



Barataria-Terrebonne

NATIONAL ESTUARY PROGRAM

Economic Value Assessment for the Barataria-Terrebonne Estuarine System

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ECONOMIC VALUE ASSESSMENT FOR
THE BARATARIA -TERREBONNE
ESTUARINE COMPLEX





**ECONOMIC VALUE
ASSESSMENT FOR THE
BARATARIA-TERREBONNE
ESTUARINE SYSTEM**



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EXECUTIVE SUMMARY

Like other natural resources, the Barataria-Terrebonne estuarine system (BTES) can be viewed as an asset or capital good that produces a stream of services of value to humankind. Some of these services yield goods that are assigned values in the economic marketplace, such as the products of the commercial fishing, hunting and trapping, and aquaculture industries. Other estuary services, such as storm protection and tertiary wastewater treatment, are never explicitly purchased and thus are more difficult to value. In this report, we present estimates of the value of both the market and non-market services provided by the BTES.

BTES ROLE IN THE COMMERCIAL ECONOMY

A number of commercial industries in the BTES are directly dependent upon the quality of the estuarine ecosystem. In particular, the commercial fishing, hunting and trapping, and aquaculture industries require that the estuary remain habitable to valuable fish, mammal, and reptile species. Several additional commercial industries, including forestry, agriculture, ship- and boatbuilding, and oil and gas production, rely on wetlands, open water, and land currently threatened by subsidence and erosion.

The significant revenues these industries generate suggests their critical role in the local and state economy. Based on data from the 13 parishes that make up most of the BTES region, the total 1994 revenues of seven key estuary-dependent industries are approximately \$3.5 billion. As shown in Exhibit ES-1, the most significant industries include oil and gas production, shipbuilding, agriculture, and commercial fishing.

Exhibit ES-1	
TOTAL REVENUES OF ESTUARY-RELATED INDUSTRIES IN 13-PARISH AREA, 1994	
Industry	Total Revenues (1994\$)
Commercial Fishing	\$203,646,057
Commercial Trapping and Alligator Hunting	\$6,929,846
Forestry	\$3,711,783
Oil and Gas Production	\$2,254,991,074
Shipbuilding	\$701,000,000
Aquaculture	\$10,776,288
Agriculture	\$308,457,582
TOTAL	\$3,489,512,630

The importance of these estuary-dependent commercial industries, as well as recreational activity (tourism) in the BTES, is magnified when we consider the impact of these industries on the regional economy. Estuary-dependent industries affect other local industries by purchasing goods and services from them and supplying goods and services to them. Similarly, anglers and others participating in recreational activities create a regional economic effect by purchasing supplies from local businesses. As a result, the contribution of these industries and recreational activities to the regional economy is larger than the value associated with each industry's output or direct recreational expenditures.

We use a technique known as regional economic modeling to characterize the links between BTES-dependent industries and activities and the rest of the regional economy, and to develop estimates of their contributions to both regional output and regional employment. For this exercise we use MicroIMPLAN, a regional economic modeling program, to characterize the regional economy. The analysis focuses in particular on the BTES parishes of Terrebonne, Lafourche, Plaquemines, and Jefferson, which account for a large proportion of the estuary-dependent economic activity in the BTES. The analysis indicates that ship- and boatbuilding operations make the largest contribution of any estuary-dependent industry to the regional economy, followed by agriculture and commercial fishing. Overall, these industries are responsible for approximately 6.8 percent of the total output and 3.4 percent of the total employment of the four-parish area. Exhibit ES-2 shows the contribution of each industry studied to output and employment in the four-parish regional economy.

Exhibit ES-2		
CONTRIBUTION OF ESTUARY-DEPENDENT INDUSTRIES TO THE ECONOMY OF TERREBONNE, LAFOURCHE, PLAQUEMINES, AND JEFFERSON PARISHES		
Industry ¹	Contribution to Regional Output (1994\$)	Contribution to Regional Employment (persons)
Ship- and Boatbuilding and Repairing	\$1,224,500,000	17,036
Agriculture	\$180,400,000	2,571
Commercial Fishing	\$123,300,000	2,890
Commercial Hunting and Trapping	\$13,500,000	57
Aquaculture	\$10,100,000	N/A
TOTALS	\$1,551,800,000	22,554
¹ This analysis addresses those industries most dependent on the environmental quality of the estuary. For this reason, IEC did not include oil and natural gas production in this analysis.		

In our analysis of the economic contribution of recreational activities, we examined the roles of recreational fishing, hunting and trapping, and wildlife viewing in the same four-parish economy. Our analysis indicates that expenditures by anglers and hunters play a major role in

the local economy by supporting hotels, restaurants, sporting retailers, and other businesses. The model results suggest that recreational activity supports a significant share of the regional economy -- 4.2 percent of total output and 2.8 percent of total employment in the four-parish area. Exhibit ES-3 presents the contribution of the three activities to regional output and employment.

Exhibit ES-3		
CONTRIBUTION OF ESTUARY-DEPENDENT RECREATION TO THE ECONOMY OF TERREBONNE, LAFOURCHE, PLAQUEMINES, AND JEFFERSON PARISHES		
Recreational Activity	Contribution to Regional Output (1994\$)	Contribution to Regional Employment (persons)
Fishing	\$563,300,000	10,552
Hunting	\$350,200,000	7,237
Wildlife Viewing	\$42,700,000	907
TOTALS	\$956,200,000	18,696

NON-MARKET VALUES ASSOCIATED WITH THE BTES

Recreational Surplus Values

In addition to the commercial activity that is dependent on the estuary, the resource provides area residents and visitors with a number of valuable non-market services. Perhaps the most prominent of these services is the provision of recreational opportunities, which recreationalists do not purchase explicitly. Generally, recreationalists' willingness to pay for recreational activity exceeds the actual expenditures that they make on equipment and supplies. Economists view this net willingness to pay, known as consumer surplus, as the best measure of the economic benefits derived from recreational activity.

To estimate the consumer surplus associated with BTES-dependent recreation, we estimated the number of days per year spent on each recreational activity in the BTES. From the economics literature, we obtained estimates of the consumer surplus per day for each recreational activity studied. Multiplying the two estimates for each activity yields an estimate of the economic benefits derived from that activity in the BTES. Benefits estimates for each recreational activity analyzed are presented in Exhibit ES-4. As the exhibit indicates, recreational fishing represents the most significant recreational activity in the BTES, followed by recreational hunting.

Exhibit ES-4		
ECONOMIC BENEFITS ESTIMATES FOR BTES-DEPENDENT RECREATIONAL ACTIVITIES		
Recreational Activity	Net Economic Value (1994\$)	
	Lower	Upper
Fishing	\$164,278,534	\$482,978,604
Hunting	\$69,391,157	\$275,926,468
Viewing	\$6,975,632	\$23,286,709
Boating	\$37,480,782	\$172,107,387
Inland Swimming	\$40,640,248	\$40,640,248
Beachgoing/Swimming	\$229,500	\$7,349,962
Scuba Diving	\$0	\$21,776,760
All Camping	\$8,249,000	\$12,474,714
TOTALS	\$327,244,852	\$1,036,540,852
Note: Estimates reflect 13 key BTES parishes.		

In addition to analyzing the total economic benefits associated with recreation in the BTES, we have developed estimates of recreational benefits per acre of wetland within the study area (these estimates are obtained by dividing total consumer surplus for each activity by estimates of wetland acreage used in the activity.) Exhibit ES-5 presents these benefits estimates. As in the BTES-wide analysis, recreational fishing and hunting dominate the per-acre values.

Exhibit ES-5		
RECREATIONAL BENEFITS PER ACRE OF WETLAND		
Activity	Per Acre Value (1994 \$)	
	Lower	Upper
Fishing	\$96.69	\$1,213.20
Hunting	\$40.84	\$693.10
Motorized Boating	\$20.79	\$408.92
Wildlife Viewing	\$4.11	\$82.73

Value of Other Ecosystem Services

In addition to recreational opportunities, the wetlands of the BTES provide other non-market ecosystem services that are easily overlooked, including protection from wind and storm surge damage and wastewater purification. To characterize the value of these services, we reviewed studies of wetlands in and near the BTES. These studies employ the *avoided cost* approach to wetland valuation: estimating the value of wetland services by examining the cost of building man-made alternatives, or by determining the economic damages that would be incurred in the absence of wetlands. Generally, analysts present the value of these services per wetland acre. Exhibit ES-6 summarizes these per-acre values, which are described in greater detail below.

Protection From Storms and Saltwater Intrusion

By absorbing water and retarding wind speeds, wetlands prevent damages associated with coastal storms. Based on data on property damages from hurricanes, economists have estimated that the loss of a one-mile strip of coastal wetlands would increase annual property damages by \$186 per acre lost. Additionally, as wetlands recede, property owners and municipalities will take steps to replace the storm surge protection services the wetlands once provided. Studies estimate that the annual cost of building levees to protect against storm surge inundation ranges from \$280 to \$904 per acre. Moreover, freshwater supplies formerly protected from saltwater intrusion will become brackish as wetlands recede. The cost of implementing new water supply systems for coastal communities ranges from \$84 to \$119 annually per acre. Most importantly, property will be lost as wetlands subside. The cost of these losses, which include intermediate actions taken by property owners to retard the rate of loss, is estimated at \$6,599 to \$7,116 per wetland acre each year.

Tertiary Wastewater Treatment

In addition to providing protection against storms and other types of damage, wetlands can be used to purify wastewater. By estimating the cost of building alternative tertiary wastewater treatment systems, economists have developed estimates of the value of wetlands as wastewater filters (i.e. treating excessive nutrients, suspended solids, and BOD). Several studies estimate that the value of wetlands for tertiary wastewater treatment ranges from \$82 to \$157 per acre for municipal wastewater to as high as \$4,626 per acre for industrial wastewater.

Clearly, the estimates of ecological service values provided above are case-specific; they can be applied only to wetlands that provide the services of interest, and should not be applied in a blanket fashion to develop an estimate of total wetlands value. For example, if a policymaker is attempting to value a wetland acre that is near no industrial sites, it would be inappropriate to employ a benefits estimate for industrial wastewater purification.

Exhibit ES-6	
WETLAND ECOLOGICAL SERVICE VALUES	
Ecosystem Service	Annual Value Per Acre (1994 \$, 3% discount rate)
Protection from Storms and Saltwater Intrusion	
Protection from Hurricane Damage	\$186
Protection from Storm Surges (Levee Costs)	\$280-\$904
Protection of Water Supply	\$84-\$119
Prevention of Property Losses from Inundation	\$6,599-\$7,116
Wastewater Treatment	
Municipal Wastewater Treatment	\$82-\$157
Seafood Processing Waste Treatment	\$681-\$1,054
Potato Chip Manufacturing Waste Treatment	\$4,626

Because wetland service values are so case-specific, economists often look to *replacement cost* as a more generally applicable means of valuing wetlands. Moreover, as the techniques for creating man-made wetlands have been refined, replacement cost has become a more broadly accepted valuation methodology. Because this method addresses the value of the wetland as a whole, it implicitly captures the values of all services that can be provided by the wetland. Thus, use of this methodology does not require detailed analysis of the particular services wetlands currently provide.

Our replacement cost estimates are taken from a number of wetland replacement projects in and near the BTES. The costs associated with these sites range from \$368 to \$2,204 per acre depending on whether the site was created through the placement of dredged sediment, uncontrolled river diversion, or controlled river diversion. Exhibit ES-7 provides a summary of the wetland replacement values derived from sites created by each methodology.

Exhibit ES-7	
REPLACEMENT COST VALUE PER WETLAND ACRE	
Wetland Creation Method	Value per Acre per Year (1994 \$)
Dredged Material Placement	\$502-\$1,250
Uncontrolled Sediment Diversion	\$368
Controlled Sediment Diversion	\$1,004-\$2,204

Limitations

Our analysis of the non-market benefits that the BTES provides excludes several services that are difficult, if not impossible, to quantify. These include the cultural importance of the BTES to Louisiana, the scenic value of the wetlands, the habitat the estuary provides to threatened and endangered species, and the value non-users derive from knowing the wetlands exist. The exclusion of these services from the benefits analysis is not intended to imply that the values associated with them are negligible. Rather, it is an indication of the difficulty of valuing all of the services provided by such a diverse and important resource. These limitations must be taken into account in interpreting and applying the results of the economic analysis.

SUMMARY

The economic importance of the BTES cannot be captured by any one measure. The estuary supports several major industries, each of which has significant direct and indirect impacts on the regional economy. Additionally, the estuary provides non-market services, such as recreational opportunities, storm protection, and wastewater treatment, that contribute substantial economic benefits to area residents and visitors. Commercial economic impacts and estimates of the benefits of non-market services are fundamentally different measures of economic value that cannot be summed. Nonetheless, consideration of both measures -- as well as recognition of their limitations -- is essential to develop a well founded understanding of the economic importance and value of the Barataria-Terrebonne estuarine system.

INTRODUCTION

Like other natural resources, the Barataria-Terrebonne estuarine system (BTES) can be viewed as an asset or capital good that produces a stream of services of value to humankind. Some of these services yield goods that are traded in the market. For example, the estuary supports commercial fishing, hunting and trapping, agriculture, and aquaculture. The revenues of these and other industries provide an imperfect but useful indication of how society values such products and, indirectly, of the economic importance of the estuary itself.

Equally important are the estuary services not explicitly purchased in commercial markets. Recreational fishing, hunting, and other recreational opportunities provided by the estuary typically are not purchased directly, making it difficult to state precisely the value of these services to society. In this case, surveys and other techniques elicit consumers' willingness to pay for recreational activity. Other non-market estuary services include those ecological benefits associated with wetlands, such as protection from storm surges and filtering of pollutants. To value these ecosystem services, economists generally rely on estimates of the expenditures that society would need to undertake to replace the services (e.g., construction of levees as substitute flood control).

Finally, the value of the services provided by the estuary extend beyond the direct market and non-market amenities provided. Estuary-dependent industries like commercial fishing purchase supplies from other regional industries, thereby supporting the regional economy. Similarly, businesses that cater to recreation, such as sporting goods stores, rely on the continued existence of recreational opportunities in the BTES. Absent estuary-dependent industry and recreation, closely linked sectors would be adversely affected.

The objective of this report is to provide a comprehensive assessment of the value of the BTES, capturing the values associated with the service flows described above.

ROLE OF THE ESTUARY VALUATION

The future of the BTES is uncertain. Environmental degradation -- including erosion, saltwater intrusion into freshwater ecosystems, and pollution -- threatens the delicate ecosystem of the area. Mitigating these problems will be difficult and expensive, and may require reductions in development, curtailment of certain economic activity, or other measures to ensure that the region's way of life can be sustained.

To manage the estuary responsibly, the costs of protection must be considered in conjunction with the benefits provided by the estuary. By characterizing the values associated with different estuarine service flows in one document, we pursue two main objectives:

- First, we seek to provide the Barataria-Terrebonne National Estuary Program (BTNEP) with key information needed to evaluate management alternatives for the estuary. These decisions will be incorporated into BTNEP's Comprehensive Conservation Management Plan.
- Second, this report may be used to educate the public on the importance of the BTES and its contribution to the economy of Louisiana, supporting the rationale behind BTNEP management decisions.

ORGANIZATION OF THE REPORT

The remaining chapters of this report are organized as follows:

- Chapter 2 provides a brief overview of the characteristics of the estuary, including its physical features and natural resources, as well as the threats the estuary currently faces. This chapter provides context for later discussion of the economic value of estuary services.
- Chapter 3 describes the important estuary-dependent commercial activities in the region, estimates the revenue of these industries, and examines trends in industry output over time.
- Chapter 4 provides an assessment of the value of estuary-dependent recreational activity in the BTES.
- Chapter 5 uses IMPLAN, a regional economic model, to assess the regional economic contribution of various estuary-dependent industries and recreation to the BTES economy.
- Chapter 6 characterizes the value of other ecological services provided by BTES wetlands, placing the estimates on a per-acre basis.

Appendix A contains detailed output from the regional economic model developed in Chapter 5.

OVERVIEW OF THE BARATARIA-TERREBONNE ESTUARINE SYSTEM CHAPTER 2

As context for more detailed discussion of the economic importance of the BTES, this chapter briefly reviews the physical setting and the services provided by the estuary. In addition, we briefly describe the environmental changes that currently threaten the ecological well-being of the region.

PHYSICAL FEATURES OF THE ESTUARY

The Barataria- Terrebonne Estuarine System (BTES) is comprised of over 4 million acres of water and land in south central Louisiana. The system incorporates the Barataria and Terrebonne drainage basins, which are separated by Bayou Lafourche. The BTES is flanked on the west by the Atchafalaya River, on the east by the Mississippi River, and runs from Morganza in the north to the Gulf of Mexico in the south.¹ Sixteen parishes are fully or partly located within the estuary system. The region is extremely low-lying; the highest elevations, along the northern part of the Mississippi River, are 38 feet above sea level, and the elevation decreases continually towards the south and interior of the region.² Most of the estuary is at sea level. A map depicting the BTES is presented in Figure 2-1.

The terrestrial and hydrological features of the estuary system are quite diverse. The BTES contains upland forests, bottomland hardwood forests and swamps in the north, and marshes and barrier islands in the south. The physical characteristics of these areas are described below.³

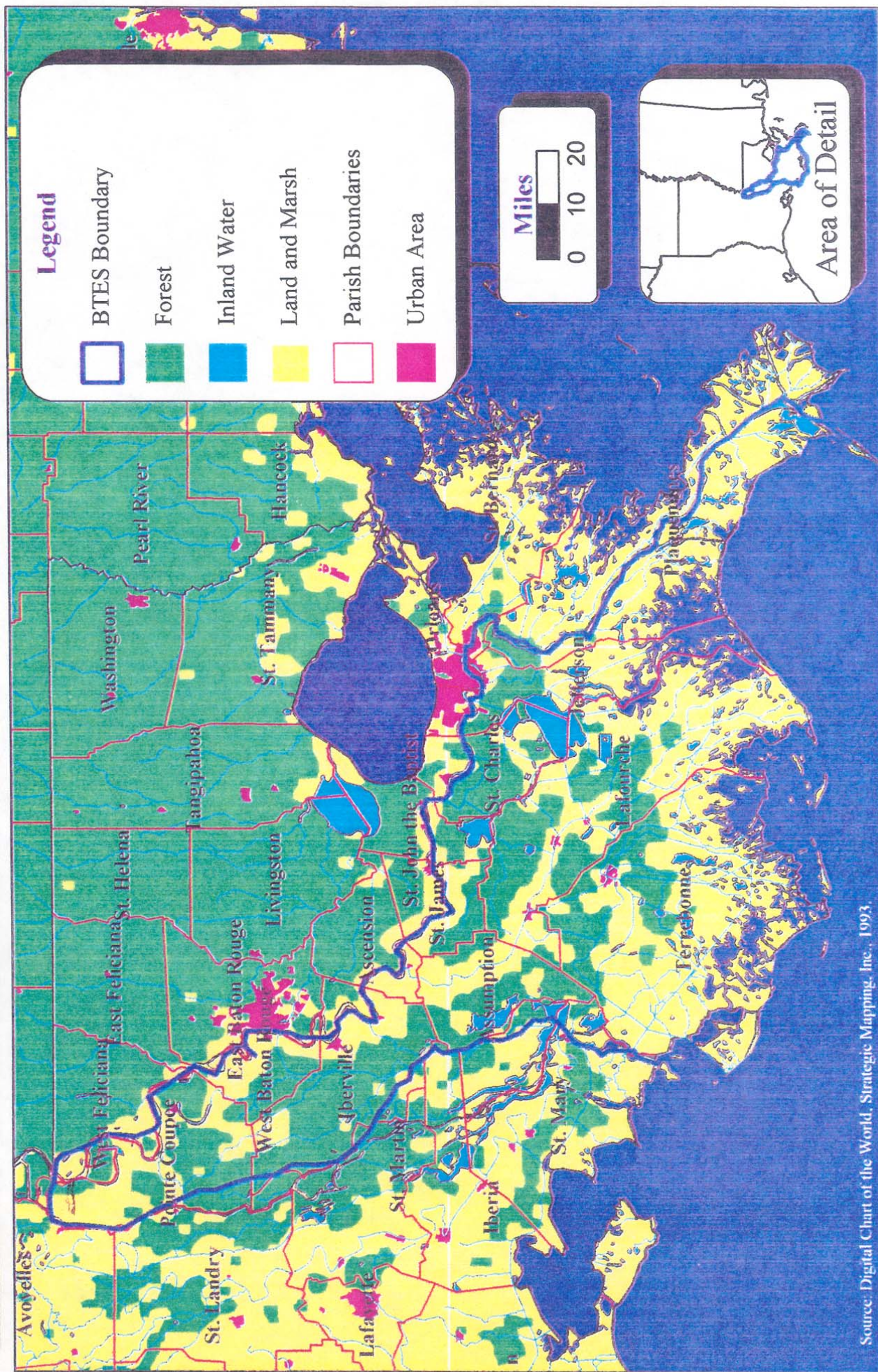
¹ Barataria-Terrebonne National Estuary Program, *Comprehensive Conservation and Management Plan (CCMP): Draft*, The College of Urban and Public Affairs, University of New Orleans, July 1995, p. 4.

² The Citizens Advisory Committee, *Comprehensive Public Participation Plan (CCAP)*, Barataria National Estuary Program, Nicholls State University Campus, p.4.

³ Physical features taken from Barataria-Terrebonne National Estuary Program, *CCMP: Draft*, The College of Urban and Public Affairs, University of New Orleans, July 1995, pp. 5-7.

Figure 2-1

The Barataria-Terrebonne Estuarine System



- **Marshes:** BTES marsh areas include freshwater marsh, concentrated in the northern part of the study area, and saltwater marsh, located in a band along the Louisiana coast. Freshwater marshes support a diverse range of plants and animals, while the high salinity of saltwater marshes lessens species diversity. Within low salinity and freshwater marshes, dense mats of floating vegetation called floatant marshes can be found; they float because of an extremely low mineral (or soil) content, and can become so thick that they appear to be solid ground. Marshes are a vital part of the estuary because grasses bind the soil, keeping wetlands in place. In addition, they offer food and shelter for birds and other animals. The marshes also provide habitat for organisms at the bottom of the food chain; decomposing grasses offer nourishment for microorganisms that in turn feed fish, shrimp, and other shellfish.
- **Forests:** There are several types of forested areas in the BTES. Forested wetlands consist of cypress and tupelo swamps, and perhaps comprise the scenery most commonly associated with Louisiana. Bottomland hardwood forests are found on slightly higher ground than the cypress swamps and therefore support a greater diversity of plants. Upland forests, which are located on upland ridges (i.e., natural levees), are very scarce because most have been cleared for human use. However, remaining ridges contain live oak, water oak, elm, ash, and maple.
- **Barrier Islands:** Barrier islands are an extremely vital part of the estuarine system. Chains of islands just off the coast protect the shore from waves and storm surges. These islands also provide feeding and nursing grounds for several species of fish and are the primary, or in some cases only, nesting place for a number of birds, including the endangered brown pelican.
- **Ridges:** Ridges are natural levees adjacent to rivers. These areas have historically supported much of the region's population, from Native Americans, to the plantation owners who needed the land for its superior drainage, to the residents of today's urban areas. Many ridges have been cleared for agricultural, residential, or industrial uses, but some are still undeveloped and contain natural levee forests. Upland ridges are located in the north of the region and are the highest land within the BTES.
- **Water:** Over half of the area encompassed by the estuary is covered by shallow water. Waterbody types are varied and include bays, lakes, bayous, and natural and artificial channels. Channels connect waterbodies and provide pathways for water, salt, pollutants, fish, shellfish, and ships between the industrial and fishing communities of the Barataria-Terrebonne estuary and the Gulf of Mexico.

SERVICES PROVIDED BY THE BTES

The natural resources of the BTES form the foundation of the region's social and economic structure. As described below, and elaborated upon in later chapters, the estuary supports commercial industry, provides recreational opportunities, and furnishes ecological services. In these and other ways, the estuary is key to southeast Louisiana's way of life.

Commercial Industry

The BTES supports a variety of commercial industries. Many of these industries rely on extraction of both renewable and non-renewable resources from the estuary, while others require the region's unique geographic features to provide services and products. Key categories of industry in the BTES include:

- **Renewable Resource Industries:** The BTES supports a vital commercial fishing industry. Nationally, Louisiana is second only to Alaska in total pounds landed.⁴ Over half of all Louisiana landings occur in the BTES. Forestry and trapping also rely on the renewable natural resources found in the estuary.
- **Heavy Industry:** Beginning in the 1940s, the discovery of oil fields in Louisiana and the subsequent development of technology necessary to extract oil from wetlands areas transformed the Louisiana economy.⁵ Exploitation of natural gas reserves also became a significant source of revenue for the area. However, the 1980's recession significantly damaged the prominence of these two industries. Shipping and shipbuilding are also important to this area, and the construction of several manmade canals increased ships' access to the estuary. The ports of Baton Rouge, New Orleans, and South Louisiana, all within the BTES region, are among the ten highest volume ports nationwide.⁶

⁴ U.S. Department of Commerce, *Fisheries of the United States*, 1991, May 1992, p. 4.

⁵ Barataria-Terrebonne National Estuary Program, *Land-Use and Socioeconomic Status and Trends, Draft Final Report*, Nicholls State University Campus, April 1995, p. 3-87.

⁶ Famighetti, Robert ed. *The World Almanac and Book of Facts*, 1995, Funk and Wagnalls, New Jersey, 1994, p. 203.

- **Light Industry:** Agriculture has historically dominated Louisiana's economy, although it has declined significantly in the last century. Sugarcane is still the dominant crop, grown on 200,000 of the BTES's 4 million acres.⁷ In addition, the estuary also provides excellent habitat for aquaculture farms, which supply domestically raised products such as catfish, crawfish, and alligators.

Recreational Activity

Recreation plays a major role in the economy of the BTES. Sportfishing and hunting are the most popular recreational activities. Freshwater anglers seek largemouth bass, catfish, crappie, and bluegill, while saltwater anglers fish for spotted seatrout, Atlantic croaker, redfish, and black drum.⁸ Waterfowl and deer are two of the most popular pursuits for hunters. Wildlife viewing, birdwatching, swimming, and boating are also prevalent.

Ecological Services

In addition to supporting commercial and recreational activities, the estuary and its wetlands protect the inhabitants of the region from man-made and natural hazards. First, wetlands act as filters for the water flowing through them, retaining pollutants that would otherwise enter the drinking water supply of both humans and animals. Secondly, wetlands protect property from floods, absorbing water from surges during storms and high tides. Finally, the barrier islands off the coast of Louisiana to some extent protect the mainland from hurricanes, reducing wind-induced wave damage to both wetlands and to upland property.

Cultural Heritage

The residents of the BTES trace their heritage to five continents. Native Americans, Europeans, African-Americans, Vietnamese, Chinese, Philipinos, and Central Americans have all learned to skillfully use the region's plentiful resources. Native Americans first came to the region thousands of years ago, and many still reside here. In the 1700s, Acadians settled in the region after having been expelled from Nova Scotia, and applied their farming, trapping, and fishing skills to make use of the estuary's resources. As sugar plantations became prevalent in the early 1800s, many of the original settlers, who could no longer afford land along the natural

⁷Barataria-Terrebonne National Estuary Program, Nicholls State University Campus, *Land-Use and Socioeconomic Status and Trends, Draft Final Report*, April 1995, p. 3-106.

⁸The Citizens Advisory Committee, *CPPAP*, Barataria National Estuary Program, Nicholls State University Campus, p. 10.

levees where plantations were found, resettled in the marshes and adapted to take advantage of the available resources there. Over time, the bayou region has developed a distinct ethnic and cultural diversity, still evident today, that is highly integrated with and dependent upon the estuary's natural resources.⁹

THREATS TO THE ESTUARY

The BTES contains some of the most dynamic and productive wetlands in the United States. However, the area's vitality has recently been decreasing. While the natural processes of the estuary formerly ensured a balance between land loss in some areas and the creation of new land in others, almost no new land building has occurred in the last century. According to one estimate, two acres of wetlands are lost every hour, implying that the entire present-day estuary system could disappear in less than three hundred years.¹⁰ While erosion is perhaps the most important problem, the BTES is currently being threatened in a variety of ways. The BTNEP has identified several priority problems critical to the estuary's health and continued vitality.

- **Hydrologic Modification:** Changes in the natural flow of water in the estuary are the cause of many of the other priority problems identified by the BTNEP. Manmade alterations such as channelization, the building of levees, or the dredging of canals, as well as natural changes in the estuary can have a wide variety of effects. For example, hydrologic modification can cause erosion, subsidence, and changes in salinity levels in the estuary, which in turn affect estuarine habitats. In extreme cases, hydrologic modification can lead to the conversion of a freshwater marsh to open water.
- **Sediment Loss:** Absent human intervention, sediment was regularly deposited throughout the region when the Mississippi flooded its banks. As the river changed course throughout the centuries, some areas were built up while others receded. The net result, however, was always an increase in wetland area. The building of levees has restrained this natural process. Because the Mississippi no longer floods its banks, most of its sediment load is deposited at the mouth of the river on the ocean floor, instead of on the continuously eroding flood plains of the BTES.
- **Habitat Loss and Modification:** Habitat loss and modification is caused by diversions of river flow and by development of oil and gas fields and navigation channels. These activities have altered or destroyed many barrier islands and wetlands, and often change salinity levels, thereby adversely affecting salt-sensitive plants and animals.

⁹ Ibid, pp. 11-16.

¹⁰ Barataria-Terrebonne Estuary Program, *Saving Our Good Earth: A Call to Action*, p.2.

- **Reductions in living Resources:** The types of habitat loss mentioned above and other factors such as pollution and over-harvesting have severely depleted many of the living resources of the BTES. These types of threats undermine the ability of estuarine animals to make homes, reproduce, and find food. However, there have been some promising signs as threatened species such as the brown pelican show signs of recovery.
- **Eutrophication:** Eutrophication occurs when an excess of nutrients, usually from fertilizer-rich runoff or sewage, enters the waterbody and causes an overgrowth of algae and other plants. After these plants die, the decomposition process depletes available dissolved oxygen. Additionally, the accumulation of non-decomposed material on the bottom of the waterbody reduces bottom feeding areas for waterfowl and spawning beds for many fish species.
- **Pathogen Contamination:** Contamination by pathogens (bacteria and other microorganisms) is becoming an increasingly severe problem in some wetland areas. It is caused by inadequately treated sewage as well as wild and domestic animal waste. If the concentration of pathogens becomes too great, people can become infected by direct contact with polluted water, or can become ill from ingesting contaminated water or shellfish.
- **Other Pollution:** Toxic pollutants from fertilizer-rich agricultural runoff, industrial discharges, and urban stormwater drainage are also an increasing problem. Toxic substances from these and other sources can have adverse biological and human health effects if concentrations rise beyond safe levels.

