

A Disconnect between Law and Science: Louisiana's Waterbottom Ownership Laws in a Disappearing Coastline

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I. Introduction

The Louisiana coastline contains a rich and diverse natural environment found in few other places. Among the most dynamic are the lowlands of south Louisiana. This region was created through a 5,000 year process of formation and degradation of delta lobes as the Mississippi River shifted courses depositing its sediment into the Gulf of Mexico.² Ultimately, these processes created a large land mass culminating into landforms and surface features recognizable today. This region has produced a cornucopia of flora and fauna attracting humans since historic and prehistoric times to collect and extract the natural bounty that the Louisiana coastal zone offers.³

The paramount role of wetland environments in the development and sustenance of cultures throughout human history is unmistakable. Since early civilization, many cultures have learned to live in harmony with wetlands and have benefited from the resources and functions they provide.⁴ European settlers recognized these values in Louisiana's coastal region and began inhabiting the area in the early 1700's. American Cajuns, descendants from French colonists of Acadia, moved to the Louisiana delta in the last half of the eighteenth century and flourished within the bayou wetlands.⁵

Expectantly, as Europeans settled the region, they also incorporated the European ideals and principles of individual land ownership into the rules of society. However, formal delineations, subrogations, and divisions of land within the region did not occur until the 1800's when the United States surveyed and subdivided lands for governmental tax collection purposes.⁶ As land was purchased and subdivided, newly enacted laws created a basis to distinguish between private and public lands, including waterbottoms, those lands that underlie the surface waters of the state.

In drafting these rules of law, lawmakers relied upon the general scientific understanding of the natural setting of the region at that time; that landforms act as stable platforms that may undergo limited amounts of change over time. However, in reality, the natural processes that sustain the landforms in coastal

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² Smith, L.M, J.B. Dunbar, and L.D. Britsch. 1986. *Geomorphological Investigation of the Atchafalaya Basin Area West, Atchafalaya Delta, and Terrebonne Marsh, Volume I*. Coastal Engineering Research Center, Department of the Army Waterways Experiment Station, Corps of Engineers, Vicksburg, Mississippi.

³ Coalition to Restore Coastal Louisiana. 1999. *No Time to Lose: Facing the Future of Louisiana and the Crisis of Coastal Land Loss*.

⁴ Nicholas, G.P. 1998. Wetlands and hunter-gatherers: A global perspective. *Current Anthropology* 39:720-731.

⁵ Mitsch, W.J. and J.G. Gosselink. 2000. *Wetlands*, 3rd ed. John Wiley & Sons, Inc. New York, NY.

⁶ Poret, O.G. 1972. *History of Land Titles in the State of Louisiana*. Louisiana State Land Office, Division of Administration, Baton Rouge, Louisiana.

Louisiana have remained in a constant state of change.⁷ These processes remain in motion today with rates of degradation exceeding formation. The current state of the coastal lowlands lies in stark contrast to the extent of the land mass when most of the existing laws were written.

As a result of the massive rates of land loss within Louisiana's coastal zone, determinations of waterbottom ownership has become increasingly contentious. As more land converts to open water, the potential for disputes over the ownership of waterbottoms, and corresponding mineral interests, will become increasingly common as application of outdated laws convert private lands into public. Furthermore, a widespread conversion of property from private ownership to public presents a number of risks detrimental to the existence of the coast, its people, and culture.

Creation and implementation of property laws pertaining to waterbottom ownership requires an informed understanding of the functions and processes of wetlands balanced with legal, institutional, and economic realities.⁸ The physical processes that influence land loss have become well-known, but laws designating ownership in this dynamic landscape remain unchanged. This paper will discuss existing laws concerning waterbottom ownership, the natural processes upon which current legal principles are based, and how ownership determinations could be affected if large-scale land loss is recognized in the law.

II. Historical Evolution of Louisiana Waterbottom Ownership Law

The evolution of the current system of land ownership in Louisiana first began when the United States acquired the Louisiana Territory from France by the Treaty of Cession on April 30, 1803 for \$15 million.⁹ The land consisted of 544 million acres and was subsequently divided into the territories of Louisiana and Orleans by the United States Congress with the Act of March 26, 1804.¹⁰

With the enactment of the Act of March 2, 1805, the United States government made its first major attempt in alienating large quantities of land to individual landowners.¹¹ The act provided for three important phases allowing individuals to confirm legal possession to their lands and acquire new lands. First, Congress created U.S. District Land Offices across the Territory which included offices for the Eastern Division of the Territory of Orleans at New Orleans, the Western Division of Territory of Orleans at Opelousas, and local offices at Quachita, Natchitoches, and Greensburg. Second, Congress created a Board of Commissioners to review the validity of French, British, or Spanish land grants issued to individuals before the United States owned the Louisiana Territory. Third, the Act directed the Surveyor General of the United States to deploy surveyors into the Territory of Orleans to establish a system to sub-divide the vacant public lands. As a result, in 1807, the territory was re-divided into 19 parishes with the boundaries derived from those used by the Spanish for ecclesiastical purposes.¹²

As tracts of land became subdivided into parishes, a systematic delineation process distinguished public from private lands. Such a determination allowed the United States government and individual states to inventory their land holdings and convey certain properties to private interests.

⁷ Gagliano, S.M., H.J. Kwon, and J.L. van Beek. 1970. Deterioration and Restoration of Coastal Wetland. Coastal Studies Institute, Center for Wetland Resources, Louisiana State University.

⁸ Mitsch, W.J. and J.G. Gosselink. 2000. Wetlands, 3rd ed. John Wiley & Sons, Inc. New York, NY.

⁹ Poret, O.G. 1972. History of Land Titles in the State of Louisiana. Louisiana State Land Office, Division of Administration, Baton Rouge, Louisiana.

¹⁰ U. S. Statutes at Large, Vol. II, p. 283

¹¹ U. S. Statutes at Large, Vol. II, p. 324

¹² Poret, O.G. 1972. History of Land Titles in the State of Louisiana. Louisiana State Land Office, Division of Administration, Baton Rouge, Louisiana.

The principles that promoted the classification of lands as public or private originated from the United States gaining independence from England. When the United States acquired its independence, it also attained sovereign control over all public things which the crown had dominion during its reign over the colonies.¹³ As the United States formalized the Federal Constitution and states were admitted into the Union, each state acquired control and ownership of these public things located within their respective borders. Beds and bottoms of all navigable waters were deemed part of the public domain and, consequently, were set aside as public highways by Act of Congress of February 15, 1811.¹⁴

By 1845, the basis for this process became known as the Equal Footing Doctrine. The doctrine, as described in *Pollard v. Hagan*, placed states on equal footing by granting each ownership over things deemed public to be held in the public trust for the common good of its citizens.¹⁵ The challenge became deciphering what constituted public things. Deeply involved in this controversy were waterbodies and the system utilized to assign public status to particular waterways and waterbottoms.

In 1894, the United States Supreme Court heard *Shively v. Bowlby* to consider whether navigable waters and the soils underneath were classified as public highways.¹⁶ The court held that when Oregon became a state, all grants and laws applicable to that territory became null and void, and that all lands became the property of the state of Oregon. This precedent, which encapsulates what became known as the Public Trust Doctrine, allowed states to gain control and ownership over navigable waterways and beds because “a state holds title to land under navigable waters within its limits and that the title is held in trust for the people of the state that they may enjoy and use the waters free from obstruction or interference.”¹⁷

Therefore, pursuant to the aforementioned doctrines, after Louisiana’s admission into the Union in 1812, the state received its equal share of the public trust lands. These waterways inured to the State, but not one acre of land was conveyed, as it had been retained by the United States government.¹⁸ For Louisiana, perhaps the largest transfer of public land to private interests resulted from the Swamp Land Grant Acts of 1849 and 1850 authorizing the State to select and request title to any vacant public lands that were “swampy” in character and nature.¹⁹ Thus, title to approximately ten million acres of swamp lands was conveyed.²⁰ The majority of swamp lands selected from the United States government by the state of Louisiana were either sold to private individuals or transferred to levee boards created in various parts of the State.²¹

As sections of land were sold by the state to private landowners, the state relinquished all rights to the land. The land transferred to private interests pursuant to the Swamp Land Grants included not only marsh lands, but also areas of land inundated by water such as rivers, streams, lakes, bays.

