

# **The 2006 Economic Benefits of Hunting, Fishing and Wildlife Watching in**



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For the:  
**Texas Parks and Wildlife Department**

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## **Acknowledgements**

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## Table of Contents

Acknowledgments		ii
List of Tables		iv
Executive Summary		v
Introduction		1
Methods		1
Demographics		2
Participation		9
Economic Impacts		17
Retail Sales		17
Total Economic Effect (Output)		17
Earnings		21
Employment		21
Tax Revenues		22
Per Participant and Per Day Expenditures		22
Travel-Related Expenditures		25
Public and Private Land Activity, Expenditures and Impacts		26
Conclusion		32
Appendix A	Definitions	33
Appendix B	Methods	34
Appendix C	Detailed Hunting Fishing Expenditures and Impacts	38
Appendix D	Detailed Freshwater Fishing Expenditures and Impacts	42
Appendix E	Detailed Saltwater fishing Expenditures and Impacts	46
Appendix F	Detailed Wildlife Watching Expenditures and Impacts	50

## List of Tables

Table E-1. Executive Summary	v
Table 1. Demographic Background of Hunters by Species Hunted in Texas in 2006	3
Table 2a. Texas Freshwater Angler Demographics by Species Fished, 2006	5
Table 2b. Texas Saltwater Angler Demographics by Species Fished, 2006	7
Table 3. Texas Wildlife Watching Demographics, 2006	9
Table 4. Hunting Participation by Residential Status and Species Hunted in Texas in 2006	10
Table 5a. Freshwater Fishing Participation by Residential Status and Species Fished in Texas in 2006	12
Table 5b. Saltwater Fishing Participation by Residential Status and Species Fished in Texas in 2006	13
Table 6. Participation in Non-Residential Watchable Wildlife Recreation in Texas in 2006	14
Table 7. Participation in Non-residential Watchable Wildlife Recreation by Site Visited and Wildlife Observed, Fed, or Photographed in Texas in 2006	15
Table 8. Participation in Residential Watchable Wildlife Recreation in Texas in 2006	15
Table 9. Participation in Residential Watchable Wildlife Recreation by Wildlife Observed in Texas in 2006	16
Table 10a. Economic Activity Generated by Texas Freshwater Anglers, 2006	18
Table 10b. Economic Activity Generated by Texas Saltwater Anglers, 2006	19
Table 11. Economic Activity Generated by Texas Hunters, 2006	20
Table 12. Economic Activity Generated by Texas Wildlife Watchers, 2006	21
Table 13. Combined Economic Impacts of Fishing, Hunting and Wildlife-Watching Recreation, 2006	21
Table 14. Per Day and Per Person Expenditures, 2006	23
Table 15. Travel-Related Expenditures, 2006	26
Table 16. Percentage of Non-Residential* Activity and Days Occurring on Public and Private Land	27
Table 17. Percentage of Hunters and Hunting Days on Public and Private Land	28
Table 18. Economic Activity Generated by Wildlife Viewers, by Type of Land Used, 2006	29
Table 19. Economic Activity Generated by Texas Hunters, by Type of Land Used, 2006	30
Table 20. Economic Activity Generated by Hunters and Wildlife Viewers Combined, by Type of Land Used, 2006	31

## Executive Summary

The purpose of this project was to help resource managers and the public develop a better understanding of the economic contributions of hunting, sportfishing and wildlife watching activities in Texas in 2006. When used effectively, economic data can help increase legislative, public, business and media awareness of the importance of fish and wildlife, and as a result, help boost conservation efforts and public recreational opportunities.

In 2006, 6.0 million residents and non-residents participated in some form of fish and wildlife-related recreation in Texas. These anglers, hunters and wildlife viewers spent \$8.91 billion in retail sales (\$8.24 billion by residents and \$671 million by nonresidents), creating \$4.67 billion in salaries and wages, and supporting 139,404 jobs. The total economic effect (multiplier effect) from fish and wildlife-related recreation was estimated at \$15.8 billion.

**Table E-1: Executive Summary**

	RETAIL SALES	OUTPUT	EARNINGS	JOBS	FEDERAL TAX REVENUE	STATE & LOCAL TAX REVENUE
<b>All Freshwater Fishing:</b>	\$2,385,669,005	\$4,264,849,395	\$1,212,101,527	33,149	\$275,964,683	\$227,275,820
Residents Only:	\$2,155,413,478	\$3,875,074,744	\$1,107,232,020	29,939	\$248,933,137	\$198,656,300
Non-Residents Only:	\$230,255,528	\$389,774,651	\$104,869,507	3,210	\$27,031,546	\$28,619,520
<b>All Saltwater Fishing:</b>	\$981,292,755	\$1,793,001,667	\$553,339,043	18,542	\$118,914,671	\$101,907,407
Residents Only:	\$925,499,217	\$1,690,228,015	\$520,335,880	17,474	\$116,363,100	\$96,273,049
Non-Residents Only:	\$55,793,537	\$102,773,652	\$33,003,163	1,068	\$2,551,571	\$5,634,358
<b>All Hunting:</b>	\$2,630,898,603	\$4,630,911,204	\$1,476,254,143	44,119	\$341,979,889	\$283,441,316
Residents Only:	\$2,362,711,667	\$4,165,259,488	\$1,325,338,167	39,482	\$307,453,606	\$256,421,748
Non-Residents Only:	\$268,186,937	\$465,651,716	\$150,915,976	4,638	\$34,526,283	\$27,019,568
<b>All Wildlife Watching Activities:</b>	\$2,921,616,416	\$5,118,315,526	\$1,436,773,224	43,593	\$333,567,257	\$276,165,828
Residents Only:	\$2,805,019,187	\$4,899,588,788	\$1,365,501,066	41,384	\$317,463,944	\$263,636,210
Non-Residents Only:	\$116,597,229	\$218,726,738	\$71,272,158	2,210	\$16,103,313	\$12,529,618
<b>All Fish and Wildlife Related Recreation (combined):</b>	\$8,919,476,779	\$15,807,077,792	\$4,678,467,937	139,404	\$1,070,426,500	\$888,790,371
Residents Only:*	\$8,248,643,549	\$14,630,151,035	\$4,318,407,133	128,279	\$990,213,787	\$814,987,307
Non-Residents Only:*	\$670,833,231	\$1,176,926,757	\$360,060,804	11,125	\$80,212,713	\$73,803,064

\* = data based on a small sample size

**Please note:** This is a revised version of the original October 31<sup>st</sup> report. An outlier in the resident freshwater fishing data was edited by the U.S. Fish and Wildlife Service (FWS), and this report reflects the FWS edit. The previous version removed the outlier completely while this version leaves in half of the expenditures associated with that outlier per the FWS approach, thus causing freshwater fishing expenditures to increase.

## **Introduction**

Expenditures made for fish and wildlife-related recreation support significant industries. Unlike traditional industries which are often easily recognized by large factories, the hunting, fishing and wildlife viewing industries are comprised of widely scattered retailers, manufacturers, wholesalers and support services that, when considered together, become quite significant. Given that outdoor recreation dollars are often spent in rural or lightly populated areas, the economic contributions of fish and wildlife resources can be especially important to rural economies.

This project assesses the 2006 economic contributions of fish and wildlife-based recreation in Texas. The purpose was to provide resource managers with the economic information necessary to better conserve and manage wildlife and other natural resources. Only the effects of recreation expenditures that occurred within Texas are considered.

This report contains sections devoted to demographic, participation, and economic impact information that provide the reader with a better understanding of the activities undertaken by outdoor recreationists. Definitions of several terms used in this report are provided in Appendix A. Appendix B provides methodological descriptions. Appendix C presents detailed expenditures for hunting, Appendices D and E provide detailed expenditures for freshwater and saltwater fishing, and Appendix F presents detailed expenditures for wildlife watching.

## **Methods**

Data on demographics, participation and expenditures were obtained from the 2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation (Survey), which is conducted approximately every five years by the U.S. Fish and Wildlife Service and the U.S. Bureau of the Census. The Survey provides data required by natural resource management agencies, industry and private organizations at state and national levels to assist in optimally managing natural resources. The Survey is funded through excise taxes on hunting and fishing equipment through the Federal Aid in Sport Fish and Wildlife Restoration Acts. The expenditure data were analyzed using economic models to quantify economic impacts. A more detailed description of the methods used to generate the economic estimates is presented in Appendix B.

## Demographics

### *Hunter Demographics*

Participants (Table 1) are approximately 40 years old, are predominantly male, and are likely to be married. The average household income for Texas hunters is approximately \$66,316, significantly higher than the \$43,425 state average (U.S. Census Bureau). About 59 percent have at least some college experience. Non-resident hunters typically have higher income and more education. Only a small percentage of hunters in Texas report they are non-white.

Table 1 does not necessarily represent the most popular types of game in Texas. The species presented are those most often cited by hunters as targets of their activity, which may be driven by availability rather than preference. In other words, hunters may often pursue species based on the higher likelihood of hunting success rather than the species they actually desire.

### *Angler Demographics*

Freshwater anglers (Table 2a) are approximately 40 years old, are predominantly male, and are likely to be married. The average household income for anglers participating in freshwater fishing in Texas is approximately \$64,679. About 53 percent of freshwater anglers in Texas have at least some college experience. Demographic characteristics across species fished were similar except trout and black bass anglers typically have higher incomes. Approximately ten percent of freshwater anglers in Texas report they are non-white.

Saltwater anglers (Table 2b) are approximately 42 years old, are predominantly male, and are likely to be married. The average household income for anglers participating in saltwater fishing in Texas is approximately \$70,108. About 56 percent of saltwater anglers in Texas have at least some college experience. Demographic characteristics are similar for saltwater anglers across most species fished. Approximately eleven percent of saltwater anglers in Texas report they are non-white.

The table below does not necessarily represent the most popular species in Texas. The species presented are those most often cited by anglers as targets of their activity, which may be driven by availability rather than preference. In other words, anglers may often fish for the species that is more likely to bite on a given day rather than the species they would actually prefer to catch.

**Table 1. Demographic Background of Hunters by Species Hunted in Texas in 2006 (Participants 16 years old and older)**

<b>ALL HUNTERS</b>	<b>Big Game</b>	<b>Small Game</b>	<b>Upland Game</b>	<b>Migratory Bird</b>	<b>Deer</b>	<b>Dove</b>	<b>All Hunting</b>
<b>Race (non-white)</b>	7.10%	12.1%	0.0% *	0.0%	7.0%	0.0%	5.8%
<b>Average age</b>	42.0	44.2	47.8 *	43.3	41.6	43.7	43.7.0
<b>Gender (male)</b>	90.20%	96.3%	94.3% *	92.5%	89.3%	93.2%	91.8%
<b>Marital Status (married)</b>	71.00%	65.5%	64.1% *	70.3%	69.1%	69.1%	71.6%
<b>Average household income</b>	\$66,261	\$61,802	\$74,673 *	\$72,337	\$65,773	\$71,641	\$66,316
<b>Education</b>							
<b>No High School</b>	6.30%	1.3%	0.0% *	0.0%	6.9%	0.0%	5.1%
<b>Some High School</b>	12.20%	13.5%	0.0% *	2.5%	13.4%	2.7%	9.9%
<b>High School Diploma</b>	25.10%	28.7%	36.2% *	29.1%	26.5%	31.1%	25.5%
<b>College Graduate</b>	28.90%	25.6%	18.2% *	31.2%	25.2%	33.7%	28.4%
<b>Post-graduate</b>	27.30%	30.7%	45.4% *	37.0%	27.9%	32.3%	30.9%
<b><u>RESIDENT</u></b>							
<b>Race (non-white)</b>	7.4%	1.4%	0.0% *	0.0%	7.1%	0.0%	6.2%
<b>Average age</b>	41.9	44.6	47.7 *	43.5	41.7	44.1	43.6
<b>Gender (male)</b>	89.9%	96.4%	93.6% *	92.6%	89.1%	93.2%	91.6%
<b>Marital Status (married)</b>	69.2%	65.7%	54.9% *	68.4%	67.6%	67.9%	70.0%
<b>Average household income</b>	\$66,504	\$61,932	\$74,880 *	\$71,982	\$66,320	\$71,776	\$65,850
<b>Education</b>							
<b>No High School</b>	6.6%	1.4%	0.0% *	0.0%	7.1%	0.0%	5.5%
<b>Some High School</b>	12.1%	15.2%	0.0% *	2.7%	13.0%	2.9%	10.1%
<b>High School Diploma</b>	24.4%	30.8%	40.4% *	30.5%	25.7%	32.5%	25.5%
<b>College Graduate</b>	28.3%	24.1%	18.8% *	30.2%	24.9%	32.3%	28.5%
<b>Post-graduate</b>	28.5%	28.3%	40.7% *	36.4%	29.0%	32.1%	30.4%

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\* = sample size is small and results should be interpreted with caution.

\*\* = sample size is too small to report reliably

NOTE: a hunter may target multiple species and can be included in more than one species above.



**Table 1. (Continued) Demographic Background of Hunters by Species Hunted in Texas in 2006 (Participants 16 years old and older)**

<b><u>NONRESIDENT</u></b>	<b>Big Game</b>	<b>Small Game</b>	<b>Upland Game</b>	<b>Migratory Bird</b>	<b>Deer</b>	<b>Dove</b>	<b>All Hunting</b>
<b>Race (non-white)</b>	3.9%	0.0%*	**	**	4.9% *	**	2.3%
<b>Average age</b>	42.3	41.5 *	**	**	40.2 *	**	44.4
<b>Gender (male)</b>	92.8%	95.3%*	**	**	90.8% *	**	93.1%
<b>Marital Status (married)</b>	90.9%	64.5%*	**	**	88.4% *	**	84.7%
<b>Average household income</b>	\$62,650	\$60,248	**	**	\$56,179 *	**	\$71,539
<b>Education</b>							
<b>No High School</b>	3.1%	0.0%*	**	**	4.05% *	**	1.9%
<b>Some High School</b>	13.7%	0.0%*	**	**	17.4% *	**	8.4%
<b>High School Diploma</b>	33.2%	12.0%*	**	**	36.9% *	**	27.3%
<b>College Graduate</b>	35.4%	38.0%*	**	**	29.3% *	**	26.8%
<b>Post-graduate</b>	14.3%	49.9%*	**	**	12.2% *	**	35.4%

\* = sample size is small and results should be interpreted with caution.

