

## Endnotes

### Prologue

1. The comparison of damage estimates comes from the National Hurricane Center's official compilation of hurricane damage and intensity—see Blake et al. (2007).
2. For basic information on the Saffir-Simpson scale, see the National Hurricane Center website—<http://www.nhc.noaa.gov/aboutsshs.shtml> (accessed 9 Oct. 2007).
3. See Hewitt (1983).
4. The original discussion of the “technological Peter Principle” was provided by Erikson (1976).
5. See Kelman (2005) and Lewis (2003, 19–20); see also Kolb (2006).

### Chapter One

1. The numbers come from Shallat (2000, 122); see also Colten and Welch (2003, 3).
2. For more details, see Davis (1990), as well as Blake et al. (2007).
3. See Freudenburg and Gramling (1994).
4. CBS News (2005); Ripley (2006).
5. The most vivid of the bulletins were issued by Robert Ricks, from the Slidell office of the National Weather Service, on Sunday, August 28. See Schleifstein (2006); for original text, see [http://www.srh.noaa.gov/data/warn\\_archive/LIX/NPW/0828\\_155101.txt](http://www.srh.noaa.gov/data/warn_archive/LIX/NPW/0828_155101.txt) (accessed 19 Oct. 2008).
6. The statement has since been removed from Corps websites, but see for example O'Driscoll et al. (2005).
7. For notable assessments of this point by knowledgeable disaster researchers, see, for example, Clarke (1993) and Tierney (2003).
8. See, for example, Dwyer and Drew (2005).
9. The account was distributed widely available on the internet and is still available in many locations. These quotations are drawn from <http://www.emsnetwork.org/cgi?bin/artman/exec/view.cgi?archive=56&num=18427> (accessed 14 Mar. 2007).
10. One of the clearest accounts of the efforts by the Coast Guard is provided by Ripley (2005).
11. For additional discussion, see McQuaid and Schleifstein (2006, 54).
12. Quarantelli's quote is reported in Walker (2005).
13. See, for example, the account by Yen (2005).
14. See, for example, the account by Hedges (2005).

15. These quotations come from the story in the *Washington Post* by Glasser and Grunwald (2005).
16. The quotation is from Glasser and Grunwald (2005).

*Chapter Two*

1. For further information on the “working coast” of Louisiana, and the statistics in this paragraph, see Gramling and Hagelman (2005), as well as Gramling (1996).
2. For a more extensive description of the process, see, for example, Saucire (1994).
3. The information on silt loads comes from U.S. National Park Service (1997). The nineteenth-century quotation comes from *Planters’ Banner*, 1848. For a more extensive discussion, see Gramling and Freudenburg (1996).
4. Kesel (1988) found that there has been a decrease of more than 80 percent in the amount of suspended sediment transported by the lower Mississippi River below Tarbert Landing, Mississippi, from 1851 to 1982. For further information, see U.S. Geological Survey (2007), as well as Keown et al. (1986) and Meade et al. (1990).
5. For more on this period of history in the region, see Tebeau (1971).
6. For further discussion on the original selection of the city’s location, and other, potentially competing sites, see especially Campanella (2002).
7. The quotation is from Lewis (2003, 9).
8. For a more extensive discussion of the origins of the Cajuns, see, for example, Kniffen (1968).
9. For further discussion, see, for example, Gramling and Hagelman (2005).
10. See Giraud (1990) for more discussion of the region’s rich history of ethnic interchange.
11. For more details, again see Kniffen (1968).
12. One of the best descriptions of the settlements of the Louisiana deltaic plain is provided by Davis (1992).
13. For more on the Cajun spirit, see especially Gramling, Forsyth, and Mooney (1987).

*Chapter Three*

1. See Spitzer (1985).
2. The quotation is from Stoddard (1974, 163); see also Campanella (2002).
3. The quotation is from Paxton (1822, 37).
4. For an insightful analysis of this pattern, see especially Gilmore (1944).
5. See Stoddard (1974); also Campanella (2002).
6. For more on the construction of the “New Basin Canal,” see Campanella (2002).
7. See Dabney (1921); also Jackson (1997).
8. Campanella (2002). His comparisons are presented on page 68.

