Louisiana Commercial Oyster Fishermen: Trends in Fishing Efforts, Landings and Landing Revenue, Impact of Hurricanes and Monitoring of Recovery

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By

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Executive Summary

This report uses the trip ticket data collected by the Marine Fisheries division of the Louisiana's Department of Wildlife and Fisheries (LDWF) to examine the structure and socioeconomic characteristics of the commercial harvesting sector of the Louisiana's oyster fishery and to monitor the recovery of this fishery in the aftermath of hurricanes Katrina and Rita in 2005 and Gustav and Ike in 2008.

The trip ticket program (TTP) was established by the Louisiana Legislature in 1991 as a system to collect commercial landings and associated information by trip for individual fisheries. The TTP however was not implemented until 1999 due to lack of available funding. At the onset, the TTP was set to accomplish two objectives: (1) to provide fishery scientists with gear and area specific catch information that will improve the accuracy of stock assessments and (2) to provide fishery managers information on the impact of environmental changes and catastrophic events on the fishery.

Participants in the trip ticket program include holders of wholesale dealers and retail dealers as well as fresh products licenses. These participants provide the commercial landings and the associated information supplied to them by commercial fishermen at times of first seafood sales or purchases. Participants' records in the trip ticket are protected under Louisiana confidentiality statutes. In addition, summary report on them is disclosed only if the number of individuals involved is greater than three.

The information provided in this report addresses the objectives of the TTP. However, similar information, although not as detailed as those presented in this report, may be available in the publications or websites of the National Marine Fisheries Service (NMFS). The structural and the socioeconomic variables considered by this report follow the information available (as of

October 1, 2010) in the trip ticket data from 2000 through 2009. The report covers participation and activities as well as performance measures in the oyster fishery with some emphasis on private and public oyster areas. Scanty and discontinuous information, which violate Louisiana confidentiality provisions (e.g., when number of participants is less than four) are excluded from the report.

The report is divided into four chapters. Chapter 1 consists of report on the fisherman's participation or efforts in the commercial oyster fishery. Participation and activities includes the numbers of fishermen, fishing vessels and fishing trips as well as the length of fishing trips and type of gear associated with oyster harvesting. The performance of the oyster fishery in terms of the volume (in pounds), average dockside price and dockside value of oysters landed or sold at the Louisiana docks (first point of sales) as well as the unit of measure are contained in Chapter 2. Chapter 3 combines the previous two chapters to generate landings, average dockside price and dockside value per unit of fishing effort, while Chapter 4 discusses the impacts of hurricanes Katrina and Rita as well as Gustav and Ike on the oyster fishery and its recovery in the aftermath of these hurricanes.

Summary findings from this report are grouped into the following categories: participation and activities, dockside performance, performance per effort and hurricane impacts associated with the Louisiana oyster fishery.

I. Participation and Activities in Louisiana Oyster Fishery (2000 – 2009)

1. The number of participants who landed or sold oysters at Louisiana docks (oyster fishermen) from 2000 through 2009 averaged 772 fishermen. Approximately 77.8 percent of oyster fishermen landed oysters from the public reefs, while 67.3 percent landed oysters from the private reefs.

2. The majority (approximately 88.5 percent) of oyster fishermen who specified the type of fishing license they purchased in a given year during the period between 2000 and 2009 held a residential commercial fisherman license.

3. The top three parishes, with the average number of resident oyster fishermen from 2000 through 2009, were Plaquemines (189), Terrebonne (154) and St. Bernard (146).

4. The total number of fishing trips associated with oyster landings between 2000 and 2009 averaged 37,231 trips, distributed as 22,158 trips for private reef oysters and 15,074 trips for public reef oysters. In the same period, the average number of trips per fisherman averaged 42 trips for private reef oysters, 25 trips for public reef oysters and 48 trips for all oysters combined.

5. On average, fishermen spend a yearly total of 331,595 hours (13,817 calendar days) to fish oysters from 2000 to 2009. Approximately 57.2 percent of this time was spent to harvest oysters in private reefs, while the remaining 42.8 percent was spent in public reefs. Relatedly, the average length of oyster fishing trip was approximately 9 hours, regardless of the fishing areas.

6. The number of fishing vessels, which reportedly landed at least a pound of oysters at Louisiana docks, averaged 813 from 2000 to 2009. Approximately 76.5 percent of these total harvested oysters in the public reef areas, while 64.2 percent harvested oysters from the private reef areas. Also, approximately 71.9 percent of the fishing vessels was registered in Louisiana and 23.4 percent was documented with the U.S. Coast Guard. The remainder of the vessels, approximately 4.7 percent, was registered in states other than Louisiana.

7. Of the annual average of 381 fishing vessels (49.0 percent) whose license types were specified since 2001, approximately 95.4 percent was licensed to individuals who resided in Louisiana. Plaquemines (with 102 vessels), St. Bernard (77 vessels) and Terrebonne (with 65 vessels) topped other parishes in the number of fishing vessels owned by individual who resided in them. Of the annual average of 380 fishing vessels (49.0 percent) whose length were specified, approximately 34.6 percent were between 31 to 50 feet, followed by 20 to 24 feet (27.0 percent), 19 feet or less (16.0 percent) and 25 to 30 feet (14.2 percent). The rest were over 50 feet.

8. On average, the vast majority (88.7 percent) of the fishermen who landed or sold oysters in the 2000-2009 period used oyster dredge, followed by oyster tong, which was used only by 4.9 percent especially in the public reef areas. The remainder of fishermen (3.4 percent) who picked oysters by hand did so mainly in the private reef areas.

II. Dockside Performance of Louisiana Oyster Fishery (2000 – 2009)

1. The volume of oysters landed by fishermen at Louisiana docks averaged 13.4 million pounds yearly from 2000 through 2009. Of this amount, approximately three-fifth (60.9 percent) was harvested from private reef areas, while the remainder (39.1 percent) was from public reefs.

2. With the exception of 2002, the average nominal dockside price per pound was higher for public reef oysters than private reef oysters, with a maximum margin of 38 cents occurring in 2004. Compared to the average total dockside price, public reef oysters sold for a higher average price, having the largest margin of 26 cents per pound in 2004, while private reef oysters sold for a lower average price, with the largest margin of 12 cents per pound also in 2004.

3. The largest rate of growth in average real dockside price per pound was associated with the oysters harvested from public reefs, amounting to 37.4 percent from $2.22 in 2001 to $3.05 in 2006 or 2009. Following public reef oysters was private reef oysters whose average real price per pound rose by 32.7 percent from $2.23 in 2002 to $2.96 in 2009. The average real total price of all oysters sold at Louisiana docks increased by 31.1 percent from $2.28 in 2001 to $2.99 in 2009. On average, oysters sold for a real dockside price of $2.62 per pound from 2000 to 2009, while public and private oysters sold for $2.70 and $2.58 per pound, respectively.

4. The total nominal value of private reef oysters sold at the Louisiana docks was lower than the value of public reef oysters only in 2002, with a difference of $4.3 million. For other years within the 2000-2009 period, the divergence was narrower with $0.6 million in 2001 and widest with $26.6 million in 2009. The net margin averaged $8.4 million from 2000 to 2009.

5. The real dockside prices of oysters fluctuated modestly from 2000 through 2009, with an average total of $35.9 million. Approximately 61.3 percent of this amount was realized from the sales of oysters harvested from private reef areas, while the remainder (38.7 percent) came from the sale of public reef oysters.

6. The top three parishes with the average annual volume of oysters landed between 2000 and 2009 by fishermen who resided in them are Plaquemines (4.0 million pounds), Terrebonne (3.2 million pounds) and St. Bernard (2.4 million pounds). Their yearly average nominal dockside values were $11.5 million, $7.1 million and $6.7 million, respectively.

7. The rate of change in the real dockside values of oysters in the 2000-2009 period was largest for fishermen resident in Orleans parish, declining by 7,663 percent from $595,145 in 2001 to $7,666 in 2007. Next were residents of St. Mary parish whose oyster revenue fell by 4,898 percent from $2,840 in 2008 to $141,947 in 2000 and Calcasieu parish, which rose by 1,181 percent from $39,795 in 2002 to $510,109 in 2009.

8. Texas alone accounted for over three-quarter (75.2 percent of landings or 78.5 percent of dockside value) of oysters traded at the Louisiana docks by non-resident fishermen. The annual volume of oysters (1.2 million pounds), which is worth $3.4 million accrued to fishermen from Texas. Next to Texas was Mississippi with 22.4 percent (0.4 million pounds) of landings and 18.9 percent of dockside value ($0.8

million worth). At a distant third were Alabama's residents with 30,093 pounds of oysters, which generated $86,828 in revenue. The share of oyster landings increased steeply from 369,450 pounds in 2004 to 2.4 million pounds in 2008 for Texas residents. However, the real value, which was $911,807 in 2004, rose to a high of $6.8 million in 2009.

9. The top three Louisiana river basins where majority of oysters were harvested were the Lake Pontchartrain, Barataria and Terrebonne Basins. On average, the volume of oysters harvested from these basins with their values were 7.5 million ($20.8 million), 2.7 million ($7.9 million) and 2.3 million ($4.8 million), respectively. These three basins were also the most important in terms of oysters harvested from private reef areas. Interestingly, about 81.8 percent of oysters harvested from public reef areas came from the Lake Pontchartrain Basin alone. However, oysters from Barataria Basin commanded the highest yearly average dockside price of $2.89 per pound between 2000 and 2009, followed by Lake Pontchartrain, with $2.83 per pound and Calcasieu with $2.56 per pound.

10. Approximately 99.7 percent of the oyster landed and sold in Louisiana was measured in sacks.

III. Dockside Performance per Effort in Louisiana Oyster Fishery (2000 – 2009)

1. The annual total volume (real dockside values) of oysters landed per oyster fisherman average 17,438 pounds ($46,364) from 2000 to 2009. In regard to fishing areas, the yearly average volume of oysters per fisherman who harvested from private reefs was 15,716 pounds ($42,364), while the annual average volume of oysters per fishermen who harvested from public reefs was 8,656 pounds ($23,146).

2. On average, a total of 361 pounds ($968 in real dockside value) of oysters was landed yearly in Louisiana per oyster fishing trip from 2000 to 2009. However, the volume of private reef oysters landed per trip was 372 pounds ($994) and the amount of public reef oysters landed per trip was 342 pounds ($926). On hourly basis, fishermen landed an average of 40 pounds ($109 worth) of oysters per hour of trip, 43 pounds ($117) of private reef oysters per hour and 36 pounds ($98) of public reef oysters per hour.

3. Approximately 16,801 pounds or $45,288 worth of oysters was landed yearly per oyster vessel in the period between 2000 and 2009. Per vessel annual landings for private and public reef oysters averaged 15,810 pounds ($42,777) and 8,408 pounds ($22,528), respectively. In addition, an average of 500 pounds ($1,354 in real dockside value) of all oysters, 473 pounds ($1,286) of private reef oysters and 247 pounds ($666) of public reef oysters were landed per foot of oyster vessel.

4. Fishing vessels between 31 to 50 feet landed the largest volume of oysters, averaging 3.1 million pounds annually from 2000 to 2009. Next were vessels with length from

20 to 30 feet and 51 to 65 feet, which harvested annual averages of 1.4 million pounds and 1.2 million pounds, respectively. Vessels of length category "19 feet or less" were responsible for the smallest amount of only 206,194 pounds of oysters per year in the 2000-2009 period. The real dockside values of oysters landed per year averaged $8.6 million for boat category "31-50 feet," $3.5 million for category "20-30 feet," $3.4 million for boat category "51-65 feet" and $542,530 for boat category "19 feet or less."

5. Of an average of 13.4 million pounds of oysters landed annually at Louisiana docks between 2000 and 2009, oyster dredges accounted for approximately 96.6 percent (12.9 million pounds). Handpicking of oysters, occurring mainly in private reef areas, accounted for an average of 2.5 percent (339,158 pounds) and oyster tongs, accounted for only 0.8 percent (110,805). The annual real dockside values of oysters attributed to dredges, handpicking and tongs were $34.7 million, $919,035 and $266,894, respectively.

IV. Hurricane Impacts on and Recovery of the Louisiana Oyster Fishery (2004 – 2009)

Examining the findings in this report shows that major disturbances resulted from hurricanes Katrina or Rita and Gustav or Ike, which devastated Louisiana in 2005 and 2008, respectively. The nature and process of recovery of the oyster fishery afterward depend on the magnitude of these hurricanes, the extent of damage, the fishery indicators of interest and the lag between hurricanes occurrences. Katrina and Rita were category 3 hurricanes, while Gustav and Ike were of categories 2 and 1, respectively. Unless stated otherwise, changes between 2004 and 2005 are used together or interchangeably with the effects of Katrina and Rita, while changes between 2007 and 2008 reflect the effects of Gustav and Ike. The following highlight the possible impacts of these hurricanes on Louisiana's oyster industry:

1. The number of fishermen who landed or sold oysters declined by 25 percent between 2004 and 2005 following Katrina and Rita. Likewise, the number of oyster fishermen declined by 6.5 percent between 2007 and 2008 after Gustav and Ike.

2. Among Louisiana parishes, Plaquemines, St. Bernard and Cameron parishes suffered the largest declines in the number of resident fishermen in the year of Katrina and Rita. Only out-of-state resident oyster fishermen enjoyed a boost in their number when Katrina and Rita landed. Gustav and Ike caused a greater reduction in the number of fishermen who resided in Plaquemines and Terrebonne parishes, but an increase in the number of fishermen who lived in St. Bernard and outside of Louisiana.

3. The total number of seafood dealers who purchased oyster fell by 34.9 between 2004 and 2005 (perhaps due to Katrina and Rita) and but rose by 18.5 percent between 2007 and 2008 (partly due to Gustav and Ike).

4. Between 2004 and 2005, the total number of oyster fishing trips and average number of trips per fishermen fell by 23.5 percent and 15.3 percent, respectively. In the same 2004-2005 period, the average length fishermen spent per trip rose by 24 minutes. Between 2007 and 2008, the total number of oyster fishing trips and average number of trips per fishermen declined by 9.2 percent and 2.9 percent, respectively. In the same 2007-2008 period, the average length fishermen spent per trip declined by 6 minutes.

5. The number of fishing vessels, which landed oysters in Louisiana declined rose slightly by 3.4 percent in 2005 but fell by 28.3 percent between 2005 and 2006 as a result of Katrina and Rita. Likewise, the number of oyster vessel declined by 4.0 percent between 2007 and 2008 following Gustav and Ike.

6. Between 2004 and 2006, the volume of oysters landed by residents of twelve parishes declined by 4.2 million pounds, while it rose by 1.0 million pounds for residents of eighteen parishes and by 865,382 pounds for those who resided outside of Louisiana. These changes resulted in a net decrease of 17.3 percent (2.4 million pounds) in oyster landings in Louisiana from 2004 to 2006 that could largely be attributed to Katrina and Rita. In the year of Gustav and Ike (2008), oyster landings fell by 1.4 million pounds among residents of sixteen parishes, rose by 930,319 pounds among residents of eleven parishes and increased by 569,887 pounds among residents of other states, resulting in a net decline of 1.2 percent (153,168 pounds).

7. Approximately one-half of the total decrease (4.2 million pounds) in oyster landings between 2004 and 2006 was experienced by oyster fishermen who lived in St. Bernard Parish, followed by residents in Plaquemines Parish with about two-fifths. Among parishes whose residents enjoyed a total increase of one million pounds in oyster landings in the 2004-2006 period, Terrebonne accounted for 54.3 percent, while Ascension Parish accounted for 17.4 percent. Of the decline of 1.4 million pounds of oysters between 2007 and 2008, individuals who resided in Terrebonne and Plaquemines accounted for 75 percent. Also, 79 percent of the total increase in oyster landings among parishes between 2007 and 2008 was accounted for by the residents of St. Bernard, St. Tammany and Iberia Parishes.

8. Approximately 54.9 percent of the total decline in the volume of oyster (2.5 million pounds) between 2004 and 2005, the year of Katrina or Rita, was associated with harvest from the Lake Pontchartrain Basin. Over two-fifths (42.7 percent) were associated with harvest from Barataria Basin. Oyster harvesting in the Vermilion-Teche River, Terrebonne and Calcasieu Basins experienced a boost of 0.7 million pounds from 2004 to 2005. Also, the Vermilion-Teche River Basin accounted for 55.7 percent of the loss of 2.2 million pounds in oyster landings between 2007 and 2008 (Gustav and Ike). The Terrebonne and Barataria Basins accounted for 44.6 percent. Only the Lake Pontchartrain Basin (with 2.2 million pounds) and Calcasieu River Basin (with 0.1 million pounds) showed an increase in the pounds of oysters harvested from their waters between 2007 and 2008.

9. The average total real dockside prices of oysters per pound rose by $0.46 during the year of Katrina or Rita (2005) but fell by $0.19 during the year of Gustav or Ike (2008) compared to previous year. The largest individual increase ($0.51) in the dockside average real price per pound in 2005 occurred for the oysters harvested from the Vermilion-Teche River Basin. Also, the largest individual decrease ($0.74 per pound) in the dockside average real price in 2005 occurred for the oysters harvested from the Atchafalaya Basin.

10. From 2004 to 2005, the real dockside value of oysters landed by residents of eleven parishes decreased by $5.5 million, while there were increases in oysters' dockside value of $2.3 million for residents of fourteen parishes and nearly $0.6 million for residents of other states. These changes resulted in a net decline of 7.4 percent ($2.7 million). Between 2007 and 2008, oyster's real dockside value decreased by a net of 4.4 percent ($1.7 million). This net decline emanated from a decrease of $5.2 million among residents of sixteen parishes and increases of $2.1 million among residents of eleven parishes and $1.5 million among those who resided outside of Louisiana.

11. Of the total decline of $5.5 million in the real dockside values of oysters by group of parishes from 2004 to 2005, about 42.5 percent was experienced by fishermen who resided in Plaquemines Parish, 35.3 percent by individuals in St. Bernard Parish and 7.4 percent by residents of Jefferson Parish. Of the parishes whose residents experienced a total increase in oyster dockside value ($2.3 million) during the year of Katrina and Rita, Terrebonne and Cameron accounted for 70.1 percent and 14.1 percent, respectively. Of the $5.2 million decline in the real dockside value of oysters among residents in sixteen parishes between 2007 and 2008, Plaquemines and Terrebonne Parishes accounted for about 74.7 percent. Among the parishes whose residents experienced an increase of $2.1 million in the real dockside value of oysters, St. Bernard, St. Tammany and Iberia Parishes accounted for 77.3 percent of this value.

12. The real dockside value fell by $5.2 million for oysters harvested from a group of three basins between 2004 and 2005, while it rose by $2.6 million for another group of three basins. Of the $5.2 million decrease in oyster value, the Lake Pontchartrain Basin accounted for 53.2 percent, the Barataria Basin accounted for 44.0 percent and the remainder (2.8 percent) was associated with the Atchafalaya River Basin. Of the increase of $2.6 million in dockside values of oysters, the Terrebonne, Vermilion-Teche River and Calcasieu Basins accounted for 48.6 percent, 40.7 percent and 10.7 percent, respectively. A total decrease of $6.7 million worth of oysters was identified for four basins between 2007 and 2008, while a total increase of $5.1 million was identified for two basins. The Vermilion-Teche River, Barataria and Terrebonne Basins accounted for 44.7 percent, 29.5 percent and 23.9 percent of the decline, respectively. For the group of basins with increased values of oysters from their waters from 2007 to 2008, the Lake Pontchartrain alone accounted for 96.2 percent, while the remainder (3.8 percent) was associated with the Calcasieu River Basin.

13. The nature and speed of recovery of the Louisiana oyster fishery are dependent on the magnitude of and the extent of damage suffered from hurricanes as well as the interval between hurricanes occurrences. Most measures of participation and activities tend to rebound within a year after hurricane occurrences. However, the recovery of performance indicators like the volume of oysters landed did not begin until two years especially after Katrina and Rita. In terms of landings by parish of residence, recovery was slow for residents of Plaquemines, St. Bernard and Orleans parishes but appeared to have been achieved by individuals living in parishes like St. Tammany, Tangipahoa, Cameron, Vermilion and Calcasieu as well as those who resided outside of Louisiana. Generally, repeated interruptions from hurricanes and other minor storms have constituted the major obstruction slowing down the recovery of the oyster fishery after a hurricane disaster.

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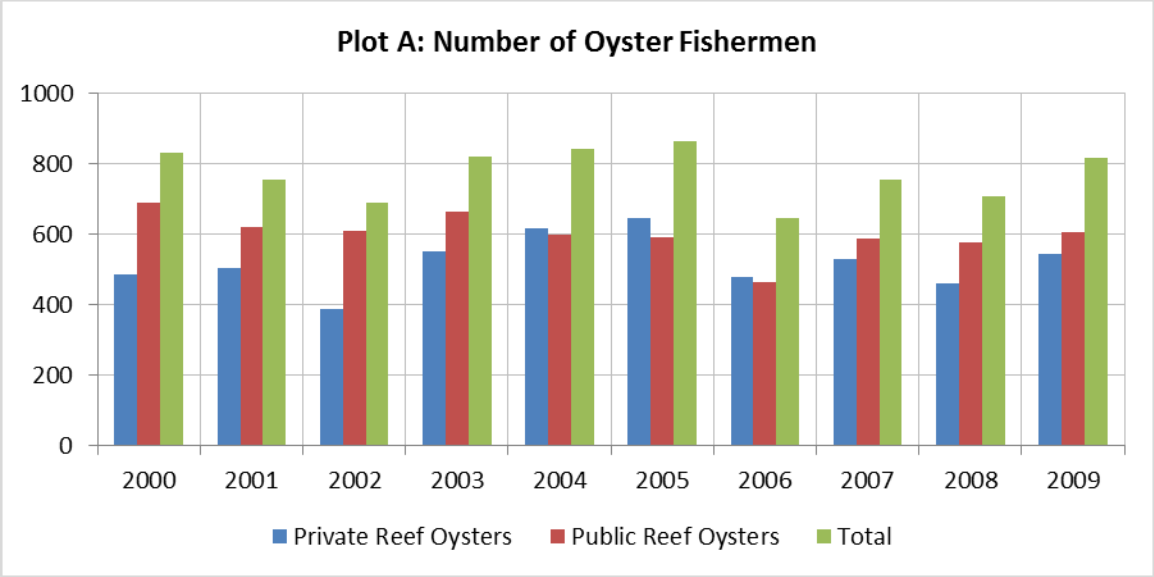
Chapter 1 - Participation and Activities in the Oyster Industry

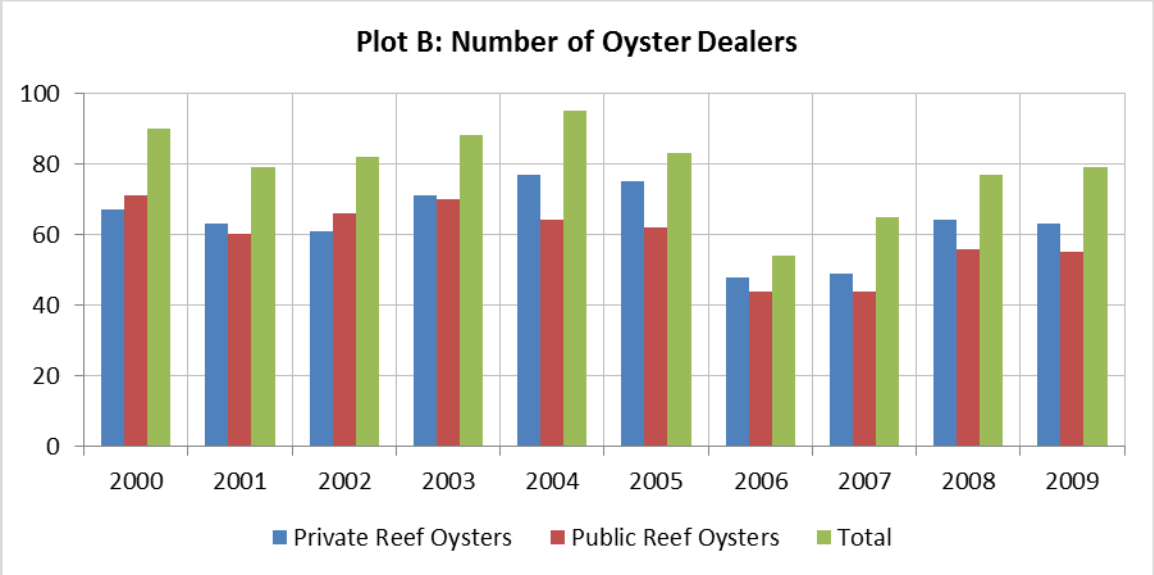
This chapter provides information on participation and activities of commercial fishermen who were reported to have landed or sold at least a pound of oysters to a wholesale/retail dealer or directly to a consumer in Louisiana in the period between 2000 and 2009. The information provided includes the number of oyster fishermen with the sources of oysters they landed or sold (e.g., private and public areas), place of residence of oyster fishermen, the number of fishing vessels that reportedly landed oysters, the resident status and parish of residence of the vessel owners. The impacts of the hurricanes, which devastated the oyster fishery during the 2000-2009 period, are also discussed. Information that violates the Louisiana confidentiality provision (e.g., when number of participants is less than four) are excluded from the report.

1.1 Oyster Fishermen and Dealers

The trend in the number of fishermen who reportedly landed or sold at least a pound of oysters (hereafter, oyster fishermen) in the trip ticket program from 2000 through 2009 is shown in Figure 1.1 (Plot A). For the same period, Figure 1.1, Plot B also shows the trends in the number of seafood dealers who reported purchases of oysters (hereafter, oyster dealers).

The total number of oyster fishermen fluctuated between 647 in 2006 and 863 in 2005 but averaged 772 from 2000 through 2009. This number may include some fishermen who did not target oysters directly but caught them as bycatch when fishing for other seafood species. Except for the period between 2004 and 2006, more oyster fishermen harvested oysters from the public reefs than the private reefs (See Appendix Figure D.1 for the maps of oyster areas). On average, approximately 77.8 percent (600 oyster fishermen) annually landed oysters from public





Source: Appendix Table A.1. See Appendix Figure D.1 for the maps of oyster areas.

Figure 1.1 Number of Oyster Fishermen and Dealers by Source of Oysters, 2000 – 2009

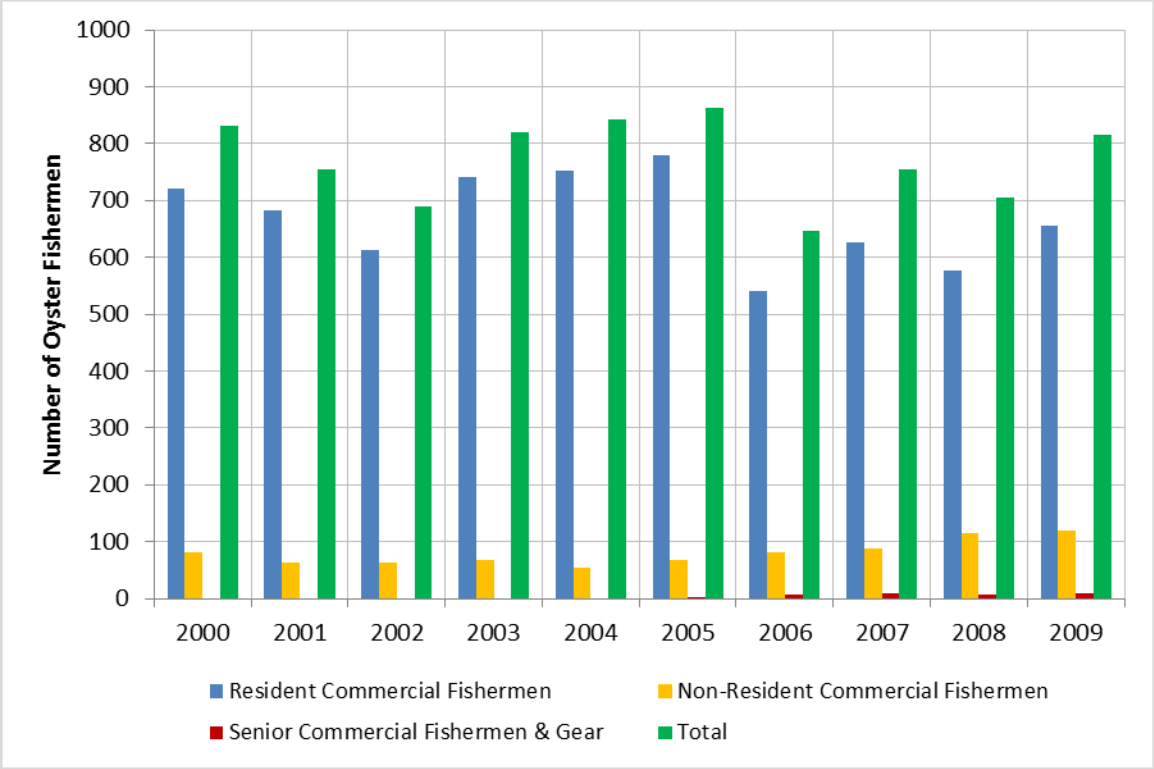
reefs, while 67.3 percent or 520 oyster fishermen landed oysters yearly from the private reefs.

Figure 1.1, Plot B shows that the total number of oyster dealers rose rapidly from 79 dealers in 2001 to peak at 95 dealers in 2004. However, this number fell more drastically from its peak in 2004 to its low of only 54 dealers in 2006. The number of oyster dealers who purchased both private and public reef oysters followed similar trends when compared to the total number of dealers. On average, the number of individuals who purchased oysters from 2000 through 2009 averaged 79 dealers. Of this number, 64 individuals bought private reef oysters, while 59 dealers bought public reef oysters.

Readers should not use the information presented in this section to calculate fisher-dealer ratios for such ratios will be misleading. This is because the number of fishermen who harvested and the number of dealers who bought oysters might have included non-active participants in oyster fishery. Also, individuals who held a fresh product dealer license double up as both fishermen and seafood dealers who sell their catches directly to the public.

1.1.1 Number of Oyster Fishermen by Type of Fishing License

The types of commercial fishing license held by oyster fishermen from 2000 through 2009 are shown in Figure 1.2. An average of 97.8 percent of oyster fishermen (755 individuals) specified the type of fishing license they purchased in the trip ticket forms. Of this amount, the majority (88.5 percent or 669 fishermen) held a residential commercial fisherman license, followed by individuals (10.6 percent or 80 fishermen) who held a non-resident commercial license. The remaining oyster fishermen held senior commercial fishermen and gear licenses, a type of commercial fishing license that was first made available in 2005.

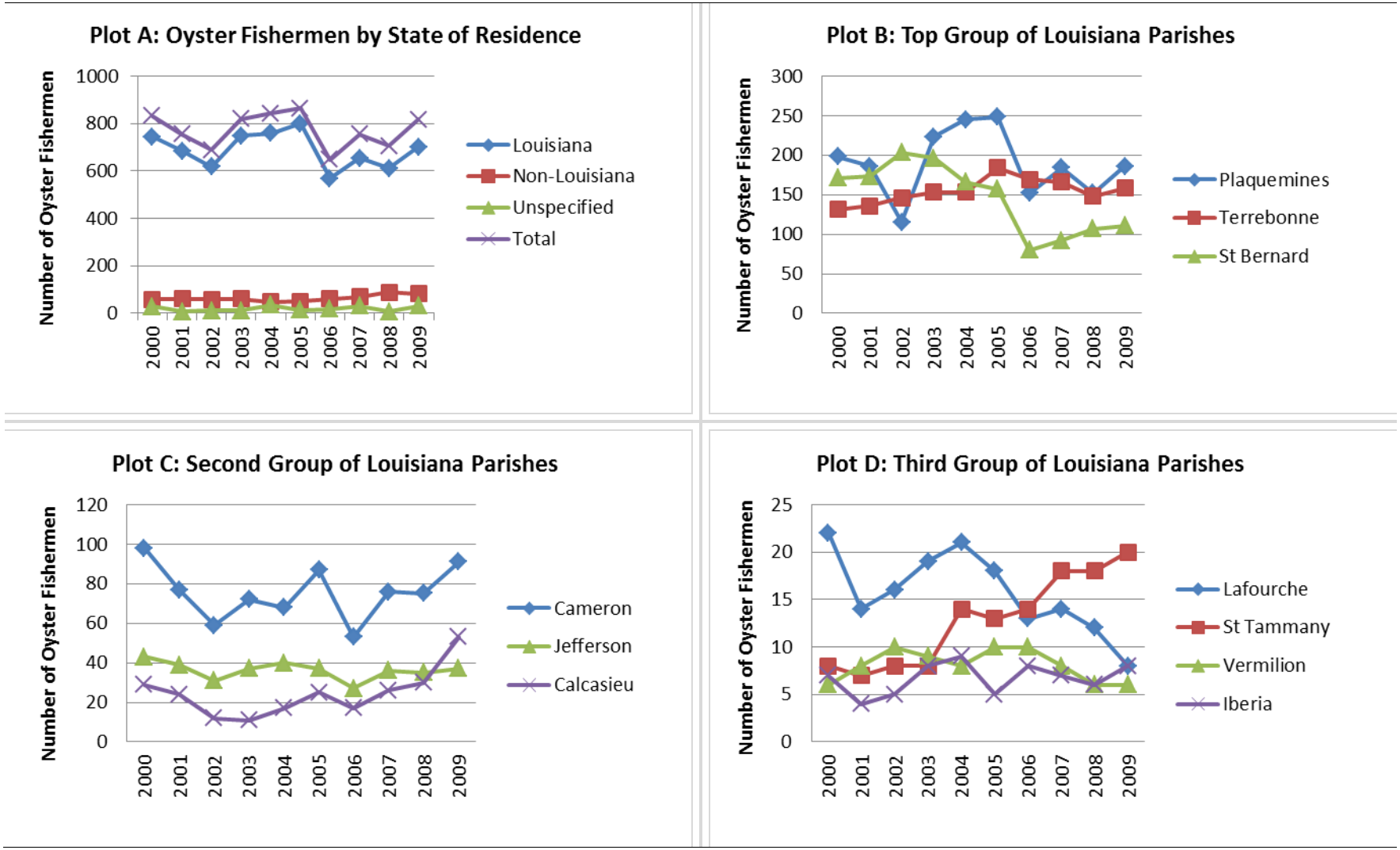


Source: Appendix Table A.2. Note: Alien commercial fishermen license holders in 2000 were combined with the non-resident commercial fisherman license holders because it was discontinued after 2000. Also, 2005 was the first year for the senior commercial fishermen and gear license.

Figure 1.2 Number of Oyster Fishermen by Type of Fishing License, 2000 – 2009

1.1.2 Place of Residence of Oyster Fishermen

The number of fishermen who landed and sold oysters by the place of residence is shown in Figure 1.3 (Plots A to D). On average, nearly nine-tenths (89.1 percent or 688 fishermen) of oyster fishermen lived in Louisiana (Plot A), while 8.3 percent (64 individuals) resided in other states. Plots B to D are comprised of all Louisiana's parishes of residence whose number of fishermen at any given year satisfied the state's confidentiality requirement, that is, the number averaged at least four fishermen in every year from 2000 through 2009.



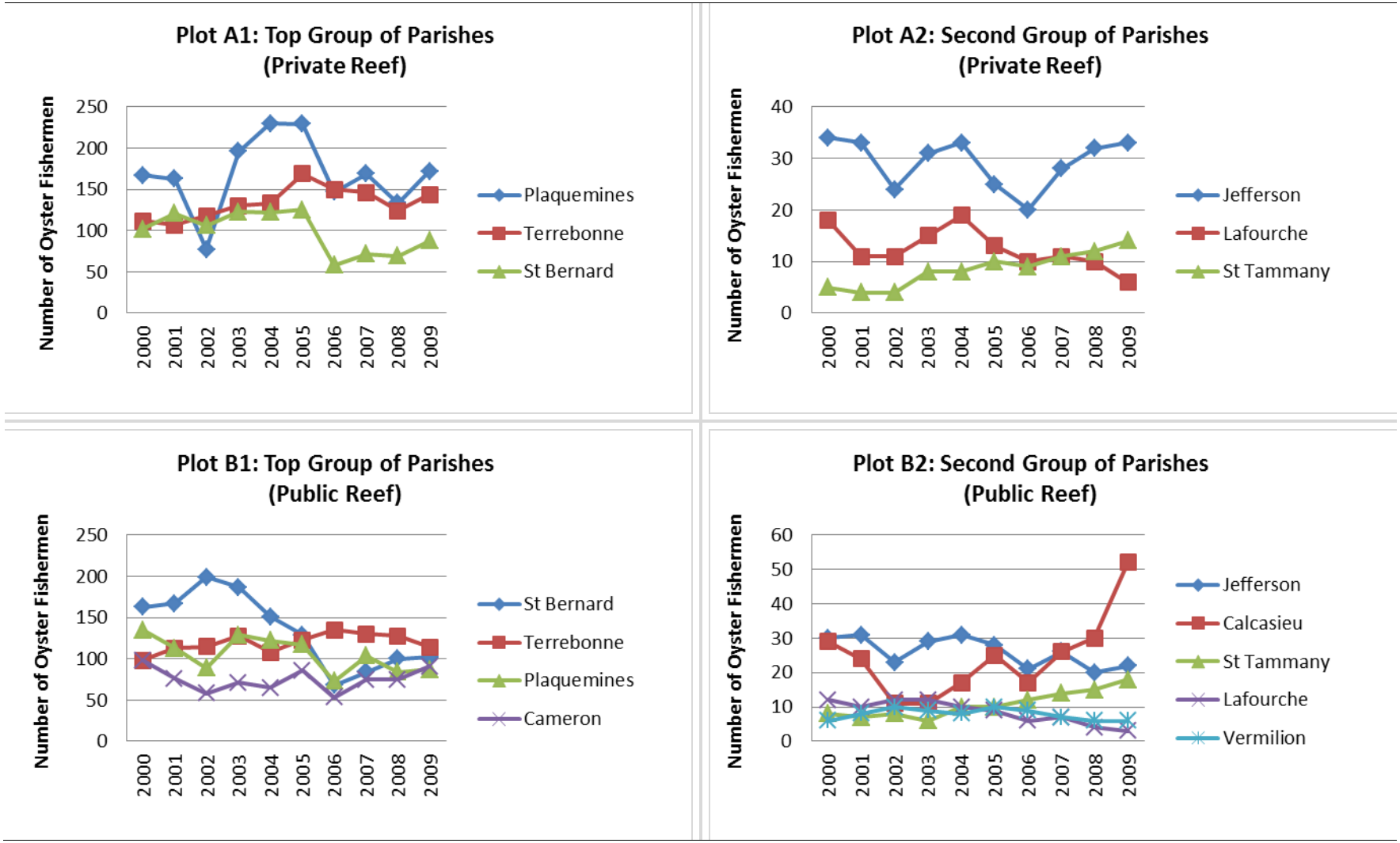
Source: Appendix Table A.3.

Figure 1.3 Number of Oyster Fishermen by Parish of Residence, 2000 – 2009

Plot B shows that most of the oyster fishermen in Louisiana resided in Plaquemines Parish (between 115 individuals in 2002 and 248 individuals in 2005) and Terrebonne Parish (between 131 fishermen in 2000 and 184 fishermen in 2005), with an average of 189 and 154 fishermen, respectively. Next is St. Bernard Parish whose number of oyster fishermen displayed the single longest fall from a high of 203 individuals in 2002 to a low of only 80 fishermen in 2006 but averaged 146 fishermen. At a distant fourth was Cameron Parish (Plot C) where number of resident oyster fishermen fluctuated between 53 fishermen in 2006 and 98 fishermen in 2000 and averaged 76 fishermen for the 2000-2009 period.