\*\* = sample size is too small to report reliably

NOTE: a hunter may target multiple species and can be included in more than one species above.

**Table 2a. Demographic Background of Anglers by Freshwater Species Fished in Texas in 2006 (Participants 16 years old and older)**

ALL FRESHWATER ANGLERS										
	All Freshwater	Crappie	Panfish	White and Stripped Bass	Black Bass	Catfish	Walleye	Trout	Other Freshwater	
<b>Race (non-white)</b>	10.6%	10.2%	9.9%	16.0% *	9.5%	11.6%	**	7.5% *	11.9% *	
<b>Average age</b>	40.1	42.9	41.2	39.2 *	40.8	39.8	**	41.5 *	36.3 *	
<b>Gender (male)</b>	73.0%	77.7%	62.6%	78.0% *	75.5%	68.6%	**	53.3% *	63.5% *	
<b>Marital Status (married)</b>	67.1%	78.3%	57.6%	62.5% *	72.8%	61.2%	**	52.9% *	79.7% *	
<b>Average household income</b>	\$64,679	\$59,917	\$56,223	\$64,644 *	\$66,913	\$61,610	**	\$69,174 *	\$73,980 *	
<b>Education</b>										
<b>No high school</b>	4.2%	5.7%	7.6%	2.4% *	3.8%	4.6%	**	0.0% *	7.7% *	
<b>Some high school</b>	12.4%	10.8%	18.6%	2.2% *	8.9%	12.7%	**	15.7% *	23.8% *	
<b>High school diploma</b>	29.8%	36.6%	40.0%	40.3% *	29.2%	38.5%	**	27.1% *	13.8% *	
<b>College graduate</b>	26.5%	23.2%	15.7%	29.0% *	31.9%	22.2%	**	7.3% *	37.6% *	
<b>Post-graduate</b>	26.8%	23.5%	17.8%	25.9% *	25.9%	21.7%	**	49.8% *	16.9% *	
<b><u>RESIDENT</u></b>										
<b>Race (non-white)</b>	11.3%	10.1%	5.0%	16.7%	10.5%	11.9%	**	7.9% *	12.6% *	
<b>Average age</b>	39.8	42.5	40.3	38.5	40.5	39.7	**	41.7 *	36.7 *	
<b>Gender (male)</b>	72.4%	78.9%	62.2%	78.3%	74.6%	68.5%	**	55.8% *	62.1% *	
<b>Marital Status (married)</b>	66.7%	77.9%	58.2%	62.4%	72.9%	61.6%	**	50.1% *	79.6% *	
<b>Average household income</b>	\$	\$	\$	\$	\$	\$	**	\$ *	\$ *	
<b>Education</b>										
<b>No high school</b>	4.4%	5.4%	7.0%	2.5%	4.2%	4.8%	**	0.0% *	8.1% *	
<b>Some high school</b>	12.3%	11.2%	18.5%	1.96%	9.1%	12.8%	**	16.6% *	21.9% *	
<b>High school diploma</b>	30.12%	36.6%	40.7%	39.7%	29.4%	38.5%	**	23.3% *	12.9% *	
<b>College graduate</b>	25.95%	23.2%	16.6%	29.3%	31.9%	21.9%	**	7.7% *	36.1% *	
<b>Post-graduate</b>	27.2%	23.5%	17.0%	29.2%	25.1%	21.9%	**	52.1% *	17.8% *	

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\* = sample size is small and results should be interpreted with caution.

\*\* = sample size is too small to report reliably

NOTE: a hunter may target multiple species and can be included in more than one species above.

**Table 2a. (Continued) Demographic Background of Anglers by Freshwater Species Fished in Texas in 2006 (Participants 16 years old and older)**

<b><u>NONRESIDENT</u></b>	<b>All Freshwater</b>	<b>Crappie</b>	<b>Panfish</b>	<b>White and stripped Bass</b>	<b>Black Bass</b>	<b>Catfish</b>	<b>Walleye</b>	<b>Trout</b>	<b>Other Freshwater</b>
<b>Race (non-white)</b>	2.4%	**	**	0.0% *	0.0%	0.0% *	**	**	3.3%
<b>Average age</b>	43.4	**	**	55.6 *	43.8	44.3 *	**	**	44.9
<b>Gender (male)</b>	79.5%	**	**	71.2% *	84.5%	71.2% *	**	**	79.6%
<b>Marital Status (married)</b>	71.5%	**	**	64.7% *	71.2%	50.5% *	**	**	85.4%
<b>Average household income</b>	\$	**	**	\$ *	\$	\$ *	**	**	\$
<b>Education</b>									
<b>No high school</b>	2.4%	**	**	0.0% *	0.0%	0.0% *	**	**	0.0%
<b>Some high school</b>	14.5%	**	**	8.7% *	7.5%	10.7% *	**	**	4.8%
<b>High school diploma</b>	26.8%	**	**	53.8% *	27.0%	40.6% *	**	**	14.2%
<b>College graduate</b>	33.7%	**	**	20.1% *	32.2%	30.3% *	**	**	41.3%
<b>Post-graduate</b>	22.4%	**	**	17.3% *	33.2%	18.2% *	**	**	39.4%

\* = sample size is small and results should be interpreted with caution.

\*\* = sample size is too small to report reliably

NOTE: a hunter may target multiple species and can be included in more than one species above.

**Table 2b. Demographic Background of Anglers by Saltwater Species Fished in Texas in 2006 (Participants 16 years old and older)**

<b>ALL SALTWATER ANGLERS</b>	<b>All Saltwater</b>	<b>Flounder Halibut</b>	<b>Redfish</b>	<b>Seatrout</b>	<b>Finfish</b>	<b>Other Saltwater</b>
<b>Race (non-white)</b>	11.1%	10.8%	10.7%	10.1% *	4.4%	21.1% *
<b>Average age</b>	41.7	43.6	41.8	43.1 *	40.7	34.3 *
<b>Gender (male)</b>	76.5%	67.6%	76.4%	77.7% *	76.8%	79.1% *
<b>Marital Status (married)</b>	76.2%	76.1%	78.3%	76.8% *	73.0%	79.8% *
<b>Average household income</b>	\$70,108	\$71,881	\$71,414	\$71,762 *	\$63,682	\$76,026 *
<b>Education</b>						
<b>No high school</b>	1.8%	1.0%	2.4%	0.7% *	6.6%	0.0% *
<b>Some high school</b>	14.1%	14.1%	11.9%	13.3% *	5.2%	29.5% *
<b>High school diploma</b>	27.5%	22.7%	30.7%	29.7% *	27.5%	16.8% *
<b>College graduate</b>	25.7%	34.3%	27.8%	32.1% *	21.3%	21.1% *
<b>Post-graduate</b>	30.6%	27.7%	27.0%	24.1% *	39.2%	32.4% *
<b><u>RESIDENT</u></b>						
<b>Race (non-white)</b>	11.6%	10.8%	10.8%	10.3%	12.9%	**
<b>Average age</b>	41.4	43.2	41.8	43.0	42.0	**
<b>Gender (male)</b>	76.3%	67.6%	75.8%	77.3%	84.8%	**
<b>Marital Status (married)</b>	75.6%	75.0%	77.8%	77.3%	74.3%	**
<b>Average household income</b>	-	-	-	-	-	**
<b>Education</b>						**
<b>No high school</b>	2.0%	1.0%	2.5%	0.7%	0.0%	**
<b>Some high school</b>	14.8%	14.8%	11.9%	13.1%	0.0%	**
<b>High school diploma</b>	28.4%	23.7%	31.3%	30.1%	43.8%	**
<b>College graduate</b>	24.6%	34.1%	27.0%	32.0%	30.4%	**
<b>Post-graduate</b>	30.0%	26.1%	27.1%	23.8%	25.6%	**

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\* = sample size is small and results should be interpreted with caution.

\*\* = sample size is too small to report reliably

NOTE: a hunter may target multiple species and can be included in more than one species above.

**Table 2b. (Continued) Demographic Background of Anglers by Saltwater Species Fished in Texas in 2006 (Participants 16 years old and older)**

<u>NONRESIDENT</u>	<u>All Saltwater</u>	<u>Flounder Halibut</u>	<u>Redfish</u>	<u>Seatrout</u>	<u>Finfish</u>	<u>Other Saltwater</u>
Race (non-white)	3.3%	**	8.3%*	**	**	**
Average age	44.9	**	41.8*	**	**	**
Gender (male)	79.6%	**	94.6%*	**	**	**
Marital Status (married)	85.4%	**	93.0%*	**	**	**
Average household income	-	**	-	**	**	**
Education				**	**	**
No high school	0.0%	**	0.0%*	**	**	**
Some high school	4.8%	**	12.3%*	**	**	**
High school diploma	14.2%	**	14.3%*	**	**	**
College graduate	41.3%	**	49.6%*	**	**	**
Post-graduate	39.4%	**	23.7%*	**	**	**

\* = sample size is small and results should be interpreted with caution.

\*\* = sample size is too small to report reliably

NOTE: a hunter may target multiple species and can be included in more than one species above.

## Wildlife Viewer Demographics

Wildlife watching is divided into two major categories: Residential--activities that occur within one mile of the home; and Non-Residential--activities that occur one mile or further from home. Non-residential activity can be divided into two: *residents* and *non-residents*. Residents are people who reside in Texas, and non-residents represent out-of-state visitors. As a result of these definitions, terms will arise such as “resident non-residential participation” meaning state residents who participate in wildlife viewing one mile or more from their home.

Participants (Table 3) tend to be older than hunters and anglers, are split fairly evenly between male and female, and are likely to be married. Only a small percentage of wildlife viewers in Texas report they are non-white.

**Table 3. Texas Wildlife Watching Demographics, 2006 (Participants 16 years+)**

	<u>Nonresidential Activity</u>		<u>Residential</u>	<u>All</u>
	<u>Resident</u>	<u>Nonresident *</u>	<u>Activity</u>	<u>Participant:</u>
<b>Race (non-white)</b>	5.5%	1.2%	11.7%	4.7%
<b>Average age</b>	49.1	56.7	49.2	50.5
<b>Gender (male)</b>	50.7%	62.8%	54.2%	53.0%
<b>Marital Status (married)</b>	72.9%	65.3%	72.0%	71.5%
<b>Average HH Income</b>	\$63,783	\$70,703	\$64,145	\$64,909
<b>Education</b>				
<b>No high school</b>	0.0%	0.0%	5.6%	0.0%
<b>Some high school</b>	0.0%	0.0%	9.1%	0.0%
<b>High school diploma</b>	44.5%	7.4%	33.6%	37.6%
<b>College graduate</b>	30.3%	27.2%	18.1%	29.7%
<b>Post-graduate</b>	25.2%	65.3%	33.6%	32.6%

\* = data based on a small sample size

The average household incomes for residents participating in non-residential and residential activities are approximately the same. Non-residents (out-of-state visitors) have, on average, a household income higher than resident participants. Just like hunters and anglers, wildlife watchers tend to have incomes higher than the 2006 state average (\$43,425 U.S. Census Bureau). As with income levels, the education levels of residents who participate in residential and non-residential activities are similar.

## Participation

### *Hunter Participation*

In 2006, there were 1.1 million hunters (residents and nonresidents), hunting a total of 14 million days in Texas (Table 4). Of the total hunters in Texas, 978,697 were state residents and 122,589 were nonresidents. Big game hunting was the most popular in terms of hunters and days, at more than double the participation in migratory bird hunting.

**Table 4. Hunting Participation by Residential Status and Species Hunted in Texas in 2006 (Participants 16+ years)**

<u>Number of participants</u>	<u>Big Game</u>	<u>Small Game</u>	<u>Upland Game</u>	<u>Migratory Bird</u>	<u>Deer</u>	<u>Dove</u>	<u>All Hunters</u>
<b>Resident</b>	817,428	317,053	176,526 *	402,489	756,630	376,963	978,697
<b>Nonresident</b>	72,345	42,168	23,867 *	32,741 *	57,050	- **	122,589
<b>Total</b>	<b>889,773</b>	<b>359,222</b>	<b>200,393</b>	<b>435,229</b>	<b>813,679</b>	<b>393,975</b>	<b>1,101,285</b>
 <u>Number of days</u>							
<b>Resident</b>	10,248,243	2,679,988 *	1,018,808 *	2,311,187	7,961,835	1,646,157	13,400,165
<b>Nonresident</b>	402,126	244,912 *	233,668 *	150,200 *	257,152	- **	649,555
<b>Total</b>	<b>10,650,369</b>	<b>2,924,900</b>	<b>1,252,476</b>	<b>2,461,387</b>	<b>8,218,987</b>	<b>1,735,433</b>	<b>14,049,720</b>
 <u>Average Days of Participation</u>							
<b>Resident</b>	12.5	8.5	5.8	5.7	10.5	4.4	13.7
<b>Nonresident</b>	5.6	5.8	9.8	4.6	4.5	- **	5.3
<b>Total</b>	12.0	8.1	6.3	5.7	10.1	4.4	12.8

NOTE: a hunter may target multiple species and can be included in more than one species above.

NOTE: Each category above is not exclusive of others. For example, deer and turkey are also part of "Big Game." The Definitions appendix explains each category.

\* = sample size is small and results should be interpreted with caution.