9. For more on Fulton and his steamboat, see especially Foster (1989).
10. Hunter (1949, 66).
11. The official source of statistics showing this to be the nation's busiest port complex is the U.S. Bureau of Transportation Statistics (2007). See also Schill (1974), Steigman (1971), and Azcona (2006).

#### *Chapter Four*

1. For an extensive discussion of Lafitte and his activities, see Ramsay (1996).
2. See especially Molotch (1976); see also Logan and Molotch (1987).
3. For widely accepted academic arguments that treat environmental harm as being necessary for economic expansion, see, for example, Schnaiberg (1980), Catton (1980), and Dunlap (1993); see also O'Connor (1991).
4. For further discussion, see especially Freudenburg (2005, 2006); see also Nowak, Bowen, and Cabot (2006); Freudenburg, Berry, and Howell (2007).
5. The quotation is taken from the online version of the encyclopedia, which also provides a useful summary of the history of canals: <http://www.answers.com/main/ntquery?s=Canal&method=2&gwp=13> (accessed 12 Feb. 2007).
6. McQuaid and Schleifstein (2006, 62).
7. Kelman (2003, 148).
8. "NEW LAKE BORGNE CANAL; Will Have Important Bearing on St. Louis and Chicago Lumber Business." *New York Times* (24 Nov. 1900). See [http://www.nytimes.com/mem/archive-free/pdf?\\_r=1&res=9502E2D7153FE433A25757C2A9679D946197D6CF&oref=slogin](http://www.nytimes.com/mem/archive-free/pdf?_r=1&res=9502E2D7153FE433A25757C2A9679D946197D6CF&oref=slogin) (accessed 29 May 2008).
9. For details, see especially Ciccantell and Bunker (2002) and Bunker and Ciccantell (1995); see also Sasaki (1976).

#### *Chapter Five*

1. Azcona (2006); the quotation is from page 79.
2. Louisiana General Assembly (1896), as quoted in Kelman (2003, 143). See also Azcona (2006, 79).
3. Azcona (2006).
4. Dabney (1921). The quotation is taken from page 5.
5. Dabney (1921). The quotations are taken from pages 9–10.
6. Bolding (1969); see also Dabney (1921).
7. The map is from U.S. Army Corps of Engineers *Flood Control and Navigation Maps: Mississippi River Below Hannibal, Missouri to the Gulf of Mexico* (1989). Drawing on original records, Bolding (1969) reported that approximately \$70 million worth of industries had located along the channel by the mid-1960s.
8. For an excellent analysis of Higgins's efforts, see Youngman (2009). The plant has long since become the location for NASA's Michaud facility.

9. Board of Commissioners for the Port of New Orleans (1921). The quotations are from page 19. We thank Dave Rogers for bringing this pamphlet to our attention.
10. The quotation is from the *Eureka News Bulletin* (1942, 14), as quoted by Youngman (2009). For other detailed analyses of local efforts to develop “seaways” during this era, see also Bolding (1966, 1969).
11. Azcona (2006); the quotations are from page 87. See also Board of Commissioners of the Port of New Orleans (1950) and Juhn (1967).
12. For more-detailed discussions of the early history and significance of national-level funding of water projects, see especially O’Neill (2006); see also Reisner (1993).
13. The classic discussion is by McPhee (1989). See also Gomez (2000).
14. For useful overviews of the history of cost-benefit assessment, see Hammond (1966); also Boardman et al. (2006).
15. The first quotation is from Alperin (1983, 32–34); the emphasis has been added. The declaration from the Chief of Engineers is from the U.S. House of Representatives (1936), as quoted in U.S. House of Representatives (1951, 19).
16. *New Orleans Item*, 27 July 1943, page 21, as quoted in Azcona (2006, 24).
17. Bolding (1969, 53).
18. The quotation comes from U.S. House of Representatives (1951, 7).
19. U.S. House of Representatives (1951, 42).
20. The governor’s assessment is quoted in U.S. Army Corps of Engineers (2007a, 3). See also U.S. House of Representatives (1951).
21. The quotations, as well as the calculations, are from U.S. House of Representatives (1951). The key dollar amounts are reported on pages 14–15.
22. Hoos (1979); the quotation is from pages 195–96.
23. U.S. House of Representatives (1951). The discussion of turnaround time and “relief of congestion” is on page 2, the quotation about the “aversion to locks and side channels” is from page 12, and the reference to “dense” fog is on page 30.
24. U.S. House of Representatives (1951); the quotation is from page 3. As we will discuss below, this new lock was never built, although it would continue to be the focus of controversy, up to and past the arrival of Katrina. At that earlier time, however, the proposal to build the new lock was enough for Director Statts.
25. Bolding (1969). The quotation is from page 58.
26. *Times-Picayune* editorial, 10 Dec. 1957.
27. The \$580 million estimate includes direct costs of construction, operation, and maintenance of MRGO, as reported in U.S. Army Corps of Engineers (2008)—the Engineering Appendix of the agency’s Final MRGO Report to Congress. The 1958 starting date is listed in U.S. Army Corps of Engineers (1965, 527).