The resident oyster fishermen in Calcasieu Parish (Plot C) and individuals in St. Tammany Parish (Plot D) were at their lows in 2003 (11 individuals) and 2001 (7 fishermen), respectively. Since then, the numbers of resident oyster fishermen in these locations have exhibited increasing trends partly as a result of recruitment of fishermen into the oyster fishery and partly due to relocation of fishermen in the aftermath of hurricanes. Precisely, the number of residents in Calcasieu Parish increased by 381.8 percent from a low of 11 fishermen in 2003 to a high of 53 fishermen in 2009, while in St. Tammany Parish, the number rose by 185.7 percent from 7 fishermen in 2001 to 20 individuals in 2009.

The number of oyster fishermen by parish of residence in Louisiana and source of oysters are shown in Figure 1.4. Plots A1 and A2 of Figure 1.4 show the distribution for individuals who harvested oysters from the private reefs with their places of residence. Plots B1 and B2 show similar information for those who caught oysters from the public grounds. Plaquemines, Terrebonne and St. Bernard were the top parishes where the fishermen who caught oysters from both private and public reefs resided. Among the oyster fishermen who resided in Plaquemines Parish, between 77 individuals in 2002 and 230 in 2004 harvested oysters from private reefs and



Source: Appendix Tables A.4 and A.5. See Appendix Figure D.1 for the maps of oyster areas.

Figure 1.4 Number of Oyster Fishermen Who Fished in Private and Public Reefs by Parish of Residence, 2000 – 2009

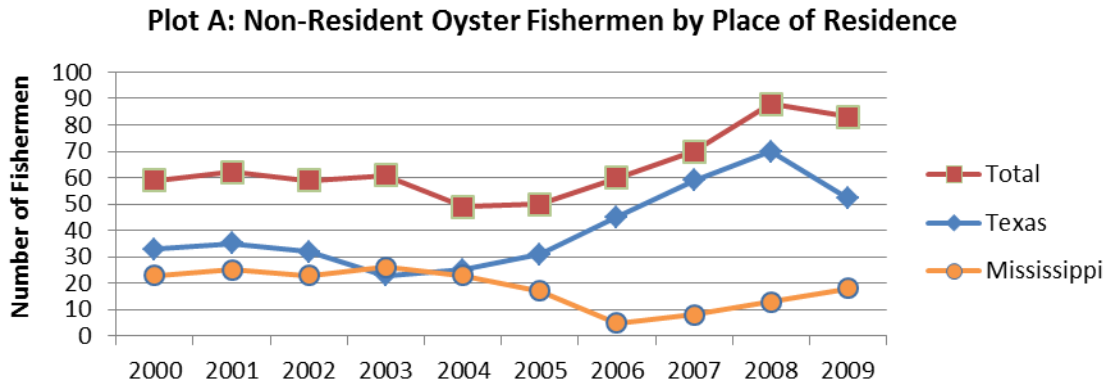
between 73 people in 2006 and 135 people in 2000 caught oysters from public reef. From the Terrebonne Parish, the number of private reef oysters' fishermen ranged from 107 in 2001 to 169 in 2005 and the number of public reef oysters' fishermen ranged from 98 in 2000 to 135 in 2006. Between 58 individuals (in 2006) and 123 individuals (2003) who lived in St. Bernard Parish caught private reef oysters and between 68 in 2006 and 199 in 2002 harvested public reef oysters. Interestingly, residents of all parishes to the southwest of Louisiana (Cameron, Calcasieu and Vermilion) as well as individuals who lived in St. Tammany harvested oysters from the public oyster grounds.

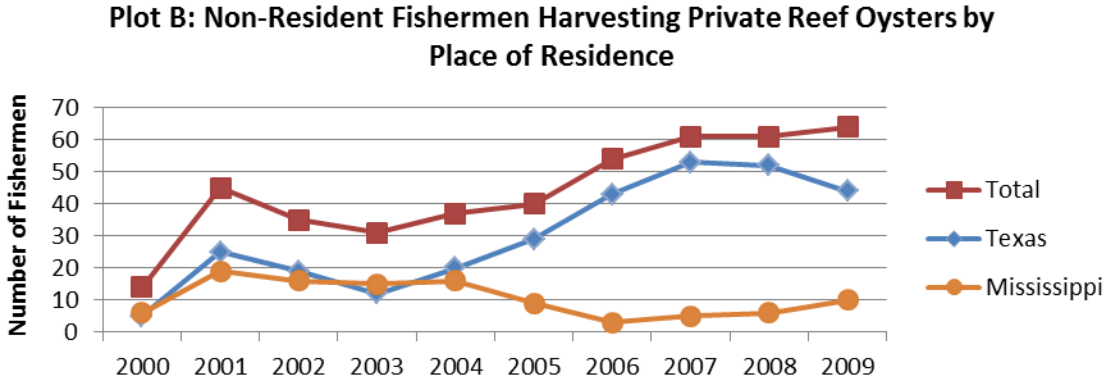
The numbers of oyster fishermen who resided in states other than Louisiana are shown in Figure 1.5, Plot A to Plot C. The total number of non-resident oyster fishermen rose by 79.6 percent from 49 individuals in 2004 to 88 individuals in 2008, but averaged 64 individuals annually. Of the annual average of 64 oyster fishermen who resided outside of Louisiana in the 2000-2009 period, 62.4 percent (41 individuals) were from Texas and 29.6 percent (18) were from Mississippi. The remainder was from other states especially Alabama.

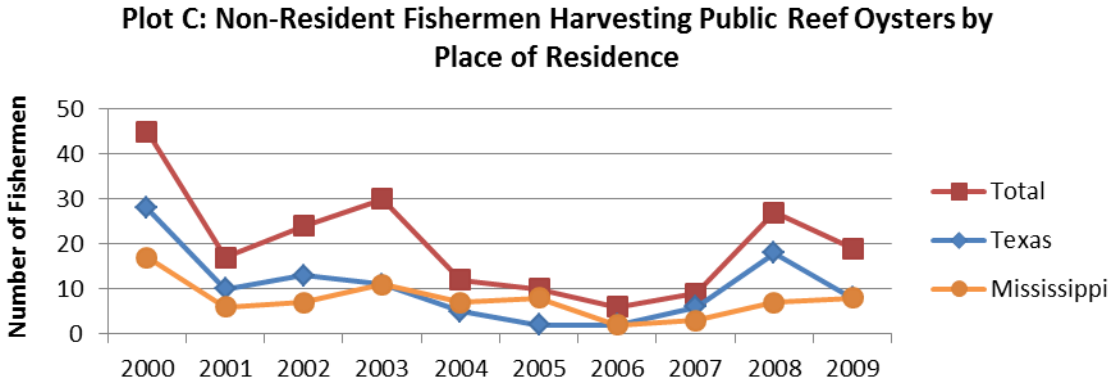
Similarly, about 69.1 percent (44 individuals) of all 64 non-resident fishermen who landed and sold oysters in Louisiana in every year within the 2000-2009 period harvested oysters from the private reef areas. Approximately 31.1 percent (20 fishermen) harvested oysters from the public grounds. The remainder might have harvested oysters from both private and public reefs. See Chapter 2 (section 2.4.1) for information on oyster landings and dockside values reported on individuals who resided outside of Louisiana.

1.2 Oyster Fishing Trips

Oyster fishing trips include all fishing trips associated with the sale of at least a pound of oysters as reported on a trip ticket form regardless of whether oysters harvesting was the original







Source: Appendix Table A.6. See Appendix Figure D.1 for the maps of oyster areas.

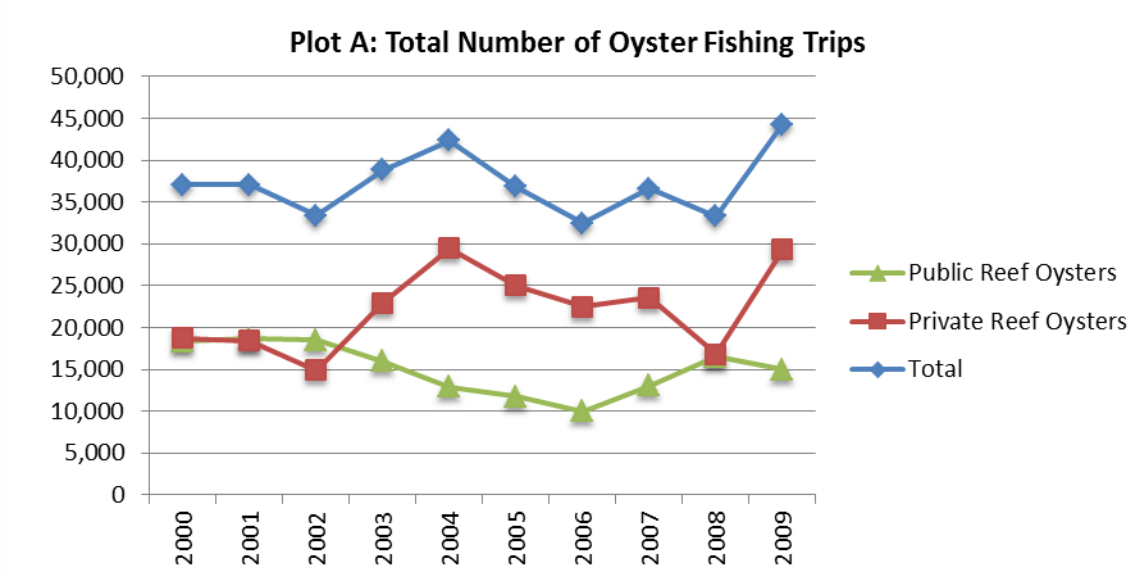
Figure 1.5 Number of Oyster Fishermen by Non-Louisiana State of Residence, 2000 – 2009

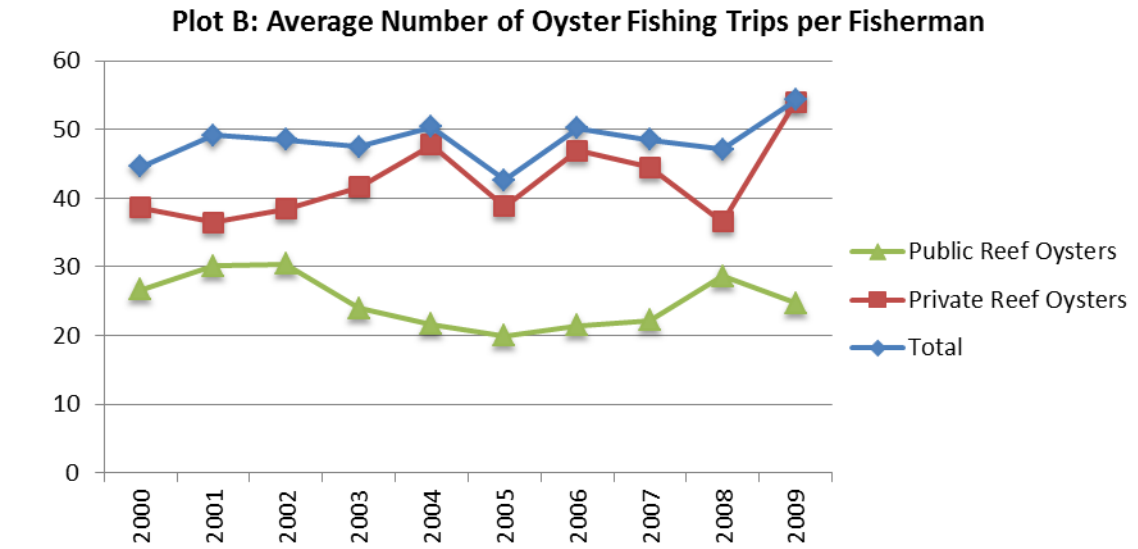
target or not for the fishermen. Number of trips is determined using the length of time a trip takes from and to a starting point (e.g., a dock, boat launch, etc.). The number and the length of fishing trips associated with oyster landings from 2000 through 2009 are shown in Figures 1.6 and 1.7.

Figure 1.6 shows the yearly total number of trips and the average numbers of trips taken per fishermen, which were associated with oyster fishing between 2000 and 2009. During this period, Figure 1.6, Plot A shows that the total number of oyster fishing trips ranged from 32,443 trips in 2006 to 44,290 trips in 2009 but averaged 37,231 trips from 2000 through 2009. Of the 37,231 trips, approximately three-fifths (59.5 percent) were taken to harvest oysters from private reef, while the remaining portion was taken to harvest oysters in public reef areas. The number of trips fishermen took to harvest oysters from private reefs ranged from 14,882 trips in 2002 to 29,456 trips in 2004, while the fishing trips taken to harvest oysters from public reefs fluctuated between 9,988 trips in 2006 and 18,658 trips in 2002.

The annual average number of trips per oyster fisherman fluctuated between 43 trips in 2005 and 54 trips in 2009, but averaged 48 trips for the entire 2000-2009 period (Figure 1.6, Plot B). On average, an individual took 42 trips to harvest oysters in the private reef areas and 25 trips to harvest oysters in the public reef areas in the period between 2000 and 2009.

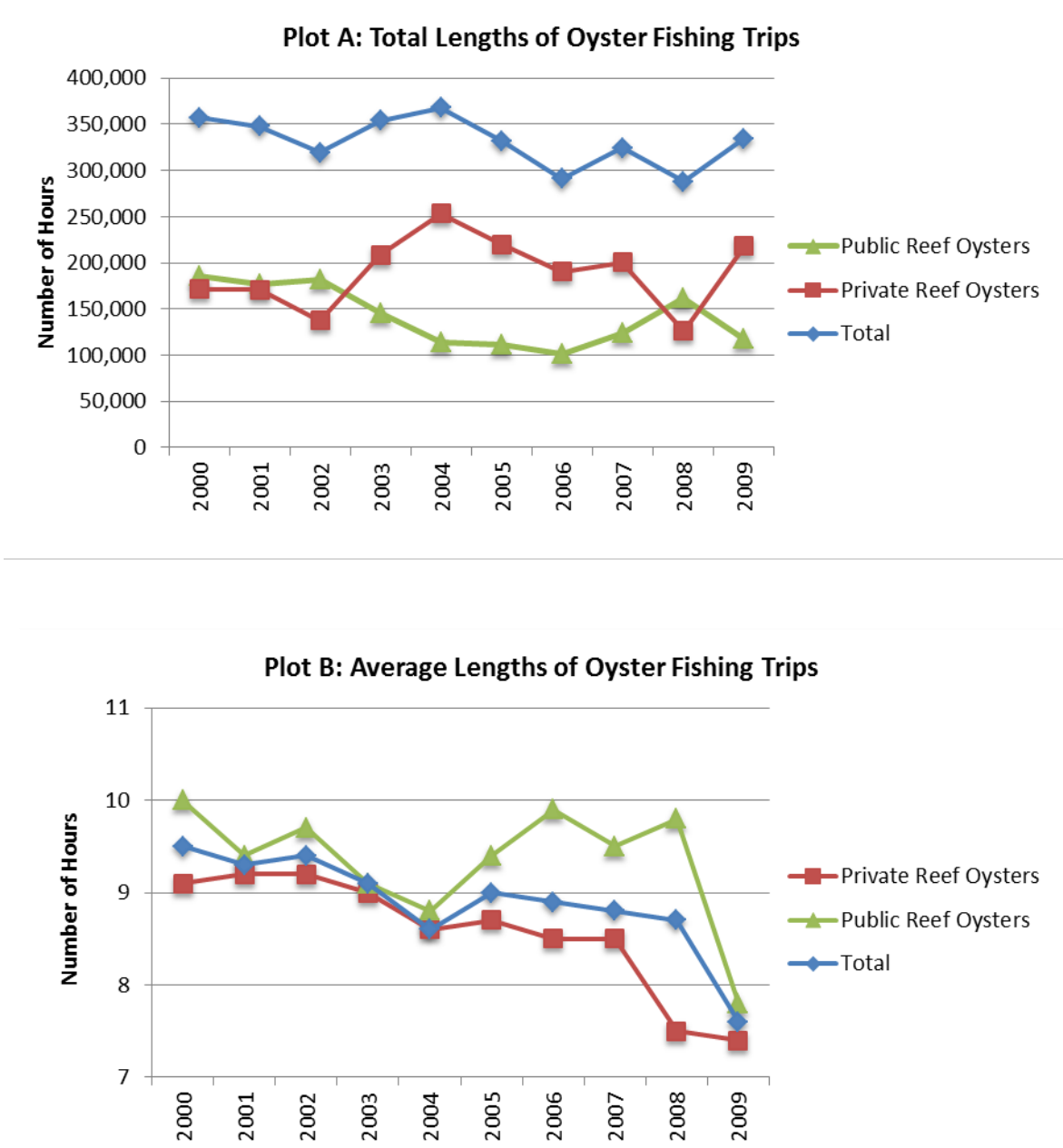
Figure 1.7, Plots A and B, shows the total and average length (in hours) of trips associated with oyster fishing (i.e., from when a fisherman left the dock, boat launch, etc. to when the individual arrived at the same starting point) reported on the trip ticket in the period between 2000 and 2009. In Plot A, the total length or number of hours of trips fluctuated between a low of 288,116 hours (or 12,005 calendar days) in 2008 and a high of 367,850 hours (or 15,327 days) in 2004 regardless of the sources of the oysters. Similarly, the total length of





Source: Appendix Table A.7. See Appendix Figure D.1 for the maps of oyster areas.

Figure 1.6 Total and Average Number of Oyster Fishing Trips, 2000 – 2009



Source: Appendix Table A.7. See Appendix Figure D.1 for the maps of oyster areas.

Figure 1.7 Total and Average Lengths of Oyster Fishing Trips, 2000 – 2009

trips fishermen took to harvest private reef oysters ranged from 126,344 hours (5,264 days) in 2008 to 253,438 hours (10,560 days) in 2004. However, the trend for the total number of hours fishermen spent to harvest public reef oysters was relatively flat, fluctuating between 100,745 hours (4,198 days) in 2006 and 185,576 hours in 2000 (7,732 days).

On average, fishermen spent a total of 331,596 hours (13,817 days) per year from 2000 through 2009 to harvest oysters. Approximately 57.2 percent of this time was directed at harvesting oysters from private reef areas, which is equivalent to 189,712 hours (7,905 days) per year. The remaining 42.8 percent (141,884 hours or 5,912 days per year) was directed at harvesting oysters from public reef areas.

Figure 1.7, Plot B shows declining trends for the average total length in hours of fishing trip and average lengths of trips associated with the harvest of private and public reef oysters from 2000 to 2009. For example, the average total length of time that fishermen spent to harvest oyster shorten by 20.0 percent from 9.5 hours in 2000 to 7.6 hours in 2009. The major factor responsible for the shortening of the average total length of trip time was the declining length of time that was directed at harvesting private reef oysters, which fell consistently by 19.6 percent from 9.2 hours in 2002 to 7.4 hours in 2009. Except for 2009 when it reached a low of 7.8 hours, the average length of time spent to harvest public reef oysters fluctuated around 9.5 hours. Regardless of oyster fishing areas, fishermen spent approximately nine (9) hours, on average, to harvest oysters at any given time in the 2000-2009 period.

1.3 Oyster Fishing Vessels

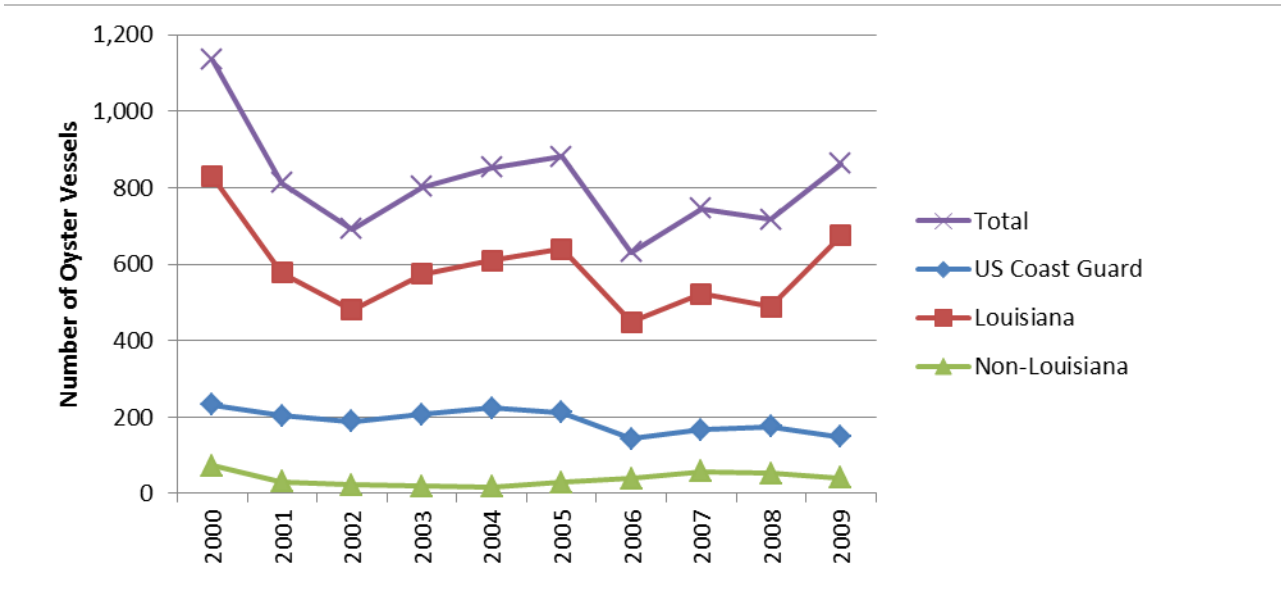
This section contains summary information on fishing vessels, which reportedly landed at least a pound of oysters (hereafter, oyster vessels) from 2000 through 2009. This information, facilitated by the available vessel registration or documentation numbers, includes the number of

vessels, type of registration, residence status and parish of residence of vessel owners and the length (size) categories of the vessels. Note that oyster fishing might not have been the goal for the fishing trip.

1.3.1 Number of Oyster Vessels by Type of Registration

Fishing vessels can be registered with a state or documented with the U.S. Coast Guard. Hence, the fishing vessels which landed oysters of any quantity were categorized according to the types of registration: state registered or Coast Guard documented.

Figure 1.8 shows the number of oyster vessels by type of registration from 2000 to 2009. On average, approximately 71.9 percent (584 vessels) of the total oyster vessels were registered in Louisiana from 2000 through 2009, followed by 190 vessels (23.4 percent), which were documented with the U.S. Coast Guard. A relatively few oyster vessels, averaging 39 vessels were registered yearly in non-Louisiana states.

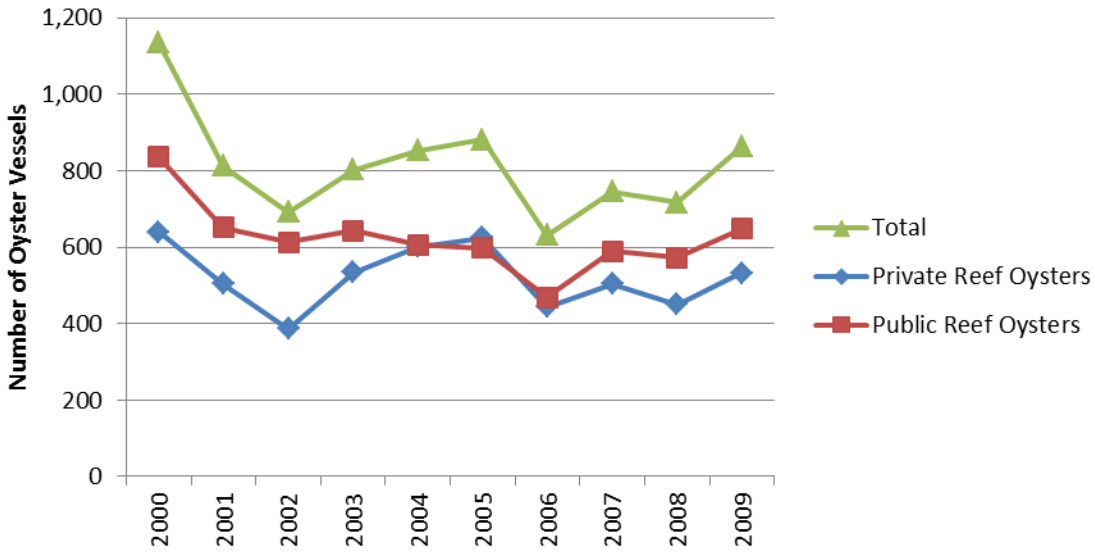


Source: Appendix Table A.8.

Figure 1.8 Number of Oyster Fishing Vessels by Type of Registration, 2000 – 2009

1.3.2 Number of Oyster Vessels by Source of Oysters

The total number of fishing vessels and the fishing areas where the oysters were harvested in the period between 2000 and 2009 are shown in Figure 1.9. The total number of oyster vessels averaged 813 from 2000 to 2009. Of this number, an average of 622 vessels (76.5 percent) was used to harvest oysters from public reef areas, while an average of 522 vessels (64.2



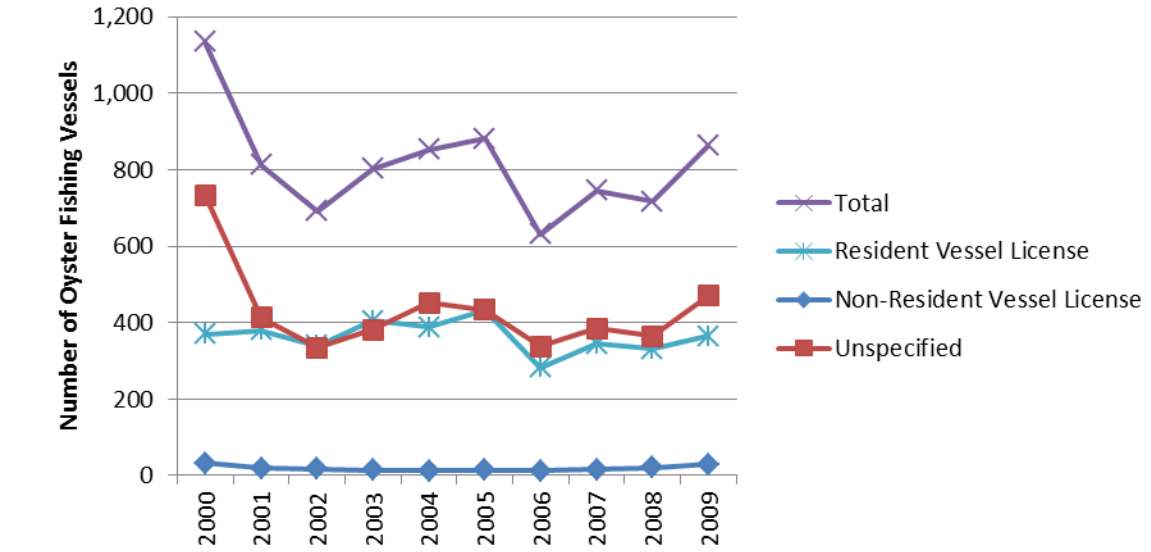
Source: Appendix Table A.9. See Appendix Figure D.1 for the maps of oyster areas.

Figure 1.9 Number of Oyster Fishing Vessels by Source of Oysters, 2000 – 2009

percent) harvested oysters from private reef areas. Looking at the trends, the total number of oyster fishing vessels fluctuated between 632 in 2006 and 1,134 in 2000. In addition, the number ranged from 468 vessels in 2006 to 836 vessels in 2000 for public reef oysters and from 386 vessels in 2002 to 640 vessels in 2000 for private reef oysters. So, the number of vessels that harvested public reef oysters was larger than those that harvested private reef oysters in every year except in 2005.

1.3.3 Residence Status and Parish of Residence of Oyster Vessel Owners

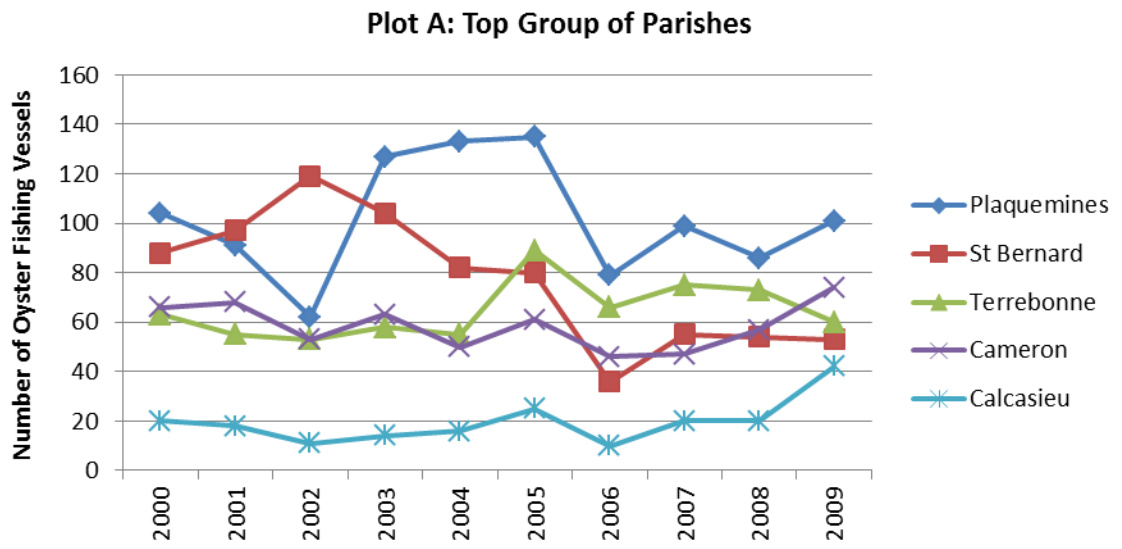
The residence status of owners of oyster fishing vessels was determined by the type of commercial vessel license that they held during 2000-2009 period. Due to incomplete records, the residence status of owners could be identified for only approximately half of the oyster vessels in any given year. Figure 1.10 shows that over 95.4 percent of the vessels for which owner's residence status could be identified were owned by individuals who resided in Louisiana. The remaining portion (4.6 percent) of oyster vessels was owned by residents of other states.

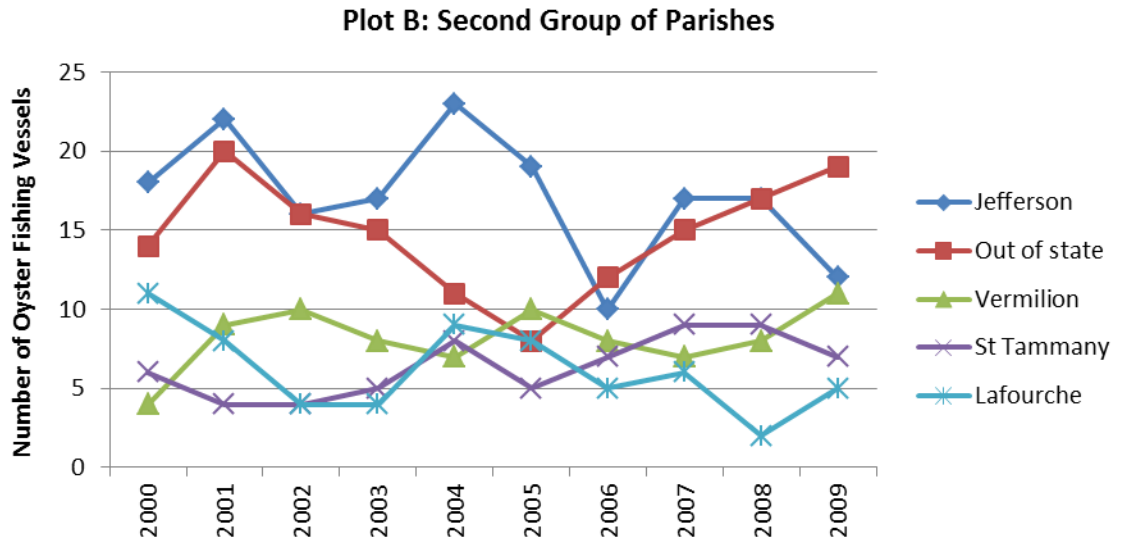


Source: Appendix Table A.10. The plot was based on 49.0 percent of oyster vessels whose license type was specified yearly.

Figure 1.10 Number of Oyster Fishing Vessels by Type of Vessel License, 2000 – 2009

Figure 1.11, Plots A to B shows the number of fishing vessels, which landed oysters in Louisiana from 2000 through 2009 by owner's parish of residence. The top three parishes, with the average number of resident vessels owners between 2000 and 2009, were Plaquemines (102),





Source: Appendix Table A.11.

Figure 1.11 Number of Oyster Vessels by Owner's Parish of Residence, 2000 – 2009

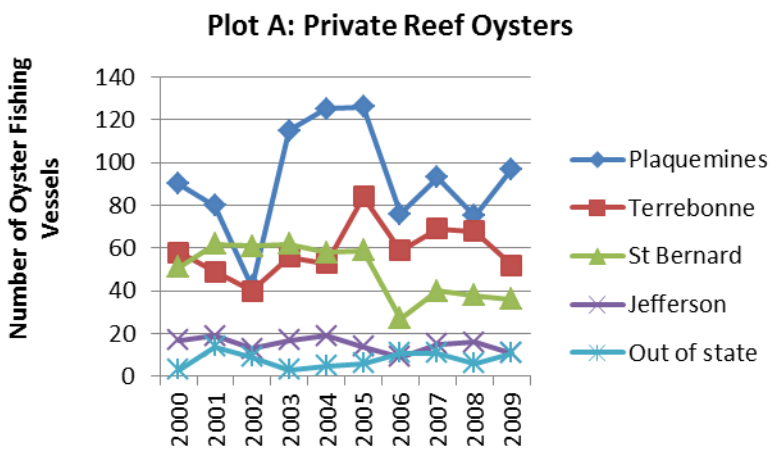
St. Bernard (77) and Terrebonne (65). The number of vessels owners who resided outside of Louisiana have increased consistently from 2005 to catch up with pre-2005 level, while the number slightly higher post-2005 for Terrebonne and St. Tammany parishes when compared totheir pre-2005 levels. In terms of the number of resident boat owners, the majority of the parishes reached their lows in 2006.

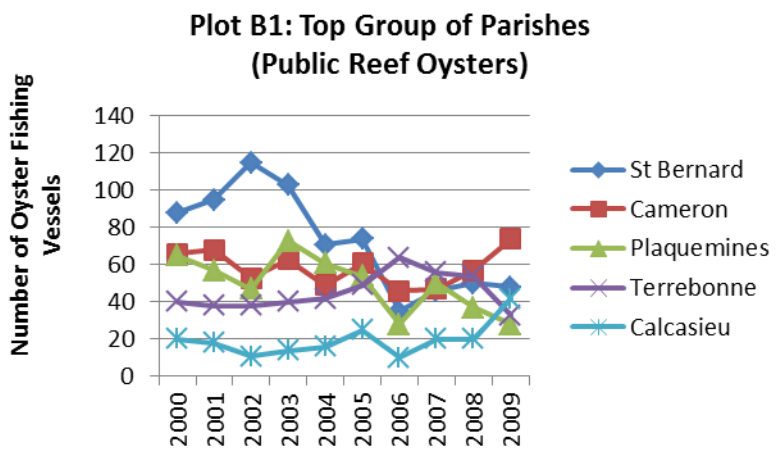
The numbers of vessels that harvested oysters from private and public reef areas by parish of residence of vessels owners are shown in Figure 1.12, Plots A to C. On averages of 92 vessels, which harvested oysters from private reefs, were owned by individuals resident in Plaquemines Parish, 59 oyster vessels were owned by residents of Terrebonne Parish, while 49 vessels were owned by residents of St. Bernard Parish.

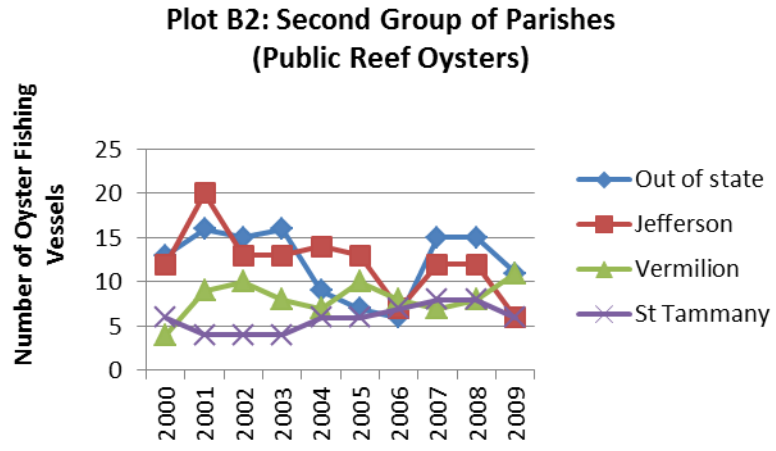
Plots B1 and B2 shows that the top three parishes where vessel owners who harvested oysters from public reefs resided were St. Bernard (with an average of 73 vessels), Cameron (with an average of 58 vessels) and Plaquemines (with an average of 50 vessels). It is interesting to note that all vessels whose owners lived in Calcasieu, Vermilion and St. Tammany parishes harvested oysters only from the public reef areas.

1.3.4 Length of Oyster Vessels

Fishing vessels, which landed oysters from 2000 to 2009, were group into six size categories based on the foot length of the vessels. These categories are “19 feet or less," “20-24 feet,” “25-30 feet”, “31-50 feet”, “51-65 feet” and “66 feet or over.” Figure 1.13 shows the number of oyster vessels based on an annual average of 380 vessels (49.0 percent) whose lengths were available in the commercial license files in any given year. On average, 34.6 percent (131 vessels) of oyster vessels whose length were identified in the license record fell between 31 and 50 feet, followed by 27.0 percent (103 vessels) falling between 20 and 24 feet. Next were 16.0







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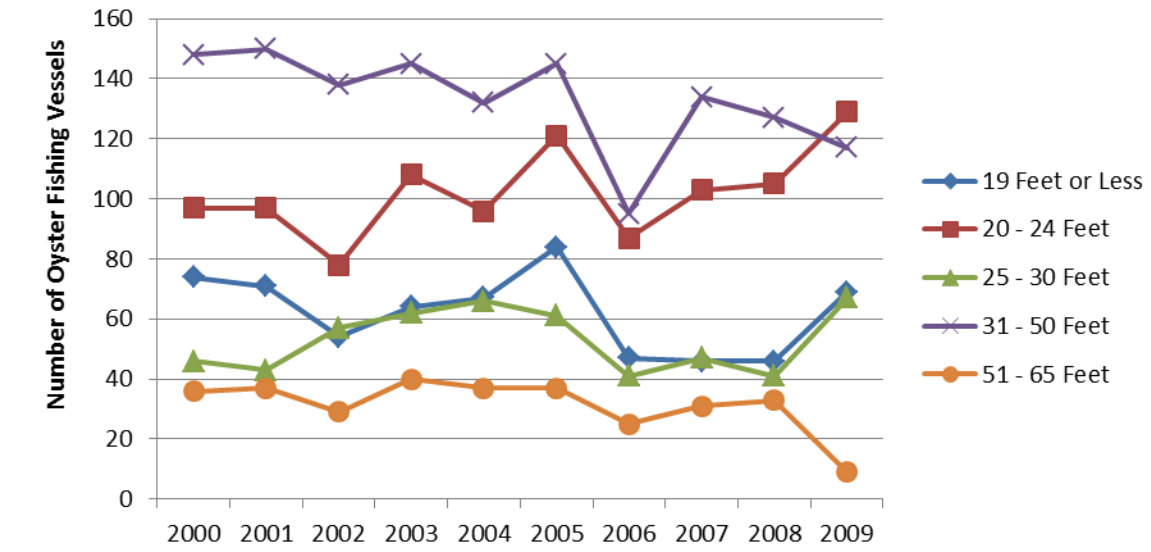
Source: Appendix Tables A.12 and A.13. See Appendix Figure D.1 for the maps of oyster areas.

