

**Economic Activity Report: Recreational Saltwater
Fishing in Southeast Georgia**

Prepared for:

**Georgia Department of Natural Resources,
Coastal Resource Division**

by:

**The Bureau of Business Research and Economic
Development**

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Economic Activity Report: Recreational Saltwater Fishing in Southeast Georgia

Prepared for:

**Georgia Department of Natural Resources,
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Executive Summary

Georgians represent 96% of the recreational saltwater fishing in the state. Using IMPLAN®, this study examines the economic importance associated with the activity in both the coastal region and for the state as a whole. Six scenarios are examined to determine the extent of economic activity. These include:

1. Base case for the coastal region,
2. Elimination of recreational saltwater fishing from the coastal region's economy,
3. 25% increase in coastal recreational saltwater fishing by the year 2005,
4. Base case for Georgia's economy,
5. Elimination of recreational saltwater fishing from Georgia's economy, and
6. 25% increase in Georgia's recreational saltwater fishing by the year 2005.

The analysis indicates the significance of recreational saltwater fishing in Georgia's coastal and statewide economies. The coastal region loses over \$510 million (1997 dollars) when recreational saltwater fishing is eliminated from the economy. The scenario that considers the statewide economy results in a more than \$550 million (1997 dollars) loss under the same circumstances. Increasing recreational saltwater fishing by 25% between now and the year 2005 increases employment by 1,897 in the regional economy scenario and 1,909 in the scenario of state economy.

Introduction

This report, prepared for the Georgia Department of Natural Resources (DNR), Coastal Resource Division (CRD), details the analysis of the economic activity related to recreational saltwater fishing in Southeast Georgia. The focus of this study is primarily on Southeast Georgia as this is where the saltwater fishing *resource* is located. Yet, Foster (2001) and Gentner et al (2001) indicate that Georgia recreational saltwater fishing is of value to residents throughout the State. Georgians account for 96% of recreational saltwater fishing, more than half of the activity comes from non-coastal residents (Table 1). Therefore, the study looks at the level of economic activity and its importance to the coastal region's economy as well as to the state of Georgia. The study however, does not measure the economic impact of inducing travelers to come to the region.

Table 1. Participation in Georgia's Recreational Saltwater Fishing, 2000

	Coastal Residents	Non-Coastal	Residents	Non-Residents
Number of trips	660,285	860,090	1,520,375	62,001
Percent of trips	0.42	0.54	0.96	0.04

Calculated from data in Foster (2001).

The remainder of the report describes the IMPLAN® methodology and the data used in the analysis. The scenarios are defined in the next section. Then, results from the IMPLAN analysis of the various scenarios are discussed. Finally, summary remarks are included.

Methodology

The study determines the economic activity related to recreational saltwater fishing using data from Foster (2001), a study conducted by the CRD. The data are analyzed using the IMPLAN® (**I**mpact Analysis for **P**lanning) software package. IMPLAN® is an input-output modeling system that exams relationships between businesses and final consumers by including

all monetary transactions in an economy at a given period. The results indicate the effects of one or more activities in the economy, as well as industry interdependence in that economy. IMPLAN[®] uses a comprehensive database, which aggregates existing SIC codes into 528 industry categories, linking expenditure patterns in an economy. The software evaluates data on a national, state, or county level using five different multipliers: output, personal income, total income, value added, and employment. These multipliers describe the response of the economy to a change in demand or production (output). Multipliers disaggregate the effects of a change on economic activity into three components:

1. *Direct Effects* show altered final demand or output in the model.
2. *Indirect Effects* represent the inter-industry purchases in response to new demands of the directly effected industries.
3. *Induced Effects* reflect the economic changes at the household level as income and population change accordingly to changes in industry output.

Data

The area of study covers the coastal counties defined by the National Marine Fisheries Service Marine Recreational Fisheries Statistic Survey, as seen in Figure 1. Screven, Effingham, Bulloch, Evans, Tattnall, Appling, Pierce, Ware, and Charlton counties are included in the coastal region during the period from May through October. For this study, all 18 counties within 50 miles of the coast are incorporated in the analysis.

Recreational saltwater fishing expenditures, taken from Foster (2001), are described in Table 2. Total expenditures of \$355.8 million are divided across Trip Expenditures, Semi-Durable Goods and Durable Goods. The expenditure categories, defined in Gentner et al (2001), are detailed in Appendix 1.¹ These categories include the purchase of services and manufactured goods by individuals who participate in Georgia's recreational saltwater fishing.²

¹ These categories are also used by Foster (2001).

² The Bureau of Business Research and Economic Development is not responsible for the accuracy of the data contained in either Foster 2001 or Gentner et al (2001).