\*\* = sample size is too small to report reliably

### *Angler Participation*

In 2006, there were 1.8 million freshwater anglers (residents and nonresidents), fishing a total of 26.9 million days in Texas (Table 5a). Of the total freshwater anglers in Texas, 1.7 million were state residents and 142,821 were nonresidents. Most fishing effort was directed at catfish. There were 1.1 million saltwater anglers (residents and nonresidents), fishing a total of 15.1 million days in Texas (Table 5b). Of the total saltwater anglers in Texas, 1.07 million were state residents and 76,946 were nonresidents. Most fishing effort was directed at redfish.

### *Wildlife Watching Participation*

Participation information is divided into two subsections. The first subsection explores non-residential activities by state residents and visitors (non-residents). The second subsection examines residential activities (activities occurring within one mile of home).

#### Non-Residential Participation (activity occurring one or more miles from home):

In 2006, there were 955,726 watchable wildlife recreationists (residents and non-residents) participating in non-residential activities in Texas (Table 6). Of the total recreationists in Texas participating in activities more than one mile from home, 778,134 were state residents and 177,592 were non-residents. Altogether, these recreationists spent 13.1 million days in non-residential activities in Texas.

The primary watchable wildlife activity, measured in terms of number of participants, was observing wildlife, with photographing wildlife the second preferred activity. In terms of days of activity, feeding wildlife ranked higher than photographing wildlife. Please note one participant may engage in two or more activities per trip as these activities are not exclusive of one another.

Participation by resident and non-resident recreationists in terms of sites visited and wildlife observed, fed, or photographed is presented in Table 7. Note that the results presented in Table 7 do not necessarily imply that recreationists prefer a certain site type or prefer to observe a certain wildlife type. This is because the results in Table 7 reflect participants' preferences *and* the availability of sites and wildlife.

#### Residential Participation (activity occurring within one mile of home):

In 2006, there were 3.8 million residential watchable wildlife participants in Texas (Table 8). This number represents Texas residents participating in watchable wildlife recreation within one mile of their home. Compared to non-residential activity, there are nearly four times the residents who participate within one mile of their homes than those who travel away from home. However, the bulk of expenditures associated with wildlife viewing are made for activities away from home.



**Table 5a. Freshwater Fishing Participation by Residential Status and Species Fished in Texas in 2006 (Participants 16+ years)**

	<u>Crappie</u>	<u>Panfish</u>	<u>White Bass</u>	<u>Black Bass</u>	<u>Catfish</u>	<u>Trout</u>	<u>Any other</u>	<u>All species</u>
<b><u>Number of participants</u></b>								
Resident	603,165	296,663	605,358	769,640	1,001,072	151,271*	270,802*	1,710,618
Nonresident	**	**	26,657	82,527	34,404	**	**	142,821
<b>Total</b>	<b>629,732</b>	<b>314,580</b>	<b>632,015</b>	<b>852,167</b>	<b>1,035,476</b>	<b>160,463</b>	<b>284,997</b>	<b>1,853,439</b>
<b><u>Number of days</u></b>								
Resident	9,267,613	4,001,923	6,640,225	10,761,166	10,987,318	1,389,836	1,680,937	25,628,259
Nonresident	**	**	321,503	533,647	645,320	**	**	1,361,752
<b>Total</b>	<b>9,785,639</b>	<b>4,279,865</b>	<b>6,961,727</b>	<b>11,294,813</b>	<b>11,632,638</b>	<b>1,403,130*</b>	<b>1,697,542*</b>	<b>26,990,011</b>
<b><u>Avg Days of Participation</u></b>								
Resident	15.4	13.5	11.0	14.0	11.0	9.2	6.2	15.0
Nonresident	**	**	12.1	6.5	18.8	**	**	9.5
<b>Total</b>	<b>15.5</b>	<b>13.6</b>	<b>11.0</b>	<b>13.3</b>	<b>11.2</b>	<b>8.7</b>	<b>6.0</b>	<b>14.6</b>
<b><u>Number of observations</u></b>								
Resident	61	33	61	76	104	15	25	163
Nonresident	9	7	14	32	16	2	4	57
<b>Total</b>	<b>70</b>	<b>40</b>	<b>75</b>	<b>108</b>	<b>120</b>	<b>17</b>	<b>29</b>	<b>220</b>

\* = sample size is small and results should be interpreted with caution.

\*\* = sample size is too small to report reliably

**Table 5b. Saltwater Fishing Participation by Residential Status and Species Fished in Texas in 2006 (Participants 16+ years)**

<u>Number of participants</u>	<u>All Saltwater</u>	<u>Flounder</u>	<u>Redfish</u>	<u>Sea Trout</u>	<u>Other Finfish</u>	<u>Any</u>
Resident	1,070,188	440,599	860,267	624,850	244,465	186,202*
Nonresident	76,946	**	30,539	**	**	**
<b>Total</b>	<b>1,147,134</b>	<b>463,314</b>	<b>890,806</b>	<b>634,572</b>	<b>256,201</b>	<b>203,814*</b>
<u>Number of days</u>						
Resident	14,380,480	5,230,062	9,441,845	8,594,401	1,030,565*	1,905,734*
Nonresident	762,431	**	420,600*	**	**	**
<b>Total</b>	<b>15,142,910</b>	<b>5,276,141</b>	<b>9,862,445</b>	<b>8,954,679</b>	<b>1,060,013</b>	<b>2,145,944</b>
<u>Avg Days of Participation</u>						
Resident	13.4	11.9	11.0	13.8	4.2*	10.2*
Nonresident	9.9	**	13.8*	**	**	**
<b>Total</b>	<b>13.2</b>	<b>11.4</b>	<b>11.1</b>	<b>14.1</b>	<b>4.1</b>	<b>10.5*</b>
<u>Number of observations</u>						
Resident	114	48	94	71	25	17
Nonresident	32	8	11	4	8	9
<b>Total</b>	<b>146</b>	<b>56</b>	<b>105</b>	<b>75</b>	<b>33</b>	<b>26</b>

\* = sample size is small and results should be interpreted with caution.

\*\* = sample size is too small to report reliably

**Table 6. Participation in Non-Residential Watchable Wildlife Recreation in Texas in 2006  
(Participants 16+ years)**

	<b>Resident*</b>	<b>Nonresident*</b>	<b>Total</b>
<b>Number of participants</b>	<b>778,134</b>	<b>177,592</b>	<b>955,726</b>
observing wildlife	563,398	135,966	699,364
photographing wildlife	207,665	88,911	296,576
feeding wildlife	325,450	74,592	400,043
<b>Number of days</b>	<b>12,149,560</b>	<b>970,185</b>	<b>13,119,745</b>
observing wildlife	11,242,915	793,242	12,036,157
photographing wildlife	1,739,004	335,593	2,074,597
feeding wildlife	5,839,346	333,299	6,172,646
<b>Number of trips</b>	<b>10,481,954</b>	<b>253,082</b>	<b>10,735,036</b>
<b>Average Days Participation</b>	<b>15.6</b>	<b>5.5</b>	<b>13.7</b>

\* = data based on a small sample size

**Table 7. Participation in Non-Residential Watchable Wildlife Recreation by Site Visited and Wildlife Observed, Fed, or Photographed in Texas in 2006 (Participants 16+ years; Ranked by number of participants per activity)**

	Resident	Nonresident *	Total
<b>Number of participants</b>	<b>778,134</b>	<b>177,592</b>	<b>955,726</b>
<b>Number of recreationists visiting:</b>			
Public land	616,114	138,890	755,004
Private land	331,507	57,300	388,807
<b>Number of recreationists observing, feeding, photographing:</b>			
Birds	714,403	151,596	865,999
waterfowl	481,379	77,027	558,406
songbirds	585,834	101,905	687,739
birds of prey	456,398	90,439	546,837
other birds	299,198	71,597	370,795
shorebirds	318,061	42,566	360,627
mammals	700,700	107,585	808,286
small land mammals	614,331	87,838	702,169
large land mammals	564,333	64,576	628,910
ocean mammals	163,749	-	163,749
other wildlife	323,185	95,688	418,873
Fish	152,824	51,722	204,547

\* = data based on a small sample size

**Table 8. Participation in Residential Watchable Wildlife Recreation in Texas in 2006 (Participants 16+ years)**

<b>Number of participants</b>	3,860,517
feeding birds & wildlife	3,331,946
birds	3,246,727
other wildlife	1,449,478
observing wildlife	2,252,307
photographing wildlife	1,410,920
visiting parks near home	733,464
maintaining natural areas around home	487,394
maintaining plantings around home	545,338
<b>Number of days</b>	
observing wildlife	315,148,983
photographing wildlife	30,450,883

The primary residential watchable wildlife activity, measured in terms of number of participants, was feeding wildlife. Observing wildlife was the second most popular residential watchable wildlife activity. This is in contrast to the ranking of the non-residential activities, where observing wildlife was the most popular activity. Of those who participate in feeding birds and wildlife, most feed wild birds.

Given the manner in which the survey questions were asked, we cannot determine the number of days spent feeding wildlife. However, we can determine the number of days spent observing and photographing wildlife around the home. In terms of days spent in watchable wildlife activities, observing wildlife again was the most popular activity. Residents spent approximately 315 million days observing wildlife around their home.

The number one type of wildlife observed by residential recreationists in Texas was birds (Table 9). The second most prominent category to be observed by residents was small mammals. The results in Table 9 do not necessarily imply that recreationists prefer to observe a certain wildlife type because the results reflect participants' preferences and the availability of wildlife types.

**Table 9. Participation in Residential Watchable Wildlife Recreation by Wildlife Observed in Texas in 2006 (Participants 16+ years)**

<b>Number of recreationists</b>	
birds	2,101,616
mammals	1,859,842
large mammals	1,172,196
small mammals	1,697,242
insects or spiders	1,042,677
amphibians or reptiles	1,052,042
fish & other insects	486,489

## **Economic Impacts**

### *Retail Sales*

Tables 10a, 10b, 11 and 12 present retail sales and resulting economic impacts in Texas associated with freshwater fishing, saltwater fishing, hunting and wildlife watching. Table 13 presents combined expenditures and impacts for all fish and wildlife-related recreation in total. Altogether, these activities generated \$8.16 billion in consumer expenditures for equipment and services consumed as part of their outdoor activities. Most of these were made by residents (\$7.49 billion), while nonresidents contributed \$671 million. Tables detailing the expenditures and economic impacts of each activity and by species are provided in Appendices C-F.

### *Total Economic Effect (Output)*

Original expenditures made by hunters, anglers and wildlife watchers generate rounds of additional spending throughout the economy. For example, a retailer buys more inventory and pays bills, wholesalers buy more from manufacturers, and all these pay employees who then spend their paychecks. The sum of these impacts is the total economic impact resulting from the original expenditures (Appendix B includes methods and sources). The total economic effect from 2006 fish and wildlife-related recreation in Texas was estimated to be \$15.8 billion. In other words, if hunters, anglers and wildlife watchers were to stop spending money in Texas and not spend these dollars on other in-state items, the state economy would shrink by \$15.8 billion. Sportfishing accounted for \$6.02 billion (\$4.26 billion from freshwater and \$1.79 billion from saltwater), with \$4.63 billion and \$5.12 billion from hunting and wildlife-watching, respectively.

**Table 10a. Economic Activity Generated by Texas Freshwater Anglers, 2006**  
(Participants 16+ years)

	<u>RETAIL SALES</u>	<u>OUTPUT</u>	<u>EARNINGS</u>	<u>JOB</u>	<u>FEDERAL TAX REVENUE</u>	<u>STATE &amp; LOCAL TAX REVENUE</u>
<b>All Freshwater Fishing:</b>	\$2,385,669,005	\$4,264,849,395	\$1,212,101,527	33,149	\$275,964,683	\$227,275,820
Residents Only:	\$2,155,413,478	\$3,875,074,744	\$1,107,232,020	29,939	\$248,933,137	\$198,656,300
Non-Residents Only:	\$230,255,528	\$389,774,651	\$104,869,507	3,210	\$27,031,546	\$28,619,520
<b>Black Bass Fishing:</b>	\$869,778,479	\$1,560,020,728	\$438,371,076	11,206	\$98,549,162	\$77,839,762
Residents Only:	\$805,384,886	\$1,442,125,400	\$402,161,493	10,117	\$90,341,277	\$71,126,969
Non-Residents Only:	\$64,393,593	\$117,895,328	\$36,209,583	1,089	\$8,207,885	\$6,712,793
<b>White Bass Fishing:</b>	\$218,243,045	\$398,765,830	\$120,446,871	3,854	\$27,272,207	\$23,299,943
Residents Only:	\$205,092,189	\$374,860,024	\$112,896,353	3,601	\$25,548,428	\$21,930,235
Non-Residents Only:	\$13,150,856	\$23,905,806	\$7,550,518	254	\$1,723,779	\$1,369,708
<b>Trout Fishing:</b>	\$22,423,765	\$41,447,253	\$12,342,410	408	\$2,780,130	\$2,369,770
Residents Only:*	\$22,124,332	\$40,893,900	\$12,158,710	403	\$2,738,214	\$2,340,257
Non-Residents Only:	\$299,433	\$553,353	\$183,700	5	\$41,916	\$29,513
<b>Crappie Fishing:</b>	\$235,684,406	\$421,956,928	\$126,821,600	3,950	\$28,960,608	\$24,380,402
Residents Only:	\$223,040,491	\$399,356,317	\$119,997,157	3,717	\$27,394,881	\$23,086,383
Non-Residents Only:*	\$12,643,915	\$22,600,610	\$6,824,443	233	\$1,565,727	\$1,294,019
<b>Panfish Fishing:</b>	\$270,444,490	\$478,576,473	\$127,686,346	2,998	\$28,794,116	\$22,182,288
Residents Only:	\$262,408,354	\$464,026,580	\$123,030,325	2,843	\$27,731,391	\$21,331,003
Non-Residents Only:*	\$8,036,136	\$14,549,893	\$4,656,021	155	\$1,062,725	\$851,285
<b>Catfish Fishing:</b>	\$429,776,828	\$757,855,176	\$212,532,946	6,450	\$51,081,884	\$48,895,946
Residents Only:	\$306,955,610	\$563,436,368	\$167,574,572	5,088	\$37,647,085	\$31,282,102
Non-Residents Only:	\$122,821,218	\$194,418,808	\$44,958,374	1,362	\$13,434,799	\$17,613,844
<b>Any Fish:</b>	\$23,355,029	\$42,573,354	\$14,000,171	434	\$3,140,226	\$2,687,112
Residents Only:*	\$23,236,743	\$42,356,792	\$13,940,242	431	\$3,126,577	\$2,675,058
Non-Residents Only:	\$118,286	\$216,562	\$59,929	3	\$13,649	\$12,054