A. Factors used in determining ownership of waterbodies

1. Navigability

¹³ *Martin v. Waddell*, 41 U.S. 367 (1842)

¹⁴ U. S. Statutes at Large, Vol. II, p. 617

¹⁵ *Pollard v. Hagan*, 44 U.S. 212 (U.S. 1845)

¹⁶ *Shively v. Bowlby*, 152 U.S. 1 (1894).

¹⁷ (citing *Illinois Central R. Co. v. Illinois*, 146 U.S. 387, 13 S. Ct. 110 (1892))

¹⁸ U. S. Statutes at Large, Vol. II, p. 617

¹⁹ U. S. Statutes at Large, Vol. IX, pp. 352, 519

²⁰ Louisiana State Land Office, Biennial report, 1968-69, p9.

²¹ La. R.S. 38:281, et seq.

Consistent with federal rulings regarding the public nature of navigable waters, Louisiana recognizes the underlying waterbottoms of such waterways as public things. As early as 1870, Louisiana codified the meaning of “public things” and, thus, those lands that fall within the control and ownership of the state. Today, the Louisiana Civil Code defines “public things” the following way:

Public things are owned by the state or its political subdivisions in their capacity as public persons. Public things that belong to the state are such as running waters, the waters and bottoms of natural navigable water bodies, the territorial sea, and the seashore.²²

A water body is most commonly defined as navigable if it is used or susceptible of being used for commerce. However, “the term commerce generally refers to the transfer of goods or people for a pecuniary gain. The term has a very broad definition and its modern use in Federal and state jurisprudence is not restricted to particular sizes of boats or types of cargo.”²³

This notion that all navigable waters belong to the state came under fire in 1912, when the Louisiana legislature passed Act 62 to respond to claims that the state inappropriately transferred ownership of navigable waterways to private interests:

That all suits or proceedings of the State of Louisiana, private corporations, partnerships or persons to vacate and annul any patent issued by the State of Louisiana, duly signed by the Governor of the State and the Register of the State Land Office, and of record in the State Land Office, or any transfer of property by any sub-division of the State, shall be brought only within six years of the issuance of patent, provided, that suits to annul patents previously issued shall be brought within six years from the passage of this Act.²⁴

The interpretation of this Act facilitated disagreements on whether the legislature had attempted to confirm previous alienations of navigable waterbottoms from the state to private landowners. In 1953, the Louisiana Supreme Court examined the meaning of the act in *California Co. v. Price*.²⁵ In that case, the State argued the patent at issue was invalid pertaining to the bed of Grand Bay because the bottoms of navigable waters were public things and were not susceptible of private ownership. The appeals court rejected this claim relying on their interpretation of Act 62 of 1912. The court held, among other things, that water bottoms were not unsusceptible to private ownership, and the State did not move to annul the patent within the six years prescriptive period. This position, which defended private ownership of navigable waterbottoms, came to be known as the ‘Price Doctrine’.²⁶

In 1954, the legislature responded by enacting provisions to clarify Act 62 and eliminate confusion with the Price Doctrine.²⁷ The legislature declared the state of Louisiana as owner of all navigable waterways despite any previous transfer or conveyance to another person or entity. Furthermore, the legislature clarified that the intent of Act 62 was to ratify and confirm only the patents conveying waterbottoms susceptible of private ownership, but not that of navigable waterbodies or their beds.

²² La. Civ. Code art. 450

²³ Castille, George Joseph III. 1993. “A Geoforensic Analysis of State-Owned Waterbottoms in South Louisiana: Gauging the Geographical Impacts of Louisiana Court Decisions.” Ph.D. dissertation, Louisiana State University.

²⁴ 1912 La. Acts No. 62

²⁵ *California Co. v. Price*, 225 La. 706, 74 So. 2d 1 (1954).

²⁶ J. Madden *Federal and State Lands in Louisiana* (1973)

²⁷ *Gulf Oil Corporation v. State Mineral Board*, 317 So. 2d 576 (La. 1974).

Nonetheless, the issue remained alive, and, in 1974, the Louisiana Supreme Court handed down its ruling in the case of *Gulf Oil Corporation v. State Mineral Board*.²⁸ Reversing course, the court stated that “it was held in *Illinois Central Ry. Co. v. Illinois*, that the states cannot abdicate their trust over property in which the people as a whole are interested so as to leave it entirely under the use and control of private parties. In that case, the United States Supreme Court even held that a legislative grant of the State's title to submerged lands under Lake Michigan could be repealed by subsequent legislation because the lands in question were held in trust for the public use.”²⁹ The Louisiana court held that conveyances from the state to a private landowner were absolutely ineffective to the extent that the conveyances included beds of navigable water bottoms. *Gulf Oil* effectively brought an end to the notion that navigable waterways could be owned by a private landowner.

2. Tidally Influenced Lands

The prohibition of private ownership also applies to waterbottoms associated with the “sea and arms of the sea”³⁰. As explained by Professor Yiannopoulos, “The courts of Louisiana have regarded as ‘sea’ bodies of water known as ‘arms of the sea’.... In general, a body of water will be regarded as an arm of the sea if it is located in the immediate vicinity of the open coast and is overflowed by the tides directly.”³¹ Seashore is defined as: “the space of land over which the waters of the sea spread in the highest tide during the winter season.”³²

In 1888, in examining what constituted an “arm of the sea”, the Louisiana Supreme Court ruled in *Morgan v. Negodich* that Bayou Cook connecting Bay Bastian, on the open coast, to Bay Adam, lying further inland, was not considered an arm of the sea.³³ In that case, the bayou was not located in the immediate vicinity of the coast and was not directly overflowed by the tides, thereby creating a brackish marsh. In 1923, in *Buras v. Salinovich*, the court reaffirmed its previous decision in *Morgan* by stating that a body of water subject to tidal overflow does not necessarily constitute an arm of the sea.³⁴ The court considered an arm of the sea tidal waters in lakes, bays, and sounds along the open coast.

More recently, ownership of non-navigable tidelands became a significant issue in Louisiana. In 1988, the United States Supreme Court ruled in *Phillips vs. Mississippi* that sovereign ownership of waterbottoms extended to limits of effects of the tide, through marsh and into the barest depths of waters.³⁵ This decision placed owners of land subject to tidal influences at risk of losing such properties to state ownership. In response, the Louisiana Legislature enacted Act 998 of 1992 in an attempt to protect landowners from the encroachment of state interests onto private property.

The legislature hereby finds that as to lands not covered by navigable waters including the sea and its shore, which are subject to being covered by water from the influence of the tide and which have been alienated under laws existing at the time of such alienation, the Phillips decision neither reinvests the state, or a political subdivision thereof, with any

²⁸ *Gulf Oil Corporation v. State Mineral Board*, 317 So. 2d 576 (La. 1974).

²⁹ *Gulf Oil Corporation v. State Mineral Board*, 317 So. 2d 576, 589 (La. 1974).

³⁰ La. Civ. Code art. 450

³¹ A. N. Yiannopoulos. 1961. “Common, Public, and Private Things in Louisiana: Civilian Tradition and Modern Practice”. 21 La. Law Rev. 697, at 703.

³² La. Civ. Code art. 451

³³ *Morgan v. Negodich*, 3 So. 636 (La.1887).