Figure 1.12 Number of Oyster Vessels by Source of Oysters and Owner's Parish of Residence, 2000 – 2009



Source: Appendix Table A.14. Length was reported for an annual average of 49.0 percent of fishing vessels from 2001 to 2009.

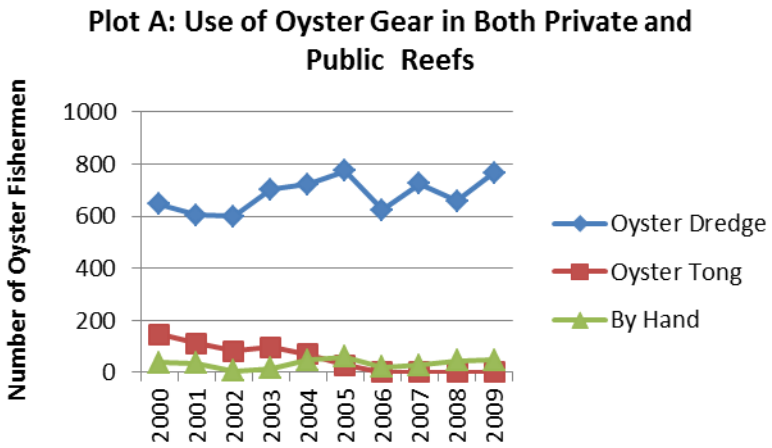
Figure 1.13 Number of Oyster Vessels by Vessel Length Category, 2000 – 2009

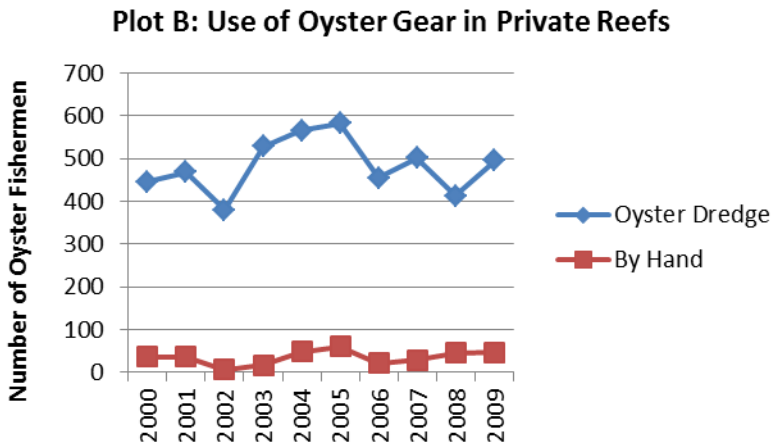
percent (61 vessels) with length of 19 feet or below and 14.2 percent (54 vessels), ranging from 25 to 30 feet long. Other vessels of 51 feet or over constituted the remaining 8.3 percent of vessels whose lengths were reported annually.

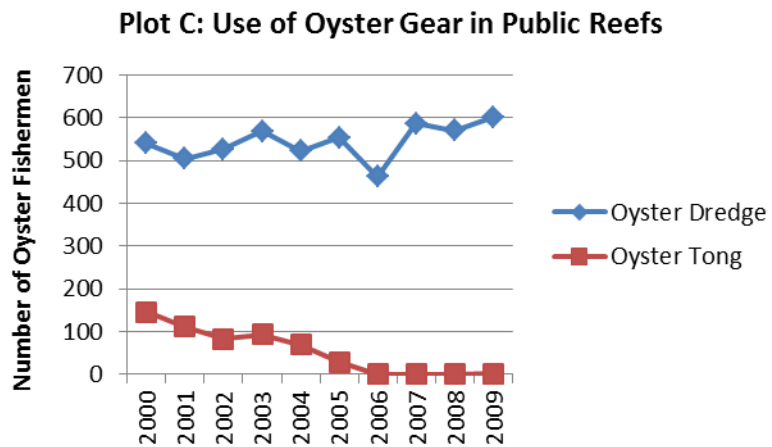
1.4 Oyster Fishing Gear

The numbers of fishermen with the types of fishing gear reportedly used to harvest oysters from 2000 through 2009 are shown in Figure 1.14, Plots A to C. Specifically, Plot A shows that oyster dredge was the most popular oyster fishing gear used by an average of 87.7 percent (682 individuals) of oyster fishermen between 2000 and 2009. Next was oyster tong, which was used by an average of 7.8 percent (60 individuals) in the same period. The remaining portion consisting of 3.4 percent (35 fishermen) picked oysters by hand.

Similarly, Plots B and C show that oyster dredge was predominantly used by 93.0 percent of fishermen (483 individuals) in private reef areas and 90.5 percent of fishermen (543







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Source: Appendix Table A.15. See Appendix Figure D.1 for the maps of oyster areas.

Figure 1.14 Number of Fishermen by Oyster Fishing Gear, 2000 – 2009

individuals) in public reef areas. However, handpicking of oysters was practiced mainly in private reef areas by an average of 35 fishermen, while oyster tong was used mainly in public reef areas by an average of 54 individuals.

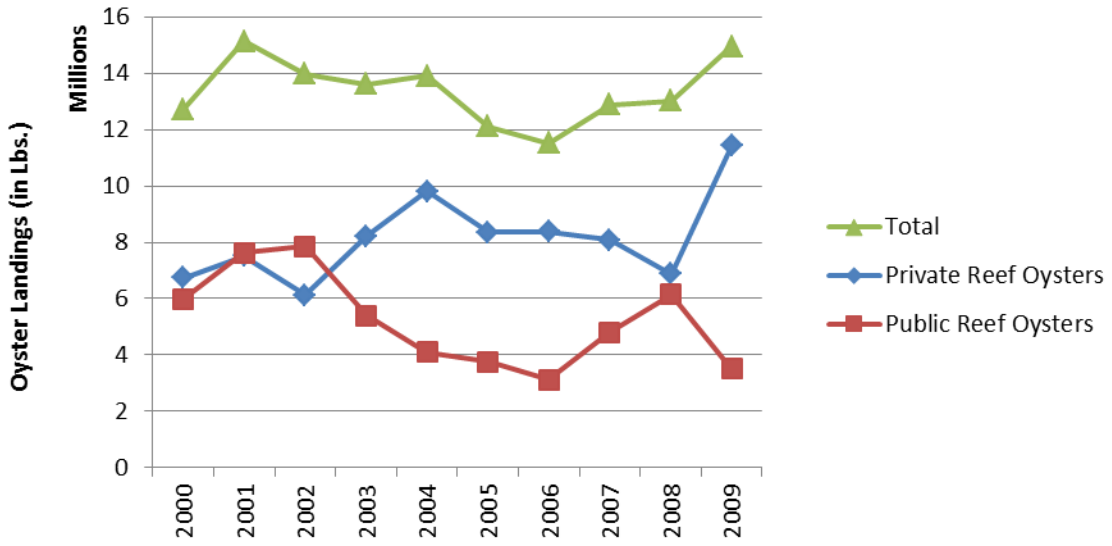
Chapter 2 - Oyster Landings, Prices and Values

This chapter reports information on the volume of oysters landed in Louisiana as well as their dockside prices and values. Oysters are landed at the dock whole weight (including shells), measured in sacks, bushels or barrels. During the analysis, sacks, bushels and barrels of oysters were converted to pounds of whole weight oysters. Hence, the pounds, prices and values of oysters presented in this chapter are based on the whole weight.

Dockside prices and values are measured in both nominal (actual) and real terms. The real prices (real values) are derived by adjusting the nominal prices (nominal values), using the GDP deflator, which is measured in 2005 dollars. When necessary, actual and real prices as well as actual and real values of oysters landed and sold are reported side by side. Otherwise, they are included in the Appendix section. Also, information is disaggregated by sources of oysters, which are private reef areas and public reef areas, and by fisherman's parish of residence.

2.1 Oyster Landings by Source

The volume of oysters landed or sold at Louisiana docks from 2000 through 2009 is shown in Figure 2.1. The total volume of oysters landed ranged between 11.5 million pounds in 2006 and 15.1 million pounds in 2001 but averaged 13.4 million in the 2000-2009 period. Approximately three-fifths (60.9 percent or 8.2 million pounds) of the 13.4 million pounds of oysters came from private reef areas, while the remainder (39.1 percent or 5.2 million pounds) was harvested from public reefs. Landings of private reef oysters (ranging from a low of 6.1 million pounds in 2002 to a high of 11.4 million pounds in 2009) increased, while landings of public reef oysters (between 3.1 million pounds in 2006 and 7.8 million pounds in 2002) decreased for most part of the 2000-2009 period.



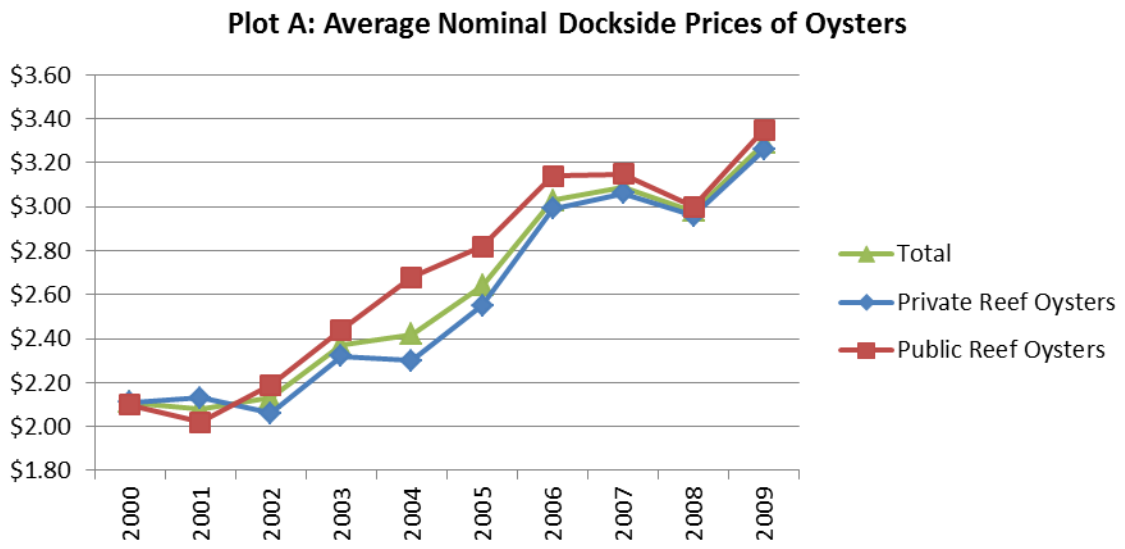
Source: Appendix Table B.1. See Appendix Figure D.1 for the maps of oyster areas.

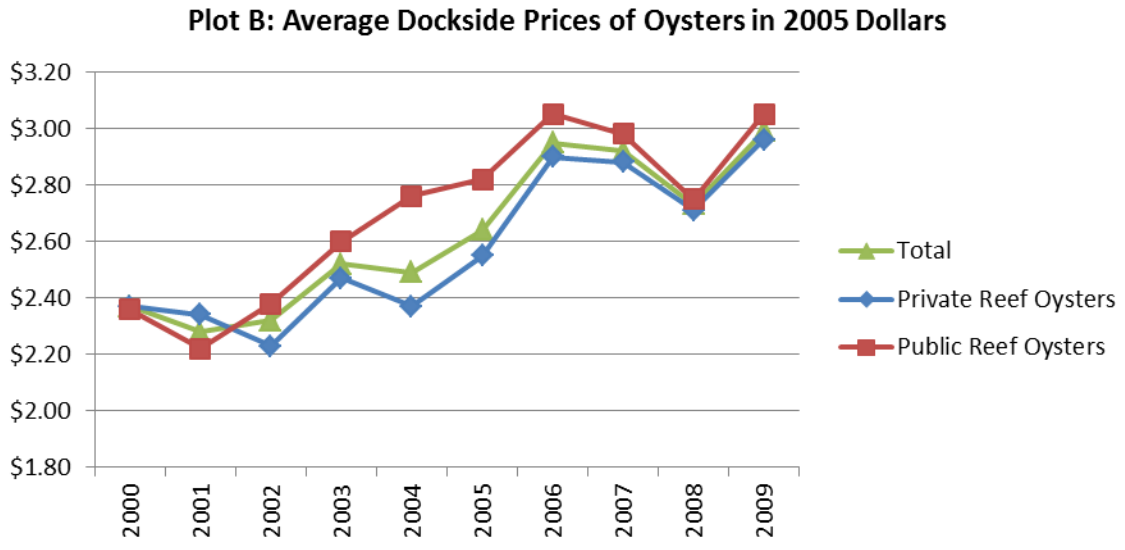
Figure 2.1 Oyster Landings by Source, 2000 – 2009

2.2 Average Dockside Prices of Oysters by Source

The average nominal dockside prices and the average real dockside prices per pound of oysters sold from 2000 through 2009 are presented in Plots A and B of Figure 2.2, respectively. The average nominal dockside prices are the prices actually paid by the seafood dealers to the fishermen at the docks while the average real dockside prices are the averages of nominal dockside prices in 2005 dollars.

Although both plots appear to have similar patterns, they are typically used under different scenarios. Plot A would be appropriate when comparing average dockside prices between oysters harvested from difference sources or reefs for a given year, while plot B would be appropriate when comparing average dockside prices between two or more years for oysters harvested from a given reef area.





Source: Appendix Table B.2. See Appendix Figure D.1 for the maps of oyster areas.

Figure 2.2 Average Dockside Prices of Oysters by Source, 2000 – 2009

Plot A of Figure 2.2 shows that since 2002, the average nominal dockside price per pound of public reef oysters has been higher than the average total nominal dockside price per pound, which in turn was higher than the average nominal dockside price of private reef oysters. However, the lowest margins between these prices occurred in 2000, while the largest margins occurred in 2004. For example, in 2000, the margins between the average nominal dockside price of public or private reef oysters compared to the average total nominal dockside price was one or zero cent. In 2004, the average nominal dockside price per pound of public reef oysters exceeded the average total nominal price by a margin of $0.26 per pound, while the average nominal dockside price per pound of private reef oysters was lower than the average total nominal price by $0.12 per pound. This also corresponds to the largest difference of $0.38 per pound between the average nominal dockside prices of public and private reef oysters, which occurred in 2004.

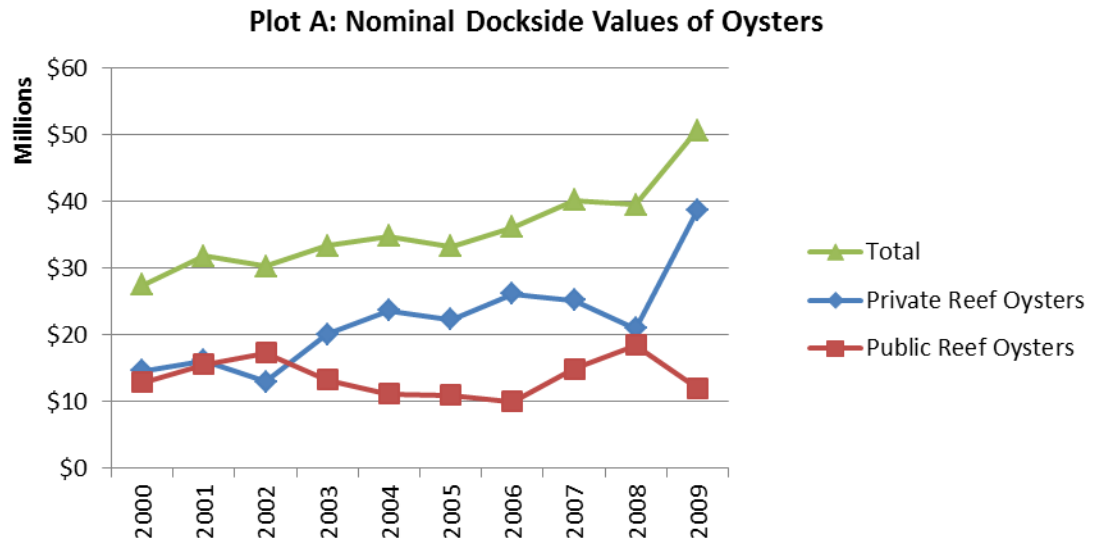
Except for the 2001-2002 and the 2007-2008 periods, the average real dockside prices of oysters per pound grew sharply irrespective of the areas from where they were harvested (Plot B of Figure 2.2,). The highest growth in average real dockside prices occurred for public reef oysters, followed by the private reef oysters. For example, the average real dockside price per pound of public reef oysters grew by 37.4 percent from $2.22 per pound in 2001 to $3.05 per pound in 2006 or 2009. For private reef oysters, the average real dockside price per pound rose by 32.7 percent from $2.23 in 2002 to $2.96 in 2009. The growth in the average total real dockside price of oysters was lower, increasing by 31.1 percent from a low of $2.28 per pound in 2001 to a high of $2.99 per pound in 2009. On average, a pound of public and private reef oysters sold for $2.70 and $2.58, respectively, in the period between 2000 and 2009, while all oysters combined sold for $2.62 per pound.

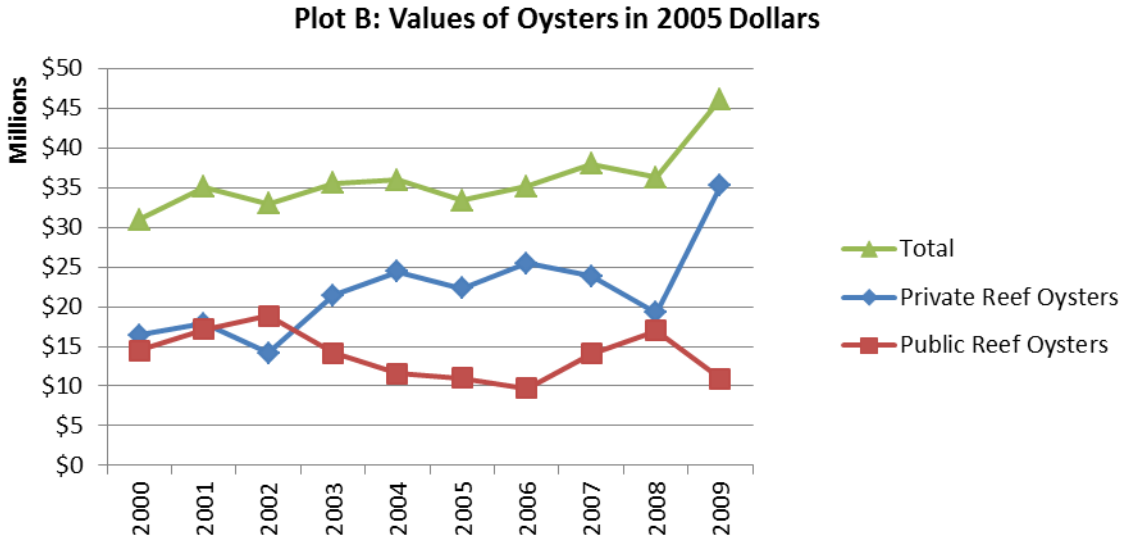
2.3 Dockside Values of Oysters by Source

The nominal (actual) dockside values and the real dockside values (nominal values adjusted for inflation using GDP deflator) of oysters landed or sold at the Louisiana docks from 2000 through 2009 are shown in Plots A and B of Figure 2.3, respectively. Plot A would be appropriate when comparing dockside values between oysters harvested from difference sources or reefs for a given year, while plot B would be appropriate when comparing dockside values between two or more years for oysters from a given reef area.

The nominal dockside value of private reef oysters was generally larger than the nominal dockside values of public reef oysters, with a yearly net difference of $8.4 million from 2000 to 2009. With the exception of 2002 when the nominal value of public reef oysters exceeded that of private reef oysters by $4.3 million, the divergence between the nominal values of oysters harvested from private and public reef areas was smallest in 2001 (with $0.6 million) but largest in 2009 (with $26.6 million).

Plot B of Figure 2.3 shows that the total real dockside value of oysters sold rose consistently from a period-wide low of $30.9 million in 2000 to a period-wide high of $46.1 million in 2009. Contributing the larger portion of total dockside value was private reef oysters whose value ranged from $14.1 million in 2002 to $35.1 million in 2009. For public reef oysters, the real dockside value fluctuated between $9.8 million in 2006 and $18.8 million in 2002. On average, the total real value of all oysters sold at the dock between 2000 and 2009 was $35.9 million. Over three-fifth (61.3 percent or $22.0 million) of the $35.9 million was realized from the sales of private reef oysters, while the remaining 38.7 percent ($13.9 million) came from the sales of public reef oysters.





Source: Appendix Table B.3. See Appendix Figure D.1 for the maps of oyster areas.

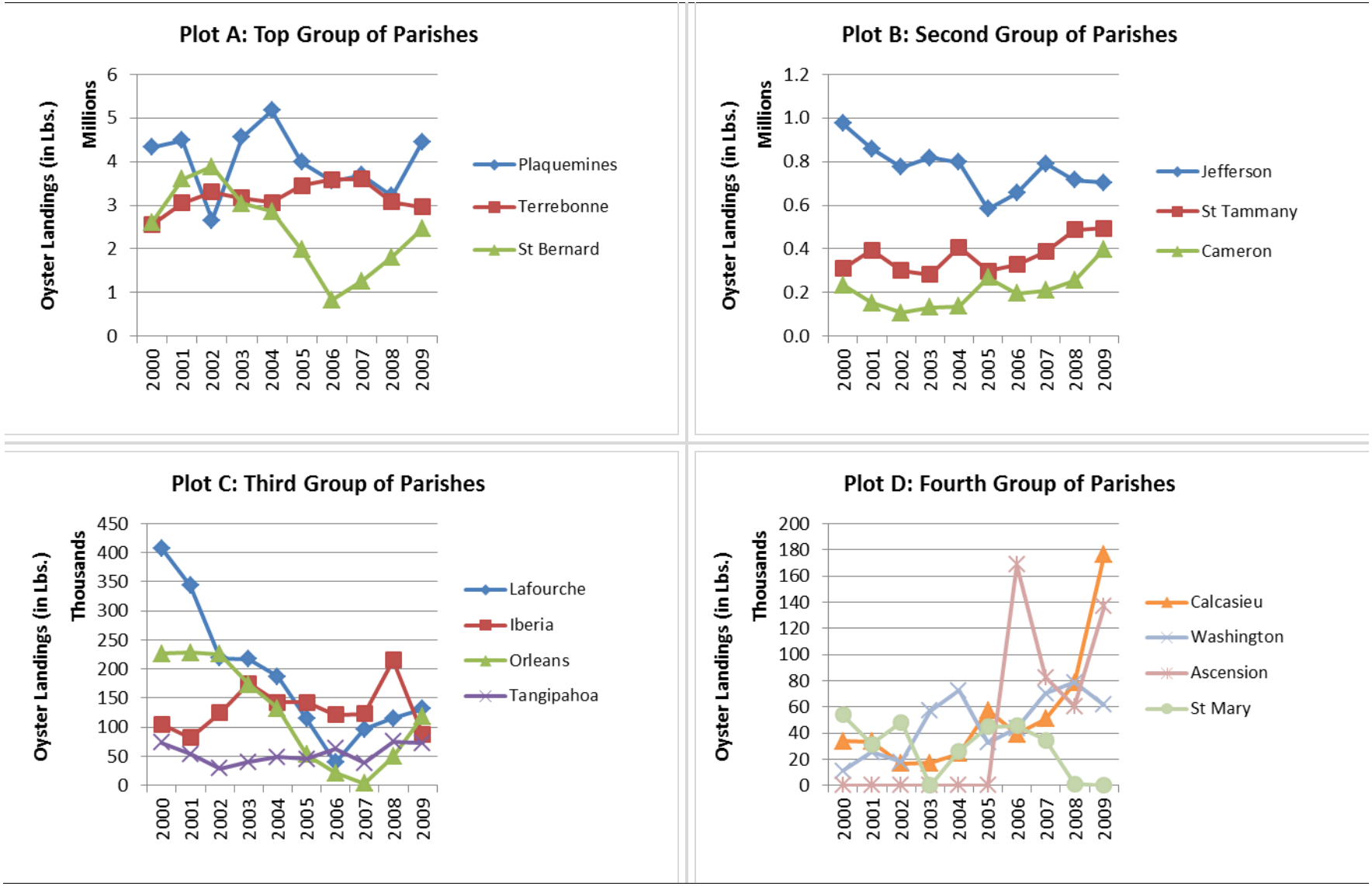
Figure 2.3 Dockside Values of Oysters by Source, 2000 – 2009

2.4 Landings and Dockside Values of Oysters by Fisherman's Parish of Residence

Figure 2.4, Plots A to D, shows the volume of oysters landed by group of major parishes of residence of fishermen from 2000 through 2009. In order of magnitudes, Plot A shows that Plaquemines, Terrebonne, and St. Bernard were the top parishes where fishermen who landed or sold oyster resided. The volume of oysters landed ranged from 2.7 million pounds in 2002 to 5.2 million pounds in 2004 for Plaquemines' residents and from 2.6 million pounds in 2000 to 3.6 million pounds in 2007 for individual living in Terrebonne parish. For St. Bernard residents, the volume of oysters landed fluctuated between 0.8 million pounds in 2006 and 3.6 million pounds in 2002. Following St. Bernard was Jefferson Parish whose resident fishermen landed and sold between 0.6 million pounds of oysters in 2005 and 1.0 million pounds in 2000.

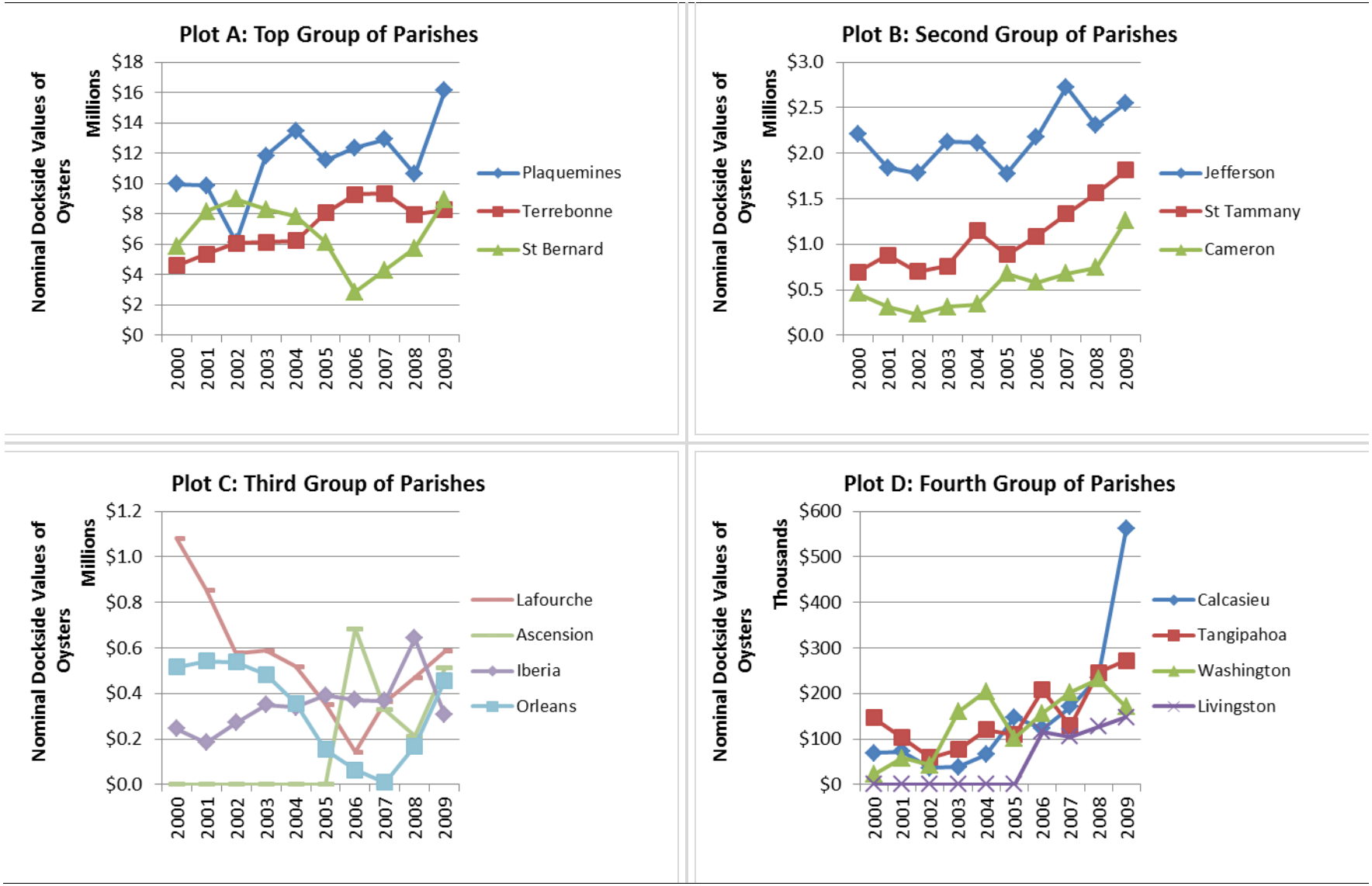
On average, annual oyster landings were 4.0 million pounds for individuals residing in Plaquemines, 3.2 million pounds for Terrebonne's fishermen and 2.4 million pounds for St. Bernard's residents. Landings of oysters by residents in Jefferson Parish averaged 0.8 million pounds per year from 2000 to 2009.

Figure 2.5 shows the nominal dockside values of oysters sold at Louisiana docks from 2000 through 2009 by fisherman parish of residence. Similar to Figure 2.4, individuals who lived in Plaquemines, Terrebonne, St. Bernard and Jefferson Parishes topped other parishes of residents in terms of the nominal dockside values realized from the sales of oysters. The nominal dockside value of oysters ranged from $6.2 million in 2002 to $16.1 million in 2009 with an average of $11.5 million for resident fishermen in Plaquemines and from $4.6 million in 2000 to $9.3 million in 2007 but averaged $7.1 million for Terrebonne residents. The nominal dockside value ranged between $2.9 million in 2006 and $9.0 million in 2002 but averaged $6.7 million for St. Bernard Residents. For Jefferson residents, the nominal dockside value averaged



Source: Appendix Table B.4.

Figure 2.4 Oyster Landings by Fisherman's Parish of Residence, 2000 – 2009



Source: Appendix Table B.5. See Appendix Figure B.1 for the real dockside values of oysters by fisherman's parish of residence.

Figure 2.5 Nominal Dockside Values of Oysters by Fisherman's Parish of Residence, 2000 – 2009

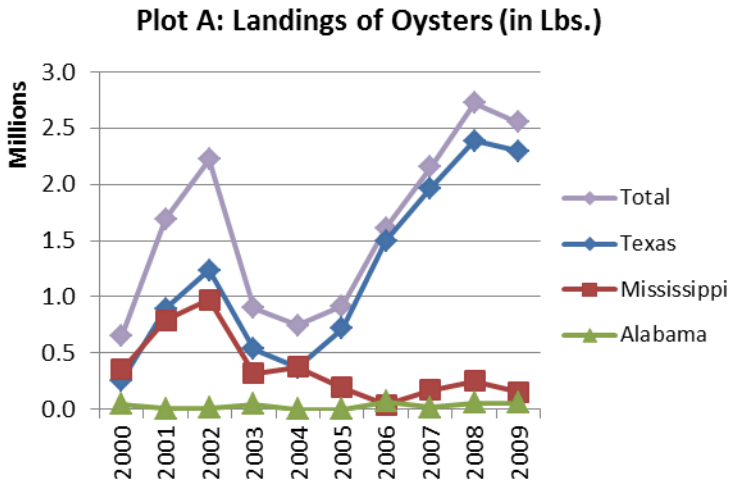
$2.2 million for the 2000-2009 period but fluctuated between $1.8 million in 2005 and $2.7 million in 2007.

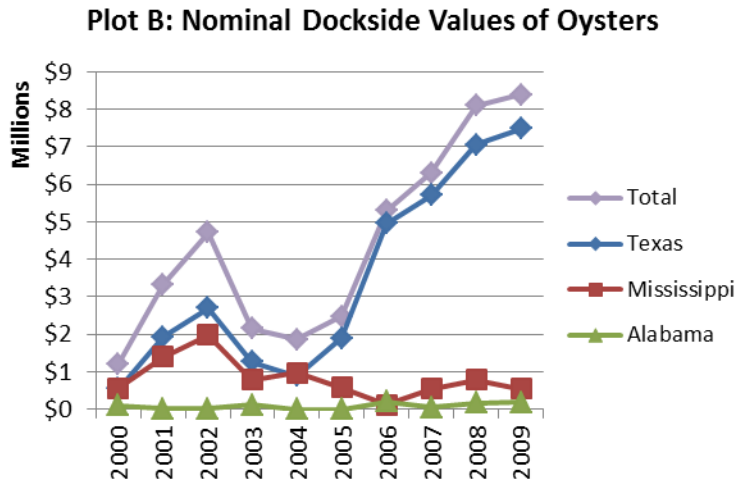
In Appendix Figure B.1, the change in terms of the differences between the minimum and the maximum of the real dockside values of oysters are shown by fisherman parish of residence. These rates of change ran into hundreds or thousands of percentages for most of the fourteen (14) parishes of residence. For example, the change in the real dockside value of oysters sold by Orleans residents was over 7,663 percent from a low of $7,666 in 2007 to a high of $595,145 in 2001. Similarly, the real dockside values of oysters sold changed by about 4,898 percent (from $2,840 in 2008 to $141,947 in 2000) for fishermen living in St. Mary and by 1,181 percent (from $39,795 in 2002 to $510,109 in 2009) for Calcasieu's residents.

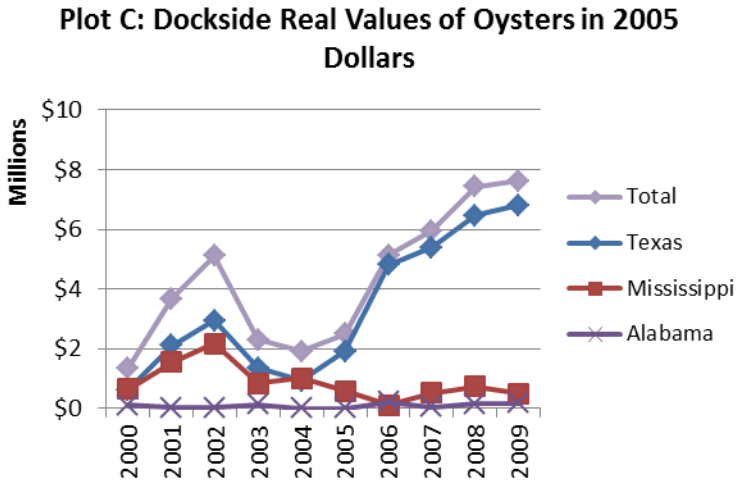
Worthy of special note are the changes in real dockside values for individuals resident in those parishes with the highest volume of oyster sales. For example, the real dockside values of oysters changed by 250.2 percent (from $2.9 million in 2006 to $9.8 million in 2002) for St. Bernard, by 119.4 percent (from $6.7 million in 2002 to $14.7 million in 2009) for Plaquemines and by 75.3 percent (from $5.2 million in 2000 to $9.0 million in 2006) for Terrebonne's residents. Interestingly, a consistent growth in the real dockside values of oysters occurred, for the most part of the period between 2000 and 2009, for the residents in all locations except St. Bernard, Jefferson, Lafourche, Orleans, Ascension and St. Mary.

2.4.1 Landings and Dockside Values of Oysters by Non-Resident Fishermen

Figure 2.6 shows the volume of oysters landed (Plot A), the values of oysters sold (Plots B and C) at Louisiana docks by non-resident fishermen by state of residence throughout the 2000-2009 period. The volume of oysters landed by residents of states other than Louisiana collectively ranged from 0.7 million pounds in 2000 to 2.7 million pounds in 2008. On average,







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Source: Appendix Tables B.7 and B.8.

Figure 2.6 Landings and Dockside Values of Oysters Sold by Non- Louisiana Residents, 2000 – 2009

fishermen who resided in Texas accounted for over three-quarters (75.2 percent) of the volume and nearly four-fifths (78.5 percent) of the nominal dockside values of oysters landed and sold in Louisiana by non-residents. For example, Texas landed 1.2 million pounds (worth $3.4 million) of oysters in the period between 2000 and 2009. Following Texas was Mississippi whose resident fishermen landed an average of 361,212 pounds (22.4 percent), which generated $826,806 in dockside value in the same period. At a distant third was Alabama with an average of 30,093 pounds or $86,828 worth of oysters. In essence, these three Gulf of Mexico states accounted for 99.5 percent of both total volume and total dockside values of oysters landed in Louisiana by non-resident fishermen.

The real dockside value of oysters collectively landed and sold by non-Louisiana's residents changed by 461.4 percent (from $1.4 million in 2000 to $7.6 million in 2009). The share of oysters landed by residents of Texas and their dockside values have increased tremendously since 2004, while those for the individuals in Mississippi have declined since as early as 2002. For Texas, residents' oyster landings increased by 546.3 percent from 369,450 pounds in 2004 to 2.4 million pounds in 2008. Similarly, the real dockside value, which was $911,807 in 2004, rose by 646.9 percent to a high of $6.8 million in 2009.

2.5 Oyster Landings, Dockside Prices and Values by LDWF Trip Ticket Basin

State waters (including inland waters and waters stretching from the shore to 3 nautical miles into the Gulf of Mexico) in Louisiana are divided into 12 river basins for fisheries management. Individual basins are made up of designated and named fishing areas, which can be located or recognized using any devices that read longitude and latitude coordinates (See Appendix Figure D.2). A relatively small amount of oysters was reportedly harvested in federal waters. Hence, statistics related to the volume and value of oysters harvested in federal waters

are omitted in the report. For each fishing trip a fisherman takes, the individual is statutorily required to state only one area where the majority of the seafood was harvested. In the next section, oyster landings, average dockside prices and dockside values by trip ticket basin are presented.