Figure 1. Georgia Coastal Counties

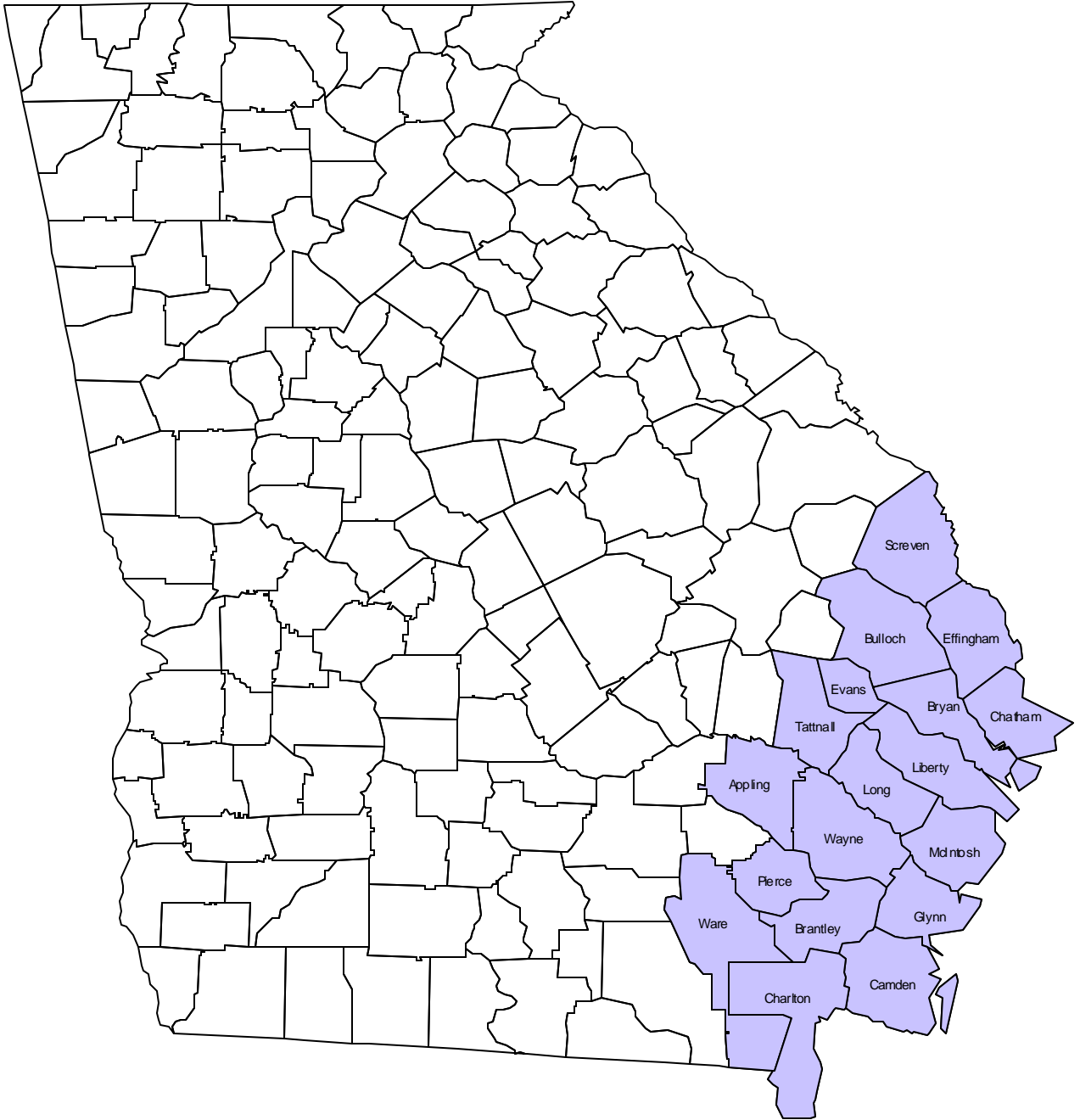


Table 2. CRD Georgia Recreational Saltwater Fishing Expenditures, 2000

Industry Category	Sales (Millions \$)
Trip Expenditures	152.2
Semi-Durable Goods	97.4
Durable Goods	106.1
Total	355.8

Source: Foster 2001

Scenarios

Scenarios are used to explore the sensitivity of the economy to the various changes in output relative to recreational saltwater fishing. The scenarios include:

1. Coastal Region Base Case: examines the initial state of the regional economy, especially in the industries related to recreational saltwater fishing.
2. Eliminate recreational saltwater fishing (Coastal): removes output associated with recreational saltwater fishing industries from the coastal economy.
3. Increase recreational saltwater fishing by 25% (Coastal): adds 25% to recreational saltwater fishing related industries in the coastal economy's Base Case by the year 2005.
4. State of Georgia Base Case: examines the state of the Georgia economy, especially in the industries related to recreational saltwater fishing.
5. No recreational saltwater fishing (Georgia): removes output associated with recreational saltwater fishing industries from the Georgia economy.
6. Increase recreational saltwater fishing by 25% (Georgia): adds 25% to recreational saltwater fishing related industries in the Georgia economy's Base Case by the year 2005.