SUMMARY

The physical features of the BTES provide the backdrop for our discussion of the value of the estuary. Key conclusions include the following:

- The BTES encompasses a wide variety of wetlands, from upland forests and tupelo swamps to saltwater marshes. These wetlands are uniquely suited to support a diverse population of plants and animals, many of which cannot live in any other type of environment.
- The BTES provides many services that have helped to create an economic and cultural heritage unique to the region. An abundance of natural resources are available; fish, alligator, and oil are among the many resources exploited by the inhabitants of the BTES. The area is well known for its recreational opportunities, and sports such as fishing and hunting are also based on the natural resources of the BTES. Less tangible wetland services such as flood protection and water purification are also important to the region.

- The estuary and the many services it provides are threatened by pollution, erosion, and artificial alteration. Most notably, erosion of wetlands is reducing the habitat available for fish and wildlife. In addition, manmade channels have helped to spread the flow of saltwater, as well as pollutants from agricultural runoff.

The BTES supports a number of industries that rely directly on its unique physical and biological features. These industries range from the resource extractive sectors, such as fishing and hunting and trapping, to heavy industries that depend upon BTES-based infrastructure, such as shipbuilding. Because the economic viability of these industries is so closely tied to the existence of the BTES, the value of their output represents an important component of the value of the estuarine system. Therefore, as the first of our several approaches to characterizing the value or economic importance of the BTES, we present estimates of the annual output of these BTES industries.

This chapter is organized as follows:

- The first section describes the methodology we use to estimate the annual revenues of estuary-dependent industries in the BTES.
- The remainder of the chapter is divided into seven sections, describing each of the seven industries: fishing, hunting and trapping, forestry, oil and gas, shipbuilding, aquaculture, and agriculture. These sections provide background information on the selected industries and an estimate of the market value of output from these industries. The sections also discuss recent trends in the output of each industry and, where data allow, forecasts of future performance.

METHODOLOGY AND DATA SOURCES

In this chapter, we report annual revenues of seven selected industries associated with the BTES region. This method assumes that the market price that commodities command is a reasonable approximation of their value to society. Therefore, the total annual revenues of all estuary-related commodities sold is an indication of the economic importance of the estuary-dependent commercial activities in the region. In Chapter 5 of this report, we will further explore the importance of these commercial activities by assessing the economic linkages they have with other industries in the regional economy.

Data on the economic output of estuary dependent industries is reported by parish.¹ However, the boundaries of the BTES do not follow parish borders. Therefore, we selected as our study area a 13-parish subset of the 16 parishes located wholly or partially within the BTES. These parishes account for nearly all of the economic activity in the BTES: Ascension, Assumption, Iberville, Jefferson, Lafourche, Plaquemines, Pointe Coupee, St. Charles, St. James, St. John, St. Mary, Terrebonne and West Baton Rouge.² Two of the three parishes excluded from our analysis, Iberia and St. Martin, were not included because only extremely small and sparsely populated portions of these parishes are in the BTES. The third excluded parish, Orleans, was not included because the city of New Orleans, which is located in the parish, is not in the BTES. Because economic activity in Orleans is dominated by New Orleans, parish estimates would greatly overstate economic activity in the BTES.

COMMERCIAL FISHING

Background

Commercial fishing is a critical component of the BTES economy. Nationally, Louisiana is second only to Alaska in the quantity of fish landed.³ Over 459,000 tons of fish were landed in Louisiana in 1992, six times more than in Mississippi, the second most prolific state in the southeast United States.⁴ In turn, the BTES is the center of Louisiana's commercial fishing industry. From 1989 through 1994, the BTES harvest accounted for 62 percent of the value of total state landings.⁵ The industry is also a significant employer in the BTES, accounting for 1,742 jobs in Jefferson, Lafourche, Plaquemines, and Terrebonne parishes alone.⁶

¹ All reported values have been converted to 1994 dollars, using the U.S. Gross Domestic Product (GDP) deflator.

² Note that several of these 13 key parishes are only partially in the BTES study area. As a result, the use of data aggregated by parish may overstate the level of economic activity that occurs strictly within the boundaries of the BTES.

³ U.S. Department of Commerce, *Status of Fishery Resources off the Southeastern United States for 1993*, February 1995, p. 7.

⁴ U.S. Department of Commerce, *Status of Fishery Resources off the Southeastern United States for 1993*, February 1995, p. 7.

⁵ Database compiled by National marine Fisheries Service, Gulf Coast Regional Office, St. Petersburg.

⁶ IMPLAN analysis.

Importance of BTES Habitat to Commercial Fishing

As the above statistics indicate, the BTES provides vital physical habitat for the commercial fisheries of Louisiana and other Gulf states. Estuarine-dependent species make up 90 percent of the value of non-freshwater species caught in the Louisiana coastal zone.⁷ The marshes and barrier islands of the BTES serve as the primary breeding and spawning grounds for many fish native to the Gulf of Mexico. Additionally, the organic matter produced by decaying vegetation is a source of nutrition for microscopic organisms that, in turn, are an integral part of the diet of various types of marine life. Barrier islands and their protected back marshes are prime feeding grounds for juvenile fish, including menhaden, shrimp, and crabs. These and other commercially important species, such as speckled trout and redfish, seek shelter in estuary marshes at critical points in their life cycles.⁸

Recent Regulatory Changes Affecting Commercial Fishing

As discussed in Chapter 2, the BTES ecosystem is currently threatened by subsidence and deterioration in water quality, which in turn threaten to reduce the abundance of BTES fish species.⁹ In recognition of the need to protect dwindling BTES fishery resources, several recent regulations designed to protect commercial fish species have been promulgated. These will have important implications for the future of the Louisiana fishing industry.

The Louisiana legislature recently passed an act that would ban the use of gill nets in almost all situations and for most types of fish.¹⁰ Supporters of the ban suggest that gill nets are causing severe depletion of fish stock, and that gill net bans would enhance the regional economy by encouraging increased recreational fishing. Commercial fishermen argue that there is no scientific evidence to support the claim of fish depletion, and that the dispute is not about stock depletion but about apportioning fish between recreational and commercial anglers. Under the current legislation (there is pending legislation in both state and federal courts), only commercial fishermen that meet certain requirements will be able to fish using strike nets, until 1997. After 1997 strike nets will be legal only for the harvest of mullet and pompano, and for certain freshwater species.¹¹ Continued debate is likely, however, because both sides are not satisfied with the current act.

⁷ Personal communication with Bennett Landreneau, Assistant Conservationist, Nature Resources Conservation Service, 13 March 1996.

⁸ Barataria-Terrebonne National Estuary Program, *Saving our Good Earth*, p. 15.

⁹ Barataria-Terrebonne National Estuary Program, *Comprehensive Conservation and management Plan (CCMP): Draft*, July 1995, pp. 37-38.

¹⁰ Marshall, Rober, "Commercial Fishermen Need New Friends," *New Orleans Times Picayune*, October 29, 1995.

¹¹ Weiss, Joanna, "Total Ban on Gill Nets Sought," *New Orleans Times Picayune*, October 25, 1995

Commercial fishermen are also affected by bycatch restrictions that make the sale of gamefish such as red drum illegal. Shrimpers are most affected by this regulation due to the high average ratio of bycatch to shrimp (four to one).¹² Shrimpers are also affected by laws requiring turtle excluding devices (TEDs), which decrease shrimp catch and raise costs for shrimpers. Overall, regulation of commercial fishing in Louisiana is increasing as stock depletion concerns grow.

Estimate of Economic Activity

Data Sources

Two data sources provide information on the value and amount of fish landed in the study area.

- The National Marine Fisheries Service (NMFS) gathers detailed commercial fishing data directly from fish dealers, who are required to report the amount and value of their purchases. Landings and ex-vessel value data are available by species and parish. Confidentiality rules dictate that NMFS data cannot be reported for areas with fewer than three dealers. Because of the small number of dealers in the BTES, the Southeast Regional NMFS Office provided aggregated data for the region.
- The Louisiana Cooperative Extension Service provides a secondary source of information on commercial fishing activity. Landings and ex-vessel value data are available by parish and as state totals, so that a ranking of parishes by landings or ex-vessel values can be estimated. The data also allow a comparison of fresh and saltwater catch value. However, these data represent unofficial estimates made by Louisiana Cooperative Extension Service county agents and fisheries specialists. Therefore, they are used only to supplement and enhance the NMFS data.

Current Status

The compiled data from the sources noted above provide a good indication of the annual output of the BTES commercial fishing industry. Exhibit 3-1 shows that from 1989 through 1994, commercial fishing landings in the BTES averaged 608 million pounds per year (48 percent of the state total); with an average annual ex-vessel value of \$196 million (63 percent of the state total).¹³

¹² McQuaid, John, "Fish Law Faces Overhaul," *New Orleans Times Picayune*, May 28, 1995.

¹³ We use Extension Service data on the 1994 ex-vessel value and landings of menhaden to generate the BTES total because of an aberration in the NMFS data for this species and year.

Exhibit 3-1

BTES TOTAL COMMERCIAL FISHING LANDINGS, 1989-1994

Ex-Vessel Value	1989	1990	1991	1992	1993	1994	Average
BTES Total	\$228,962,044	\$170,205,810	\$196,363,438	\$201,291,662	\$177,837,866	\$203,646,057	\$196,384,480
Percent of State Total	73%	57%	68%	67%	65%	53%	63%
Catch (lbs.)	1989	1990	1991	1992	1993	1994	Average
BTES Total	628,583,551	466,567,933	659,675,416	535,187,834	708,472,300	650,814,281	608,216,886
Percent of State Total	51%	42%	55%	53%	55%	38%	48%

Source: Database compiled by National Marine Fisheries Service, Gulf Coast Regional Office, St. Petersburg.

A ranking by species in Exhibit 3-2 demonstrates that the commercial fishing industry is dominated by shrimping. The average annual value of the major shrimp species landed (white and brown shrimp) equals over half of the value of the overall commercial fishing harvest in the BTES. Menhaden and oysters are the next two most important species landed, accounting for 11 percent and nine percent, respectively, of the total value of the study area landings.

Confidentiality concerns prevent NMFS from releasing detailed information by parish. While not as accurate as the NMFS data, the Louisiana Cooperative Extension Service data provide information by parish that enables identification of significant parishes. As shown in Exhibit 3-3, Lafourche, Plaquemines, Terrebonne, and Jefferson parishes dominate the BTES fishing industry. Total revenues in these four parishes equal approximately \$176 million, or 84 percent of the total BTES ex-vessel value. Terrebonne landings are the highest in value in the region, comprising approximately 32 percent of the total BTES landings.

Exhibits 3-4 and 3-5 present estimates of landings by habitat type, species, and parish. Terrebonne dominates the shrimp harvest, landing approximately 44 percent of the total shrimp harvest of 60 million pounds. Plaquemines and Terrebonne are the two dominant parishes for menhaden landings, accounting for 58 and 42 percent of the menhaden catch, respectively.

As one would expect, freshwater species are landed in the inland parishes. Iberville accounts for the largest share of crawfish and catfish landings. The estimates also indicate that freshwater fishing accounts for only 13 percent of the average annual ex-vessel value of commercial fishing landings in the study area.

Trends

NMFS data indicate that the value of commercial fishing landings is fairly constant over the past several years. Exhibit 3-6 graphs the value over time of the commercial fishing harvest in the region. The mean value over time of commercial fishing landings is \$196 million, with a high of \$228 million in 1989 and a low of \$170 million in 1990. The trend in the amount of fish landed, shown in Exhibit 3-7, is somewhat more variable. The difference between the two trends likely results from variations in menhaden landings, since menhaden is caught in very high volumes but commands a very low unit price.

Exhibit 3-2		
TOP TWENTY COMMERCIAL FISH SPECIES IN THE BTES, 1989-1994		
Common Name	Average Annual Catch (lbs.)	Average Annual Ex-Vessel Value
Shrimp, Atlantic & Gulf, White	30,809,032	\$ 58,391,015
Shrimp, Atlantic & Gulf, Brown	35,069,533	\$ 45,372,573
Menhaden	461,673,390	\$ 21,855,782
All Oyster	5,751,702	\$ 18,099,842
Crabs, Blue, Hard	29,303,492	\$ 13,913,970
Tuna, Yellowfin	4,445,520	\$ 10,335,940
Crawfish, Freshwater	14,250,948	\$ 7,658,949
Snapper, Red	933,893	\$ 2,150,870
Shrimp, Atlantic & Gulf, Sea Bobs	4,488,285	\$ 1,925,115
Mullet, Striped	2,685,283	\$ 1,509,647
Swordfish	505,732	\$ 1,412,194
Mullet, with Red Roe	1,316,006	\$ 1,378,104
Drum, Black	2,207,218	\$ 1,213,428
Tuna, Bluefin, Unclassified	126,038	\$ 1,207,142
Sea Trout, Spotted	864,851	\$ 1,030,142
Shark, Unclassified	2,312,307	\$ 979,146
Snapper, Vermillion	401,938	\$ 735,229
Sheepshead, Atlantic	2,327,720	\$ 672,175
King Mackerel and Cero	671,891	\$ 643,101
Catfish, Channel	1,124,691	\$ 625,668
Source: Database compiled by National Marine Fisheries Service, Gulf Coast Regional Office, St. Petersburg.		

Exhibit 3-3 BTES TOTAL COMMERCIAL FISHING LANDINGS BY PARISH, 1994	
Parish	Total Value
Terrebonne	\$66,850,695
Plaquemines	\$51,885,200
Jefferson	\$30,174,869
Lafourche	\$26,884,853
Iberville	\$14,482,950
St. Mary	\$8,766,915
Assumption	\$6,473,000
St. Charles	\$1,660,125
St. John	\$1,206,394
Pointe Coupee	\$406,000
Ascension	\$130,825
St. James	\$97,400
West Baton Rouge	\$0
BTES Total	\$209,019,226
State Total	\$323,736,880
BTES as Percent of State Total	64.56%
Source: Louisiana Cooperative Extension Service, <i>Louisiana Summary: Agricultural Resources</i> , 1994.	

Exhibit 3-4

BTES COMMERCIAL SALTWATER FISHING LANDINGS, 1994

	Shrimp		Menhaden		Crabs		Other Commercial Finfish		Total
	Pounds	Value	Pounds	Value	Pounds	Value	Pounds	Value	Value
Terrebonne	26,240,000	\$48,806,400	212,256,000	\$10,612,800	6,400,631	\$4,160,410	4,000,000	\$3,200,000	\$66,779,610
Plaquemines	8,258,000	\$15,862,080	295,800,000	\$14,790,000	1,450,200	\$942,630	11,500,000	\$20,125,000	\$51,719,710
Jefferson	14,859,909	\$27,639,431	0	\$0	2,075,778	\$1,349,256	1,182,540	\$1,147,064	\$30,135,751
Lafourche	9,999,048	\$18,598,229	0	\$0	5,973,659	\$3,882,878	2,861,491	\$4,292,237	\$26,773,344
St. Mary	199,793	\$371,615	1,050,000	\$52,500	6,000,000	\$3,900,000	150,000	\$120,000	\$4,444,115
St. Charles	78,021	\$145,119	0	\$0	1,239,389	\$805,603	216,058	\$149,080	\$1,099,802
St. John	20,150	\$37,479	0	\$0	484,959	\$315,223	0	\$0	\$352,702
Assumption	0	\$0	0	\$0	400,000	\$260,000	0	\$0	\$260,000
St. James	40,000	\$74,400	0	\$0	20,000	\$13,000	0	\$0	\$87,400
Ascension	40,000	\$74,400	0	\$0	17,000	\$11,050	0	\$0	\$85,450
West Baton Rouge	0	\$0	0	\$0	0	\$0	0	\$0	\$0
Iberville	0	\$0	0	\$0	0	\$0	0	\$0	\$0
Pointe Coupee	0	\$0	0	\$0	0	\$0	0	\$0	\$0
Total	59,734,921	\$111,609,153	509,106,000	\$25,455,300	24,061,616	\$15,640,050	19,910,089	\$29,033,381	\$181,737,884
State Total	87,439,872	\$162,638,162	1,038,106,000	\$51,905,300	36,854,903	\$23,955,687	30,612,747	\$38,615,507	\$277,114,656
BTES as Percent of State Total	68.32%	68.62%	49.04%	49.04%	65.29%	65.29%	65.04%	75.19%	65.58%

Source: Louisiana Cooperative Extension Service, *Louisiana Summary: Agricultural Resources*, 1994.

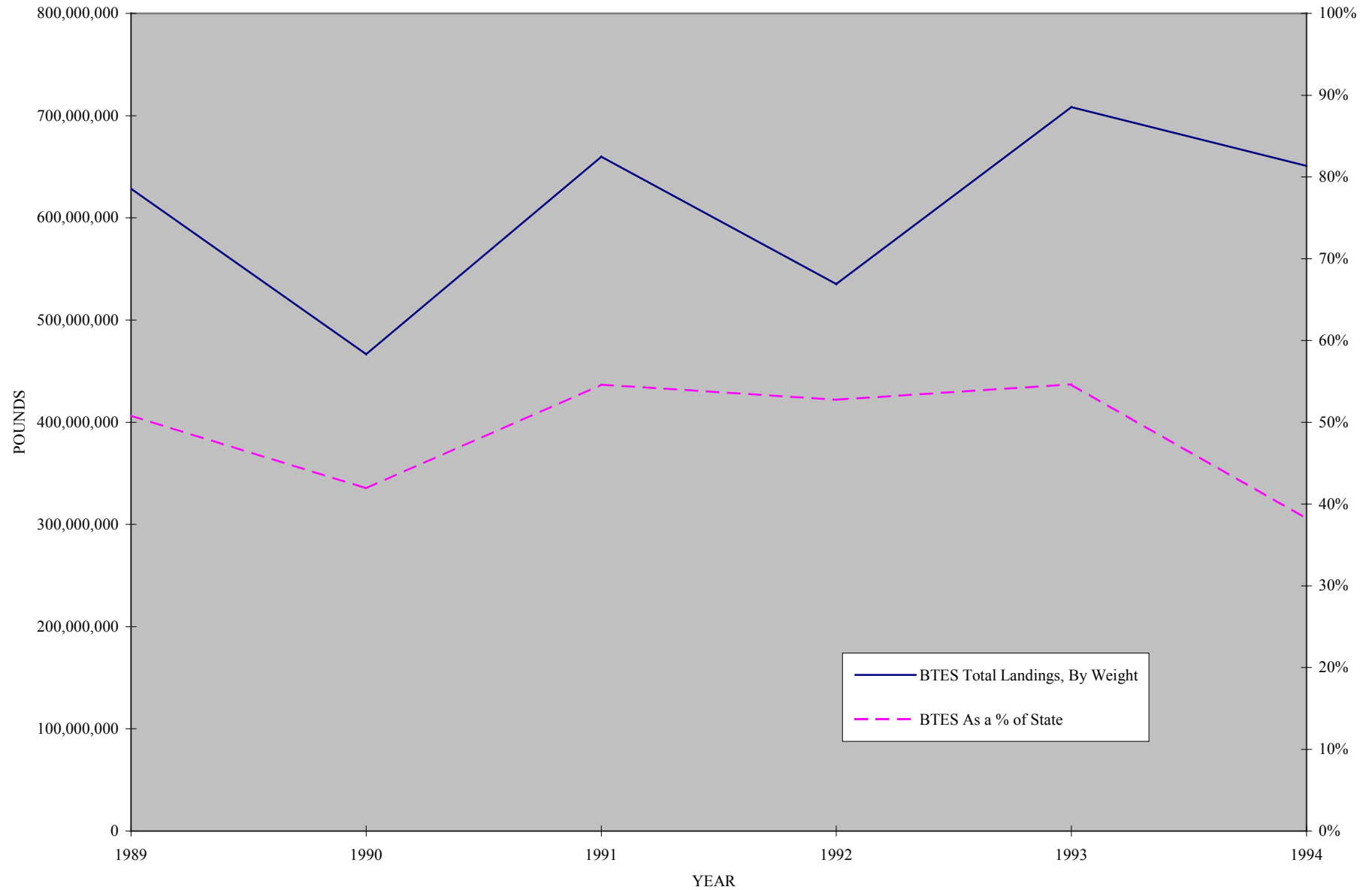
Exhibit 3-5

BTES COMMERCIAL FRESHWATER FISHING LANDINGS, 1994

	Crawfish		Catfish		Buffalo		Gar		Other		Total
	Pounds	Value	Pounds	Value	Pounds	Value	Pounds	Value	Pounds	Value	Value
Iberville	25,000,000	\$13,750,000	1,250,000	\$625,000	125,000	\$28,750	90,000	\$79,200	0	\$0	\$14,482,950
Assumption	11,000,000	\$6,050,000	230,000	\$115,000	0	\$0	0	\$0	240,000	\$48,000	\$6,213,000
St. Mary	6,750,000	\$3,712,500	1,000,000	\$500,000	130,000	\$29,900	80,000	\$70,400	50,000	\$10,000	\$4,322,800
St. John	164,400	\$90,420	949,905	\$474,953	2,000	\$460	47,222	\$41,555	1,231,520	\$246,304	\$853,692
St. Charles	18,000	\$9,900	454,968	\$227,484	0	\$0	0	\$0	1,614,696	\$322,939	\$560,323
Pointe Coupee	700,000	\$385,000	15,000	\$7,500	10,000	\$2,300	10,000	\$8,800	12,000	\$2,400	\$406,000
Plaquemines	0	\$0	101,300	\$50,650	0	\$0	130,500	\$114,840	0	\$0	\$165,490
Lafourche	82,575	\$45,416	42,625	\$21,213	0	\$0	51,000	\$44,880	0	\$0	\$111,509
Terrebonne	66,500	\$36,575	21,500	\$10,750	0	\$0	27,000	\$23,760	0	\$0	\$71,085
Ascension	75,000	\$41,250	8,250	\$4,125	0	\$0	0	\$0	0	\$0	\$45,375
Jefferson	0	\$0	78,236	\$39,118	0	\$0	0	\$0	0	\$0	\$39,118
St. James	0	\$0	20,000	\$10,000	0	\$0	0	\$0	0	\$0	\$10,000
West Baton Rouge	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	\$0
BTES Total	43,856,475	\$24,121,061	4,171,784	\$2,085,793	267,000	\$61,410	435,722	\$383,435	3,148,216	\$629,643	\$27,281,342
State Total	68,359,875	\$37,597,931	12,096,884	\$6,048,643	5,584,600	\$1,283,538	1,073,942	\$945,069	3,735,216	\$747,043	\$46,622,224
BTES as Percent of State Total	64.16%	64.16%	34.49%	34.48%	4.78%	4.78%	40.57%	40.57%	84.28%	84.28%	58.52%

Source: Louisiana Cooperative Extension Service, *Louisiana Summary: Agricultural Resources*, 1994.

Exhibit 3-7
BTES TOTAL COMMERCIAL FISHING LANDINGS, BY WEIGHT, 1989-1994



The future of the commercial fishing industry in Louisiana is unclear. Increasing scarcity of commercial species coupled with an increase in restrictions on fishing techniques may reduce landings. The gill net ban especially is likely to have a large impact on the overall industry as it effectively puts an end to the harvest of commercial finfish.¹ This may cause increases in the price of local species if landings in other areas do not increase to offset these reductions. If so, total value may remain fairly constant even though catch quantity declines.

HUNTING AND TRAPPING

Hunting and trapping have always been a part of the BTES economy. This way of life began with Louisiana's indigenous population, and was also important to later settlers such as the Acadians. Although hunting and trapping had always been part of the Louisiana tradition of self-sustenance, it was commercially ignored until the 1800s, when alligator, mink, otter, and raccoon furs gained popularity and became valuable items. At that time, Louisiana became a dominant exporter of fur to other parts of the U.S. and the world. Today, Louisiana is still a major fur producer; 40 percent of all wild fur harvested in the U.S. comes from Louisiana.² Alligator, nutria, muskrat, mink, and raccoon are all economically important and valuable natural resources for the state. The hunting of nutria and muskrat is especially encouraged because these animals destroy marsh vegetation, hastening erosion. Therefore, the hunting of these animals may benefit the area's ecosystem.³

Estimate of Economic Activity

The most detailed data on Louisiana hunting and trapping revenues is provided by the Louisiana Cooperative Extension Service. Exhibit 3-8 presents the revenues generated by the hunting and trapping industry by parish. As shown, the BTES is an important region for Louisiana's hunting and trapping industry, providing 59 percent of the state's hunting and trapping income with annual revenues of approximately \$7 million. Terrebonne and Lafourche parishes combined account for over half of the BTES revenues.

¹⁴ Personal communications with Bob Schroeder, U.S. Army Corps of Engineers, 20 March 1996.

¹⁵ Barataria-Terrebonne National Estuary Program, *Land Use and Socioeconomic Status and Trends Draft Final Report*, 28 April 1995, p. 3-82.

¹⁶ Barataria-Terrebonne National Estuary Program, *CCMP: Draft*, July 1995, p. 21.

Exhibit 3-8 BTES TRAPPING AND ALLIGATOR HUNTING REVENUES BY PARISH, 1994	
Parish	Total Value
Terrebonne	\$2,344,453
Lafourche	\$1,539,231
St. Mary	\$1,010,671
Plaquemines	\$429,779
St. Charles	\$349,330
Iberville	\$273,518
St. John	\$273,088
Jefferson	\$255,955
Assumption	\$171,371
St. James	\$161,627
Ascension	\$54,864
Pointe Coupee	\$44,270
West Baton Rouge	\$21,689
BTES Total	\$6,929,846
State Total	\$11,759,138
BTES as Percent of State Total	59%
Source: Louisiana Cooperative Extension Service, <i>Louisiana Summary: Agricultural Resources</i> , 1994.	

Alligator is the most important game animal in the BTES, providing the bulk of hunting and trapping revenues (see Exhibit 3-9). In 1994, the wild alligator harvest provided the BTES with over \$6 million in revenues, or 90 percent of the region's hunting and trapping income. Alligator hunting is concentrated in Terrebonne and Lafourche parishes. While fur bearing animals comprise only a small fraction of the hunting and trapping industry in the BTES, they are still a significant source of revenue. In 1994, revenue from fur animal pelts and meat in the BTES exceeded \$680,000, accounting for 61 percent of total state revenue from fur trapping. While a detailed breakdown of the fur trade in the BTES region is not available, data obtained from the Louisiana Department of Wildlife and Fisheries indicate that nutria, mink, and raccoon generate the majority of revenues in the fur industry. Exhibit 3-10 provides a summary of statewide fur revenues, by species.

Exhibit 3-9	
BTES TRAPPING AND ALLIGATOR HUNTING REVENUES BY PRODUCT, 1994	
Product	Value
Fur Animals	
Pelts	\$631,843
Meat	\$49,733
BTES Total	\$681,576
State Total	\$1,116,541
BTES as Percent of State Total	61%
Alligators	
Hides	\$3,951,566
Meat	\$2,296,704
BTES Total	\$6,248,270
State Total	\$10,642,897
BTES as Percent of State Total	58%
Source: Louisiana Cooperative Extension Service, <i>Louisiana Summary: Agricultural Resources</i> , 1994.	

Exhibit 3-10 AVERAGE ANNUAL REVENUES OF LOUISIANA FUR INDUSTRY BY SPECIES, 1985-1994		
Species	Pelts	Value
Nutria	377,300	\$1,105,146
Raccoon	85,604	\$525,000
Mink	17,781	\$191,501
Muskrat	52,347	\$82,880
River Otter	3,136	\$56,165
Bob Cat	912	\$33,543
Gray Fox	977	\$16,179
Beaver	1,856	\$9,855
Opossum	5,912	\$4,670
Red Fox	166	\$1,824
Coyote	296	\$1,349
Total*	546,287	\$2,028,117
<p>*Total may not equal the sum of the individual values due to rounding.</p> <p>Source: Louisiana Department of Wildlife and Fisheries, <i>1994-95 Annual Report, Fur and Alligator Advisory Council</i>, December 1995, p. 21.</p>		

The alligator harvest also supports two tanneries located in close proximity to the BTES. One tannery is located in Baton Rouge and the other in Lafayette; in addition, a third tannery is currently being built in Lafayette. These tanneries process many of the alligator hides produced by both alligator farmers and trappers.¹

Trends

No detailed data on recent trends in the value of the fur harvest in the BTES are available, but forecasts by industry experts give some indication of the future of the fur industry. The total value of the fur harvest increased slightly from 1993 to 1994. A diversified fur market and the opening of markets in Russia and China hold promise for this industry, which has struggled in past years. While the market for some species continues to strengthen world-wide, the suppressed domestic fur trade and movement of traditional fur buyers out of the market has constrained growth.

Wild alligator revenues have also increased slightly in recent years; the 1995 harvest was the largest since the alligator season was reopened in 1972. The demand for wild alligators is strong due to the relatively limited supply of large skins. This demand has driven prices up; the price per foot of wild alligator has doubled since 1993.² This trend suggests that the market for wild alligator hides is strong and may represent a growth industry in the BTES.³

FORESTRY

Although forestry is one of the main industries in Louisiana, it is largely concentrated in non-BTES parishes. The BTES accounts for less than one percent of total state landowner income from timber sales. Nevertheless, this still amounts to almost \$3 million in revenues. The BTES also contains a unique variety of woods; thus, the composition of its commercial timber is very different from the rest of the state. Continued deterioration of the estuary will result in the loss of trees found almost exclusively in the BTES, such as water tupelo and bald cypress.⁴

Estimates of Economic Activity

An inventory of the forest of Louisiana performed by the Southern Forest Experiment Station of the United States Forest Service provides data on BTES timber value. The breakdown of total sales by timber type and parish can be seen in Exhibit 3-11. The average annual value of

¹⁷ Personal communication with Greg Linscombe, Program Manager at the Louisiana Department of Wildlife and Fisheries, 5 January 1996.

¹⁸ Louisiana Department of Wildlife and Fisheries, *1994-1995 Annual Report of the Fur and Alligator Advisory Council*, December 1995, pp. 8-9.

¹⁹ This market strength may also extend to alligator farming, reviewed under "aquaculture" in a later section of this chapter.

²⁰ James Rosson et al., *Forest Resources of Louisiana--1984*, United States Department of Agriculture, Forest Service, Southern Forest Experiment Station, New Orleans, Louisiana, 1988, pp. 30-33.

landowner sales of timber in the BTES from 1989 through 1994 was \$2.8 million. Pointe Coupee accounts for 33 percent of total BTES production, with annual landowner sales totalling \$930,000. Iberville follows, with annual sales of approximately \$880,000.