\* = data based on a small sample size

\*\* = sample size too small to report results reliably

**Table 10b. Economic Activity Generated by Texas Saltwater Anglers, 2006**  
(Participants 16+ years)

	<b>RETAIL SALES</b>	<b>OUTPUT</b>	<b>EARNINGS</b>	<b>JOB</b>	<b>FEDERAL TAX REVENUE</b>	<b>STATE &amp; LOCAL TAX REVENUE</b>
<b>All Saltwater Fishing:</b>	\$981,292,755	\$1,793,001,667	\$553,339,043	18,542	\$118,914,671	\$101,907,407
Residents Only:	\$925,499,217	\$1,690,228,015	\$520,335,880	17,474	\$116,363,100	\$96,273,049
Non-Residents Only:	\$55,793,537	\$102,773,652	\$33,003,163	1,068	\$2,551,571	\$5,634,358
<b>Flounder/Halibut Fishing:</b>	\$122,730,049	\$225,552,920	\$77,376,978	3,313	\$16,804,194	\$12,721,533
Residents Only:	\$114,044,551	\$209,285,040	\$71,878,734	3,136	\$15,581,981	\$11,878,887
Non-Residents Only:	\$8,685,499	\$16,267,879	\$5,498,244	177	\$1,222,213	\$842,646
<b>Redfish Fishing:</b>	\$308,239,465	\$562,883,346	\$173,102,953	5,648	\$38,940,295	\$32,982,497
Residents Only:	\$293,351,268	\$535,515,909	\$164,302,001	5,361	\$36,956,309	\$31,364,024
Non-Residents Only:	\$14,888,197	\$27,367,437	\$8,800,952	286	\$1,983,986	\$1,618,473
<b>Sea Trout Fishing:</b>	\$265,925,205	\$487,309,242	\$146,483,801	4,836	\$32,994,342	\$28,224,563
Residents Only:*	\$256,554,835	\$469,783,636	\$141,000,657	4,670	\$31,750,738	\$27,214,774
Non-Residents Only:	\$9,370,370	\$17,525,606	\$5,483,144	167	\$1,243,604	\$1,009,789
<b>Other Finfish Fishing:</b>	\$213,751,457	\$391,185,420	\$122,219,597	4,066	\$27,459,725	\$22,869,523
Residents Only:	\$195,893,154	\$358,409,330	\$111,271,634	3,673	\$25,035,205	\$21,052,302
Non-Residents Only:*	\$17,858,303	\$32,776,090	\$10,947,963	394	\$2,424,520	\$1,817,221

\* = data based on a small sample size

\*\* = sample size too small to report results reliably



**Table 11. Economic Activity Generated by Texas Hunters, 2006 (Participants 16+ years)**

	<b>RETAIL SALES</b>	<b>OUTPUT</b>	<b>EARNINGS</b>	<b>JOBS</b>	<b>FEDERAL TAX REVENUE</b>	<b>STATE &amp; LOCAL TAX REVENUE</b>
<b>All Hunting:</b>	\$2,630,898,603	\$4,630,911,204	\$1,476,254,143	44,119	\$341,979,889	\$283,441,316
Residents Only:	\$2,362,711,667	\$4,165,259,488	\$1,325,338,167	39,482	\$307,453,606	\$256,421,748
Non-Residents Only*:	\$268,186,937	\$465,651,716	\$150,915,976	4,638	\$34,526,283	\$27,019,568
<b>Big Game Hunting:</b>	\$1,615,261,279	\$2,827,627,363	\$916,282,689	27,159	\$216,176,317	\$184,854,349
Residents Only:	\$1,396,308,776	\$2,451,830,073	\$794,091,392	23,349	\$188,142,675	\$162,914,325
Non-Residents Only*:	\$218,952,504	\$375,797,290	\$122,191,297	3,810	\$28,033,642	\$21,940,024
<b>Deer Hunting:</b>	\$1,234,046,845	\$2,162,983,090	\$701,036,482	22,222	\$165,254,173	\$142,723,896
Residents Only:	\$1,129,957,978	\$1,984,060,335	\$641,755,648	20,350	\$151,781,517	\$132,645,402
Non-Residents Only*:	\$104,088,867	\$178,922,755	\$59,280,833	1,872	\$13,472,656	\$10,078,494
<b>Small Game Hunting:</b>	\$252,708,349	\$446,158,275	\$140,639,160	4,276	\$33,059,764	\$29,428,540
Residents Only:	\$227,563,665	\$401,591,520	\$127,411,403	3,896	\$29,850,630	\$26,391,374
Non-Residents Only**:	\$25,144,684	\$44,566,755	\$13,227,757	380	\$3,209,134	\$3,037,166
<b>Upland Game Hunting*:</b>	\$80,699,062	\$144,764,583	\$44,112,661	1,329	\$10,480,157	\$9,453,778
Residents Only**:	\$57,838,613	\$101,899,843	\$31,062,577	956	\$7,493,477	\$6,886,517
Non-Residents Only**:	\$22,860,449	\$42,864,740	\$13,050,084	372	\$2,986,680	\$2,567,261
<b>Migratory Bird Hunting:</b>	\$351,209,672	\$621,061,438	\$203,621,000	6,345	\$47,242,313	\$40,975,151
Residents Only*:	\$332,358,314	\$586,730,530	\$191,665,744	5,980	\$44,528,535	\$38,883,470
Non-Residents Only**:	\$18,851,359	\$34,330,907	\$11,955,256	365	\$2,713,778	\$2,091,681
<b>Dove Hunting:</b>	\$177,467,664	\$316,372,462	\$105,966,920	3,145	\$24,479,940	\$21,066,680
Residents Only*:	\$172,004,565	\$306,161,298	\$102,243,046	3,050	\$23,660,762	\$20,519,013
Non-Residents Only**:	\$5,463,099	\$10,211,164	\$3,723,874	94	\$819,178	\$547,667

\* = data based on a small sample size

\*\* = sample size too small to report results reliably

**Table 12. Economic Activity Generated by Texas Wildlife Watchers, 2006 (Participants 16+ years)**

	RETAIL SALES	OUTPUT	EARNINGS	JOBS	FEDERAL TAX REVENUE	STATE & LOCAL TAX REVENUE
<b>All Wildlife Watching Activities:</b>	\$2,921,616,416	\$5,118,315,526	\$1,436,773,224	43,593	\$333,567,257	\$276,165,828
Residents Only:	\$2,805,019,187	\$4,899,588,788	\$1,365,501,066	41,384	\$317,463,944	\$263,636,210
Non-Residents Only*:	\$116,597,229	\$218,726,738	\$71,272,158	2,210	\$16,103,313	\$12,529,618

\* = data based on a small sample size

**Table 13: Combined Economic Impacts of Fishing, Hunting and Wildlife-Watching Recreation in Texas, 2006 (Participants 16+ years)**

	RETAIL SALES	OUTPUT	EARNINGS	JOBS	FEDERAL TAX REVENUE	STATE & LOCAL TAX REVENUE
<b>All Fish and Wildlife Related Recreation:</b>	\$8,919,476,779	\$15,807,077,792	\$4,678,467,937	139,404	\$1,070,426,500	\$888,790,371
Residents Only:	\$8,248,643,549	\$14,630,151,035	\$4,318,407,133	128,279	\$990,213,787	\$814,987,307
Non-Residents Only*:	\$670,833,231	\$1,176,926,757	\$360,060,804	11,125	\$80,212,713	\$73,803,064

### *Earnings*

The business activity stimulated throughout the Texas economy by outdoorsmen and women generate salaries and wages. In addition, many of the businesses supporting these individuals pay dividends. Altogether, these represent earnings created for Texas as a result of hunting, fishing and wildlife watching activities. Total earnings in 2006 in Texas from fish and wildlife related activities were estimated at \$4.67 billion, with \$4.31 billion from residents and \$360 million from non-residents.

### *Employment*

Expenditures made for hunting, fishing and wildlife watching activities support jobs throughout the state. Many of these are in companies that directly serve recreationists such as retailers, restaurants, and more. Others are in companies that support the first companies and employees such as wholesalers, utilities, manufacturers, grocers and more. Total jobs, full and part time, supported in Texas in 2006 from fish and wildlife related activities were estimated at 139,404, with 44,119, 51,692 and 43,593 from hunting, fishing and wildlife watching respectively.

### *Tax Revenues*

State and local tax revenues generated from 2006 fish and wildlife-related recreation in Texas were estimated to be \$888.7 million (\$814.9 million by residents and \$73.8 million by non-residents). Freshwater anglers accounted for \$227.2 million and saltwater anglers contributed \$101.9 million. Hunters and wildlife watchers generated \$283.4 million, and \$276.2 million of the total, respectively. All fish and wildlife-related recreation generated \$1.07 billion in tax revenues to the federal government.

### *Per Participant and Per Day Expenditures*

Table 14 presents estimates of the amount spent by recreationists per person and per day. These estimates can be used to approximate changes in economic activity when it is known how specific management or other actions may affect participation in fish and wildlife recreation.

**Table 14. Per Day and Per Person Expenditures, 2006 (Participants 16+ years)**

**HUNTING**

	<b>Big Game</b>	<b>Small Game</b>	<b>Upland Game</b>	<b>Migratory Bird</b>	<b>Deer</b>	<b>Dove</b>	<b>All Hunting</b>
<b>All Hunters:</b>							
Average daily expenditures	\$151.66	\$86.40	\$64.43	\$142.69	\$150.15	\$102.26	\$187.26
Average annual expenditures	\$1,815.36	\$703.49	\$402.70	\$806.95	\$1,516.63	\$450.45	\$2,388.93
<b>Resident Hunters:</b>							
Average daily expenditures	\$136.25	\$84.91	\$56.77	\$143.80	\$141.92	\$104.49	\$176.32
Average annual expenditures	\$1,708.17	\$717.75	\$327.65	\$825.76	\$1,493.41	\$456.29	\$2,414.14
<b>Non-Resident Hunters*:</b>							
Average daily expenditures	\$544.49	\$102.67	\$97.83	\$125.51	\$404.78	-	\$412.88
Average annual expenditures	\$3,026.52	\$596.29	\$957.82	\$575.78	\$1,824.53	-	\$2,187.70

**FRESHWATER FISHING**

	<b>Crappie</b>	<b>Panfish</b>	<b>White Bass</b>	<b>Black Bass</b>	<b>Catfish</b>	<b>Trout</b>	<b>Any other species</b>	<b>All Freshwater Species<sup>1</sup></b>
<b>All Anglers:</b>								
Average daily expenditures	\$24.08	\$63.19	\$31.35	\$77.01	\$36.95	\$15.98	\$13.76	\$88.39
Average annual expenditures	\$374.26	\$859.70	\$345.31	\$1,020.67	\$415.05	\$139.74	\$81.95	\$1,287.16
<b>Resident Anglers:</b>								
Average daily expenditures	\$24.07	\$65.57	\$30.89	\$74.84	\$27.94	\$15.92	\$13.82	\$84.10
Average annual expenditures	\$369.78	\$884.53	\$338.79	\$1,046.44	\$306.63	\$146.26	\$85.81	\$1,260.02
<b>Non-Resident Anglers:</b>								
Average daily expenditures	\$24.41	\$28.91	\$40.90	\$120.67	\$190.33	\$22.52	\$7.12	\$169.09
Average annual expenditures	\$475.92	\$448.52	\$493.34	\$780.28	\$3,569.97	\$32.58	\$8.33	\$1,612.20

<sup>1</sup> These figures present the average expenditures for all anglers, regardless of species targeted. These figures include big-ticket items such as vehicles, boats, and other items that anglers could not assign to any specific species. Many of these big-ticket items are left out of the species specific expenditure estimates, thus the "All Freshwater Species" expenditure averages are generally higher than reported for any other species in the above table.

**Table 14. (Continued) Per Day and Per Person Expenditures, 2006 (Participants 16+ years)**

**SALTWATER FISHING**

	<b>Flounder</b>	<b>Redfish</b>	<b>Sea Trout</b>	<b>Other Finfish</b>	<b>Any</b>	<b>All Saltwater</b>
<b>All Anglers:</b>						
Average daily expenditures	\$23.47	\$32.65	\$30.94	\$207.41	\$0.00	\$68.24
Average annual expenditures	\$264.90	\$346.02	\$419.06	\$834.31	\$0.00	\$855.43
<b>Resident Anglers:</b>						
Average daily expenditures	\$21.81	\$31.07	\$29.85	\$190.08	\$0.00	\$64.36
Average annual expenditures	\$258.84	\$341.00	\$410.59	\$801.31	\$0.00	\$864.80
<b>Non-Resident Anglers:</b>						
Average daily expenditures	\$188.49	\$35.40	\$26.01	\$606.43	\$0.00	\$73.18
Average annual expenditures	\$382.37	\$487.52	\$963.86	\$1,521.73	\$0.00	\$725.10

**Table 14. (Continued) Per Day and Per Person Expenditures, 2006 (Participants 16+ years)**

**WILDLIFE WATCHING:**

<u>Average per participant, annually</u>	<b>Residents</b>	<b>Non-Residents*</b>	<b>All Participants</b>
On residential activities, annually	\$261.37	-	-
On non-residential activities, annually	\$3,604.80	\$656.55	\$3,056.96
<u>Avg. per day, per participant</u>			
For non-residential activities, including equipment items:	\$230.87	\$120.18	\$222.69
For non-residential activities, travel expenses only (food, hotel, etc):	\$22.99	\$107.60	\$29.25

\* Non-resident expenditures only includes money spent in Texas. Expenditures made in other states are not included. Data based on a small sample size.