Scenario 1, Base Case, is used to establish the state of the Coastal Georgia economy. Other scenarios are then reported as changes (+ or -) to the Base Case. Scenario 2 assumes recreational saltwater fishing disappears from Southeast Georgia. While not highly probable, this approach shows the effects of the industry throughout the region's economy. Scenario 3 assumes recreational saltwater fishing increases by 25% between now and the year 2005.³ Scenarios 4 through 6 are similar to the first three scenarios but they focus on the Georgia economy instead of the Georgia's coastal economy.

³ The version of IMPLAN used only covers to the year 2005.

Two additional scenarios are examined based on American Business Disc sales data for recreational saltwater fishing related industries in the coastal Georgia region. These scenarios are used for verification purposes and are described in Appendix 2.

Results and Analysis

This section presents the pertinent results from various scenarios analyzed using IMPLAN®. Table 3 describes the Base Case for the Coastal Economy (Scenario 1) in terms of Industry Output and Employment. It is important to note that the recreational saltwater fishing related industries (in bold) include output and employment related to other industries as well. This is an artifact of how IMPLAN® aggregates the SIC codes into the various categories. However, this does not affect the analysis since we are only altering the recreational saltwater fishing portions of the categories. The total output for the coastal region is \$28,776 million (in 1997 dollars), while the total employment is 365,698.⁴ The rest of the section discusses Output and Employment changes for Scenario 2, where recreational saltwater fishing activities are eliminated from the economy, and for the case where recreational saltwater fishing increases by 25% by 2005 (Scenario 3). Next, the section examines the Base Case for the Georgia Economy (Scenario 4). The effects of eliminating recreational saltwater fishing from the economy are explored in Scenario 5. Finally, Scenario 6, the effects of a 25% increase in recreational saltwater fishing in the Georgia Economy are covered.

⁴ IMPLAN® converts to and reports in 1997 dollars.

Table 3. Coastal Base Case Scenario 1, GA Recreational Saltwater Fishing, 1997

Industry	Output (Million \$)	Employment
Agriculture	753.25	9,259
Mining	10.68	129
Construction	2,006.07	24,510
Manufacturing--Non-durables	5,857.81	25,968
Manufacturing--Durables	2,636.64	14,885
Fishing--Durables	400.31	7,276
Fishing--Semi-durables	342.32	10,829
Transportation	2,187.45	14,101
Fishing--Trip expenses	2,666.17	46,410
Retail	765.95	26,234
Finance	2,474.90	15,257
Services	3,964.78	76,763
Government	4,673.25	90,636
Dummy	36.70	3,440
Totals	28,776.27	365,698

Source: IMPLAN®

Scenario 2: Elimination of Recreational Saltwater Fishing from Southeast Georgia

Scenario 2, the elimination of recreational saltwater fishing based on the CRD data, changes to output are enumerated in Table 4. However, before we discuss these particular results, IMPLAN® makes a number of assumptions that need to be mentioned. As a static model, IMPLAN® assumes any demand or output that goes out of the economy is not replaced by a substitute. Therefore, when recreation saltwater fishing is taken out of the economy, it is not replaced by some other activity such as recreational fresh water fishing. Also, in a small economy, like the Georgia Coastal region defined in this study, when a small business of 10 employees loses most of its output, the business and the jobs go out of the economy.

The *Direct Effects*, which show specific changes in output for a given industry, are \$334.5 million (1997 dollars) for the coastal economy. *Indirect Effects*, or the inter-industry purchases, are -\$81.5 million (1997 dollars). The *Induced Effects* of changes in the household

economic activity are -\$94.7 million (1997 dollars). This gives a total decrease of \$510.6 million (1997 dollars) as a result of eliminating recreational saltwater fishing from the coastal economy. Multipliers are calculated for those industry categories with a direct effect. The multiplier (calculated by dividing the total effect by the direct effect) indicate that additional output produced by increasing (or decreasing) the economy in the given industry category. For example, for every \$100 dollars taken away (or added) to the economy through fishing trip expenses, an additional \$18 is removed (added) to the overall economy.