Hardwood accounts for most of BTES landowner revenues from forest products (93 percent), in contrast to Louisiana as a whole, where 90 percent of revenues come from pine sales. An analysis of forest type groups indicates that 95 percent of the BTES study area timberland is comprised of oak-gum-cypress forests, as compared to the state average of only 36 percent. One third of all oak-gum-cypress forests in Louisiana are found in BTES parishes.⁵

Trends

Data from the past several years indicate that landowner revenues from hardwood sawtimber have been steadily increasing, from \$1.5 million in 1991 to more than \$2.5 million in 1994 (see Exhibit 3-12). Experts anticipate that this harvest will be sustainable in the future; 50,000 acres of hardwood were planted between 1985 and 1995 in Louisiana, mainly in the parishes along the Mississippi flood plain, in an effort to maintain yields.⁶

OIL AND GAS

The oil and gas industries are not directly dependent on the quality of the estuary but do rely on the network of coastal pipelines, ports, and roads, which is threatened by subsidence and erosion. In the long term, the complete disappearance of large areas of the BTES wetlands could make the production of oil and gas that rely on this network economically unfeasible. In addition, mature and overmature inshore oil and gas fields benefit from wetlands that buffer or moderate wave energy and storm surges. Deterioration of these wetlands is cause for concern because these industries are extremely important to the economy of the region and to Louisiana overall. In particular, they are some of the largest employers in the BTES, employing 39,000 people in 1994.⁷ However, these industries contribute to the estuarine degradation that threatens their existence by constructing artificial channels to transport oil; these channels are known to adversely affect the estuary by changing waterflows and limiting sedimentation, and contribute to wetlands erosion.

²¹ John Vissage et al., *Forest Statistics for Louisiana Parishes--1991*, United States Department of Agriculture, Forest Service, Southern Forest Experiment Station, New Orleans, Louisiana, 1992, pp. 21-22.

²² Personal communication with Jimmy L. Culpepper, Information, Education, Urban Forestry and PLT Coordinator at the Louisiana Dept. of Agriculture, Office of Forestry, 5 December 1995.

²³ Louisiana Mid-Continent Oil and Gas Association, *Louisiana Oil and Gas Facts*, 33 ed., November 1995, pp. 10-11.

Exhibit 3-11

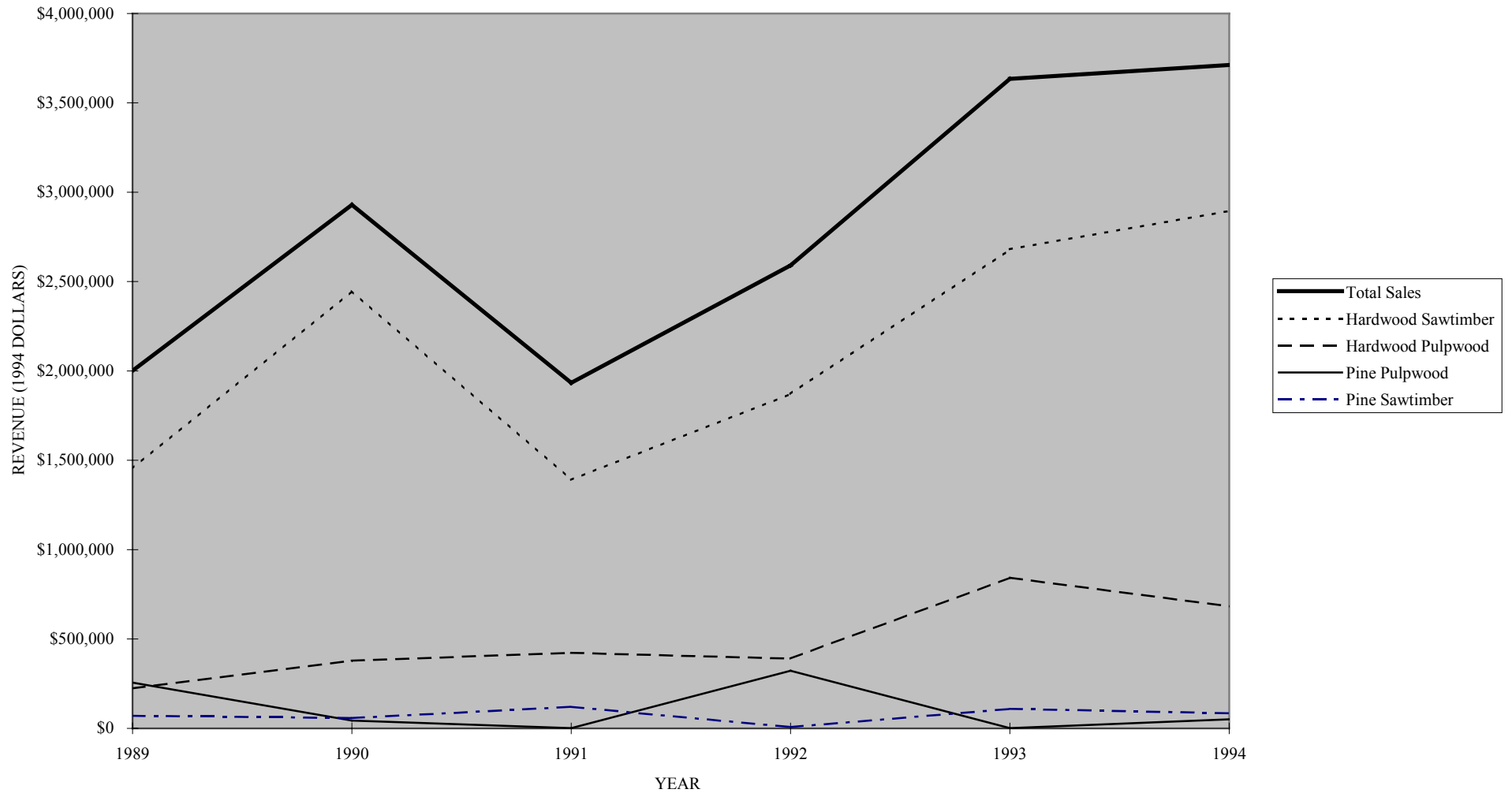
AVERAGE ANNUAL BTES LANDOWNER INCOME FROM TIMBER SALES, 1989-1994

Parish	Pine Sawtimber	Pine Pulpwood	Hardwood Sawtimber	Hardwood Pulpwood	Total Stumpage Value *
Pointe Coupee	\$0	\$0	\$847,881	\$82,317	\$930,197
Iberville	\$0	\$1,217	\$713,062	\$164,880	\$879,159
West Baton Rouge	\$696	\$220	\$438,116	\$94,294	\$533,325
Ascension	\$73,901	\$110,883	\$39,173	\$90,482	\$314,439
Lafourche	\$132	\$0	\$51,146	\$9,806	\$61,085
Assumption	\$0	\$30	\$14,145	\$25,077	\$39,251
St. Mary	\$0	\$0	\$2,957	\$8,890	\$11,847
St. James	\$0	\$0	\$1,582	\$9,200	\$10,782
St. Charles	\$0	\$0	\$10,185	\$109	\$10,293
Plaquemines	\$0	\$0	\$1,916	\$2,493	\$4,408
St. John	\$0	\$0	\$865	\$2,093	\$2,958
Terrebonne	\$0	\$0	\$1,694	\$106	\$1,800
Jefferson	\$0	\$0	\$330	\$246	\$576
BTES Total*	\$74,730	\$112,349	\$2,123,049	\$489,993	\$2,800,054
State Total	\$295,282,957	\$87,834,833	\$24,183,904	\$14,621,179	\$421,922,873
BTES as Percent of State Total	0.03%	0.13%	8.78%	3.35%	0.66%

* Total Stumpage Value and BTES Total may not equal the sum of the individual values due to rounding.

Source: Louisiana Department of Agriculture and Forestry, *1989-1994 Louisiana Timber and Pulpwood Products Reports*.

Exhibit 3-12
BTES LANDOWNER INCOME FROM TIMBER SALES, 1989-1994



Estimate of Economic Activity

Data on BTES and state oil and gas revenues were obtained from the Louisiana Mid-Continent Oil and Gas Association. These estimates include production of oil and gas from onshore and state offshore wells, but do not include any production from wells in federal waters. Data on federal wells off the Louisiana coast were obtained from the U.S. Department of the Interior's Minerals Management Service. While federal offshore wells are not within the BTES boundaries, infrastructure located in the BTES is used to transport the oil and gas obtained from these wells. If the pipelines and roads of the BTES are damaged by erosion, the price of transporting oil and gas may increase. Assuming that the current arrangement is the most efficient, this would mean that production costs for offshore oil would increase, perhaps rendering some oil and gas reserves economically unrecoverable. The decline of the estuary therefore has implications for oil and gas production outside of the BTES region.

Currently, Louisiana is the third largest producer of natural gas and the fourth largest producer of oil in the United States.¹ From 1988 through 1994, average annual revenues from the oil and gas industries totalled \$2.4 billion for the BTES region, or 39 percent of oil and gas revenues statewide. BTES revenues were almost evenly divided between oil (\$1.3 billion) and gas (\$1.1 billion).

Plaquemines, Terrebonne, and Lafourche are the largest oil- and gas-producing parishes in the BTES, providing 34, 19, and 16 percent of all BTES oil and gas revenues, respectively. Exhibit 3-13 provides data on average annual oil and gas revenues, by parish. These values were generated by multiplying production figures in a given year by average product prices for that year (converted to 1994 dollars).

Total production from federal wells off the Louisiana coast averaged \$12 billion annually over the same time period. While the state does not receive royalties or taxes from this production, it does receive indirect benefits through income tax revenue and taxes on the use of state infrastructure to transport oil onshore.

²⁴ Louisiana Mid-Continent Oil and Gas Association, November 1995, *Louisiana Oil and Gas Facts*, 33 ed., p. 7.

Exhibit 3-13			
BTES AVERAGE ANNUAL OIL AND GAS REVENUES, 1988-1994			
Parish	Gas	Oil	Total Revenues
Plaquemines	\$232,164,702	\$570,561,142	\$802,725,844
Terrebonne	\$298,962,191	\$151,510,955	\$450,473,146
Lafourche	\$135,222,579	\$252,329,997	\$387,552,576
St. Mary	\$223,558,415	\$85,597,628	\$309,156,043
Point Coupee	\$93,079,643	\$31,338,619	\$124,418,262
Jefferson	\$42,418,362	\$70,645,238	\$113,063,600
St. Charles	\$21,168,976	\$45,889,085	\$67,058,061
Iberville	\$6,995,516	\$54,793,480	\$61,788,996
Assumption	\$24,526,000	\$6,163,662	\$30,689,663
Ascension	\$1,309,683	\$13,399,801	\$14,709,484
St. James	\$6,873,685	\$4,356,792	\$11,230,477
West Baton Rouge	\$6,379,542	\$2,187,332	\$8,566,873
St. John the Baptist	\$1,865,913	\$2,837,044	\$4,702,957
BTES Total*	\$1,094,525,208	\$1,291,610,774	\$2,386,135,982
State Total	\$3,295,363,232	\$2,848,332,162	\$6,143,695,394
BTES as Percent of State Total	33.21%	45.35%	38.84%
Federal Offshore**	\$6,544,975,547	\$5,538,122,896	\$12,083,098,442
<p>* Total may not equal the sum of the individual values due to rounding.</p> <p>** Although Federal Offshore production does not occur within the BTES, it is an important source of income for the region and is therefore reported.</p> <p>Sources: Louisiana Mid-Continent Oil and Gas Association (LAMOGA), <i>Louisiana Oil and Gas Facts</i>, 27-33rd eds., 1989-1995. Minerals Management Service, U.S. Department of the Interior, as reported in LAMOGA.</p>			

Trends

Louisiana oil and gas production has been declining for several years as a result of several factors. The Louisiana oil and gas fields are considered mature fields; most oil and gas has already been discovered. In addition, production has moved offshore into federal waters as the more easily obtainable onshore reserves are depleted.¹ However, unlike oil prices, gas prices have increased sufficiently to spur revenue increases despite production losses (see Exhibit 3-14). Gas prices increased from a low of \$1.57 per thousand cubic feet in 1991 to a high of \$2.06 in 1993. Oil prices, on the other hand, have fallen from a high of \$23.03 per barrel in 1990 (driven in part by shortages resulting from the Gulf War) to a low of \$15.62 in 1994.

SHIP- AND BOATBUILDING

The health of the BTES affects shipbuilding in two ways. In the short term, the industry would be indirectly affected by reductions in estuary quality that cause a decrease in the demand for ships and boats. For example, if commercial fishing and pleasure boating declined due to estuary degradation, orders for new vessels and for repairs could also decline. In the long term, the entire BTES industry is directly affected by subsidence and erosion of the estuary, which damages the infrastructure on which ship- and boatyards rely.

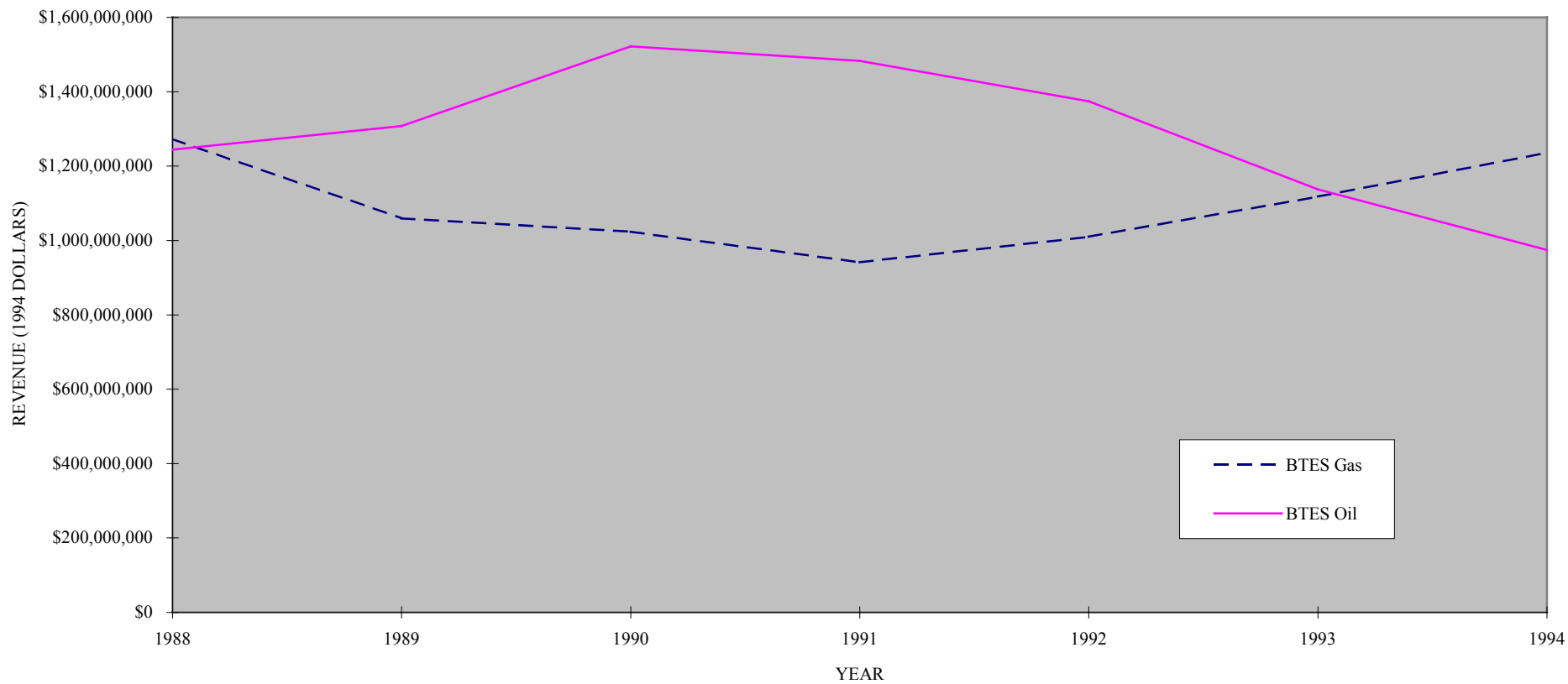
Estimate of Economic Activity

Data on shipbuilding were not available for the BTES region. However, statewide information was available from the U.S. Census of Manufactures. Because a large portion of the Louisiana ship- and boatbuilding industries is located in the BTES, the overestimation implied by using data for the entire state is limited. Recent news articles and business reports focusing on Louisiana also summarize current developments and trends in the shipbuilding industry.

The 1992 Census of Manufactures provides information on ship- and boatbuilding and repairing in Louisiana. In 1992, the state contained 66 shipbuilding and 86 boatbuilding operations. The value of shipments from shipbuilding was estimated at \$1.3 billion, and the industry employed approximately 13,000 people. Confidentiality concerns precluded the release of data on boatbuilding, although it was estimated that approximately 1,000 to 2,500 people were employed within the industry. Comparison with the 1987 Census of Manufactures shows that between 1987 and 1992, 3 shipyards closed in Louisiana and 10 boatyards opened. These numbers are representative of the general trends described below, which show that operations that build mainly smaller vessels are thriving while those that build larger vessels are struggling.

²⁵ Barataria-Terrebonne National Estuary Program, *Land-Use and Socioeconomic Status and Trends Draft Final Report*, Nicholls State University Campus, April 1995, p 3-88.

Exhibit 3-14
TRENDS IN BTES OIL AND GAS REVENUES, 1988-1994



These Census of Manufactures figures are reasonably consistent with U.S. Bureau of Economic Analysis (BEA) figures found in the regional economic model described in Chapter 5. The BEA data indicate that total output in ship- and boatbuilding in Terrebonne, Lafourche, Jefferson, and Plaquemines parishes is \$701 million. Total employment for the two industries is estimated at about 9,000 persons.

Trends

During the 1980's, the shipbuilding industry was in a decline in Louisiana, but the early 1990s brought a slow and steady resurgence. While major shipyards such as those that build and perform structural maintenance on large ships and supply boats for the oil and gas industry continue to struggle, smaller yards have adapted by building new types of ships and boats for inland and coastal waterways.¹ For example, employment in Bollinger's shipyard, on Bayou Lafourche in the BTES, increased by 350 employees in less than two years.² Bollinger's and other shipyards have adapted to changing demand by finding new markets, including producing dinner-cruise ships, fishing boats, research vessels, ferries, gambling steamers, and spill cleanup vessels.³ Louisiana shipbuilders also hope that phaseout of shipbuilding subsidies in several foreign nations will make Louisiana shipyards more competitive internationally.⁴

AQUACULTURE

Aquaculture -- the raising of fish, shellfish, and other water dwellers in a controlled environment -- is a relatively new industry that has been gaining in importance in the U.S. and world-wide. As the oceans' fishing stocks are depleted, farm-raised fish is becoming a valuable supplement to dwindling wild catch.⁵

²⁶ *U.S. Industrial Outlook: 1994*, U.S. Department of Commerce, International Trade Administration, January 1994, p. 21-1.

²⁷ John Hall, "A Little Boom: Small Yards Picking Up Big Business," *New Orleans Times Picayune*, 7 April 1991.

²⁸ *Ibid.*

²⁹ Robert P. James, "U.S. Loan Guarantees, End of Foreign Subsidies Help Shipbuilding on Gulf of Mexico Rebound," *Traffic World*, 12 September 1994, p. 22.

³⁰ G.W. Chamberlain, "Aquaculture Trends and Feed Projections," *World Aquaculture*, vol. 24, no. 1, pp. 19-29, 1993.

Products raised in Louisiana using aquaculture methods range from catfish to alligators. The state is perhaps most well known for its alligator farming, and has a near monopoly on production of farm-raised alligators in the United States. Although the commercial fishing industry and aquaculture farms are often in direct competition with one another, both industries are adversely affected by estuary degradation. Although the aquaculture industry is perhaps not as vulnerable to estuary degradation as commercial fishing, subsidence and declines in water quality can still affect the harvest.

Estimate of Economic Activity

The Louisiana Cooperative Extension Service provides detailed information by parish for the major aquaculture products in Louisiana. Exhibit 3-15 displays farm revenues by parish. In 1994, total farm revenues in the BTES parishes reached approximately \$11 million. Overall, Lafourche, Iberville, and Assumption have the highest aquaculture revenues in the region. Lafourche alone accounts for 26 percent of total BTES aquaculture revenues, while Iberville and Assumption produce 17 and 15 percent, respectively.

The products that comprise the bulk of the BTES aquaculture industry are listed in Exhibit 3-16. Crawfish is the most important aquaculture product in the BTES, generating annual revenues of \$5 million. Production of crawfish is concentrated in Iberville and Lafourche parishes, which in 1994 produced 61 percent of all crawfish in the BTES. Crabs are the next most valuable aquaculture product in the BTES, accounting for revenues of \$2 million. This production represents over 80 percent of the entire state farm-raised crab harvest. Alligators are also an important source of revenue in the BTES, with an annual harvest value of \$1 million. Most farmed alligators are raised in Lafourche and St. Charles parishes, which in 1994 produced over 85 percent of the alligator harvest in the BTES.

Trends

Nationally, the aquaculture industry is growing, and portions of Louisiana's aquaculture industry have followed this trend. The alligator harvest in Louisiana is thriving, partly because of assistance from the Louisiana Department of Wildlife and Fisheries, which provided farms with alligators from state-owned land beginning in 1977 and has permitted wild egg collection since 1986. This provided a needed boost to alligator farms, which produced only 35 skins statewide in 1972 but over 100,000 skins in 1994.

Not all sectors of the aquaculture industry are growing, however. Products such as farm-raised catfish and crawfish harvest are currently viewed as substitutes for commercial fishing catch, and have suffered in recent years when wild fish were plentiful and market prices were lower. The farm-raised crawfish harvest in 1994 is a good example of the competition between the commercial fishing industry and aquaculture. Because wild crawfish in the 1993-1994 season were so plentiful, prices were pushed down; many crawfish farmers discontinued fishing their ponds because the market price for crawfish did not cover production costs. Production of crawfish decreased by 13 percent from the previous season, while farm revenues decreased by five percent statewide.⁶

Exhibit 3-15	
BTES AQUACULTURE REVENUES BY PARISH, 1994	
Parish	Total Value
Lafourche	\$2,772,144
Iberville	\$1,841,373
Assumption	\$1,602,954
Jefferson	\$1,017,612
St. Charles	\$920,222
St. Mary	\$505,850
Terrebonne	\$696,141
West Baton Rouge	\$422,800
Ascension	\$413,960
St. James	\$214,738
Plaquemines	\$157,306
Pointe Coupee	\$137,500
St. John	\$73,688
Total	\$10,776,288
State Total	\$92,193,093
BTES as Percent of State Total	12%
Source: Louisiana Cooperative Extension Service, <i>Louisiana Summary: Agricultural Resources</i> , 1994.	

³¹ Louisiana Cooperative Extension Service, *Louisiana Summary: Agricultural Resources*, 1994, p. 5.

Exhibit 3-16 BTES AQUACULTURE REVENUES BY PRODUCT, 1994	
Product	Value
Crawfish	\$5,077,219
Catfish	\$179,600
Fishbait	\$261,600
Alligators	
Hides	\$884,640
Meat	\$298,568
Crabs	\$2,031,786
Other	\$2,042,875
Total	\$10,776,288
State Total	\$92,193,093
BTES as Percent of State Total	12%
Source: Louisiana Cooperative Extension Service, <i>Louisiana Summary: Agricultural Resources, 1994.</i>	

On balance, many experts feel that fisheries' harvest limits are being approached as demand increases. In the future, aquaculture will no longer be a substitute, but will fill the demand that is not met by commercial fishing landings.¹

AGRICULTURE

Over the last few decades, the importance of agriculture in the BTES has declined markedly. Since the 1950s, the number of farms in the BTES has decreased by 75 percent and the acreage farmed has decreased by 40 percent.² Nonetheless, agriculture is still a major sector of the regional economy.

Agriculture is directly affected by BTES degradation. Subsidence and erosion, with accompanying saltwater intrusion, diminish the amount of arable land available for crops, and for range livestock such as cattle and horses.³ Additionally, fertilizer and pesticide runoff from agricultural activities has detrimental effects on BTES water quality.

Estimates of Economic Activity

The Louisiana Cooperative Extension Service provides a detailed breakdown of agricultural revenue by product and parish for 1994. In 1994, farm revenues in BTES parishes totalled approximately \$308 million. Exhibit 3-17 displays farm revenues by parish and major product. Pointe Coupee alone accounts for 21 percent of BTES revenues, while Lafourche and Iberville account for 12 and 10 percent, respectively.

The major crops of the BTES are sugarcane, soybeans and corn. The BTES produces approximately \$164 million worth of sugarcane, representing over 60 percent of Louisiana's crop. The sugarcane crop dominates BTES agriculture, accounting for more than half of the BTES's agriculture revenues. Soybean and corn are a distant second and third, accounting for approximately \$22 and \$12 million dollars in annual revenues, respectively. BTES farmers also raise livestock, although this comprises a relatively small component of the region's agricultural industry. Cattle dominate the livestock sector, accounting for 94 percent of the \$36 million in BTES livestock revenues.

³² Chamberlain, G.W. "Aquaculture Trends and Feed Projections," *World Aquaculture* Vol. 24, No. 1, pp. 19-29, 1993.

³³ Barataria-Terrebonne National Estuary Program, *Land-Use and Socioeconomic Status and Trends Draft Final Report*, Nicholls State University Campus, April 1995, pp. 3-101-102.

³⁴ Not all livestock has been included in this estimate of agricultural revenues in the BTES, because the raising of livestock such as swine and poultry does not depend on large quantities of arable land, and therefore is much less affected by erosion and subsidence.

Exhibit 3-17

BTES ESTUARY-DEPENDENT AGRICULTURE REVENUES BY PARISH, 1994

Parish	Crop				Livestock		Total
	Sugarcane	Soybeans	Corn	Other	Cattle and Calves	Horses	
Pointe Coupee	\$12,442,682	\$17,880,240	\$9,157,500	\$13,279,486	\$10,345,005	\$234,000	\$63,338,913
Lafourche	\$23,420,949	\$33,176	\$0	\$3,080,895	\$9,093,855	\$140,000	\$35,768,875
Iberville	\$23,397,948	\$2,166,822	\$2,388,488	\$1,370,926	\$2,475,886	\$166,000	\$31,966,070
St. Mary	\$29,296,355	\$162,412	\$797	\$713,963	\$462,085	\$18,000	\$30,653,612
Jefferson	\$0	\$0	\$0	\$26,905,650	\$62,458	\$242,500	\$27,210,608
Assumption	\$24,674,572	\$25,578	\$0	\$1,757,230	\$183,086	\$73,500	\$26,713,966
Ascension	\$10,219,735	\$0	\$0	\$5,206,665	\$3,980,815	\$733,500	\$20,140,715
St. James	\$17,587,669	\$61,097	\$0	\$925,110	\$164,725	\$34,000	\$18,772,601
Terrebonne	\$7,057,918	\$0	\$0	\$3,214,068	\$2,321,484	\$38,000	\$12,631,470
Plaquemines	\$0	\$0	\$0	\$10,460,685	\$1,565,658	\$0	\$12,026,343
West Baton Rouge	\$8,076,280	\$1,099,628	\$905,283	\$614,756	\$975,380	\$69,500	\$11,740,827
St. Charles	\$1,566,300	\$0	\$11,025	\$4,936,080	\$1,954,325	\$360,000	\$8,827,730
St. John	\$6,294,418	\$300,730	\$22,275	\$1,888,003	\$160,426	\$0	\$8,665,852
BTES Total	\$164,034,826	\$21,729,683	\$12,485,368	\$74,353,517	\$33,745,188	\$2,109,000	\$308,457,582
State Total	\$268,669,821	\$189,403,384	\$80,042,703	\$1,189,207,054	\$286,877,336	\$33,555,392	\$2,047,755,690
BTES as Percent of State	61%	12%	16%	6%	12%	6%	15%

Source: Louisiana Cooperative Extension Service, *Louisiana Summary: Agricultural Resources*, 1994.

Trends

Data on crop trends between 1988 and 1994 were obtained from the Louisiana Agricultural Statistics Service, a division of the U.S. Department of Agriculture. The Louisiana Agricultural Statistics Service divides the state into geographic regions and reports agricultural data as a total for each region. However, none of these regions correspond to the boundaries of the BTES. Therefore, our analysis addresses two regions, south central and southwest Louisiana, that together provide the closest approximation of the 13 parishes defined as the BTES study area. This aggregate differs from the 13-parish study area by omitting Pointe Coupee and West Baton Rouge, and including St. Bernard, Orleans, Iberia, Lafayette, and St. Martin. As a result of this imprecision, these estimates are more useful as indicators of the general trend in production in the BTES than as estimates of actual production levels.

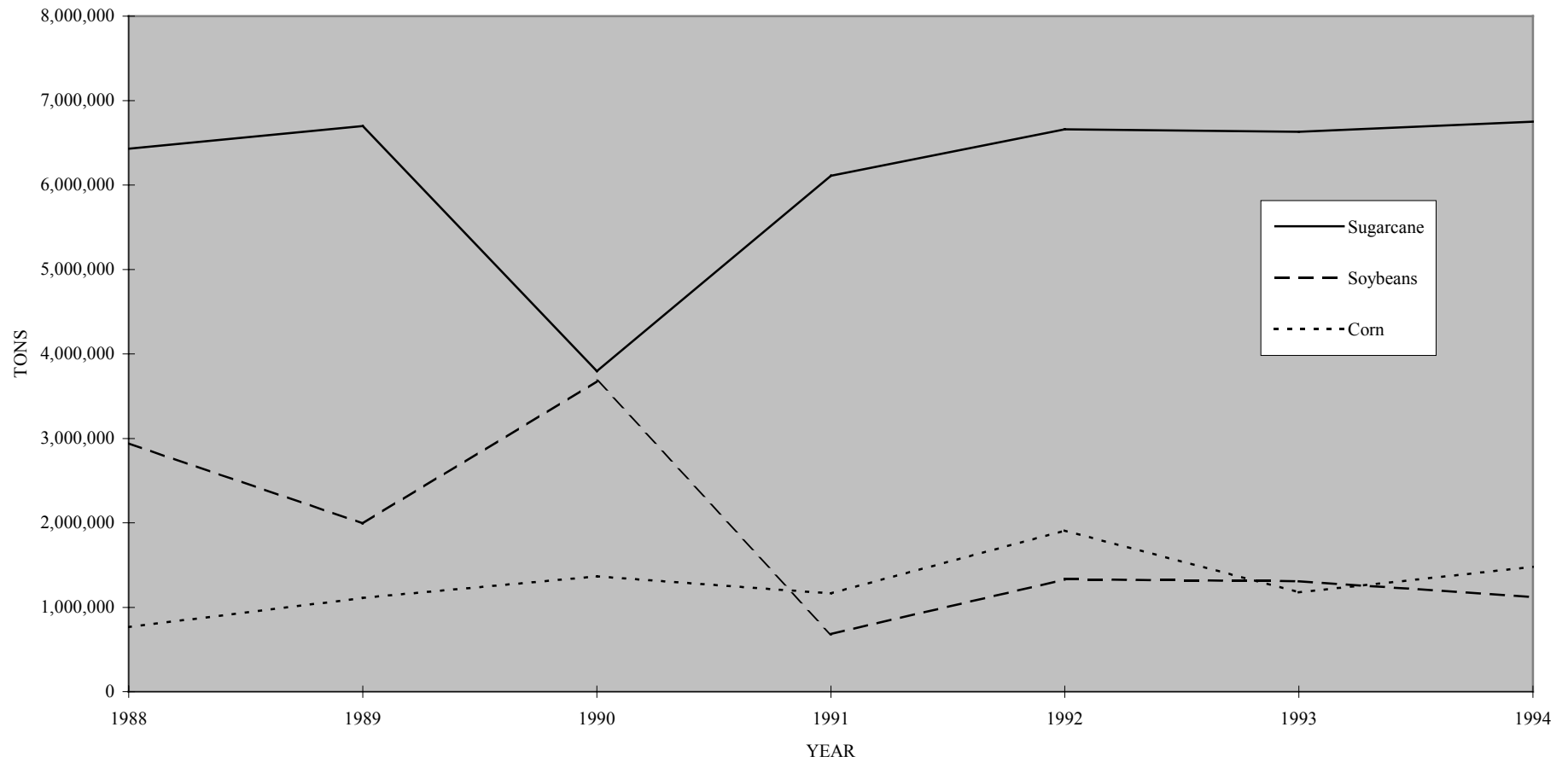
Exhibit 3-18 graphs the production over time of sugarcane, soybeans, and corn, the BTES's three primary crops. The graph clearly shows the dominance of sugarcane production over other regional crops. Sugarcane production has been relatively stable between 1988 and 1994, with the exception of a sharp drop in 1990 as a result of a damaging freeze in late 1989. The future of the Louisiana sugarcane industry is heavily dependent on Federal import policy. The current tariff and price protection program, which protects domestic sugarcane from cheaper imports, is expected to continue for the next five years despite strong pressures to eliminate the program. Sugarcane production is therefore expected to continue to increase in the short term.¹

Soybean production shows a slightly more volatile trend, resulting in part from the sensitivity of this crop to price changes. Soybean production peaked in 1990 as a result of strong demand, then fell markedly as floods destroyed the crop in 1991 and farmers switched to rice and sugarcane, which are less vulnerable to floods.² Production has since stabilized, but at lower levels. Corn production remains the least volatile of the three, rising relatively steadily from a low of 765,000 tons in 1988 to a high of approximately 1.5 million tons in 1994.

