, since they are usually little more than a passive mitigation technique and generally not perceived as a public congregating point. By comparison, these historic parks and urban spaces, in some respects, operate on Jane Jacobs' "Eyes on the Street" theory, which generally states that the more people there are on the street, the more a community comes under a kind of "informal surveillance" from the residents and casual onlookers who engage with that neighborhood.⁹ In these cases, the seasonal impact of rainwater and coastal flooding becomes a visible problem, one to be managed through proactive maintenance of a city's parkland and public realm. ↗

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Endnotes

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