\*\* Many expenditures made by state residents were for vehicles and boats. Even though efforts were made to only include vehicles and boats purchased for the primary purpose of viewing wildlife, some of these items may also be used for non-related activities. If these items were moved from the equation, the average annual expense would be \$208.48 per resident annually, while the average amount spent per day for residents would be \$9.16.

*Travel-Related Expenditures:*

Table 15 presents travel-related expenditures made by Texas anglers, hunters and wildlife viewers. Through travel, participants help distribute wealth to rural areas where economic opportunities may be limited compared to urban and suburban regions. These expenditures include food, transportation costs (mostly fuel), lodging, guide fees, equipment rental, etc. While not all of these dollars may be spent in rural areas, many are. In addition to travel expenses, many participants will spend money on equipment and services in rural areas. Such equipment and service expenditures are not included in the table below.

**Table 15. Travel-Related Expenditures, Texas 2006 (Participants 16+ years)**

**Hunting:**

Big Game	\$622,517,363
Small Game	\$96,149,411
Upland Game	\$51,101,275
Migratory Bird	\$127,936,132
Deer	\$475,929,653
Pheasant	\$78,888,781
<i>All Hunting, all species</i>	<i>\$873,927,877</i>

**Fishing:**

Catfish	\$183,509,021
Black Bass	\$330,578,747
Crappie	\$143,017,182
Panfish	\$54,443,972
White Bass	\$152,585,672
Trout	\$16,625,325
Any other	\$7,997,372
<i>All Freshwater Fishing</i>	<i>\$962,384,671</i>
Flounder/Halibut	\$94,010,418
Redfish	\$191,102,154
Sea Trout	\$181,532,140
Any other	\$126,579,979
<i>All Freshwater Fishing</i>	<i>\$600,826,485</i>

**Wildlife Viewing:**

(Non-residential only)	\$383,695,225
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## **Public and Private Land Activity, Expenditures and Impacts**

### *Use of Public Lands*

Hunters and wildlife viewers depend on a combination of public and private lands. With urban and suburban populations increasing, it is likely that public lands will play an increasing role in supplying residents and visitors alike with opportunities to experience Texas's wildlife resources. Table 16, using data from the 2006 National Survey, presents the percentage of Texas wildlife viewers using public and private lands for non-residential activities (those occurring more one or more miles from home). Table 17, is also using data from the 2006 National Survey, presents the percentage of Texas hunters using public and private lands. The 2006 National Survey does not ask anglers about activities on public and/or private waters. Therefore, estimates regarding fishing on public waters are not possible.

Comparing the two tables, wildlife viewers are much more dependent on public lands. One reason among several for this difference might be related to a higher percentage of participants living in non-rural regions and therefore less likely to have access to private lands.

**Table 16. Percentage of Non-Residential<sup>1</sup> Activity and Days Occurring on Public and Private Land (participants 16+ years)**

	<b>Residents</b>	<b>Nonresidents</b>	<b>Total</b>
<b><u>Public Land Exclusively</u></b>			
Participants	57.4%	58.7%	136.4%
Days of Participation	20.4%	58.9%	76.1%
<b><u>Private Land Exclusively</u></b>			
Participants	20.8%	12.8%	45.7%
Days of Participation	64.1%	5.5%	195.4%
<b><u>Use Both Public and Private Lands</u></b>			
Participants	21.8%	19.5%	50.5%
Days of Participation	15.5%	30.2%	54.1%

<sup>1</sup> “Non-Residential” describes people who watch, photograph and/or feed wildlife *one mile or more* from their place of residence.

\* = data based on a small sample size

\*\* = sample size too small to report results reliably



**Table 17. Percentage of Hunters and Hunting Days on Public and Private Land (participants 16+ years)**

	<u>All Hunting</u>		<u>Big Game</u>		<u>Small Game</u>		<u>Upland Game *</u>		<u>Migratory Bird*</u>	
<b><u>NUMBER OF HUNTERS WHO USE:</u></b>										
<b>All Types of Land:</b>	1,101,285	--	889,773	--	359,222	--	200,393	--	435,229	--
Residents:	978,697	--	817,428	--	317,053	--	176,526	--	402,489	--
Non-residents:	122,589	--	72,345	--	42,168*	--	23,867	--	32,741*	--
<b>Public Lands Exclusively:</b>	**	**	**	**	**	**	**	**	**	**
Residents:	**	**	**	**	**	**	**	**	**	**
Non-residents:	**	**	**	**	**	**	**	**	**	**
<b>Private Lands Exclusively:</b>	102,687	9.3%	756,994	85.1%	308,969	86.0%	175,609	87.6%	302,070	69.4%
Residents:	93,651*	9.6%	695,248	85.1%	280,282*	88.4%	163,174*	92.4%	273,573	62.9%
Non-residents:	**	**	61,746	85.4%	28,687*	68.0%	**	**	28,497*	6.5%
<b>Private and Public Lands</b>	165,556	15.0%	**	**	**	**	**	**	**	**
Residents:	**	**	**	**	**	**	**	**	**	**
Non-residents:	**	**	**	**	**	**	**	**	**	**
	**	**	**	**	**	**	**	**	**	**
<b><u>DAYS OF HUNTING:</u></b>										
<b>All Hunters, All Types of Land</b>	14,049,720	-	10,650,369	-	2,924,900	-	1,252,476	-	2,461,387	-
Residents:	13,400,165	**	10,248,243	**	2,679,988	**	1,018,808	**	2,311,187	**
Non-residents:	649,555	**	402,126	**	244,912*	**	233,668	**	150,200*	**
<b>By Hunters Using Public Lands Exclusively:</b>	**	**	**	**	**	**	**	**	**	**
Residents:	**	**	**	**	**	**	**	**	**	**
Non-residents:	**	**	**	**	**	**	**	**	**	**
<b>By Hunters Using Private Lands Exclusively:</b>	2,367,830	16.9%	9,035,330	84.8%	2,666,595	91.2%	947,982	75.7%	1,325,407	53.8%
Residents:	2,367,830*	17.7%	8,667,048	84.6%	2,512,245*	93.7%	891,339*	87.5%	1,180,197	51.1%
Non-residents:	**	**	368,282	91.6%	154,350*	63.0%	**	**	145,210*	96.7%
<b>By Hunters Using Public and Private Lands:</b>	4,692,085	33.4%	**	**	**	**	**	**	**	**
Residents:	**	**	**	**	**	**	**	**	**	**
Non-residents:	**	**	**	**	**	**	**	**	**	**

\* = data based on a small sample size \*\* = no responses were received in the survey from non-resident hunters using this type of land. The results do not mean that non-residents did not use these types of lands. The results do imply that such use by non-residents is infrequent.

## Expenditures (Retail Sales) and Economic Impacts Associated with Activities on Public and Private Lands

Significant public funds go into managing fish and wildlife on all lands, public and private. Additional funds are used to acquire and manage habitat on public lands. To help gain an understanding of the return from public lands, Table 18 *estimates* the expenditures and economic impacts created by wildlife viewers associated with their activity occurring on public and private lands. Only the impacts from non-residential activities (more than one mile from home) are included in these estimates. Table 19 presents the same information for hunters, and Table 20 presents the combined impacts by type of land used. These estimates are based on the number of days each spends on public and private lands respectively. The 2006 National Survey does not ask anglers about activities on public and/or private waters. Therefore, such estimates are not possible here.

**Table 18. Economic Activity Generated by Wildlife Viewers, by Type of Land Used, 2006**  
(Participants 16+ years)

	RETAIL SALES	OUTPUT	EARNINGS	JOBS	FEDERAL TAX REVENUE	STATE & LOCAL TAX REVENUE
<b>Public Land</b>						
<b>Exclusively</b>	\$262,735,464	\$489,684,835	\$151,798,751	5,413	\$34,302,110	\$27,951,262
Residents*	\$194,655,531	\$361,244,755	\$109,220,767	4,105	\$24,731,196	\$20,740,450
Non-Residents**	\$68,079,933	\$128,440,080	\$42,577,984	1,308	\$9,570,914	\$7,210,812
<b>Private Land</b>						
<b>Exclusively*</b>	\$653,161,123	\$1,167,502,781	\$316,660,316	7,624	\$70,081,510	\$50,922,578
Residents**	\$644,524,037	\$1,151,139,886	\$311,738,371	7,480	\$68,950,614	\$49,912,571
Non-Residents**	\$8,637,086	\$16,362,895	\$4,921,945	144	\$1,130,896	\$1,010,007
<b>Both Public and Private Lands</b>	\$1,121,557,492	\$1,939,726,658	\$515,334,595	13,984	\$120,652,105	\$99,602,474
Residents	\$1,103,256,002	\$1,905,325,266	\$504,412,351	13,627	\$118,171,852	\$97,584,116
Non-Residents*	\$18,301,490	\$34,401,392	\$10,922,245	358	\$2,480,253	\$2,018,358

\* = data based on a small sample size

\*\* = sample size too small to report results reliably

**Table 19. Economic Activity Generated by Texas Hunters, by Type of Land Used, 2006**  
(Participants 16+ years)

**All Hunters: (Participants 16+ years)**

	RETAIL SALES	OUTPUT	EARNINGS	JOBS	FEDERAL TAX REVENUE	STATE & LOCAL TAX REVENUE
<b>All Types of Hunting:</b>	\$2,630,898,603	\$4,165,259,488	\$1,325,338,167	39,482	\$341,976,589	\$283,441,316
Residents Only:	\$2,362,711,667	\$4,165,259,488	\$1,325,338,167	39,482	\$307,453,306	\$256,421,748
Non-Residents Only:*	\$268,186,937	\$465,651,716	\$150,915,976	4,638	\$34,523,283	\$27,019,568
<b>Big Game Hunting:</b>	\$1,615,261,279	\$2,827,627,363	\$916,282,689	27,159	\$216,176,317	\$184,854,349
Residents Only:	\$1,396,308,776	\$2,451,830,073	\$794,091,392	23,349	\$188,142,675	\$162,914,325
Non-Residents Only:	\$218,952,504	\$375,797,290	\$122,191,297	3,810	\$28,033,642	\$21,940,024
<b>Migratory Bird Hunting:</b>	\$351,209,672	\$621,061,438	\$203,621,000	6,345	\$47,242,313	\$40,975,151
Residents Only:	\$332,358,314	\$586,730,530	\$191,665,744	5,980	\$44,528,535	\$38,883,470
Non-Residents Only:*	\$18,851,359	\$34,330,907	\$11,955,256	365	\$2,713,778	\$2,091,681
<b>Small Game Hunting:</b>	\$252,708,349	\$446,158,275	\$140,639,160	4,276	\$33,059,764	\$29,428,540
Residents Only:	\$227,563,665	\$401,591,520	\$127,411,403	3,896	\$29,850,630	\$26,391,374
Non-Residents Only:	\$25,144,684	\$44,566,755	\$13,227,757	380	\$3,209,134	\$3,037,166

**Hunters Who Use Private Lands Exclusively: (Participants 16+ years)**

	RETAIL SALES	OUTPUT	EARNINGS	JOBS	FEDERAL TAX REVENUE	STATE & LOCAL TAX REVENUE
<b>All Types of Hunting:</b>	\$590,926,279	\$1,022,915,930	\$305,002,538	9,558	\$73,137,107	\$65,546,068
Residents Only:*	\$433,987,453	\$760,218,364	\$220,793,178	6,818	\$53,736,822	\$50,414,737
Non-Residents Only:		\$262,697,566	\$84,209,360	2,739	\$19,400,285	\$15,131,331
<b>Big Game Hunting:</b>	\$1,414,904,079	\$2,477,504,599	\$790,213,035	23,707	\$187,246,951	\$161,710,818
Residents Only:	\$1,208,346,024	\$2,124,043,173	\$676,238,607	20,119	\$161,028,709	\$141,165,525
Non-Residents Only:	\$206,558,055	\$353,461,426	\$113,974,428	3,588	\$26,218,242	\$20,545,293
<b>Migratory Bird Hunting:</b>	\$187,953,402	\$332,583,578	\$107,779,208	3,316	\$25,099,009	\$21,630,926
Residents Only:	\$170,421,217	\$300,583,616	\$96,687,446	2,977	\$22,578,078	\$19,699,148
Non-Residents Only:*	\$17,532,185	\$31,999,962	\$11,091,762	339	\$2,520,931	\$1,931,778
<b>Small Game Hunting:</b>	\$166,046,646	\$292,200,863	\$86,777,722	2,651	\$21,038,698	\$19,848,430
Residents Only:*	\$149,999,137	\$264,686,839	\$79,000,467	2,427	\$19,055,573	\$17,843,648
Non-Residents Only:*	\$16,047,508	\$27,514,024	\$7,777,255	223	\$1,983,125	\$2,004,782

**Table 20. Economic Activity Generated by Hunters and Wildlife Viewers Combined, by Type of Land Used, 2006**

	<b>RETAIL SALES</b>	<b>OUTPUT</b>	<b>EARNINGS</b>	<b>JOBS</b>	<b>FEDERAL TAX REVENUE</b>	<b>STATE &amp; LOCAL TAX REVENUE</b>
<b>Public Land</b>						
<b>Exclusively</b>	\$262,735,464	\$542,070,414	\$171,024,858	5,963	\$34,302,110	\$27,951,262
Residents	\$194,655,531	\$413,630,334	\$128,446,874	4,655	\$24,731,196	\$20,740,450
Non-Residents	\$68,079,933	\$128,440,080	\$42,577,984	1,308	\$9,570,914	\$7,210,812
<b>Private Land</b>						
<b>Exclusively</b>	\$1,244,087,402	\$2,190,418,712	\$621,662,854	17,181	\$70,081,510	\$50,922,578
Residents	\$1,078,511,491	\$1,911,358,251	\$532,531,549	14,298	\$68,950,614	\$49,912,571
Non-Residents	\$8,637,086	\$279,060,461	\$89,131,306	2,883	\$1,130,896	\$1,010,007
<b>Use Both Public and Private Lands</b>						
	\$1,121,557,492	\$2,514,003,031	\$697,155,597	19,386	\$120,652,105	\$99,602,474
Residents	\$1,103,256,002	\$2,470,658,565	\$683,222,237	18,943	\$118,171,852	\$97,584,116
Non-Residents	\$18,301,490	\$43,344,466	\$13,933,360	443	\$2,480,253	\$2,018,358

## **Conclusion**

Fish and wildlife provide numerous recreation opportunities for Texas residents. The recreation expenditures benefit Texas with significant jobs, income and other economic activity. These benefits are particularly important in rural or remote areas where other sources of income are limited. Anglers, hunters and wildlife viewers spend dollars that, in turn, benefit many other industries throughout the state. The resulting economic benefits reach every corner of the State and its economy. Every resident and tourist of Texas benefits from fish and wildlife recreation spending. It is clear that fish and wildlife generates significant economic impacts that must be considered in policy-making.