28. Louisiana Wildlife and Fisheries Commission (1957). The quotations are all from pages 1–5. The Commission also noted that the proposed project would ruin over 100,000 waterfowl hunts and 1,000,000 fishing trips per year—and perhaps to show that it was opposed merely to the environmentally damaging route that had been selected by the Corps, rather than to the idea of a new navigation channel, the commission even identified a pair of alternative routes that would have been far less destructive to the fish and wildlife resources of southeastern Louisiana.
29. The summary of the letter is provided by Brown (2006b).
30. U.S. Fish and Wildlife Service (1958). The fact that this was an “interim” report may or may not be telling. What is clear is that the cover page bears the additional designation, “PRELIMINARY DRAFT OF PROPOSED REPORT SUBJECT TO REVISION NOT FOR PUBLIC RELEASE.” As noted in the text, we have been unable to locate a “final” version of the report. Special thanks are due to Rex Caffey and especially Mark Schexnayder of Louisiana State University for preserving the “draft” document. The quotations on “major ecological change” are drawn from pages 24–25; the more specific figures are reported on pages 6–9.
31. The quotation is from page 1 of the *St. Bernard Voice*, 22 Nov. 1957. The population figures are from the U.S. Census Bureau.
32. *St. Bernard Voice* (13 Dec. 1957).
33. *St. Bernard Voice* (6 Dec. 1957).
34. *St. Bernard Voice* (13 Dec. 1957).
35. Brown (2006a).

### *Chapter Six*

1. The construction included four main stages. The first stage involved enlarging the existing Gulf Intracoastal Waterway (GIWW) between the Paris Road Bridge and the Industrial Canal—the new “Inner Harbor”—by removing approximately 20 million cubic yards of soil. The second stage, involving an additional 27 million cubic yards, dredged an initial access channel between the GIWW and Breton Sound. Using the access channel, the third and fourth stages removed an additional 225 million cubic yards of dredge material to reach the final project dimensions—a channel 36 feet deep with a bottom width of 500 feet. MRGO was officially declared to be finished in January 1968, roughly ten years after construction first began. For more on the history, see Campanella (2002) and Brown (2006a); see also Day (2005).
2. In the case of the 17th Street Canal, for example, the interlocking pilings were driven about 12–14 feet into the ground. The concrete walls were formed around the tops of the pilings, which protruded just another couple of feet above the soil, with the tops of the concrete portions of the walls extending to about 8 feet above the surrounding soil.