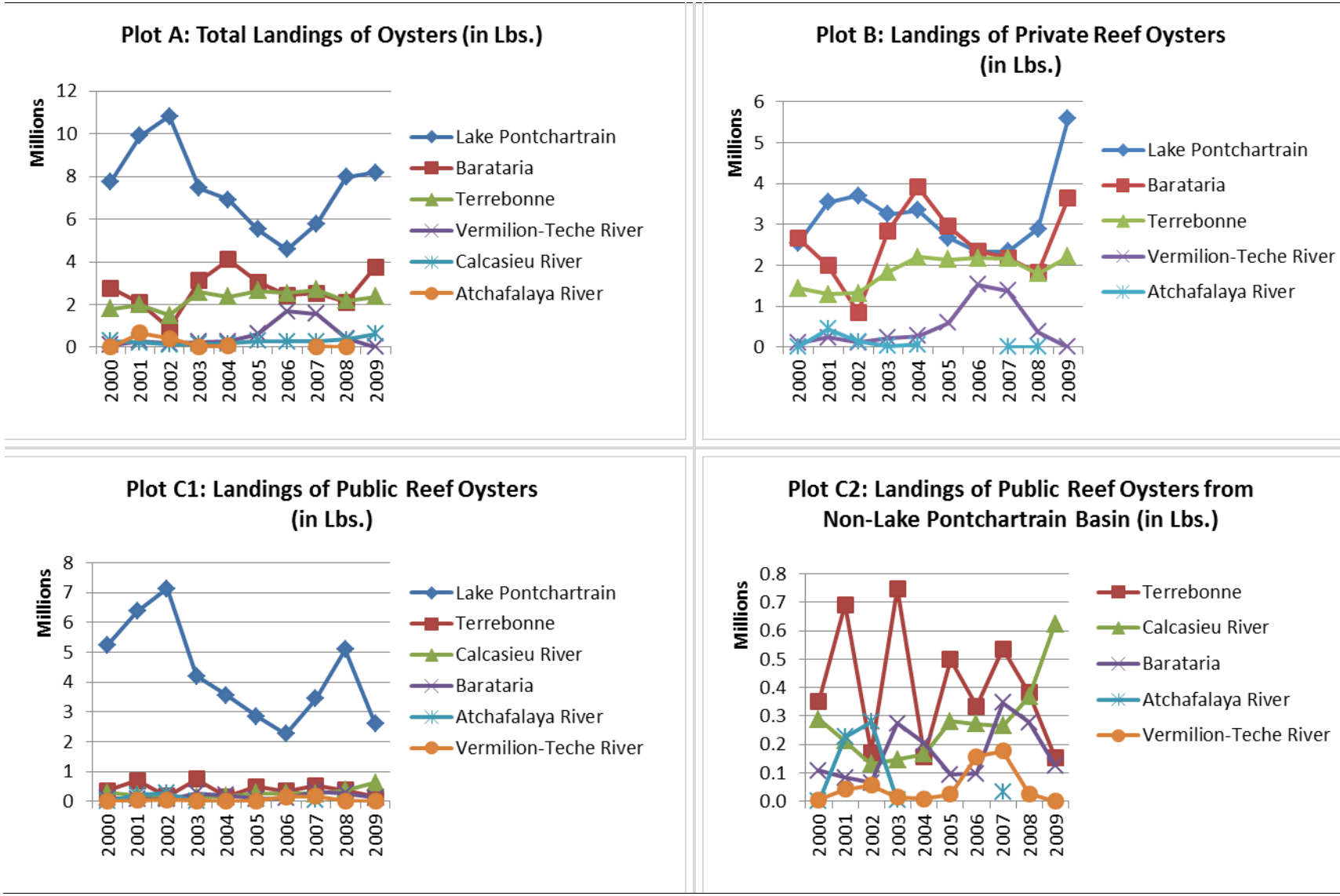
2.5.1 Oyster Landings by LDWF Trip Ticket Basin

The volumes of oysters harvested from the Louisiana river basins during the period between 2000 and 2009 are shown in Figure 2.7. Specifically, Plot A shows the total volume of oysters by basin regardless of the reef areas from where they were harvested. Plot B shows the pounds of oysters caught from the private reef areas in the basin waters, while Plots C1 and C2 show the pounds of oysters harvested from the public reefs.

In Plot A of Figure 2.7, Lake Pontchartrain clearly led other basins in terms of the volume of oysters caught from its waters, fluctuating between 4.6 million pounds in 2006 and 10.8 million pounds in 2002. Next to Lake Pontchartrain Basin were Barataria and Terrebonne Basins, with volumes of harvested oysters from their waterbodies ranging from 911,417 pounds in 2002 to 4.1 million pounds in 2004 and from 1.5 million pounds in 2002 to 2.7 million pounds in 2007, respectively.

On average, these three basins accounted for approximately 92.5 percent of all oysters landed annually in Louisiana from 2000 to 2009. For example, the average volume of oysters harvested yearly was 7.5 million pounds from the Lake Pontchartrain Basin, 2.7 million pounds from the Barataria Basin and 2.3 million pounds from the Terrebonne Basin. The remainder (7.5 percent) was contributed mainly by Vermilion-Teche, Calcasieu and Atchafalaya Basins.

Plot B (Figure 2.7) presents the volume of oysters harvested from private reefs in basin waters. Similar to Plot A, Lake Pontchartrain, Barataria and Terrebonne topped other basins in



Source: Appendix Tables B.9 and B.10. See Appendix Figures D.1 and D.2 for the maps of oyster areas and basins, respectively.

Figure 2.7 Oyster Landings by LDWF Trip Ticket Basin, 2000 – 2009

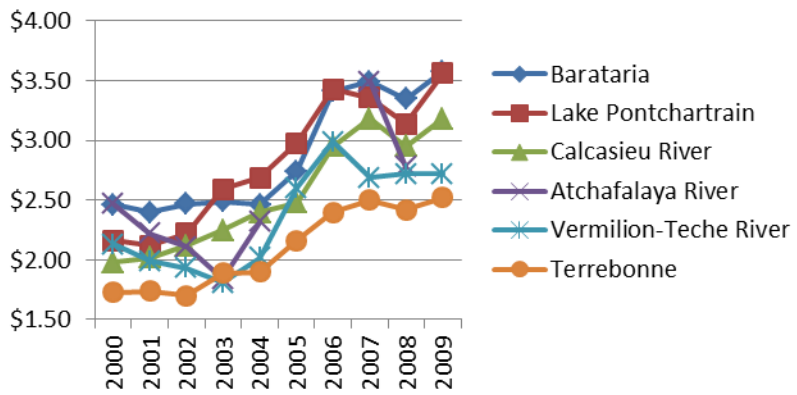
terms of the amount of oysters harvested from their waters. Specifically, an average of 3.2 million pounds of oysters was caught yearly from the Lake Pontchartrain Basin between 2000 and 2009, while an average of 2.5 million pounds of oysters came from the Barataria Basin. In the same period, an average of 1.9 million pounds was harvested annually from the Terrebonne Basin.

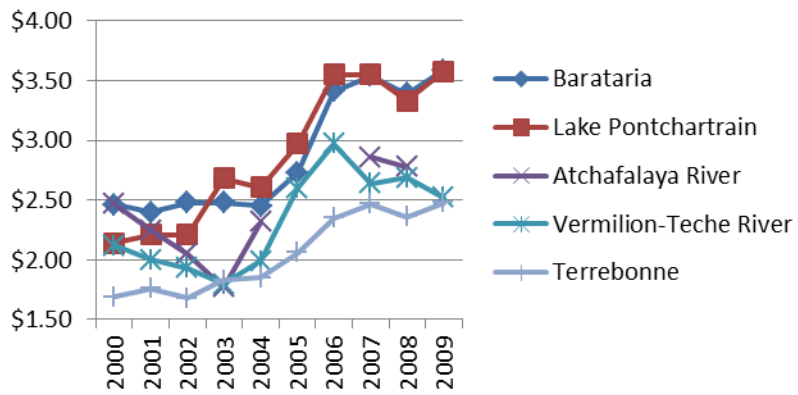
Plot C1 of Figure 2.7 shows that Lake Pontchartrain was the single most popular basin from where majority (an average of 81.8 percent or 4.3 million pounds) of the public reef oysters were harvested yearly from 2000 through 2009. Plot C2 expanded to clarify the bottom part of Plot C1 (i.e., without the Lake Pontchartrain Basin). The plot (Plot C2) shows that Terrebonne and Calcasieu River Basins were at distant second or third after Lake Pontchartrain, with yearly contributions of 402,769 pounds and 275,500 pounds of oysters, respectively. Interestingly, only the volume of oysters harvested from the Calcasieu River Basin has grown consistently from a low of 132,062 pounds in 2002 to a high of 623,795 pounds in 2009.

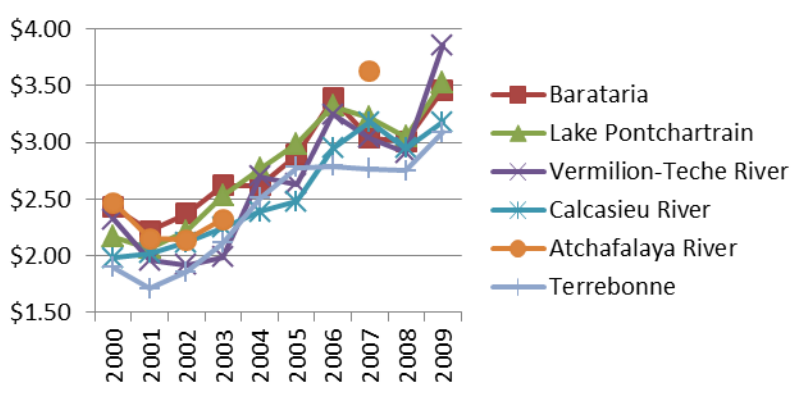
2.5.2 Average Dockside Prices of Oysters by LDWF Trip Ticket Basin

The average nominal and real dockside prices per pound of oysters received by fishermen by reported harvest areas on the trip tickets are shown in Figure 2.8 and Appendix Figure B.3, respectively. Plot A of Figures 2.8 (Appendix Figure B.3) compares the basin-wide average nominal (real) dockside prices of oysters, while Plot B and C compares the basin-wide nominal (real) prices for private and public reef oysters, respectively.

Plot A of Figure 2.8 shows that the oysters reportedly harvested from the Barataria, Lake Pontchartrain and Calcasieu River Basins had the highest average nominal prices per pound from 2000 through 2009. The average nominal prices per pound of oysters ranged from $2.40 in 2001 to $3.58 in 2009 for the Barataria Basin, from $2.12 in 2001 to $3.56 in 2009 for the Lake







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Source: Appendix Tables B.11 and B.12. See Appendix Figures B.2, D.1 and D.2 for the real dockside prices of oysters by basin, maps of oyster areas, and basins, respectively.

Figure 2.8 Average Nominal Dockside Prices of Oysters by LDWF Trip Ticket Basin, 2000 – 2009

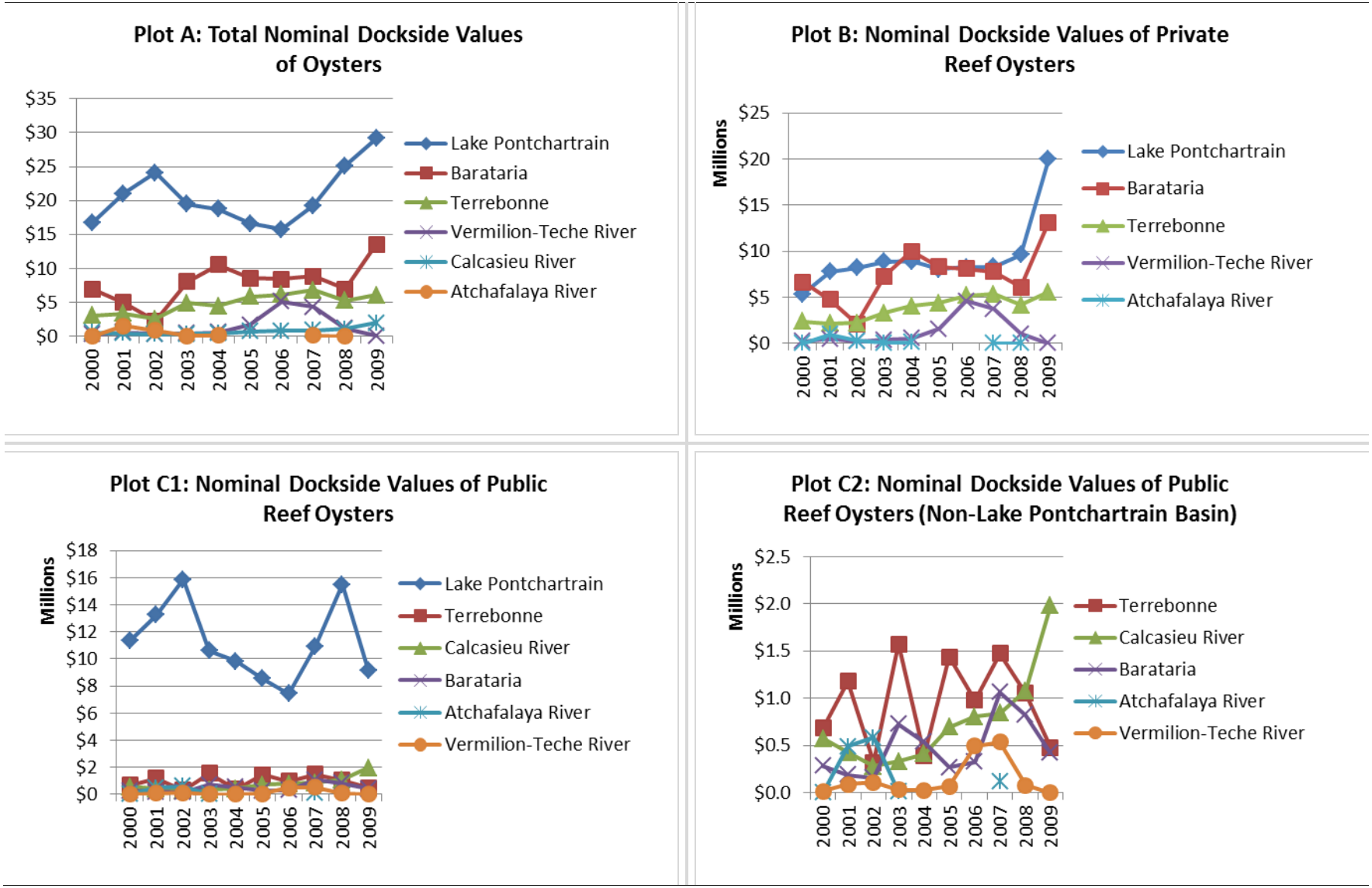
Pontchartrain Basin and from $1.98 in 2000 to $3.18 in 2007 or 2009 for the Calcasieu River Basin. Similar results occurred for oysters harvested from private reef areas (Plot B) and public reef areas (Plot C). Both Figure 2.8 and Appendix Figure B.3 show consistent increases in the real dockside prices of oysters. On average, a pound of oysters harvested from the Barataria, Lake Pontchartrain and Calcasieu River Basins sold for $2.89, $2.83 and $2.56, respectively.

2.5.3 Dockside Values of Oysters by LDWF Trip Ticket Basin

Figure 2.9 shows the total dockside nominal values of oysters, which fishermen harvested in Louisiana waters (Plot A) as well as the portions of nominal dockside values of oysters harvested from individual reef areas (Plots B and C) from 2000 through 2009. Plot A shows that Lake Pontchartrain was the leading basin for any given year. On average, the dockside values of oysters harvested yearly from the Lake Pontchartrain, Barataria and Terrebonne Basins from 2000 through 2009 amounted to $20.8 million, $7.9 million and $4.8 million, respectively.

The dockside values of oysters from the Lake Pontchartrain Basin waters fluctuated between $15.3 million in 2006 and $26.5 million in 2009 (See Appendix Figure B.4). The dockside values of oysters caught from the Barataria and Terrebonne Basins exhibited less fluctuation. Appendix Figure B.4 shows that the dockside value of oysters from the Barataria Basin ranged from $2.5 million in 2002 to $12.3 million in 2009. For oysters harvested from the Terrebonne Basin, the dockside value ranged from $2.7 million in 2002 to $6.4 million in 2007.

In Plots B of both Figure 2.9 and Appendix Figure B.4, the dockside values of private reef oysters were also higher in the Lake Pontchartrain, Barataria and Terrebonne Basins than in other basins. However, in Plot C1, Lake Pontchartrain dominated other basins in the average annual nominal dockside value with approximately $11.5 million (82.5 percent) worth of public reef oysters caught from its waters. In Plot C2 (which expanded the bottom portion of Plot C1),



Source: Appendix Tables B.15 and B.16. See Appendix Figure B.3, D.1 and D.2 for the real dockside values of oysters by basin, maps of oyster areas, and basins, respectively.

Figure 2.9 Nominal Dockside Values of Oysters by LDWF Trip Ticket Basin, 2000 – 2009

only Calcasieu River Basin exhibited consistent growth in dockside value of public reef oysters, climbing from a low of $304,766 in 2002 to a high of $1.8 million in 2009.

2.6 Landing and Dockside Values of Oysters by Landing Unit

This section describes oyster landings and dockside values by units in which they were landed at the Louisiana docks in the period between 2000 and 2009. Oysters can be landed in pounds, sacks, barrels, and bushels. To calculate the volume and the dockside value of oysters, all landings were converted to pounds. The volume (in pounds) as well as nominal and real (in 2005 dollars) dockside values of oysters landed at the Louisiana docks by landing unit between 2000 and 2009 are shown in Table 2.1. Approximately 99.7 percent (average of 13.3 million pounds or $35.7 million worth) of oysters landed annually in Louisiana were landed and sold in sacks.

Table 2.1 Landings and Dockside Values of Oysters by Landing Unit

Landing Unit	Oyster Landings (in Pounds)										
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Barrels	0	0	0	0	216	0	0	0	65	1,027	436
Bushels	87,649	90,198	83,641	35,006	16,935	15,725	1,990	6,868	7,961	16,224	36,220
Sacks	12,630,902	15,045,564	13,877,914	13,573,577	13,885,552	12,082,922	11,502,068	12,866,436	13,018,446	14,922,004	13,340,539
Total	**12,718,551**	**15,135,763**	**13,961,555**	**13,608,583**	**13,902,703**	**12,098,648**	**11,504,058**	**12,873,304**	**13,026,472**	**14,939,254**	**13,376,889**
	Nominal Dockside Values of Oysters (in $)										
Barrels	0	0	0	0	550	0	0	0	270	4,956	1,925
Bushels	265,163	267,555	247,975	91,833	40,103	49,208	7,104	18,319	31,865	64,724	108,385
Sacks	27,248,093	31,592,355	30,071,633	33,281,883	34,850,831	33,275,804	36,213,656	40,175,813	39,494,269	50,668,284	35,687,262
Total	**27,513,256**	**31,859,909**	**30,319,607**	**33,373,716**	**34,891,484**	**33,325,012**	**36,220,760**	**40,194,131**	**39,526,404**	**50,737,964**	**35,796,224**
	Real Dockside Values of Oysters (in 2005 Dollar)										
Barrels	0	0	0	0	567	0	0	0	248	4,505	1,773
Bushels	297,936	294,016	269,537	97,695	41,343	49,208	6,897	17,282	29,234	58,840	116,199
Sacks	30,615,835	34,716,873	32,686,557	35,406,259	35,928,692	33,275,804	35,158,889	37,901,710	36,233,274	46,062,077	35,798,597
Total	**30,913,770**	**35,010,889**	**32,956,095**	**35,503,953**	**35,970,602**	**33,325,012**	**35,165,786**	**37,918,992**	**36,262,756**	**46,125,422**	**35,915,328**

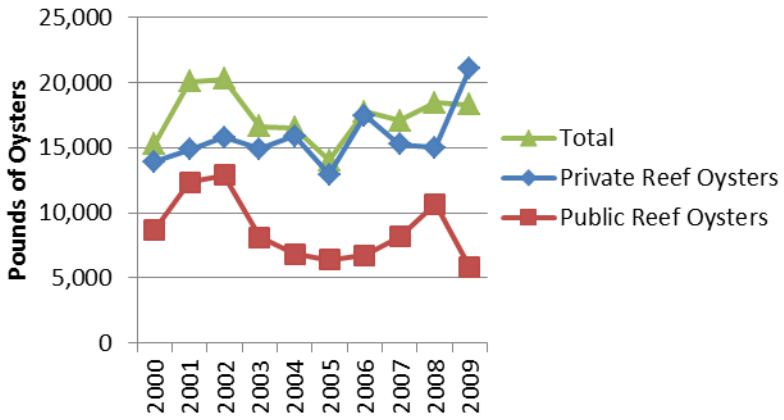
Chapter 3 - Oyster Landings and Dockside Values per Effort

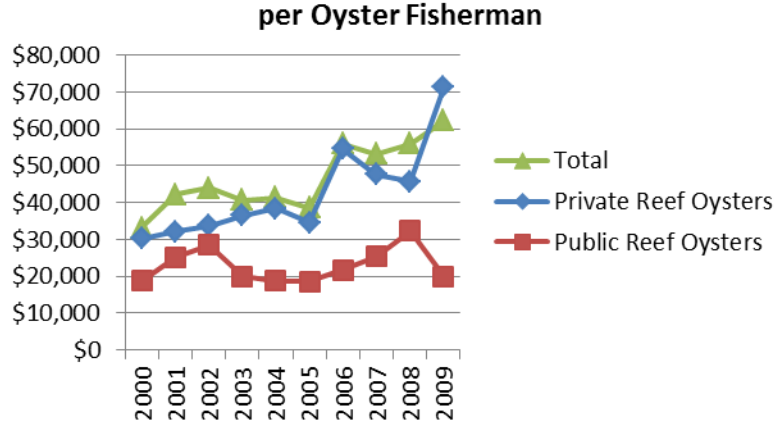
This chapter presents information on oyster landings and dockside values per unit of effort from 2000 through 2009. The measures of efforts considered in the oyster fishery are associated with the number of oyster fishermen (individuals who harvested and sold at least one pound of oysters) as well as fishing traffic in terms of trips, fishing vessels and fishing gear. Dockside values of oysters are presented both in nominal (actual) and real (in 2005 dollars) terms. The real values of oyster are derived by adjusting the nominal values using the GDP deflator.

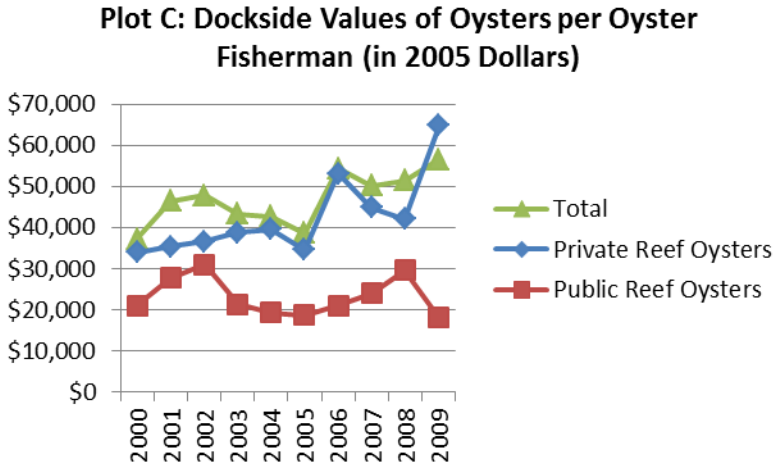
The denominators are the measures of efforts directed at harvesting oysters from a particular fishing area. For example, the average volume of oysters harvested from private (public) reef areas per hour is calculated by dividing the total volume of oysters harvested from the private (public) reefs by the total number of hours spent harvesting oysters from the reef areas including the travel time. For, overall average volume of oysters per hour, the denominator is the total number of hours spent harvesting oysters regardless of the reef areas.

3.1 Landings and Dockside Values of Oysters per Oyster Fisherman

Figure 3.1, Plots A to C, presents the average oyster landings per oyster fisherman as well as their average nominal and the real dockside values during the period between 2000 and 2009. Plot A shows that the average volume of all oysters harvested and sold per oyster fisherman fluctuated between a low of 14,019 pounds in 2005 and 20,264 pounds in 2002. Close to the average total landings was the average yearly amount of oysters caught from the private reefs with the lowest of 12,938 pounds per oyster fisherman occurring in 2005, but the largest of 21,093 pounds per oyster fisherman occurring in 2009. The landings of public reef oysters per







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Source: Appendix Table C.1. See Appendix Figure D.1 for the maps of oyster areas. Note that the denominators used were the number of fishermen who harvested oysters in total or from individual oyster reef areas.

Figure 3.1 Average Landings and Dockside Values of Oysters per Oyster Fisherman, 2000 – 2009

oyster fisherman varied from 5,787 pounds in 2009 and 12,878 pounds in 2002. Annually, the average landings of oysters per oyster fisherman were 15,716 pounds for private reef oysters, 8,656 pounds for public reef oysters and 17,438 pounds for all oysters in general.

Corresponding graphs in Plot B and Plot C seem to be similar in patterns and trends in all respect but differ in the amount of dollars only. In contrast to the average nominal dockside values of public reef oysters per fisherman who harvested oysters from the public reefs (public reef oyster fisherman), the average total nominal dockside values of oysters per oyster fisherman exceeded the average nominal dockside values of private reef oysters per private reef oyster fisherman by a very small margin in all years from 2000 to 2009 except for 2009. This statement indicates that private reef oysters occupied a major portion in the total nominal dockside values of oysters accruing annually to an individual fisherman.

Specifically, Plot B shows that, except for 2009 when the average nominal dockside value of private reef oysters per private reef oyster fisherman exceeded the average total dockside value of oysters per oyster fisherman by $9,191, the largest difference ($10,383) between the average total dockside values of oysters per oyster fisherman and the average dockside values of private reef oysters per private reef oyster fisherman occurred in 2002, while the smallest difference ($1,347) occurred in 2006. However, per fisherman average total values of oysters exceeded the public reef portion in every year, with the largest difference of $42,286 in 2009 and the smallest difference of $14,363 in 2000. The gap between the average dockside values of private and public reef oysters per individual who harvested them was narrowest ($5,202) in 2002 by widest ($51,477) in 2009.

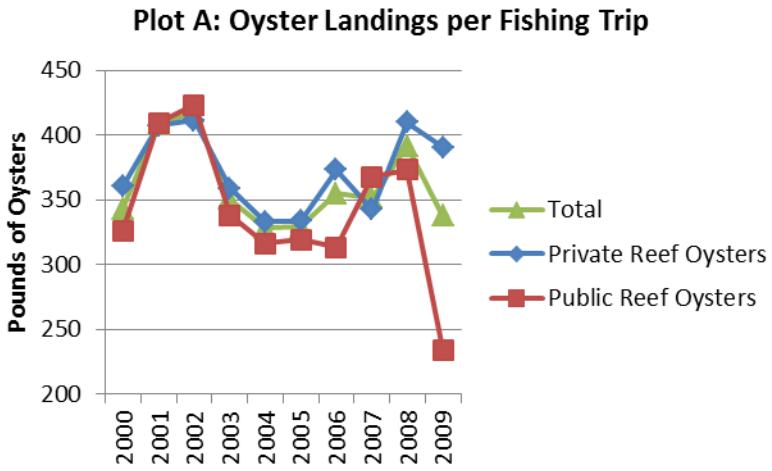
Plot C shows that the average total real dockside values of oysters rose from a low of $37,201 per oyster fisherman in 2000 to a high of $56,526 in 2009. Likewise, the average real

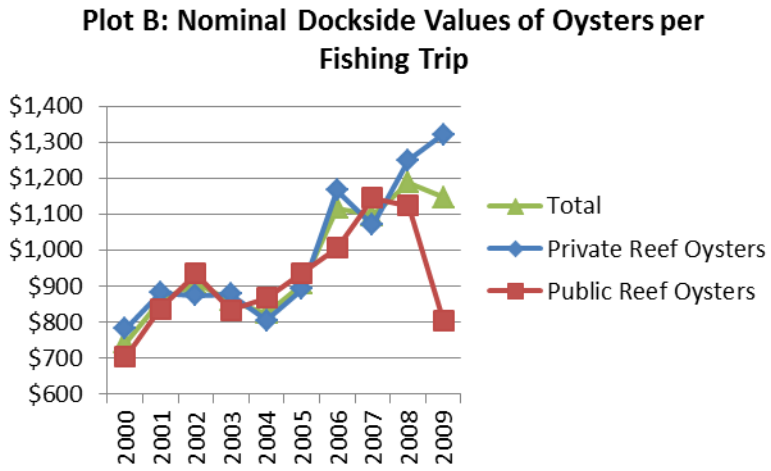
dockside values of oysters from the private reef areas increased from $33,931 per private reef oyster fisherman in 2000 to $64,882 in 2009. However, the average real values of oysters harvested from the public reefs per individual who harvested them was relatively less variable, with a low of $18,085 in 2009 and a high of $30,891 in 2002. On average, the annual total real dockside value of oysters sold by an individual oyster fisherman was $46,862 in the period between 2000 and 2009. In the same period, the dockside values of private reef oysters averaged $42,364 per private reef oyster fisherman, while the values of public reef oysters averaged $23,146 per public reef oyster fisherman.

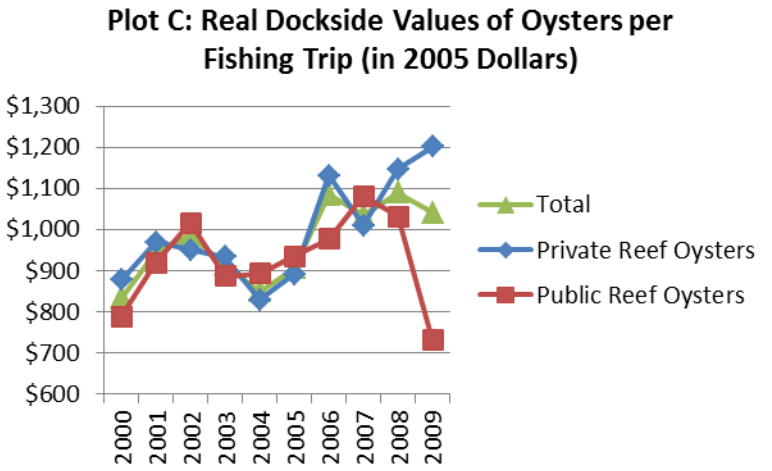
3.2 Landings and Dockside Values of Oysters per Fishing Trip

In section 1.2, it was reported that fishermen took, on average, 37,231 fishing trips annually from 2000 through 2009 and that approximately three-fifths (59.5 percent) of these trips were taken to harvest oysters from private reefs, while the remainder were taken to harvest oysters in public reef areas. This section reports the average volume of oysters landed (in pounds) per fishing trip, the average nominal dockside values per trip and average real dockside values (in 2005 dollars) per trip. Per trip oysters landings and dockside values in the period between 2000 and 2009 are shown in Figure 3.2, Plots A to C.

The average volumes of oysters landed per fishing trip were similar in patterns and trends irrespective of the sources or types of oysters. For example, in Plot A, the average total landings per trip fluctuated between 329 pounds in 2005 and 418 pounds in 2002. Similarly, the average volume of oysters landed per trip from the private reefs fluctuated between 333 pounds in 2004 or 2005 and 411 pounds in 2002, while its public reef counterpart ranged from 234 pounds in 2009 to 423 pounds in 2002. Interestingly, the volume of public reef oysters harvested per trip was very low in 2009 compared to the general trends for other years. Between 2000 and 2009,







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Source: Appendix Table C.2. See Appendix Figure D.1 for the maps of oyster areas. Note that the denominators used were the number of fishing trips associated with oysters harvested in total or from individual oyster reef areas.

Figure 3.2 Average Landings and Dockside Values of Oysters per Fishing Trip, 2000 – 2009

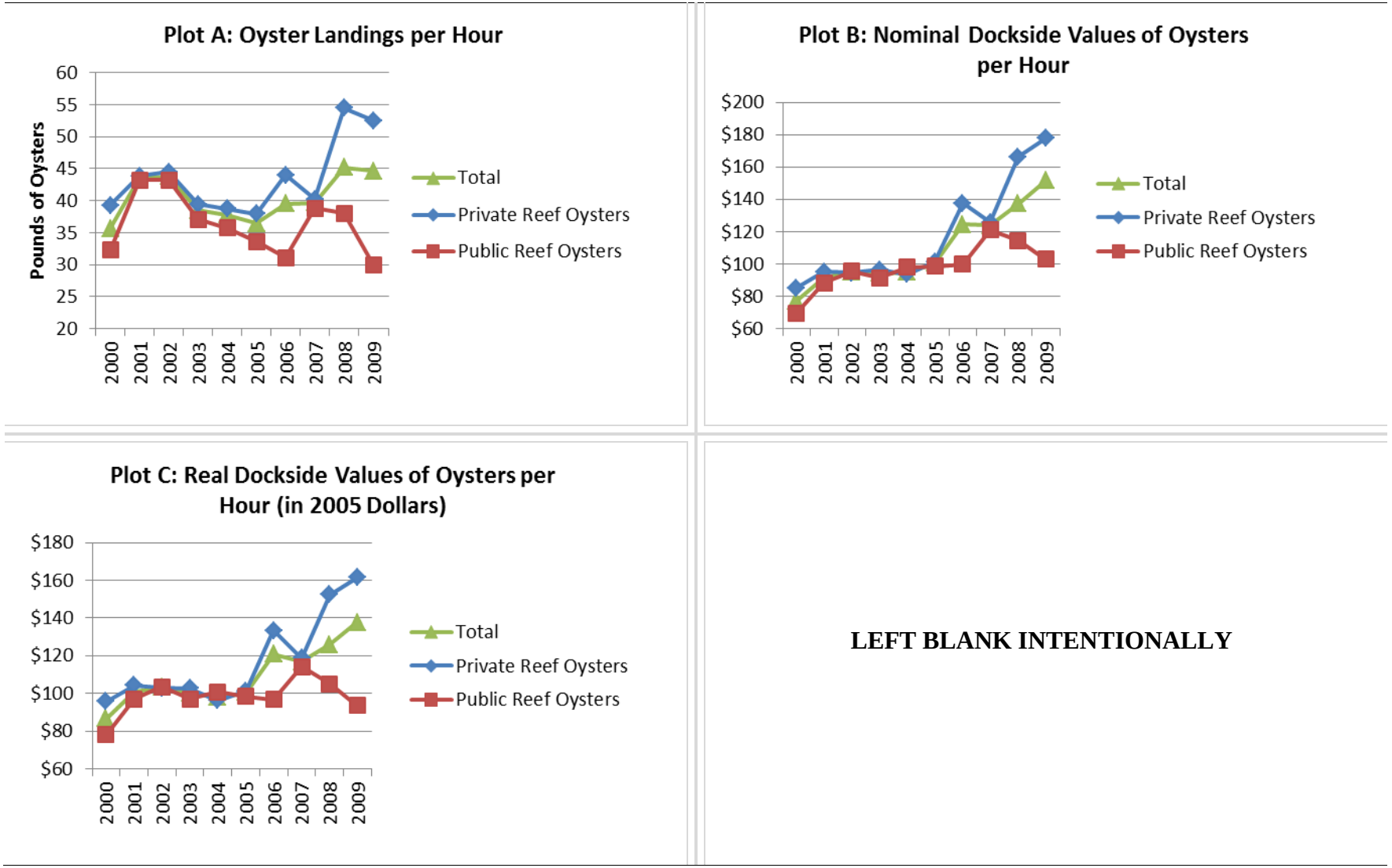
the volume of total oysters landed per trip averaged 361 pounds, while the volume of oysters landed from private and public reefs averaged 372 pounds and 342 pounds, respectively.

Regardless of the areas where they were harvested, the average dockside values of oysters landed in Louisiana per fishing trip were similar and have increased tremendously since the beginning of the period between 2000 and 2008. However, there were wide divergences of the average dockside values of oysters in 2009. Plot B of Figure 3.2 shows that oysters harvested in a trip to the private reef areas generated an average nominal value of $1,321 in 2009. This value was larger than the average total nominal value of all oysters, which amounted to 1,146 per trip but almost doubled the average dockside value of the public reef oysters ($804 per trip).

In Plot C, the average real dockside values of private reef oysters per trip ranged from $829 in 2004 to $1,201 in 2009, while the average real dockside values of public reef oysters ranged from $730 per trip in 2009 to $1.081 per trip in 2007. For all oysters combined, the average real values per trip hit a low of $833 in 2000 and a high of $1,090 in 2008. From 2000 through 2009, the per trip average real dockside values in individual year were $994 for private reef oysters, $926 for public reef oysters and $968 for all oysters.

3.3 Landings and Dockside Values of Oysters per Hour of Fishing Trip

As presented in section 1.2, fishermen spent an average of nine (9) hours per trip to harvest oysters regardless of oyster fishing areas. The landings and dockside values of oysters landed per hour of oyster fishing trips from 2000 through 2009 are shown in Figure 3.3, Plots A to C. The average volumes and dockside values of oysters harvested per hour have widened continuously since the 2003.



Source: Appendix Table C.3. See Appendix Figure D.1 for the maps of oyster areas. Note that the denominators used were the number of hours associated with oyster harvesting in total or from individual oyster reef areas.

Figure 3.3 Average Landings and Dockside Values of Oysters per Hour of Trip, 2000 – 2009

Specifically, Plot A shows that the average volume of oysters an oyster fisherman landed per hour in private reef areas ranged from a low of 38 pounds in 2005 to a high of 54 pounds in 2008, averaging 43 pounds per hour during the 2000-2009 period. From public reef areas, the hourly volume of oysters landed, which averaged 36 pounds yearly, fluctuated between 30 pounds in 2009 and 43 pounds in 2001 or 2002. In total, the amount of oysters landed per hour of trip ranged from 36 pounds in 2000 or 2005 to 45 pounds in 2008, but averaged 40 pounds per trip yearly.

Plot B of Figure 3.3 shows that the average nominal dockside values of oysters per hour of oyster fishing trip were virtually similar until 2005 after which they individually started widening out. Specifically, for every year between 2006 and 2009, the per hour average nominal dockside values of oysters associated with the private reef areas was larger than the average total dockside values of all oysters landed per hour, which in-turn was larger than those from the public reef areas per hour. However, the widest gaps between the oysters' values were recorded in 2009. In 2009, private reef oysters' worth of $178 was landed per hour, while $103 worth of public reef oysters was landed per hour. For all oysters combined, a total of $152 worth of oysters was landed per hour.

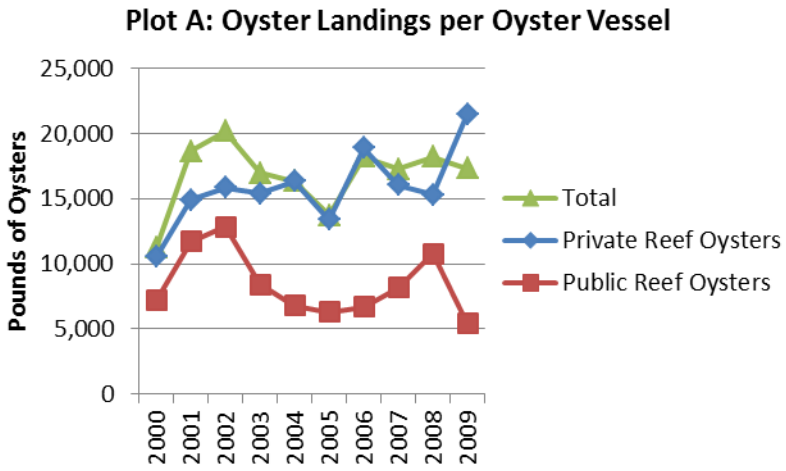
In Plot C (Figure 3.3.), the average total real dockside values of oysters landed per hour of fishing trip increased steadily from a low of $87 in 2000 to a high of $138 in 2009, but averaged $109 per hour during the 2000-2009 period. Likewise, the average real dockside values of private reef oysters landed per hour of trip grew from $96 in 2000 to $162 in 2009 and averaged $117 per hour yearly for the 2000-2009 period. However, the growth in the average real dockside values of public reef oysters was slower, beginning at a low of $78 per hour in

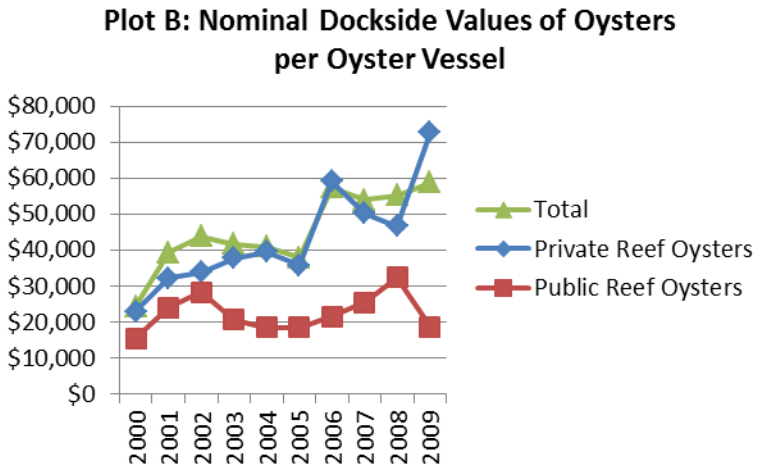
2000 to a high of $114 in 2007 but averaged $98 per hour every year. Interestingly, only private reef oysters exhibited a declining trend in average dockside value per hour from 2008 to 2009.