## APPENDIX A DEFINITIONS

**Economic benefits** can be estimated by two types of economic measures: economic impacts and economic values. An **economic impact** addresses the business and financial activity resulting from the use of a resource. **Economic value**, on the other hand, measures the difference between what an individual would be willing to pay and what they actually pay for a commodity or activity. This concept is also known as “consumer surplus”. Only economic impacts are addressed in this report.

There are three types of economic impacts: direct, indirect and induced. A **direct impact** is defined as the economic impact of the initial purchase made by the consumer. For example, when a person buys a rod and reel for \$50 there is a direct impact to the retailer of \$50. **Indirect impacts** are the secondary effects generated from a direct impact. Indirect impacts indicate that sales in one industry affect not only that industry, but also the industries that supply the first industry. For example, the retail store must purchase additional rods and reels; the rod and reel manufacturers must purchase additional materials for production; materials manufacturers must buy inputs, and so on. Therefore, the original expenditure of \$50 for the rod and reel benefits a host of other industries. An **induced impact** results from the salaries and wages paid by the directly and indirectly impacted industries. The employees of these industries spend their income on various goods and services. These expenditures are induced impacts which, in turn, create a continual cycle of indirect and induced effects.

The sum of the direct, indirect and induced impact effects equals the **total economic impact**. As the original retail purchase (direct impact) goes through round after round of indirect and induced effects, the economic impact of the original purchase is multiplied, benefiting many industries and individuals. Likewise, the reverse is true. If a particular item or industry is removed from the economy, the economic loss is greater than the original retail sale. Once the original retail purchase is made, each successive round of spending is smaller than the previous round. When the economic benefits are no longer measurable, the economic examination ends.

### **Species Included in this Study:**

“Big Game” – deer, turkey, bear and elk

“Small Game” – rabbit/hare, quail, grouse, squirrel and pheasant

“Upland Game Birds” – quail, pheasant, and grouse

“Migratory Birds” – geese, ducks and dove.

## **APPENDIX B METHODS**

The methods used to generate the economic impact estimates for Texas are separated into four stages:

- 1) tabulate the expenditures made by recreationists (16 years old and older) from the 2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation (Survey);
- 2) allocate the detailed expenditures to the appropriate sectors of the economy that are directly impacted the spending;
- 3) estimate the indirect and induced effects of the consumer spending through the use of an input-output model of the Texas economy and the IMPLAN economic modeling software;
- 4) estimate federal and state/local tax revenues with the IMPLAN economic modeling software.

### **1. Tabulating Expenditures**

Hunters, anglers and wildlife watchers' expenditures were obtained from the 2006 National Survey of Fishing, Hunting and Wildlife-Associated Recreation (Survey). This Survey is conducted approximately every five years by the U.S. Fish and Wildlife Service and U.S. Bureau of the Census. The Survey provides data required by natural resource management agencies, industry and private organizations at the local, state, and national levels to assist in optimally managing natural resources. The Survey is funded through excise taxes on hunting and fishing equipment through the Federal Aid in Sport Fish and Wildlife Restoration Acts.

To generate the statewide economic results, expenditures were categorized into resident and nonresident files. Both included information on trip-related and equipment expenditures. Together, the resident and nonresident files represent all expenditures made in Texas during 2006 for hunting, fishing and wildlife viewing.

The Survey contains data on trip-related expenditures (such as food, lodging, fuel) made by participants where the primary purpose of each purchase was for fishing, hunting and/or wildlife viewing. The Survey also contains data on equipment expenditures (such as rods and firearms), and contains data on equipment expenditures (such as boats, camping equipment) made by sportsmen that can be used for both hunting and fishing. Anglers were able to specify their angler-related equipment expenditures to either Great Lakes fishing, freshwater (non-Great Lakes) fishing, saltwater fishing, or unspecified fishing. Anglers were able to specify their hunting and fishing related expenditures to one of five fishing categories: Great Lakes fishing, freshwater fishing, saltwater fishing, unspecified fishing, and unspecified hunting and fishing. (Please note: the Survey is a national survey. Therefore "Great Lakes" and saltwater categories were included though they had no bearing on this state's study).

Survey respondents reported expenditures for dozens of categories of product and services. In most cases – except the indices – expenditures for individual categories are not reported due to small sample sizes. When using the data from the appendices, do so with caution. Aggregated, the expenditure estimates are reliable.

For individuals who indicated their equipment expenditures were for non-Great Lakes freshwater fishing, we allocated the relevant expenditures to Texas fishing. For individuals who indicated their equipment expenditures were for unspecified fishing, we allocated expenditures based on the number of days of reported. For individuals who indicated their equipment expenditures were for unspecified fishing and hunting purposes, we allocated these expenditures evenly across hunting and fishing. The U.S. Fish and Wildlife Service does not attempt to allocate unspecified angler expenditures. Therefore, the equipment expenditures reported here are slightly higher than those reported by the U.S. Fish and Wildlife Service.

### *Data Adjustments and Assumptions*

The Survey does not have separate expenditure categories for activity related to specific species, such as deer hunting or black bass fishing. Therefore, these had to be estimated. To do this, we used two different methods - one for the trip-related expenditure data and another for the equipment expenditure data. Freshwater fishing will be used as the example here to explain methods:

To allocate the freshwater trip-related expenditures to three categories of interest, we first calculated the following ratio for each observation:

$$\text{Ratio 1} = \text{DFS/DFFW}$$

where DFS = days spent fishing for the species of interest, and DFFW = total days spent freshwater fishing. We then multiplied each trip-related expenditure reported by survey respondents by its corresponding ‘Ratio 1’. We could not apply this method to the equipment expenditures because some individuals purchased angling equipment in 2006, but did not take any freshwater fishing trips that year. Applying the above method would underestimate the equipment expenditures to each subcategory. To allocate angling equipment expenditures to pan fish, black bass, trout, etc., we multiplied the total expenditures spent on each equipment category by the corresponding average ‘Ratio 1’.

Statistical analyses such as those reported here are based upon samples of the population contacted through the U.S. Fish and Wildlife Service’s Survey. Because the primary purpose of the Survey was not to specifically contact anglers fishing for specific species but rather hunters, anglers and other wildlife recreationists in general, some species categories have small samples of respondents. Small samples can lead to results that are influenced by a single, unusual observation or results that are not representative of the population at large. Results dependent on small samples are footnoted in the tables and should be interpreted with extra caution.



## 2. Disaggregating Expenditures

Retail sales (angler expenditures) were separated into manufacturing, wholesale and retail subcategories because economic impact analysis treats each segment as separate industries. The amount of each retail sale attributed to each segment is known as a trade margin. A trade margin is the percentage (mark-up) of a sale attributable to either the retail, wholesale or manufacturing sector. A gross margin is the revenue remaining after the cost of the goods sold is subtracted. Data used to calculate gross margins are from the U.S. Department of Commerce (census of wholesale and retail trade). These sources contain national sales figures for most retail and wholesale industry sectors. To derive margins, each wholesale and retail industry's gross margin was divided by its total sales. This produces the typical price mark-up for that industry. Next, two formulas are applied to estimate the value added (price mark-up) for each sector:

$R/(1+R)$  = retail margin, where R = retail mark-up

$W/\{(1+W)(1+R)\}$  = wholesale margin, where W = wholesale mark-up.

These formulas estimate the percentage of a product's final selling price that accrue to each sector. The manufacturing margin is derived by summing the retail and wholesale margins and subtracting the total from 100 percent. Since there are no wholesale or manufacturing activities in the service sector, services are not subjected to the above process.

## 3. Applying the Economic Model

To estimate the economic impacts, the data were analyzed with the IMPLAN input-output model. The IMPLAN model was developed by MIG, Inc. of Stillwater, Minnesota originally for use by the U.S. Forest Service. Input-output models describe how sales in one industry impact other industries. For example, once a sportsman makes a purchase, the retailer buys more merchandise from wholesalers, who buy more from manufacturers, who, in turn, purchase new inputs and supplies. In addition, the salaries and wages paid by these businesses stimulate more benefits. Simply, the first purchase creates numerous rounds of purchasing. Input-output analysis tracks how the various rounds of purchasing benefits other industries and generates economic benefits.

The relationships between industries are explained through multipliers. For example, an income multiplier of .09 for industry X would indicate that for every dollar received by the industry under study, nine cents would be paid to the employees of industry X for its products or services. The IMPLAN model provides multipliers for all major industries in the U.S. and for each state. The IMPLAN model includes output, earnings and employment multipliers. The **output** multiplier measures the total economic effect created by the original retail sale. The **earnings** multiplier measures the total salaries and wages generated by the original retail sale. The **employment** multiplier estimates the number of jobs supported by the original retail sale. IMPLAN also estimates federal, state and local tax revenues.

To apply the IMPLAN model, angler expenditures are each matched to the appropriate output, earnings and employment multipliers. For example, dollars attributed to gasoline refining are

multiplied separately by the earnings, output and employment multipliers specific to gasoline refinement. The resulting estimates describe the salaries and wages, total economic effects, and jobs supported by the refining industry as a result of fuel purchases made by anglers. This same process is repeated for all reported expenditures. After all expenditures and multipliers have been applied together, the retail, wholesale and manufacturing results for each category are summed together.

**APPENDIX C**  
**DETAILED HUNTING EXPENDITURES AND IMPACTS**

**DETAILED EXPENDITURES BY ALL HUNTERS IN TEXAS, 2006.**

	<b>RESIDENTS</b>	<b>NONRESIDENTS</b>	<b>TOTAL</b>
<b>Food</b>	\$219,547,536	\$19,022,788	\$238,570,324
<b>Lodging</b>	\$85,757,344	\$13,637,685	\$99,395,029
<b>Airplane fare</b>	\$32,939,943	\$3,159,342	\$36,099,285
<b>Public transport</b>	\$12,724,910	\$1,724,890	\$14,449,801
<b>Automobile</b>	\$270,101,800	\$15,238,725	\$285,340,525
<b>Guide fees</b>	\$39,169,308	\$14,119,797	\$53,289,104
<b>Pulic land fees</b>	\$5,700,215	\$1,473,793	\$7,174,008
<b>Private land fees</b>	\$92,039,413	\$3,666,066	\$95,705,479
<b>Heat/cook fuel</b>	\$26,371,897	\$262,159	\$26,634,055
<b>Equip rentals</b>	\$543,940	\$329,658	\$873,598
<b>Boat fuel</b>	\$10,252,664	\$885,125	\$11,137,790
<b>Boat launch fee</b>	\$2,288,629	\$0	\$2,288,629
<b>Boat mooring</b>	\$2,970,252	\$0	\$2,970,252
<b>Rifles</b>	\$90,465,109	\$6,027,593	\$96,492,702
<b>Shotguns</b>	\$83,685,388	\$2,739,357	\$86,424,745
<b>Muzzle loader</b>	\$0	\$1,412,018	\$1,412,018
<b>Handgun</b>	\$75,247,553	\$1,020,769	\$76,268,322
<b>Bows</b>	\$37,029,766	\$340,985	\$37,370,751
<b>Scopes - guns</b>	\$62,666,047	\$5,496,180	\$68,162,228
<b>Decoys</b>	\$14,228,654	\$483,712	\$14,712,366
<b>Ammo</b>	\$65,805,583	\$1,283,496	\$67,089,080
<b>Handloading</b>	\$5,868,803	\$19,499	\$5,888,303
<b>Dogs</b>	\$17,579,774	\$241,607	\$17,821,381
<b>Other hunt equip</b>	\$23,977,028	\$1,026,306	\$25,003,334
<b>Camping gear</b>	\$4,922,800	\$15,600	\$4,938,400
<b>Binoculars</b>	\$39,180,478	\$0	\$39,180,478
<b>Foul weather gear</b>	\$19,309,628	\$314,379	\$19,624,007
<b>Taxidermy</b>	\$63,181,499	\$3,112,237	\$66,293,736
<b>Other items</b>	\$4,073,855	\$0	\$4,073,855
<b>Bass boat</b>	\$0	\$0	\$0
<b>Boat</b>	\$0	\$0	\$0
<b>Canoe</b>	\$1,692,498	\$0	\$1,692,498
<b>Boat motor</b>	\$0	\$0	\$0
<b>Van</b>	\$360,847,406	\$9,203,461	\$370,050,867
<b>Cabin</b>	\$0	\$0	\$0
<b>Off-road vehicle</b>	\$46,401,517	\$144,585,778	\$190,987,295
<b>Other special equip</b>	\$14,175,687	\$0	\$14,175,687
<b>Books</b>	\$10,822,114	\$460,052	\$11,282,166
<b>Dues</b>	\$17,328,504	\$930,995	\$18,259,499
<b>License</b>	\$43,550,621	\$8,023,501	\$51,574,122
<b>Land purchase</b>	\$166,962,691	\$0	\$166,962,691
<b>Land lease</b>	\$293,300,813	\$7,929,380	\$301,230,193
<b>TOTAL</b>	<b>\$2,362,711,667</b>	<b>\$268,186,937</b>	<b>\$2,630,898,603</b>