3. See Independent Levee Investigation Team (2006b); see also Bea (2006).
4. The first report on the damage to this stretch of the levee system to appear in the mass media was also the first to provide the basic argument from the Corps—see Vartabedian and Pae (2005).
5. For flood depth estimates, see Mashriqui et al. (2006) and U.S. Army Corps of Engineers (2006a). For the first newspaper story reporting the account from the Corps, see Vartabedian and Pae (2005).
6. See the report by MacCash and Byrne (2005).
7. See Jonkman et al. (2009).
8. There are numerous accounts of Hurricane Betsy; for a simple online summary, see <http://www.answers.com/main/ntquery?s=hurricane+betsy&method=2&gwp=13> (accessed 12 Sept. 2005).
9. See Knabb et al. (2005).
10. Hurricane Camille has also been the focus of numerous reports, including *Hurricane Camille: Storm of the Century*, as well as NOAA's *Deadliest US Hurricanes*. For a straightforward summary readily available on the Web, see <http://www.answers.com/main/ntquery?s=hurricane+camille&method=2&gwp=13> (accessed 28 Sept. 2005).

#### *Chapter Seven*

1. For the perspective from Corps officials, see especially U.S. Army Corps of Engineers (2006a); see also U.S. Army Corps of Engineers 2007b).
2. Anderson et al. (2007).
3. The editorial was printed in *New Orleans Times-Picayune*, 19 June 2007. See <http://www.nola.com/news/t-p/editorials/index.ssf?/base/news-4/1182230785208490.xml&coll=1> (accessed 9 Aug. 2007). For a story on the information from Levees.org, see Shaban (2008).
4. Some of the key independent reports, which provide some of the information being summarized here, include work by the National Science Foundation's Independent Levee Investigation Team (2006a and 2006b), Mashriqui et al. (2006), and van Heerden (2006).
5. U.S. Army Corps of Engineers (2007b). The quotation is taken from Appendix D: D-E1-3.
6. U.S. Army Corps of Engineers (2007b), Appendix D. Quotation is from page D-1.
7. The official compilation from the U.S. Geological Service is Barras et al. (2004); specific land loss totals are reported on page 4. The most careful compilation we have found is by Saffer et al. (in press). See also Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority (1998).
8. The statistics are drawn from the compilation by Barras et al (2004); see also U.S. Geological Survey (2006).
9. For a more detailed discussion, see Gramling (1996).
10. Brown (2006a, A1).

11. Azcona, “Grow They Must” (2006). For a more detailed discussion of the effects of salinity on freshwater wetlands, see Shaffer et al. (in press).
12. For the original report containing Gagliano’s findings, see Coastal Environments Inc. (1972); see also U.S. District Court, Eastern District of Louisiana (2008). For Corps findings, see U.S. Army Corps of Engineers (1999), as cited in Caffey and Leblanc (2002) and in Carter and Stern (2006).
13. Kerlin (1979). Caffey and Leblanc (2002).
14. U.S. Army Corps of Engineers (2004a). The quotation is from page MR 4.18.
15. The quotation is from page 2 of Caffey and Leblanc (2002). The official Corps report on “de-authorizing” MRGO (U.S. Army Corps of Engineers, 2007a, 2007b) acknowledges that the effects of MRGO even extend to Lake Pontchartrain, which lies to the north of New Orleans. Prior to construction of the MRGO, typical tidal flow within the Breton Sound area was reduced as it moved across the marshes and wetlands inward toward Lake Borgne (U.S. Army Corps of Engineers, 2004a). The Bayou La Loutre ridge provided a basin boundary that limited the flow of saline water from the Breton Sound area into Lake Borgne (Shaffer et al., in press), but MRGO provided a more direct flow of saltier, stratified water, which sinks to the bottom of Lake Pontchartrain. The salt water now moves with the lake-bottom currents, and it can cover at least one-sixth of the lake’s bottom during the spring and summer (Schurtz and St. Pé, 1984; Lake Pontchartrain Basin Foundation, 2005). This heavy, saline water inhibits both mixing and oxygenation, generally leading to hypoxic (low oxygen) or anoxic (no oxygen) conditions near the lake bottom.
16. Azcona (2005).
17. Coastal Environments Inc. (1972).
18. Wold (2005); see also Grunwald (2005).
19. *New Orleans Times-Picayune* (27 Mar. 1991).
20. *New Orleans Times-Picayune* (6 Feb. 1993).
21. The Congressional Research Service numbers are from Carter and Stern (2006), who in turn base their estimates on U.S. Army Corps of Engineers (1999). The higher numbers build on the later report from U.S. Army Corps of Engineers (2004a) and other sources, as compiled for example in the *Comprehensive Habitat Management Plan* from the Lake Pontchartrain Basin Foundation (2005). Perhaps the most careful estimates to date, from Shaffer et al. (in press), estimate that “MRGO directly caused the destruction of over 21,000 ha [hectares] of wetlands,” or over 80 square miles, “and led to the indirect death of far more.”
22. McQuaid and Schleifstein (2006, 64).
23. Mashriqui et al. (2006).
24. Hassan Mashriqui, personal interview, 17 May 2007, Baton Rouge, LA.
25. Schleifstein (2008).
26. Grunwald (2006); see also Day (2005).