³⁴ *Buras v. Salinovich*, 154 La. 495 (La. 1923).

³⁵ *Phillips Petroleum Co. v. Mississippi*, 484 U.S. 469 (1988).

ownership of such lands nor does the state, or a political subdivision thereof, acquire any new ownership of such property.³⁶

It remains to be seen what real effect the legislation will have as court cases challenging the Act have not yet materialized. The Act has been considered by some as unconstitutional claiming the legislature attempted to interpret the Act itself in an effort to prevent the judiciary from performing its designated duties.³⁷ This unsettled matter in the law could prove to be quite relevant as land becomes increasingly susceptible to high submergence rates and tidal influences.

3. Expansion of Waterbodies

Louisiana law also recognizes that natural processes influence physical changes in the landscape over time. More specifically, Louisiana law recognizes erosion of three types of natural features: lakeshores; banks of rivers, bayous, and streams; and seashores. Although the process of erosion functions similarly with all these types of natural features, the legal consequences of erosion can widely differ.

Louisiana civil code article 500 addresses shoreline changes associated with lake shores. The article provides that no riparian landowner shall take property rights in land exposed by a gradual receding of a lake (dereliction) or in the gradual build-up of sediment on the lakeshore (alluvion).³⁸ Furthermore, the Louisiana courts have provided that the state owns the bottom of a navigable lake up to the high-water mark.³⁹ The law pertaining to seashore erosion is very similar to lakeshore boundaries in that the riparian owner has no right to any alluvion or dereliction that occurs on the seashore.

Louisiana law treats erosion along rivers and streams differently than lake and seashores. Riparian landowners own the bank of a river or stream to the mean low water level as measured on both banks.⁴⁰ Rights to slow and imperceptible dereliction or alluvion are granted to the private riparian landowner.⁴¹ However, “if erosive forces cause a sudden or avulsive change, the legal implications are quite different from those of imperceptible changes.”⁴² The court in *Fitzsimmons v. Cassity* clarified the rule, stating “When a river changes its course and for this purpose appropriates private property for its new bed, the lawmaker, out of a spirit of justice and fairness, has wisely ordained, in effect, that the owner of the appropriated land shall be compensated for his loss by becoming owner of the abandoned bed”.⁴³ Such a rule has been deemed to ensure “predictable legal consequences in the wake of an avulsive change.”⁴⁴

Determinations of the type of waterbody have important implications on the property rights of landowners. For example, erosion on the shores of the sea and other navigable water bodies have the effect of increasing state ownership as the beds of those water bodies expand. In *Miami Corp. vs. State Mineral Board*, the claimant alleged he was the owner of the disputed lake bottom evidenced by a patent

³⁶ 1992 La. Acts No. 998

³⁷ cite

³⁸ La. Civ. Code art. 500

³⁹ *State v. Placid Oil Co.*, 300 So. 2d 154 (La. 1975), cert. denied, 419 U.S. 1110 (1975).

⁴⁰ See, *Smith v. Dixie Oil Co.*, 156 La. 691, 101 So. 24 (1924).

⁴¹ La. Civ. Code art. 501

⁴² The Legal Implications of Coastal Erosion in Louisiana. 1981. Louisiana Coastal Law, Eds. Mike Wascom and Paul Hribernick, LCL No. 43, Dec. 1981.; See, La. Civ. Code art. 504.

⁴³ *Fitzsimmons v. Cassity*, 172 So. 824, 829 (La. App. 1937).

⁴⁴ The Legal Implications of Coastal Erosion in Louisiana. 1981. Louisiana Coastal Law, Eds. Mike Wascom and Paul Hribernick, LCL No. 43, Dec. 1981.; Other La. Civ. Code articles related to changes in ownership due to actions of waters include: art. 502 & 503.

issued by the State to the claimant's predecessor in title.⁴⁵ The area at issue had become part of the bed of the lake through erosion. On appeal, the court concluded that title to the bottoms of navigable bodies of water belonged to the State as a result of its inherent sovereignty and were unsusceptible of private ownership under the provisions of articles 450 and 453 of the Louisiana Civil Code. The court's rationale was based on the fact that the land had itself become the bed of the lake, and consequently, transformed into the property of the State as a matter of law.

Thus, the laws provide the flexibility necessary to fairly account for land changes and provide predictability and uniformity in application of ownership transfers.

B. Louisiana Civil Code

The Louisiana Civil Code is primarily based on the civil law system initiated when Robert Cavelier, Sieur de la Salle claimed the present day Louisiana for France in 1682, and named the French possession "Louisiana" in honor of King Louis XIV. Thereafter, established settlements necessitated the implementation of law to keep order among settlers. In 1712, Louis XIV granted a charter to Antoine Crozat which required government of the territory by a collection of customary rules originally used in and around Paris. The territory subsequently ceded to Spain in 1762 by the treaty of Fontainebleau. The United States took possession of the territory in 1803. Much debate exists over whether Spanish or French law was retained, but in 1808, the Louisiana Civil Code was adopted and published in French and English versions.

In 1817, the Louisiana Supreme Court decided that the Civil Code of 1808 was to be relied upon only as an incomplete digest of existing laws. "The various Spanish compilations and Spanish jurisprudence in general, the Custom of Paris, the United States and Louisiana Constitutions, Acts of Congress, territorial legislation, and the 1808 Code thus became 'inextricably mixed and entangled in a baffling mélange of legal perplexity and uncertainty. It was impossible to know which codes, or what parts of them, had the force of law.'"⁴⁶ This confusion prompted the enactment of the Louisiana Civil Code of 1825 intended to distinguish itself from the past. But as the code of 1808 fell from favor, so did the code of 1825. A push for change and revision resulted from effects of the Civil War, adoption of a new constitution, and the accumulation of civil law legislation that remained outside the 1825 code.

In 1870, the legislature adopted a new code titled "The Revised Civil Code of the State of Louisiana". This code was substantially similar to that of its earlier predecessor with changes related to "the elimination of provisions concerning slavery, the incorporation of amendments made since 1825, and the integration of acts passed since 1825, which dealt with matters regulated in the Code without officially amending it."⁴⁷ Again in 1948, the Louisiana legislature was interested in revising the Civil Code and instructed the Louisiana State Law Institute to begin addressing the proposal. The institute ultimately decided to revise individual titles and chapters of the Civil Code with the purpose of focusing on particular issues and areas of law. This approach was designed to enact comprehensive legislation. Book I, II, and III have all undergone changes but only Book II has been brought to completion.⁴⁸

⁴⁵ *Miami Corp. vs. State Mineral Board*, 186 La. 784, 173 So. 315 (1937).

⁴⁶ A.N. Yiannopoulos, *The Civil Codes of Louisiana*, 1 CIV. L. COMMENT. 1, 1 (2008) p.11 (citing, Groner, Louisiana Law: Its Development in the First Quarter-Century of American Rule, 8 La.L.Rev. 350, 375 (1948)).

⁴⁷ A.N. Yiannopoulos, *The Civil Codes of Louisiana*, 1 CIV. L. COMMENT. 1, 1 (2008).

⁴⁸ A.N. Yiannopoulos, *The Civil Codes of Louisiana*, 1 CIV. L. COMMENT. 1, 1 (2008).

Book II contains the provisions relative to waterbottom ownership. However, none of these articles have been substantively changed, thus, function as they did in 1870.⁴⁹

C. Reclamation

1. Ownership of Reclaimed Land

The public policy of the state is to protect, administer, and conserve public waterways to best ensure full public navigation, fishery, recreation, and other interests.⁵⁰ However, the state has also allowed landowners the opportunity to reclaim ownership of their lands lost to open water. Reclamation is defined as:

the raising of land through filling or other physical works which elevate the surface of the theretofore submerged land as a minimum above the level of ordinary low water in the case of rivers or streams and above the level of ordinary high water in the case of bodies of water other than rivers and streams, to such heights as may be prescribed in regulations or forms adopted by the administrator of the State Land Office to ensure reasonably permanent existence of the reclaimed lands.⁵¹

The Louisiana State Constitution of 1974 specifically refers to the reclamation of submerged lands along navigable waterbodies.