³⁵ Personal communication with Jimmy Ballelo, Louisiana Agricultural Statistics Service, 20 March 1996.

³⁶ Qualitative information on trends in agricultural production received in personal communication with Terry Matthews of the Louisiana Agricultural Statistics Service, 31 January 1996.

Exhibit 3-18
PRODUCTION OF MAJOR CROPS IN SOUTH CENTRAL AND SOUTHWEST LOUISIANA, 1988-1994



SUMMARY

This chapter summarizes the total market revenues of seven industries dependent upon the BTES. We estimated total BTES revenues by aggregating data for the 13 parishes defined as part of the BTES study area.¹ Exhibit 3-19 provides a summary of output from these industries for 1994. Revenues in estuary-dependent industries totalled over \$3.5 billion. Prominent industries affected to varying degrees by declines in the estuarine system include the following:

- The most dominant estuary-dependent industry in the BTES is the oil and gas industry, comprising approximately \$2.3 billion, or 64 percent, of total estuary-related revenues. This industry relies heavily on infrastructure that is currently threatened by erosion and subsidence of the estuary.
- Agriculture is also an important source of revenues in the BTES, and is being threatened by saltwater intrusion and erosion of the BTES. The total direct output of this industry in 1994 equalled over \$300 million.
- Several major industries are impacted not only by threats to infrastructure, but by declines in water quality and ecological habitat. Commercial fishing is perhaps the industry most heavily dependent on the overall quality of the BTES. Revenues for this industry in 1994 totalled \$204 million.

³⁷ Shipbuilding revenues were not available by parish, so BEA data for four coastal parishes were used as a proxy.

Exhibit 3-19 TOTAL BTES REVENUES OF ESTUARY-RELATED INDUSTRIES, 1994	
Industry	Total Revenues
Fishing [*]	\$203,646,057
Hunting and Trapping	\$6,929,846
Forestry	\$3,711,783
Oil and Gas	\$2,254,991,074
Shipbuilding ^{**}	\$701,000,000
Aquaculture	\$10,776,288
Agriculture	\$308,457,582
BTES Total	\$3,489,512,630
[*] NMFS data. ^{**} 1992 IMPLAN data for Terrebonne, Jefferson, Lafourche, and Plaquemines parishes, in 1994 dollars. Note: Estimates reflect 13 key BTES parishes.	

Louisiana is nationally recognized for its wealth of outdoor recreational opportunities, and the BTES is one of the most significant regions in the state for such pursuits. While fishing and hunting are most popular, the popularity of a variety of other activities, such as boating and wildlife viewing, is also growing.

This report considers the economic value associated with recreation from two different perspectives. First, this chapter considers the intrinsic value of the recreational experience, drawing on concepts from welfare economics to demonstrate the benefits associated with different recreational activities. As we discuss below, the key measure of such value is consumer surplus, a measure of the public's willingness to pay for the recreational experience. Second, recreational activity has major implications for the economy of the BTES region. Commercial enterprises such as restaurants, hotels, and sporting goods retailers depend heavily on the recreational activity in the region. We explore these effects in Chapter 5.

This chapter begins with a discussion of the benefits transfer methodology used to develop estimates of the economic surplus associated with recreational activity in the BTES. The remaining sections characterize the economic value associated with several categories of recreational activity, including:

- fishing;
- hunting;
- wildlife viewing;
- boating; and
- other outdoor activities such as swimming and camping.

METHODOLOGY AND KEY CONCEPTS

Economists define the economic benefits provided by a natural resource as the sum of individuals' willingness to pay for the services the resource provides, net of any costs associated with enjoying those services. For example, an individual may pay nothing to swim in a lake. This individual, however, derives enjoyment from swimming and therefore has an implicit willingness to pay for the experience. Similarly, a hunter will purchase ammunition, a license, and other supplies needed for a day of hunting. Beyond these market expenditures, however, the hunter likely has a residual value for the experience of a day of hunting. In both cases, the measure of willingness to pay, net of actual expenditures, is commonly referred to as *consumer surplus*.

Because many natural resource services, including recreational services, are not traded in the marketplace, willingness to pay cannot be directly inferred from observed behavior. Instead, economists have developed a variety of analytic techniques to measure consumer surplus. These methods, which are grounded in the theory of consumer choice, utility maximization, and welfare economics, attempt to determine individuals' willingness to pay for natural resource services directly, through survey research, or indirectly, through the examination of behavior in related markets. For example:

- **Contingent Valuation** -- Contingent valuation involves the direct elicitation of willingness to pay from individuals through the use of carefully designed and administered surveys.
- **Revealed Preference** -- Revealed preference approaches are premised on the assumption that the value of natural resource services to users of those services can be inferred from indirect economic measures. For example, willingness to pay for camping opportunities can be estimated by observing how the number of visits individuals make to a campground varies with the cost of traveling to the campground. Similarly, property values can be influenced by proximity to an environmental amenity or disamenity; econometric analysis based on hedonic pricing theory can estimate the nature and magnitude of such effects, providing a basis for valuing natural resource services.

Each of the methods discussed above is potentially applicable to an economic valuation of the BTES. In general, however, successful implementation of these primary research techniques would require resources beyond the scope of this study. Instead, we apply a *benefits transfer* approach, using a technique known as the activity day method. Benefits transfer is the application of benefits estimates, functions, data, and/or models developed in one context to address a similar resource valuation question in an alternative context. The activity day method involves multiplying estimates of consumer surplus per activity day, as obtained from the revealed preference or contingent valuation literature, by estimates of the total number of days that people engage in a given recreational activity. Thus, by applying unit-day values to an estimate of total annual activity, it is possible to estimate consumer surplus values for particular recreational pursuits such as fishing or hunting.

We rely on several key sources of relevant information to assess the value of recreational

activities. The following are most significant:

- A 1988 report by Walsh, et al. compiles consumer surplus values from a variety of recreational studies. This report includes consumer surplus estimates for a number of different recreational activities, including fishing, swimming, hunting, and boating. Walsh then compared the range of values found for a particular activity and modified the values to account for differences in methodology.¹
- The U.S. Fish and Wildlife Service's *1991 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation* provides annual data on the number of days of recreational fishing, hunting, and primary non-consumptive wildlife activities (e.g., viewing, photographing) by state. We scale these data to estimate recreation days for the BTES area.

RECREATIONAL FISHING

Background

Fishing is a major recreational pursuit in Louisiana. Survey estimates suggest that anglers spend over 14 million days fishing each year, making Louisiana the fourteenth most popular state for recreational fishing in the U.S.² In addition, the popularity of the sport is growing; the number of recreational anglers residing in Louisiana increased by 20 percent between 1980 and 1990.³

License data also provide an indication of the popularity of recreational fishing. Licenses are required for both salt and freshwater fishing. Specifically, a basic license is required for freshwater fishing; an additional saltwater license is required for saltwater fishing. Statewide, Louisiana issued nearly 865,000 fishing licenses in the 1993/1994 fiscal year. For the 13 key parishes in the study area, the state issued a total of 316,106 licenses (see Exhibit 4-1). This represents about 37 percent of the statewide total, demonstrating the importance of the BTES for recreational fishing. As would be expected, the coastal parishes -- Jefferson, Terrebonne, and LaFourche -- account for the greatest number of licenses.

¹ Walsh, Richard G., Donn Johnson, and John McKean, *Review of Outdoor Recreation Economic Demand Studies With Non-Market Benefit Estimates, 1968-1988*, December, 1988.

² U.S. Fish and Wildlife Service, *1991 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation*, 1993.

³ U.S. Fish and Wildlife Service, *1980-1990 Fishing, Hunting, and Wildlife-Associated Recreation Trends*, October 1994.

Exhibit 4-1

FISHING LICENSE SALES IN BTES PARISHES, JULY '93-June '94

Parish	Basic License	Saltwater Resident	Other	Total
Ascension	10,190	5,632	212	16,034
Assumption	4,642	1,395	358	6,395
Iberville	5,122	727	506	6,355
Jefferson	54,200	52,270	943	107,413
Lafourche	27,652	27,351	1,475	56,478
Palquemines	7,899	8,202	878	16,979
Point Coupee	6,102	562	529	7,193
Saint Charles	5,798	4,362	370	10,530
Saint James	2,100	1,125	76	3,301
Saint John	4,937	3,975	89	9,001
Saint Mary	11,810	8,315	306	20,431
Terrebonne	23,207	23,265	845	47,317
West Baton Rouge	6,399	1,906	374	8,679
BTES Total	170,058	139,087	6,961	316,106
State Total	553,899	265,759	45,257	864,915
BTES as a % of state	30.70%	52.34%	15.38%	36.55%

Source:

Louisiana Department of Wildlife and Fisheries

Most anglers in the BTES fish from private boats or from shore areas such as riverbanks. One study identified 88 boat launch facilities in the lower portion of the study area alone.⁴ While growing in popularity, charter boat fishing is still less common than other methods. A NMFS study of marine recreational fishing in the Gulf Coast region found private/rental boats and shore fishing to be the dominant modes, with charter boats accounting for only about three percent of all trips.⁵

For saltwater recreational fishing, NMFS compiles data on the species most commonly caught. As shown in Exhibit 4-2, sea catfish and spotted seatrout are the two most popular species, although red drum, atlantic croaker, and sand seatrout are also significant. Less systematic information is available for freshwater fishing. The Louisiana Department of Wildlife and Fisheries lists several common freshwater sport fish, including largemouth bass, spotted bass, bluegill, redear sunfish, white crappie, black crappie, white bass, striped bass, and catfish.⁶

Exhibit 4-2 ESTIMATED 1991 FISH CATCH BY MARINE RECREATIONAL ANGLERS IN LOUISIANA, BY SPECIES	
Species	Number of Fish
Spotted Seatrout	11,864
Sea Catfish	6,166
Red Drum	3,866
Atlantic Croaker	3,018
Sand Seatrout	1,158
Southern Flounder	471
Sheepshead	319
Red Snapper	277
Source: National Marine Fisheries Service, <i>Marine Recreational Fishery Statistics Survey, Atlantic and Gulf Coasts, 1990-1991, 1992.</i>	

⁴ Titre, John P., et al., *Valuing Wetland Recreational Activities on the Louisiana Coast: Final Report*, June 20, 1988.

⁵ National Oceanic and Atmospheric Administration, *National Marine Fisheries Service, Marine Recreational Fishery Statistics Survey, Atlantic and Gulf Coasts, 1990-1991, 1992*, p. 184. Note that data for the entire Gulf Coast may not be representative for the BTES, although the direction of the bias is uncertain.

⁶ Louisiana Department of Wildlife and Fisheries, *Guide to Fishing in Louisiana*, June, 1995.

Estimation of Fishing Days

A key element in estimating economic surplus associated with recreational fishing in the BTES is an estimate of the number of fishing days in the study area each year. As noted above, the U.S. Fish and Wildlife Service recreational survey data provide the most reliable measure of recreational fishing activity. However, these data incorporate all of Louisiana, and therefore must be scaled to develop an estimate of fishing days for the BTES study area.

To estimate a lower bound for fishing activity in the BTES, we scale total fishing days by fishing licenses issued to residents of the 13 key parishes. As shown in Exhibit 4-3, about 31 percent of all freshwater licenses and over one-half of all saltwater licenses are issued to residents of the 13 parishes.⁷ This approach yields estimates of approximately 3.7 million freshwater fishing days and 1.4 million saltwater days.⁸

Scaling by licenses issued provides only a lower bound estimate of fishing days because the BTES is a prime fishing area that attracts Louisiana residents from outside the study area, as well as anglers from out of state. This is particularly true for anglers seeking saltwater species. Therefore, we develop an upper bound estimate of fishing days by assuming that some portion of the holders of fishing licenses issued outside of the BTES, actually fish within the BTES. This is plausible given the large population centers (e.g., New Orleans, Baton Rouge) that are located near the study area.

To estimate the number of anglers who travel to the study area, we draw on a survey prepared for Louisiana State University that examined characteristics of anglers fishing in Terrebonne and LaFourche parishes.⁹ The survey indicates that about 70 percent of the anglers surveyed were from Terrebonne and LaFourche parishes, while 30 percent traveled to the area from other parishes or states. This gives us a rough estimate of the proportion of anglers who travel from other areas to fish in the BTES. We adjust the lower bound estimate of fishing days based on license sales to reflect this proportion (i.e., we divide the lower bound estimate by 0.7). The resulting upper bound estimates yield a total of approximately 5.3 million freshwater fishing days and 2 million saltwater days.

⁷ In scaling, we use data from the Louisiana Department of Wildlife and Fisheries for the year between July 1, 1993, and June 30, 1994 (the most recent data available). We use basic resident license information to scale freshwater fishing and resident saltwater licenses to scale saltwater fishing. Note that a smaller number of specialized licenses are issued (e.g., lifetime fishing licenses, non-resident licenses for individual trips), but are not incorporated into our estimates of fishing activity.

⁸ Note that this method may overstate freshwater fishing days. A basic (freshwater) license must be supplemented with a saltwater license to fish in saltwater. Therefore, an angler may purchase the basic license only as a pre-requisite to saltwater fishing.

⁹ Bertrand, Alvin L., *Marine Recreational Finfishermen in Louisiana: A Socioeconomic Study of Licensed Recreational Finfishermen Fishing in Coastal Study Area IV*, prepared for Coastal Ecology and Fisheries Institute, Louisiana State University, September, 1984.

Exhibit 4-3					
ESTIMATION OF FISHING DAYS IN BTES					
	Statewide Number of Fishing Days	Number of Resident Fishing Licenses Issued in Study Area	Percentage of Licenses Issued Statewide	Lower Bound Estimate of BTES Fishing Days	Upper Bound Estimate of BTES Fishing Days
Freshwater Days	12,026,500	170,058	30.7%	3,692,136	5,274,480
Saltwater Days	2,611,700	139,087	52.3%	1,365,919	1,951,313
Sources: FWS, 1991 Survey of Fishing, Hunting, and Wildlife-Associated Recreation, 1993. Louisiana Department of Wildlife and Fisheries license data. Bertrand, Alvin L., <i>Marine Recreational Finfishermen in Louisiana</i> , 1984.					

Economic Surplus Values per Fishing Day

A second key element in estimating economic surplus associated with recreational fishing in the BTES is a measure of consumer surplus per fishing day. Consumer surplus varies significantly between saltwater and freshwater fishing; therefore, we reviewed literature that allows us to distinguish between the two types of fishing in estimating economic surplus.

For freshwater fishing we rely on estimates of consumer surplus developed by the U.S. Fish and Wildlife Service (FWS).¹⁰ FWS develops net economic values (consumer surplus) through contingent valuation surveys implemented in all states in the U.S. We use the per-day consumer surplus figures estimated for Louisiana. Based on the statistical distribution of the survey responses, FWS develops a 95 percent confidence interval range around the mean estimate of consumer surplus; to acknowledge uncertainty in the measurement of consumer surplus, we apply this range -- approximately \$25 to \$45 per day -- in our analysis.¹¹

For saltwater fishing, we rely on the Walsh, et al. study discussed above. The 95 percent confidence interval for consumer surplus is \$57 to \$126 per day of saltwater fishing. This range incorporates the findings of 17 studies of saltwater fishing that relied on contingent valuation as well as travel cost methods. Willingness to pay for saltwater fishing is generally higher than for freshwater fishing because of the diversity of species caught and the generally more attractive fishing experience (e.g., remote location, open sea fishing). To the extent that saltwater marsh fishing rather than open sea fishing dominates the saltwater fishing days in the BTES, however, the consumer surplus range applied here may overstate willingness to pay.¹²

¹⁰ U.S. Fish and Wildlife Service, *1991 Net Economic Values for Bass and Trout Fishing, Deer Hunting, and Wildlife Watching*, October, 1994, p. 9.

¹¹ All surplus figures in this chapter have been converted to 1994 dollars using the U.S. gross domestic product (GDP) deflator. Note that the Walsh, et al. average value for freshwater fishing (\$30 per day) falls within the range of the FWS estimates.

¹² Note that the consumer surplus range from Walsh is generally consistent with other studies of marine recreational fishing; for example, a study by Freeman found that consumer surplus values for marine recreational fishing fall in the range of \$11 to \$107 per trip.

Estimate of Total Economic Surplus for Fishing

Combining our estimates of fishing days and economic surplus per day yields total surplus values that clearly reflect the significance of recreational fishing in the BTES. Exhibit 4-4 shows that the lower bound estimate for both fresh and saltwater fishing is \$164 million, while the upper bound estimate is \$483 million. While the estimated number of freshwater fishing days is greater than the number of saltwater days, the surplus value associated with each is roughly equal because of the higher value associated with a day of saltwater fishing.

RECREATIONAL HUNTING

Background

The wetlands and open land of the BTES study area furnish a diverse habitat for wildlife, making hunting an immensely popular sport in the area. U.S. Fish and Wildlife Service data indicate that hunters spend approximately 6.7 million days hunting each year in Louisiana, a large portion of which are likely spent in the BTES (see below). Statewide, Louisiana issued over 540,000 hunting licenses between July 1993 and June 1994; as shown in Exhibit 4-5, over 100,000 of these licenses were issued to residents of the 13 parishes that comprise the study area.¹³

Several wildlife management areas within or bordering the BTES are used extensively for hunting. As shown in Exhibit 4-6, these areas comprise over 300,000 acres and allow hunting of diverse species, ranging from squirrel to deer, with waterfowl hunting permitted at all five management areas. Hunting, however, is not limited to these areas. The majority of the land within the study area is leased for hunting on a seasonal basis.

¹³ Louisiana Department of Wildlife and Fisheries, Sport License Sales by Year and by Parish.

Exhibit 4-4						
ANNUAL ECONOMIC SURPLUS FOR RECREATIONAL FISHING IN BTES						
	Estimate of BTES Fishing Days		Net Economic Value per Day		Net Economic Value for Study Area	
	Lower	Upper	Lower	Upper	Lower	Upper
Freshwater	3,692,136	5,274,480	\$23.54	\$44.94	\$86,912,881	\$237,035,131
Saltwater	1,365,919	1,951,313	\$56.64	\$126.04	\$77,365,652	\$245,943,473
TOTAL	5,058,055	7,225,793			\$164,278,534	\$482,978,604
Sources:						
FWS, 1991 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.						
Walsh, et al., 1987						
1991 Net Economic Values for Bass and Trout Fishing, Deer Hunting, and Wildlife Watching, FWS, 1994.						
Note: Estimates reflect 13 key BTES parishes.						

Exhibit 4-5**HUNTING LICENSE SALES IN BTES PARISHES, JULY '93-JUNE '94**

Parish	Resident Hunting	Resident Big Game	Resident Waterfowl	Other	Hunting Licenses Sols (All Types)
Ascension	4,478	2,898	558	780	8,714
Assumption	1,799	1,134	432	228	3,593
Iberville	1,991	1,515	250	337	4,093
Jefferson	11,956	6,225	4,621	1,886	24,688
Lafourche	6,741	3,808	2,803	1,211	14,563
Palquemines	1,084	337	498	126	2,045
Point Coupee	2,971	2,449	422	658	3,500
Saint Charles	1,862	957	577	312	3,708
Saint James	1,085	631	122	126	1,964
Saint John	1,925	1,087	220	234	3,466
Saint Mary	3,939	2,569	1,418	680	8,606
Terrebonne	5,542	3,111	2,907	907	12,467
West Baton Rouge	3,336	2,672	692	893	7,593
BTES Total	48,709	29,393	15,520	8,378	102,000
State Total	258,401	171,071	63,590	54,483	547,545
BTES as a % of state	18.85%	17.18%	24.41%	15.38%	18.63%

Source:

Louisiana Department of Wildlife and Fisheries

Exhibit 4-6

**SPECIES HUNTED IN STATE WILDLIFE
MANAGEMENT AREAS LOCATED IN THE BTES**

Name of Area	Area (acres)	Location	Species Hunted					
			Deer	Squirrel	Rabbit	Waterfowl	Woodcock	Snipe
Atchafalaya Delta	135,000	St. Mary Parish - Atchafalaya Bay			X	X	X	X
Attakapas	26,300	St. Mary, St. Martin, and Iberia Parishes	X	X	X	X	X	
Pass-A-Loutre	66,000	Plaquemines Parish			X	X		X
Pointe-au-Chien	28,244	Terrebonne and Lafourche Parishes	X		X	X		X
Salvador	30,600	St. Charles Parish	X		X	X		X
Wisner	21,621	Lafourche Parish			X	X		

Source: Louisiana Department of Wildlife and Fisheries, *Wildlife Management Area Guide*, 1993.

Estimate of Hunting Days

As with fishing, we use U.S. Fish and Wildlife Service (FWS) survey data for the state of Louisiana as a starting point for estimating the number of hunting days in the study area. Although data from the 1991 survey are available, we use more detailed information from the 1985 survey.¹⁴ FWS has analyzed the 1985 data and broken hunting activity down based on the type of hunting area -- wetland and non-wetland -- as well as the general category of species sought -- migratory bird, small game, and big game. We use these data as the foundation for our estimates of hunting activity because they better characterize the relative importance of different types of hunting.

To develop a lower bound estimate of hunting days in the study area, we use data on hunting license sales to scale total hunting days in Louisiana. We scale migratory bird hunting days by the fraction of all Louisiana waterfowl hunting licenses sold to residents of the BTES (about 24 percent). Likewise, we scale big game hunting days by the fraction of big game licenses sold to residents of the BTES (about 17 percent). For small game, we scale by the fraction of general resident hunting licenses (approximately 19 percent). As shown in Exhibit 4-7, this yields a total of approximately 2.4 million hunting days in the BTES.¹⁵

¹⁴ U.S. Fish and Wildlife Service, "Hunting on Wetlands," *1985 National Survey of Fishing, Hunting and Wildlife-Associated Recreation*, 1998.

¹⁵ This approach may overstate small game hunting days. A basic resident license must be supplemented with big game license to hunt big game. Therefore, a hunter may purchase the basic license only as a pre-requisite to big game hunting.

Exhibit 4-7

ESTIMATE OF ANNUAL HUNTING DAYS IN THE BTES

	Statewide	Hunting Licenses Sold in BTES	Hunting Days	
On Wetlands				
Migratory Bird	1,436,000	24.41%	350,528	893,264
Small Game	1,960,000	18.85%	369,4650	767,095
Big Game	1,413,000	17.18%	242,753	535,315
SUBTOTAL	4,809,000		962,741	2,195,674
Non-Wetland				
Migratory Bird	990,000	24.41%	241,659	615,830
Small Game	3,616,000	18.85%	681,616	1,415,212
Big Game	2,905,000	17.18%	499,079	1,100,559
SUBTOTAL	7,511,000		1,422,354	3,131,601
TOTAL	12,320,000		2,385,095	5,327,275
Sources:				
FWS, 1985 National Survey of Fishing, Hunting and Wildlife-Associated Recreation.				
Louisiana Departmetn of Wildlife and Fisheries				
Note: Estimates reflect 13 key BTES parishes.				

As with fishing, the approach of scaling by license sales is useful for developing a lower bound, but likely understates total hunting days because the BTES attracts hunters from outside of the region. While data on hunting activity by region are not available, we make simplified assumptions to adjust our lower bound estimates. Specifically, we assume that: (1) for big and small game, one quarter of the hunters that reside outside of the 13 parish area travel to the BTES to hunt; and (2) for migratory bird hunting, one half of the hunters that reside outside of the 13-parish area travel to the BTES to hunt.¹⁶ The resulting upper bound estimates are presented in Exhibit 4-7.¹⁷ Overall, we estimate the total number of BTES hunting days to be between 2.4 million and 5.3 million.

Economic Surplus Per Day of Hunting

For migratory bird hunting and small game hunting, we use 95 percent confidence interval measures of consumer surplus from Walsh, et al. Specifically, the net economic value per day of migratory bird hunting ranges between \$30 and \$59, while the value per day of small game hunting is between \$30 and \$48. For big game hunting we assume that deer is the predominant species sought. FWS has developed state-specific estimates of the consumer surplus associated with deer hunting. The 95 percent confidence range interval for deer hunting in Louisiana is \$27 to \$51.

Estimate of Total Economic Surplus for Hunting

We estimate a total annual economic surplus for hunting of between approximately \$69 million and \$276 million. As shown in Exhibit 4-8, all forms of hunting figure significantly in this total. Because of a somewhat larger number of hunting days, small game hunting is most significant in our lower bound estimate; adjusting for hunters that travel to the BTES (upper bound figures), however, increases the importance of other forms of hunting, especially migratory bird hunting.

¹⁶ For example, if there are a total of 1 million hunting days statewide, and 20 percent of license holders reside in the BTES, our lower bound estimate for the BTES is 200,000 hunting days. We then assume that one half of the remaining 800,000 days also are spent in the BTES; i.e., 200,000 residents + 400,000 non-residents = 600,000 total BTES hunting days.

¹⁷ Note that the resulting estimate of migratory bird hunting days is consistent with the estimate that would be obtained using a different method. Under this alternative method we divide the total number of birds bagged in the BTES (approximately 2 million) by the average bag rate for the Mississippi flyway (about one bird per day). This yields a total of 1 million days, which falls in range of total migratory bird hunting days estimated under our primary method.

Exhibit 4-8

ANNUAL ECONOMIC SURPLUS FOR HUNTING IN THE BTES

		Number of Hunting Days		Net Economic Value Per Day		Net Economic Value for Study Area	
On Wetlands		Lower	Upper	Lower	Upper	Lower	Upper
	Migratory Bird	350,528	893,264	\$30.40	\$59.41	\$10,656,039	\$53,068,802
	Small Game	369,460	767,095	\$30.16	\$47.50	\$11,142,914	\$36,437,013
	Big Game	242,753	535,315	\$26.54	\$50.50	\$6,442,675	\$27,033,410
	SUBTOTAL	962,741	2,195,674			\$28,241,628	\$116,539,225
Non-Wetland							
	Migratory Bird	241,659	651,830	\$30.40	\$59.41	\$7,346,434	\$36,586,431
	Small Game	681,616	1,415,212	\$30.16	\$47.50	\$20,557,539	\$67,222,570
	Big Game	499,079	1,100,559	\$26.54	\$50.50	\$13,245,557	\$55,578,242
	SUBTOTAL	1,422,354	3,131,601			\$41,149,529	\$159,387,243
	TOTAL	2,385,095	5,327,275			\$69,391,157	\$275,926,468

Sources:

1985 National Survey of Fishing, Hunting, and Wildlife-Associated Recreations, FWS, Hunting on Wetlands, 1985.

Walsh, et al., 1987

1991 Net Economic Values for Bass and Trout Fishing, Deer Hunting, and Wildlife Watching, FWS, 1994.

Note: Estimates reflect 13 key BTES parishes.

RECREATIONAL WILDLIFE VIEWING

Background

Just as the wetlands of the BTES enhance hunting opportunities by housing key species, they also foster excellent opportunities for birdwatchers and other wildlife viewing activities. The area is a feeding ground for migrating birds and an essential link in the North American flyway. It is also a nesting site or nursery area for several endangered species. The increasing popularity of wildlife viewing is reflected in the small but growing commercial enterprise in guided wildlife tours.

Avian species of most interest in the BTES include endangered species as well as large concentrations of common species. The threatened or endangered species of greatest interest include bald eagles (approximately 110 nests have been documented in Louisiana), brown pelicans, and piping plovers. The tern and gull colonies of the barrier islands are the largest in the U.S. and include laughing gulls, as well as sandwich and royal terns. In addition, the large concentration of common duck species in winter are of interest to bird watchers.¹⁸

Other species of interest in the BTES include sea turtles that use the nearshore and offshore waters, American alligators, and common mammals such as nutria and muskrat.

Viewing Days in the BTES

As with fishing and hunting, we estimate the number of wildlife viewing days in the BTES by scaling the total number of wildlife viewing days statewide. FWS data indicate a total of approximately 2.4 million wildlife viewing days statewide. Because the majority of species that attract wildlife viewers are associated with wetland areas (e.g., waterfowl, other avian species, alligators, turtles), we scale by the proportion of Louisiana wetlands that are located in the BTES. We obtain this proportion by dividing the total swamp and wetland acreage (1,699,000) reported for the BTES¹⁹ by the total swamp and wetland acreage assessed in the Louisiana Water Quality Management Plan (5,882,070).²⁰ This calculation indicates that approximately 29 percent of all Louisiana wetlands are located in the BTES. Multiplying this proportion by the total wildlife viewing days statewide yields an estimate of 692,000 viewing days in the BTES.²¹

¹⁸ Personal communication with Gary Lester, Louisiana Department of Wildlife and Fisheries, Coordinator of Louisiana Natural Heritage Program, January 10, 1996.

¹⁹ Barataria-Terrebonne National Estuary Program, *Status and Trends of Hydrological Modification, Reduction in Sediment Availability, and Habitat Loss/Modification in the Barataria-Terrebonne Estuarine System*, July 1995. Page xviii of this report indicates a total of 909,000 acres of marsh and 790,000 acres of forested wetland in the BTES.

²⁰ Louisiana Department of Environmental Quality, *Water Quality Management Plan*, State 305b Report, 1990.

²¹ This approach may overestimate the number of viewing days. Cameron Parish in southwest Louisiana (i.e., not in the BTES) is a terminus for two large flyways and has the greatest diversity of migrant birds. Scaling by wetland acreage does not reflect that Cameron Parish may attract a disproportionate number of birdwatchers.