Table 4. Coastal Output Scenario 2, Eliminate GA Recreational Saltwater Fishing*

Industry	Direct	Indirect	Induced	Total	Multipliers
Agriculture	0.0	-0.3	-0.2	-0.5	
Mining	0.0	0.0	0.0	0.0	
Construction	0.0	-2.7	-1.2	-3.9	
Manufacturing--Non-durables	0.0	-3.2	-2.9	-6.1	
Manufacturing--Durables	0.0	-7.8	-5.8	-13.6	
Fishing--Durables	-78.2	-0.2	-2.5	-80.9	1.03
Fishing--Semi-durables	-74.6	-0.9	-2.6	-78.0	1.05
Transportation	0.0	-11.6	-9.0	-20.7	
Fishing--Trip expenses	-133.1	-11.3	-12.9	-157.4	1.18
Retail	0.0	-0.6	-6.4	-7.0	
Finance	0.0	-13.4	-18.7	-32.1	
Services	0.0	-29.3	-25.2	-54.5	
Government	0.0	-0.1	-7.1	-7.2	
Dummy	0.0	0.0	-0.2	-0.2	
Foreign Trade	-0.5	0.0	0.0	-0.5	
Domestic Trade	-48.1	0.0	0.0	-48.1	
Total	-334.5	-81.5	-94.7	-510.6	

*Million 1997 dollars

Recall from Table 3, the Base Case Employment for the coastal region is 365,698. Table 5 details the employment changes resulting from the elimination of recreational saltwater fishing in Coastal Georgia. Total employment decreases by 8,621 when recreational saltwater fishing is

eliminated from the economy. Aside from the fishing related industries, major decreases (>100 jobs lost) also occur in Transportation, Retail, Finance, Services (primarily in health care), and Government. Note that the multipliers are the same for the industry categories in Output and Employment.

Table 5. Coastal Employment Scenario 2, Eliminate GA Recreational Saltwater Fishing

Industry	Direct	Indirect	Induced	Total	Multiplier
Agriculture	0	-4	-3	-6	
Mining	0	0	0	0	
Construction	0	-33	-14	-47	
Manufacturing--non-durable	0	-14	-13	-27	
Manufacturing--non-fishing durables	0	-44	-33	-77	
Fishing--durables	-1421	-3	-46	-1470	1.03
Fishing--semi-durable	-2361	-27	-81	-2469	1.05
Transportation	0	-75	-58	-133	
Fishing--trip expenses	-2317	-197	-225	-2739	1.18
Retail	0	-21	-218	-239	
Finance	0	-83	-115	-198	
Services	0	-568	-487	-1055	
Government	0	-2	-138	-140	
Dummy	0	0	-21	-21	
Foreign Trade	0	0	0	0	
Domestic Trade	0	0	0	0	
Total	-6098	-1071	-1452	-8621	

Scenario 3: 25% increase in recreational saltwater fishing by 2005

Table 6 describes the changes in the coastal economy as a result of a 25% increase in recreational saltwater fishing activity between now and the year 2005. The total economy increases by \$113.2 million (1997 dollars), \$63.4 million (1997 dollars) from fishing related

activities, and nearly \$50 million (1997 dollars) from inter-industry and household activity.⁵ The multipliers for the 25% increase remain the same, as is expected.

Table 6. Coastal Output Scenario 3, 25% increase, GA Recreational Saltwater Fishing*

Industry	Direct	Indirect	Induced	Total	Multiplier
Agriculture	0.0	0.1	0.0	0.1	
Mining	0.0	0.0	0.0	0.0	
Construction	0.0	0.6	0.3	0.9	
Manufacturing--non-durable	0.0	0.7	0.6	1.4	
Manufacturing--non-fishing durables	0.0	1.7	1.3	3.0	
Fishing--durables	18.2	0.0	0.6	18.8	1.03
Fishing--semi-durable	15.6	0.2	0.6	16.4	1.05
Transportation	0.0	2.6	2.0	4.6	
Fishing--trip expenses	29.4	2.5	2.9	34.8	1.18
Retail	0.0	0.1	1.4	1.5	
Finance	0.0	3.0	4.1	7.1	
Services	0.0	6.5	5.6	12.1	
Government	0.0	0.0	1.6	1.6	
Dummy	0.0	0.0	0.0	0.0	
Foreign Trade	0.1	0.0	0.0	0.1	
Domestic Trade	10.7	0.0	0.0	10.7	
Total	74.2	18.1	21.0	113.2	

*Million 1997 dollars

Conversely, when the recreational saltwater fishing activity increases by 25%, 1,897 new jobs are added to the coastal economy, as seen in Table 7. In addition, the Services sector increases by 234 jobs, many of which are health care related.

⁵ The total for fishing related activities includes only the three industry level categories. The changes in output related to Foreign and Domestic Trade with the coastal region are affected, but may not be directly related to recreational saltwater fishing.