The legislature shall neither alienate nor authorize the alienation of the bed of a navigable water body, except for purposes of reclamation by the riparian owner to recover land lost through erosion. This Section shall not prevent the leasing of state lands or water bottoms for mineral or other purposes. Except as provided in this Section, the bed of a navigable water body may be reclaimed only for public use.⁵²

This provision prohibits the state from selling or transferring beds of navigable water bottoms; however, it specifically allows an exception for a riparian landowner to recover ownership of eroded land through

⁴⁹ CC 450, Public Things: Comment (a) – “The first two paragraphs of this provision reflect the definition of public things in Article 453 of the Louisiana Civil Code of 1870. The third paragraph reproduces the substance of Article 454 of the same Code. This provision does not change the law.”; CC 499, Alluvion and dereliction: Comment (a) – “The first paragraph of this provision reproduces the substance of Article 509 of the Louisiana Civil Code of 1870. It does not change the law”. Comment (b) – “The second paragraph of this provision reproduces the substance of the first paragraph of Article 510 of the Louisiana Civil Code of 1870, as interpreted by Louisiana jurisprudence. It does not change the law.”; CC 500, Shore of the sea or of a lake: Comment – “This provision reproduces the substance of the last paragraph of Article 510 of the Louisiana Civil Code of 1870 as interpreted by Louisiana jurisprudence. It does not change the law”; CC 501, Division of alluvion: Comment (a) – “This provision is based on Article 516 of the Louisiana Civil Code, as interpreted by Louisiana jurisprudence”; CC 502, Sudden action of waters: Comment – “This provision reproduces the substance of Article 511 of the Louisiana Civil Code of 1870. It does not change the law.”; CC 503, Island formed by river opening a new channel: Comment – “This provision reproduces the substance of Article 517 of the Louisiana Civil Code of 1870. It does not change the law.”; CC 504, Ownership of abandoned bed when river changes course: Comment – “This provision reproduces the substance of Article 518 of the Louisiana Civil Code of 1870. It does not change the law.”; CC 505, Islands and sandbars in navigable rivers: Comment (a) – “This provision reproduces the substance of Article 512 of the Louisiana Civil Code of 1870. It does not change the law.”; CC 506, Ownership of beds of nonnavigable rivers or streams: Comment (a) – “This provision is new. It is based in part on Articles 513, 514 and 515 of the Louisiana Civil Code of 1870, as interpreted by Louisiana jurisprudence. It clarifies the law.”

⁵⁰ La. R.S. 41:1701

⁵¹ La. R.S. 41:1702(F)

⁵² La. Const. art. IX, § 3

his own efforts. Thus, if the riparian owner reclaims the bed of a navigable waterbody, the ownership of that bed will transfer from the state to the riparian landowner. Conversely, the state will retain ownership of any land reclaimed through efforts taken by the state. In other words, if the state accepts the responsibility of reclaiming a navigable waterbottom bed, then the state will retain ownership of that land after the reclamation process is completed.⁵³

An express condition located in Article 9, Section 3 of the Constitution requires the state to reclaim navigable water bodies for a public use. A “public use” can be defined as “the public’s beneficial right to use property or facilities subject to condemnation.”⁵⁴ Or “as the right of the public to use a parcel of land, whether the property is under private or public ownership.”⁵⁵ The state could satisfy the public use standard by demonstrating that the land resulting from the reclamation could somehow benefit the public, thereby vesting title to those lands in the state. This gives the state a wide berth to reclaim lands under the guise of coastal restoration projects designed and constructed to benefit the public through flood control, storm protection, and natural resource conservation.

The authority of the state to reclaim such water bodies for the public use highlights the issue of whether the state’s authority preempts any vested right of a private landowner to reclaim and restore property that previously resided with the private landowner. To address this issue one must only recognize the fact that the state owns all navigable water bottoms. The former owner no longer has any rights in the property; therefore, any rights the landowner has to reclaim the property is limited to any rights granted to him by law. Louisiana Revised Statute 41:1702 specifically grants landowners owning land contiguous to and abutting public waters the right to reclamation:

Pursuant to the authority of Article IX, Section 3 of the Constitution of Louisiana, owners of land contiguous to and abutting navigable waters, bays, arms of the sea, the Gulf of Mexico, and navigable lakes belonging to the state shall have the right to reclaim or recover land, including all oil, gas, and mineral rights, except as otherwise provided in Subsection E of this Section, lost through erosion, compaction, subsidence, or sea level rise occurring on and after July 1, 1921, in accordance with the procedures set forth in this Title for the fixing of boundaries by mutual consent and, also, those procedures applicable to contested boundaries.⁵⁶

Therefore, a private landowner seemingly has rights to reclaim property and retain ownership only under the provisions outlined in section 1702. But, if the state initiates and conducts a reclamation project on a navigable water bottom, the state will retain ownership of that land.⁵⁷

2. Mineral Rights Associated with Reclamation Activities

Along with ownership of the surface, Louisiana laws related to reclamation also provide provisions for mineral interests.

A. Reservation of Mineral Rights. --The mineral rights on property sold by the state shall be reserved, except when the owner or person having the right to redeem buys or redeems property sold or adjudicated to the state for taxes. The mineral rights on land,

⁵³ cite

⁵⁴ Black’s Law Dictionary, 2004, 8th edition.

⁵⁵ Hebert

⁵⁶ La. R.S. 41:1702(B)(1).

⁵⁷ cite

contiguous to and abutting navigable waterbottoms reclaimed by the state through the implementation and construction of coastal restoration projects shall be reserved, except when the state and the landowner having the right to reclaim or recover the land have agreed to the disposition of mineral rights, in accordance with the conditions and procedures provided by law.⁵⁸

This provision allows the state to retain ownership of the mineral rights in any navigable waterbottom that the state of Louisiana reclaims via the implementation and construction of a coastal restoration project subject to any agreement that the state may enter with a private landowner that has the right to reclaim the waterbottom at issue. However, subject to certain exceptions, the landowner can reacquire ownership of minerals by reclaiming lands lost to natural forces.

Subsection E of R.S. 41:1702 states:

Except to the extent that the land lost through erosion, compaction, subsidence, or sea level rise continues to be encumbered by an oil, gas, and mineral lease and subject to R.S. 9:1151, upon emergence of any land within a permitted reclamation area or within an area subject to an agreement entered into pursuant to Subsection D of this Section, said land or any subsurface mineral right created pursuant to Subsection D of this Section shall be reacquired and owned by the riparian owner, or the state or its transferee in the case of areas subject to an agreement entered into pursuant to Paragraph D(2) of this Section, subject to and encumbered with any right-of-way or servitude grant, or any mineral, geothermal, geopressure, or any other lease granted by the state for a lawful purpose while the reclaimed land was an eroded or subsided area, the rights of the state or lessee thereunder to be in no manner abrogated or affected by the reclamation and to remain free and clear of any claim by the riparian owner for compensation out of the proceeds of the grant or lease or otherwise.⁵⁹

Furthermore, and more importantly, this subsection renders the mineral rights related to the reclamation area subject to the “freezing statute” of R.S. 9:1151.