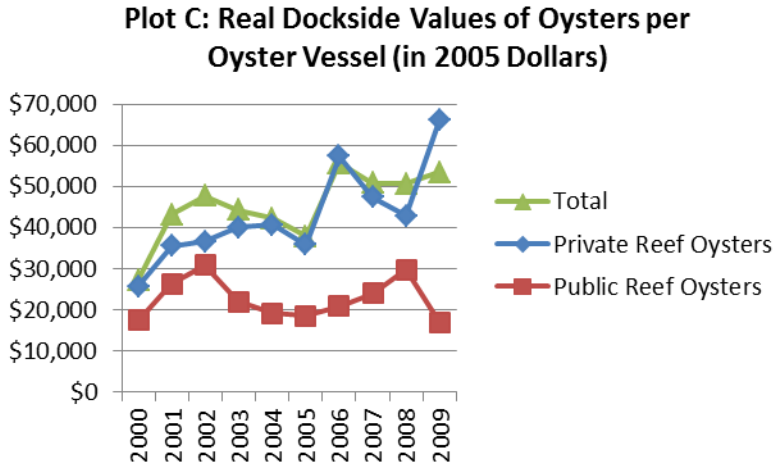
3.4 Landings and Dockside Values of Oysters per Fishing Vessel

Figure 3.4, Plots A to C, shows the average landings, the average nominal dockside values and the average real dockside values of oyster landed per fishing vessel as reported on the trip tickets during 2000-2009 period. As shown in Plot A, the smallest average volume of oysters landed in Louisiana per fishing vessel (11,216 pounds) occurred in 2000, while the smallest volume of oysters per vessel (20,176 pounds) occurred in 2002. For private reef oysters, the volume of oysters per vessel ranged from 10,529 pounds in 2000 to 21,489 pounds in 2009. For public reef oysters, the volume landed fluctuated between 5,412 pounds in 2009 and 12,814 pounds in 2002. On average, the volumes of oysters landed annually per vessel were 15,810 pounds for private reef oysters, 8,408 pounds for private reef oysters and 16,801 pounds for all oysters combined.

Compared to the average nominal dockside values of all oysters landed per fishing vessel from 2000 to 2009, the average nominal values of private reef oysters per vessel were lower in all years except 2006 and 2009 when the private reef oysters were valued higher by $1,765 and $13,919, respectively (Plot B). For other years, the private reef oysters were lower in value per vessel by a minimum difference of $1,533 in 2004 and a maximum difference of $10,105 in 2002. The average nominal dockside values of public reef oysters per vessel were much lower that the nominal dockside values per vessel for all oysters (with a minimum difference of $8,835 in 2000 and a maximum difference of $40,189 in 2009) as well as for private reef oysters (with a minimum difference of $5,429 in 2002 and a maximum difference of $54,108 in 2009).







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Source: Appendix Table C.4. See Appendix Figure D.1 for the maps of oyster areas. Note that the denominators used were the number of vessels used to harvest oysters in total or from individual oyster reef areas.

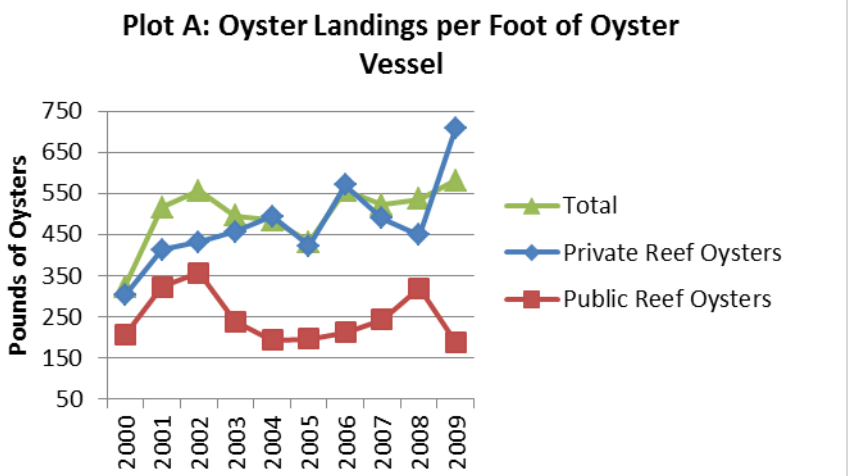
Figure 3.4 Average Landings and Dockside Values of Oysters per Fishing Vessel, 2000 – 2009

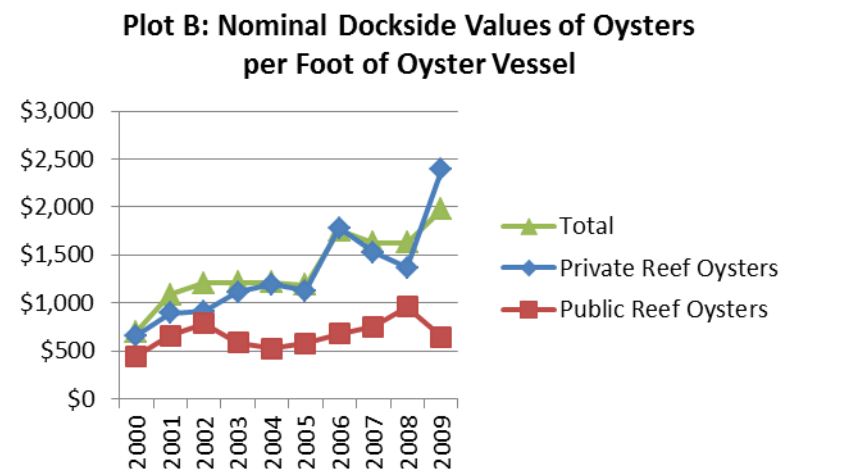
Plot C of Figure 3.4 shows that the average real dockside values of all oysters landed per fishing vessel ranged from $27,261 in 2000 to $55,642 in 2006. In addition, the average real value of oysters landed per vessel from private reef areas fluctuated between $25,660 in 2000 and $66,102 in 2009. For oysters landed per vessel from the public reefs, the average real values fluctuated between $16,913 in 2009 and $30,740 in 2002. Yearly, an average of $45,288 worth of all oysters, $42,777 worth of private reef oysters and $22,528 worth of public reef oysters were landed per vessel from 2000 through 2009.

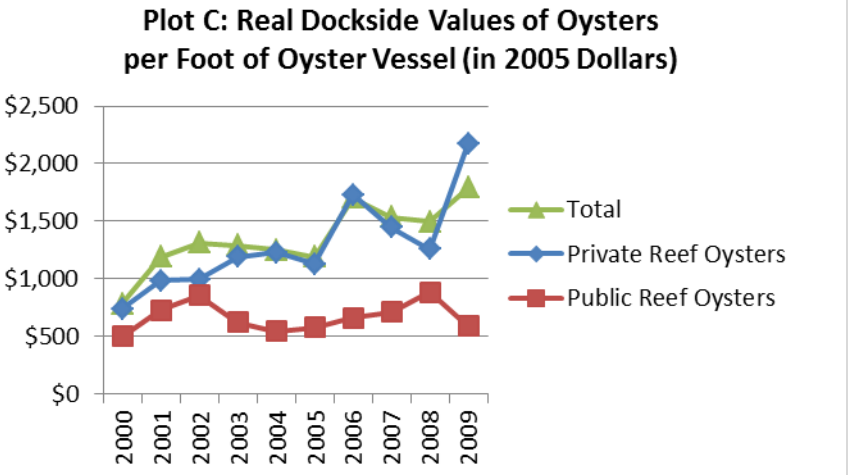
3.5 Landings and Dockside Values of Oysters per Foot of Fishing Vessel

The number of fishing vessels, which landed oysters annually from 2000 through 2009, was presented in section 1.3. In addition, Subsection 1.3.4 specifically reported that data regarding the length (in feet) were available for approximately half of these vessels in a given year. To compute oyster landings and dockside values per foot of fishing vessel for individual years and sources of oysters, the denominator (total length of all vessels) was calculated by multiplying the number of vessels in each year by corresponding average length of vessels. The average landings, nominal dockside values and real dockside values of oysters landed per foot of fishing vessel during 2000-2009 period are shown in Figure 3.5, Plots A to C.

In Plot A, the average total volume of oysters landed per foot of fishing vessel ranged from 322 pounds in 2000 to 581 pounds in 2000, averaging 500 pounds per year for the 2000-2009 period. Examining the landings per foot of vessel by source of oysters shows that private reef oysters landed also ranged from 303 pounds in 2000 to 707 pounds in 2009 with a yearly average of 473 pounds. For oysters from public reefs, the average landings fluctuated between 189 pounds per foot in 2009 and 356 pounds per foot in 2002, but averaged 247 pounds per year.







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Source: Appendix Table C.5. See Appendix Figure D.1 for the maps of oyster areas. Note that the denominators used were the combined footage of vessels used to harvest oysters in total or from individual oyster reef areas.

Figure 3.5 Average Landings and Dockside Values of Oysters per Foot of Fishing Vessel, 2000 – 2009

Compared to the average nominal dockside values of all oysters landed per foot of fishing vessel from 2000 to 2009, the average nominal values of private reef oysters per foot were lower in all years except 2006 and 2009 when the private reef oysters landed per foot were valued higher by $27 and $419, respectively (Figure 3.5, Plot B). For other years, the private reef oysters landed per foot were lower in value by a minimum difference of $24 in 2004 and a maximum difference of $291 in 2002. The average nominal dockside values of public reef oysters per foot were much lower that the nominal dockside values per foot for all oysters (with a minimum difference of $255 in 2000 and a maximum difference of $1,325 in 2009) as well as for private reef oysters (with a minimum difference of $130 in 2002 and a maximum difference of $1,744 in 2009).

Plot C of Figure 3.5 shows that the average real dockside values of all oysters landed per foot of fishing vessel ranged from $783 in 2000 to $1,794 in 2009. In addition, the average real values of oysters landed per foot from private reef areas fluctuated between $737 in 2000 and $2,174 in 2009. For oysters landed from the public reefs, the average real values per vessel foot fluctuated between $497 in 2000 and $882 in 2008. Annually, an average of $1,354 worth of all oysters, $1,286 worth of private reef oysters and $666 worth of public reef oysters were landed per foot of vessel from 2000 through 2009.

3.6 Landings and Dockside Values of Oysters per Fishing Vessel Length Category

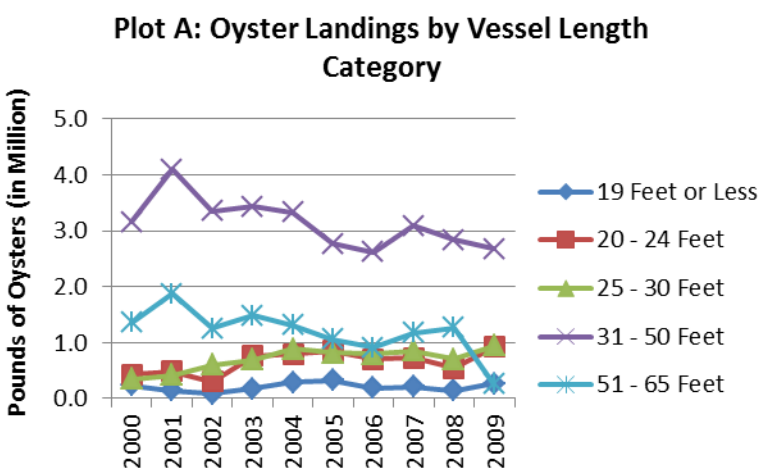
As indicated in subsection 1.3.4, length (in feet) was provided on the trip tickets for half of all vessels used to harvest oysters from 2000 through 2009. These vessels were grouped into six categories: “19 feet or less," “20-24 feet,” “25-30 feet”, “31-50 feet”, “51-65 feet” and “66 feet or over.” The volume of oysters landed in Louisiana between 2000 and 2009 by vessel size

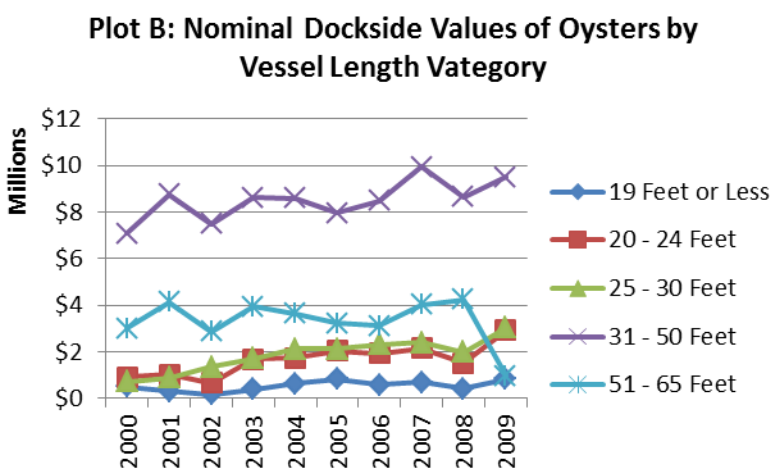
category with their nominal dockside values are shown in Plots A to C, respectively, of Figure 3.6. Boat category "66 feet or over" was omitted for confidentiality reasons.

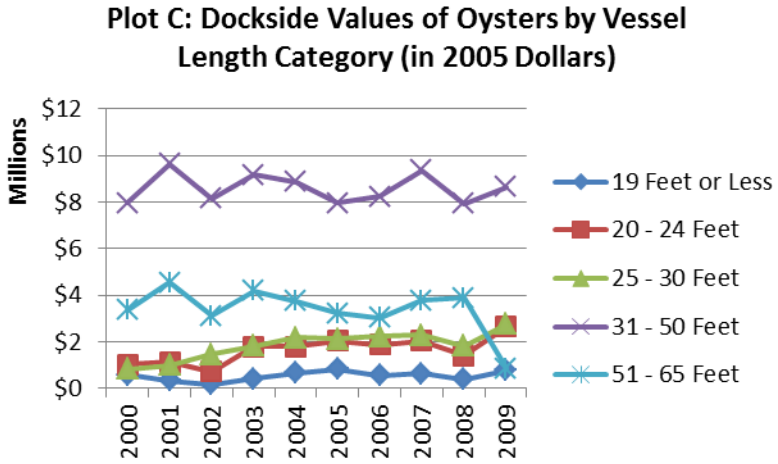
Figure 3.6, Plot A shows that the majority of the volume of oysters from oyster vessels for which vessel length was available was harvested by vessels between 31 and 50 feet in length. The average cumulative oyster harvest by vessel in this length category averaged 3.1 million pounds and ranged between 2.6 million pounds in 2006 and 4.1 million pounds in 2001. Vessels in the 20 to 24 feet and 25 to 30 feet categories jointly accounted for a minimum of 0.8 million pounds of oysters in 2000 and maximum pounds of 1.9 million pounds in 2009, with an average of 1.4 million pounds a year.

Next were vessels of length category "51 to 65 feet", whose oyster landings was between a low amount of less than 0.3 million pounds in 2009 and a high of 1.9 million pounds in 2001, averaging 1.2 million pounds per year. The volume of oysters reportedly landed by vessels between 51 and 65 feet declined from a high of 18.3 million pounds in 2000 to a low of 6.6 million pounds in 2009. Vessels 19 feet or less accounted for the least amount of oysters in the entire 2000-2009 period. The average volume of oysters landed by this category of vessels was only 206,194 pounds per year.

Plots B and C (Figure 3.6) shows that category of vessels between 31 to 50 feet contributed the largest dockside values of oysters in individual year from 2000 to 2009, followed by a combination of vessels in the 20 to 24 feet and 25 to 30 feet categories with collective values of oysters that were higher than those for the rest of the boat categories. Specifically, Plot C shows that the real dockside values of oysters landed by fishing vessels category "31-50 feet" fluctuated between $7.1 million in 2000 and approximately $10 million in 2007.







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Source: Appendix Tables C.6, C.7 and C.8.

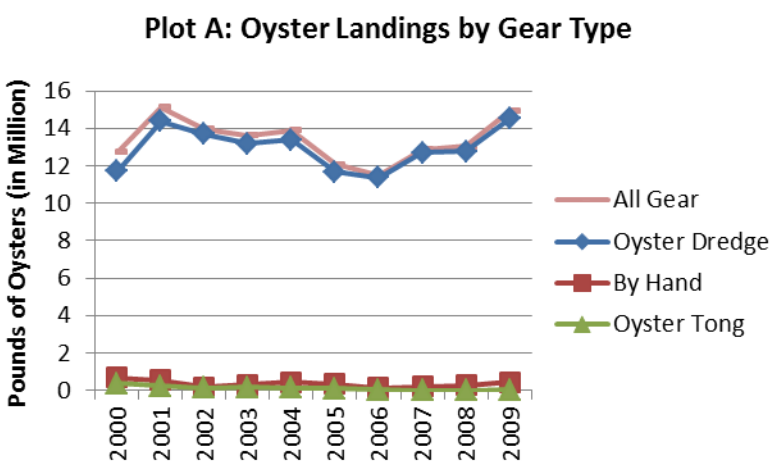
Figure 3.6 Landings and Dockside Values of Oysters by Fishing Vessel Length Category, 2000 – 2009

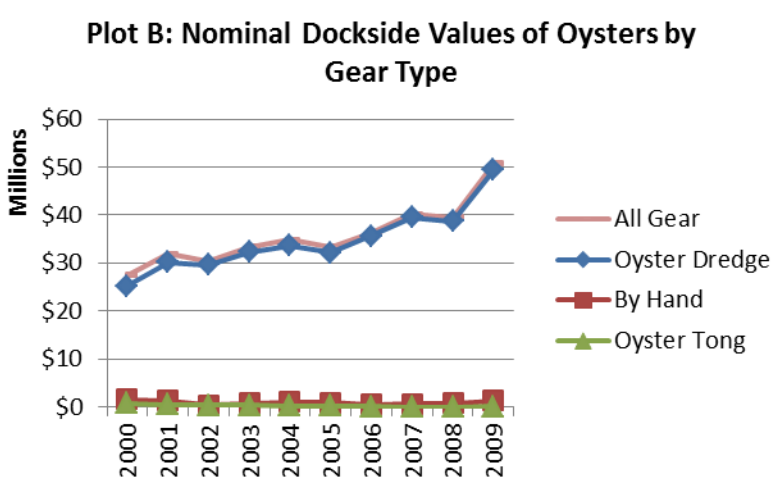
The two categories of vessels resulting in a new category between 20 to 30 feet accounted for real dockside values, ranging from $1.9 million in 2000 to over $5.4 million in 2009. The real dockside values of oysters associated with vessels of between 51 and 65 feet long fluctuated between a low of $875,493 in 2009 and a high of $4.6 million in 2001, while the real dockside values of oysters by vessels of category "19 feet or less" ranged from $186,298 in 2002 to $828,218 in 2005. On average, the contributions of vessels within the length categories "31 to 50 feet," "20 to 30 feet" and "51 to 65 feet", respectively, averaged $8.6 million, $3.5 million and $3.4 million for the 2000-2009 period.

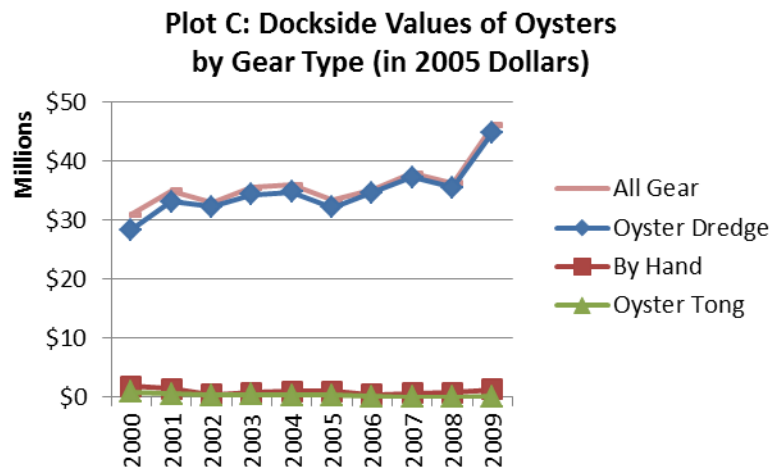
3.7 Landings and Dockside Values of Oysters by Fishing Gear

The landings and the dockside values of oysters harvested throughout the 2000-2009 period were examined by the type of gear, which fishermen reportedly used to harvest them. Figure 3.7 (Plots A to C) shows the amount of oysters harvested by gear and the gear type, which were common to the Louisiana reef areas.

Dredges were the dominant type of gear used to harvest oysters in Louisiana, accounting for a yearly average of 96.6 percent (12.9 million pounds) of the total volume of oysters landed from 2000 through 2009 (Plot A). Approximately 2.5 percent (339,158 pounds of oysters) was harvested by hand, while the remainder (0.8 percent or 110,805 pounds) was harvested using oyster tongs. Looking at the trends, the volume of oysters harvested using oyster dredges ranged from a low of 11.4 million pounds in 2006 to a high of 14.5 million pounds in 2009. Handpicking accounted for oyster volume fluctuating between 124,968 pounds in 2006 and 662,845 pounds in 2000, while oyster tongs was responsible for a volume ranging from 78 pounds in 2008 and 350,645 pounds in 2000.







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Source: Appendix Tables C.9, C.10 and C.11.

Figure 3.7 Landings and Dockside Values of Oysters by Fishing Gear Type, 2000 – 2009

Plots B and C follow similar patterns and trends as Plot A, with dredges accounting for an average of 96.7 percent ($34.7 million) of the total value of oysters landed in Louisiana from 2000 to 2009. Dredges contributed a real dockside value of oysters, ranging from $28.3 million in 2000 to $44.9 million in 2009. The real dockside values of handpicked oysters fluctuated between $398,691 in 2002 and $1.8 million in 2000 but averaged $919,035 annually in the 2000-2009 period.

Chapter 4 - Hurricanes Impacts and Recovery of Oyster Fishery

Examination of the information presented in Chapters 1 and 2 revealed that there were two main periods when major lows occurred in Louisiana's oyster fishery. These periods can be associated with hurricanes Katrina and Rita of 2005 and hurricanes Gustav and Ike of 2008 (See Appendix Figures D.3 to D.5), which greatly devastated the oyster fishery. Hence, Chapter 4 discusses the impacts of these hurricanes on participation and activities for the fishermen sector of the oyster fishery as well as their impacts on performance indicators including oyster landings, average dockside prices and dockside values. The chapter also attempts to assess the recovery of the oyster fishery in the aftermath of these hurricanes.

The chapter is divided into four sections. Section 4.1 discusses the hurricanes impacts on participation and activities in the oyster fishery in terms of the number of oyster fisherman, oyster fishing trip, parish of residence of fishermen and fishing vessel owners. Similar discussions on performance indicators are contained in Section 4.2. Section 4.3 considers the impacts of hurricanes on performance indicators per effort, while Section 4.4 briefly examines the recovery of oyster fishery in the aftermath of the hurricanes.

4.1 Hurricanes Impacts on Participation and Activities

Based on the descriptions in Chapter 1 (sections 1.1 to 1.4), this section presents the changes in relevant measures of efforts in the oyster fishery as a result of hurricanes Katrina and Rita in 2005 and Gustav and Ike in 2008. These changes become apparent considering the interruptions in the trends of participation indicators during the hurricane years such as the number of fishermen and dealers (Figures 1.1 to 1.5), number of fishing trips (Figures 1.6 and 1.7) and number of fishing vessels (Figures 1.8 and 1.9).

4.1.1 Hurricanes Katrina and Rita: Participation and Activities

4.1.1.1 Oyster Fishermen and Dealers

The number of fishermen who landed or sold at least a pound of oysters and the number of seafood dealers who purchased oysters did not exhibit any apparent effect of hurricanes Katrina and Rita of 2005 until 2006, the year after they occurred (Figure 1.1). Between 2005 and 2006, the number of oyster fishermen declined by a quarter (25 percent) from 863 to 647. In the same period, the numbers of fishermen who landed oysters from private and public reefs decreased by 25.7 percent (from 645 to 479 fishermen) and 21.2 percent (from 590 to 465 fishermen), respectively. The total number of individuals who purchased oysters also fell by 34.9 percent (from 83 to 54 dealers), while the number of dealers who bought private and public oysters declined by 36.0 percent (from 75 to 48 dealers) and 29.0 percent (from 62 to 44 dealers), respectively.

The impacts of Katrina and Rita differed across parishes of fishermen's residence (Figure 1.3). The number of oyster fishermen declined for most parishes, especially Plaquemines, St. Bernard and Cameron, a year after the hurricanes landed. For example, the number of oyster fishermen decreased by 96 individuals (38.7 percent) in Plaquemines, by 77 individuals (49.0 percent) in St. Bernard and by 34 individuals (39.1 percent) in Cameron from 2005 to 2006. Plaquemines and St. Bernard parishes were devastated by Katrina, while Cameron was impacted by Rita.

Figure 1.4 shows that from 2005 to 2006, the number of fishermen who landed private reef oysters declined by 82 (35.8 percent) in Plaquemines, by 67 (53.6 percent) in St. Bernard and by 19 (11.2 percent) in Terrebonne. Also, the number of individuals who landed public reef oysters fell by 61 (47.3 percent) in St. Bernard, by 44 (37.6 percent) in Plaquemines and by 33

(38.4 percent) in Cameron. Only the individuals who resided outside of Louisiana experienced a small boost of 10 oyster fishermen (20.0 percent) due to Katrina and Rita, with most of participating in private reef oysters.

4.1.1.2 Oyster Fishing Trips

In Figure 1.6, the number of oyster fishing trips trended downward regardless of the fishing areas from 2004 (the year prior to Katrina and Rita) until 2006. The total number of fishing trips fell by 23.5 percent from 42,393 trips in 2004 to 32,443 trips in 2006 following Katrina and Rita. Number of trips to private reef areas declined by 23.8 percent from 29,456 trips in 2004 to 22,455 trips in 2006. Although, the number of trips to harvest oysters in public reef waters also decreased by 22.8 percent between 2004 (12,937 trips) and 2006 (9,988 trips), the decline might not have been due to hurricanes Katrina and Rita alone since the fall had begun three years (since 2002) before the hurricanes landed in Louisiana.

However, the increase in the average number of trips taken per oyster fisherman to harvest oysters was interrupted by Katrina and Rita in 2005 when it fell by 15.3 percent to 43 trips from 50 trips in the year before (2004). The average number of trips a fisherman took to private reef areas dropped by 18.7 percent from 48 trips in 2004 to 39 trips in 2005. The fall in the number of trips taken to the public reefs per public reef oyster fisherman cannot be attributed to hurricanes alone. Nevertheless, trips to this area declined by only 2 trips per individual who took the trip between 2004 (22 trips) and 2005 (20 trips).

Figure 1.7 shows also that the length (in hours) of fishing trips followed similar patterns and trends when compared to the number of fishing trips in Figure 1.6. For example, the total length of trips declined by 20.9 percent from 367,850 hours in 2004 to 291,031 hours in 2006. Considering the trips to the oyster reefs areas, the length of trips oyster fishermen took to private

reef areas fell by 24.9 percent (from 253,438 hours in 2004 to 190,286 hours in 2006), while the length of trips to public reefs decreased by 11.9 percent (from 114,412 hours in 2004 to 100,745 hours in 2006).

Conversely, the average total length of oyster fishing trip rose by 0.4 hours or 24 minutes (4.7 percent) between 2004 and 2005. In addition, the lengths of trips to private and public reef areas rose by 0.1 hours or 6 minutes (1.2 percent) and 0.6 hours or 36 minutes (6.8 percent), respectively, due to Katrina and Rita. The growth in the length of trips to public reef areas continued till 2006 with an additional 0.5 hours (30 minutes), resulting in a total increase of 66 minutes (12.5 percent) to the average length of a trip to harvest oysters in the public grounds from 2004 and 2006.

4.1.1.3 Oyster Fishing Vessels

The number oyster vessels rose slightly by 3.4 percent from 852 vessels in 2004 to 881 vessels in 2005. The impacts of hurricanes Katrina and Rita of 2005 on these vessels became apparent in 2006 when its total number showed a decrease of 28.3 percent to 632 vessels in 2006 from its level in 2005 (Figure 1.9). In the same period, the numbers of vessels that landed private reef oysters fell by 29.0 percent from 624 to 443 vessels. Likewise, vessels, which landed public reef oysters, declined by 21.6 percent from 597 vessels in 2005 to 468 vessels in 2006.

In Figure 1.11, the largest decreases in the number of vessels between 2005 and 2006 occurred for those whose owners resided in Plaquemines, St. Bernard and Terrebonne parishes. Precisely, the number of vessels declined by 56 vessels in Plaquemines Parish, 44 vessels in St. Bernard Parish and 23 vessels in Terrebonne Parish. It is interesting to note that the number of

oyster vessels owned by individuals living outside of Louisiana declined continuously prior to 2005 when it hit its low, with only eight vessels, but has increased consistently since then.

4.1.2 Hurricanes Gustav and Ike: Participation and Activities

4.1.2.1 Oyster Fishermen and Dealers

Compared to hurricanes Katrina and Rita, the impacts of Gustav and Ike of 2008 on participation and activities in the oyster fishery were relatively minimal but appeared apparent almost immediately after the hurricanes. In Figure 1.1, the total number of oyster fishermen declined by 6.5 percent from 755 fishermen in 2007 to 706 fishermen in 2008, the year Gustav and Ike landed. In the same period, the numbers of fishermen who landed oysters from private and public reefs decreased by 13.4 percent (from 530 to 459 fishermen) and 2.4 percent (from 589 to 575 fishermen), respectively. In contrast, the total number of commercial seafood dealers who reportedly purchased oysters rose by 18.5 percent (from 65 to 77 dealers), suggesting that Gustav and Ike might have had an effect. The number of individuals who bought private and public oysters increased by 30.6 percent (from 49 to 64 dealers) and 27.3 percent (from 44 to 56 dealers), respectively.

Following Gustav and Ike, the two parishes that exhibited the steepest decline in the number of resident fishermen who landed oysters were Plaquemines and Terrebonne (Figure 1.3). In Plaquemines, the number of fishermen decreased by 17.4 percent from 184 fishermen in 2007 to 152 fishermen in 2008. The number of Terrebonne's resident oyster fishermen declined by 10.8 percent from 166 to 148 fishermen between 2007 and 2008. During the same hurricane period, the number of individuals who resided in St. Bernard increased by 16.3 percent (from 92

to 107 fishermen) and the number of residents of other states landing oysters in Louisiana rose by 25.7 percent (from 70 to 88 fishermen).

Figure 1.4 shows that from 2007 to 2008, the number of fishermen who landed private reef oysters declined by 36 (21.3 percent) in Plaquemines, by 22 (15.1 percent) in Terrebonne but by only 3 fishermen (4.2 percent) in St. Bernard. The major decline of 19.2 percent (from 104 fishermen in 2007 to 84 fishermen in 2008) in the number of individuals who landed public reef oysters occurred in Plaquemines. In contrast, the number of fishermen who landed public reef oysters rose in St. Bernard by 19.0 percent (from 84 to 100 fishermen) and outside of Louisiana by 19.2 percent (from 64 to 83 fishermen) between 2007 and 2008.

4.1.2.2 Oyster Fishing Trips

The number of trips taken by fishermen to harvest oysters in private reef areas declined by 28.8 percent from 23,585 trips in 2007 to 16,797 trips in 2008 (Figure 1.6). In the same period, the number of trips to public reef waters increased by 26.3 percent from 13,057 trips to 16,485 trips. Hence, the net decline in the total number of oyster fishing trips following Gustav and Ike was 9.2 percent from 36,642 trips in 2007 to 33,282 trips in 2008.

Similarly, the average number of trips taken to the private reef areas per private reef oyster fisherman dropped by 17.8 percent from 45 trips in 2007 to 37 trips in 2008. Also, the number of trips an oyster fisherman took to the public reefs rose by an average of 29.3 percent (from 22 to 29 trips). Overall, the number of oyster trips per oyster fisherman decrease by 2.9 percent from 49 to 47 trips in the same period.

Figure 1.7 shows also that the length (in hours) of fishing trips followed similar patterns and trends when compared to the number of fishing trips in Figure 1.6. For example, the total length of trips declined by a net of 11.2 percent from 324,381 hours in 2007 to 288,116 hours in

2008. The length of trips fishermen took to catch oysters in private reef areas fell by 37.0 percent (from 200,673 hours in 2007 to 126,344 hours in 2008), while the length of trips to public reefs increased by 30.8 percent (from 123,708 hours in 2007 to 161,772 hours in 2008).

Between 2007 and 2008, the average total length of oyster fishing trip declined by 0.1 hour (1.1 percent) from 8.8 hours to 8.7 hours and the average length of trips to the private reefs declined by one hour (11.8 percent) from 8.5 hours in 2007 to 7.5 hours in 2008. In contrast, the average number of hours spent to harvest oysters in public reef areas increased by 0.3 hours or 18 minutes (3.2 percent).

4.1.2.3 Oyster Fishing Vessels

When compared to 2007, the number of oyster fishing vessels declined in 2008, the year of Gustav and Ike (Figure 1.9). For example, there was a 10.5 percent decline (from 503 to 450 vessels) in the number of vessels, which harvested private reef oysters and a 2.9 percent decline (from 589 to 572 vessels) in the number of vessels that harvested public reef oysters, resulting in a 4.0 percent net decrease (from 746 to 716 vessels) in the total number of vessels that landed oysters in Louisiana between 2007 and 2008.

In Figure 1.11, the largest decrease in the number of oyster vessels between 2007 and 2008 (due to Gustav and Ike) occurred for those whose owners resided in Plaquemines Parish. The number of oyster vessels owned by individuals who lived in Plaquemines Parish declined by 13.1 percent from 99 vessels in 2007 to 86 vessels in 2008. Conversely, largest increase in the number of oyster vessels occurred for the owners who resided in Cameron Parish where the number of vessels rose by 21.3 percent from 47 to 57 vessels in the 2007-2008 period.

4.2 Hurricanes Impacts on Performance Indicators

This section discusses the impacts of major hurricanes, which devastated Louisiana (Katrina and Rita in 2005 and Gustav and Ike in 2008 (See Appendix Figures D.3 to D.6)) on performance indicators in the oyster fishery: the volume, average dockside prices (in 2005 dollar) and dockside values (in 2005 dollar) of oysters landed in Louisiana. The basic information on the landings, dockside prices and values of oysters landed in Louisiana was presented in Chapter 2. In particular, the impacts of hurricanes on performance indicators by oyster species, fisherman's parish of residence and Louisiana's territorial basins are emphasized.

4.2.1 Hurricanes Katrina and Rita: Performance Indicators

4.2.1.1 Oyster Landings, Dockside Prices and Values by Source

Hurricanes Katrina and Rita in 2005 appear to have impacted the landings, dockside prices and values of oysters disproportionately depending on the areas from which they were harvested. The changes that occurred in these performance measures extended, in most cases, beyond a year after the occurrences of the hurricanes (Figures 2.1 to 2.3).

Specifically, the fall recorded in the volume of private reef oysters landed in Louisiana by 1.5 million pounds (14.9 percent) from 2004 to 2005 continued until 2007 before Gustav and Ike hit the state in 2008 (Figure 2.1). In addition, the volume of public reef oysters landed in Louisiana began falling in 2003. This decrease was aggravated by Katrina and Rita by 337,892 pounds (8.3 percent) between 2004 and 2005, with a further decline of 624,856 pounds (16.6 percent) in 2006. The decreases in the volumes of oysters landed from private and public reef areas resulted in a total net decline of 2.4 million pounds (17.3 percent) in oyster landings between 2004 and 2006 following of Katrina and Rita.

In Figure 2.2, the upward movement in the average real dockside prices (in 2005 dollar) of oysters was slightly interrupted in 2004, a year before Katrina and Rita landed in Louisiana. The average total real dockside price of oysters picked up by 18.5 percent from $2.49 a pound in 2004 to $2.95 a pound in 2006. In the same period, the average real price of a pound of oysters from the private reefs rose by 22.4 percent from $2.37 to $2.90. However, the average real dockside price of public reef oysters experienced a sharp increase between 2002 and 2006 but with a slight sluggish rate of increase occurring only in 2005 due to Katrina and Rita.

Figure 2.3 shows that the rising trends in the real dockside value of private reef oysters and the declining trend in the real dockside value of public reef oysters were slightly disturbed by hurricanes Katrina and Rita in 2005. Specifically, the real dockside values fell by $2.1 million (8.6 percent) for private reef oysters landed in Louisiana and by $0.6 million (4.7 percent) for public reef oysters, resulting in a total decrease of $2.7 million (7.4 percent) worth of oysters between 2004 and 2005.

4.2.1.2 Oyster Landings and Dockside Values by Parish

The change in the volume of oysters landed in Louisiana from 2004 to 2006 was not distributed evenly across the state. Resident oyster fishermen in twelve parishes experienced a net decline of 4.2 million pounds in volume and resident oyster fishermen in eighteen parishes exhibited an increase of about one million pounds of oysters. An additional increase of 865,382 pounds of oysters was landed between 2004 and 2006 by residents from states other than Louisiana. These changes can be partly attributed to Katrina and Rita.

Of the total decline of 4.2 million pounds of oyster landings following hurricanes Katrina and Rita, approximately one-half (48.6 percent or 2.0 million pounds) was from oyster fishermen who resided in St. Bernard Parish (Figure 2.4). Following St. Bernard was Plaquemines Parish

whose residents accounted for 38.6 percent (over 1.6 million pounds). Of the total increase of 1.0 million pounds recorded across parishes following Katrina and Rita, 54.3 percent (524,662 pounds) was accounted for by residents of Terrebonne Parish and 17.4 percent (168,621 pounds) by residents of Ascension Parish.

In subsection 4.2.1.1, it was reported that the change in the average real values of oysters was interrupted mainly in 2005 perhaps largely due to Katrina and Rita. Between 2004 and 2005, resident oyster fishermen in eleven parishes experienced a cumulative decline of approximately $5.5 million in real dockside value, while the residents of fourteen parishes exhibited a cumulative increase of $2.3 million. Residents from other states saw a total increase of $566,357 in dockside value of oysters in the same period.