Economic Surplus Per Day of Wildlife Viewing

To value wildlife viewing, we apply an estimate of per-day consumer surplus that is based on analysis of the 1985 FWS survey.²² Based on data for Louisiana respondents, FWS estimated a 95 percent confidence interval of \$10 to \$16 for consumer surplus per day of wildlife viewing. It is noteworthy that while these values fall within the broad range found by Walsh, et al., they are lower than the 95 percent confidence interval reported there (\$22 to \$34). While it is possible that Louisiana residents have a lower-than-average willingness to pay for wildlife viewing, it is also possible that the FWS estimate may be somewhat low. Therefore, we use the lower-end FWS estimate as our lower bound estimate of consumer surplus, and the Walsh, et al. higher-end estimate as our upper bound.

Estimate of Total Economic Surplus for Wildlife Viewing

Combining the estimate of viewing days with the range in consumer surplus per day yields an estimate of total consumer surplus for the BTES of between \$7 and \$23 million per year. This calculation is shown in Exhibit 4-9.

BOATING

Boating is also a popular activity in the BTES. Bays and lakes provide power-boating opportunities, while wetlands are popular for canoeing and piroguing.

Estimate of Boating Days

The estimate of power boating and piroguing days is based on Louisiana's State Comprehensive Outdoor Recreation Plan (SCORP).²³ The National Park Service requires that states develop a data base from which federal, state, and local governments can make decisions regarding the provision of outdoor recreation opportunities. The SCORP data are based on a survey of over 3,000 Louisiana households and provide information on boating as well as on other recreational activities (see below).

²² U.S. Fish and Wildlife Service, *Net Economic Values of Non-Consumptive Wildlife-Related Recreation*, August, 1988.

²³ Louisiana Department of Culture, Recreation, and Tourism, Office of State Parks, *Louisiana Statewide Comprehensive Outdoor Recreation Plan, Information Base for Executive Decision 1988-1993*, January, 1989.

Exhibit 4-9

ANNUAL ECONOMIC SURPLUS FOR WILDLIFE VIEWING IN THE BTES

Number of Activity Days		Net Economic Value per Day		Net Economic Value for Study Area	
Lower	Upper	Lower	Upper	Lower	Upper
692,027	692,027	\$10.08	\$33.65	\$6,975,632	\$23,286,709
Sources: FWS, Net Economic Values of Non-Consumptive Wildlife-Related Recreation August, 1988. FWS, 1991 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.					

To obtain a lower bound estimate of power boating days in the BTES, we scale total statewide power or pleasure boating days (about 10.2 million) by the percentage of boats registered in the study area.²⁴ Available data indicate that of all pleasure boats registered in Louisiana, about 24.5 percent (about 68,000) are registered in the 13 key BTES parishes.²⁵ Scaling by this registration percentage yields an estimate of about 2.5 million power boating days in the BTES.

Because canoes and pirogues are not formally registered, we obtain an estimate of piroguing days using different methods. First, the SCORP provides estimates of both the percentage participation rate for piroguing among Louisiana residents (2.99 percent), as well as the average number of days per year per participant (8.9 days). We use these data in conjunction with the total population of the BTES to estimate a lower bound total of 167,273 piroguing days per year.²⁶ To estimate an upper bound total of canoeing/piroguing days, we scale total statewide days (1,556,080) by the share of Louisiana wetlands in the BTES study area (23 percent); this yields an upper bound of 357,898 days.

Economic Surplus per Boating Day

Our estimate of the consumer surplus associated with a day of power boating is based on the 95 percent confidence interval reported for motorized boating in Walsh et al. The range -- \$14 to \$65 per day -- is large, reflecting the diversity in motorized boating (e.g., small outboard motor versus large pleasure craft).

Our estimates for piroguing are also taken from Walsh, although we relied on specified studies summarized there rather than the overall "non-motorized boating" range provided. This range included boating types (e.g., whitewater rafting) that would seriously bias the consumer surplus estimate. Instead, our lower bound (\$13 per day) is based on the estimate of consumer surplus per day of canoeing from a study by Rosenthal and Cordell.²⁷ Likewise, our upper bound (\$26 per day) is based on a kayaking study by Walsh, et al.²⁸

²⁴ The total statewide number of power boating days is based on data reported in the Louisiana SCORP. For this figure and all other figures taken from the SCORP, we should note that the survey was administered in 1985. Consequently, the responses may be outdated and should therefore be considered only rough estimates of current activity levels or participation rates.

²⁵ Barataria-Terrebonne National Estuary Program, *Land-Use and Socio-Economic Status and Trends of the Barataria-Terrebonne Estuary System*, April, 1995.

²⁶ $(0.0299 * 628,587) * 8.9 = 167,273$

²⁷ Rosenthal, Donald H., and H. Kenneth Cordell, "Pricing River Recreation: Some Issues and Concerns," National Rivers Recreation Symposium, 1984; as reported in Walsh, et al.

²⁸ Walsh, Richard G., Ray Ericson, Daniel Arosteguy, and Michael Hansen, "An Empirical Application of a Model for Estimating the Recreation Value of Instream Flow," Colorado Water Resources Institute, Colorado State University, 1980; as reported in Walsh, et al.

Estimate of Total Economic Surplus for Boating

We estimate a total annual economic surplus of between \$37 and \$172 million for boating activity in the BTES (see Exhibit 4-10). The majority of this surplus value is associated with motorized boating because of the larger number of activity days and the higher daily surplus value.

OTHER RECREATIONAL ACTIVITIES

Available data suggest that fishing, hunting, wildlife viewing, and boating represent the most widely pursued recreational activities in the BTES. A variety of other recreational activities, however, are also significant in assessing the economic surplus provided by the region. These include swimming, beachgoing, scuba diving, and camping. Below, we briefly characterize the economic surplus associated with each of these activities, applying methods analogous to those used for fishing, hunting, and viewing. The results of this analysis are presented in Exhibit 4-11.

Inland Freshwater Swimming

Data from the SCORP indicate that individuals spend over 9.5 million days swimming in lakes and streams in Louisiana. In the BTES, popular inland swimming locations include Lake Salvador and Lake Verret. Because inland swimming activity is not formally tracked, and because swimming is dependent upon water quality, it is difficult to scale statewide swimming days to the study area. Therefore, we employ the participation rate method used above for canoeing/piroguing. Specifically, we multiply the statewide participation rate for lake and stream swimming (14.43 percent) by the average number of swimming days per participant (16.4) and the population of the study area (628,587).²⁹ This yields an estimate of 1,487,564 swimming days in the BTES.³⁰

We multiply the total estimated swimming days for the BTES by a consumer surplus value (\$27 per day) that represents the average of ten studies reported in Walsh, et al.³¹ Combining the estimate of activity days and consumer surplus yields a total economic surplus estimate of \$40.6 million per year.

²⁹ Participation rate and days per participant from SCORP, 1989.

³⁰ It is noteworthy that this estimate of swimming days is almost identical to the estimate that results if we scale statewide swimming days by the proportion of all lake acreage located in the Barataria and Terrebonne basins (15 percent, based on assessed waters in the Louisiana 305b report).

³¹ In using the Walsh findings, we eliminated from consideration one swimming study that focused on scuba diving consumer surplus; we use this estimate below. We then averaged the estimates of consumer surplus per swimming day for the remaining ten studies.

Exhibit 4-10
ANNUAL ECONOMIC SURPLUS FOR BOATING IN THE BTES

	Number of Activity Days		Net Economic Value Per Day		Net Economic Value for Study Area	
	Lower	Upper	Lower	Upper	Lower	Upper
Motorized Boating	2,490,687	2,490,687	\$14.18	\$65.36	\$35,317,942	\$162,791,302
Canoeing/Piroguing	167,273	357,898	\$12.93	\$26.03	\$2,162,840	\$9,316,085
TOTAL	2,657,960	2,848,545			\$37,480,782	\$172,107,387

Sources:

Walsh, et al., 1987.

Louisiana State Comprehensive Outdoor Management Plan, 1989.

Note: Estimates reflect 13 key BTES parishes.

Exhibit 4-11
ANNUAL ECONOMIC SURPLUS FOR OTHER
RECREATIONAL ACTIVITIES IN THE BTES

	Number of Activity Days		Net Economic Value Per Day		Net Economic Value for Study Area	
	Lower	Upper	Lower	Upper	Lower	Upper
Lake Swimming	1,487,564	1,487,564	\$27.32	\$27.32	\$40,640,248	\$40,640,248
Beachgoing/Swimming	135,000	518,333	\$1.70	\$14.18	\$229,500	\$7,349,962
Scuba Diving	0	482,000	\$45.18	\$45.18	\$0	\$21,776,760
Campin			\$	\$	\$	\$
-Tent	175,821	175,821	\$19.56	\$29.58	\$3,439,059	\$5,200,785
-Camper	245,907	245,907	\$19.56	\$29.58	\$4,809,941	\$7,273,929
	2,044,292	2,909,625	\$	\$	\$49,118,748	\$82,241,685

Sources:

Bell, Frederick and Vernon Leeworthy, An Economic Analysis of the Importance of Saltwater Beaches in Florida, Florida SeaGrant College, February 1986.

Louisiana Department of Culture, Recreation, and Tourism, Louisiana Statewide Comprehensive Outdoor Recreation Plan Part 1: Information Base for Executive Decision 1988-1993, State of Louisiana, 1989.

Roberts, Kenneth and Mark Thompson, "Petroleum Production Structures: Economic Resources for Louisiana Sports Divers", Louisiana Seafood Production Economics, August 1983.

Walsh, Richard G. et al., 1988.

Beachgoing/Swimming

Beachgoing and ocean swimming represent another category of water recreation in the BTES. Because most of the area bordering the Gulf of Mexico is marsh rather than beach, however, beachgoing is not as major a recreational activity in the BTES as it is in Florida and other Gulf states. Nonetheless, two major public beach areas -- Port Fourchon and Grand Isle State Park -- are located in the study area. In addition to Grand Isle, other beaches are accessible in the barrier islands. It is noteworthy that coastal erosion may ultimately limit recreational use of the barrier islands, particularly beach areas.

To characterize the economic surplus associated with beachgoing, we develop lower and upper bound estimates of total beach days in the BTES. The lower bound estimate is based on actual attendance estimates for the beaches at Grand Isle State Park and Port Fourchon. Officials estimate that Grand Isle beach attendance in fiscal year 1994-95 was approximately 117,000.³² While not tracked formally, Port Fourchon officials estimate annual beach attendance to be approximately 18,000.³³ We use the total (135,000) as a lower bound estimate for total beach days in the BTES.

Because beachgoing and ocean swimming are possible in other areas, we also develop an upper bound estimate using the participation rate approach. The Louisiana SCORP estimates that 8.68 percent of the state population engages in Gulf/Ocean swimming, and that the average participant swims 9.5 days per year. Multiplying by the total BTES population yields an estimate of 518,333 beach days. Although this is significantly higher than the lower bound estimate based on actual head counts, it may still understate total beachgoing because the SCORP participation rate and days per participant estimates are for the state as a whole; Gulf swimming is likely to be much more common with BTES residents than with residents in the northern portions of the state.

The economics literature contains relatively few estimates of the consumer surplus associated with beach attendance and ocean swimming, and available estimates vary widely. We have chosen two studies by Bell and Leeworthy as lower and upper bound estimates. In a 1985 study, the authors used a contingent valuation survey to measure the willingness of Florida beachgoers to pay for protection of eroding beach areas (a problem analogous to that in the BTES). The average across all the respondents indicated a consumer surplus of \$1.70 per day.³⁴ In a 1986 study, Bell and Leeworthy implemented a different approach to valuing Florida beachgoing, employing a demand function for beach days where expenditures per day is used as a surrogate for price.³⁵ This price, along with other explanatory variables such as income, substitute beach availability, and beach conditions, was used to estimate consumer surplus per

³² Personal communication with Grand Isle State Park personnel, September 1, 1995.

³³ Personal communication with Ted Falgout, Port Fourchon Port Authority, September 1, 1995.

³⁴ Bell, Frederick W., and Vernon R. Leeworthy, "An Economic Analysis of Saltwater Recreational Beaches in Florida, 1984," 1985.

³⁵ Bell, Frederick W., and Vernon R. Leeworthy, *An Economic Analysis of the Importance of Saltwater Beaches in Florida*, February, 1986.

beach day. This study yielded a higher surplus estimate of \$14 per day. We use these two estimates as our upper and lower bounds for valuing beach activity.³⁶

Combining the lower bound estimate of activity days with the lower bound estimate of consumer surplus results in an estimate of total economic surplus of \$229,500 per year. Doing the same with the upper bound estimates yields a total economic surplus of \$7.3 million per year. This range is very broad, reflecting the uncertainty inherent in both the activity day estimates as well as the daily consumer surplus estimates.

Scuba Diving

The Louisiana SCORP estimates a total of 964,000 scuba diving days statewide. While most of this activity likely takes place in coastal areas such as the BTES, it is difficult to determine precisely what fraction is pursued there. Therefore, we develop a rough estimate by assuming that diving activity is proportional to the share of the Louisiana coastline accounted for by the BTES. Even this measure is uncertain, however, given the physically complex and changing nature of the Louisiana Gulf coast. Based on simple examination of the state map, we estimate the share of the Louisiana coastline in the BTES to be approximately 30 to 50 percent. Applying these percentages to diving activity in Louisiana, we estimate that the number of scuba diving days supported by the BTES ranges from 289,200 to 482,000 days per year.³⁷

The range of diving days based on coastline may still be an overestimate, however. The coastal waters of the BTES are dark and murky. Most diving is done well offshore where the water is clearer. Therefore, as an absolute lower bound for BTES diving days, we assume that no diving activity takes place within the study area.

Roberts and Thompson used contingent valuation techniques to estimate the consumer surplus associated with sport diving in Louisiana.³⁸ Multiplying this daily surplus figure (\$45) by the estimated range of scuba diving days yields a total economic surplus for the BTES of between zero and \$22 million.

³⁶ Given that most of those attending BTES beaches are likely to be residents of the area (i.e., beaches are not a major tourist attraction), we use the "resident" willingness to pay from the Bell and Leeworthy studies, rather than the "tourist" values.

³⁷ The SCORP measures the level of recreational activity among Louisiana residents, not the level of activity occurring within Louisiana borders. Therefore, to the extent that scuba divers dive far offshore, in waters beyond BTES boundaries, we may overstate the level of activity and the associated economic surplus.

³⁸ Roberts, Kenneth and Mark Thompson, "Petroleum Production Structures: Economic Resources for Louisiana Sport Divers," Louisiana Seafood Production Economics, August, 1983.

Camping

Although more prevalent in the forests of Northern Louisiana, recreational camping is also moderately popular in the BTES area, primarily in conjunction with fishing and other primary recreational activities. We estimate the number of camping days by combining SCORP data on statewide camping days with information on the percentage of camp sites located in the 13 key parishes of the BTES.³⁹ For tent camping, approximately 3.1 percent (125 of 4,075 sites statewide) of all campsites are located in the BTES. Scaling total statewide tent camping days by this figure yields an estimated 175,821 tent camping days in the study area. Taking this same approach for camper or motor home camping yields an estimated 245,907 days in the study area.

For both tent and camper camping, we multiply the estimated activity days by the consumer surplus estimate reported for camping in Walsh, et al. This value (roughly \$20 to \$30 per day) represents the 95 percent confidence interval across 18 different camping recreational value studies.⁴⁰ The resulting estimates of total economic surplus are \$3.4 million to \$5.2 million per year for tent camping, and \$4.8 million to \$7.3 million per year for camper camping.

Recreational Activity Not Quantified

Recreational activity associated with the natural resources of the BTES is not restricted to the pursuits analyzed above. As noted, we develop our quantitative estimates of economic surplus using a benefits transfer approach. This approach is limited by the availability of information on activity levels and economic surplus per unit (e.g., day, trip) of activity. Recreational activities associated with the BTES that may generate significant economic surplus value include other types of nature study (e.g., feeding and photographing of wildlife), other types of boating (e.g., sailing), hiking, bicycling, and other outdoor activities. Therefore, while it is likely that our quantitative analysis addresses the BTES recreational activities with the greatest surplus value, we likely understate the total recreational surplus for the region.

³⁹ Information on the location of campsites is taken from tables compiled for the Louisiana SCORP. Louisiana Department of Culture, Recreation, and Tourism, Office of State Parks, *Louisiana Statewide Comprehensive Outdoor Recreation Plan, Information Base for Executive Decision 1988-1993*, (Outdoor Recreation Printout by Parish and Area Category), January, 1989.

⁴⁰ Although consumer surplus may differ between tent and camper camping, Walsh, et al. does not provide sufficient information to distinguish between types of camping and their associated surplus values.

SUMMARY

The analysis performed in this chapter demonstrates that recreational activity in the BTES represents a major source of economic surplus for the region. We apply a benefits transfer approach to estimate consumer surplus for various categories of recreation. This surplus value represents willingness to pay for recreational opportunities beyond actual expenditures. It is used by economists to characterize the true social benefit associated with recreational pursuits and to estimate the intrinsic value of natural resources that accommodate these pursuits. In developing consumer surplus estimates, we have employed the most reliable data available for levels of recreational activity and the average surplus per day of the activity.

As summarized in Exhibit 4-12, we estimate a total economic surplus of between \$327 million and \$1 billion for the BTES. A large share of this total -- roughly 70 percent -- derives from wildlife-based recreation, including fishing, hunting, and wildlife viewing. This result highlights the importance of the BTES ecosystem and the habitat it provides. Water-based recreation, especially boating and inland swimming, is also significant.

Exhibit 4-12		
SUMMARY OF ANNUAL ECONOMIC SURPLUS IN THE BTES		
	Net Economic Values	
	Lower	Upper
Fishing	\$164,278,534	\$482,978,604
Hunting	\$69,391,157	\$275,926,468
Viewing	\$6,975,632	\$23,286,709
Boating	\$37,480,782	\$172,107,387
Inland Swimming	\$40,640,248	\$40,640,248
Beachgoing/Swimming	\$229,500	\$7,349,962
Scuba Diving	\$0	\$21,776,760
All Camping	\$8,249,000	\$12,474,714
TOTAL	\$327,244,852	\$1,036,540,852
Source: IEc analysis		

The previous two chapters present estimates of the total economic value of estuary-dependent commercial activities and recreation. In this section, we extend these analyses to consider the contribution of these industries and recreational activities to the surrounding regional economy. Specifically, we use regional economic modeling techniques, also known as input/output analysis, to characterize two categories of regional economic impacts:

- For estuary-dependent industries, reviewed in Chapter 3, we determine how the input demand and output flow associated with these industries affect other industries in the region.
- For key recreational activities presented in Chapter 4, we evaluate the linkages to supporting commercial industries such as sporting goods, restaurants, and hotels.

The chapter begins with a discussion of the concepts underlying regional economic modeling. We then discuss the methodology used to develop the regional models in this analysis, and present the results. The modeling results demonstrate that the regional economy is strongly linked to and dependent upon the existence of estuary-dependent industries and recreation.

METHODOLOGY

Overview of Input/Output Modeling

The concept of regional economic modeling seeks to characterize the interdependence of industries in a geographic region. Industries both purchase output from and supply input to other industries in a given region. As a result, the contribution of a particular industry to the regional economy is larger than the value associated with the industry's output. For example, the commercial fishing industry sells its output to fish processing plants and, simultaneously, purchases nets, ships, and other inputs from other regional industries. The presence of these linkages implies that employment and output in fish processing and net and ship production are dependent upon the existence of the commercial fishing enterprises. An increase in commercial fishing output would spur increases in the output and employment of these secondary industries.

Alternatively, if output in the commercial fishing industry were to decrease, the decline in total regional employment and output would likely be larger than the total employment and output losses in the commercial fishing sector. The goal of input/output modeling is to capture the extent to which industries are dependent on each other in this manner, and how they interconnect to form the regional economy.

The development of a regional economic model involves substantial sorting and organizing of economic data to characterize accurately the workings of the regional economy. First, to reduce the number of factors in the analysis, industries that affect the economy in a similar manner are grouped into sectors. Creation of an *input/output matrix* enables tracking of flows of goods and services between sectors. This matrix describes how much of each sector's input needs are met by the outputs of all other sectors in the area.¹

A regional economic model uses the input/output matrix to generate a set of values known as multipliers, which further characterize the economic links between a particular industry and the regional economy. The multiplier quantifies the relationship between demand for a given industry's output and the output required of the regional economy. For example, an output multiplier of 2.3 associated with the commercial fishing industry implies that demand for \$1.00 of commercial fishing industry output requires \$2.30 of output to be produced by the regional economy (i.e., the fishing industry and all other regional industries). As this example suggests, industries with larger multipliers have a greater effect on the regional economy. In addition to output multipliers, most input/output models generate employment, value added, and income multipliers which share the same basic principles.

Overview of the IMPLAN Model

Our regional economic models are developed using MicroIMPLAN (IMpact Analysis for PLANning), designed by the U.S. Forest Service.² This particular model is used by many state and federal planning agencies, including the Louisiana Department of Wildlife and Fisheries, to evaluate the economic impact of policy choices. The IMPLAN input/output matrix incorporates data from a number of federal and state entities, including the Bureau of Economic Analysis and the Bureau of Labor Statistics. To group the industries for purposes of developing the input-output matrix and multipliers, IMPLAN uses the categories developed in the U.S. Office of Management and Budget's Standard Industrial Classification (SIC) code. We analyze the most recent data available, which is from fiscal year 1992.

¹ It is important to emphasize that market prices, not consumer surplus, provide the basis for input/output analysis. The estimates provided are based on the dollar values of flows of actual goods and services, which do not reflect consumers' total willingness to pay for these items. In this sense, therefore, input/output analysis is similar to the commercial valuation analysis described in Chapter 3 and differs from the recreational consumer surplus analysis provided in Chapter 4.

² The IMPLAN model is owned and maintained by the Minnesota IMPLAN Group, Inc. (MIG).

The results of IMPLAN's input-output analyses are presented as estimates of the values of several important economic indicators, including final demand, total industry output, employee compensation income, property income, value added, and employment. Each of these values is estimated for each industry group. The models and an overview of key results are discussed below. The full set of results for each model produced in this analysis are contained in Appendix A.

Developing the BTES Regional Economic Models

Because a large proportion of the commercial and recreational activity of interest occurs in Terrebonne, Lafourche, Plaquemines, and Jefferson parishes, our models for commercial industries are based upon data from these parishes.³ Our focus on these four parishes is important in interpreting the model results. Because the models incorporate data from these parishes only, the estimates of the regional economic contribution of estuary-dependent industries and recreation pertain solely to the joint economy of the four parishes. The models do not indicate the contribution of estuary-dependent industries and recreation to the economies of other parishes or states, nor do they address impacts on the economies of foreign nations.

Exhibit 5-1 COMBINED BASELINE DATA FOR ALL INDUSTRIES IN LAFOURCHE, JEFFERSON, PLAQUEMINES, AND TERREBONNE PARISHES		
Variable	Baseline Value (Millions 1994 \$, Where Applicable)	Description of Value
Final Demand	\$18,426	Total intermediate and final demand for goods from households and firms.
Total Industry Output	\$22,789	Total output of all regional industries.
Employment	670,100	Total employment of all regional industries.
Source:IMPLAN Data Files for Lafourche, Jefferson, Plaquemines, and Terrebonne parishes.		

The total demand, output, and employment for all industries in the four parishes in 1992 are presented in Exhibit 5-1. As noted above, we use these baseline data to develop two sets of models: one that estimates the economic contribution of estuary-dependent commercial enterprises and one that estimates the economic contribution of estuary-dependent recreation. To estimate the regional economic effects of a particular policy scenario using IMPLAN, we enter into the model

³ In particular, these parishes encompass nearly all of the BTES coastline; thus, their economies incorporate the majority of the commercial fishing and shipbuilding enterprises located in the BTES.

the estimated change in output in each industry under consideration. The model then calculates the change in the demand for inputs to that industry, which causes a change in supplying industries' output, a change in demand for the inputs to those secondary industries, and so on. As the initial change ripples through the economy, the model tracks changes in the demand, output, employment, and other economic parameters associated with the industries in the region. These effects can be classified as *direct*, *indirect*, or *induced*, depending on the source of the change:

- *Direct effects* are the changes in production in industries producing items for which demand has changed, or which have suffered a supply shock. These are the changes specified initially by the modeler.
- *Indirect effects* are changes in production in industries linked with the directly affected industries. For example, a decrease in demand for the output of one of the directly affected industries will lead that industry to decrease demand for inputs, thereby affecting industries that supply those inputs.
- *Induced effects* are changes in household consumption resulting from changes in employment brought about by the direct and indirect effects. For example, reductions in household consumption of medical and legal services may occur as a result of decreased regional employment.

The model then sums effects across all industries, estimating the change in output, employment, and other indicators that would result from the initial change in output.

It is important to recognize that the IMPLAN model estimates only the effects stemming directly from the policy change and not complementary effects that occur over time within the economy. For example, a reduction in the output of the commercial fishing industry would likely prompt local fish processors to seek alternate supplies of fish, thereby mitigating output and employment losses in that sector. Similarly, the IMPLAN model would not take into account the re-employment in other industries of persons who lose their jobs as a direct result of a decline in a particular industry. As a result, the net output or employment change associated with a policy change may be smaller than the effect estimated by the model. For purposes of our analysis, this caveat implies that the long-run net employment and output that these industries contribute to the regional economy may be somewhat smaller than the model predicts.

Model for Estimating the Impact of Key BTES Industries

We first estimate the contribution of estuary-dependent industries to the regional economy, comprised of Terrebonne, Lafourche, Plaquemines, and Jefferson parishes. We examine the regional economic impact of five key industries: ship- and boatbuilding, commercial fishing, commercial hunting and trapping, agriculture, and aquaculture.

To apply the IMPLAN model, we posit the elimination of the five key estuary-dependent industries in the four-parish region. Although this hypothetical construct is unrealistic, it is an effective modeling technique that enables us to isolate the proportion of the region's output and employment derived from these estuary-dependent industries. Because the model is linear, the decrease in economic activity associated with the elimination of an industry is the exact inverse of the contribution of that industry to the regional economy. Therefore, the results obtained from this analysis illustrate the industry's role in the regional economy.

An IMPLAN analysis of the aquaculture industry would yield misleading results because the IMPLAN category containing aquaculture also contains many other industries that are not dependent on the estuary. As a result, the IMPLAN model may misrepresent the regional economic impact of the aquaculture industry. Instead of developing an IMPLAN model for the aquaculture industry, we calculate the regional economic contribution of aquaculture using the general output multiplier from the baseline IMPLAN data for the category containing aquaculture. In this analysis, we multiply the output of the aquaculture industry in the four parishes by the multiplier for the category that includes aquaculture. This calculation is exactly the same as those used in the IMPLAN model to produce estimates of output change. However, the IMPLAN model also tracks output and employment changes for each industry sector. Therefore, although the estimate of the region-wide output change using this shorthand method reflects the same level of accuracy as that of the IMPLAN models for other key industries, we cannot provide estimates of the contribution of the aquaculture industry to specific industry sectors as we do for the other key estuary-dependent industries.

Model for Estimating the Impact of Recreational Activity

We have also developed an IMPLAN model to characterize the role of estuary-dependent recreational activities in the BTES. The recreational activities examined in this model include recreational fishing, recreational hunting, and wildlife viewing. The initial premise of this model is identical to that of the industry models, in that we assume the elimination of recreational opportunities in order to isolate the contribution of these activities to the regional economy. However, recreation itself has little direct effect on the economy aside from fees paid to gain access to recreation sites. Rather, the purchases of recreation-related goods and services are the medium through which recreation affects the regional economy. For example, persons who decide to fish may purchase boats, rods, and other equipment from sporting goods stores.

Because of this indirect link, modeling the contribution of recreational activities to the economy involves an additional step in which the modeler must estimate expenditures per recreation day on different recreation-related goods and services. The primary IMPLAN sectors affected by recreational activity are:

- Hotels and lodging (category 463)
- Grocery stores and eating and drinking establishments (categories 450 and 454)

- Sporting goods stores (included in category 455)
- Boat, recreational vehicle, and camper dealers (included in category 451)
- Marinas (included in category 436).

Once these per-day expenditures have been estimated, the annual volume of recreation expenditures can be calculated by multiplying the expenditures per day with the annual BTES visitor days for each activity. This annual estimate reflects the extent of the link between recreation and economic activity.

To model the elimination of recreational opportunities in the BTES, we assume that the number of recreation visitor days spent in the BTES falls to zero from current levels. Thus, annual expenditures to support recreational activities would also be zero. To create this scenario within the model, we specify a reduction in visitor days equal to the midpoints of the upper and lower bound estimates of BTES activity days developed in Chapter 4. We also supply the model with estimates of expenditures per visitor day. The model multiplies these factors together to estimate the reduction in output, final demand, employment, and other indicators in affected regional businesses resulting from the reduction in the number of recreation days.

Three issues and caveats pertaining to the recreational activity model are noteworthy. First, the model accounts for the fact that some purchases associated with BTES recreation may occur outside the region. For example, many anglers live outside of the four-parish region included in the model and may purchase items such as boating and fishing equipment near their homes. By adjusting for extra-regional recreational purchases, the model avoids overestimating the regional economic effect of recreation.

Additionally, the estimates of per-day expenditures we use to develop the regional economic analysis are not directly comparable to the estimates of consumer surplus we use to estimate the surplus value of BTES recreation. Whereas surplus value is a measure of a consumer's willingness to pay for an activity over and above current expenditures on that activity, the estimates used in these models reflect the actual expenditures made by recreators. We use these different estimates because the two analyses serve different purposes. Whereas the analysis of the surplus value reflects the net societal value of the recreational experience itself, the regional economic model estimates the contribution of recreation to the commercial regional economy.

Finally, our choice of which recreational activities to model was largely dictated by whether we could obtain information on the expenditures per activity day associated with that activity. The 1991 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation from which we obtained recreational expenditure data provided information on fishing, hunting, and viewing only. However, boating, scuba diving, and other high-expenditure activities also are likely to contribute significantly to the regional economy. As a result, the regional economic contribution of recreation predicted by our models represents only a portion of the total contribution.

RESULTS

This section presents the models' estimates of the regional economic contribution of estuary-dependent industries and estuary-dependent recreation to the four-parish region.

Key Industries Model

Exhibit 5-2 presents baseline output and employment estimates for 1992 for the five key estuary-dependent industries. These industries are listed in descending order according to their output. IMPLAN industry codes corresponding to each sector are presented in the second column, facilitating reference to these industries in the IMPLAN data provided in Appendix A.⁴

Exhibit 5-2 SELECTED BASELINE DATA FOR ESTUARY-DEPENDENT INDUSTRIES IN LAFOURCHE, JEFFERSON, PLAQUEMINES, AND TERREBONNE PARISHES			
Industry	IMPLAN Industry Code(s)	Baseline Output (millions, 1994 \$)	Baseline Employment
Ship and Boat Building and Repairing	392, 393	\$701	9,067
Agriculture	3,4,6,9,12, 13,16,18,19	\$86	1,036
Commercial Fishing	25	\$52	1,743
Commercial Hunting and Trapping	24	\$6	18
Aquaculture	N/A	\$4	N/A
Source: IEc IMPLAN analysis. Aquaculture estimate obtained from Louisiana Cooperative Extension Service, 1994.			