In all cases where a change occurs in the ownership of land or water bottoms as a result of the action of a navigable stream, bay, lake, sea, or arm of the sea, in the change of its course, bed, or bottom, or as a result of accretion, dereliction, erosion, subsidence, or other condition resulting from the action of a navigable stream, bay, lake, sea, or arm of the sea, the new owner of such lands or water bottoms, including the state of Louisiana, shall take the same subject to and encumbered with any oil, gas, or mineral lease covering and affecting such lands or water bottoms, and subject to the mineral and royalty rights of the lessors in such lease, their heirs, successors, and assigns; the right of the lessee or owners of such lease and the right of the mineral and royalty owners thereunder shall be in no manner abrogated or affected by such change in ownership.⁶⁰

The freezing statute and subsection E ensure the ownership of mineral rights of the area of reclamation remains with the owner of a currently existing oil, gas, or mineral lease, and the mineral and royalty rights of the lessors of the current lease remains unchanged by the formation of the new emergent land. In other words, the rights of any leaseholder currently owning rights to minerals in a reclamation area before the water bottom becomes emergent land remains unchanged. Therefore, there is no transfer of mineral

⁵⁸ La. Const. art. IX, § 4

⁵⁹ La. R.S. 41:1702(E)

⁶⁰ La. R.S. 9:1151.

rights once the land becomes established. However, it is presumed that once these active leases are no longer in effect, the mineral interests under the land reverts to the current owner of the property or waterbottom.⁶¹

Assuming no pre-existing lease holder has rights in the mineral ownership of a waterbottom, the state may enter into an agreement with the private landowner of property that lies contiguous with or directly abuts the reclamation area.

To facilitate the development, design, and implementation of coastal conservation, restoration and protection plans and projects, including hurricane protection and flood control, pursuant to R.S. 49:214.1 et seq., the secretary of the Department of Natural Resources may enter into agreements with owners of land contiguous to and abutting navigable water bottoms belonging to the state who have the right to reclaim or recover such land, including all oil and gas mineral rights, as provided in Subsection B of this Section, which agreements may establish in such owner the perpetual, transferrable ownership of all subsurface mineral rights to the then existing coast or shore line. Such agreements may also provide for a limited or perpetual alienation or transfer, in whole or in part, to such owner of subsurface mineral rights owned by the state relating to the emergent lands that emerge from waterbottoms that are subject to such owner's right of reclamation in exchange for the owner's compromise of his ownership and reclamation rights within such area and for such time as the secretary deems appropriate and in further exchange for the owner's agreement to allow his existing property to be utilized in connection with the project to the extent deemed necessary by the secretary.⁶²

This paragraph prompts the landowner to forego any rights of reclamation in the subject property in exchange for ownership in mineral rights granted by the state. The paragraph gives the landowner an incentive to cooperate with the state in their reclamation efforts and to facilitate the quick and efficient implementation and construction of the related coastal restoration project. The state would utilize this agreement process to gain access to the landowner's land needed to initiate and construct the project. In other words, without access to the landowner's land, the state could not begin the reclamation efforts, which encourages the state to cooperate with the landowner.

3. Process of Reclamation

Louisiana Revised Statute 41:1702(C) & (D) and the Louisiana Administrative Code outline the process which an interested landowner must follow to initiate and complete a reclamation project.

Section (C) outlines the documentation needed to begin the application process. An application of an interested landowner meeting the requirements of R.S. 41:1702(B)(1) must provide a deed of ownership or a certified map or plat of survey prepared by a professional land surveyor qualified and currently licensed by the Louisiana Professional Engineering and Land Surveying Board. This document must define the boundary between lands belonging to the state and those of riparian owners along with the exact extent of land claimed to be lost through erosion, compaction, subsidence, or sea level rise.

Section (D) provides detailed information on how state agencies are integrated into the reclamation process. To initiate and develop a reclamation project, an interested landowner must apply for a permit from a state agency. The State Land Office has the authority to issue permits for work designed to

⁶¹ cite

⁶² La. R.S. 41:1702(D)(2)(a)(i)

reclaim land lost through erosion, compaction, subsidence, or sea level rise. The issuance of the permit is contingent upon the submittal of the plans and specifications of the work to the parish in which the proposed project is located, the Department of Transportation and Development, the Department of Wildlife and Fisheries, and the Department of Natural Resources for review and comment not less than sixty days prior to the issuance of such permit.

The Department of Natural Resources may enter into agreements primarily related to mineral interests to facilitate the development, design, and implementation of coastal conservation, restoration and protection plans and projects, including hurricane protection and flood control.

The Louisiana Administrative Code also provides a classification and description of the necessary permits for reclamation activities. The State Land Office has the responsibility of regulating permit applications and specifying required application documents.⁶³

Even in instances where a riparian landowner has the right to reclaim a navigable waterbody bed, a complete restriction on such activities may be instituted if “in the determination of the Department of Natural Resources, State Land Office, or the attorney general, such activity would unreasonably obstruct or hinder the navigability of any waters of the state or impose undue or unreasonable restraints on the state rights which have vested in such areas pursuant to Louisiana law...”.⁶⁴ Yet, in the event such substantive agency decision aggrieves any person, an immediate judicial review of the agency action may be sought. Proceedings for review of decisions by the Department of Natural Resources or the State Land Office may be instituted by filing a petition in the Nineteenth Judicial District Court within thirty days after mailing of notice of the final decision by the administrator or secretary. Any party may request and be granted a trial de novo.⁶⁵

III. Land Loss Processes Realized

A. Scientifically Recognized Land Loss Processes

The origin and formation of the Louisiana coastal landforms occurred through a series of delta lobe formations. Suspended sediment carried by floodwaters of the Mississippi River settled from the water column creating elevated land that invaded coastal bays and open gulf waters. As trunk channels of the river changed courses through time, different delta lobes became abandoned and others created. Abandoned lobes would subsequently enter into a phase of degradation caused by natural physical forces. This cycle of delta lobe formation and degradation serves as the foundation for land formation in coastal Louisiana.⁶⁶

Judging from maps of the Louisiana coast drawn by European explorers and settlers, the coast was in a condition of net gain during the sixteenth, seventeenth, and eighteenth centuries.⁶⁷

⁶³ La. Admin. Code 20:2101 (2015).

⁶⁴ La. R.S. 41:1702(H)

⁶⁵ La. R.S. 41:1702(I)

⁶⁶ Russell, R. J. 1940. “Quaternary History of Louisiana.” *Bulletin of the Geological Society of America* 51: 1199-1234.; Fisk, H.N., 1944. *Geological Investigation of the Alluvial Valley of the Lower Mississippi River*: U. S. Army Corps of Engineers, Mississippi River Commission, Vicksburg, Mississippi.

⁶⁷ Darby, William. 1816. *A Map of the State of Louisiana with Part of the Mississippi Territory*, 2nd edition.; Graham, C. 1842. *Map of a Military Reconnaissance of the approaches to New Orleans on the East Side of the Mississippi River.*; Leach and Turtle. 1887. *Map of the Alluvial Valley of the Mississippi River from the Head of St. Francis Basin to the Gulf of Mexico showing lands subject to overflow, location of levees, and trans-alluvial profiles.*

However, beginning in the 1960s, scientists began to quantify land changes along the coast.⁶⁸ This research revealed that the Louisiana coast was losing significant amounts of land contrary to what many believed. Studies over the next several decades confirmed that rates of land loss had drastically increased, primarily resulting from a number of natural and artificial causes.⁶⁹

The research found that natural diversions changed the course of distributaries and the sediment supply used to create new land was forced into the main drainage system, making it unavailable for deposition. Construction of flood control and storm protection features interrupted a long internal of land building. By the mid-1800s, levees paralleled both sides of the Mississippi River near New Orleans, totaling over 1,000 miles.⁷⁰

Corresponding with the high rates of land loss beginning in the 1930s, oil and gas exploration and production dominated many parts of the coastal landscape. Access and pipeline canals infiltrated inland marshes allowing intrusion of saltwater into freshwater marshes and creating a more energy intensive hydrologic regime; each of which contributed to high land loss rates.⁷¹

These anthropogenic alterations enhanced the physical natural forces that lead to land loss, notably subsidence and erosion.⁷² Subsidence undermines the foundation of coastal lowlands by lowering land elevations and thus exposing wetlands, ridges, and human infrastructure to the forces of the Gulf of Mexico that erode away the land. Indeed, during a period of more than 100 years, more than 1,600 square miles, or about 20% of Louisiana's coast (mostly wetlands), have eroded away.⁷³ As a result, both the deltaic and chenier plain systems are badly degraded. The Deltaic plain, composing southeast Louisiana, in particular has lost, and continues to lose, subsystem components and is approaching a condition of system collapse.