Of the $5.5 million decrease in the dockside value of oysters following Katrina and Rita, residents in Plaquemines Parish accounted for 42.5 percent ($2.4 million), individuals in St. Bernard Parish accounted for 35.3 percent ($2.0 million) and Jefferson Parish's residents accounted for 7.4 percent or $0.4 million (Figure 2.5). Of the total increase of $2.3 million in real dockside value of oysters in the 2004-2005 period, resident oyster fishermen in Terrebonne Parish alone accounted for 70.1 percent ($1.6 million) and Cameron Parish accounted for additional 14.1 percent ($0.3 million).

4.2.1.3 Oyster Landings, Dockside Prices and Values by LDWF Basin

Oysters were exclusively harvested in Louisiana territorial waters, which are divided into twelve river basins. Dominant among these basins in terms of oyster harvesting were the Lake Pontchartrain, Barataria, Terrebonne, Vermilion-Teche River, Calcasieu River and Atchafalaya River Basins. These basins divided equally in terms of the changes that occurred in the performance indicators between 2004 and 2005 - the year that Katrina and Rita landed.

Specifically, of the total decline of 2.5 million pounds in the volume of oysters harvested in the 2004-2005 period, 54.9 percent (1.4 million pounds) was associated with the Lake Pontchartrain Basin and 42.7 percent (1.1 million pounds) was associated with the Barataria Basin (Figure 2.7, Plot A). The remainder (2.4 percent or 59,880 pounds) was associated with the Atchafalaya River Basin. Actually, no oyster harvest was reported for the Atchafalaya River Basin in 2005, 2006 and 2009.

The volume of oysters harvested from Vermilion-Teche River, Terrebonne and Calcasieu River Basins rose by 727,247 pounds between 2004 and 2005. The shares of this amount among the basins were 46.4 percent (337,530 pounds) for Vermilion-Teche River, 37.6 percent (273,616 pounds) for Terrebonne and 16.0 percent (116,111 pounds) for Calcasieu River.

Figure 2.8 (Plot A) shows that dockside prices of oysters harvested from the relevant river basins increased generally. With respect to the period between 2004 and 2005 (Katrina and Rita period), the average real dockside prices of oysters per pound rose by $0.51 (24.4 percent) for the Vermilion-Teche River Basin, by $0.21 (8.3 percent) for the Barataria Basin, by $0.20 (10.2 percent) for the Terrebonne Basin and $0.20 (7.2 percent) for the Lake Pontchartrain Basin. The smallest increase ($0.01) in the real dockside price of oysters occurred for those harvested from Calcasieu River Basin, while the increase in the price of oysters from the Atchafalaya River Basin was inconclusive since no oyster landings or sales was reported for this area in 2005.

The real dockside value of oysters fell by a total of $5.2 million for oysters harvested from a certain group of three basins between 2004 and 2005, while it rose by $2.6 million for the other group of three basins. Of the $5.2 million decrease in oyster value among the basins exhibiting a decline, the Lake Pontchartrain Basin accounted for 53.2 percent ($2.7 million), the Barataria Basin accounted for 44.0 percent ($2.3 million) and the remainder (2.8 percent or

$143,119) was associated with Atchafalaya River Basin. On the other hand, the Terrebonne, Vermilion-Teche River and Calcasieu River Basins accounted for 48.6 percent ($1.3 million), 40.7 percent ($1.1 million) and 10.7 percent ($274,486), respectively, of the $2.6 million rise in value of oysters among the basins having an increase in the dockside value of oysters from 2004 to 2005.

4.2.2 Hurricanes Gustav and Ike: Performance Indicators

4.2.2.1 Oyster Landings, Dockside Prices and Values by Source

Similar to hurricanes Katrina and Rita in 2005, the effects of hurricanes Gustav and Ike on oyster landings, dockside prices and values depended on the areas from which they were harvested. The positive and negative changes that occurred in these performance measures began, in most cases, long before Gustav and Ike occurred in 2008 (Figures 2.1 to 2.3).

The volume of private reef oysters landed in Louisiana declined by a net of 1.2 million pounds (14.8 percent) from 2007 to 2008, while the volume of public reef oysters landed in Louisiana increased by a net of 1.4 million pounds (28.1 percent) in the same period. The boost in the volume of oysters landed from public reefs in the year of Gustav and Ike was large enough to offset the decrease in the counterpart from the private reef areas, resulting in a total net increase of 153,168 pounds (1.2 percent) in oyster landings between 2007 and 2008.

Regardless of fishing areas where there were caught, the average real dockside prices (in 2005 dollar) of oysters started to decline in 2007, a year before Gustav and Ike hit Louisiana (Figure 2.2). However, the declines were pushed deeper by 6.5 percent from $2.92 per pound in 2007 to $2.73 per pounds in 2008, the year of these hurricanes. Compared to 2007, oysters from

private reefs sold for a lower real dockside price of $0.17 per pound (5.9 percent decline) in 2008, while public reef oysters sold for a lower price of $0.15 per pound (7.7 percent decline).

Figure 2.3 shows that the rising trends in the real dockside value of public reef oysters and the declining trend in the real dockside value of private reef oysters occurred before hurricanes Gustav and Ike landed in 2008. The real dockside values fell by 19.1 percent ($4.6 million) from $23.8 million in 2007 to $19.3 million in 2008 for private reef oysters landed in Louisiana. For the same period, the real dockside values for public reef oysters rose by 20.5 percent ($2.9 million) from $14.1 million to $17.0 million.

The opposite changes occurring in the real dockside values of private and public reef oysters resulted in a total net decrease ($1.7 million or 4.4 percent) in the value of oysters between 2007 and 2008. However, these trends changed directions in 2009 with the real dockside value of oysters from private reef area hitting its period high of $35.2 million and the real dockside value of oysters from the public reef areas declining to $11.0 million.

4.2.2.2 Oyster Landings and Dockside Values by Parish

From 2007 and 2008 when hurricanes Gustav and Ike landed, the volume (real dockside value) of oyster landing declined by a total of 1.4 million pounds ($5.2 million) among residents in 16 parishes but rose by a total of 930,319 pounds ($2.1 million) among residents in 11 parishes. For individuals who resided outside of Louisiana, the volume and real dockside value increased between 2007 and 2008 by 569,887 pounds and $1.5 million, respectively.

Individuals who resided in Terrebonne Parish (with a decline of 530,851 pounds or $1.5 million worth of oysters) and Plaquemines Parish (with a decline of 481,840 pounds or $2.4 million in oyster landings) alone accounted for approximately 75.2 percent of the total decrease

in oyster landings and 74.7 percent of total decrease in dockside value in the year of Gustav and Ike.

Conversely, residents in St. Bernard Parish (with an increase of 543,558 pounds or $1.2 million worth of oysters), St. Tammany Parish (with an increase of 101,049 pounds or $178,869 worth of oysters) and Iberia Parish (with an increase of 92,000 pounds or $243,434 worth of oysters) alone accounted for approximately 79.2 percent of the total increase in oyster landings and 77.3 percent of total increase in dockside value. However, the increases in oyster landings for some places of residence (e.g., non-Louisianan states, St. Bernard residents, etc.) actually began long before 2008 when the hurricanes fell on Louisiana.

4.2.2.3 Oyster Landings, Dockside Prices and Values by LDWF Basin

Oysters were exclusively harvested in Louisiana territorial waters, which are divided into river basins. Dominant among these basins in terms of oyster harvesting were the Lake Pontchartrain, Barataria, Terrebonne, Vermilion-Teche River, Calcasieu River and Atchafalaya River Basins.

However, only the Lake Pontchartrain (with 2.2 million pounds) and Calcasieu River (with 101,392 pounds) Basins experienced increases in the volume of oysters harvested from their waters between 2007 and 2008, the year of Gustav and Ike. Other basins experienced declines in oyster landings from their waters. Of the total decline of 2.2 million pounds of oysters harvested in the 2007-2008 period, 55.7 percent (1.2 million pounds) was associated with the Vermilion-Teche River Basin (Figure 2.7). In addition, 24.6 percent (528,140 pounds) of the fall in landings was associated with the Terrebonne Basin and 20.0 percent (429,123 pounds) was associated with the Barataria Basin. The Atchafalaya Basin accounted for the remainder (1.8 percent of 37,985 pounds).

Compared to 2007, Figure 2.8 (Plot A) shows that real dockside prices of oysters harvested from all river basins fell in 2008. The largest decrease of $0.74 per pound (22.5 percent) from $3.29 per pound in 2007 to $2.55 per pound in 2008 occurred for oysters harvested from the Atchafalaya River Basin (a minor source of oysters). The real dockside prices decreased by $0.29 per pounds (9.7 percent decline) from $3.00 per pound in 2007 to $2.71 per pound in 2008 for oysters caught from Calcasieu River Basin and similarly by $0.29 per pound (9.1 percent decline) from $3.17 per pound in 2007 and $2.88 per pound in 2008 for oysters from Lake Pontchartrain Basin. Others basins, with decreases in the real prices per pound of oysters from their waterbodies between 2007 and 2008, were the Barataria ($0.21 or 6.4 percent), Terrebonne ($0.14 or 5.9 percent) and Vermillion-Teche River ($0.02 or 2.0 percent).

In terms of real dockside values, Gustav and Ike caused a total decline of $6.7 million and a total increase of $5.1 million worth of oysters harvested from the Louisiana basins between 2007 and 2008. Specifically, Figure 2.9, Plot A shows that the Vermilion-Teche Basin accounted for 44.7 percent ($3.0 million) of the total decrease in real dockside value of oysters from 2007 to 2008, followed by the Barataria Basin with 29.5 percent ($2.0 million). Approximately 23.9 percent ($1.6 million) of the total fall in the real dockside values of oysters was associated with the Terrebonne Basin, while the Atchafalaya Basin accounted for the remainder (1.9 percent or $126,589). Of the total increase ($5.1 million) in the total real dockside value of oysters from 2007 to 2008, the Lake Pontchartrain Basin alone accounted for 96.2 percent ($4.9 million), the remainder (3.8 percent or $191,331) was associated with the Calcasieu River Basin.

4.3 Hurricanes Impacts on Landings and Dockside Values of Oysters per Effort

4.3.1 Hurricanes Katrina and Rita: Oyster Landings and Values per Effort

This section discusses the effects of hurricanes Katrina and Rita on average oyster landings and dockside values per unit of effort. The effort measures considered are the number of fishermen, the number and length or hours of fishing trips (from the dock and back to the dock) as well as the number and length of oyster fishing vessels from 2004 to 2005.

4.3.1.1 Oyster Landings and Dockside Values by Fisherman

For all the reef areas from where oysters were harvested, the average landings and dockside values per fisherman fell between 2004 and 2005, the year of Katrina and Rita. The average total volume of oyster landings per fisherman fell by 15.1 percent from 16,512 pounds in 2004 to 14,019 pounds in 2005 (Figure 3.1, Plot A). On average, the portion of oysters harvested per individual from private and public reefs between 2004 and 2005 declined by 18.6 percent (from 15,901 pounds to 12,938 pounds) and 7.0 percent (from 6,842 to 6,362 pounds), respectively.

The average real dockside value of oysters sold per fisherman fell by 9.6 percent from a total of $42,720 in 2004 to $38,615 in 2005, the year Katrina and Rita landed (Figure 3.1, Plot C). In addition, individuals who harvested oysters from private reef areas made an average of $39,585 per head in 2004 but decreased by 12.6 percent to $34,614 per head in 2005. For the public reef oysters, the average real dockside value declined by 3.5 percent from $19,309 per fisherman in 2004 to $18,642 in 2005.

4.3.1.2 Oyster Landings and Dockside Values per Fishing Trip and Length of Trip

Katrina and Rita in 2005 caused a negligible effect on the average volume oysters harvested per fishing trip when compared to its level in 2004 (Figure 3.2, Plots A and C). However, the average total real dockside values rose by a net of $57 per trip. Also, the average real dockside values increased by $62 per trip taken to harvest oyster from private reef areas and by $43 per trip taken to catch oysters from public reef areas.

Figure 3.3 (Plots A and C) shows that the changes that occurred in the landings and dockside values of oysters harvested per hour between 2004 and 2005 were also small. That is, the volume of oysters an individual harvested per hour decreased by less than 3 pounds for all oyster fishing areas. The real dockside value of oysters landed per hour increased by $5.00 for oysters harvested from the private reefs and decreased by $2.00 per hour for oysters from the public reef areas, leading to a net increase of $3.00 for all oysters per hours.

4.3.1.3 Oyster Landings and Dockside Values per Fishing Vessel

The average volume and dockside values of oysters landed per fishing vessel fell in the year of hurricanes Katrina and Rita compared to previous year regardless of the sources of the oysters. For example, the total volume of oysters landed per vessel declined by 15.8 percent from 16,318 pounds in 2004 to 13,733 pounds in 2005 (Figure 3.4, Plot A). Between 2004 and 2005, the average landings per vessel fell by 18.1 percent from 16,325 to 13,373 pounds for private reef oysters and by 6.9 percent from 6,752 to 6,287 pounds for public reef oysters.

Similarly, Figure 3.4, Plot C shows that the average total real dockside value of oysters landed per vessel declined by 10.4 percent from $42,219 in 2004 to $37,826 in 2005 as a result of Katrina and Rita. In addition, the average real dockside values per vessel decreased by 12.0 percent (from $40,639 in 2004 to $35,779 in 2005) for oysters harvested from the private reef

areas and by 3.3 percent (from $19,054 in 2004 to $18,424 in 2005) for oysters from the public reefs.

4.3.1.4 Oyster Landings and Dockside Values per Length and Length Category of Vessel

Subsection 1.3.4 presented that the length (in foot) was reported for only 49.0 percent of oyster fishing vessels per year between 2001 and 2009. The average landings and dockside values of oysters per foot are therefore based on the average length of these vessels. Figure 3.5 (Plots A) shows that Katrina and Rita in 2005 caused a net decline of 10.8 percent (from 484 pounds in 2004 to 432 pounds) in the average total volume of oysters landed per vessel foot. In the same period, the average volume of landings per foot of vessel fell by 14.5 percent (from 493 to 422 pounds) for private reef oysters but rose by 2.1 percent (from 192 to 196 pounds) for public reef oysters.

In terms of the changes occurring in the dockside values of oysters landed per foot of vessel between 2004 and 2005, Figure 3.5, Plot C shows that the average total real value of oysters per foot fell by 5.1 percent from $1,253 to $1,190. Also, the average real value of oysters harvested per foot of vessel in private reef areas declined by 8.1 percent from $1,228 in 2004 to $1,129 in 2005. However, the real worth of the public reef oysters per foot of vessel increased by 6.1 percent from $543 in 2004 to $576 in 2005, a positive effect of Katrina and Rita.

The trends in landings and dockside values of oysters by vessel length category were shown in Figure 3.6. In Plot A and C of Figure 3.6, the volume and real dockside value of oysters landed by vessel of length 24 feet or below increased by 90,836 pounds ($394,981) between 2004 and 2005. However, all vessels over 24 feet long experienced declines in their oyster landings and real dockside values. Specifically, the largest decrease in the volume of

oysters (563,961 pounds) or its average value ($917,852) occurred with boats of between 31 to 50 feet between 2004 and 2005, followed by vessels category "51 to 65 feet" whose oyster landings declined by 259,134 pounds ($539,764 worth). Fishing vessels, which are 25 to 30 feet long, landed 66,201 pounds ($55,402) less of oysters in the same period.

4.3.2 Hurricanes Gustav and Ike: Oyster Landings and Values per Effort

This section discusses the effects of hurricanes Gustav and Ike on average oyster landings and dockside values per effort. The effort measures considered are the number of fishermen, the number and length or hours of fishing trips (from dock and back to the dock) as well as the number and length of fishing vessels, which were associated with oyster harvesting mainly from 2007 to 2008.

4.3.2.1 Oyster Landings and Dockside Values by Fisherman

In 2008, it was only the portion of oysters landed from private reef areas that decreased in average volume by a meager 1.6 percent (246 pounds) from 15,237 pounds per fisherman in 2007 (Figure 3.1, Plot A). In contrast, the average volume of oysters landed per fisherman from public reef areas increased by 31.2 percent (2,543 pounds) from 8,145 pounds in 2007. In total, the average volume of oysters harvested per individual rose by 8.2 percent from 17,051 pounds in 2007 to 18,451 pounds in 2008.

Similarly, the average real dockside value of oysters sold per fisherman fell in 2008 due to Gustav and Ike by 6.6 percent ($2,959) from $44,923 in 2007 (Figure 3.1, Plot C). An individual who harvested oysters from public reef areas experienced an average of 23.4 percent increase in real dockside value ($5,612) from $23,955 in 2007. The average total real dockside value rose by 2.3 percent from $50,224 per fisherman in 2007 to $51,364 in 2008.

4.3.2.2 Oyster Landings and Dockside Values per Fishing Trip and Length of Trip

Gustav and Ike in 2008 caused greater effects on the average volume of oysters harvested per fishing trip when compared to Katrina and Rita in 2005 (Figure 3.2, Plots A). Fishermen actually landed more oysters per trip in 2008 than in 2007 regardless of the reef areas from which they were caught. For example, the average total oyster landings per trip rose by 11.4 percent from 351 pounds in 2007 to 391 pounds in 2008. In addition, the average volume of oysters harvested per trip increased by 19.6 percent (from 342 pounds in 2007 to 410 pounds in 2008) for private reef sources and 1.5 percent (5 pounds only) for public reef sources.

Except for public reef oysters, the average real dockside values per trip increased in the year of Gustav and Ike (Figure 3.2, Plots C). The increases averaged 8.3 percent from $1,097 per trip in 2007 to $1,188 in 2008 for the dockside values of all oysters in total and 16.8 percent from $1,070 per trip in 2007 to $1,250 in 2008 for the portion of oysters harvested from the private reef areas. For the portion of oysters harvested from the public reef areas, the average real dockside values fell by 1.9 percent (from $1,145 to $1,124 per trip) between 2007 and 2008.

The changes that occurred in the landings and dockside values of oysters harvested per trip hour between 2007 and 2008 can be identified in Figure 3.3 (Plots A and C). For example, for oysters harvested from private reefs between 2007 and 2008, the average volume and real dockside value rose by 35.3 percent (from 40 to 54 pounds per hour) and 28.5 percent ($119 to $152 per hour), respectively, following Gustav and Ike. Similarly, the average total volume and real dockside value of all oysters harvested per hour increased by 13.9 percent (from 40 to 45 pounds) and 7.7 percent (from $117 to $126), respectively. However, declines were minor for the volume and real dockside value of oysters harvested from public reefs. It should be recalled that oyster fishermen spend an average of nine (9) hours during a fishing trip.

4.3.2.3 Oyster Landings and Dockside Values per Fishing Vessel

Between 2007 and 2008, the average landings per fishing vessel fell by 4.8 percent from 16,055 to 15,291 pounds for oysters harvested from private reef sources but rose by 31.9 percent from 8,145 to 10,744 pounds for oysters caught from public reef areas (Figure 3.4, Plot A). The opposite changes occurring for both private and public reef oysters resulted in a net increase of 5.4 percent (from 17,256 pounds per vessel in 2007 to 18,193 pounds in 2008) for all oysters combined.

In contract to the changes in volume highlighted previously, Figure 3.4, Plot C shows that the net average total real dockside value of oysters landed per vessel between 2007 and 2008 declined by 0.4 percent from $50,830 in 2007 to $50,646 in 2008, the year of Gustav and Ike. However, the average real dockside values per vessel decreased by 9.6 percent (from $47,335 in 2007 to $42,803 in 2008) for oysters harvested from the private reef areas but increased by 24.1 percent (from $23,955 in 2007 to $29,722 in 2008) for oysters caught from the public reefs.

4.3.2.4 Oyster Landings and Dockside Values per Length and Length Category of Vessel

Subsection 1.3.4 presented that the length (in foot) was reported for only 49.0 percent of oyster fishing vessels per year between 2001 and 2009. The average landings and dockside values of oysters per foot are therefore based on the average length of these vessels. Figure 3.5 (Plots A) shows that Gustav and Ike caused a net increase of 2.9 percent (from 521 pounds in 2007 to 537 pounds in 2008) in the average total volume of oysters landed per vessel foot. In the same period, the average volume of landings per foot of vessel fell by 8.4 percent (from 489 to 448 pounds) for private reef oysters but rose by 31.5 percent (from 242 to 319 pounds) for public reef oysters.

In terms of the changes occurring in the dockside values of oysters landed per foot of vessel between 2007 and 2008, Figure 3.5, Plot C shows that the average total real value of oysters per foot fell by 2.7 percent from $1,536 to $1,494 due to Gustav and Ike. Also, the average real value of oysters harvested per foot of vessel in private reef areas declined by 13.0 percent from $1,443 in 2007 to $1,255 in 2005. For the public reef oysters, the average real dockside value per foot increased by 23.7 percent from $713 in 2007 to $882 in 2008.

The trends in landings and real dockside values of oysters by vessel length category were shown in Figure 3.6, Plots A and C. Except for vessels of over 50 feet long, the volumes and real dockside values of oysters landed by all length categories fell in 2008 due to Gustav and Ike. The declines in pounds of oysters between 2007 and 2008 ranged from 64,814 pounds for 19 feet or less category to 249,092 pounds for category between 31 and 50 feet long. The corresponding decreases in the real dockside values ranged between $269,745 and $1.4 million, respectively. For vessels whose lengths were over 50 feet, the volume (real dockside value) rose by 101,436 pounds ($114,051) within the 2007-2008 period.

4.4 Recovery of the Oyster Fishery in the Aftermath of Hurricanes

Findings from this report show that the nature and process of recovery of the oyster fishery in the aftermath of hurricanes depend on the magnitude of the hurricanes, the extent of damage, the fishery indicators of interest and the lag between hurricanes occurrences. Katrina and Rita were category 3 hurricanes, while Gustav and Ike were of categories 2 and 1, respectively. As a result of the different intensities of these hurricanes, a greater damage was inflicted upon Louisiana oyster fishery by Katrina and Rita. Interestingly, the beginning and duration of recovery differ across groups of indicators used to assess development in the oyster fishery.

4.4.1 Participation and Activities

For measures involving participation and activities in oyster fishery (numbers of fishermen, boats, trips, etc.), recovery began almost immediately after Katrina and Rita of 2005, approaching their pre-hurricane levels a year after. However, the recovery of indicators under this group was reversed by Gustav and Ike, which landed in Louisiana in 2008. Return to the pre-Katrina-Rita level of participation and activities would have been attained barring the occurrences of Gustav and Ike.

In spite Gustav and Ike, the number of oyster fishermen who lived outside of Louisiana or in Calcasieu and St. Tammany Parishes with the number of their oyster vessels rose tremendously after Katrina and Rita. This increase appears to suggest, to a greater extent, a shift in the places or parishes of residence among oyster fishermen. Generally, the number of oyster vessels appears to be catching up gradually with its pre-2005 level, regardless of the slight disturbance caused by Gustav and Ike in 2008.

The fall in the total number and length (hours) of oyster fishing trips in 2005 continued till 2006, amounting to two consecutive year of declines largely due to Katrina and Rita. It is noteworthy, however that the number of fishing trips indicated a sign of full recovery in 2009, exceeding its pre-2005 levels regardless of the reef areas from where the oysters were caught.

4.4.2 Performance Measures

Unlike the indicators of participation and activities, which generally showed signs of recovery within a year after hurricanes occurrences, performance indicators showed interesting trends. Recovery in total oyster landings did not begin until 2007, two years after Katrina and Rita. Recovery in landings of oysters harvested since 2005 from private and public reef areas are particularly interesting.

The fall in the volume of private reef oysters in 2005 continued, reaching its six-year low in 2008 when Gustav and Ike landed. However, landings of public reef oysters reverberated from its period low in 2006, exceeding its level long before Katrina and Rita. Interestingly, the volume of private reef oysters landed jump in 2009 to its period high, while the volume of public reef oysters was very low. However, these changes might not be sustainable considering the changes, which actually occurred before 2009. The average real dockside price of oysters moved in opposite direction with the volume of oysters, rising between 2005 and 2006. The increase in oyster price was interrupted first in 2007, continued declining to reach a new low in 2008. Except for the public reef oysters, the real dockside value of oysters appears to recover a year after hurricanes Katrina and Rita and Gustav and Ike.

The combined impact of hurricanes was larger for oyster fishermen residing in Plaquemines, St. Bernard and Orleans parishes. Recovery of oyster landings and real dockside values by these individuals has, therefore, been relatively slow. When compared to pre-hurricane eras, only the oyster fishermen who resided in St. Tammany, Tangipahoa, Cameron, Vermilion and Calcasieu parishes as well as those who resided outside of Louisiana appear to have fully recovered in terms of their oyster landings and their real dockside values. In addition, oyster harvesting in the Lake Pontchartrain, Barataria and Terrebonne Basins, the area that were devastated by Katrina, appear to have recovered from its decline. Finally, all measures per effort have or have almost recovered from the devastating effects of the hurricanes.

Appendix A - Participation and Activities in the Oyster Industry

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Table A.1 Number of Fishermen and Dealers Participating in Oyster Fishery by Source of Oyster, 2000 – 2009

	Number of Oyster Fishermen										
Source	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Private Reef Oyster	484	505	387	551	617	645	479	530	459	542	520
Public Reef Oyster	688	619	609	665	598	590	465	589	575	606	600
Total	**831**	**754**	**689**	**819**	**842**	**863**	**647**	**755**	**706**	**816**	**772**
	Number of Oyster Dealers										
Source	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Private Reef Oyster	67	63	61	71	77	75	48	49	64	63	64
Public Reef Oyster	71	60	66	70	64	62	44	44	56	55	59
Total	**90**	**79**	**82**	**88**	**95**	**83**	**54**	**65**	**77**	**79**	**79**

Table A.2 Number of Fishermen Who Landed Oysters by License Type, 2000 - 2009

	Number of Oyster Fishermen											
Type of License	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**	**Percent**
Resident Fishermen	721	682	614	741	752	780	540	626	577	655	669	86.6%
Non-Resident Fishermen	56	64	63	67	55	68	82	89	115	120	80	10.4%
Alien Fishermen	25	-	-	-	-	-	-	-	-	-	-	-
Senior Fishermen & Gear	-	-	-	-	-	1	6	9	6	9	6	0.8%
Unspecified	29	8	12	11	35	14	19	31	8	32	20	2.6%
Total	**831**	**754**	**689**	**819**	**842**	**863**	**647**	**755**	**706**	**816**	**772**	**100.0%**

Note: All license types are commercial fishing licenses.

Table A.3 Number of Fishermen Who Landed Oysters by Parish of Residence, 2000 - 2009

	Number of Oyster Fishermen										
Parish	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Plaquemines	198	186	115	223	245	248	152	184	152	186	189
Terrebonne	131	136	146	153	153	184	169	166	148	158	154
St Bernard	171	173	203	196	166	157	80	92	107	111	146
Cameron	98	77	59	72	68	87	53	76	75	91	76
Jefferson	43	39	31	37	40	37	27	36	35	37	36
Calcasieu	29	24	12	11	17	25	17	26	30	53	24
Lafourche	22	14	16	19	21	18	13	14	12	8	16
St Tammany	8	7	8	8	14	13	14	18	18	20	13
Vermilion	6	8	10	9	8	10	10	8	6	6	8
Iberia	7	4	5	8	9	5	8	7	6	8	7
Other	30	16	13	11	17	15	25	27	21	23	20
Louisiana Total	***743***	***684***	***618***	***747***	***758***	***799***	***568***	***654***	***610***	***701***	***688***
Out of state	***59***	***62***	***59***	***61***	***49***	***50***	***60***	***70***	***88***	***83***	***64***
Unspecified	***29***	***8***	***12***	***11***	***35***	***14***	***19***	***31***	***8***	***32***	***20***
Grand Total	**831**	**754**	**689**	**819**	**842**	**863**	**647**	**755**	**706**	**816**	**772**

Note: 'Other' includes 28 parishes such as Orleans, Tangipahoa, St. Mary, etc., whose entries violate Louisiana confidentiality provision.

Table A.4 Number of Fishermen Who Landed Private Reef Oysters by Parish of Residence, 2000 - 2009

	Number of Private Reef Oyster Fishermen										
Parish	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Plaquemines	167	163	77	196	230	229	147	169	133	172	168
Terrebonne	112	107	118	130	133	169	150	146	124	144	133
St Bernard	102	121	106	123	122	125	58	72	69	88	99
Jefferson	34	33	24	31	33	25	20	28	32	33	29
Lafourche	18	11	11	15	19	13	10	11	10	6	12
Other Parishes	37	25	16	25	43	44	40	43	30	35	34
Out of state	***14***	***45***	***35***	***31***	***37***	***40***	***54***	***61***	***61***	***64***	***44***
Unspecified	***8***	***6***	***-***	***-***	***7***	***6***	***4***	***-***		***-***	***4***
Total	**484**	**505**	**387**	**551**	**617**	**645**	**479**	**530**	**459**	**542**	**520**

Note: 'Other' includes 26 parishes such as St. Tammany, Iberia, Orleans, Tangipahoa, etc., whose entries violate Louisiana confidentiality provision. Also, a hyphen indicates a removal for confidentiality reason.

Table A.5 Number of Fishermen Who Landed Public Reef Oysters by Parish of Residence, 2000 - 2009

	Number of Public Reef Oyster Fishermen										
Parish	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
St Bernard	163	167	199	187	151	129	68	84	100	102	135
Terrebonne	98	113	115	128	108	123	135	130	128	114	119
Plaquemines	135	113	89	129	122	117	73	104	84	87	105
Cameron	98	76	58	71	65	86	53	75	75	91	75
Jefferson	30	31	23	29	31	28	21	26	20	22	26
Calcasieu	29	24	11	11	17	25	17	26	30	52	24
St Tammany	8	7	8	6	10	10	12	14	15	18	11
Lafourche	12	10	12	12	10	9	6	7	4	3	9
Vermilion	6	8	10	9	8	10	9	7	6	6	8
Other Parishes	53	21	28	28	43	22	39	52	30	53	37
Out of state	***56***	***49***	***56***	***55***	***33***	***31***	***32***	***64***	***83***	***58***	***52***
Unspecified	***24***	***2***	***11***	***11***	***29***	***9***	***15***	***29***	***8***	***30***	***17***
Total	**688**	**619**	**609**	**665**	**598**	**590**	**465**	**589**	**575**	**606**	**600**

Note: 'Other' includes 27 parishes such as Iberia, Orleans, Tangipahoa, St. Mary, etc., whose entries violate Louisiana confidentiality provision. Also, a hyphen indicates a removal for confidentiality reason.

Mississippi
Texas
Total

Table A.6 Number Oyster Fishermen by Non-Louisiana State of Residence, 2000 – 2009

	Total Number of Non-Resident Oyster Fishermen										
Source	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Texas	33	35	32	23	25	31	45	59	70	52	41
Mississippi	23	25	23	26	23	17	5	8	13	18	18
Other	-	-	4	12	-	-	10	-	5	13	6
Total	**56**	**60**	**59**	**61**	**49**	**48**	**60**	**67**	**88**	**83**	**64**
	Number of Non-Resident Fisherman Who Harvested Oysters from Private Reefs										
Source	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Texas	5	25	19	12	20	29	43	53	52	44	30
Mississippi	6	19	16	15	16	9	-	5	6	10	11
Other	-	-	0	4	-	-	8	-	-	10	8
Total	**14**	**45**	**35**	**31**	**37**	**40**	**54**	**61**	**61**	**64**	**44**
	Number of Non-Resident Fisherman Who Harvested Oysters from Public Reefs										
Source	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Texas	28	10	13	11	5	-	-	6	18	8	10
Mississippi	17	6	7	11	7	8	-	-	7	8	8
Other	-	-	4	8	-	-	-	-	-	-	-
Total	**45**	**17**	**24**	**30**	**12**	**10**	**6**	**9**	**27**	**19**	**20**

Note: A hyphen indicates that entry was omitted for confidentiality reasons.

Table A.7 Number and Length of Oyster Fishing Trips by Source of Oysters, 2000 - 2009

	Total Number of Trips										
Source	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Private Reef Oysters	18,713	18,433	14,882	22,928	29,456	25,042	22,455	23,585	16,797	29,287	22,158
Public Reef Oysters	18,377	18,658	18,535	15,937	12,937	11,759	9,988	13,057	16,485	15,003	15,074
Total	**37,090**	**37,091**	**33,417**	**38,865**	**42,393**	**36,801**	**32,443**	**36,642**	**33,282**	**44,290**	**37,231**
	Average Number of Trips per Fisherman										
Source	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Private Reef Oysters	39	37	38	42	48	39	47	45	37	54	42
Public Reef Oysters	27	30	30	24	22	20	21	22	29	25	25
Total	**45**	**49**	**49**	**47**	**50**	**43**	**50**	**49**	**47**	**54**	**48**
	Total Trip Length (in Hours)										
Source	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Private Reef Oysters	171,558	171,010	137,552	208,464	253,438	220,071	190,286	200,673	126,344	217,724	189,712
Public Reef Oysters	185,576	176,770	181,623	145,458	114,412	111,718	100,745	123,708	161,772	117,062	141,884
Total	**357,134**	**347,780**	**319,175**	**353,922**	**367,850**	**331,789**	**291,031**	**324,381**	**288,116**	**334,786**	**331,596**
	Average Trip Length (in Hours)										
Source	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Private Reef Oysters	9.1	9.2	9.2	9.0	8.6	8.7	8.5	8.5	7.5	7.4	8.6
Public Reef Oysters	10.0	9.4	9.7	9.1	8.8	9.4	9.9	9.5	9.8	7.8	9.3
Total	**9.5**	**9.3**	**9.4**	**9.1**	**8.6**	**9.0**	**8.9**	**8.8**	**8.7**	**7.6**	**8.9**

Table A.8 Number of Oyster Fishing Vessels by Type of Registration, 2000 – 2009

	Number of Oyster Fishing Vessels										
Registration Type	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
US Coast Guard	232	203	189	207	224	212	144	166	175	148	190
Louisiana	829	578	481	575	610	639	448	522	488	674	584
Non-Louisiana	73	31	22	20	18	30	40	58	53	41	39
Total	**1,134**	**812**	**692**	**802**	**852**	**881**	**632**	**746**	**716**	**863**	**813**

Table A.9 Number of Oyster Fishing Vessels by Source of Oysters, 2000 - 2009

	Number of Oyster Fishing Vessels										
Source	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Private Reef Oysters	640	504	386	534	601	624	443	503	450	532	522
Public Reef Oysters	836	652	612	643	606	597	468	589	572	648	622
Total	**1,134**	**812**	**692**	**802**	**852**	**881**	**632**	**746**	**716**	**863**	**813**

Table A.10 Number of Oyster Fishing Vessels by Type of Vessel License, 2000 – 2009

	Number of Oyster Fishing Vessels										
Vessel License	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Resident Vessel License	369	379	340	405	388	434	282	345	331	364	364
Non-Resident Vessel License	14	20	17	15	12	14	13	16	21	29	17
Alien Vessel License	18	0	0	0	0	0	0	0	0	0	2
Unspecified	733	413	335	382	452	433	337	385	364	470	430
Total	**1,134**	**812**	**692**	**802**	**852**	**881**	**632**	**746**	**716**	**863**	**813**

Table A.11 Number of Oyster Fishing Vessels by Owner's Parish of Residence, 2000 – 2009, 2000 – 2009

	Number of Oyster Fishing Vessels										
Parish	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Plaquemines	104	91	62	127	133	135	79	99	86	101	102
St Bernard	88	97	119	104	82	80	36	55	54	53	77
Terrebonne	63	55	53	58	55	89	66	75	73	60	65
Cameron	66	68	53	63	50	61	46	47	57	74	59
Calcasieu	20	18	11	14	16	25	10	20	20	42	20
Jefferson	18	22	16	17	23	19	10	17	17	12	17
Out of state	14	20	16	15	11	8	12	15	17	19	15
Vermilion	4	9	10	8	7	10	8	7	8	11	8
St Tammany	6	4	4	5	8	5	7	9	9	7	6
Lafourche	11	8	4	4	9	8	5	6	-	5	7
Other	7	7	9	5	6	8	16	11	9	9	9
Unspecified	733	413	335	382	452	433	337	385	364	470	430
Total	**1,134**	**812**	**692**	**802**	**852**	**881**	**632**	**746**	**714**	**863**	**813**

Note: 'Other' includes 17 parishes such as Orleans, Iberia, Tangipahoa, etc., whose entries violate Louisiana confidentiality provision. Also, a hyphen indicates a removal for confidentiality reason.

Table A.12 Number of Private Reef Oyster Fishing Vessels by Owner's Parish of Residence, 2000 – 2009, 2000 – 2009

	Number of Private Reef Oyster Fishing Vessels										
Parish	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Plaquemines	90	80	42	115	125	126	76	93	75	97	92
Terrebonne	58	49	40	56	53	84	59	69	68	52	59
St Bernard	51	62	61	62	58	59	27	40	38	36	49
Jefferson	17	19	13	17	19	14	9	15	16	11	15
Out of state	-	14	9	-	5	6	11	11	6	11	9
Other	16	14	10	13	22	25	24	21	15	14	17
Unspecified	405	266	211	268	319	310	237	254	232	311	281
Total	**637**	**504**	**386**	**531**	**601**	**624**	**443**	**503**	**450**	**532**	**522**

Note: 'Other' includes 16 parishes such as Lafourche, St. Tammany, Orleans, Iberia, Tangipahoa, etc., whose entries violate Louisiana confidentiality provision. Also, a hyphen indicates a removal for confidentiality reason.

Table A.13 Number of Public Reef Oyster Fishing Vessels by Owner's Parish of Residence, 2000 – 2009, 2000 – 2009

	Number of Public Reef Oyster Fishing Vessels										
Parish	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
St Bernard	88	95	115	103	71	74	35	46	50	48	73
Cameron	66	68	53	63	49	61	46	47	57	74	58
Plaquemines	65	57	47	73	61	54	28	50	37	28	50
Terrebonne	40	38	38	40	42	49	64	56	54	33	45
Calcasieu	20	18	11	14	16	25	10	20	20	42	20
Out of state	13	16	15	16	9	7	6	15	15	11	12
Jefferson	12	20	13	13	14	13	7	12	12	6	12
Vermilion	4	9	10	8	7	10	8	7	8	11	8
St Tammany	6	4	4	4	6	6	7	8	8	6	6
Other	13	14	13	7	7	8	10	13	6	8	10
Unspecified	509	313	293	302	324	290	247	315	305	381	328
Total	**836**	**652**	**612**	**643**	**606**	**597**	**468**	**589**	**572**	**648**	**622**

Note: 'Other' includes 15 parishes such as Lafourche, Orleans, Iberia, Tangipahoa, etc., whose entries violate Louisiana confidentiality provision.

Table A.14 Number of Oyster Fishing Vessels by Vessel Length Category, 2000 – 2009

Vessel Length	Number of Oyster Fishing Vessels										
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
19 Feet or Less	74	71	54	64	67	84	47	46	46	69	62
20 - 24 Feet	97	97	78	108	96	121	87	103	105	129	102
25 - 30 Feet	46	43	57	62	66	61	41	47	41	67	53
31 - 50 Feet	148	150	138	145	132	145	95	134	127	117	133
51 - 65 Feet	36	37	29	40	37	37	25	31	33	9	31
66 Feet and Above	0	-	-	-	-	0	0	0	0	-	-
Unspecified	733	413	335	382	452	433	337	385	364	470	430
Total	**1,134**	**811**	**691**	**801**	**850**	**881**	**632**	**746**	**716**	**861**	**813**

Note: A hyphen indicates a removal for confidentiality reason.