**ECONOMIC SECTORS STIMULATED BY NONRESIDENT HUNTER SPENDING**

	<b>Total Output (Sales)</b>	<b>Employment</b>	<b>Income</b>
Ag, Forestry, Fish & Hunting	2,528,331	47.6	604,218
Mining	8,653,482	14.5	1637413
Utilities	6,197,901	7.1	1,322,910
Construction	2,487,944	27.2	1,132,721
Manufacturing	157,482,832	495.4	25,779,796
Wholesale Trade	17,000,908	111.4	7,240,743
Transportation & Warehousing	37,194,896	166.1	13,135,746
Retail trade	81,226,728	2014.7	43,762,952
Information	7,683,902	29.7	2,028,492
Finance & insurance	14,141,496	85.5	4,974,847
Real estate & rental	20,514,208	103.3	3,354,383
Professional- scientific & tech svcs	17,306,552	140.5	8,490,530
Management of companies	2,556,353	19.7	1,054,294
Administrative & waste services	7,108,349	136.2	3,487,005
Educational svcs	881,971	18.9	455,524
Health & social services	10,820,552	152.2	5,973,255
Arts- entertainment & recreation	8,171,424	161.6	2,648,713
Accomodation & food services	29,707,122	523.5	9,983,557
Other services	7,754,532	160.9	3,265,577
Government & non NAICs	26,107,688	221.5	10,583,299
<b>TOTAL</b>	<b>465,527,171</b>	<b>4,638</b>	<b>150,915,975</b>

**ECONOMIC SECTORS STIMULATED BY RESIDENT HUNTER SPENDING**

	<b>Total Output (Sales)</b>	<b>Employment</b>	<b>Income</b>
Ag, Forestry, Fish & Hunting	36,419,032	956.8	7,371,080
Mining	86,650,248	145.7	16,407,118
Utilities	63,662,972	72.4	13,566,586
Construction	28,591,446	306	12,720,852
Manufacturing	1,083,988,992	3177.2	199,753,248
Wholesale Trade	132,110,848	865.8	56,266,440
Transportation & Warehousing	317,255,648	1297	111,510,616
Retail trade	513,353,984	10,563.50	261,390,384
Information	75,277,216	289.4	19,728,142
Finance & insurance	129,675,528	782.1	45,482,028
Real estate & rental	598,455,936	3064.1	95,185,472
Professional- scientific & tech svcs	166,630,640	1392.6	87,639,976
Management of companies	16,789,312	129.4	6,924,268
Administrative & waste services	82,299,088	1590.5	40,003,740
Educational svcs	7,873,642	168.8	4,069,301
Health & social services	95,285,584	1340.5	52,599,088
Arts- entertainment & recreation	108,745,048	2174.3	32,148,186
Accomodation & food services	253,642,832	4708.6	85,738,496
Other services	103,583,472	3950	56,919,004
Government & non NAICs	261,129,024	2507.1	119,914,192
<b>TOTAL</b>	<b>4,161,420,492</b>	<b>39,482</b>	<b>1,325,338,217</b>

**ECONOMIC SECTORS STIMULATED BY RESIDENT+NONRESIDENT HUNTER SPENDING**

	<b>Total Output (Sales)</b>	<b>Employment</b>	<b>Income</b>
Ag, Forestry, Fish & Hunting	38,947,363	1,004	7,975,298
Mining	95,303,730	160	18,044,531
Utilities	69,860,873	80	14,889,496
Construction	31,079,390	333	13,853,573
Manufacturing	1,241,471,824	3,673	225,533,044
Wholesale Trade	149,111,756	977	63,507,183
Transportation & Warehousing	354,450,544	1,463	124,646,362
Retail trade	594,580,712	12,578	305,153,336
Information	82,961,118	319	21,756,634
Finance & insurance	143,817,024	868	50,456,875
Real estate & rental	618,970,144	3,167	98,539,855
Professional- scientific & tech svcs	183,937,192	1,533	96,130,506
Management of companies	19,345,665	149	7,978,562
Administrative & waste services	89,407,437	1,727	43,490,745
Educational svcs	8,755,613	188	4,524,825
Health & social services	106,106,136	1,493	58,572,343
Arts- entertainment & recreation	116,916,472	2,336	34,796,899
Accomodation & food services	283,349,954	5,232	95,722,053
Other services	111,338,004	4,111	60,184,581
Government & non NAICs	287,236,712	2,729	130,497,491
<b>TOTAL</b>	<b>4,626,947,663</b>	<b>44,119</b>	<b>1,476,254,192</b>

**APPENDIX D**  
**DETAILED FRESHWATER FISHING EXPENDITURES AND IMPACTS**

**DETAILED EXPENDITURES BY ALL FRESHWATER ANGLERS IN TEXAS, 2006.**

	<b>RESIDENTS</b>	<b>NONRESIDENTS</b>	<b>TOTAL</b>
Food	\$194,014,349	\$23,103,955	\$217,118,304
Lodging	\$47,162,513	\$13,249,667	\$60,412,180
Airfare	\$5,311,828	\$2,209,264	\$7,521,092
Public transportation	\$371,526	\$1,074,178	\$1,445,705
Private transportation	\$247,226,850	\$20,177,063	\$267,403,913
Boat fuel	\$123,659,947	\$5,852,767	\$129,512,714
Guides	\$12,920,154	\$5,741,342	\$18,661,496
Public land use fees	\$25,014,792	\$720,512	\$25,735,304
Private land use fees	\$4,552,543	\$243,679	\$4,796,222
Boat launching	\$4,654,625	\$234,932	\$4,889,557
Boat mooring	\$101,288,862	\$0	\$101,288,862
Equipment rental	\$12,449,754	\$20,509	\$12,470,263
Bait (live, cut, prepared)	\$58,880,136	\$3,280,621	\$62,160,756
Ice	\$33,152,846	\$3,417,211	\$36,570,057
Heating & cooking fuel	\$11,517,718	\$880,526	\$12,398,244
Rods, reels & components	\$100,178,182	\$3,858,265	\$104,036,447
Lines & leaders	\$35,366,683	\$1,110,710	\$36,477,393
Lures, flies & artificial bait	\$42,723,138	\$2,658,393	\$45,381,531
Hooks, sinkers, other terminal tackle	\$22,207,104	\$1,076,521	\$23,283,625
Tackle boxes	\$7,499,399	\$72,009	\$7,571,409
Creels, strings, landing nets, etc.	\$5,138,282	\$329,317	\$5,467,599
Bait buckets, minnow traps, etc.	\$4,704,778	\$414,357	\$5,119,135
Depth finder, fish finders, other electronics	\$27,060,871	\$3,617,324	\$30,678,195
Ice fishing equipment	\$0	\$0	\$0
Other fishing equipment	\$9,355,423	\$223,020	\$9,578,442
Camping gear	\$15,701,729	\$278,328	\$15,980,057
Binoculars	\$2,147,834	\$25,714	\$2,173,548
Special fishing clothing, foul weather gear	\$6,463,376	\$1,068,808	\$7,532,184
Bass boats	\$0	\$0	\$0
Other motorized boats	\$40,587,235	\$13,913,250	\$54,500,485
Canoes, non-motorized boats	\$0	\$0	\$0
Boat motors, trailers, hitches, etc.	\$1,264,179	\$5,963,540	\$7,227,719
Pick-ups, campers, motor homes, etc.	\$877,548,717	\$5,460,711	\$883,009,428
Cabins	\$0	\$0	\$0
4x4 and off-road vehicles	\$420,802	\$0	\$420,802
Other special equipment	\$0	\$0	\$0
Taxidermy & processing	\$4,271,189	\$0	\$4,271,189
Books & magazines	\$6,253,715	\$353,503	\$6,607,217
Dues and contributions	\$3,456,263	\$57,579	\$3,513,842
Other misc. fishing expenditures	\$4,550,390	\$0	\$4,550,390
Land purchased for fishing	\$47,415,865	\$109,567,951	\$156,983,816
Land leased for fishing	\$8,919,880	\$0	\$8,919,880
<b>TOTAL</b>	<b>\$2,155,413,478</b>	<b>\$230,255,528</b>	<b>\$2,385,669,005</b>

**ECONOMIC SECTORS STIMULATED BY NONRESIDENT FRESHWATER ANGLER SPENDING**

	<b>Total Output (Sales)</b>	<b>Employment</b>	<b>Income</b>
Ag, Forestry, Fish & Hunting	4,786,509	145.1	884,890
Mining	7467542	12.5	1413893
Utilities	7,266,979	8.3	1,552,398
Construction	3,979,175	41.7	1,727,133
Manufacturing	66,083,572	189.7	11,308,309
Wholesale Trade	10,375,428	68	4,418,929
Transportation & Warehousing	23,925,718	99.2	8,508,341
Retail trade	33,366,954	661.2	16,201,882
Information	5,989,952	23.1	1,571,540
Finance & insurance	12,275,695	74	4,297,952
Real estate & rental	123,797,008	636.5	19,462,460
Professional- scientific & tech svcs	13,944,706	114.2	6,827,382
Management of companies	1,302,753	10	537,283
Administrative & waste services	10,349,817	199.9	4,944,869
Educational svcs	626,688	13.4	323,032
Health & social services	7,572,522	106.5	4,180,300
Arts- entertainment & recreation	5,637,907	106.6	2,066,874
Accomodation & food services	29,910,792	530.5	10,061,304
Other services	6,015,064	125.8	2,537,288
Government & non NAICs	13,318,311	43.3	2,043,450
<b>TOTAL</b>	<b>387,993,092</b>	<b>3,210</b>	<b>104,869,509</b>



**ECONOMIC SECTORS STIMULATED BY RESIDENT FRESHWATER ANGLER SPENDING**

	<b>Total Output (Sales)</b>	<b>Employment</b>	<b>Income</b>
Ag, Forestry, Fish & Hunting	63,309,848	2179.8	8,965,952
Mining	99,901,856	167.1	18,870,046
Utilities	50,318,512	57	10,691,440
Construction	23,202,746	257.5	10,742,077
Manufacturing	1,464,558,976	2885.2	234,473,264
Wholesale Trade	148,892,016	975.8	63,413,600
Transportation & Warehousing	326,247,680	1127.8	114,124,976
Retail trade	493,024,448	8,667.00	242,309,840
Information	61,581,556	241.8	16,313,868
Finance & insurance	112,165,120	678.3	39,489,956
Real estate & rental	174,305,104	896	30,915,648
Professional- scientific & tech svcs	137,291,248	1080.8	63,720,592
Management of companies	17,412,854	134.2	7,181,431
Administrative & waste services	56,439,884	1132.9	28,602,010
Educational svcs	6,764,882	144.3	3,503,668
Health & social services	79,548,960	1119.2	43,912,740
Arts- entertainment & recreation	105,534,120	1948.5	37,120,916
Accomodation & food services	192,663,200	3714.4	65,430,788
Other services	97,558,160	1969.4	40,666,796
Government & non NAICs	129,377,480	562.3	26,782,412
<b>TOTAL</b>	<b>3,840,098,650</b>	<b>29,939</b>	<b>1,107,232,020</b>

**ECONOMIC SECTORS STIMULATED BY RESIDENT+NONRESIDENT FRESHWATER ANGLER SPENDING**

	<b>Total Output (Sales)</b>	<b>Employment</b>	<b>Income</b>
Ag, Forestry, Fish & Hunting	68,096,357	2,325	9,850,842
Mining	107,369,398	180	20,283,939
Utilities	57,585,491	65	12,243,838
Construction	27,181,921	299	12,469,210
Manufacturing	1,530,642,548	3,075	245,781,573
Wholesale Trade	159,267,444	1,044	67,832,529
Transportation & Warehousing	350,173,398	1,227	122,633,317
Retail trade	526,391,402	9,328	258,511,722
Information	67,571,508	265	17,885,408
Finance & insurance	124,440,815	752	43,787,908
Real estate & rental	298,102,112	1,533	50,378,108
Professional- scientific & tech svcs	151,235,954	1,195	70,547,974
Management of companies	18,715,607	144	7,718,714
Administrative & waste services	66,789,701	1,333	33,546,879
Educational svcs	7,391,570	158	3,826,700
Health & social services	87,121,482	1,226	48,093,040
Arts- entertainment & recreation	111,172,027	2,055	39,187,790
Accommodation & food services	222,573,992	4,245	75,492,092
Other services	103,573,224	2,095	43,204,084
Government & non NAICs	142,695,791	606	28,825,862
<b>TOTAL</b>	<b>4,228,091,742</b>	<b>33,149</b>	<b>1,212,101,529</b>