However, probably the least understood subsidence-related process and the most ignored by land use planners, is fault-induced land loss. As possibly the biggest driver of large-scale land loss, this natural and artificially-induced process likely accounts for a large percentage of land loss that occurs along the coast. Thus, it deserves particular attention.

B. Fault-Induced Land Loss

⁶⁸ Gagliano, S. M., H. J. Kwon, et al. (1970). "Deterioration and Restoration of Coastal Wetlands." 12th Coastal Engineering Conference.

⁶⁹ Penland, S., I. Mendelssohn, et al. (1996). "Natural and Human Causes of Coastal Land Loss in Louisiana." MAY 29, 1996 WORKSHOP SUMMARY.; Britsch, L. D. and J. B. Dunbar (1996). "Land Loss in Coastal Louisiana." Technical Report GL-90-2.

⁷⁰ Barry, J. 1997. "Rising Tide: The Great Mississippi Flood of 1927 and How it Changed America". Simon & Schuster, New York, NY. p.40.

⁷¹ McGinnis, J. T., R. A. Ewing, et al. (1972). "Final Report on Environmental Aspects of Gas Pipeline Operations in the Louisiana Coastal Marshes." Prepared by Battelle, for Offshore Pipeline Committee.; USACE (1973). "Final Environmental Statement, Crude Oil and Natural Gas Production and Other Mining Operations in Navigable Waters Along the Louisiana Coast." Prepared by U.S. Army Engineer District, New Orleans, Corps of Engineers.; Turner, R. E. (1997). "Wetland Loss in the Northern Gulf of Mexico: Multiple Working Hypotheses." *Estuaries* 20(1): 1-13.

⁷² Penland, S., I. Mendelssohn, et al. (1996). "Natural and Human Causes of Coastal Land Loss in Louisiana." MAY 29, 1996 WORKSHOP SUMMARY.; Britsch, L. D. and J. B. Dunbar (1996). "Land Loss in Coastal Louisiana." Technical Report GL-90-2.

⁷³ Couvillion, B. A. B., J.A.; Steyer, G.D.; Sleavin, William; Fischer, Michelle; Beck, Holly; Trahan, Nadine; Griffin, Brad; and Heckman, David, (2011). "Land area change in coastal Louisiana from 1932 to 2010." U.S. Geological Survey Scientific Investigations Map 3164, scale 1:265,000. **(update figures)**

Louisiana is found in a geologically active, fault lined basin that makes constant vertical and horizontal adjustments. Systematic study of surface expressions of faults, measurements of vertical movement from tide gauge records and resurveyed bench mark elevations provide a basis for quantification of land loss as a result of modern tectonic events.⁷⁴ The long term sinking rate throughout much of southeast Louisiana has been from 0.15 to 0.21 cm/yr (0.005 to 0.007 ft/yr). However, during the past 40 years the rate has increased to 0.76 to 0.91 cm/yr (0.025 to 0.030 ft/yr).⁷⁵

Results of research from several disciplines are converging into a unified model of fault and earthquake activity called the linked tectonic system. Four tectonic provinces lie along the Northern Gulf of Mexico: Western, Central, Eastern, and Far-Eastern.⁷⁶ South Louisiana and Southeast Texas sit atop the Eastern and Central Provinces.

The geologic record indicates that growth fault movement has always been a driving force for the sea invading the land. However, despite this evidence, additional scientific research has revealed that oil and gas exploration and production has resulted in the re-activation or acceleration of fault movement. Most prominently, the USGS has found evidence that “long-term, large-volume hydrocarbon production along the Gulf Coast resulted in land-surface subsidence, reactivation of deep-seated faults, and wetland loss in Texas and Louisiana”.⁷⁷ This scenario is not dissimilar from the increased frequency of earthquakes in areas of high frequency of hydraulic fracking operations where the USGS “found that at some locations the increase in seismicity coincides with the injection of wastewater in deep disposal wells”.⁷⁸

Two notable examples of fault-induced land subsidence are found in Plaquemines Parish near Empire and Buras. Movement in 1974-1975, along the Bastian Bay Fault, a 4.6 mile long segment of the Golden Meadow Fault Zone, created a 23,600 acre bay with water depths of 3 to 4 feet. A few years later in

⁷⁴ Penland, S., Ramsey, K.E., McBride, R.A., Moslow, T.F. and Westphal, K.A., 1988. Relative Sea Level Rise and subsidence in Louisiana and the Gulf of Mexico: Louisiana Geological Survey, Baton Rouge, Louisiana. 65 p.; Gagliano, S. M. (1999). "Faulting, Subsidence and Land Loss in Coastal Louisiana." In: Coast 2050: Toward a Sustainable Coastal Louisiana, The Appendices. Louisiana Department of Natural Resources. Baton Rouge, La. Prepared for U.S. Environmental Protection Agency Region 6, Dallas, TX, Contract No. 68-06-0067.; Gagliano, S. M., I. E. Burton Kemp, et al. (2003). "ACTIVE GEOLOGICAL FAULTS AND LAND CHANGE IN SOUTHEASTERN LOUISIANA: A Study of the Contribution of Faulting to Relative Subsidence Rates, Land Loss, and Resulting Effects on Flood Control, Navigation, Hurricane Protection and Coastal Restoration Projects." Prepared for U. S. Army Corps of Engineers, New Orleans District 7400 Leake Avenue New Orleans, LA 70118 Contract No. DACW 29-00-C-0034.; Gagliano, S. M., E. B. K. III, et al. (2003). "NEO-TECTONIC FRAMEWORK OF SOUTHEAST LOUISIANA AND APPLICATIONS TO COASTAL RESTORATION." Transactions of the 53rd Annual convention of the The Gulf Coast Association of Geological Societies and The Gulf Coast Section SEPM 2003, Baton Rouge, Louisiana October 22-24, 2003 LII: 262-272.; Shinkle, K. D. and R. K. Dokka (2004). "Rates of Vertical Displacement at Benchmarks in the Lower Mississippi Valley and the Northern Gulf Coast." U.S. DEPARTMENT OF COMMERCE, National Oceanic and Atmospheric Administration, National Ocean Service.; Dokka, R. K. (2005). "Geologic implications of geodetic evidence of major subsidence and inundation of the Gulf Coast." Coastal Zone 2005 Proceedings: Charleston, South Carolina, National Ocean Service, National Oceanic and Atmospheric Administration, United States Department of Commerce, 5 p.

⁷⁵ Ramsey et al 1985, van Beek et al 1984; **update any new figures**; These measurements account for relative sea level rise.

⁷⁶ Peel, F.J., Travis, C.J.H. and Hossack, J.R., 1995. Genetic Structural Provinces and Salt Tectonics of the Cenozoic Offshore U.S. Gulf of Mexico: A Preliminary Analysis: p. 153-175 in Jackson, M.P.A., Roberts, D.G. and Snelson, S., eds., Salt Tectonics, A Global Perspective: American Association of Petroleum Geologists Memoir 65.