As shown, ship- and boatbuilding and repairing is the largest of the industries examined, producing \$700 million in output and employing approximately 9,000 persons in 1992. Its output and employment are approximately an order of magnitude larger than the next largest industry, agriculture. Although agriculture produces the second most output, it is third in employment behind commercial fishing, a more labor-intensive industry. Finally, baseline output of the hunting and trapping and aquaculture industries is an order of magnitude smaller than commercial fishing and agriculture; these industries also employ significantly fewer persons than do the other industries analyzed.⁵

⁴ It is important to note that these baseline figures differ from those presented in Chapter 3 because of the difference in study area. Whereas the estimates of output in Chapter 3 reflect industries in the entire 13-parish estuary system, the IMPLAN analyses only reflect industries in the four-parish subregion.

⁵ As noted earlier, the IMPLAN model was not used to estimate the contribution of the aquaculture industry to the regional economy. Instead, we estimated this contribution based on the industry's annual output and an approximation

Exhibit 5-3 shows the results of the IMPLAN analysis, i.e., the estimated contribution of each industry to the regional economy. The second and fourth columns in Exhibit 5-3 present estimates of the total regional output and total regional employment associated with each industry. These estimates reflect not only output and employment in the estuary-dependent industry under study but also output and employment in secondary industries that are dependent upon that industry. Columns three and five show the percentage of regional output and employment represented by the values in columns two and four.

The conclusions drawn from the estuary-dependent industry model are as follows:

- The ship- and boatbuilding industry has the greatest impact on the economy in the four parishes, accounting for 5.4 percent of total output and 5.3 percent of employment.
- The agriculture industry has the second greatest impact on the regional output, contributing 0.8 percent. However, it accounts for the third greatest number of employees, 0.8 percent of the regional total, after commercial fishing. These results are consistent with baseline data that indicate that agriculture is less labor-intensive than commercial fishing. Its contribution is smaller by an order of magnitude than that of ship- and boatbuilding.
- The commercial fishing industry has the third greatest effect on regional output, accounting for 0.5 percent, and the second greatest effect on regional employment, accounting for 0.9 percent of employees.⁶

of an industry output multiplier. Specifically, the four-parish output of the aquaculture industry in 1994 totalled \$4.38 million (see Chapter 3). The IMPLAN output multiplier for the industry code containing aquaculture is 2.31. On this basis, we estimate the total contribution of the aquaculture industry in the four-parish region to be \$10.12 million (\$4.38 million x 2.31).

⁶ The commercial fishing and hunting and trapping industries are characterized by a large number of self-employed, part-time, and seasonal workers. In such circumstances, accurately capturing levels of employment in an industry is a complex task. Thus, the IMPLAN data for these industries reflect a relatively high degree of uncertainty.

Exhibit 5-3				
ECONOMIC IMPORTANCE OF ESTUARY-DEPENDENT INDUSTRIES IN LAFOURCHE, JEFFERSON, PLAQUEMINES AND TERREBONNE PARISHES				
Industry	Contribution to 4-Parish Regional Output		Contribution to 4-Parish Regional Employment	
	Millions 1994 \$	Percent of Regional Output	Persons	Percent of Regional Employment
Ship and Boat Building and Repairing	\$1,224.5	5.4%	17,036	5.3%
Agriculture	\$180.4	0.8%	2,571	0.8%
Commercial Fishing	\$123.2	0.5%	2,890	0.9%
Commercial Hunting and Trapping	\$7.7	< 0.1%	57	< 0.1%
Aquaculture ¹	\$10.1	< 0.1%	N/A	N/A
¹ We did not use IMPLAN to generate the regional contribution of the aquaculture industry. As a result, we could not estimate the contribution to regional employment associated with the aquaculture industry. Source: IEc IMPLAN analysis.				

- Commercial hunting and trapping and aquaculture have a relatively minor role in the overall regional economy, accounting for only a small share of total regional output and employment.⁴

To better characterize linkages in the regional economy, it is instructive to examine the secondary industries most affected by estuary-dependent industries. Economic theory would predict that certain secondary industries are more strongly linked to each estuary-dependent industry than others. For example, because ice is used intensively in the commercial fishing industry as a means of preserving the freshness of the catch, it is likely that the contribution of the commercial fishing industry to the ice manufacturing industry would be large relative to other secondary industries. Exhibit 5-4 shows the contribution of the four industries modeled to output in the secondary industries that supply a large proportion of the inputs to those estuary-dependent industries. Although the secondary industries in Exhibit 5-4 are clearly linked to the estuary-dependent industry modeled and thus show significant dependence on that industry, they are not necessarily the industries *most* affected by the industry modeled. For example, the implied contribution of agriculture to output in the petroleum refining industry is larger than its contribution to the output of the farm machinery manufacturing industry (see Appendix A). These differences in magnitude stem from the combination of two factors:

<p align="center">Exhibit 5-4</p> <p align="center">CONTRIBUTION OF ESTUARY-DEPENDENT INDUSTRIES TO OUTPUT OF SELECTED SECONDARY INDUSTRIES IN LAFOURCHE, JEFFERSON, PLAQUEMINES AND TERREBONNE PARISHES</p>				
Estuary-Dependent Industry	Affected Secondary Industry	IMPLAN Industry Code	Contribution to Output	
			Millions 1994 \$	Percent of Total Output
Ship- and Boatbuilding and Repairing	Engine Manufacturing	308	\$1.7	26.2%
	Furnaces and Steel Mills	254	\$1.1	8.1%
	Valves	301	\$1.7	7.7%
	Electric Services	443	\$20.8	5.2%
	Motor Freight	435	\$13.6	3.5%
	Industrial Relays and Controls	359	\$1.5	3.2%
	Plastics	191	\$0.8	0.5%
Agriculture	Agriculture Services	26	\$1.9	19.2%
	Pesticides	202-204	\$0.05	3.6%
	Farm Machinery	309	\$1.0	2.4%
	Motor Transport	435	\$4.6	1.2%
	Real Estate	462	\$7.3	1.0%
	Water Supply	445	\$0.01	0.6%
	Lubricating Oils	213	\$0.2	0.5%
Commercial Fishing	Ice Manufacturing	101	\$0.9	65.8%
	Oil and Grease Manufacturing	213	\$0.6	1.2%
	Fresh and Frozen Seafood	98	\$0.02	1.2%
	Auto and Boat Repair Services	451	\$1.7	0.7%
	Insurance	459	\$2.2	0.6%
	Miscellaneous Repair	482	\$0.2	0.3%
	Maintenance	56	\$1.7	0.3%
Commercial Hunting and Trapping	Agriculture, Forestry, and Fishery Services	26	\$0.3	3.3%
	Farm Machinery	309	\$0.02	0.04%
	Trap Manufacturing	304	\$0.002	0.04%
	Maintenance and Repair Services	56	\$0.1	0.01%
Source: IEc IMPLAN analysis.				

combination of two factors: (1) the relative size of different industries in the regional economy, and (2) the indirect and induced effects component of the analysis. Large industries, such as petroleum refining, command a large proportion of the regional economy and thus are affected to a greater extent by indirect and induced effects stemming from a policy change.

As a final caveat, it is important to note that, because each industry was modeled separately, the contributions of different estuary-dependent industries to the regional economy cannot be summed to obtain the joint contribution of two or more industries. Because estuary-dependent industries may affect each other, summing outcomes may lead to overestimates of the effect of a particular industry on the regional economy. For example, it would be incorrect to add together the contributions of ship- and boatbuilding and repairing and commercial fishing to the regional economy, because a decline in commercial fishing has a direct effect on shipbuilding and vice versa. Thus, summing the two outcomes together would overestimate the regional contributions of the two industries.

Sensitivity Analysis

To demonstrate how the selection of parishes included in the regional economic model affects the estimates of a particular industry's regional economic contribution, we performed a sensitivity analysis on the estuary-dependent industry model. In this analysis, we redefined the regional economy under study to include Terrebonne and Lafourche parishes only, excluding Jefferson and Plaquemines. We chose Terrebonne and Lafourche because they are completely encompassed by the BTES and because a large proportion of estuary-dependent activity takes place within their boundaries. We then modeled the elimination of the four estuary-dependent industries in these two parishes. The two-parish model results indicate that, relative to the four-parish model:

- The contribution of agriculture to regional output and employment increases by 2.2 and 2.4 percentage points, respectively.
- The contribution of commercial fishing to regional output and employment increases by 1.3 and 2.2 percentage points, respectively.
- The contribution of commercial hunting and trapping to regional output and employment increases by .03 and .01 percentage points, respectively.
- The contribution of ship- and boatbuilding to regional output and employment falls by 0.8 and 1.2 percentage points, respectively.

Taken together, these results indicate that most of the estuary-dependent industries modeled play a larger role in the two-parish economy than in the four-parish economy.

Recreational Activity Model

Exhibit 5-5 shows the inputs underlying the recreational activity model and the model's estimate of the total contribution to regional output and employment of estuary-dependent recreational opportunities. The Industries Affected columns show the expenditure inputs used. We obtained this information from the U.S. Fish and Wildlife Service's 1991 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation for Louisiana. For each recreational activity, the Industry column shows the different economic sectors from which recreationalists make their recreation-related purchases. The Average Expenditure column shows the average amount spent per recreation visitor day on goods produced in each of these industries. These estimates characterize the link between recreation participation and economic impact. The Change in Activity Level, which allows the model to calculate the reduction in the number of activity days, supplies the other key component in the analysis. The reduction in activity days comes from the midpoint of the upper and lower bounds of the activity days used in the recreational activity analysis developed in Chapter 4. The final two columns show the contribution of each recreational activity to total regional output and employment. The model indicates the following:

- Recreational fishing has the greatest effect on the combined economies of the four parishes, accounting for 2.5 percent of regional output and 3.3 percent of regional employment. More recreation days are spent fishing than on any other activity, and fishing has the highest per-day expenditures.
- Recreational hunting has the second greatest effect on the regional economy, accounting for 1.5 percent of regional output and 2.3 percent of regional employment. This activity has the second-highest level of activity and per-day expenditures.
- Wildlife viewing produces the third greatest regional economic effect, accounting for 0.2 percent of regional output and 0.3 percent of regional employment. It is the activity least frequently engaged in and is the least expensive per day.

The analysis suggests that the contribution to regional employment associated with each activity is somewhat greater than the contribution to regional output. This result likely stems from the fact that many of the industries affected are services (e.g., restaurants), which tend to be more labor-intensive.

Exhibit 5-6 shows how estuary-dependent recreation affects specific industries addressed in the model, such as restaurants and lodging facilities (see Industry column). For each recreational activity, we list the primary industries affected and the contribution of recreational activity to their output, expressed in dollars and as a percent of baseline output. The categories containing automotive, boat, and recreational dealers and sporting goods retailers consistently show the strongest links to each type of recreation. Recreational fishing is most strongly linked to the automotive and sporting goods sectors, accounting for 30 and 23 percent of their output, respectively.

Exhibit 5-5

**ECONOMIC CONTRIBUTION OF
ESTUARY-DEPENDENT RECREATIONAL OPPORTUNITIES IN LAFOURCHE, JEFFERSON, PLAQUEMINES,
AND TERREBONNE PARISHES**

Recreational Activity	Industries Affected		Activity Level (Annual Recreational Visitor Days)	Contribution to 4-Parish Regional Output and Employment	
	Industry	Average Expenditure Per Recreation Day (1994 \$)		Regional Output (Millions 1994 \$, percent contribution)	Regional Employment (Millions 1994 \$, percent contribution)
Fishing	Lodging	\$7.22	6,141,924	\$563.3 (2.5%)	10,552 (3.3%)
	Food	\$7.38			
	Sporting Goods	\$11.53			
	Boating Expenses	\$13.81			
	Transportation	\$5.31			
	Licenses	\$0.63			
Hunting and Trapping	Lodging	\$13.96	3,856,185	\$350.2 (1.5%)	7,237 (2.3%)
	Food	\$5.82			
	Sporting Goods	\$16.53			
	Transportation	\$4.59			
	Licenses	\$2.03			
Wildlife Viewing ¹	Lodging	\$3.22	692,027	\$42.7 (0.2%)	907 (0.3%)
	Food	\$10.69			
	Recreational Equipment	\$6.31			
	Transportation	\$9.80			

¹ The estimates of the regional economic contribution of wildlife viewing may underestimate the actual values. This is because the model did not incorporate the costs associated with wildlife photographing, a frequent component of wildlife viewing activity days.

Source: IEc IMPLAN analysis. Expenditure industry categories and values obtained from U.S. Fish and Wildlife Service, *1991 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation: Louisiana*, Washington, D.C., 1993.

Exhibit 5-6

**CONTRIBUTION OF BTES RECREATIONAL OPPORTUNITIES TO
OUTPUT IN SELECTED SECTORS IN LAFOURCHE, JEFFERSON, PLAQUEMINES, AND TERREBONNE
PARISHES**

Activity	Contribution of Recreation to Output of Selected Industries (Millions 1994 \$, percent change)					
	Restaurants	Grocery Stores	Automotive Service, Boat Dealers, RV Dealers	Lodging Establishments	Sporting Goods and other Retailers	Water Transportation ¹
Fishing	\$30.9 (5.4%)	\$31.1 (8.5%)	\$98.8 (30.0%)	\$8.2 (8.5%)	\$74.0 (22.9%)	\$57.2 (4.0%)
Hunting	\$19.8 (3.4%)	\$15.2 (4.2%)	\$65.5 (19.8%)	\$5.0 (5.2%)	\$65.3 (20.3%)	N/A
Wildlife Viewing	\$4.5 (0.8%)	\$4.0 (1.1%)	\$6.8 (2.1%)	\$1.6 (1.7%)	\$4.7 (1.5%)	N/A

¹ Expenditure data were not available to enable an assessment of the effect of a decrease in hunting and wildlife viewing on water transportation.

Source: IEc IMPLAN analysis.

CONCLUSION

This chapter presents an analysis of the regional economic contribution of key estuary-dependent industries and recreational activities. We conducted the analysis using IMPLAN, a widely-used regional economic impact model. Our methodology involved positing the hypothetical elimination of key industries and recreational activities to isolate their influence on the regional economy. The IMPLAN models suggest that estuary-dependent industries and recreation make a valuable contribution to the regional economy, supporting a wide range of secondary enterprises and many jobs. Important results include the following:

- Ship- and boatbuilding and repairing is the most important estuary-dependent industry in the BTES economy. Sectors such as electrical services and engine manufacturing rely on this industry as a major purchaser of their output. Agriculture and commercial fishing also are important sources of demand for local products and available jobs. Commercial hunting and trapping and aquaculture, on the other hand, account for a much smaller proportion of the local economy.

- Expenditures by recreational anglers play a major role in the BTES economy. We estimate that a large portion of business enjoyed by automotive service centers, boat dealers, and sporting goods stores is associated with recreational fishing activity. Similarly, hunting and wildlife viewing also provide business to a number of local industries engaged in catering to recreational activities and tourism.
- As a whole, estuary-related industries, such as shipbuilding, boost local output more than local employment. On the other hand, recreational activities help boost employment more than output, because the affected industries include many labor-intensive services.

The preceding chapters of this report characterize the value of the BTES in supporting commercial enterprises and recreation. In these chapters, estimates reflect the value or economic importance of the BTES as a whole. In this chapter, we shift the focus of our analyses to the estimation of the value of a wetland acre, rather than the value of the entire estuary system. One component of this analysis is developing per-acre values of recreational activities such as recreational fishing and hunting. This analysis builds upon the region-wide recreational value estimates derived in Chapter 4. Additionally, we present an overview of per-acre values derived from methodologies not yet introduced in this report, including estimation of the value of ecological services provided by wetlands and analysis of wetland replacement and restoration costs.

The remainder of this chapter is arranged as follows:

- The first section discusses per-acre values derived from the recreational consumer surplus estimates developed in Chapter 4.
- The second section introduces several additional categories of ecosystem services, discusses the methodology for assigning values to these services, and reports per-acre estimates for the value of a subset of these services.
- The third section discusses the expression of wetland value as a function of the costs to replace lost wetlands, and reports per-acre estimates of these values.

PER-ACRE VALUES FOR RECREATION

In Chapter 4, we estimated the total economic surplus associated with recreational activities in the BTES. In this section, we use these estimates as the basis for developing per-acre values for wetlands supporting recreation.

To calculate per-acre values for recreational activities, we must estimate the total number of acres used by recreational participants for each activity, and divide these into the total BTES

surplus value for each activity (as developed in Chapter 4). For our analysis, we concentrate on a subset of the four most significant wetland-based recreational activities: fishing, hunting, boating, and wildlife viewing.

Fishing, Hunting, and Boating

Fishing, hunting, and boating all require access to a boat ramp.¹ Therefore, to estimate a lower bound on the BTES wetland acreage used by anglers, hunters, and boaters, we assume that individuals would venture a maximum of one mile from the boat ramp to find a suitable location to participate in these recreational activities. Thus, the relevant area for recreational activities is the area within a one-mile radius around each boat ramp.

The 1984 Louisiana Statewide Comprehensive Outdoor Recreation Plan (SCORP) reports a total of 198 boat ramps in the BTES.² Using this estimate, and assuming no overlap in the areas around each ramp, we estimate the relevant subset of the BTES used by individuals to be approximately 398,000 acres.³ The upper bound on the BTES wetland acreage used by individuals encompasses all swamps and wetlands, totalling 1.7 million acres.⁴ Dividing the surplus value of fishing (\$164 million to \$483 million) by the estimated BTES acreage used for fishing yields an annual surplus value range of \$97 to \$1,213 per acre.⁵ Similarly, we calculate annual per-acre values of \$41 to \$693 for hunting and \$21 to \$409 for boating.

Wildlife Viewing

In developing a lower-bound estimate of the acreage used for wildlife viewing, we assume that all activity takes place in the 281,000 acres encompassed by Wildlife Management Areas located within the BTES.⁶ The upper bound on the BTES wetland acreage used by wildlife viewers encompasses all swamps and wetlands, totalling 1.7 million acres.⁷ Dividing the surplus value of wildlife viewing in the BTES (\$7 million to \$23 million) by the estimated acreage used yields a range in annual values of \$4 to \$83 per acre for wildlife viewing.

¹ Fishing and hunting in the BTES occur primarily in areas that are accessible only by boat.

² Louisiana Department of Culture, Recreation, and Tourism, Office of State Parks, *Louisiana Statewide Comprehensive Outdoor Recreation Plan, Information Base for Executive Decision 1988-1993*, January 1989.

³ The formula used to calculate the area around each boat ramp is:

$$\text{Area} = \pi r^2$$

where r is the radius of the circle, or the distance individuals travel from the ramp to find an acceptable location.

⁴ Barataria-Terrebonne National Estuary Program, *Status and Trends of Hydrogeological Modification, Reduction in Sediment Availability, and Habitat Loss/Modification in the Barataria-Terrebonne Estuarine System*, July 1995. Page xviii of this report indicates a total of 909,000 acres of marsh and 790,000 acres of forested wetland in the BTES.

⁵ A lower bound annual value per acre for each activity can be estimated by dividing the lower bound surplus value by the upper bound estimated acreage. Similarly, an upper bound annual per acre value is found by dividing the upper bound surplus value by the lower bound estimated acreage.

⁶ Louisiana Department of Wildlife and Fisheries, *Wildlife Management Area Guide*, 1993, pp. 4-5.

⁷ Barataria-Terrebonne National Estuary Program, *Status and Trends of Hydrogeological Modification, Reduction in*

Summary

Exhibit 6-1 summarizes the annual per-acre recreational value estimates developed in this section. Fishing, hunting, and boating show the largest upper bound per-acre values, ranging from \$1,213 to \$409. The upper bound per-acre value of \$83 associated with wildlife viewing is an order of magnitude smaller.

Exhibit 6-1						
RECREATIONAL SURPLUS VALUE, PER ACRE OF WETLAND IN THE BTES						
Activity	Estimated Recreational Wetland Acreage		Total Surplus Value (1994 \$)		Per Acre Value	
	Lower	Upper	Lower	Upper	Lower	Upper
Fishing	398,103	1,699,000	\$164,278,534	\$482,978,604	\$96.69	\$1,213.20
Hunting			\$69,391,157	\$275,926,468	\$40.84	\$693.10
Motorized Boating			\$35,317,942	\$162,791,302	\$20.79	\$408.92
Wildlife Viewing	281,465	1,699,000	\$6,975,632	\$23,286,709	\$4.11	\$82.73

PER-ACRE VALUES FOR OTHER ECOSYSTEM SERVICES

Thus far in this report, we have implicitly focused our analysis on wetland services that support commercial and recreational enterprises. For example, the habitat that wetlands provide for fish is integral to supporting both commercial and recreational fishing. As described below, however, wetlands provide numerous other services that have economic value. We briefly discuss these services, examine methods for measuring their value, and present selected estimates from the literature that apply to BTES wetlands.

Overview of Ecosystem Services

Sediment Availability, and Habitat Loss/Modification in the Barataria-Terrebonne Estuarine System, July 1995. Page xviii of this report indicates a total of 909,000 acres of marsh and 790,000 acres of forested wetland in the BTES.

The contribution of wetlands to the regional economy can be conceptualized as the provision of certain services that are useful and valuable to society. Some of these services can be assigned values according to their contribution to human health and welfare. These services include storm protection, nutrient removal, and water supply protection.⁸

- **Storm Protection:** Wetlands provide a variety of services to protect property against storm damage. Wetlands retard wave action, slow winds and absorb excess water, thereby reducing the incremental damage incurred by property.
- **Water Purification:** Wetlands can be used to treat municipal or industrial wastewater and filter nonpoint source runoff. Plants growing in wetlands absorb dissolved nutrients, such as nitrogen and phosphorus, from wastewater. Particulate matter, toxic pollutants, and heavy metals present in wastewater settle to the bottom of wetland areas. Some toxic substances remain in wetland areas long enough to degrade, and thus never reach open water. Wetlands also trap pathogens (disease-causing microorganisms) in sediment, limiting human exposure.
- **Water Supply:** Some types of wetlands supplement groundwater through percolation of surface water to groundwater aquifers. In saltwater areas, wetlands also protect freshwater supplies by preventing salt water from encroaching on groundwater systems.

Other services provided by wetlands are more difficult or impossible to quantify. These include:

- **Habitat Provision:** Wetlands provide unique habitat and thus attract a wide variety of plants and animals. In addition to providing permanent habitat and food for many species, including some endangered species, they also serve as rookeries, stops on migration routes, and fish spawning grounds and nurseries.
- **Scenery:** Wetlands are appreciated for their scenic beauty and the wide variety of plants and animals they harbor. Many people also enjoy visiting uninhabited areas such as wetlands to escape crowded urban and suburban areas.
- **Educational Value:** Wetlands provide learning opportunities for the general public as well as the scientific community. Many wetlands contain learning facilities created to educate the public about environmental issues. Research on

⁸ These descriptions taken from U.S. Office of Technology Assessment, *Wetlands: Their Use and Regulation*, U.S. Department of Commerce, National Technical Information Service, Washington, D.C. 1984.

subjects such as ornithology, botany and anthropology is frequently carried out in wetlands by experts in those fields.

- **Existence Value:** Many people derive value from the knowledge that wetlands exist, even if they do not use the services provided by those wetlands. Associations such as The Nature Conservancy and other "heritage trusts" seek to preserve wetlands as unique and valuable resources, regardless of tangible benefits or ecological services that society can receive from them.
- **Climatic and Atmospheric Functions:** Some scientists have hypothesized that large areas of wetland help to regulate air temperatures, preventing very high temperatures in the summer and very cold temperatures in the winter. Wetlands are also part of the water cycle, leading to formation of clouds and precipitation.

Avoided Cost Methodology for Valuing Ecosystem Services

The ecosystem services provided by the BTES wetlands are essentially costless to society. The wetlands are available for use without additional expenditures to obtain their services. Because these services are not bought and sold in the market, they are difficult to value. We can assign values to these services, however, based on the estimated cost of constructing man-made alternatives. For example, we can estimate the cost of constructing a wastewater treatment plant that filters wastewater in a manner similar to wetlands. Alternatively, we can examine the increase in damages associated with the loss of these services altogether. Storm damage to property, for example, would increase in the absence of wetlands.

Economists commonly refer to this method as the *avoided cost* approach to natural resource valuation. This methodology assumes that the implied value of wetlands is the cost society would incur to build structures to replicate wetland services or repair damages resulting from the absence of wetlands. The costs estimated include construction, repair, and maintenance expenditures, appropriately discounted to reflect the time value of money inherent in multi-year construction projects.

Two caveats should be noted. First, the application of avoided cost methodologies to value wetlands can be complex, requiring projections of the rate of wetland loss and the behavior of affected populations. This complexity introduces a high degree of uncertainty into the resulting estimates of wetland value. In general, economists have expressed limited confidence in the ability to measure the value of many key wetland services.

Second, it is important to note that the avoided cost methodology only addresses those wetland services that have man-made alternatives. Thus, this section does not develop values for scenic, existence, and education values, nor for habitat provision and climatic regulation.

Values of Protective Services

In the following sections, we develop avoided cost estimates of the protective services provided by BTES wetlands, such as protection from storm damage and from salt water intrusion. All estimates are presented in constant 1994 dollars and incorporate a three percent discount rate for annualizing capital costs and discounting future operating expenditures. These estimates are collected and summarized in Exhibit 6-2, at the end of this section.

Value of Storm Protection Services

Hurricane Protection

Wetlands protect coastal regions during storms by acting as wave retardants, absorbing water, and reducing wind damage, functions that are particularly important to the hurricane-prone coastal areas of Louisiana. In recognition of this fact, economists Robert Costanza and Stephen Farber have attempted to estimate the value of wetlands' hurricane protection services.⁹ In their study, Costanza and Farber collect historical data on property damages from hurricanes affecting the coast of Terrebonne parish. Damage estimates were taken from Army Corps of Engineers data, and included effects from both wind and flooding. Controlling for other factors, such as population, hurricane strength, and distance from the hurricane's path, the authors estimated the increase in damages resulting from increased proximity to the landfall of a hurricane. Their analysis concluded that if a one-mile wide band of wetlands on the coast were to disappear, expected damages would increase by \$8,319,152 annually. Per coastal wetland acre lost, damages would increase by \$185.53 per year. Importantly, these estimates apply only to the wetlands forming a one-mile strip along the immediate coastline.

Storm Surge Protection

In a separate analysis, Farber estimated the costs of building levees around major southern Louisiana cities to prevent inundation by storm surges as wetlands recede.¹⁰ Farber's analysis assumes that approximately 80 percent of the coastal Louisiana wetlands existing in 1993 will subside by the year 2083. As a result, storm surges will become a greater threat to Morgan City, Houma, Thibodaux, New Orleans, and Abbeville. Farber anticipates that these cities will likely respond to this threat by constructing levees to protect city infrastructure. His analysis estimates that the annualized costs of purchasing land, building materials, and construction labor, as well as performing annual maintenance, will total \$280 to \$904 per acre of wetland lost. The range reflects low and high values of property loss estimates, as well as low and high estimates of the annual rate of wetland subsidence.

Value of Water Supply Protection

⁹ Costanza, Robert, Stephen C. Farber, and Judith Maxwell, "Valuation and Management of Wetland Ecosystems," *Ecological Economics* 1: 335-361, 1989.

¹⁰ Farber, Stephen, "Welfare Loss of Wetlands Disintegration: A Louisiana Study," *Contemporary Economic Policy*, Vol. XIV: 92-106, January 1996.

As wetlands recede, the fresh groundwater supplies of a number of coastal Louisiana towns will suffer from saltwater intrusion, making them unfit for consumption well before the area is completely inundated. Current wetland loss estimates indicate that some towns will require alternate water supplies as early as the year 2013, and others by approximately 2033. To support the local population, these municipalities will be forced to import drinking water from inland sources, at considerable cost.

Based on the projected timing of wetland loss, Stephen Farber estimates the cost of building the infrastructure necessary to transport fresh water to coastal towns upon the loss of local fresh water supplies.¹¹ His analysis estimates the costs of pipes, pumps, labor, and other expenditures necessary for water transport. Annually, these costs total \$84 to \$119 per wetland acre lost. The range reflects low and high estimates of the annual rate of wetland subsidence.

Value of Property Losses Associated with Abandonment

Perhaps the most compelling reason for protection of the Louisiana wetlands stems from the costs associated with property losses as the wetlands subside. As their property becomes increasingly endangered by the proximity of the coast and by the increased threat posed by coastal storms, landowners will likely follow a least-cost pattern of first undertaking minimal remediation and repair, followed by more extensive protective action (such as levees). Finally, owners will abandon their property at the point where the costs of further defense outweigh the benefits from the property.

Farber attempts to estimate the annualized costs of these various stages of property loss over a 90-year period in which the wetlands are projected to recede significantly.¹² Based on the property values of different regions of Louisiana coastal wetlands, Farber estimates that the lost property value associated with wetland encroachment is approximately \$6,599 to \$7,116 per acre annually. The range reflects low and high estimates of the annual rate of wetland subsidence.

It is important to note that the receding wetlands will not only result in costs associated with lost properties, but also in costs associated with dismantling the man-made structures on these properties to prevent damage to the new shoreline. For example, large inundated structures such as bridges and buildings may pose a hazard if they disintegrate and wash ashore in a storm. Alternatively, under- or aboveground oil and hazardous substance storage tanks may need to be emptied and cleaned to prevent contamination. Stores of valuable goods must be packed and moved. Although these costs have not yet been estimated, experts suggest that they will be very large.¹³ As a result, they should be considered qualitatively among the avoided costs associated with wetlands preservation.

¹¹ Farber, Stephen, "Welfare Loss of Wetlands Disintegration: A Louisiana Study," *Contemporary Economic Policy*, Vol. XIV: 92-106, January 1996.

¹² Farber, Stephen, "Welfare Loss of Wetlands Disintegration: A Louisiana Study," *Contemporary Economic Policy*, Vol. XIV: 92-106, January 1996.

¹³ Farber, Stephen, The Economic Value of Wetlands in Louisiana, in *Proceedings of the Symposium, Economics in Natural Resource Management: Valuing Fish, Wildlife, and Habitats*, Louisiana State University Agricultural Center, 1994.

Value of Tertiary Wastewater Treatment

In addition to protecting property from storms and saltwater inundation, wetlands cleanse waters passing into them, removing nutrients, pathogens, and sediment. Municipalities and other wastewater dischargers have found this function to provide an effective means of tertiary treatment for wastewater. Additionally, to the extent that the receiving wetlands have low nutrient levels and are not regularly infused with sediment, the sediment and nutrients found in wastewater provide needed nourishment for the wetlands.