**APPENDIX E**  
**DETAILED SALTWATER FISHING EXPENDITURES AND IMPACTS**

**DETAILED EXPENDITURES BY ALL SALTWATER ANGLERS IN TEXAS, 2006.**

	<b>RESIDENTS</b>	<b>NONRESIDENTS</b>	<b>TOTAL</b>
Food	\$112,949,881	\$11,487,242	\$124,437,123
Lodging	\$41,955,412	\$4,466,633	\$46,422,045
Airfare	\$8,208,890	\$5,837,314	\$14,046,204
Public transportation	\$1,081,285	\$1,758,891	\$2,840,175
Private transportation	\$176,507,194	\$10,133,201	\$186,640,395
Boat fuel	\$45,804,600	\$552,693	\$46,357,293
Guides	\$40,622,230	\$2,236,413	\$42,858,644
Public land use fees	\$4,624,979	\$1,388,890	\$6,013,869
Private land use fees	\$17,960,558	\$1,303,803	\$19,264,361
Boat launching	\$2,653,573	\$0	\$2,653,573
Boat mooring	\$24,198,920	\$1,513,814	\$25,712,734
Equipment rental	\$140,866	\$234,296	\$375,163
Bait (live, cut, prepared)	\$61,458,337	\$1,560,600	\$63,018,937
Ice	\$15,469,117	\$493,470	\$15,962,587
Heating & cooking fuel	\$3,959,778	\$263,607	\$4,223,384
Rods, reels & components	\$99,111,173	\$3,634,154	\$102,745,328
Lines & leaders	\$26,663,531	\$681,110	\$27,344,641
Lures, flies & artificial bait	\$37,164,514	\$601,399	\$37,765,914
Hooks, sinkers, other terminal tackle	\$19,317,647	\$238,003	\$19,555,650
Tackle boxes	\$5,442,958	\$7,810	\$5,450,768
Creels, strings, landing nets, etc.	\$12,377,648	\$19,781	\$12,397,429
Bait buckets, minnow traps, etc.	\$3,963,168	\$109,243	\$4,072,411
Depth finder, fish finders, other electronics	\$9,679,626	\$395,627	\$10,075,253
Ice fishing equipment	\$0	\$0	\$0
Other fishing equipment	\$8,183,971	\$8,083	\$8,192,054
Camping gear	\$4,759,109	\$865,837	\$5,624,946
Binoculars	\$4,815,979	\$0	\$4,815,979
Special fishing clothing, foul weather gear	\$4,449,848	\$424,017	\$4,873,865
Bass boats	\$0	\$0	\$0
Other motorized boats	\$0	\$0	\$0
Canoes, non-motorized boats	\$0	\$0	\$0
Boat motors, trailers, hitches, etc.	\$0	\$0	\$0
Pick-ups, campers, motor homes, etc.	\$121,058,269	\$5,460,711	\$126,518,980
Cabins	\$0	\$0	\$0
4x4 and off-road vehicles	\$420,802	\$0	\$420,802
Other special equipment	\$0	\$0	\$0
Taxidermy & processing	\$0	\$0	\$0
Books & magazines	\$4,143,378	\$59,315	\$4,202,693
Dues and contributions	\$3,266,230	\$57,579	\$3,323,809
Other misc. fishing expenditures	\$2,890,781	\$0	\$2,890,781
Land purchased for fishing	\$194,968	\$0	\$194,968
Land leased for fishing	\$0	\$0	\$0
<b>TOTAL</b>	<b>\$925,499,217</b>	<b>\$55,793,537</b>	<b>\$981,292,755</b>

**ECONOMIC SECTORS STIMULATED BY NONRESIDENT SALTWATER ANGLER SPENDING**

	<b>Total Output (Sales)</b>	<b>Employment</b>	<b>Income</b>
Ag, Forestry, Fish & Hunting	2,097,213	65	335,316
Mining	3030457	5.1	572285
Utilities	1,546,299	1.8	329,619
Construction	702,389	7.7	322,747
Manufacturing	22,738,478	51.5	3,462,640
Wholesale Trade	3,799,843	24.9	1,618,366
Transportation & Warehousing	15,718,013	67.1	5,369,343
Retail trade	11,791,660	221.6	5,647,304
Information	1,806,345	7.1	478,091
Finance & insurance	3,217,577	19.4	1,130,500
Real estate & rental	3,469,185	17.6	626,418
Professional- scientific & tech svcs	3,702,309	30	1,778,475
Management of companies	442,840	3.4	182,637
Administrative & waste services	2,065,357	35.7	952,817
Educational svcs	195,654	4.2	101,063
Health & social services	2,369,450	33.3	1,308,013
Arts- entertainment & recreation	3,150,522	58	1,123,721
Accomodation & food services	11,797,714	216.3	3,972,453
Other services	3,254,452	162.7	2,077,970
Government & non NAICs	4,805,724	35	1,613,386
<b>TOTAL</b>	<b>101,701,481</b>	<b>1,067</b>	<b>33,003,164</b>

**ECONOMIC SECTORS STIMULATED BY RESIDENT SALTWATER ANGLER SPENDING**

	<b>Total Output (Sales)</b>	<b>Employment</b>	<b>Income</b>
Ag, Forestry, Fish & Hunting	54,052,596	2067.5	6,436,553
Mining	56,918,336	95.1	10,744,431
Utilities	24,669,580	28	5,243,086
Construction	12,848,744	143.1	5,966,317
Manufacturing	470,016,992	1160.4	77,327,856
Wholesale Trade	63,076,216	413.4	26,864,366
Transportation & Warehousing	177,007,936	562.3	61,208,964
Retail trade	252,477,040	4,854.40	123,471,168
Information	31,211,780	124	8,318,705
Finance & insurance	51,464,548	310.5	18,070,312
Real estate & rental	51,824,172	246.1	8,461,005
Professional- scientific & tech svcs	63,187,580	504.7	29,833,962
Management of companies	7,776,110	59.9	3,207,033
Administrative & waste services	26,769,612	532	13,523,701
Educational svcs	3,106,727	66.6	1,603,869
Health & social services	37,426,784	526.6	20,660,412
Arts- entertainment & recreation	55,756,168	1020.3	19,789,064
Accomodation & food services	120,987,088	2242.4	40,843,100
Other services	53,471,012	2373.8	32,008,026
Government & non NAICs	53,674,376	143.2	6,753,949
<b>TOTAL</b>	<b>1,667,723,397</b>	<b>17,474</b>	<b>520,335,879</b>

**ECONOMIC SECTORS STIMULATED BY RESIDENT+NONRESIDENT SALTWATER ANGLER SPENDING**

	<b>Total Output (Sales)</b>	<b>Employment</b>	<b>Income</b>
Ag, Forestry, Fish & Hunting	56,149,809	2,133	6,771,869
Mining	59,948,793	100	11,316,716
Utilities	26,215,879	30	5,572,705
Construction	13,551,133	151	6,289,064
Manufacturing	492,755,470	1,212	80,790,496
Wholesale Trade	66,876,059	438	28,482,732
Transportation & Warehousing	192,725,949	629	66,578,307
Retail trade	264,268,700	5,076	129,118,472
Information	33,018,125	131	8,796,796
Finance & insurance	54,682,125	330	19,200,812
Real estate & rental	55,293,357	264	9,087,423
Professional- scientific & tech svcs	66,889,889	535	31,612,437
Management of companies	8,218,950	63	3,389,670
Administrative & waste services	28,834,969	568	14,476,518
Educational svcs	3,302,381	71	1,704,932
Health & social services	39,796,234	560	21,968,425
Arts- entertainment & recreation	58,906,690	1,078	20,912,785
Accomodation & food services	132,784,802	2,459	44,815,553
Other services	56,725,464	2,537	34,085,996
Government & non NAICs	58,480,100	178	8,367,335
<b>TOTAL</b>	<b>1,769,424,878</b>	<b>18,542</b>	<b>553,339,043</b>

**APPENDIX F  
DETAILED WILDLIFE WATCHING EXPENDITURES AND IMPACTS**

**DETAILED EXPENDITURES BY ALL WILDLIFE WATCHING IN TEXAS, 2006.\***

	<b>RESIDENTS</b>	<b>NONRESIDENTS</b>	<b>TOTAL</b>
Food	\$27,838,253	\$8,164,282	\$36,002,535
Lodging	\$17,339,712	\$4,165,870	\$21,505,582
Public transportation	\$0	\$1,665,825	\$1,665,825
Private transportation	\$19,041,768	\$3,802,765	\$22,844,534
Guide fees	\$0	\$394,258	\$394,258
Public land access fees	\$3,213,358	\$87,491	\$3,300,849
Private land access fees	\$4,862,468	\$4,200	\$4,866,667
Equipment rental	\$3,251,196	\$4,200	\$3,255,396
Boat fuel	\$3,251,196	\$4,200	\$3,255,396
Other boat costs	\$28,899,521	\$4,200	\$28,903,720
Heating & cooking fuel	\$1,300,478	\$4,200	\$1,304,678
Cameras	\$4,696,172	\$0	\$4,696,172
Film & developing	\$10,837,320	\$0	\$10,837,320
Binoculars & spotting scopes	\$5,174,975	\$0	\$5,174,975
Commercial bird food	\$32,285,346	\$0	\$32,285,346
Other bird food	\$1,444,976	\$0	\$1,444,976
Food for other wildlife	\$10,476,076	\$0	\$10,476,076
Nest boxes, feeders	\$6,646,830	\$0	\$6,646,830
Other special equipment	\$0	\$0	\$0
Tents, tarps	\$1,444,976	\$0	\$1,444,976
Backpacking equipment	\$0	\$0	\$0
Other camping equipment	\$0	\$0	\$0
Day packs	\$0	\$0	\$0
Magazines & books	\$8,088,246	\$0	\$8,088,246
Membership dues, contributions	\$45,882,855	\$0	\$45,882,855
Other equipment	\$0	\$0	\$0
Off-road vehicles	\$0	\$0	\$0
Pickup, camper, motor home	\$627,536,354	\$0	\$627,536,354
Boat	\$0	\$0	\$0
Trailer, boat accessories	\$0	\$0	\$0
Cabin	\$0	\$0	\$0
Other equipment	\$0	\$0	\$0
Land purchases	\$226,610,350	\$0	\$226,610,350
Land leases	\$0	\$0	\$0
Plantings	\$13,133,575	\$0	\$13,133,575
<b>TOTAL</b>	<b>\$1,103,256,002</b>	<b>\$18,301,490</b>	<b>\$1,121,557,492</b>

*\*Does not include residential activities.*

**ECONOMIC SECTORS STIMULATED BY NONRESIDENT WILDLIFE WATCHING SPENDING**

	<b>Total Output (Sales)</b>	<b>Employment</b>	<b>Income</b>
Ag, Forestry, Fish & Hunting	2,950,188	66.7	617,223
Mining	5442969	9.1	1029351
Utilities	4,208,894	4.9	901,977
Construction	1,996,546	21.7	899,060
Manufacturing	34,134,936	83.8	4,987,838
Wholesale Trade	8,151,885	53.4	3,471,915
Transportation & Warehousing	29,025,198	158	9,949,037
Retail trade	20,427,240	375.1	9,714,409
Information	4,590,628	18.4	1,233,034
Finance & insurance	7,311,466	44.1	2,557,379
Real estate & rental	8,393,543	40.5	1,387,815
Professional- scientific & tech svcs	8,436,499	70	4,162,989
Management of companies	1,025,699	7.9	423,020
Administrative & waste services	4,147,410	75.2	1,975,645
Educational svcs	423,295	9.1	218,520
Health & social services	5,113,002	71.9	2,822,589
Arts- entertainment & recreation	1,155,835	25.4	493,538
Accomodation & food services	56,810,664	906	18,838,356
Other services	3,967,788	74.4	1,621,458
Government & non NAICs	10,843,471	94	3,967,007
<b>TOTAL</b>	<b>218,557,156</b>	<b>2,210</b>	<b>71,272,160</b>



**ECONOMIC SECTORS STIMULATED BY RESIDENT WILDLIFE WATCHING SPENDING**

	<b>Total Output (Sales)</b>	<b>Employment</b>	<b>Income</b>
Ag, Forestry, Fish & Hunting	241,873,824	8841.8	56,312,020
Mining	51,605,340	87	9,799,897
Utilities	68,362,816	77.8	14,589,638
Construction	30,814,028	328.2	13,630,860
Manufacturing	1,613,507,200	3331.1	265,876,320
Wholesale Trade	173,482,512	1137	73,886,776
Transportation & Warehousing	279,391,904	1209.3	98,765,488
Retail trade	575,064,256	9,017.10	283,658,400
Information	91,560,800	365.1	24,613,236
Finance & insurance	144,519,472	873.7	50,765,796
Real estate & rental	657,785,664	3365.4	105,065,632
Professional- scientific & tech svcs	171,398,416	1386.6	83,277,344
Management of companies	20,238,384	156	8,346,738
Administrative & waste services	89,646,128	1743.2	43,835,592
Educational svcs	8,777,391	186.1	4,491,261
Health & social services	98,305,232	1382.7	54,257,728
Arts- entertainment & recreation	37,884,412	746.4	14,615,692
Accomodation & food services	147,446,224	2836.7	50,304,236
Other services	224,054,976	4026.1	95,775,872
Government & non NAICs	142,689,616	286.6	13,632,520
<b>TOTAL</b>	<b>4,868,408,595</b>	<b>41,384</b>	<b>1,365,501,046</b>

**ECONOMIC SECTORS STIMULATED BY RESIDENT+NONRESIDENT WILDLIFE  
WATCHING SPENDING**

	<b>Total Output (Sales)</b>	<b>Employment</b>	<b>Income</b>
Ag, Forestry, Fish & Hunting	244,824,012	8,909	56,929,243
Mining	57,048,309	96	10,829,248
Utilities	72,571,710	83	15,491,615
Construction	32,810,574	350	14,529,920
Manufacturing	1,647,642,136	3,415	270,864,158
Wholesale Trade	181,634,397	1,190	77,358,691
Transportation & Warehousing	308,417,102	1,367	108,714,525
Retail trade	595,491,496	9,392	293,372,809
Information	96,151,428	384	25,846,270
Finance & insurance	151,830,938	918	53,323,175
Real estate & rental	666,179,207	3,406	106,453,447
Professional- scientific & tech svcs	179,834,915	1,457	87,440,333
Management of companies	21,264,083	164	8,769,758
Administrative & waste services	93,793,538	1,818	45,811,237
Educational svcs	9,200,686	195	4,709,781
Health & social services	103,418,234	1,455	57,080,317
Arts- entertainment & recreation	39,040,247	772	15,109,230
Accomodation & food services	204,256,888	3,743	69,142,592
Other services	228,022,764	4,101	97,397,330
Government & non NAICs	153,533,087	381	17,599,527
<b>TOTAL</b>	<b>5,086,965,751</b>	<b>43,594</b>	<b>1,436,773,206</b>