Table 7. Coastal Employment Scenario 3, 25% Increase in GA Recreational Saltwater Fishing

Industry	Direct	Indirect	Induced	Total	Multiplier
Agriculture	0	1	1	1	
Mining	0	0	0	0	
Construction	0	7	3	11	
Manufacturing--non-durable	0	3	3	6	
Manufacturing--non-fishing durables	0	10	7	17	
Fishing--durables	331	1	10	342	1.03
Fishing--semi-durable	495	6	18	519	1.05
Transportation	0	17	13	30	
Fishing--trip expenses	512	44	50	606	1.18
Retail	0	5	48	53	
Finance	0	18	26	44	
Services	0	126	108	234	
Government	0	0	31	31	
Dummy	0	0	5	5	
Foreign Trade	0	0	0	0	
Domestic Trade	0	0	0	0	
Total	1339	237	321	1897	

Scenario 4: State of Georgia Base Case

By comparing Table 3 with Table 8, we see that the coastal region provides about 7% of the state's output and 8% of the state's employment. While these 18 counties represent a small portion of the state's economy, the effects of industries within the region can be felt statewide as we will see in Scenarios 5 and 6. The same caveat applies to the fishing categories, namely, recreational saltwater fishing related industries (in bold) include output and employment related to other industries as well.

Table 8. Georgia Base Case Scenario 4, GA Recreational Saltwater Fishing, 1997

Industry	Output	Employment
Agriculture	7,689.30	99,593
Mining	1,460.64	8,064
Construction	25,025.19	290,206
Manufacturing--non-durables	75,963.34	409,751
Manufacturing--non-fishing-durables	33,862.35	190,061
Fishing--durables	4,705.41	80,696
Fishing--semi-durables	4,555.52	138,355
Transportation	42,391.29	237,177
Fishing--trip-expenses	43,797.50	587,925
Retail	11,011.27	311,178
Finance	52,176.57	279,784
Services	64,203.00	1,123,628
Government	31,823.63	703,665
Dummy	467.714	38,568
Totals	399,132.74	4,498,651

Scenario 5: Elimination of Recreational Saltwater Fishing from the State of Georgia

As mentioned previously, the likelihood of this scenario is small. However, it illustrates the extent of the industry in the state. Table 9 indicates a more than \$550 million (1997 dollars) reduction in the Georgia economy by eliminating recreational saltwater fishing. One difference between Table 9 (Georgia's economy) and Table 4 (coastal economy) is seen in direct effects for output, which are -\$338.9 and -\$334.5 million (1997 dollars), respectively. The inter-relationship between the fishing related industries in the coastal region and those in the rest of the state explains \$4.4 million (1997 dollars) difference in output between the two scenarios. For example, boat or tackle sales fall both in and outside the region. Hence, even though the resource is located in the coastal Georgia region, its effects can be felt throughout the state.

Table 9. Georgia Output Scenario 5, Eliminate GA Recreational Saltwater Fishing*

Industry	Direct	Indirect	Induced	Total	Multipliers
Agriculture	0.0	-0.9	-1.1	-2.0	
Mining	0.0	0.0	0.0	-0.1	
Construction	0.0	-2.5	-1.6	-4.1	
Manufacturing--non-durables	0.0	-9.9	-13.4	-23.3	
Manufacturing--non-fishing-durables	0.0	-6.5	-6.7	-13.2	
Fishing--durables	-93.1	-0.2	-3.6	-96.9	1.04
Fishing--semi-durables	-80.0	-0.8	-3.3	-84.1	1.05
Transportation	0.0	-9.3	-10.5	-19.8	
Fishing--trip-expenses	-138.4	-10.2	-17.1	-165.7	1.20
Retail	0.0	-0.6	-8.2	-8.7	
Finance	0.0	-13.9	-27.6	-41.5	
Services	0.0	-26.0	-32.2	-58.2	
Government	0.0	-0.1	-4.8	-4.9	
Dummy	0.0	0.0	-0.2	-0.2	
Foreign Trade	-0.2	0.0	0.0	-0.2	
Domestic Trade	-27.2	0.0	0.0	-27.2	
Total	-338.9	-80.8	-130.4	-550.1	

* Million 1997 dollars

Total employment effects of -8,439, as seen in Table 10, are slightly less for the scenario that considers Georgia as a whole. The scenario that looks at only the coastal region effects indicates a drop of -8,621. This difference can be explained by the fact that in IMPLAN® when recreational saltwater fishing activities are eliminated from the coastal region, jobs (employees) do not transfer to other regions. In addition, at the state level, economies of scale allow that while output may be reduced, jobs are not necessarily lost.