The following section provides estimates of the per-acre value of wetlands for treating different wastewater streams. These values are summarized in Exhibit 6-2. It is important to note that the estimates in this section are based on case studies of different tertiary wastewater treatment systems, and thus are case-specific. Although these estimates provide broad guidance on the value of wetlands for wastewater treatment, their range reflects the importance of local conditions.

Value of Municipal Tertiary Wastewater Treatment

Several municipalities in southern Louisiana either have constructed wetland tertiary treatment systems or are in the process of implementing them. Since 1989, the municipal water system in Thibodaux (located within the BTES) has used adjacent wetlands as a tertiary treatment system for its wastewater. The municipality discharges wastewater that has been treated to secondary levels into 570 acres of receiving wetlands, from approximately 40 outfalls. Currently, the southern Louisiana cities of St. Bernard, Amelia (located within the BTES), and Breaux Bridge are planning to implement wetland treatment systems.

The value of the wastewater treatment function of the wetlands used by Thibodaux can be estimated by examining the cost of sand filtration, the man-made alternative to wetland tertiary treatment. Breaux, et al. estimate that the cost of the construction, operation, and maintenance of a sand filtration facility is \$46,847 to \$89,511 per year depending on the level of treatment required.¹⁴ Assuming that this value is indicative of the services provided by the receiving wetlands, the per-acre value of the 570 acres of wetlands for wastewater treatment is \$82 to \$157 per year.

Farber notes that medium-sized municipalities such as Thibodaux are the likeliest candidates for using wetlands for tertiary treatment.¹⁵ Extremely small towns do not produce adequate wastewater to justify their own treatment plants, whereas large cities would require massive tracts of wetlands to implement a wetlands treatment system. Depending on the availability of receiving wetlands, this estimate suggests that a large proportion of the population may have the option of using wetlands for tertiary treatment.

Value of Industrial Tertiary Wastewater Treatment

¹⁴ Breaux, Andree, Stephen Farber, and John Day, "Using Coastal Wetlands Systems for Wastewater Treatment: An Economic Benefit Analysis," *Journal of Environmental Management*, Vol. 44: 285-291, 1995.

¹⁵ Farber, Stephen, "Welfare Loss of Wetlands Disintegration: A Louisiana Study," *Contemporary Economic Policy*, Vol. XIV: 92-106, January 1996.

Individual industries as well as municipalities may find that using wetlands to treat their waste streams is cost-effective. In two case studies in southern Louisiana, Breaux, et al. estimated the cost savings associated with wetland tertiary treatment systems for wastewater from seafood processing and potato chip manufacturing.¹⁶

Seafood Processing

In the first case study, Breaux, et al. examine 15 seafood processing plants located near Dulac, Louisiana to estimate the cost savings associated with using wetlands for tertiary wastewater treatment. In the absence of wetlands, these plants would be required to implement an on-site dissolved air flotation system to meet treatment standards. The costs associated with the alternative wetlands treatment systems include pipes, pumps, and other transportation costs. Estimated annualized cost savings from using wetlands for tertiary treatment range from \$1,948,983 to \$3,013,706 for the 15 plants, which discharge into 2,860 acres of wetlands; therefore, the annual value per acre of wetland for treatment ranges from \$681 to \$1,054.

Potato Chip Manufacturing

In the second case study, Breaux et al. examine a small potato chip manufacturing plant located near Gramercy, Louisiana (just outside the study area) to estimate the cost savings associated with using wetlands for tertiary treatment. The plant currently treats its wastewater to secondary levels prior to discharging it to the wetlands. However, certain modifications to the current system would make more use of the properties of the wetlands and would save the plant an estimated \$28,684 per year. The plant discharges into 6.2 acres of wetlands; therefore, the value per acre of wetland for more extensive treatment is approximately \$4,626 per year.

Summary

As evidenced by the figures presented above, estimates of the value of wetland services vary widely. Exhibit 6-2 presents a summary of the estimates presented in this section. The first column indicates the ecosystem service being valued, and the second column presents an estimate of the annual value of that service flow per wetland acre, adjusted to constant 1994 dollars. The third column presents the source of the estimate.

Among the protective functions of BTES wetlands, the most significant factor appears to be the avoided cost of property losses that would be realized if wetlands are allowed to subside. Movement of homes and other property clearly represents a major cost that maintenance of BTES wetlands would help avert. Other wetland functions -- storm protection and groundwater protection -- have lower per-acre values, but are of more immediate concern to BTES residents.

¹⁶ Breaux, Andree, Stephen Farber, and John Day, "Using Coastal Wetlands Systems for Wastewater Treatment: An Economic Benefit Analysis," *Journal of Environmental Management*, Vol. 44: 285-291, 1995.

The ability to treat municipal and industrial effluent also represents a major potential wetland service flow. The avoided costs realized in case studies from in or near the BTES suggest that wetland acreage may be valuable for tertiary wastewater treatment.

PER-ACRE VALUES OF WETLAND REPLACEMENT

Increasingly, the creation of man-made wetlands is an accepted means of mitigating the damage to or loss of existing natural wetlands. This implies that society is willing to incur the full costs of building man-made wetlands as a solution to the problem of the loss of natural wetlands. The willingness to pay for wetland replacement suggests that the value of existing wetlands is at least equal to the cost of replacing them with man-made wetlands. This implication is the foundation of federal environmental regulations that stipulate the use of replacement or restoration costs to quantify the damage to wetlands from events such as oil and hazardous substance spills.¹⁷

Exhibit 6-2		
WETLAND ECOLOGICAL SERVICE VALUES		
Ecosystem Service	Annual Value Per Acre (1994 \$, 3% discount rate)	Source
PROTECTION FROM STORMS AND SALTWATER INTRUSION		
Protection from Hurricane Damage	\$186	Costanza and Farber (1989)
Protection from Storm Surges (Levee Costs)	\$280-\$904	Farber (1996)
Protection of Water Supply	\$84-\$119	Farber (1996)
Prevention of Property Losses from Inundation	\$6,599-\$7,116	Farber (1996)
WASTEWATER TREATMENT		
Municipal Wastewater Treatment	\$82-\$157	Breaux, et al. (1995)
Seafood Processing Waste Treatment	\$681-\$1,054	Breaux, et al. (1995)
Potato Chip Manufacturing Waste Treatment	\$4,626	Breaux, et al. (1995)

¹⁷ See, e.g., National Oceanic and Atmospheric Administration, *Natural Resource Damage Assessments: Final Rule*, 61 FR 440, Friday, January 5, 1996. For a discussion of the applicability of using replacement costs to value wetlands, see Unsworth, Robert E. and Richard C. Bishop. 1994. "Assessing Natural Resource Damages Using Environmental Annuities," *Ecological Economics*, Vol. 11: 35-41.

The replacement value of a wetland acre encompasses the values of the entire range of wetland services, from support for commercial activities to recreation and ecological services. Theoretically, this value includes services such as habitat provision and scenic value that this report does not independently estimate. To the extent that man-made wetlands can serve as a perfect substitute for natural wetlands, valuing wetlands using this methodology captures all relevant values that can be assigned to the estuary.

In addition, the fact that these values do not explicitly address any particular wetland service flow, but rather address the potential to provide these services, makes them appropriate for use in valuing wetlands that are not currently being used for tertiary treatment or are not providing direct protection to infrastructure.

Below, we examine methodologies for determining wetland replacement costs and review recent replacement cost estimates relevant to the BTES.

General Replacement Cost Methodology

To calculate the replacement cost value of a wetland, researchers collect data on the engineering costs associated with the construction of man-made wetlands. The total cost of a wetlands creation project includes both the initial cost of labor and equipment as well as the cost of maintenance and upkeep over time, appropriately discounted to account for the time value of money. Because these values are very specific to each wetland replacement project, comparisons of previous replacement projects with the BTES context must be carefully examined for relevancy. All of the estimates presented in this section examine wetland replacement projects in the BTES, lending legitimacy to the extrapolation of these case-specific estimates to the general BTES context.

One caveat applies to the estimates from the replacement cost methodology. Generally, wetland replacement is an option when a portion of a wetland system has been destroyed. However, the subsidence affecting the coastal Louisiana wetlands involves the wholesale loss of an entire wetland ecosystem; it is infeasible to create wetlands to balance this entire loss. Therefore, these estimates should not be used when considering the collective value of the BTES wetlands.

Replacement Cost Value Estimates

Wetlands can be created using one of three engineering methods: deposition of dredged material, controlled sediment diversion, and uncontrolled sediment diversion. Below, we describe these methods and the estimates derived from case studies in which they were used. Exhibit 6-3, at the end of this section, provides a summary of the estimates derived using the replacement value methodology.

Deposition of Dredged Material

One method of creating wetlands is to deposit sediment dredged from navigation channels and elsewhere in shallow waters (e.g., intertidal areas), where wetlands gradually form. Because sediment is carried to the site, rather than diverted directly from a waterbody, this method allows for creation of wetlands far away from waterways. Additionally, this method allows for the placement of dredged material that otherwise would pose a disposal problem. In general, this method is somewhat less expensive than controlled sediment diversion, but more expensive than uncontrolled diversion (see below).

Shabman and Batie examine a number of wetlands creation projects from St. Mary, Terrebonne, Jefferson, and Plaquemines parishes.¹⁸ They gathered data on initial construction costs, operating costs, and maintenance costs to develop an annualized cost estimate for each project. This estimate is adjusted for the lag in time between construction and the time when the wetland begins to provide wetland services (estimated to be between three and 10 years). Shabman and Batie's estimates suggest that the imputed annualized value of a wetland acre lies between \$502 and \$1,250 when created by the dredged material method.¹⁹

Data obtained from the Army Corps of Engineers in New Orleans and from the Louisiana Department of Wildlife and Fisheries on other wetland creation projects using dredged material support Shabman and Batie's estimates. The Corps of Engineers estimates that the annualized cost of a recent wetland creation site at Pass a Loutre is approximately \$625 per acre.²⁰ Data from the Department of Wildlife and Fisheries suggest that the cost per acre to create wetlands at Bayou La Branche in St. Charles parish is approximately \$588. These estimates are within the range estimated by Shabman and Batie.

Uncontrolled Sediment Diversion

In the uncontrolled sediment diversion process, river levees are intentionally breached in a particular location to allow river water to escape into a designated area. No controls are placed on the diverted flow, making this technique unacceptable for use in densely populated areas. Because of the relatively low oversight necessary for this technique, it is the least expensive.

Shabman and Batie examine the costs to create five wetlands through uncontrolled river diversion in the Mississippi delta region.²¹ As in their study of wetlands created by dredged

¹⁸ Shabman, Leonard A. and Sandra S. Batie, "Mitigating Damages from Coastal Wetlands Development: Policy, Economics, and Financing," *Marine Resource Economics*, Vol. 4: 227-248, 1987.

¹⁹ Importantly, the estimates taken from Shabman and Batie (1987) assume a 5 percent discount rate, rather than the 3 percent rate used in all other sections in this chapter. This difference results in slightly higher per-acre values than would be obtained using a 3 percent rate, and prevents a strict comparison across all value estimates.

²⁰ Personal communication with Mike Holland, U.S. Army Corps of Engineers, New Orleans Office, November 30, 1995.

²¹ Shabman, Leonard A. and Sandra S. Batie, "Mitigating Damages from Coastal Wetlands Development: Policy, Economics, and Financing," *Marine Resource Economics*, Vol. 4: 227-248, 1987. Separate cost estimates for each of

sediment, they examine the costs associated with construction and maintenance of these wetlands. In particular, maintenance costs include re-breaching the levee every two to three years to ensure adequate flow. The implied value of a wetland acre from this analysis is approximately \$368 per year.

Controlled Sediment Diversion

In the controlled sediment diversion process, river levees are modified to allow for the controlled release of river water and sediment into an area that can support a created wetland. Existing wetlands can also be nourished and expanded in this manner. This method is the most expensive of the three studied because of the oversight necessary to ensure that the diversion remains controlled.

Shabman and Batie examine six controlled sediment diversion projects on the Mississippi river.²² These projects involved levee breaches in the first 35 miles of river reaching north from the delta. Again, similar to the study of wetlands created by dredged sediment, the authors examined the costs associated with construction and maintenance of these wetlands. Based on these estimates, the authors estimated that controlled sediment diversion results in an implied wetland value of \$1,004 to \$2,204 per acre.

Summary

Exhibit 6-3 presents a summary of the replacement cost estimates presented in this section. The first column indicates the replacement site from which cost estimates were derived, and the second column presents an estimate of the annual value per wetland acre implied by those costs, adjusted to constant 1994 dollars. The third column presents the source of the estimate. The table has been divided into sections according to the engineering method used to build the wetlands. Reflecting the relative amount of oversight necessary in each method, uncontrolled sediment diversion is the cheapest technique, followed by dredged sediment and controlled diversion. Implied annual per-acre wetland values range from \$369 to \$2,204, depending on the technique used.

SUMMARY

these projects were not available; the costs for each project were summed and presented as totals.

²² Shabman, Leonard A. and Sandra S. Batie, "Mitigating Damages from Coastal Wetlands Development: Policy, Economics, and Financing," *Marine Resource Economics*, Vol. 4: 227-248, 1987.

Wetlands provide diverse ecological services that are useful to society. In this chapter, we have developed a variety of value estimates for an acre of wetland by examining the service flows associated with a wetland acre.

- First, we estimate the value of an acre of wetland for supporting recreational activities. Based on the recreational surplus values developed in Chapter 4, estimated per-acre values for fishing range from \$96.69 to \$1,213.20, while per-acre values for hunting range from \$20.97 to \$693.10. Bathing and wildlife viewing activities are also associated with BTES wetlands.

Exhibit 6-3		
REPLACEMENT COST VALUE PER WETLAND ACRE		
Location of Case Study	Value per Acre per Year (1994 \$) ¹	Source
PLACEMENT OF DREDGED MATERIAL		
St. Mary Parish, Gulf Intracoastal Waterway and Atchafalaya River	\$502	Shabman and Batie (1987)
Terrebonne Parish, Houma Navigation Canal	\$1,250	Shabman and Batie (1987)
Jefferson Parish, Barataria Waterway	\$548	Shabman and Batie (1987)
Plaquemines Parish, Delta Passes	\$615	Shabman and Batie (1987)
Plaquemines Parish, Pass a Loutre	\$625	New Orleans Army Corps of Engineers (1995)
St. Charles Parish, Bayou La Branche	\$588	Louisiana Department of Natural Resources (1995)
UNCONTROLLED SEDIMENT DIVERSION		
Plaquemines Parish, Delta Region	\$368	Shabman and Batie (1987)
CONTROLLED SEDIMENT DIVERSION		
Mississippi River Mile 34.9, East Bank	\$1,004	Shabman and Batie (1987)
Mississippi River Mile 31.3, West Bank	\$1,965	Shabman and Batie (1987)
Mississippi River Mile 20.0, East Bank	\$1,168	Shabman and Batie (1987)
Mississippi River Mile 16.4, West Bank	\$2,204	Shabman and Batie (1987)
Mississippi River Mile 9.5, West Bank	\$1,380	Shabman and Batie (1987)
Mississippi River Mile 6.0, West Bank	\$1,445	Shabman and Batie (1987)
¹ The discount rate used to develop the Shabman and Batie estimates is 5 percent. All other estimates in this table reflect a 3 percent discount rate.		

- Second, we discuss economists' attempts to value other ecological services using the avoided cost method. Estimates taken from the economics literature vary greatly, but show that protection from storms, avoidance of property loss from subsidence, and treatment of wastewater are valuable functions. The value of these services ranges from \$82 to \$4,626 per acre of wetland.

We can also assess the overall value of wetland services by considering the costs associated with creating artificial wetlands to replace destroyed or damaged natural wetlands. The replacement cost methodology yields estimates of \$368 to \$2,204 for the implied value of a wetland acre, depending on the technique used to create the wetlands. In theory, replacement values encompass all service values of a wetland. Therefore, the annual per-acre value of each service flow should represent only a fraction of the annual per-acre value derived using the replacement cost methodology. However, several of the service flow values estimated are larger than replacement cost values, suggesting either overestimation of the values of each service flow or underestimation of the total wetland value using the replacement cost method.

In fact, this anomaly results not from misestimation, but from the different data sources underlying each methodology. Whereas the replacement cost method relies on actual cost data, gathered from completed construction projects, the avoided cost method relies on hypothetical costs that would occur under various hydrological and demographic circumstances. Therefore, it is difficult to compare directly the two types of estimates.

The most constructive interpretation of these per-acre estimates is to use them according to the context of the wetland acre being valued. For example, if a policymaker is attempting to value a wetland acre that has the potential to be used as a water treatment facility by existing local facilities, then the wastewater treatment service flow estimates are more appropriate. However, if the acre is unlikely to contribute any specific service flows, the replacement cost estimate may be more appropriate.

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APPENDIX A
DETAILED IMPLAN MODEL RESULTS

APPENDIX A

SUMMARY

The following appendix contains detailed results of the IMPLAN models discussed in Chapter 5. These models were developed using economic data for Jefferson, Lafourche, Plaquemines and Terrebonne parishes; therefore, the results refer to the aggregate of the economies of these four parishes. All values presented in the results are expressed in millions of 1992 dollars, except for the employment figures, which reflect actual numbers of persons employed. The results are organized into a series of reports, which are produced for each of the models estimated as well as for the baseline data.

It is important to note that the results taken from these reports and presented in the body of this report have been adjusted to 1994 dollars. Thus, because the estimates in the Appendix are expressed in 1992 dollars, they cannot be directly compared to estimates reported in the body of the analysis without dollar-year conversion.

Base Year Information (Report 901A)

The first report, entitled “Base Year Information”, consists of baseline information for 1992 for industries in the region. The values in this report reflect estimates of output and other economic variables for the industries in the region prior to any economic shock imposed by the models. This report provides insight into the share of the regional economy held by each industry prior to any economic changes.

Total Effects (Report Series 906)

The remainder of the Appendix contains reports detailing the results of the models. These reports, entitled “Total Effects”, contain estimates of the total regional effect of each change posited in the regional economy.

- The reports addressing ship-and boatbuilding, agriculture, commercial fishing, and commercial hunting and trapping reflect the regional economic effect of the elimination of each estuary-dependent industrial sector.
- The reports addressing recreational fishing, recreational hunting, and wildlife viewing, reflect the regional economic impact of the elimination of each estuary-dependent recreational activity.

Because we posited the elimination of industries and recreational activities, these reports show reductions in the key economic variables. However, as discussed in Chapter 5, the model is linear and thus the results obtained by eliminating industries and recreation are the exact inverse of

the contribution of these industries and recreational activities to the regional economy. Thus, in Chapter 5 of this analysis, the results from these models are reported as positive values and interpreted as the contribution of a particular industry to the regional economy.

Key Definitions

Below, we present a description of the information contained in each column of the reports described above, including definitions of key acronyms and phrases.

Base Year Information (Report 901A)

Industry:

Industry name and corresponding IMPLAN code.

- The name of each industry is presented with the corresponding IMPLAN sector code appearing to the immediate left of the industry name.
- Although IMPLAN groups industries based loosely on the Office of Management and Budget's Standard Industry Classifications (SIC), the IMPLAN sector codes are entirely different than the SIC codes.
- A listing of the IMPLAN database industry sector names and the corresponding SIC code(s) is also contained in this Appendix. This listing also has the complete names of the IMPLAN database industry sector names, which are trimmed in the model result printouts to preserve space.

Base Year Final Demand:

Local final demand for an industry's output (this estimate includes domestic exports).

Base Year TIO (base year total industry output):

Dollar value of the total output of the industry. The difference between Final Demand and TIO is inventory.

Employee Comp Income (employee compensation income):

Employee compensation, including salaries, benefits, and other compensation, by industry.

Property Income:

Proprietor (self-employment) and other property type income by industry.

Total PoW Income (total place of work income):

Sum of employee compensation income and property income.

Total Value Added:

Sum of total place of work income and indirect business taxes.

Employment (number of jobs):

Number of persons employed. Includes both part- and full-time jobs.

Total Effects (Impact Report Series 906)

Final Demand:

Total (sum of direct, indirect and induced) changes to final demand as a result of modeler's posited economic shock.

- Direct effects are production changes associated with the immediate effects of final demand changes.
- Indirect effects are production changes in backward-linked industries caused by the changing inputs needs of directly effected industries (for example, additional purchases to produce additional output).
- Induced effects are the changes in regional household spending patterns caused by changes in regional employment.

TIO (total industry output):

Total change in each industry's output as a result of the modeler's posited economic shock.

Employee Comp Income (employee compensation income):

Total change to each industry's employee compensation as a result of modeler's posited economic shock.

Property Income:

Total change to each industry's proprietor's and other property income as a result of modeler's posited economic shock.

Total PoW Income (total place of work income):

Sum of all changes to employee compensation income and property income as a result of modeler's posited economic shock.

Total Value Added:

Total change to sum of place of work income and indirect business taxes as a result of modeler's posited economic shock .

Employment (Number of Jobs):

Total change to number of persons employed (both part- and full-time) as a result of modeler's posited economic shock.

Change in Population:

Total population change associated with total employment impact resulting from modeler's posited economic shock.

\$MM 1992

Impact Report #901A

Base Year Information: **JEFFERSON, LAFOUCHE, TERREBONNE, PLAQUEMINES**

12/ 5/95

		Base Year		Employee Comp		Property	Total	Total Value	Employment
		Base Year	(TIO)	Income (M\$)	Income (M\$)	Income	POW	Added	(Number of
		Final Demand	(M\$)	Income (M\$)	(M\$)	(M\$)	(M\$)	(M\$)	Jobs)
Industry									
1 Dairy Farm Products		.1827	.1879	.0053	.0357	.0410	.0415		2.
2 Poultry And Eggs		.1329	.4478	.0354	.2634	.2988	.3001		8.
3 Ranch Fed Cattle		2.5826	2.8056	.1661	.6807	.8468	.8816		65.
4 Range Fed Cattle		.7211	.7724	.0141	.1059	.1200	.1308		9.
5 Cattle Feedlots		.0270	.0576	.0038	.0142	.0179	.0192		2.
6 Sheep, Lambs And Goats		.0017	.0017	.0000	.0000	.0000	.0000		0.
7 Hogs, Pigs And Swine		.0571	.0600	.0029	.0121	.0150	.0158		1.
8 Other Meat Animal Product		.0000	.0000	.0000	.0000	.0000	.0000		0.
9 Miscellaneous Livestock		.9872	1.8513	.0478	.5822	.6299	.6531		15.
12 Feed Grains		.1169	.1207	.0051	.0697	.0748	.0780		1.
13 Hay And Pasture		1.7651	1.8054	.0516	.7686	.8202	.8707		18.
16 Fruits		1.2073	1.2463	.0134	.2474	.2608	.2689		10.
18 Vegetables		1.1565	1.2728	.0129	.5198	.5327	.5449		8.
19 Sugar Crops		46.0781	72.5447	3.6362	31.6028	35.2390	36.2876		910.
23 Greenhouse And Nursery Pr		6.6364	8.9333	1.4049	6.7177	8.1227	8.1461		485.
24 Forestry Products		5.3273	5.3298	.4591	1.9752	2.4343	2.6613		18.
25 Commercial Fishing		42.5719	50.2274	5.2657	39.0237	44.2894	45.6613		1743.
26 Agricultural, Forestry, F		7.0486	9.3026	3.4079	1.2227	4.6307	4.6307		256.
27 Landscape And Horticultur		9.5500	24.6054	10.3878	4.8316	15.2193	15.2193		944.
29 Copper Ores		1.7554	1.8626	.5379	.4456	.9835	1.1089		6.
37 Coal Mining		2.1525	2.3539	.7676	.6489	1.4164	1.5282		9.
38 Natural Gas & Crude Petro		1056.2920	1110.3100	171.0929	469.1706	640.2635	732.6429		4110.
41 Sand And Gravel		3.9766	4.0307	1.3757	1.0546	2.4303	2.6213		37.
44 Phosphate Rock		1.0982	1.3186	.1938	.2436	.4374	.5009		7.
45 Chemical, Fertilizer Mine		17.7842	21.3540	5.2222	5.4333	10.6555	11.8329		76.
47 Misc. Nonmetallic Mineral		.8095	.8171	.1207	.1674	.2881	.3173		3.
48 New Residential Structure		125.4851	125.4851	27.6707	19.8639	47.5347	48.830		11711.
49 New Industrial And Commer		362.2764	362.2764	115.1614	53.0682	168.2296	173.7019		4790.
50 New Utility Structures		189.3212	189.3212	24.3512	27.2535	51.6047	52.7872		1000.
51 New Highways And Streets		100.0232	100.0232	24.3648	16.2805	40.6453	41.7594		1036.
53 New Mineral Extraction Fa		372.7550	372.7550	137.0791	74.7456	211.8247	212.0311		5402.
54 New Government Facilities		18.2702	18.2702	6.9349	3.5464	10.4813	10.8030		211.
55 Maintenance And Repair, R		24.1115	74.2644	22.4272	13.2599	35.6872	36.7500		1079.
56 Maintenance And Repair Ot		254.6406	631.1019	200.8748	115.6149	316.4897	326.0159		8466.
57 Maintenance And Repair Oi		143.5781	250.8632	173.7474	30.9039	204.6513	204.6513		6535.
58 Meat Packing Plants		1.9216	2.3630	.1578	-.0887	.0691	.0714		6.
59 Sausages And Other Prepar		2.8847	3.3964	.2400	.1924	.4324	.4440		18.
65 Fluid Milk		49.4618	55.5517	5.8127	3.7236	9.5363	9.7176		186.
66 Canned Specialties		1.3329	1.3527	.1685	.2410	.4096	.4137		6.
68 Dehydrated Food Products		.5129	.5195	.0908	.0680	.1588	.1625		6.
69 Pickles, Sauces, And Sala		13.5976	14.4066	2.0364	3.4401	5.4765	5.5514		52.
70 Frozen Fruits, Juices And		.5306	.5428	.0591	.0571	.1162	.1186		4.

71	Frozen Specialties	3.6694	3.7245	.3462	.3807	.7270	.7398	33.
78	Prepared Feeds, N.E.C	14.2468	14.3284	1.4570	-.1582	1.2987	1.3235	45.
79	Bread, Cake, And Related	10.6425	13.4316	3.5913	3.8922	7.4835	7.6277	116.
80	Cookies And Crackers	133.9500	138.5518	28.3118	36.0004	64.3122	65.2509	864.
81	Sugar	75.7273	77.2223	11.0319	5.9296	16.9615	17.5016	251.
82	Confectionery Products	19.8184	19.8873	2.7696	2.6812	5.4508	5.5569	145.
89	Animal And Marine Fats An	51.3019	72.7968	7.9946	13.8355	21.8301	22.6529	245.
95	Bottled And Canned Soft D	35.1802	35.3945	4.7315	4.6210	9.3525	9.7308	135.
96	Flavoring Extracts And Sy	.8935	.9234	.1311	.3042	.4353	.4381	4.
97	Canned And Cured Sea Food	1.5397	1.5489	.2602	.1080	.3682	.3711	19.
98	Prepared Fresh Or Frozen	112.4806	113.9915	9.6790	3.4151	13.0942	13.2500	884.
99	Roasted Coffee	13.5573	18.7215	1.5607	3.0394	4.6001	4.6389	45.
101	Manufactured Ice	.3758	1.2382	.4566	.2219	.6785	.7285	36.
102	Macaroni And Spaghetti	7.7675	8.3703	1.2270	1.4954	2.7225	2.8036	65.
103	Food Preparations, N.E.C	50.7967	56.5752	8.8436	10.0155	18.8591	19.1128	321.
108	Broadwoven Fabric Mills A	.7489	.8990	.2386	.0624	.3010	.3074	10.
117	Carpets And Rugs	2.3496	2.3537	.4603	.1570	.6173	.6312	13.
122	Cordage And Twine	1.1423	1.2479	.3067	.1467	.4534	.4584	13.
123	Textile Goods, N.E.C	1.4195	1.4265	.4563	.1611	.6174	.6242	15.
124	Apparel Made From Purchas	42.3096	45.0641	13.4168	5.3530	18.7698	18.8863	742.
125	Curtains And Draperies	.2448	.2549	.0816	.0205	.1021	.1028	5.
126	Housefurnishings, N.E.C	2.1143	2.3175	.5405	.6066	1.1471	1.1517	17.
127	Textile Bags	.4449	1.1855	.4473	.1461	.5934	.5965	11.
128	Canvas Products	.2040	.9840	.3863	.0834	.4697	.4748	16.
129	Pleating And Stitching	.3889	.6031	.2582	.1653	.4235	.4247	11.
132	Fabricated Textile Produc	.9160	1.2232	.2657	.0932	.3589	.3650	11.
133	Logging Camps And Logging	.4812	2.4350	.4180	.3145	.7325	.7665	17.
134	Sawmills And Planing Mill	.0929	.9266	.1696	.0862	.2558	.2723	9.
135	Hardwood Dimension And Fl	.0263	.4906	.2028	.0548	.2576	.2615	10.
137	Millwork	.1177	2.3892	.7275	.2810	1.0085	1.0243	33.
138	Wood Kitchen Cabinets	.0069	.5124	.1547	.0719	.2267	.2295	10.
142	Wood Pallets And Skids	.0080	.2757	.0584	.0131	.0715	.0744	6.
144	Prefabricated Wood Buildi	.3375	.3456	.0671	.0313	.0983	.1018	4.
145	Wood Preserving	2.6594	7.8173	1.1659	.7015	1.8674	1.9314	37.
146	Reconstituted Wood Produc	14.1582	17.5955	3.3897	2.4220	5.8117	6.0304	85.
147	Wood Products, N.E.C	.2412	.3264	.1136	.0407	.1543	.1571	6.
148	Wood Household Furniture	1.6801	1.6975	.4554	.2176	.6730	.6825	26.
150	Metal Household Furniture	.2263	.2417	.0487	.0298	.0785	.0790	3.
151	Mattresses And Bedsprings	.5496	.5517	.1224	.0619	.1844	.1851	6.
157	Wood Partitions And Fixtu	.0621	.3153	.1115	.0404	.1519	.1529	5.
158	Metal Partitions And Fixt	.0636	.2706	.0645	.0298	.0943	.0951	3.
159	Blinds, Shades, And Drape	.7538	.7570	.1516	.1035	.2552	.2566	10.
162	Paper Mills, Except Build	23.2520	23.3162	5.2904	2.8584	8.1488	8.6942	146.
164	Paperboard Containers And	.8377	14.1603	3.6946	1.1949	4.8894	4.9710	86.
165	Paper Coated & Laminated	2.4623	2.5933	.4602	.3255	.7857	.8007	18.
166	Paper Coated & Laminated	18.8813	19.8415	5.5594	2.9793	8.5387	8.7001	132.
169	Die-cut Paper And Board	4.9265	5.0083	1.0720	.3191		1.3912	1.4155
173	Converted Paper Products,	2.1644	2.2022	.4700	.3114	.7814	.7977	20.
174	Newspapers	3.5851	12.8643	4.7243	3.9483	8.6726	8.9253	215.
175	Periodicals	7.2320	14.3045	3.1123	3.1783	6.2906	6.4360	101.