⁷⁷ See, USGS, St. Petersburg Coastal and Marine Science Center, Subsidence and Wetland Loss Related to Fluid Energy Production, Gulf Coast Basin (<http://coastal.er.usgs.gov/gc-subsidence/induced-subsidence.html>)

⁷⁸ See, USGS, Man-Made Earthquakes Update (http://www.usgs.gov/blogs/features/usgs_top_story/man-made-earthquakes/)

1976-1978, similar movement along the neighboring 4.8 mile long Empire Fault added a 12,400 acre bay with water depths of 3.5 to 4.0 feet. Similar fault events have left zones of open water along the major growth faults.⁷⁹

Robert Morton found that “average historical rates of subsidence between 1965 and 1993 were about 8-12 mm/yr, whereas average geological rates of subsidence for the past 5,000 years were about 1-5 mm/yr.”⁸⁰ In surveying certain hot spots of recent rapid subsidence, Morton found “The rapid acceleration and unexpected decline in wetland losses in the Mississippi delta plain are difficult to explain on the basis of most physical and biogeochemical processes. There are, however, close temporal and spatial correlations among regional wetland loss, high subsidence rates, and large-volume fluid production from nearby hydrocarbon fields. The decreased rates of wetland loss since the 1970s may be related to decreased rates of subsidence caused by significantly decreased rates of subsurface fluid withdrawal”.⁸¹

The extent of the fault system is impressive and affects everything on the surface, including all natural landforms and human-made features. Until the 20th century, aggradations resulting from river derived sediment deposition and accumulation of organic materials masked the movement of growth faults within the coastal area. Surface traces of faults became exposed by patterns of erosion and marsh deterioration.

A better understanding between fault movement, land loss, and shoreline change is fundamental to long term restoration and multiple use management of the Louisiana coast. Remarkably there has been an information disconnect between the geologists and geophysicists working in the petroleum industry and the community of scientists, engineers and planners engaged in coastal restoration. The restoration community seemingly ignores the tectonic dynamics of the region.

Federal, state, and local governments began implementing coastal restoration plans and projects in an effort to thwart the growing problem of a sinking landscape along coastal Louisiana. This orchestrated attack on coastal land loss has led to significant expenditures of time, money, and effort by numerous public agencies and private entities. However, as planning efforts to restore coastal wetlands proceed, current restoration techniques and financial limitations will not facilitate the recreation of the coastline to its former state. Society’s ability to function efficiently on the landscape in a traditional fashion to capture desired resources has been forever altered. But, restoration efforts do not consider the effects of fault activity on surface features or the projects they attempt to implement. Furthermore, the civil code does not consider the effects of fault-induced subsidence or other large-scale land loss processes in determinations of ownership. This presents a gap in the process of logical decision-making among state and federal legislators and representatives when enacting or amending laws and regulations.

IV. The Disconnect

⁷⁹ Gagliano, S. M., I. E. Burton Kemp, et al. (2003). "ACTIVE GEOLOGICAL FAULTS AND LAND CHANGE IN SOUTHEASTERN LOUISIANA: A Study of the Contribution of Faulting to Relative Subsidence Rates, Land Loss, and Resulting Effects on Flood Control, Navigation, Hurricane Protection and Coastal Restoration Projects." Prepared for U. S. Army Corps of Engineers, New Orleans District 7400 Leake Avenue New Orleans, LA 70118 Contract No. DACW 29-00-C-0034.; Gagliano, S. M., E. B. K. III, et al. (2003). "NEO-TECTONIC FRAMEWORK OF SOUTHEAST LOUISIANA AND APPLICATIONS TO COASTAL RESTORATION." Transactions of the 53rd Annual convention of the The Gulf Coast Association of Geological Societies and The Gulf Coast Section SEPM 2003, Baton Rouge, Louisiana October 22-24, 2003 LII: 262-272.

⁸⁰ Morton, R. A., J. C. Bernier, et al. (2005). "Rapid Subsidence and Historical Wetland Loss in the Mississippi Delta Plain: Likely Causes and Future Implications." Open-File Report 2005-1216.

⁸¹ Robert A. Morton, Ginger Tiling, and Nicholas F. Ferina. 2003. Causes of hot-spot wetland loss in the Mississippi delta plain. *Environmental Geosciences*, v. 10, no. 2, pp. 71–80.

Civil law principles can be frozen into codes and act as a rigid doctrine. The Civil Code has undergone two revisions within a single century and three times since its original version, primarily resulting from changed conditions of life and realities that made prior laws ineffective, obsolete, or impractical. “The 1808 code was revised in 1825, and again in 1870. As revised and amended by special legislation, it is still the fountainhead of our private law.”⁸² Nonetheless, the relevant articles pertaining to waterbottom ownership have not been amended for over 100 years.

The purpose of the revisions finds its origin in the obligation to “establish a clear correspondence between the legal precepts in the Code and in actual practice.”⁸³ Changes in the law are most poignant when the law “no longer is responsive to the needs of society”.⁸⁴ “The Civil Code is an integrated piece of legislation”, and thus does not amend itself well to changes.⁸⁵ But, when instances of social demands and realities arise, the law should be somewhat adapted to reflect the changes of society.

This is no truer than when the law is founded upon a general scientific understanding of natural processes and functions. As the knowledge within the scientific community expands and evolves, so too should the law which uses this knowledge to regulate interactions and disputes between parties. If the law does not correspond with the realities of the natural environment, its application to civilization and society will suffer by ignoring principles of fairness and justice. This notion becomes evident when examining individual Civil Code Articles related to land ownership and changes of the natural landscape.

The existing articles do not specifically address natural processes such as subsidence, compaction, salt water intrusion, sea level rise, and fault activity. The enactment of these laws occurred prior to a sound understanding of the causes for land changes and increased rates of loss within the region, and during a time of land building, not deterioration.

Thus, the civil code provides a framework to accommodate determinations of ownership responding to small scale and imperceptible natural changes on individual parcels, but this legal system is inadequate to appropriately cope with the ongoing widespread transformation of a marsh dominated landscape into an open gulf and saline environment. In other words, Louisiana property laws provide no mechanism to appropriately address the potential mass ownership conversion process that may ultimately occur if laws are not enacted that coincide with the changing patterns of the landscape. Thus, the current legal system will convert title from private ownership to the public trust without considering the comprehensive progression of degradation of the coastal zone and its effects on the economy, individual landowners, commerce, and society in general.

V. Outdated laws produce unjust results

Considering the long term projected amount of land loss for the Louisiana coast, the state would seemingly acquire an enormous amount of acreage largely due to large scale, slow moving, and imperceptible natural causes of land loss. Coastal Louisiana private landowners are less likely to hold a valid claim to any land in the next 50 to 100 years because much of the land base will have disappeared.

The state can claim ownership of any submerged land along coastal Louisiana regardless of the causes of submergence or when the property becomes submerged. Upon claiming title to submerged lands, the

⁸² A.N. Yiannopoulos, *The Civil Codes of Louisiana*, 1 CIV. L. COMMENT. 1, 1 (2008) p.7.

⁸³ A.N. Yiannopoulos, *The Civil Codes of Louisiana*, 1 CIV. L. COMMENT. 1, 1 (2008) p.19.

⁸⁴ A.N. Yiannopoulos, *The Civil Codes of Louisiana*, 1 CIV. L. COMMENT. 1, 1 (2008) p.19.

⁸⁵ A.N. Yiannopoulos, *The Civil Codes of Louisiana*, 1 CIV. L. COMMENT. 1, 1 (2008) p.20.

state asserts its interest over any oil and gas mineral leases that may later result from oil and gas exploration and production activities. Motivation to gain control over these waterbottoms seems self-evident.

Therefore, a landowner may potentially lose ownership of mineral rights upon which he had previously acquired royalty payments pursuant to leases with oil and gas operators if the leases terminate. Depending on the production capacity and the market price of the minerals, a substantial amount of future profits could suddenly be transferred to the state if the situation falls under the purview of current legal principles defining state owned land. Such transfers provide an incentive for the state to claim ownership of waterbottoms to capture the oil and gas revenues derived from wells located on submerged property.