*Chapter Eight*

1. The reporting was done by Gordon and Varney (2006). The three general contractors enjoying the highest initial payments were the Shaw Group, Simon Roofing, and LJC Construction, which were paid \$175, \$172, and \$149 per “square,” respectively.
2. For the original report, see Javers (2005).
3. King (2006). The quotation is from page 1.
4. As noted by Flyvbjerg et al. (2003), the common pattern over recent decades has been for “megaprojects” to cost far more, and deliver far less, than their backers promise.
5. For the “Statement of Concern,” see Louisiana Wildlife and Fisheries Commission (1957). For the hearing cited in that statement, see U.S. House of Representatives (1955). For the benefit-cost analysis, see U.S. House of Representatives (1951). See also Brown (2006a).
6. See the report by Brown (2006b).
7. Grunwald (2005). The quotation is from page A1.
8. Perhaps the most influential of the social-science assessments of environment-economy relationships are those that see what Schnaiberg and Gould (1994) have called an “enduring conflict” between economic prosperity and environmental preservation, or what O’Connor (1988 and 1991) called “the second contradiction of capitalism.” As was also noted at the outset, however, we believe that it is important to examine the specifics; in other words, it is important, particularly in the case of the most environmentally devastating projects, to treat even widespread expectations or claims about economic benefits as being testable hypotheses.
9. U.S. Army Corps of Engineers (1997) Appendix E, Economic Analysis E-33.
10. To be fair, at least one of the businesses that formerly used MRGO announced in the first few months after Katrina that it planned to relocate from New Orleans to Mobile, due in large part to the uncertain future of the navigation channel (for details, see Keating Magee Momentum Marketing, 2006). Still, the departure of that business—from a stretch of waterfront that, as noted above, has seen a steady exodus of firms over a period of decades—scarcely seems to represent the magnitude of economic impact that the channel’s backers long described. As this book was going to press, officials announced plans to move one of the largest remaining businesses along the Industrial Canal—New Orleans Cold Storage, a poultry exporter—to a location on the Mississippi River, next to the French Quarter. The plan faced strong opposition from area residents and depended on a multi-million-dollar request for an appropriation from the state legislature, but it seemed to foretell even worse times ahead for the “Inner Harbor” along the canal. Most other major tenants remaining along the canal—facilities for a container terminal, a shipbuilding yard, and a



ship-breaking operation—were also leaving or considering the possibility. See Winkler-Schmit (2009).