Table A.15 Number of Oyster Fishermen by Fishing Gear Used, 2000 – 2009

	Total Number of Oyster Fishermen										
Gear Type	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Oyster Dredge	647	605	599	702	722	774	623	726	659	766	682
Oyster Tong	147	113	83	98	70	28	-	-	-	-	60
By Hand	37	36	7	17	49	61	22	29	46	48	35
	Private Reef Oyster Fishermen										
Gear Type	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Oyster Dredge	445	468	380	528	566	582	455	501	413	495	483
By Hand	37	36	7	17	48	61	22	29	46	47	35
	Public Reef Oyster Fishermen										
Gear Type	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Oyster Dredge	540	504	526	569	522	553	462	587	570	601	543
Oyster Tong	146	112	83	93	70	29	0	0	-	-	54

Note: A hyphen indicates a removal for confidentiality reason.

Appendix B - Oyster Landings, Dockside Prices and Values

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Table B.1 Oyster Landings by Source, 2000 – 2009

	Oyster Landings (in Pounds)										
Source	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Private Reef Oysters	6,738,748	7,502,230	6,119,106	8,220,623	9,811,178	8,345,016	8,375,282	8,075,744	6,880,767	11,432,271	8,150,097
Public Reef Oysters	5,979,804	7,633,532	7,842,449	5,387,960	4,091,524	3,753,632	3,128,776	4,797,560	6,145,704	3,506,983	5,226,792
Total	**12,718,551**	**15,135,763**	**13,961,555**	**13,608,583**	**13,902,703**	**12,098,648**	**11,504,058**	**12,873,304**	**13,026,472**	**14,939,254**	**13,376,889**

Table B.2 Average Dockside Prices of Oysters by Source, 2000 – 2009

	Average Nominal Prices of Oysters (in $)										
Source	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Private Reef Oysters	2.11	2.13	2.06	2.32	2.30	2.55	2.99	3.06	2.96	3.26	2.57
Public Reef Oysters	2.10	2.02	2.19	2.44	2.68	2.82	3.14	3.15	3.00	3.35	2.69
All Oysters	**2.11**	**2.08**	**2.13**	**2.37**	**2.42**	**2.64**	**3.03**	**3.09**	**2.98**	**3.29**	**2.61**
	Average Real Prices of Oysters (in 2005 Dollar)										
Source	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Private Reef Oysters	2.37	2.34	2.23	2.47	2.37	2.55	2.90	2.88	2.71	2.96	2.58
Public Reef Oysters	2.36	2.22	2.38	2.60	2.76	2.82	3.05	2.98	2.75	3.05	2.70
All Oysters	**2.37**	**2.28**	**2.32**	**2.52**	**2.49**	**2.64**	**2.95**	**2.92**	**2.73**	**2.99**	**2.62**

Table B.3 Dockside Values of Oysters by Source, 2000 – 2009

	Nominal Values of Oysters (in $)										
Source	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Private Reef Oysters	14,616,181	16,244,524	13,011,805	20,095,891	23,691,080	22,325,983	26,170,639	25,237,860	20,995,051	38,682,734	22,107,175
Public Reef Oysters	12,897,075	15,615,385	17,307,802	13,277,825	11,200,404	10,999,029	10,050,121	14,956,272	18,531,353	12,055,230	13,689,050
Total	**27,513,256**	**31,859,909**	**30,319,607**	**33,373,716**	**34,891,484**	**33,325,012**	**36,220,760**	**40,194,131**	**39,526,404**	**50,737,964**	**35,796,224**
	Real Values of Oysters (in 2005 Dollar)										
Source	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Private Reef Oysters	16,422,675	17,851,126	14,143,267	21,378,608	24,423,794	22,325,983	25,408,388	23,809,302	19,261,515	35,166,122	22,019,078
Public Reef Oysters	14,491,095	17,159,764	18,812,828	14,125,345	11,546,808	10,999,029	9,757,399	14,109,690	17,001,241	10,959,300	13,896,250
Total	**30,913,770**	**35,010,889**	**32,956,095**	**35,503,953**	**35,970,602**	**33,325,012**	**35,165,786**	**37,918,992**	**36,262,756**	**46,125,422**	**35,915,328**

Table B.4 Oyster Landings by Fisherman's Parish of Residence, 2000 – 2009

	Oyster Landings (in Pounds)										
Parish	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Plaquemines	4,323,115	4,490,736	2,649,413	4,550,817	5,171,276	3,987,529	3,556,323	3,689,084	3,207,244	4,436,880	4,006,242
Terrebonne	2,550,248	3,046,645	3,306,927	3,169,154	3,062,736	3,453,857	3,587,398	3,600,762	3,069,911	2,965,977	3,181,362
St Bernard	2,592,535	3,602,874	3,888,758	3,039,522	2,861,927	1,976,038	829,622	1,266,483	1,810,041	2,454,475	2,432,228
Out of state	651,688	1,693,315	2,220,297	898,877	743,746	915,466	1,609,128	2,151,304	2,721,191	2,549,180	1,615,419
Jefferson	975,789	859,135	775,249	818,054	797,635	582,730	655,696	789,389	715,957	704,028	767,366
St Tammany	309,221	394,557	299,509	283,224	407,604	297,568	328,812	386,938	487,987	493,363	368,878
Cameron	234,385	153,436	107,308	131,982	135,889	267,932	196,895	209,039	254,103	397,834	208,880
Lafourche	407,552	343,395	219,068	217,250	186,779	114,694	39,664	96,730	115,654	131,736	187,252
Iberia	105,270	81,871	124,315	175,415	142,359	142,909	121,422	123,370	215,370	87,345	131,965
Orleans	226,654	228,032	225,234	172,988	132,473	52,795	21,351	3,093	49,884	118,362	123,087
Tangipahoa	73,227	53,481	28,953	39,920	48,460	45,193	62,992	38,167	75,033	72,516	53,794
Calcasieu	33,864	33,385	16,841	16,958	24,275	57,483	38,975	50,692	78,378	176,198	52,705
Washington	10,863	25,518	17,993	56,962	72,645	32,732	43,666	70,238	78,675	61,672	47,096
Ascension	0	0	0	0	0	0	168,621	82,311	60,417	136,601	111,988
St Mary	53,953	31,658	48,273		26,229	44,921	45,432	34,686	1,113	0	35,783
Vermilion	13,917	21,312	11,562	9,259	11,769	18,685	25,388	36,374	23,751	34,084	20,610
Other	64,752	42,921	58	4,186	5,589	50,012	152,039	149,250	53,695	76,333	59,884
Unspecified	91,518	33,489	21,797	24,017	71,309	58,101	20,633	95,394	8,068	42,670	46,700
Total	**12,718,551**	**15,135,763**	**13,961,555**	**13,608,583**	**13,902,703**	**12,098,648**	**11,504,058**	**12,873,304**	**13,026,472**	**14,939,254**	**13,376,889**

Note: "Other" includes 23 parishes like Livingston, Beauregard, St Charles, Lafayette, etc.

Table B.5 Nominal Dockside Values of Oysters by Fisherman's Parish of Residence, 2000 – 2009

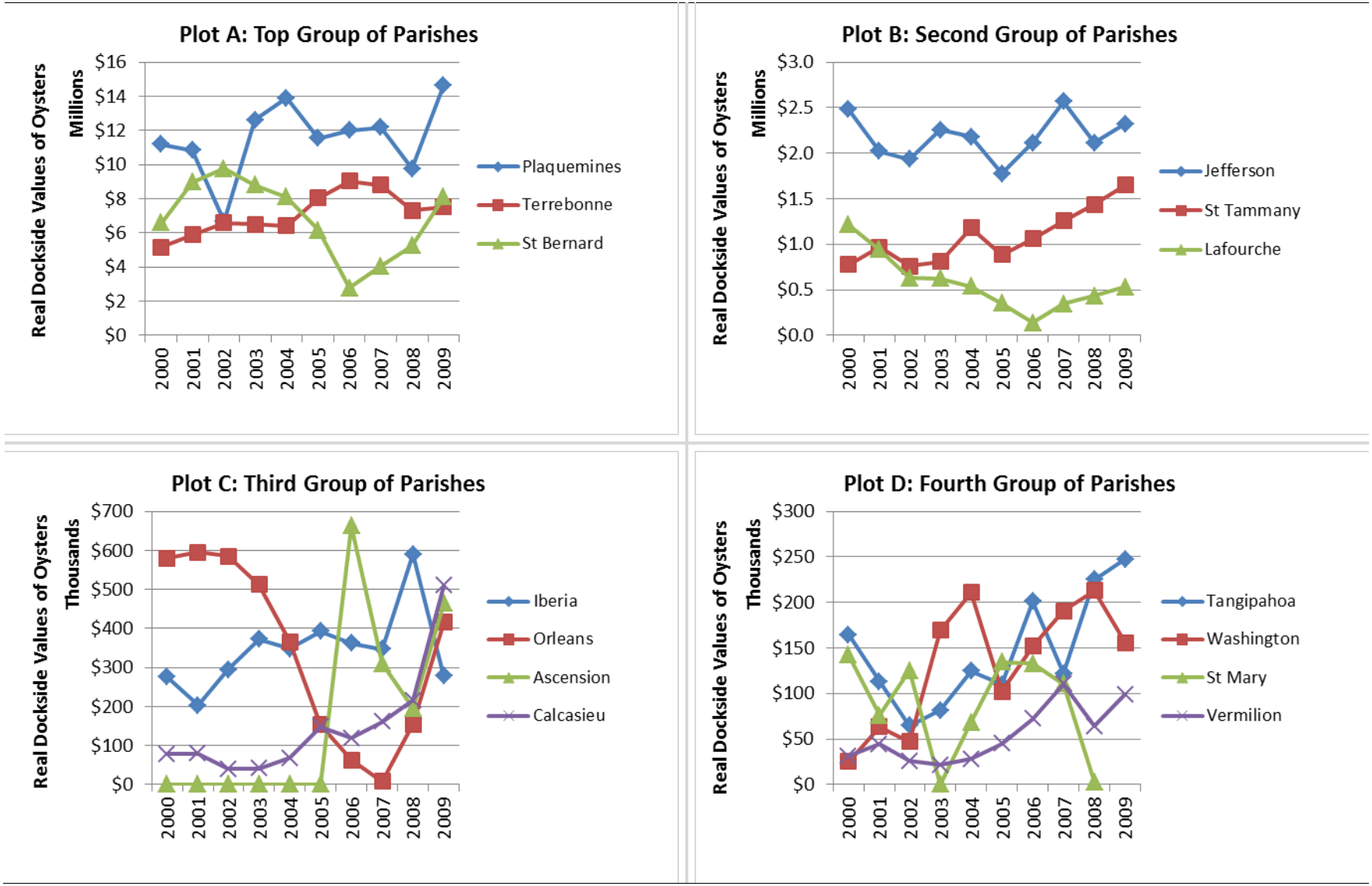
	Nominal Dockside Values of Oysters (in $)										
Parish	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Plaquemines	9,951,816	9,876,920	6,145,057	11,845,678	13,475,984	11,536,924	12,354,799	12,904,355	10,631,899	16,117,189	11,484,062
Terrebonne	4,580,940	5,360,502	6,064,560	6,121,877	6,227,660	8,053,909	9,294,338	9,340,749	7,977,108	8,278,872	7,130,052
St Bernard	5,867,875	8,171,133	8,977,097	8,280,644	7,852,561	6,139,439	2,869,986	4,293,747	5,728,448	8,927,705	6,710,864
Out of state	1,208,205	3,333,088	4,708,954	2,154,504	1,858,381	2,482,214	5,292,198	6,311,097	8,097,629	8,382,836	4,382,911
Jefferson	2,206,204	1,839,417	1,779,197	2,122,808	2,116,634	1,773,381	2,176,529	2,724,150	2,304,572	2,553,539	2,159,643
St Tammany	693,050	881,390	697,325	759,216	1,145,849	887,528	1,090,356	1,330,977	1,563,614	1,812,290	1,086,160
Cameron	461,956	310,495	232,552	312,678	341,572	679,349	581,971	680,018	744,786	1,264,395	560,977
Lafourche	1,081,228	854,465	577,963	586,993	518,150	351,015	141,742	362,995	470,850	585,733	553,113
Ascension	0	0	0	0	0	0	683,053	328,591	213,188	510,564	433,849
Iberia	245,450	184,787	271,531	349,801	338,137	392,231	372,749	367,322	643,062	306,151	347,122
Orleans	516,213	541,582	538,656	482,089	355,421	153,487	64,707	8,126	167,895	457,735	328,591
Calcasieu	69,324	72,063	36,611	37,976	65,973	148,050	122,254	170,054	234,690	561,120	151,812
Tangipahoa	146,474	102,755	59,182	76,331	120,830	109,740	207,360	129,076	245,535	271,970	146,925
Washington	22,387	57,673	43,117	159,391	204,433	101,964	156,728	202,094	232,012	171,016	135,082
Livingston	0	0	0	0	0	0	115,766	104,732	127,050	147,547	123,774
St Mary	126,333	69,163	115,035	0	66,521	134,628	136,534	117,275	3,096	0	96,073
Other	156,161	140,277	23,687	27,897	39,340	195,405	489,564	519,761	116,285	241,433	194,981
Unspecified	179,641	64,200	49,083	55,833	164,038	185,749	70,128	299,013	24,684	147,870	124,024
Total	**27,513,256**	**31,859,909**	**30,319,607**	**33,373,716**	**34,891,484**	**33,325,012**	**36,220,760**	**40,194,131**	**39,526,404**	**50,737,964**	**35,796,224**

Note: "Other" includes 23 parishes like St. Charles, East Baton Rouge, Vermilion, Beauregard, etc.

Table B.6 Real Dockside Values of Oysters by Fisherman's Parish of Residence, 2000 – 2009

	Real Dockside Values of Oysters (in 2005 Dollar)										
Parish	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Plaquemines	11,181,816	10,853,758	6,679,410	12,601,785	13,892,767	11,536,924	11,994,950	12,173,920	9,754,036	14,651,990	11,532,136
Terrebonne	5,147,124	5,890,662	6,591,913	6,512,635	6,420,268	8,053,909	9,023,629	8,812,027	7,318,448	7,526,247	7,129,686
St Bernard	6,593,118	8,979,267	9,757,714	8,809,196	8,095,423	6,139,439	2,786,394	4,050,705	5,255,457	8,116,095	6,858,281
Out of state	1,357,534	3,662,734	5,118,429	2,292,026	1,915,857	2,482,214	5,138,056	5,953,865	7,429,017	7,620,760	4,297,049
Jefferson	2,478,881	2,021,337	1,933,910	2,258,307	2,182,097	1,773,381	2,113,135	2,569,953	2,114,286	2,321,399	2,176,669
St Tammany	778,708	968,560	757,962	807,677	1,181,287	887,528	1,058,598	1,255,639	1,434,508	1,647,536	1,077,800
Lafourche	1,214,863	938,973	628,220	624,460	534,175	351,015	137,614	342,448	431,973	532,485	573,623
Cameron	519,051	341,203	252,774	332,636	352,136	679,349	565,020	641,526	683,289	1,149,450	551,643
Iberia	275,786	203,063	295,142	372,128	348,595	392,231	361,892	346,531	589,965	278,319	346,365
Orleans	580,014	595,145	585,496	512,861	366,413	153,487	62,822	7,666	154,032	416,123	343,406
Ascension	0	0	0	0	0	0	663,158	309,991	195,585	464,149	408,221
Calcasieu	77,892	79,190	39,795	40,400	68,013	148,050	118,693	160,428	215,312	510,109	145,788
Tangipahoa	164,578	112,918	64,328	81,203	124,567	109,740	201,320	121,770	225,262	247,245	145,293
Washington	25,154	63,377	46,866	169,565	210,756	101,964	152,163	190,654	212,855	155,469	132,882
St Mary	141,947	76,003	125,038	0	68,578	134,628	132,557	110,637	2,840	0	99,029
Vermilion	31,416	44,514	25,616	21,261	28,081	45,124	72,350	110,671	64,247	99,214	54,249
Other	144,045	109,636	130	8,416	12,475	150,281	515,351	478,474	158,998	254,405	183,221
Unspecified	201,844	70,549	53,351	59,397	169,111	185,749	68,085	282,088	22,646	134,427	124,725
Total	**30,913,770**	**35,010,889**	**32,956,095**	**35,503,953**	**35,970,602**	**33,325,012**	**35,165,786**	**37,918,992**	**36,262,756**	**46,125,422**	**35,915,328**

Note: "Other" includes 23 parishes like Livingston, St. Charles, Beauregard, Lafayette, etc.



Source: Appendix Table B.6. Real values are in 2005 dollar.

Figure B.1 Real Dockside Values of Oysters by Fisherman's Parish of Residence, 2000 - 2009

Table B.7 Non-Resident's Oyster Landings by State of Residence, 2000 – 2009

	Oyster Landings (in Pounds)										
State	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Texas	256,215	896,043	1,235,039	534,526	369,450	719,231	1,496,990	1,966,113	2,387,838	2,293,757	1,215,520
Mississippi	353,191	790,220	975,055	318,745	372,394	192,683	37,597	169,119	252,026	151,094	361,212
Alabama	42,281	7,052	10,203	45,309	1,902	453	66,408	16,071	53,837	57,415	30,093
Other	0	0	0	298	0	3,099	8,133	0	27,491	46,914	8,594
Total	**651,687**	**1,693,315**	**2,220,297**	**898,878**	**743,746**	**915,466**	**1,609,128**	**2,151,303**	**2,721,192**	**2,549,180**	**1,615,419**

Note: "Other" includes Arkansas, Washington, Illinois, Florida, Missouri and Iowa.

Table B.8 Dockside Values of Non-Resident's Oyster Landings by State of Residence, 2000 – 2009

	Nominal Dockside Values of Oysters (in $)										
State	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Texas	546,271	1,922,364	2,698,523	1,266,135	884,453	1,897,974	4,953,955	5,707,678	7,054,236	7,491,236	3,442,283
Mississippi	566,041	1,395,291	1,988,333	778,696	970,138	577,306	112,899	551,111	782,118	546,130	826,806
Alabama	95,893	15,433	22,098	108,845	3,791	1,050	207,595	52,308	171,357	189,913	86,828
Other	0	0	0	828	0	5,884	17,750	0	89,918	155,557	26,994
Total	**1,208,205**	**3,333,088**	**4,708,954**	**2,154,504**	**1,858,382**	**2,482,214**	**5,292,199**	**6,311,097**	**8,097,629**	**8,382,836**	**4,382,911**
	Real Dockside Values of Oyster (in 2005 Dollar)										
State	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Texas	613,788	2,112,488	2,933,178	1,346,953	911,807	1,897,974	4,809,665	5,384,602	6,471,776	6,810,214	3,329,245
Mississippi	636,001	1,533,287	2,161,232	828,400	1,000,142	577,306	109,610	519,916	717,539	496,482	857,992
Alabama	107,745	16,959	24,020	115,793	3,908	1,050	201,548	49,347	157,208	172,648	85,023
Other	0	0	0	881	0	5,884	17,233	0	82,494	141,415	24,791
Total	**1,357,534**	**3,662,734**	**5,118,430**	**2,292,027**	**1,915,857**	**2,482,214**	**5,138,056**	**5,953,865**	**7,429,017**	**7,620,759**	**4,297,049**

Note: "Other" includes Arkansas, Washington, Florida, Illinois, Missouri and Iowa.

Table B.9 Total Oyster Landings by LDWF Trip Ticket Basin, 2000 – 2009

Basin	Oyster Landings (in Pounds)										
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Lake Pontchartrain	7,752,904	9,915,653	10,833,746	7,445,148	6,901,238	5,523,588	4,586,441	5,783,028	7,982,460	8,181,144	7,490,535
Barataria	2,775,439	2,074,809	911,417	3,110,501	4,112,509	3,040,308	2,442,512	2,525,833	2,096,710	3,763,196	2,685,323
Terrebonne	1,793,025	1,985,164	1,495,321	2,580,864	2,362,537	2,636,153	2,517,619	2,702,141	2,174,001	2,366,878	2,261,370
Vermilion-Teche River	107,311	277,919	173,584	237,889	276,625	614,145	1,684,251	1,557,423	402,563	3,144	533,485
Calcasieu River	289,128	211,666	132,062	146,901	168,343	284,454	273,235	265,826	367,218	623,795	276,263
Atchafalaya River	744	670,551	415,426	29,335	59,880	0	0	39,053	1,068	0	173,722
Other	0	0	0	57,945	21,571	0	0	0	2,453	1,096	20,766
Total	**12,718,551**	**15,135,763**	**13,961,555**	**13,608,583**	**13,902,703**	**12,098,648**	**11,504,058**	**12,873,304**	**13,026,472**	**14,939,254**	**13,376,889**

Note: "Other" includes Mississippi River Basin, Red River Basin, Grid 13 and Grid 14.

Table B.10 Landings of Private and Public Reef Oysters by LDWF Trip Ticket Basin, 2000 – 2009

	Landings of Private Reef Oysters (in Pounds)										
Basin	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Lake Pontchartrain	2,529,906	3,538,637	3,697,689	3,245,061	3,345,071	2,668,516	2,321,578	2,340,668	2,892,426	5,576,884	3,215,644
Barataria	2,666,672	1,990,466	846,062	2,835,934	3,909,335	2,947,024	2,344,751	2,178,530	1,819,050	3,637,898	2,517,572
Terrebonne	1,440,306	1,294,003	1,322,759	1,832,414	2,204,610	2,136,747	2,182,700	2,167,136	1,791,837	2,213,494	1,858,601
Vermilion-Teche River	101,527	234,602	116,667	223,823	268,059	588,925	1,526,254	1,380,857	376,075	2,899	481,969
Atchafalaya River	336	444,521	135,928	25,382	59,880	0	0	7,447	1,068	0	96,366
Other	0	0	0	58,010	24,224	3,804	0	1,106	311	1,096	14,759
Total	**6,738,748**	**7,502,230**	**6,119,106**	**8,220,623**	**9,811,178**	**8,345,016**	**8,375,282**	**8,075,744**	**6,880,767**	**11,432,271**	**8,150,097**

	Landings of Public Reef Oysters (in Pounds)										
Basin	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Lake Pontchartrain	5,222,998	6,377,016	7,136,057	4,200,087	3,556,168	2,855,072	2,264,862	3,442,360	5,090,033	2,604,259	4,274,891
Terrebonne	352,719	691,161	172,561	748,450	157,926	499,406	334,920	535,004	382,163	153,384	402,769
Calcasieu River	289,128	211,666	132,062	146,837	165,690	280,649	273,235	264,720	367,218	623,795	275,500
Barataria	108,767	84,343	65,354	274,567	203,174	93,284	97,762	347,303	277,660	125,298	167,751
Atchafalaya River	408	226,029	279,498	3,953	0	0	0	31,606	0	0	108,299
Vermilion-Teche River	5,784	43,317	56,917	14,066	8,566	25,220	157,997	176,566	26,488	246	51,517
Total	**5,979,804**	**7,633,532**	**7,842,449**	**5,387,960**	**4,091,524**	**3,753,632**	**3,128,776**	**4,797,560**	**6,145,704**	**3,506,983**	**5,226,792**

Note: "Other" includes Mississippi River Basin, Calcasieu River Basin, Red River Basin, Grid 13 and Grid 14.

Table B.11 Total Average Nominal Dockside Prices of Oysters by LDWF Trip Ticket Basin, 2000 – 2009

	Total Average Nominal Dockside Prices of Oysters (in $)										
Basin	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Barataria	2.46	2.40	2.47	2.49	2.46	2.74	3.41	3.49	3.35	3.58	2.89
Lake Pontchartrain	2.16	2.12	2.22	2.59	2.69	2.98	3.43	3.36	3.14	3.56	2.83
Calcasieu River	1.98	2.02	2.12	2.25	2.40	2.48	2.95	3.18	2.95	3.18	2.55
Atchafalaya River	2.47	2.22	2.11	1.84	2.32	-	-	3.49	2.78	-	2.46
Vermilion-Teche River	2.13	1.99	1.93	1.81	2.02	2.60	2.99	2.69	2.72	2.72	2.36
Terrebonne	1.73	1.74	1.70	1.89	1.90	2.16	2.40	2.50	2.42	2.52	2.10
Total	**2.11**	**2.08**	**2.13**	**2.37**	**2.42**	**2.64**	**3.03**	**3.09**	**2.98**	**3.29**	**2.61**

Table B.12 Average Nominal Dockside Prices per Pound of Private and Public Reef Oysters by LDWF Trip Ticket Basin, 2000 – 2009

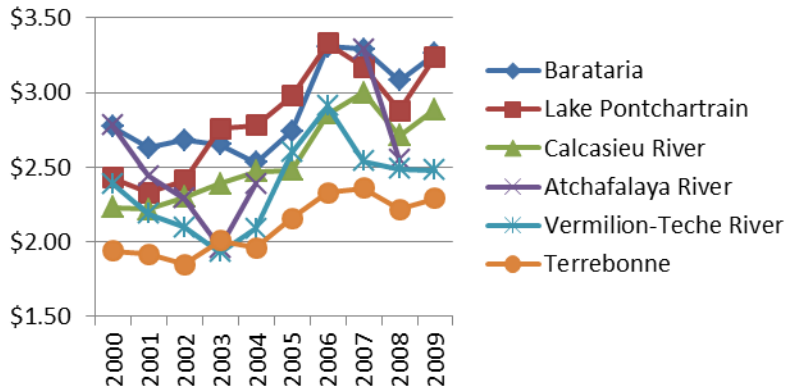
	Average Nominal Dockside Prices of Private Reef Oysters (in $)										
Basin	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Barataria	2.46	2.40	2.48	2.48	2.45	2.73	3.41	3.54	3.39	3.59	2.89
Lake Pontchartrain	2.14	2.21	2.21	2.68	2.61	2.97	3.55	3.55	3.33	3.58	2.88
Atchafalaya River	2.47	2.25	2.05	1.77	2.32	-	-	2.86	2.78	-	2.36
Vermilion-Teche River	2.12	2.00	1.93	1.80	1.99	2.60	2.97	2.64	2.69	2.52	2.33
Terrebonne	1.69	1.76	1.68	1.83	1.85	2.06	2.35	2.47	2.36	2.48	2.05
Total	**2.11**	**2.13**	**2.06**	**2.32**	**2.30**	**2.55**	**2.99**	**3.06**	**2.96**	**3.26**	**2.57**
	Average Nominal Dockside Prices of Public Reef Oysters (in $)										
Basin	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Barataria	2.43	2.22	2.37	2.62	2.62	2.89	3.39	3.04	3.01	3.46	2.81
Lake Pontchartrain	2.17	2.07	2.22	2.53	2.77	2.99	3.32	3.22	3.05	3.53	2.79
Vermilion-Teche River	2.32	1.96	1.92	1.99	2.70	2.63	3.25	3.04	2.91	3.86	2.66
Calcasieu River	1.98	2.02	2.12	2.25	2.39	2.48	2.95	3.18	2.95	3.18	2.55
Atchafalaya River	2.47	2.15	2.14	2.32	-	-	-	3.63	-	-	2.54
Terrebonne	1.90	1.71	1.86	2.11	2.51	2.78	2.79	2.77	2.75	3.09	2.43
Total	**2.10**	**2.02**	**2.19**	**2.44**	**2.68**	**2.82**	**3.14**	**3.15**	**3.00**	**3.35**	**2.69**

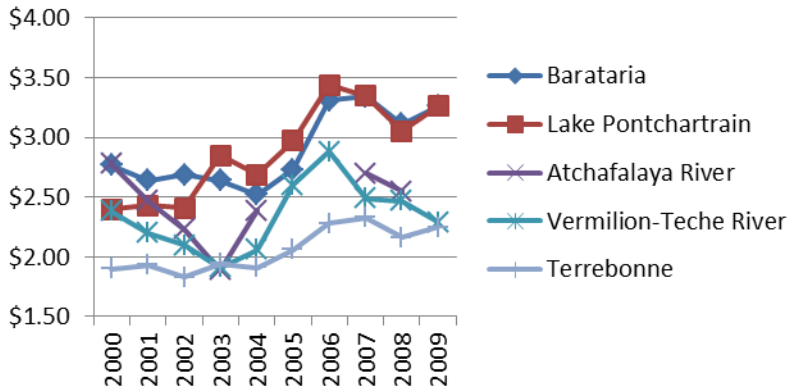
Table B.13 Total Average Real Dockside Prices of Oysters by LDWF Trip Ticket Basin, 2000 – 2009

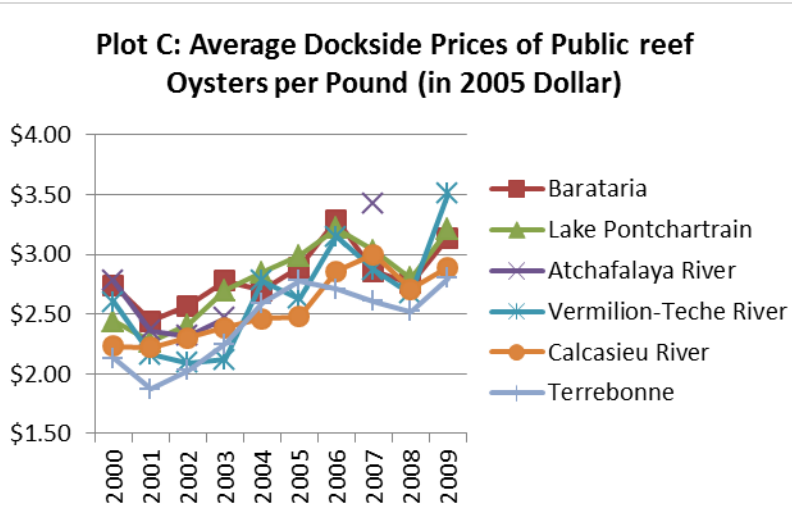
	Total Average Real Dockside Prices of Oysters (in $)										
Basin	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Barataria	2.77	2.63	2.68	2.65	2.53	2.74	3.31	3.29	3.08	3.26	2.89
Lake Pontchartrain	2.43	2.33	2.41	2.76	2.78	2.98	3.33	3.17	2.88	3.24	2.83
Calcasieu River	2.23	2.22	2.30	2.39	2.47	2.48	2.86	3.00	2.71	2.89	2.56
Atchafalaya River	2.78	2.44	2.29	1.96	2.39	-	-	3.29	2.55	-	2.53
Vermilion-Teche River	2.39	2.19	2.10	1.93	2.09	2.60	2.91	2.54	2.49	2.48	2.37
Terrebonne	1.94	1.92	1.85	2.01	1.96	2.16	2.33	2.36	2.22	2.29	2.10
Total	**2.37**	**2.28**	**2.32**	**2.52**	**2.49**	**2.64**	**2.95**	**2.92**	**2.73**	**2.99**	**2.62**

Table B.14 Average Real Dockside Prices per Pound of Private and Public Reef Oysters by LDWF Trip Ticket Basin, 2000 – 2009

	Average Real Dockside Prices of Private Reef Oysters (in $)										
Basin	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Barataria	2.77	2.64	2.69	2.64	2.52	2.73	3.31	3.34	3.11	3.26	2.90
Lake Pontchartrain	2.40	2.43	2.41	2.85	2.69	2.97	3.44	3.35	3.05	3.26	2.89
Atchafalaya River	2.78	2.47	2.23	1.89	2.39			2.70	2.55		2.43
Vermilion-Teche River	2.38	2.20	2.10	1.91	2.06	2.60	2.88	2.49	2.47	2.29	2.34
Terrebonne	1.90	1.93	1.83	1.94	1.91	2.06	2.28	2.33	2.16	2.25	2.06
Total	**2.37**	**2.34**	**2.23**	**2.47**	**2.37**	**2.55**	**2.90**	**2.88**	**2.71**	**2.96**	**2.58**
	Average Real Dockside Prices of Public Reef Oysters (in $)										
Basin	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Barataria	2.74	2.44	2.57	2.78	2.70	2.89	3.29	2.86	2.76	3.14	2.82
Lake Pontchartrain	2.44	2.27	2.41	2.70	2.85	2.99	3.22	3.03	2.80	3.21	2.79
Atchafalaya River	2.78	2.36	2.32	2.47	-	-	-	3.43	-	-	2.67
Vermilion-Teche River	2.60	2.16	2.09	2.12	2.78	2.63	3.15	2.87	2.67	3.51	2.66
Calcasieu River	2.23	2.22	2.30	2.39	2.46	2.48	2.86	3.00	2.71	2.89	2.55
Terrebonne	2.13	1.87	2.03	2.25	2.59	2.78	2.71	2.61	2.52	2.80	2.43
Total	**2.36**	**2.22**	**2.38**	**2.60**	**2.76**	**2.82**	**3.05**	**2.98**	**2.75**	**3.05**	**2.70**







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Source: Appendix Tables B.13 and B.14.

Figure B.2 Average Real Dockside Prices of Oysters by LDWF Trip Ticket Basin, 2000 – 2009

Table B.15 Total Nominal Dockside Values of Oysters by LDWF Trip Ticket Basin, 2000 – 2009

Basin	Total Nominal Dockside Values of Oysters (in $)										
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Lake Pontchartrain	16,699,907	21,039,584	24,069,922	19,492,704	18,750,488	16,586,219	15,742,229	19,266,015	25,131,590	29,158,634	20,593,729
Barataria	6,925,309	4,962,145	2,250,197	8,052,558	10,517,726	8,576,810	8,421,971	8,857,519	6,941,961	13,560,429	7,906,663
Terrebonne	3,078,241	3,375,712	2,522,371	4,855,389	4,436,029	5,819,971	6,151,083	6,811,559	5,246,791	6,025,423	4,832,257
Vermilion-Teche River	235,185	569,796	339,981	428,093	571,904	1,635,206	5,101,670	4,273,704	1,110,422	8,233	1,427,419
Calcasieu River	572,774	427,159	280,385	331,762	419,351	706,806	803,807	848,262	1,080,820	1,981,254	745,238
Atchafalaya River	1,840	1,485,513	856,752	54,135	138,825	0	0	137,073	2,970	0	382,444
Other	0	0	0	159,076	57,161	0	0	0	11,850	3,992	58,020
Total	**27,513,256**	**31,859,909**	**30,319,607**	**33,373,716**	**34,891,484**	**33,325,012**	**36,220,760**	**40,194,131**	**39,526,404**	**50,737,964**	**35,796,224**

Note: "Other" includes Mississippi River Basin, Red River Basin, Grid 13 and Grid 14.

Table B.16 Nominal Dockside Values of Private and Public Reef Oysters by LDWF Trip Ticket Basin, 2000 – 2009

	Nominal Dockside Values of Private Reef Oysters (in $)										
Basin	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Lake Pontchartrain	5,351,875	7,792,086	8,213,313	8,884,953	8,916,533	8,053,919	8,293,832	8,341,901	9,637,587	19,983,897	9,346,990
Barataria	6,644,640	4,775,556	2,093,070	7,325,840	9,980,706	8,307,842	8,096,453	7,794,211	6,122,343	13,139,022	7,427,968
Terrebonne	2,397,059	2,196,644	2,203,129	3,280,731	4,039,852	4,384,932	5,171,300	5,335,385	4,196,607	5,548,541	3,875,418
Vermilion-Teche River	221,775	481,105	231,505	400,319	548,886	1,568,042	4,609,054	3,739,320	1,033,624	7,283	1,284,091
Atchafalaya River	832	999,133	270,788	44,970	138,825	0	0	22,768	2,970	0	211,469
Other	0	0	0	159,078	66,278	11,249	0	4,275	1,920	3,992	41,132
Total	**14,616,181**	**16,244,524**	**13,011,805**	**20,095,891**	**23,691,080**	**22,325,983**	**26,170,639**	**25,237,860**	**20,995,051**	**38,682,734**	**22,107,175**

	Nominal Dockside Values of Public Reef Oysters (in $)										
Basin	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Lake Pontchartrain	11,348,032	13,247,497	15,856,609	10,607,750	9,833,955	8,532,300	7,448,397	10,924,114	15,494,003	9,174,737	11,246,739
Terrebonne	681,182	1,179,068	319,242	1,574,657	396,178	1,435,039	979,783	1,476,174	1,050,184	476,882	956,839
Calcasieu River	572,774	427,159	280,385	331,760	410,234	695,557	803,807	843,987	1,080,820	1,981,254	742,774
Barataria	280,669	186,590	157,127	726,718	537,020	268,968	325,518	1,063,308	819,617	421,407	478,694
Atchafalaya River	1,008	486,381	585,964	9,165	0	0	0	114,305	0	0	239,365
Vermilion-Teche River	13,410	88,691	108,476	27,774	23,018	67,164	492,616	534,384	76,798	950	143,328
Total	**12,897,075**	**15,615,385**	**17,307,802**	**13,277,825**	**11,200,404**	**10,999,029**	**10,050,121**	**14,956,272**	**18,531,353**	**12,055,230**	**13,689,050**

Note: "Other" includes Mississippi River Basin, Calcasieu River Basin, Red River Basin, Grid 13 and Grid 14.