To refute the state's claims of privately held submerged property, landowners can initiate litigation. However, as private landowners dispute state claims, they are forced to prove ownership rather than the state because, otherwise, any future potential oil and gas operator will sign a lease with the state to avoid any unnecessary litigation related to royalty payments simply because the state has asserted its claim. The state should have the burden in proving its ownership because the state is the one asserting claims of ownership in conflict with existing records of title. During this process, the landowner may force the state to negotiate and compromise. However, if the state retains its resolve, the private landowner must litigate assuming he has the funds and resources to do so. Many small private landowners do not have the necessary resources to sustain a case against the state, which results in the state acquiring partial or full ownership rights in the property at issue.

This framework gives the state a windfall; a windfall, in part, created by the state itself. Landowners should not be held accountable for land loss largely attributable to government projects, industry activities, and the state's promotion of such activities.

The transfer in ownership also has indirect effects on the state and local governments. Large landholdings of a private landowner require significant annual tax payments to local and state governments. An accumulation of these payments from numerous individuals owning large tracts of land provide good benefits to government. "The property tax is a major source of revenue for Louisiana's political subdivisions and is levied by the political subdivision in which the taxable property is located."⁸⁶ Over time, as the gulf incrementally encroaches inland and land owners lose their property to state ownership, the amount of tax revenues accrued by the governmental entities will decrease.

Lawmakers and governmental policymakers must make the decision to take the first step in changing the current ideas, theories, and fundamental guiding principles that will adapt to the changing landscape. The purpose of the law is premised upon the notion that tradition and culture would persist. This fundamental idea is threatened as water encroaches inland and families move to towns and states less vulnerable to extreme damages from hurricanes and loss of property. The tradition and culture upon which the state prides itself upon is beginning to move elsewhere. As people move, so does income, jobs, houses, and communities. This emigration of whole communities from the coast creates an empty landscape and further diminishes efforts to preserve the lifestyle and traditions unique to coastal Louisiana. If policy and laws are not changed, the culture along the coast will change.⁸⁷

VI. Potential Remedies

⁸⁶ The Louisiana Tax Commission. 2014. "Louisiana Property Tax Basics".

⁸⁷ For an in-depth discussion of this problem, see Davis, D.W. 2010. "Washed Away? The Invisible Peoples of Louisiana's Wetlands". University of Louisiana at Lafayette Press.

A. Notice of state claim

Landowners should expect the State Land Office to fully and honestly consider ownership of waterbottoms before the state lays claim to the property. An inherent conflict arises when the state lays claim of ownership to privately-held waterbottoms. In many instances, the state issued patents to private landowners transferring ownership decades or centuries ago. The subsequent conversion of these lands to open water creates this potential conflict between the state and the private landowner.

Prior to making an ownership determination, the state should implement a formal process by notice to the landowner. Such notice should specify the acreage under consideration, identify the data the state is considering for its ownership determination, and provide a date on which the determination becomes considered final.

This process would give landowners the opportunity to respond to the state with evidence it determines relevant to the ownership determination. Such evidence would include historical maps, surveys, and expert analysis that would provide information related to whether the waterbottom is subject to state ownership.

B. Cause of action in reclamation statute

Anything similar in other statutes? What about oyster laws?

C. Reclamation trust fund

Coastal Louisiana is currently in a state of degradation with the coastal wetlands once dominating the coastline disappearing at an alarming rate. Land loss rates peaked during the 1950s through the 70s and large acreages of marshes continue to become submerged.⁸⁸ Appropriations of large sums of federal and state monies are committed to building the coast and restoring the natural marshes and ridges to their former state. Government agencies have initiated and developed coastal wetland restoration techniques and project to inhibit marsh erosion, supplement sediment deposition, and create marsh, among others.

Many of these projects attempt to mimic the missing components of land formation. The formation stage has been eliminated in lieu of benefits of flood control and navigation. Resultantly, natural processes continue to proceed in their Godly designs which places the coastal lowlands in a constant state of degradation unless the formation stage is “re-inserted” into the cycle. Proposed large-scale sediment diversion designed to fill this void conflict with current navigation and flood control needs. Thus, these plans still remain in planning stages while the deterioration of large expanses of coastline continues.

Furthermore, the current methodology for restoration focuses efforts on individual projects at individual locations. This piece-meal approach scatters available resources across the landscape and dots the coast with restoration projects. This current piecemeal approach does not consider limitations of funding

⁸⁸ Couvillion, B. A. B., J.A.; Steyer, G.D.; Sleavin, William; Fischer, Michelle; Beck, Holly; Trahan, Nadine; Griffin, Brad; and Heckman, David, (2011). "Land area change in coastal Louisiana from 1932 to 2010." U.S. Geological Survey Scientific Investigations Map 3164, scale 1:265,000.

resources and the current economic climate assures that many projects will remain unfunded and unconstructed.⁸⁹

In addition to governmental efforts, private landowners have the opportunity to restore and reclaim the ownership of submerged water bottoms currently under state ownership.⁹⁰ To promote private efforts in restoration strategies, the state has enacted laws that allow landowners to gain ownership of submerged navigable waterways currently owned by the state through reclamation activities. Sections 3 & 4 of the Louisiana State Constitution provide for the distribution of ownership of land and mineral rights related to reclamation activities, and lay the foundation for reclamation statutes and regulations promulgated by the state legislature and natural resource agencies.

Private reclamation efforts could partly supplement coastal restoration efforts made by federal and state governments. A state-sponsored reclamation fund would incentivize such projects by using matching funds to assist landowners with remediation costs. Recognizing the role industries have played on the deterioration of the coastline, oil and gas, navigation, and other recognized responsible industries could contribute to funding the program. Such a formalized system would encourage landowners to reclaim their property and retain their private property interests.

D. Ownership retention via continued use and alternative reclamation techniques.

Submerged property remains a viable resource for private landowners. A submerged tract of land offers several revenue-generating opportunities, including recreational and commercial fishing, and revenues from oil and gas exploration and production. Landowners allowed to retain ownership of these properties could realize these benefits and enjoy the property while paying property taxes providing benefits to society without governmental intervention.

The state should approve legislation designed to allow landowners to retain their private property interests through continued use and construction of alternate reclamation techniques.

In the 2015 legislative session, House Bill No. 680 presented such a proposal. The Bill would have allowed an artificial oyster reef to be considered a reclamation project. The Bill did not pass.

However, if passed, such a law would supplement coastal restoration efforts consistent with the State's Master Plan, allow landowners the ability to continue to retain their private property rights, and allow landowners to use their property for economic gain as was initially intended in the dispersal of public property to private interests in the 1800s.

VII. Conclusion

An important purpose of the law of land ownership is to preserve for public use and benefit lands deemed public and allow alienation of lands to private landowners to encourage economic growth and stability by providing for the accumulation of wealth, production of agriculture, conservation of fish and wildlife habitat, and establishment of a tax base. Public property is used by the public at large for general community services such as bathing, drinking, recreation, and so forth.

⁸⁹ Louisiana's Comprehensive Master Plan for a Sustainable Coast. 2012; Amy Wold, Nov. 6, 2015. "Louisiana's plan for coastal restoration and protection will require more money to work, report says" The Advocate.; Mark Schleifstein, Nov. 6, 2015. "More money needed, but coastal plan on track, official says". The Times-Picayune.

⁹⁰ cite

Large-scale land loss processes occurring in the Louisiana coastal zone are not recognized in the Louisiana Civil Code. The failure to address these factors may result in the mass conversion of property from the private realm into the public trust which has major implications for land ownership, and on widespread economic and social scales.

New laws could preserve traditions and culture, create jobs, present new and exciting challenges and opportunities for private interests, and provide for the preservation of the dynamic cultural and social environment that makes the region rich and unique.