11. Lewis (2003); the quotation is from page 115.
12. See, for example, Conger and Kraul (2007).
13. The Lewis quotation is taken from page 117. The depth limitations are taken from *Lloyd's Register* (2006).
14. The figures come from the official compilation by the U.S. Army Corps of Engineers (2008). According to that document, the stretch of the Mississippi River below New Orleans carried 305.7 millions tons of freight in 2004.
15. The funds initially appropriated for dredging during Fiscal Year 2004 (FY 2004, or the 12 months ending September 30, 2004) were reported in the FY 2005 Appropriations Hearings for the Corps as being \$13,004,000, but the amounts initially authorized and/or appropriated can differ noticeably from the amounts actually spent. The best available evidence on actual dredging expenditures during fiscal year 2004, as compiled by the Historian of the Mississippi Valley District of the Corps of Engineers—whose assistance we gratefully acknowledge—came to \$19,100,571 (Camillo 2008). For traffic estimates, we take note of the fact that the lock between the Mississippi River and the Industrial Canal has a depth of 31.5 feet. Even in light of the fact that pilots like to have 3 feet or so of water under the keels of their vessels, any ship with a draft of less than 28 feet would not have needed to use MRGO to reach the Industrial Canal, but could have gone through the locks instead. In 2004, Corps statistics (U.S. Army Corps of Engineers 2006b) showed a *total* of ten “upbound” and thirteen “downbound” trips on MRGO by vessels with drafts of more than 28 feet.
16. The figures and quotations are from U.S. Army Corps of Engineers (2007a); both conclusions are reported on page 50.
17. U.S. Army Corps of Engineers (2007b); the quotation is from pages 92 and 25, respectively.
18. U.S. Army Corps of Engineers (2007b); the quotation is from page 20. The Louisiana report is Louisiana Department of Natural Resources (2006).
19. Still, it would be unfair to blame the Corps for all of the remaining threats to New Orleans. To take one notable example of their beneficial work, the Corps has constructed storm surge barriers at the formerly open ends of the London Avenue and the 17th Street canals where they connect with Lake Pontchartrain. Unfortunately, for esthetic reasons, the people who live along the lakefront—whose homes did not flood with Katrina—are fighting the proposal from the Corps to place the pumps at the shore of the lake, where they would do the most good in protecting the city.
20. U.S. Army Corps of Engineers (2007b). The mention of the supplemental environmental assessment is on page 15.
21. For an update on the importance of the lock for local shipping, see DeGregorio (2008).

*Chapter Nine*

1. Rose (2006).
2. See especially Mount and Twiss (2005).
3. For a straightforward account, see, for example, Vogel (2005).
4. For White's work, originally done during World War II, see White (1945). For updates, see White (1986), Schildgen (1999), Pinter (2005), and Gertz (2008). See also Mileti (1999).
5. For the estimate that levees are responsible for a third of U.S. flood disasters, see National Research Council (1982).
6. For the analysis of research findings, see U.S. General Accounting Office (1995); for original work on the "room for the river" concept, see, for example, Silva et al. (2001).
7. For further details, see, for example, Pinter (2005) and Gertz (2008).
8. The quotation is from Gertz (2008). See also Clarke (2007), Perrow (2007), and Freudenburg (1992).
9. See Pinter (2005); see also Gertz (2008).
10. For a more technical discussion, see Freudenburg et al. (2008).
11. For early and influential criticisms of "rent-seeking," see Krueger (1974) and Tullock (1967).
12. The quotation is from Schildgen (1999).
13. We owe another word of thanks to Edward Thomas for correcting the misleading wording that was included in an earlier version of this paragraph. He is blameless for any errors that remain, as we have not allowed him to see the final version.
14. The number is from Gertz (2008).
15. For a legal analysis of overall patterns, see Thomas and Medlock (2008). For an assessment that sees reasons to expect more rational outcomes in the future, see Kusler (2009).
16. For a readable analysis of the legal issues—and the wording of Section 702c of the Flood Control Act of 1928—see, for example, the discussion by O'Donnell (2008). As this book was going to press, residents of New Orleans and St. Bernard Parish were still pursuing legal action against the federal government for damage caused by MRGO; that lawsuit was being allowed to continue because MRGO was always planned and promoted as a navigation project, not a flood-control project.

*Chapter Ten*

1. Molotch's original comment was made in the context of another un-natural disaster, namely the Santa Barbara oil spill of 1969. See Molotch (1970).
2. For an example of early warnings, see Coastal Environments Inc. (1972). For examples of more recent warnings, see Laska (2004 and 2005). For retrospective accounts of the willingness to embrace economic development hopes while ignoring environmental concerns, see Glasser and Grunwald

(2005), as well as Brown (2006a and 2006b). For evidence that “megaprojects” tend in general to cost far more and deliver much less than initially promised, see, for example, Flyvberg et al. (2003).

3. MacNair (1999).
4. Peter and Hull (1969).
5. Erikson (1976).
6. National Institute of Building Sciences (2005).

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