Table 10. Georgia Employment Scenario 5, Eliminate GA Recreational Saltwater Fishing

Industry	Direct	Indirect	Induced	Total	Multipliers
Agriculture	0	-12	-14	-26	
Mining	0	0	0	0	
Construction	0	-29	-19	-48	
Manufacturing--non-durables	0	-53	-73	-126	
Manufacturing--non-fishing-durables	0	-37	-38	-74	
Fishing--durables	-1,596	-3	-62	-1,662	1.04
Fishing--semi-durables	-2,429	-24	-102	-2,555	1.05
Transportation	0	-52	-59	-111	
Fishing--trip-expenses	-1,858	-136	-230	-2,225	1.20
Retail	0	-16	-231	-247	
Finance	0	-75	-148	-222	
Services	0	-455	-564	-1,019	
Government	0	-2	-106	-107	
Dummy	0	0	-19	-19	
Foreign Trade	0	0	0	0	
Domestic Trade	0	0	0	0	
Total	-5,883	-894	-1,663	-8,439	

Scenario 6: 25% Increase in Recreational Saltwater Fishing in Georgia Economy by 2005

Tables 11 and 12 report on the effects of increasing recreational saltwater fishing in the state economy by 25% between now and the year 2005. Total output increases by \$125.1 million (1997 dollars), as seen in Table 11. Output increases by \$113.2 million (1997 dollars). Total employment increases by 1,909 (Table 12) in the Georgia economy case, where it only increases by 1,897 in the coastal economy case (Table 7). In both cases, the state level economy demonstrates more of an increase due to inter-related industry activities as well as the increase in household level demand.

Table 11. Georgia Output Scenario 6, 25% increase, GA Recreational Saltwater Fishing*

Industry	Direct	Indirect	Induced	Total	Multipliers
Agriculture	0.0	0.2	0.2	0.5	
Mining	0.0	0.0	0.0	0.0	
Construction	0.0	0.6	0.4	0.9	
Manufacturing--non-durables	0.0	2.2	3.1	5.3	
Manufacturing--non-fishing-durables	0.0	1.5	1.5	3.0	
Fishing--durables	21.9	0.0	0.8	22.7	1.04
Fishing--semi-durables	17.4	0.2	0.8	18.3	1.05
Transportation	0.0	2.1	2.4	4.5	
Fishing--trip-expenses	31.6	2.3	3.9	37.8	1.20
Retail	0.0	0.1	1.9	2.0	
Finance	0.0	3.2	6.3	9.4	
Services	0.0	5.9	7.3	13.2	
Government	0.0	0.0	1.1	1.1	
Dummy	0.0	0.0	0.1	0.1	
Foreign Trade	0.0	0.0	0.0	0.0	
Domestic Trade	6.2	0.0	0.0	6.2	
Total	77.1	18.4	29.7	125.1	

* Million 1997 dollars

Table 12. Georgia Employment Scenario 6, 25% Increase, GA Recreational Saltwater Fishing

Industry	Direct	Indirect	Induced	Total	Multipliers
Agriculture	0	3	3	6	
Mining	0	0	0	0	
Construction	0	7	4	11	
Manufacturing--non-durables	0	12	17	29	
Manufacturing--non-fishing-durables	0	8	9	17	
Fishing--durables	375	1	14	390	1.04
Fishing--semi-durables	528	6	23	556	1.05
Transportation	0	12	13	25	
Fishing--trip-expenses	425	31	52	508	1.20
Retail	0	4	53	56	
Finance	0	17	34	51	
Services	0	104	128	232	
Government	0	0	24	24	
Dummy	0	0	4	4	
Foreign Trade	0	0	0	0	
Domestic Trade	0	0	0	0	
Total	1327	203	378	1909	

Summary

This study examines the economic activity associated with recreational saltwater fishing in the 18 coastal counties in Southeast Georgia: Appling, Brantley, Bryan, Bulloch, Camden, Charlton, Chatham, Effingham, Evans, Glynn, Liberty, Long, McIntosh, Pierce, Screven, Tattnall, Ware, Wayne. It also explores the economic activity for recreational saltwater fishing in the state of Georgia.

The IMPLAN analysis results indicate the sizeable contribution of recreational saltwater fishing to the southeastern coastal region of Georgia and to the State as a whole. In the unlikely scenario that eliminates recreational saltwater fishing, economic output in the region would decrease by nearly \$500 million (1997 dollars), with a loss of over 7,000 jobs. Likewise, if the

recreational saltwater fishing industry activity increases by 25% over the next three years, it could bring over 1,800 jobs to the region.

References

Foster, John, 2001, *Preliminary Estimates of Marine Recreational Angler Expenditures in Georgia, 1999 and 2000*, Department of Natural Resources.

Gentner, Brad, Michael Price, and Scott Steinback, 2001, *Marine Angler Expenditures in the Southeast Region, 1999*, U.S. Department of Commerce.