Table B.17 Total Real Dockside Values of Oysters by LDWF Trip Ticket Basin, 2000 – 2009

Basin	Total Real Dockside Values of Oysters (in 2005 Dollar)										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Average
Lake Pontchartrain	18,763,940	23,120,422	26,162,959	20,736,919	19,330,400	16,586,219	15,283,717	18,175,485	23,056,505	26,507,849	20,772,442
Barataria	7,781,246	5,452,907	2,445,866	8,566,551	10,843,017	8,576,810	8,176,671	8,356,150	6,368,771	12,327,663	7,889,565
Terrebonne	3,458,697	3,709,574	2,741,707	5,165,307	4,573,226	5,819,971	5,971,926	6,425,999	4,813,570	5,477,657	4,815,763
Vermilion-Teche River	264,253	626,149	369,544	455,418	589,592	1,635,206	4,953,078	4,031,796	1,018,736	7,484	1,395,126
Calcasieu River	643,566	469,405	304,766	352,938	432,320	706,806	780,395	800,247	991,578	1,801,140	728,316
Atchafalaya River	2,067	1,632,432	931,252	57,590	143,119	0	0	129,314	2,725	0	414,071
Other	0	0	0	169,230	58,928	0	0	0	10,871	3,629	60,665
Total	**30,913,770**	**35,010,889**	**32,956,095**	**35,503,953**	**35,970,602**	**33,325,012**	**35,165,786**	**37,918,992**	**36,262,756**	**46,125,422**	**35,915,328**

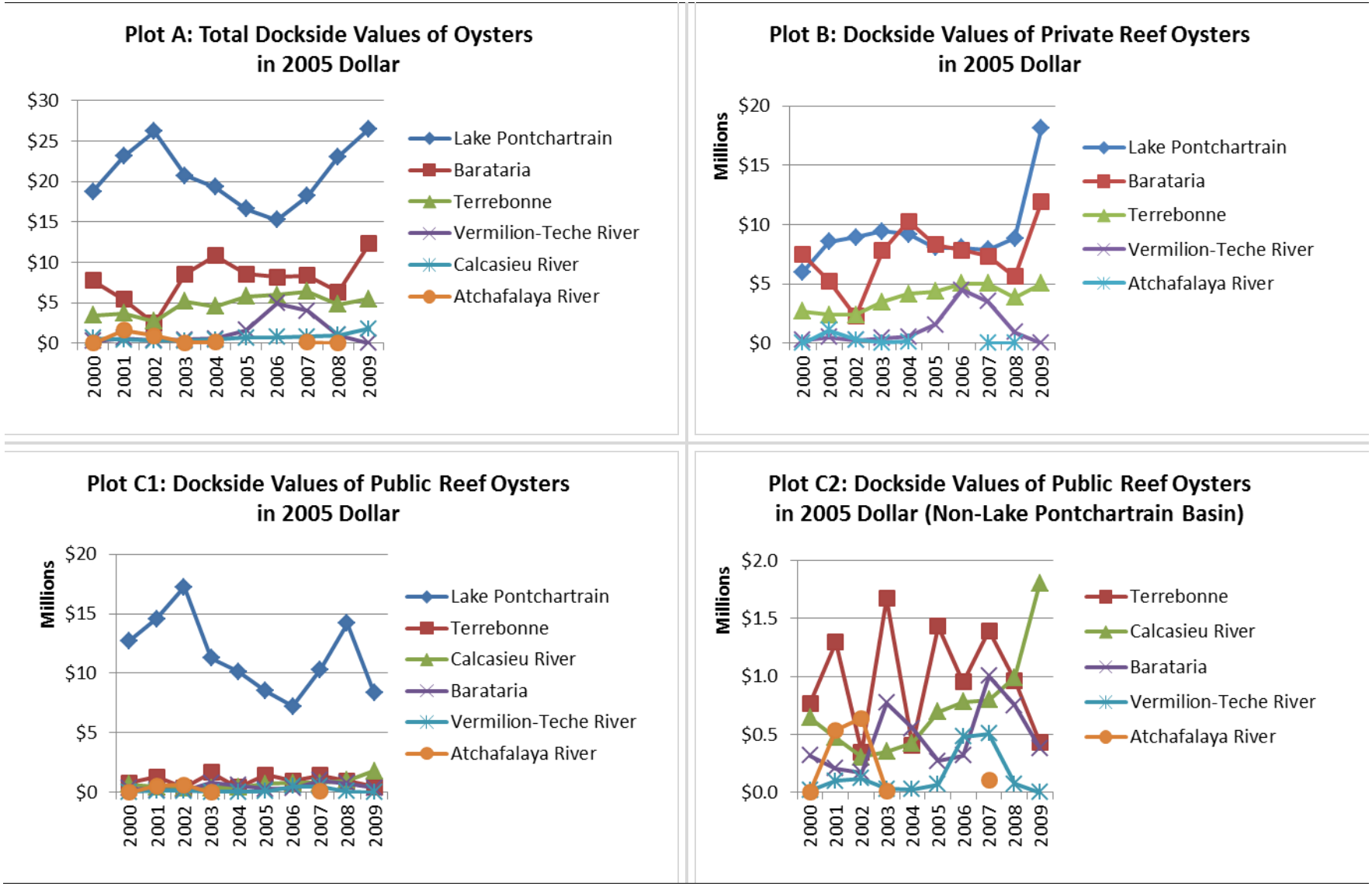
Note: "Other" includes Mississippi River Basin, Red River Basin, Grid 13 and Grid 14.

Table B.18 Real Dockside Values of Private and Public Reef Oysters by LDWF Trip Ticket Basin, 2000 – 2009

	Real Dockside Values of Private Reef Oysters (in 2005 Dollar)										
Basin	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Lake Pontchartrain	6,013,343	8,562,732	8,927,514	9,452,078	9,192,302	8,053,919	8,052,264	7,869,718	8,841,823	18,167,179	9,313,287
Barataria	7,465,888	5,247,864	2,275,076	7,793,447	10,289,388	8,307,842	7,860,634	7,353,029	5,616,829	11,944,565	7,415,456
Terrebonne	2,693,324	2,413,895	2,394,706	3,490,140	4,164,796	4,384,932	5,020,680	5,033,382	3,850,098	5,044,128	3,849,008
Vermilion-Teche River	249,185	528,687	251,636	425,872	565,862	1,568,042	4,474,810	3,527,660	948,279	6,620	1,254,665
Atchafalaya River	935	1,097,948	294,335	47,840	143,119			21,479	2,725		229,769
Other				169,232	68,327	11,249		4,033	1,761	3,629	43,039
Total	**16,422,675**	**17,851,126**	**14,143,267**	**21,378,608**	**24,423,794**	**22,325,983**	**25,408,388**	**23,809,302**	**19,261,515**	**35,166,122**	**22,019,078**

	Real Dockside Values of Public Reef Oysters (in 2005 Dollar)										
Basin	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Lake Pontchartrain	12,750,597	14,557,689	17,235,445	11,284,841	10,138,098	8,532,300	7,231,453	10,305,768	14,214,682	8,340,670	11,459,154
Terrebonne	765,373	1,295,679	347,002	1,675,167	408,431	1,435,039	951,246	1,392,617	963,472	433,529	966,756
Calcasieu River	643,566	469,405	304,766	352,936	422,921	695,557	780,395	796,214	991,578	1,801,140	725,848
Barataria	315,358	205,043	170,790	773,105	553,629	268,968	316,037	1,003,121	751,942	383,098	474,109
Vermilion-Teche River	15,067	97,463	117,908	29,547	23,730	67,164	478,268	504,136	70,457	864	140,460
Atchafalaya River	1,133	534,484	636,917	9,750	0	0	0	107,835	0	0	258,024
Total	**14,491,095**	**17,159,764**	**18,812,828**	**14,125,345**	**11,546,808**	**10,999,029**	**9,757,399**	**14,109,690**	**17,001,241**	**10,959,300**	**13,896,250**

Note: "Other" includes Mississippi River Basin, Calcasieu River Basin, Red River Basin, Grid 13 and Grid 14.



Source: Appendix Tables B.17 and B.18.

Figure B.3 Real Dockside Values of Oysters by LDWF Trip Ticket Basin, 2000 – 2009

Appendix C - Oyster Landings, Dockside Prices and Values per Effort

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Table C.1 Average Landing and Dockside Values of Oysters per Fisherman, 2000 – 2009

	Average Oyster Landings per Fisherman (in Pounds)										
Source	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Private Reef Oysters	13,923	14,856	15,812	14,919	15,901	12,938	17,485	15,237	14,991	21,093	15,716
Public Reef Oysters	8,692	12,332	12,878	8,102	6,842	6,362	6,729	8,145	10,688	5,787	8,656
All Oysters	**15,305**	**20,074**	**20,264**	**16,616**	**16,512**	**14,019**	**17,781**	**17,051**	**18,451**	**18,308**	**17,438**
	Average Nominal Dockside Values of Oysters per Fisherman (in $)										
Source	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Private Reef Oysters	30,199	32,167	33,622	36,472	38,397	34,614	54,636	47,619	45,741	71,370	42,484
Public Reef Oysters	18,746	25,227	28,420	19,967	18,730	18,642	21,613	25,393	32,228	19,893	22,886
All Oysters	**33,109**	**42,255**	**44,005**	**40,749**	**41,439**	**38,615**	**55,983**	**53,237**	**55,986**	**62,179**	**46,756**
	Average Real Dockside Values of Oysters per Fisherman (in 2005 Dollar)										
Source	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Private Reef Oysters	33,931	35,349	36,546	38,800	39,585	34,614	53,045	44,923	41,964	64,882	42,364
Public Reef Oysters	21,063	27,722	30,891	21,241	19,309	18,642	20,984	23,955	29,567	18,085	23,146
All Oysters	**37,201**	**46,434**	**47,832**	**43,350**	**42,720**	**38,615**	**54,352**	**50,224**	**51,364**	**56,526**	**46,862**

Table C.2 Average Landing and Dockside Values of Oysters per Fishing Trip, 2000 – 2009

	Average Oyster Landings per Trip (in Pounds)										
Source	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Private Reef Oysters	360	407	411	359	333	333	373	342	410	390	372
Public Reef Oysters	325	409	423	338	316	319	313	367	373	234	342
All Oysters	**343**	**408**	**418**	**350**	**328**	**329**	**355**	**351**	**391**	**337**	**361**
	Average Nominal Dockside Values of Oysters per Trip (in $)										
Source	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Private Reef Oysters	781	881	874	876	804	892	1,165	1,070	1,250	1,321	992
Public Reef Oysters	702	837	934	833	866	935	1,006	1,145	1,124	804	919
All Oysters	**742**	**859**	**907**	**859**	**823**	**906**	**1,116**	**1,097**	**1,188**	**1,146**	**964**
	Average Real Dockside Values of Oysters per Trip (in 2005 Dollar)										
Source	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Private Reef Oysters	878	968	950	932	829	892	1,132	1,010	1,147	1,201	994
Public Reef Oysters	789	920	1,015	886	893	935	977	1,081	1,031	730	926
All Oysters	**833**	**944**	**986**	**914**	**849**	**906**	**1,084**	**1,035**	**1,090**	**1,041**	**968**

Table C.3 Average Landing and Dockside Values of Oysters per Hour of Fishing Trip, 2000 – 2009

	Average Oyster Landings per Hour (in Pounds)										
Source	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Private Reef Oysters	39	44	44	39	39	38	44	40	54	53	43
Public Reef Oysters	32	43	43	37	36	34	31	39	38	30	36
All Oysters	**36**	**44**	**44**	**38**	**38**	**36**	**40**	**40**	**45**	**45**	**40**
	Average Nominal Dockside Values of Oysters per Hour (in $)										
Source	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Private Reef Oysters	85	95	95	96	93	101	138	126	166	178	117
Public Reef Oysters	69	88	95	91	98	98	100	121	115	103	98
All Oysters	**77**	**92**	**95**	**94**	**95**	**100**	**124**	**124**	**137**	**152**	**109**
	Average Real Dockside Values of Oysters per Hour (in 2005 Dollar)										
Source	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Private Reef Oysters	96	104	103	103	96	101	134	119	152	162	117
Public Reef Oysters	78	97	104	97	101	98	97	114	105	94	98
All Oysters	**87**	**101**	**103**	**100**	**98**	**100**	**121**	**117**	**126**	**138**	**109**

Table C.4 Average Landing and Dockside Values of Oysters per Fishing Vessel, 2000 – 2009

	Average Oyster Landings per Vessel (in Pounds)										
Source	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Private Reef Oysters	10,529	14,885	15,853	15,394	16,325	13,373	18,906	16,055	15,291	21,489	15,810
Public Reef Oysters	7,153	11,708	12,814	8,379	6,752	6,287	6,685	8,145	10,744	5,412	8,408
All Oysters	**11,216**	**18,640**	**20,176**	**16,968**	**16,318**	**13,733**	**18,203**	**17,256**	**18,193**	**17,311**	**16,801**
	Average Nominal Dockside Values of Oysters per Vessel (in $)										
Source	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Private Reef Oysters	22,838	32,231	33,709	37,633	39,419	35,779	59,076	50,175	46,656	72,712	43,023
Public Reef Oysters	15,427	23,950	28,281	20,650	18,483	18,424	21,475	25,393	32,397	18,604	22,308
All Oysters	**24,262**	**39,236**	**43,814**	**41,613**	**40,952**	**37,826**	**57,311**	**53,880**	**55,204**	**58,793**	**45,289**
	Average Real Dockside Values of Oysters per Vessel (in 2005 Dollar)										
Source	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Private Reef Oysters	25,660	35,419	36,641	40,035	40,639	35,779	57,355	47,335	42,803	66,102	42,777
Public Reef Oysters	17,334	26,319	30,740	21,968	19,054	18,424	20,849	23,955	29,722	16,913	22,528
All Oysters	**27,261**	**43,117**	**47,624**	**44,269**	**42,219**	**37,826**	**55,642**	**50,830**	**50,646**	**53,448**	**45,288**

Table C.5 Average Landing and Dockside Values of Oysters per Length (in Foot) of Fishing Vessel, 2000 – 2009

	Average Oyster Landings per Foot of Vessel (in Pounds)										
Source	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Private Reef Oysters	303	412	431	457	493	422	569	489	448	707	473
Public Reef Oysters	205	323	356	238	192	196	212	242	319	189	247
All Oysters	**322**	**515**	**556**	**495**	**484**	**432**	**557**	**521**	**537**	**581**	**500**
	Average Nominal Dockside Values of Oysters per Foot of Vessel (in $)										
Source	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Private Reef Oysters	656	893	916	1,117	1,191	1,129	1,779	1,530	1,368	2,392	1,297
Public Reef Oysters	442	660	786	587	527	576	680	756	961	648	662
All Oysters	**697**	**1,084**	**1,207**	**1,213**	**1,215**	**1,190**	**1,753**	**1,628**	**1,628**	**1,973**	**1,359**
	Average Real Dockside Values of Oysters per Foot of Vessel (in 2005 Dollar)										
Source	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Private Reef Oysters	737	981	996	1,188	1,228	1,129	1,728	1,443	1,255	2,174	1,286
Public Reef Oysters	497	725	854	624	543	576	660	713	882	589	666
All Oysters	**783**	**1,191**	**1,312**	**1,291**	**1,253**	**1,190**	**1,702**	**1,536**	**1,494**	**1,794**	**1,354**

Table C.6 Oyster Landings by Fishing Vessel Length Category, 2000 – 2009

	Oyster Landings (in Pounds)										
Vessel Length	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
19 Feet or Less	235,269	141,522	80,872	182,069	291,651	326,175	186,304	208,454	143,640	265,988	206,194
20 - 24 Feet	432,008	489,294	305,733	757,624	798,592	854,904	701,057	732,184	546,929	926,161	654,449
25 - 30 Feet	345,792	420,657	604,159	697,476	890,227	824,026	800,637	850,210	705,392	943,967	708,254
31 - 50 Feet	3,159,424	4,099,829	3,353,065	3,428,171	3,331,759	2,767,798	2,620,787	3,086,203	2,837,111	2,672,708	3,135,686
51 - 65 Feet	1,362,103	1,871,467	1,250,554	1,479,670	1,317,590	1,058,456	916,796	1,169,126	1,270,562	261,142	1,195,747
Unspecified	7,183,955	8,084,346	8,367,082	7,061,652	7,254,541	6,267,288	6,278,478	6,827,128	7,522,837	9,865,308	7,471,262
Total	**12,718,551**	**15,135,763**	**13,961,555**	**13,608,583**	**13,902,703**	**12,098,648**	**11,504,058**	**12,873,304**	**13,026,472**	**14,939,254**	**13,376,889**

Note: Vessel length category "66 feet and above" was omitted for confidentiality reasons.

Table C.7 Nominal Dockside Values of Oysters by Fishing Vessel Length Category, 2000 – 2009

	Nominal Dockside Values of Oysters (in $)										
Vessel Length	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
19 Feet or Less	519,338	306,972	171,395	408,057	650,131	828,218	582,484	696,993	422,698	852,203	543,849
20 - 24 Feet	913,668	1,043,901	662,516	1,703,174	1,748,361	2,039,435	1,947,368	2,161,690	1,535,703	2,931,344	1,668,716
25 - 30 Feet	739,097	903,438	1,348,775	1,726,262	2,132,206	2,142,748	2,314,874	2,420,136	1,982,772	3,034,692	1,874,500
31 - 50 Feet	7,078,355	8,769,463	7,504,984	8,613,900	8,607,501	7,955,860	8,500,295	9,935,158	8,665,613	9,506,149	8,513,728
51 - 65 Feet	3,004,438	4,153,973	2,879,704	3,947,448	3,647,994	3,221,055	3,127,770	4,017,244	4,255,255	963,042	3,321,792
Unspecified	15,258,359	16,624,917	17,752,025	16,970,420	18,053,134	17,137,696	19,747,968	20,962,911	22,664,364	33,438,234	19,861,003
Total	**27,513,256**	**31,859,909**	**30,319,607**	**33,373,716**	**34,891,484**	**33,325,012**	**36,220,760**	**40,194,131**	**39,526,404**	**50,737,964**	**35,796,224**

Note: Vessel length category "66 feet and above" was omitted for confidentiality reasons.

Table C.8 Real Dockside Values of Oysters by Fishing Vessel Length Category, 2000 – 2009

	Real Dockside Values of Oysters (in 2005 Dollar)										
Vessel Length	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
19 Feet or Less	583,526	337,332	186,298	434,103	670,238	828,218	565,519	657,541	387,796	774,730	542,530
20 - 24 Feet	1,026,593	1,147,144	720,126	1,811,887	1,802,434	2,039,435	1,890,649	2,039,330	1,408,901	2,664,858	1,655,136
25 - 30 Feet	830,446	992,789	1,466,059	1,836,449	2,198,150	2,142,748	2,247,450	2,283,147	1,819,057	2,758,811	1,857,511
31 - 50 Feet	7,953,208	9,636,773	8,157,591	9,163,723	8,873,712	7,955,860	8,252,714	9,372,790	7,950,104	8,641,954	8,595,843
51 - 65 Feet	3,375,773	4,564,806	3,130,112	4,199,413	3,760,819	3,221,055	3,036,670	3,789,853	3,903,904	875,493	3,385,790
Unspecified	17,144,223	18,269,139	19,295,679	18,053,638	18,611,478	17,137,696	19,172,784	19,776,331	20,792,995	30,398,395	19,865,236
Total	**30,913,770**	**35,010,889**	**32,956,095**	**35,503,953**	**35,970,602**	**33,325,012**	**35,165,786**	**37,918,992**	**36,262,756**	**46,125,422**	**35,915,328**

Note: Vessel length category "66 feet and above" was omitted for confidentiality reasons.

Table C.9 Oyster Landings by Fishing Gear, 2000 – 2009

	Oyster Landings (in Pounds)										
Gear Type	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Oyster Dredge	11,705,061	14,394,116	13,676,898	13,162,829	13,369,212	11,658,636	11,348,577	12,686,133	12,751,678	14,514,270	12,926,741
By Hand	662,845	525,995	152,595	279,216	424,969	340,898	124,968	186,718	274,716	418,663	339,158
Oyster Tong	350,645	214,248	132,062	166,357	108,263	99,114	30,513	453	78	6,321	110,805
Other	0	1,404	0	181	259	0	0	0	0	0	615
All Gear	**12,718,551**	**15,135,763**	**13,961,555**	**13,608,583**	**13,902,703**	**12,098,648**	**11,504,058**	**12,873,304**	**13,026,472**	**14,939,254**	**13,376,889**

Note: "Other" includes strike gillnets, skimmer nets, crab pots and traps and unspecified gear.

Table C.10 Nominal Dockside Values of Oysters by Fishing Gear, 2000 – 2009

	Nominal Dockside Values of Oysters (in $)										
Gear Type	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Oyster Dredge	25,203,403	30,149,305	29,672,426	32,299,095	33,690,930	32,132,937	35,679,959	39,543,702	38,716,988	49,383,237	34,647,198
By Hand	1,583,419	1,273,430	366,796	688,226	951,774	918,415	429,128	648,977	809,106	1,331,231	900,050
Oyster Tong	726,434	433,703	280,385	385,901	248,060	273,660	111,673	1,452	310	23,496	248,507
Other	0	3,472	0	494	720	0	0	0	0	0	1,562
All Gear	**27,513,256**	**31,859,909**	**30,319,607**	**33,373,716**	**34,891,484**	**33,325,012**	**36,220,760**	**40,194,131**	**39,526,404**	**50,737,964**	**35,796,224**

Note: "Other" includes strike gillnets, skimmer nets, crab pots and traps and unspecified gear.

Table C.11 Nominal Dockside Values of Oysters by Fishing Gear, 2000 – 2009

	Real Dockside Values of Oysters (in 2005 Dollar)										
Gear Type	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
Oyster Dredge	28,318,430	33,131,104	32,252,637	34,360,739	34,732,918	32,132,937	34,640,737	37,305,379	35,520,173	44,893,852	34,728,891
By Hand	1,779,122	1,399,374	398,691	732,155	981,210	918,415	416,629	612,243	742,299	1,210,210	919,035
Oyster Tong	816,218	476,596	304,766	410,533	255,732	273,660	108,420	1,370	284	21,360	266,894
Other	0	3,815	0	526	742	0	0	0	0	0	1,694
All Gear	**30,913,770**	**35,010,889**	**32,956,095**	**35,503,953**	**35,970,602**	**33,325,012**	**35,165,786**	**37,918,992**	**36,262,756**	**46,125,422**	**35,915,328**

Note: "Other" includes strike gillnets, skimmer nets, crab pots and traps and unspecified gear.

Appendix D - Maps of Oyster Areas and Hurricane Tracks

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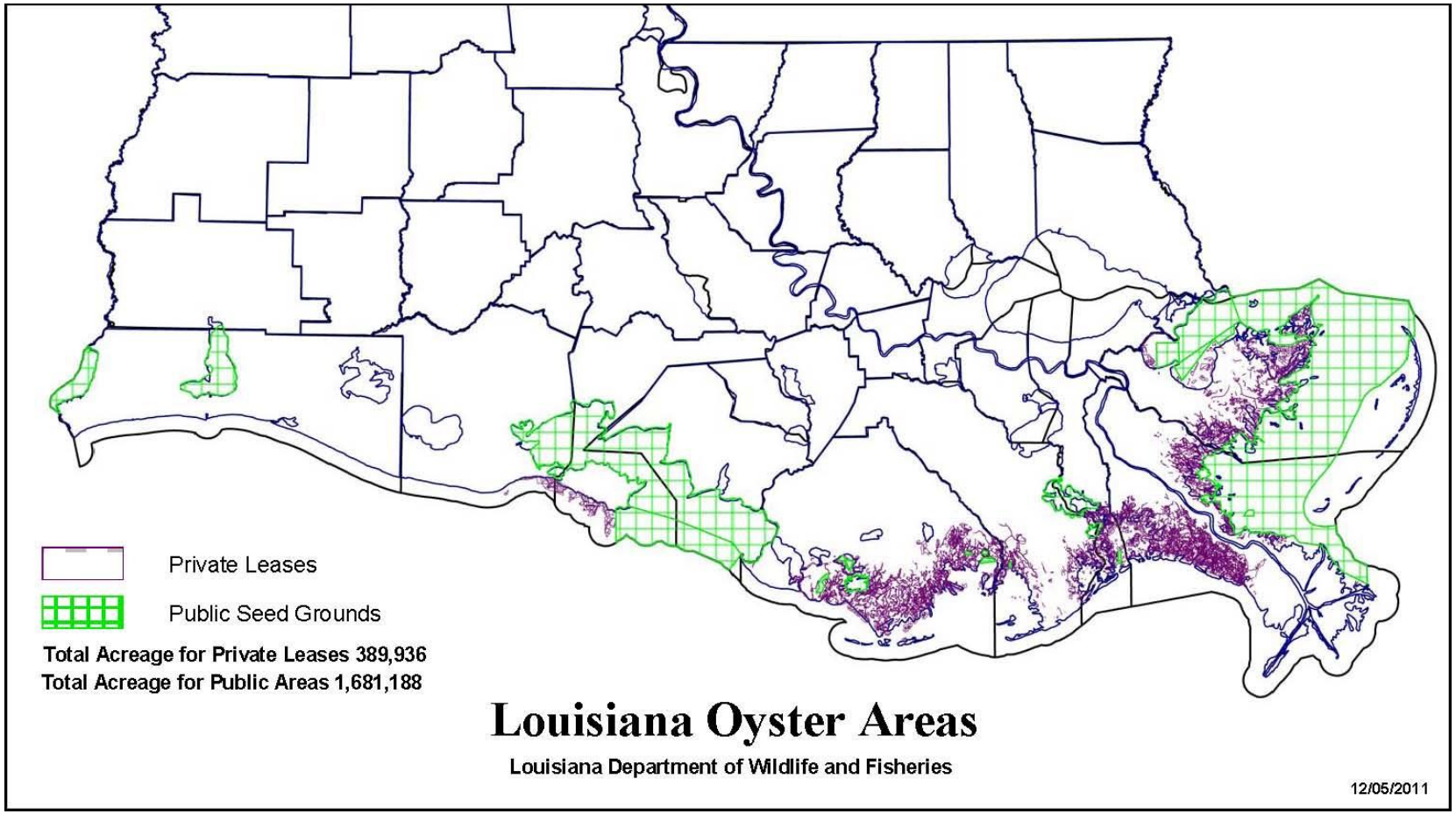


Figure D.1 Map of Louisiana Oyster Areas

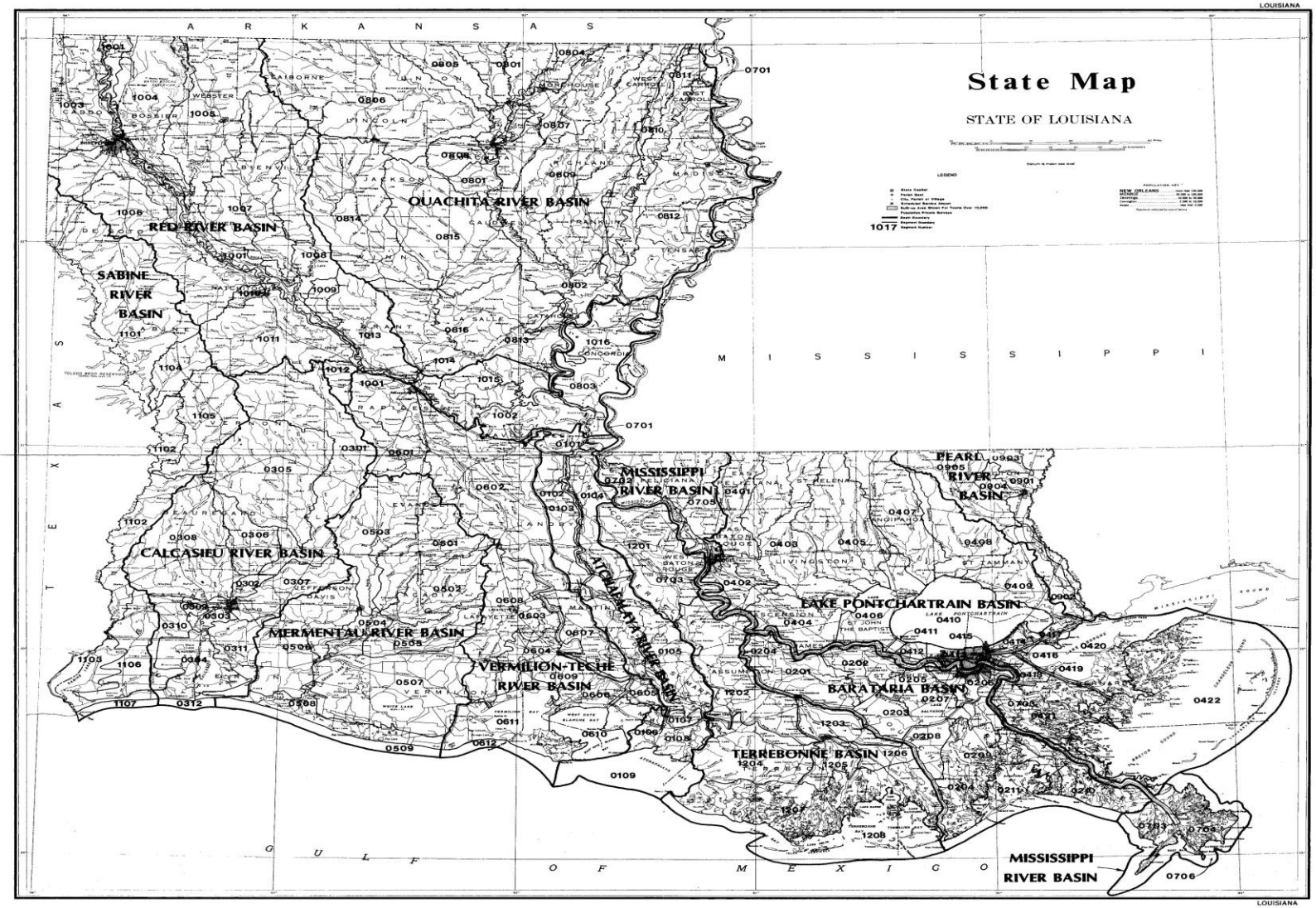
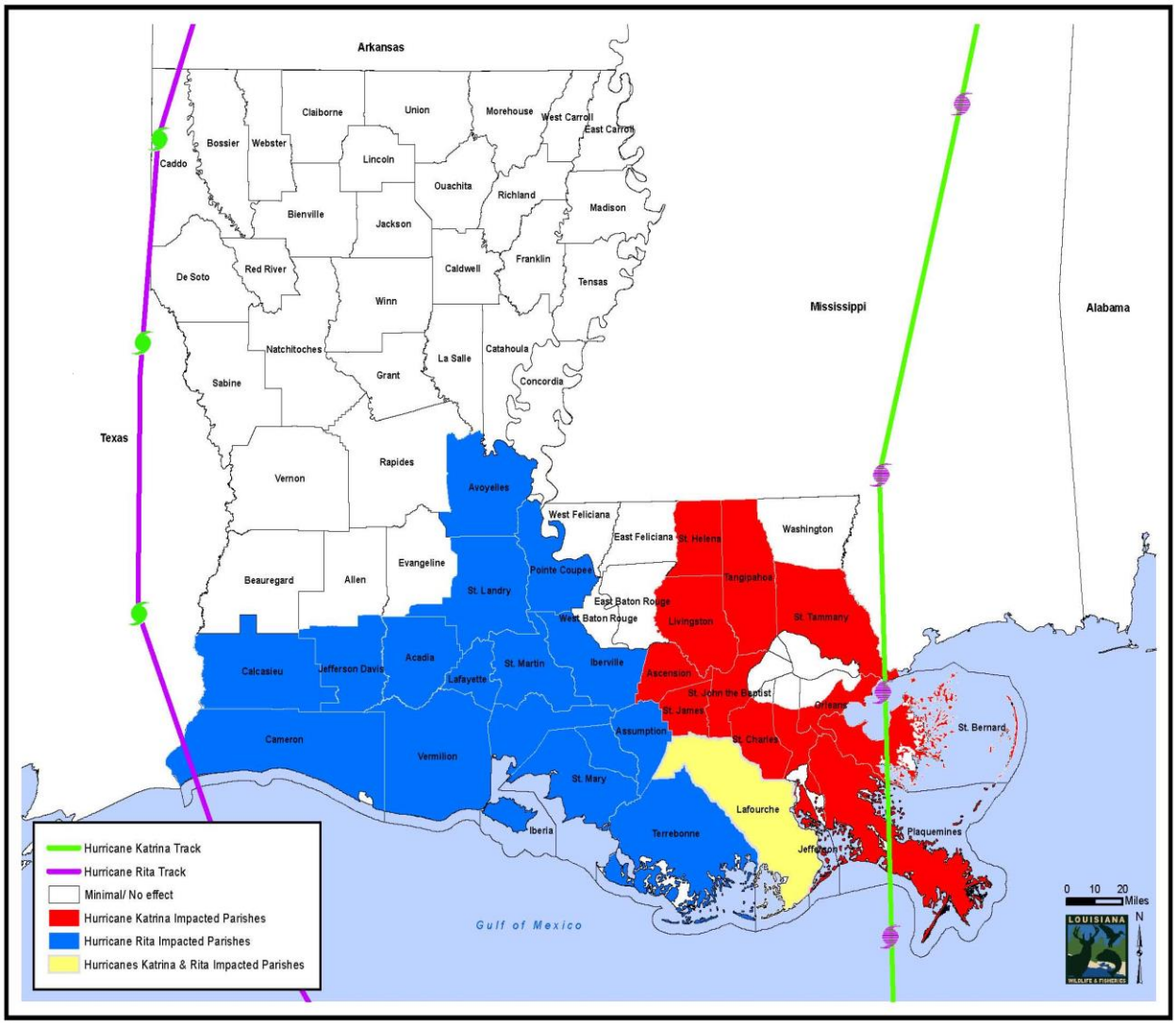
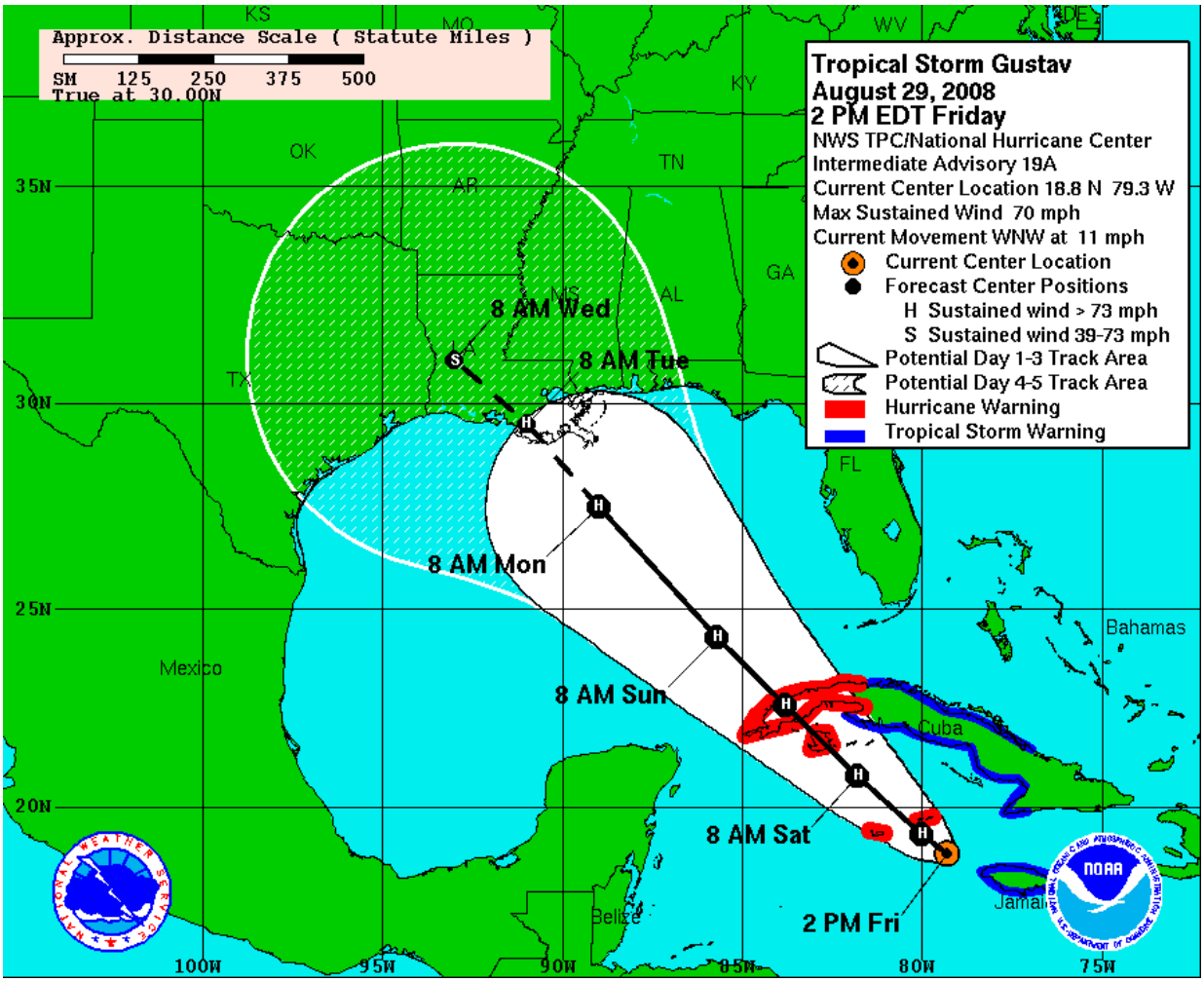


Figure D.2 Map of Louisiana by LDWF Trip Ticket Basin



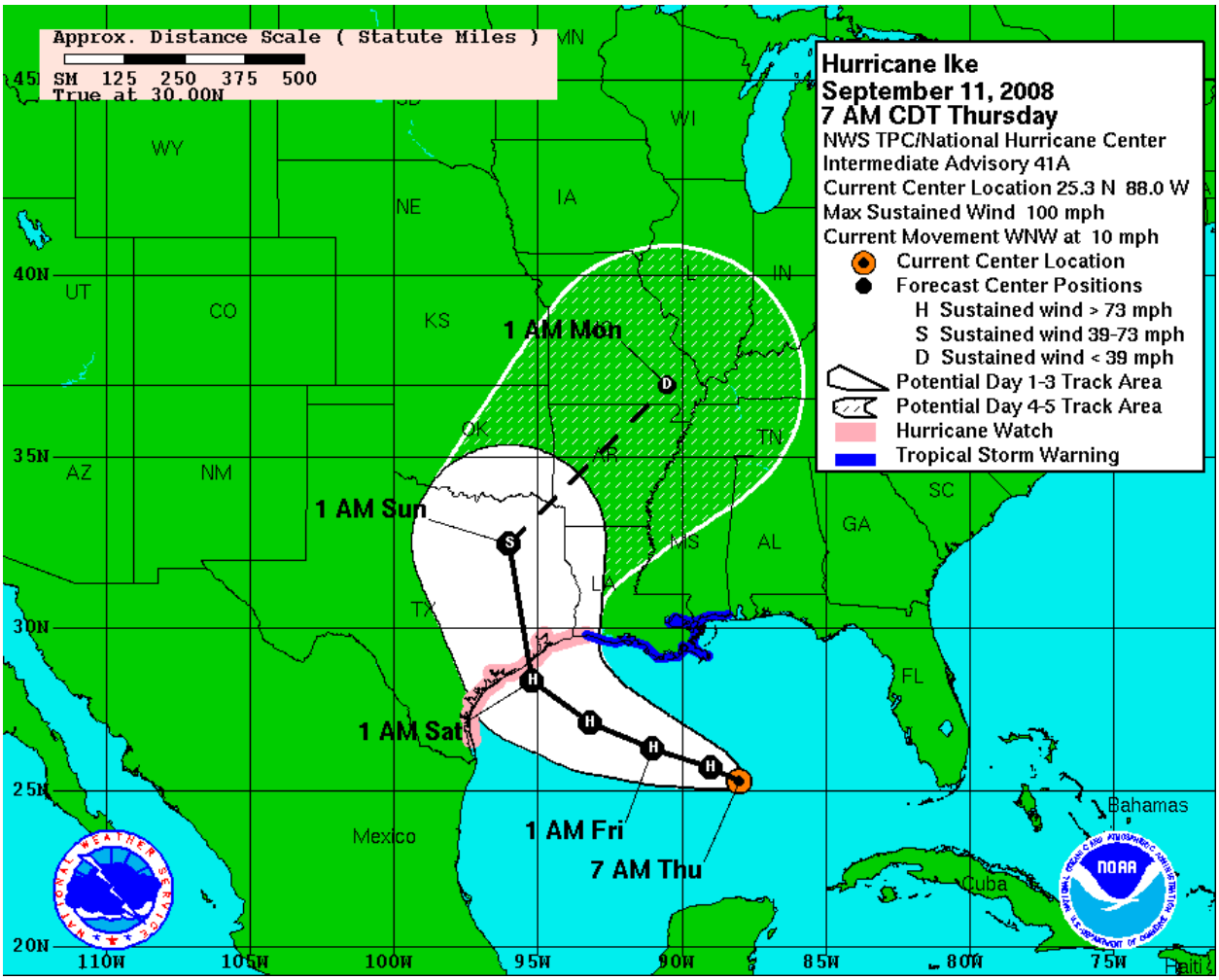
Source: S. Armand, Louisiana Department of Wildlife and Fisheries, LAGISDVD, ESRI, NOAA, Nov. 15, 2010. Note that hurricanes Katrina and Rita were both category 3 hurricanes.

Figure D.3 Tracks of Hurricanes Katrina and Rita in 2005



Source: National Hurricane Center, NOAA. Note that hurricane Gustav was a category 2 hurricane.

Figure D.4 Track of Hurricanes Gustav in 2008



Source: National Hurricane Center, NOAA. Note that hurricane Ike was a category 1 hurricane.

Figure D.5 Track of Hurricanes Ike in 2008