Microsoft Corp. 2001, *America Business Disc 2001*, Microsoft Corp.

Appendix 1. CRD Expenditure Definitions used in Table 1⁶

Trip Expenditures

Private Transportation

Food

Lodging

Public Transportation

Boat Fuel

Charter Fees

Access/Boat Launching

Equipment Rental

Bait

Ice

Semi-Durable Goods

Rods and Reels

Other Tackle

Camping Equipment

Binoculars

Clothing

Processing/Taxidermy

Magazines

Club Dues

License Fees

Miscellaneous

Durable Goods

Boat Expenses

Power Boat Purchase

Non-Power Boat Purchase

Electronics

Fishing Vehicle

Vacation Home

⁶ CRD used the category divisions defined in Gentner et al (2001).

Appendix 2. Scenarios Using ABD Sales Data for Georgia Recreational Saltwater Fishing

Data related to recreational fishing were also taken from the American Business Disc® (MicroSoft 2001). Table A-1 describes the recreational saltwater fishing sales described in ABD 2001. A complete description of the ABD sales categories is contained in Table A-2. Notice that food sales are not included in the sales categories because of the difficulty in disaggregating recreational saltwater fishing related sales from general food sales. Therefore, IMPLAN® analysis done using the ABD data will underestimate the effects of recreational saltwater fishing on the regional economy. However, ABD provides sales data across a range. The data are presented for both the low and high end of the range. Foster's (2001) data fall within the range provided in the ABD data.

Table A-1. ABD Georgia Recreational Saltwater Fishing Sales, 2001

<u>Industry Category</u>	<u>Low (Million \$)</u>	<u>High (Million \$)</u>
Trip Expenditures	51.25	78.5
Semi-Durable Goods	11.5	14.75
Durable Goods	185.5	285
<u>Total</u>	<u>248.25</u>	<u>378.25</u>

Source: American Business Disc 2001

The scenarios associated with the ABD data include:

- A-1. No recreational saltwater fishing (ABD) High: removes output associated with recreational saltwater fishing based on the high range of sales reported on the ABD.
- A-2. No recreational saltwater fishing (ABD) Low: removes output associated with recreational saltwater fishing based on the low range of sales reported on the ABD.

Scenario 2, using Foster's (2001) data lies closer to the ABD high.

Table A-2. ABD SIC Categories Related to Georgia Recreational Saltwater Fishing

SIC	Trip Expenditures
4489-02	Boats-Excursions
4492-02	Towing-Marine
4493-02	Boat-Storage
493-04	Boat Repairing
4493-06	Marinas
4499-05	Boat Transporting
5088-10	Loading Dock Equipment (Wholesale)
5091-07	Fishing Tackle- Wholesale
5199-05	Fishing Bait- Wholesale
7999-13	Boats-Rental & Charter
7999-14	Boating Instruction
7999-26	Fishing Lakes- Public
7999-28	Fishing Parties
7032-01	Fishing Camps
SIC	Semi-Durable Goods
5941-31	Fishing Tackle- Dealers
5941-32	Fishing Tackle - Repairing & Parts
5941-33	Fishing Bait
3949-14	Fishing Tackle - Manufacturers
3949-27	Fishing Tackle MFRS-SUPLS (MFRS)
7694-03	Outboard Motors - Repairing
SIC	Durable Goods
1629-02	Docks (Builders)
3731-01	Ship Builders & Repairers
3732-01	Boats- Manufacturers
3732-02	Boat Equipment & Supplies-Manufacturers
5551-03	Boat Equipment & Supplies
5551-04	Boat Dealers Sales & Services
5551-07	Yachts
5551-09	Outboard Motors
5551-13	Marine Equipment & Supplies
5551-25	Yacht Brokers

Scenario A-1

Table A-3 describes Scenario A-1, the elimination of recreational saltwater fishing based on the ABD High sales data. The total economy experiences a decrease of \$518.2 million (1997 dollars) as a result of eliminating recreational saltwater fishing from the coastal economy. Recall

Scenario 2 has a decrease of \$510.6; thus the two scenarios vary by slightly more than \$7 million dollars, or about 1.5%.

Table A-3. Output Scenario A-1, ABD High, GA Recreational Saltwater Fishing*

Industry	Direct	Indirect	Induced	Total	Multipliers
Agriculture	0.0	-0.1	-0.2	-0.3	
Mining	0.0	0.0	0.0	0.0	
Construction	0.0	-2.5	-1.1	-3.6	
Manufacturing--non-durable	0.0	-2.4	-2.9	-5.3	
Manufacturing--non-fishing durables	0.0	-9.5	-5.7	-15.2	
Fishing--durables	-207.0	-0.2	-2.5	-209.7	1.01
Fishing--semi-durable	-10.9	-0.6	-2.5	-14.1	1.29
Transportation	0.0	-9.7	-8.9	-18.6	
Fishing--trip expenses	-57.4	-5.8	-6.8	-69.9	1.22
Retail	0.0	-1.1	-11.2	-12.3	
Finance	0.0	-13.0	-18.5	-31.5	
Services	0.0	-26.1	-24.8	-50.9	
Government	0.0	-0.1	-6.6	-6.7	
Dummy	0.0	0.0	-0.2	-0.2	
Foreign Trade	-1.2	0.0	0.0	-1.2	
Domestic Trade	-78.6	0.0	0.0	-78.6	
Total	-355.2	-71.0	-92.0	-518.2	

*Million 1997 dollars

Table A-4 details the employment changes resulting from the elimination of recreational saltwater fishing using the ABD High sales data. Total employment decreases by 7,074 when recreational saltwater fishing is eliminated from the economy.

Table A-4. Employment Scenario A-1, ABD High GA Recreational Saltwater Fishing

Industry	Direct	Indirect	Induced	Total	Multiplier
Agriculture	0	-1	-3	-4	
Mining	0	0	0	0	
Construction	0	-31	-14	-45	
Manufacturing--non-durable	0	-11	-13	-24	
Manufacturing--non-fishing durables	0	-54	-32	-86	
Fishing--durables	-3,763	-3	-45	-3,812	1.01
Fishing--semi-durable	-346	-20	-80	-446	1.29
Transportation	0	-62	-58	-120	
Fishing--trip expenses	-668	-67	-79	-814	1.22
Retail	0	-37	-362	-399	
Finance	0	-80	-114	-194	
Services	0	-505	-480	-985	
Government	0	-1	-129	-130	
Dummy	0	0	-17	-17	
Foreign Trade	0	0	0	0	
Domestic Trade	0	0	0	0	
Total	-4,777	-872	-1425	-7,074	

Scenario A-2

Table A-5 describes Scenario A-2, the elimination of recreational saltwater fishing based on the ABD Low sales data. In this case, the total economy experiences a decrease of \$340 million (1997 dollars), which varies by more than 30% from Scenario 2. Even under the ABD Low sales scenario, a considerable decrease in the economic activity in the region results from elimination of recreational saltwater fishing. Table A-6 indicates a total of 4,663 jobs are lost when using the ABD Low sales data.

Table A-5. Output Scenario A-2, ABD Low, GA Recreational Saltwater Fishing*

Industry	Direct	Indirect	Induced	Total	Multiplier
Agriculture	0.0	-0.1	-0.1	-0.2	
Mining	0.0	0.0	0.0	0.0	
Construction	0.0	-1.6	-0.7	-2.4	
Manufacturing--non-durable	0.0	-1.6	-1.9	-3.5	
Manufacturing--non-fishing durables	0.0	-6.2	-3.7	-10.0	
Fishing--durables	-134.8	-0.1	-1.6	-136.5	1.01
Fishing--semi-durable	-8.5	-0.4	-1.7	-10.6	1.24
Transportation	0.0	-6.3	-5.9	-12.2	
Fishing--trip expenses	-37.5	-3.8	-4.4	-45.7	1.22
Retail	0.0	-0.7	-7.3	-8.1	
Finance	0.0	-8.5	-12.2	-20.7	
Services	0.0	-17.1	-16.3	-33.4	
Government	0.0	0.0	-4.4	-4.4	
Dummy	0.0	0.0	-0.1	-0.1	
Foreign Trade	-0.8	0.0	0.0	-0.8	
Domestic Trade	-51.5	0.0	0.0	-51.5	
Total	-233.0	-46.6	-60.4	-340.0	

*Million 1997 dollars

Table A-6. Employment Scenario 5, ABD Low GA Recreational Saltwater Fishing

Industry	Direct	Indirect	Induced	Total	Multiplier
Agriculture	0	-1	-2	-3	
Mining	0	0	0	0	
Construction	0	-20	-9	-29	
Manufacturing--non-durable	0	-7	-8	-16	
Manufacturing--non-fishing durables	0	-35	-21	-56	
Fishing--durables	-2450	-2	-30	-2481	1.01
Fishing--semi-durable	-270	-13	-53	-336	1.24
Transportation	0	-41	-38	-79	
Fishing--trip expenses	-436	-44	-52	-532	1.22
Retail	0	-24	-238	-262	
Finance	0	-52	-75	-127	
Services	0	-331	-315	-646	
Government	0	-1	-85	-85	
Dummy	0	0	-11	-11	
Foreign Trade	0	0	0	0	
Domestic Trade	0	0	0	0	
Total	-3155	-572	-936	-4663	