176	Book Publishing	5.3621	5.7021	1.0037	1.7599	2.7635	2.8380	29.
178	Miscellaneous Publishing	.0856	.5648	.1366	.1855	.3221	.3326	6.
179	Commercial Printing	56.0844	103.0870	26.4857	13.6582	40.1439	42.6808	1128.
182	Blankbooks And Looseleaf	1.4732	1.9926	.5874	.4662	1.0536	1.0838	22.
183	Bookbinding & Related	.0802	.1124	.0509	.0214	.0724	.0750	2.
184	Typesetting	.0336	.0661	.0265	.0122	.0387	.0412	1.
185	Plate Making	.0090	.1410	.0578	.0234	.0812	.0836	1.
187	Industrial Gases	.9358	1.3718	.6144	.3327	.9470	1.0291	15.
189	Inorganic Chemicals Nec.	38.34755	57.45925	15.1338	12.8408	27.9746	29.5928	294.
190	Cyclic Crudes, Interm. &	217.3216	333.3150	46.3210	68.1958	114.5168	119.5367	812.
191	Plastics Materials And	120.0801	141.6656	19.5669	20.1359	39.7028	41.6826	389.
196	Soap And Other Detergents	4.2179	4.7774	.6005	.9444	1.5448	1.5691	19.
197	Polishes And Sanitation G	1.0595	1.2197	.2638	.3699	.6337	.6370	10.
199	Toilet Preparations	.4920	.5105	.0789	.1791	.2580	.2598	2.
200	Paints And Allied Product	18.5078	18.6878	2.5121	3.2556	5.7677	5.8041	85.
204	Agricultural Chemicals, N	1.2064	1.3772	.2148	.3386	.5534	.5698	4.
209	Chemical Preparations, N.	4.2936	12.7182	2.8170	2.5195	5.3365	5.4013	45.
210	Petroleum Refining	528.1039	684.7128	40.5139	24.9828	65.4967	145.6029	559.
213	Lubricating Oils And Grease	32.4942	44.8840	2.8388	3.4017	6.2405	6.4365	92.
218	Gaskets, Packing And Seal	3.0689	3.1031	1.0042	.4291	1.4334	1.4668	35.
219	Fabricated Rubber Product	11.1136	11.3412	2.9690	.9873	3.9563	4.0272	108.
220	Miscellaneous Plastics Products	28.6443	29.3101	5.9035	3.4972	9.4007	9.6084	241.
229	Leather Goods, N.E.C	.2210	.2591	.0906	.0372	.1278	.1285	6.
230	Glass And Glass Products,	.6599	1.7465	.3948	.2027	.5975	.6187	27.
241	Pottery Products, N.E.C	.2540	.2550	.1016	.0376	.1392	.1397	8.
242	Concrete Block And Brick	3.5619	3.5717	.9640	.4966	1.4606	1.5241	38.
243	Concrete Products, N.E.C	3.5372	3.5554	1.1448	.4720	1.6168	1.6573	54.
244	Ready-mixed Concrete	11.3345	11.4257	2.9176	1.3026	4.2203	4.3503	108.
246	Gypsum Products	15.9969	16.0969	3.8691	2.0463	5.9154	5.9787	103.
247	Cut Stone And Stone Products	.8495	.8511	.3214	.0803	.4017	.4053	14.
249	Asbestos Products	4.8818	4.9548	2.5584	.1103	2.6687	2.7381	88.
25	Minerals, Ground Or Treated	1.3866	1.3934	.3743	.2518	.6262	.6341	14.
254	Blast Furnaces And Steel	7.3444	13.4534	2.1897	.9061	3.0957	3.3248	66.
259	Iron And Steel Foundries	4.9068	5.0275	1.2579	.3395	1.5974	1.6906	79.
265	Aluminum Rolling And Drawing	28.4983	29.0041	4.2582	1.2786	5.5368	5.6665	119.
271	Metal Heat Treating	13.1896	13.7567	4.0550	2.9351	6.9902	7.1395	114.
274	Metal Barrels, Drums And	46.8477	49.7098	12.4038	1.9901	14.3939	14.7984	419.
278	Hardware, N.E.C.	.0488	.0623	.0179	.0087	.0266	.0270	0.
282	Fabricated Structural Metals	35.8310	36.9079	11.1904	3.6535	14.8440	15.0510	272.
283	Metal Doors, Sash, And Tr	2.3638	2.4386	.6520	.2188	.8708	.9026	26.
284	Fabricated Plate Work	3.9058	3.9764	1.5678	.3135	1.8813	1.9005	48.
285	Sheet Metal Work	6.6136	6.7542	1.7933	.7358	2.5291	2.5667	56.
286	Architectural Metal Work	1.7304	1.7758	.6472	.2446	.8918	.8972	20.
287	Prefabricated Metal Build	2.1775	2.2150	.4528	.2871	.7399	.7485	19.
290	Iron And Steel Forgings	5.4971	5.9771	2.7174	.3424	3.0598	3.1338	48.
294	Metal Stampings, N.E.C.	2.2942	3.3651	.7088	.2504	.9591	.9890	33.
295	Plating And Polishing	1.6634	1.7624	.7804	.1991	.9795	.9954	31.

296	Metal Coating And Allied	5.3389	6.0840	1.4308	.5451	1.9758	2.0110	54.
301	Industrial And Fluid Valv	12.8663	21.0726	3.5575	2.0999	5.6574	5.8146	128.
303	Pipe, Valves, And Pipe Fi	5.4942	8.7256	3.2304	1.1279	4.3583	4.4459	96.
304	Miscellaneous Fabricated	3.4196	6.3224	2.4857	.9686	3.4543	3.4776	79.
306	Fabricated Metal Products	.2206	.6543	.1056	.0708	.1764	.1803	6.
307	Steam Engines And Turbine	.6222	.9384	.2734	.1245	.3979	.4153	5.
308	Internal Combustion Engin	2.2772	6.1771	1.1473	.5920	1.7393	1.8904	34.
309	Farm Machinery And Equipm	34.5554	40.8537	10.0367	5.2271	15.2639	16.0059	327.
311	Construction Machinery An	7.4276	8.2738	1.3411	.6344	1.9755	2.3856	55.
313	Oil Field Machinery	194.9783	212.5623	80.1532	7.2790	87.4323	92.0185	2363.
314	Elevators And Moving Stai	.2762	1.0513	.3939	.0577	.4516	.4723	12.
315	Conveyors And Conveying E	19.6298	21.5704	6.0223	1.7366	7.7590	8.2070	218.
316	Hoists, Cranes, And Monor	.7488	1.2585	.3359	.0997	.4357	.4473	16.
317	Industrial Trucks And Tra	7.4791	8.3378	2.7176	.9518	3.6694	3.8132	71.
321	Special Dies And Tools An	.2636	1.7922	1.0886	.1893	1.2779	1.3115	24.
330	Food Products Machinery	2.5968	3.4629	1.2767	.4790	1.7557	1.8108	34.
332	Pumps And Compressors	2.2241	2.2702	.3684	.1536	.5220	.5908	18.
334	Blowers And Fans	.1891	.1933	.0544	.0204	.0748	.0770	3.
337	Industrial Furnaces And O	.1239	.1282	.0378	.0142	.0519	.0531	1.
338	General Industrial Machin	.9611	.9939	.2328	.1170	.3498	.3601	8.
346	Commercial Laundry Equipm	69.4409	70.8729	22.0652	11.6559	33.7211	33.9684	700.
347	Refrigeration And Heating	9.3581	23.1325	4.8815	2.7292	7.6107	7.9488	143.
349	Service Industry Machines	32.0635	38.7527	8.6468	6.6112	15.2581	15.6103	286.
351	Fluid Power Cylinders & A	.0627	.0660	.0101	.0030	.0131	.0140	1.
352	Fluid Power Pumps & Motor	2.7089	2.8520	2.2705	.2714	2.5419	2.7072	65.
354	Industrial Machines Nec.	24.4492	24.7406	8.9788	2.1468	11.1257	11.6633	314.
356	Switchgear And Switchboar	3.2540	5.0970	1.3568	.8095	2.1663	2.1952	45.
357	Motors And Generators	.3267	.9432	.3024	.1186	.4209	.4283	9.
359	Relays & Industrial Contr	39.4545	45.4882	15.8506	6.6915	22.5421	23.0259	352.
361	Household Cooking Equipme	1.7464	1.7580	.2983	.2612	.5595	.5663	11.
373	Radio And Tv Communicatio	6.4727	12.5945	2.8611	1.9198	4.7809	4.8533	79.
374	Communications Equipment	.0049	.0197	.0053	.0029	.0082	.0084	0.
376	Printed Circuit Boards	.6441	2.5516	1.0020	.3833	1.3853	1.4034	34.
378	Electronic Components, N.	.7515	3.3693	.6312	.4613	1.0925	1.1026	21.
381	Engine Electrical Equipme	.0820	.2097	.0557	.0130	.0687	.0702	2.
386	Motor Vehicle Parts And A	.0418	.1986	.0262	.0059	.0321	.0339	1.
392	Ship Building And Repairi	638.3313	640.4424	242.9235	42.0097	284.9332	288.3042	8878.
393	Boat Building And Repairi	31.4793	31.5225	11.6993	5.8857	17.5851	17.7275	189.
396	Complete Guided Missiles	38.4027	39.6556	14.8401	6.7676	21.6077	21.7448	249.
399	Transportation Equipment,	1.1575	1.1988	.1526	.1286	.2813	.2841	6.
400	Search & Navigation Equip	7.4309	8.4690	2.3848	1.1696	3.5544	3.6580	62.
403	Mechanical Measuring Devi	14.7657	16.5544	5.9607	3.1095	9.0702	9.1832	115.
407	Surgical And Medical Inst	.2598	.9236	.3125	.2286	.5411	.5457	5.
408	Surgical Appliances And S	5.0603	8.3459	1.9773	1.6477	3.6251	3.6600	64.
409	Dental Equipment And Supp	20.1929	23.5360	6.3831	6.0630	12.4460	12.5005	127.
412	Ophthalmic Goods	.6937	.8021	.3423	.1524	.4948	.5001	12.
413	Photographic Equipment An	.1184	.2626	.0433	.0608	.1041	.1058	2.
415	Jewelry, Precious Metal	1.1482	1.1511	.2032	.1754	.3786	.3891	17.
417	Jewelers Materials And La	.7721	.7810	.1092	.1385	.2476	.2486	8.
419	Dolls	2.3438	2.3442	1.0412	.3204	1.3617	1.3737	49.

424	Marking Devices	1.8482	1.9319	.9958	.5573	1.5531	1.5568	40.
425	Carbon Paper And Inked Ri	1.7264	1.7762	.3730	.3028	.6759	.6843	19.
429	Signs And Advertising Dis	1.0193	1.7405	.4682	.1835	.6517	.6769	23.
430	Burial Caskets And Vaults	.5023	.5192	.0851	.0729	.1580	.1617	7.
432	Manufacturing Industries,	.1651	.1705	.0263	.0272	.0535	.0544	2.
433	Railroads And Related Ser	51.6388	71.9879	36.6901	8.8514	45.5415	48.4377	552.
434	Local, Interurban Passeng	16.5539	21.6818	11.6868	5.3574	17.0442	17.2757	574.
435	Motor Freight Transport A	160.1178	376.3767	118.5616	71.0509	189.6125	196.1707	4862.
436	Water Transportation	1187.4990	1370.6870	246.8772	57.6520	304.5292	326.2657	7501.
437	Air Transportation	276.1757	320.1214	92.0627	22.4033	114.4660	138.8961	2292.
438	Pipe Lines, Except Natura	96.2046	108.0246	14.3259	70.8696	85.1955	90.7527	274.
439	Arrangement Of Passenger	2.3490	9.9433	4.5764	1.8501	6.4265	6.5336	288.
440	Transportation Services	13.9030	52.0869	20.0076	10.8637	30.8713	31.0012	656.
441	Communications, Except Ra	220.3224	278.4914	86.3898	91.0495	177.4393	212.1665	1928.
442	Radio And Tv Broadcasting	1.3272	13.9036	3.9388	1.0926	5.0314	5.5145	140.
443	Electric Services	182.9001	384.2744	64.6664	157.5729	222.2393	242.3189	1112.
444	Gas Production And Distri	197.0417	301.2742	36.2360	51.26	94	87.5054	101.0114
445	Water Supply And Sewerage	1.8319	2.2609	.2952	-.0892	.2060	.3142	10.
446	Sanitary Services And Ste	6.3570	19.2959	6.3909	.1086	6.4995	7.0811	195.
447	Wholesale Trade	1020.3680	1279.4170	586.6749	89.2953	675.9702	871.0953	17739.
448	Building Materials & Gard	86.8189	91.4169	43.6037	15.3841	58.9878	76.2500	2140.
449	General Merchandise Store	234.0789	244.0003	125.9002	22.3444	148.2446	189.8459	8564.
450	Food Stores	333.5253	348.7973	161.1644	73.6283	234.7927	305.0722	13094.
451	Automotive Dealers & Serv	307.5805	316.2567	160.3525	49.2496	209.6021	263.8168	6683.
452	Apparel & Accessory Store	101.6940	107.5515	38.8703	13.1086	51.9789	67.8558	3489.
453	Furniture & Home Furnishi	97.2161	102.5549	49.7097	17.0172	66.7268	84.9641	2494.
454	Eating & Drinking	538.5068	552.2804	217.3909	56.2285	273.6195	322.0761	19754.
455	Miscellaneous Retail	292.7008	309.1269	104.7538	42.6278	147.3816	192.1666	9718.
456	Banking	234.1091	301.1801	80.3696	41.0175	121.3871	133.4252	3102.
457	Credit Agencies	99.6937	143.0873	58.6603	-52.8832	5.7772	10.3018	3339.
458	Security And Commodity Br	11.1573	20.5869	11.4054	2.2650	13.6704	13.7517	255.
459	Insurance Carriers	257.8857	333.9325	90.4019	-8.8776	81.5242	116.4223	2283.
460	Insurance Agents And Brok	187.2507	241.7259	88.6220	99.9769	188.5989	191.0185	4326.
461	Owner-occupied Dwellings	991.4105	991.4105	.0000	555.8423	555.8423	749.	3606
462	Real Estate	301.1211	683.7704	52.5876	314.7460	367.3336	495.7960	6489.
463	Hotels And Lodging Places	51.8423	92.5759	42.9260	20.9301	63.8561	75.4181	2781.
464	Laundry, Cleaning And Sho	22.1891	32.0128	11.5385	11.6614	23.1999	24.7471	1823.
465	Portrait And Photographic	10.4775	12.7386	2.7752	3.0921	5.8673	6.5322	398.
466	Beauty And Barber Shops	27.0424	27.0424	9.9768	11.2587	21.2355	21.8194	1326.
467	Funeral Service And Crema	9.1918	9.1918	2.6119	3.4912	6.1031	6.2968	234.
468	Miscellaneous Personal Se	40.4146	45.1167	6.1814	7.7561	13.9375	15.3745	1130.
469	Advertising	.4771	21.2342	9.2205	7.6227	16.8431	17.0453	374.

470	Other Business Services	69.8954	185.3622	58.2548	74.0115	132.2663	137.2896	3903.
471	Photofinishing, Commercia	6.8660	19.0930	4.8203	5.9021	10.7224	11.2356	366.
472	Services To Buildings	24.8661	41.1888	18.9460	12.7961	31.7420	32.7824	2408.
473	Equipment Rental And Lea	163.2112	198.4044	50.5626	69.6204	120.1830	142.7310	2442.
474	Personnel Supply Services	104.3621	151.7579	89.9161	52.3425	142.2587	143.1830	8479.
475	Computer And Data Process	5.3068	57.5230	22.3772	17.4979	39.8751	40.6297	913.
476	Detective And Protective	15.8573	30.7678	17.5239	10.6098	28.1338	28.6844	2026.
477	Automobile Rental And Lea	58.2168	86.8556	16.2055	13.8731	30.0786	39.6852	1068.
478	Automobile Parking And Ca	8.8776	9.3446	3.7254	2.0452	5.7706	6.2672	452.
479	Automobile Repair And Ser	202.1191	248.4969	34.1483	39.0361	73.1844	79.6261	2304.
480	Electrical Repair Service	44.8156	56.0513	17.1810	22.7092	39.8902	40.3079	941.
481	Watch, Clock, Jewelry And	2.5619	2.5619	.8240	.3519	1.1758	1.2412	82.
482	Miscellaneous Repair Shop	44.4313	76.8841	23.1254	26.8187	49.9441	50.7852	1421.
483	Motion Pictures	20.1182	54.3180	8.9495	6.1692	15.1187	15.3960	835.
484	Theatrical Producers, Ban	1.0823	2.4411	.7108	.7779	1.4886	1.5382	96.
485	Bowling Alleys And Pool H	11.1353	11.1353	3.9775	2.7394	6.7170	7.2427	479.
486	Commercial Sports Except	7.4460	14.5459	7.3380	3.4499	10.7879	11.8168	135.
487	Racing And Track Operatio	8.8685	9.1882	.7483	.6586	1.4069	6.8251	311.
488	Amusement And Recreation	51.3266	51.3299	13.0692	14.6985	27.7677	29.7060	1370.
489	Membership Sports And Rec	21.0552	25.2802	9.8695	10.0718	19.9413	20.9839	1031.
490	Doctors And Dentists	610.2280	610.2281	344.8176	166.0896	510.9072	516.8797	7135.
491	Nursing And Protective Ca	57.0515	57.0515	36.4669	9.0069	45.4738	46.0063	3153.
492	Hospitals	399.5876	399.7932	215.2849	74.1769	289.4618	290.2314	8009.
493	Other Medical And Health	171.9454	194.4223	60.0338	37.4146	97.4484	97.9639	3080.
494	Legal Services	168.5122	319.4540	108.7456	124.8916	233.6371	235.9939	2952.
495	Elementary And Secondary	56.7531	56.7531	26.3397	.9355	27.2752	27.2752	2014.
496	Colleges, Universities, S	5.3651	6.1279	2.6848	.1935	2.8783	2.8783	220.
497	Other Educational Service	43.9777	45.4519	10.3348	.2855	10.6204	10.6204	850.
498	Job Trainings & Related S	8.2830	9.1529	5.1632	.0000	5.1632	5.1632	241.
499	Child Day Care Services	36.2891	36.2891	8.6112	3.4422	12.0534	12.0534	944.
500	Social Services, N.E.C.	29.0228	29.0228	13.2887	.0000	13.2887	13.2887	968.
501	Residential Care	13.9405	13.9405	8.8257	.0000	8.8257	8.8257	644.
502	Other Nonprofit Organizat	14.1606	14.8506	4.8229	-.0867	4.7362	4.7450	277.
503	Business Associations	14.3679	26.7880	25.8147	.0000	25.8147	25.8335	755.
504	Labor And Civic Organizat	42.8664	42.8664	27.2060	.0000	27.2060	27.5169	2746.
505	Religious Organizations	21.1534	21.1534	2.1897	.0000	2.1897	2.1897	199.
506	Engineering, Architectura	112.1369	201.4589	95.0471	32.8124	127.8595	128.6416	3432.
507	Accounting, Auditing And	5.7769	78.4335	35.6045	13.9189	49.5234	49.6525	1842.
508	Management And Consulting	50.4660	100.7366	38.8172	9.7226	48.5398	49.8294	2034.

509	Research, Development & T	4.6661	36.3962	21.8042	6.1699	27.9741	28.7841	1423.
510	Local Government Passenge	.6453	.8409	.1341	-.1029	.0312	.0312	20.
511	State And Local Electric	2.1623	4.5425	.7756	1.9332	2.7088	2.7088	34.
512	Other State And Local Gov	149.5724	192.6933	45.3287	63.0093	108.3380	108.4431	2113.
513	U.S. Postal Service	34.5093	66.8907	54.5444	-3.8103	50.7341	50.7341	1161.
519	Federal Government - Mili	89.7903	89.7903	89.7903	.0000	89.7903	89.7903	5654.
520	Federal Government - Non-	81.6754	81.6754	81.6754	.0000	81.6754	81.6754	1592.
522	State & Local Government	431.1833	431.1833	431.1833	.0000	431.1833	431.1833	19065.
523	State & Local Government	363.7101	363.7101	363.7101	.0000	363.7101	363.7101	14006.
525	Household Industry-low In	24.2933	24.2933	24.2933	.0000	24.2933	24.2933	3553.
528	Inventory Valuation Adjus	.0000	-14.3786	.0000	-14.3786	-14.3786	-14.3786	0.
Total		17665.8300	21849.0900	7063.4630	4201.7410	11265.200	12597.3900	319381.
Population = 670100.								

SHIP-AND BOATBUILDING AND REPAIRING \$MM 1992

Impact Report #906

Scenario SHPPRODJ: Total Effects

12/ 8/95

		Base Year Final Demand	Base Year (TIO) (MM\$)	Employee Comp Income (MM\$)	Property Income (MM\$)	Total POW Income (MM\$)	Total Value Added (MM\$)	Employment (Number of Jobs)
Industry								
1	Dairy Farm Products	-.0006	-.0007	-.0000	-.0001	-.0002	-.0002	-.01
2	Poultry And Eggs	-.0052	-.0129	-.0010	-.0076	-.0086	-.0087	-.23
3	Ranch Fed Cattle	-.0010	-.0067	-.0004	-.0016	-.0020	-.0021	-.16
4	Range Fed Cattle	-.0003	-.0015	-.0000	-.0002	-.0002	-.0002	-.02
5	Cattle Feedlots	-.0000	-.0013	-.0001	-.0003	-.0004	-.0004	-.05
6	Sheep, Lambs And Goats	.0000	.0000	.0000	.0000	.0000	.0000	.00
7	ogs, Pigs And Swine	-.0000	-.0001	.0000	-.0000	-.0000	-.0000	-.00
8	ther Meat Animal Product	.0000	.0000	.0000	.0000	.0000	.0000	.00
9	iscellaneous Livestock	-.0276	-.0296	-.0008	-.0093	-.0101	-.0104	-.24
12	Feed Grains	-.0001	-.0001	.0000	-.0001	-.0001	-.0001	-.00
13	Hay And Pasture	-.0005	-.0017	-.0000	-.0007	-.0008	-.0008	-.02
16	Fruits	-.0219	-.0228	-.0002	-.0045	-.0048	-.0049	-.18
18	Vegetables	-.0426	-.0461	-.0005	-.0188	-.0193	-.0198	-.29
19	Sugar Crops	-.0019	-.0085	-.0004	-.0037	-.0041	-.0042	-.11
23	Greenhouse And Nursery Pr	-.3203	-.3875	-.0609	-.2914	-.3524	-.3534	-21.04
24	Forestry Products	-.0004	-.0005	-.0000	-.0002	-.0002	-.0002	-.00
25	Commercial Fishing	-.0991	-.1235	-.0129	-.0959	-.1089	-.1122	-4.28
26	Agricultural, Forestry, F	-.0212	-.0303	-.0111	-.0040	-.0151	-.0151	-.83
27	Landscape And Horticultur	.0000	-.7674	-.3240	-.1507	-.4747	-.4747	-29.44
29	Copper Ores	.0000	-.0008	-.0002	-.0002	-.0004	-.0005	-.00
37	Coal Mining	-.0001	-.0103	-.0034	-.0028	-.0062	-.0067	-.04
38	Natural Gas & Crude Petro	-1.6833	-3.0074	-.4634	-1.2708	-1.7342	-1.9844	-11.13
41	Sand And Gravel	.0000	-.0017	-.0006	-.0004	-.0010	-.0011	-.02
44	Phosphate Rock	-.0000	-.0035	-.0005	-.0007	-.0012	-.0013	-.02
45	Chemical, Fertilizer Mine	-.0007	-.0575	-.0141	-.0146	-.0287	-.0318	-.20
47	Misc. Nonmetallic Mineral	-.0000	-.0001	-.0000	-.0000	-.0000	-.0000	.00
48	New Residential Structure	.0000	.0000	.0000	.0000	.0000	.0000	.00
49	New Industrial And Commer	.0000	.0000	.0000	.0000	.0000	.0000	.00
50	New Utility Structures	.0000	.0000	.0000	.0000	.0000	.0000	.00
51	New Highways And Streets	.0000	.0000	.0000	.0000	.0000	.0000	.00
53	New Mineral Extraction Fa	.0000	.0000	.0000	.0000	.0000	.0000	.00
54	New Government Facilities	.0000	.0000	.0000	.0000	.0000	.0000	.00

55	Maintenance And Repair, R	.0000	-1.9424	-.5866	-.3468	-.9334	-.9612	-28.22
56	Maintenance And Repair Ot	.0000	-49.4502	-15.7396	-9.0590	-24.7987	-25.5451	-663.36
57	Maintenance And Repair Oi	.0000	-.2906	-.2013	-.0358	-.2371	-.2371	-7.57
58	Meat Packing Plants	-.0901	-.1055	-.0070	.0040	-.0031	-.0032	-.27
59	Sausages And Other Prepar	-.1474	-.1687	-.0119	-.0096	-.0215	-.0221	-.89
65	Fluid Milk	-1.1892	-1.3834	-.1448	-.0927	-.2375	-.2420	-4.63
66	Canned Specialties	-.0048	-.0056	-.0007	-.0010	-.0017	-.0017	-.02
68	Dehydrated Food Products	-.0011	-.0013	-.0002	-.0002	-.0004	-.0004	-.01
69	Pickles, Sauces, And Sala	-.0496	-.0714	-.0101	-.0170	-.0271	-.0275	-.26
70	Frozen Fruits, Juices And	-.0011	-.0015	-.0002	-.0002	-.0003	-.0003	-.01
71	Frozen Specialties	-.0132	-.0152	-.0014	-.0016	-.0030	-.0030	-.14
78	Prepared Feeds, N.E.C	-.0055	-.0067	-.0007	.0001	-.0006	-.0006	-.02
79	Bread, Cake, And Related	-.5300	-.6432	-.1720	-.1864	-.3584	-.3653	-5.55
80	Cookies And Crackers	-1.0616	-1.2305	-.2514	-.3197	-.5712	-.5795	-7.67
81	Sugar	-.0135	-.0196	-.0028	-.0015	-.0043	-.0045	-.06
82	Confectionery Products	-.0135	-.0159	-.0022	-.0021	-.0043	-.0044	-.12
89	Animal And Marine Fats An	-.0520	-.1159	-.0127	-.0220	-.0348	-.0361	-.39
95	Bottled And Canned Soft D	-.0702	-.0781	-.0104	-.0102	-.0206	-.0215	-.30
96	Flavoring Extracts And Sy	-.0021	-.0025	-.0004	-.0008	-.0012	-.0012	-.01
97	Canned And Cured Sea Food	-.0010	-.0010	-.0002	-.0001	-.0002	-.0002	-.01
98	Prepared Fresh Or Frozen	-.0119	-.0333	-.0028	-.0010	-.0038	-.0039	-.26
99	Roasted Coffee	-.2797	-.4880	-.0407	-.0792	-.1199	-.1209	-1.17
101	Manufactured Ice	-.0194	-.0231	-.0085	-.0041	-.0127	-.0136	-.67
102	Macaroni And Spaghetti	-.1368	-.1604	-.0235	-.0287	-.0522	-.0537	-1.25
103	Food Preparations, N.E.C	-1.0230	-1.1952	-.1868	-.2116	-.3984	-.4038	-6.78
108	Broadwoven Fabric Mills A	-.0045	-.0109	-.0029	.0008	-.0036	-.0037	-.12
117	Carpets And Rugs	-.0023	-.0025	-.0005	-.0002	-.0007	-.0007	-.01
122	Cordage And Twine	-.0007	-.0025	-.0006	-.0003	-.0009	-.0009	-.03
123	Textile Goods, N.E.C	-.0005	-.0009	-.0003	-.0001	-.0004	-.0004	-.01
124	Apparel Made From Purchas	-2.0583	-2.1426	-.6379	-.2545	-.8924	-.8979	-35.28
125	Curtains And Draperies	-.0123	-.0130	-.0042	-.0010	-.0052	-.0052	-.25
126	Housefurnishings, N.E.C	-.1008	-.1111	-.0259	-.0291	-.0550	-.0552	-.81
127	Textile Bags	-.0196	-.0429	-.0162	-.0053	-.0215	-.0216	-.40
128	Canvas Products	-.0077	-.0886	-.0348	-.0075	-.0423	-.0428	-1.44
129	Pleating And Stitching	-.0199	-.0540	-.0231	-.0148	-.0379	-.0380	-.98
132	Fabricated Textile Produc	-.0350	-.0448	-.0097	-.0034	-.0131	-.0134	-.40
133	Logging Camps And Logging	.0000	-.0567	-.0097	-.0073	-.0171	-.0178	-.40
134	Sawmills And Planing Mill	-.0000	-.0866	-.0159	-.0081	-.0239	-.0255	-.84
135	Hardwood Dimension And Fl	-.0002	-.0687	-.0284	-.0077	-.0361	-.0366	-1.40

137	Millwork	-.0005	-.0856	-.0261	-.0101	-.0361	-.0367	-1.18
138	Wood Kitchen Cabinets	-.0001	-.0026	-.0008	-.0004	-.0012	-.0012	-.05
142	Wood Pallets And Skids	-.0000	-.0078	-.0017	-.0004	-.0020	-.0021	-.17
144	Prefabricated Wood Buildi	-.0001	-.0004	-.0001	-.0000	-.0001	-.0001	-.00
145	Wood Preserving	-.0011	-.1736	-.0259	.0156	-.0415	-.0429	-.82
146	Reconstituted Wood Produc	-.0009	-.6496	-.1251	-.0894	-.2146	-.2226	-3.14
147	Wood Products, N.E.C	-.0115	-.0383	-.0133	-.0048	-.0181	-.0184	-.70
148	Wood Household Furniture	-.0868	-.0888	-.0238	-.0114	-.0352	-.0357	-1.36
150	Metal Household Furniture	-.0108	-.0113	-.0023	-.0014	-.0037	-.0037	-.14
151	Mattresses And Bedsprings	-.0279	-.0285	-.0063	-.0032	-.0095	-.0096	-.31
157	Wood Partitions And Fixtu	-.0001	-.0048	-.0017	-.0006	-.0023	-.0023	-.08
158	Metal Partitions And Fixt	-.0000	-.0078	-.0019	-.0009	-.0027	-.0027	-.09
159	Blinds, Shades, And Drape	-.0373	-.0374	-.0075	-.0051	-.0126	-.0127	-.49
162	Paper Mills, Except Build	-.0006	-.0029	-.0007	-.0004	-.0010	-.0011	-.02
164	Paperboard Containers And	-.0058	-.2501	-.0653	-.0211	-.0864	-.0878	-1.52
165	Paper Coated & Laminated	-.0022	-.0065	-.0012	-.0008	-.0020	-.0020	-.05
166	Paper Coated & Laminated	-.0171	-.0489	-.0137	-.0073	-.0210	-.0214	-.33
169	Die-cut Paper And Board	-.0007	-.0031	-.0007	-.0002	-.0009	-.0009	-.03
173	Converted Paper Products,	-.0018	-.0077	-.0016	-.0011	.0027	-.0028	-.07
174	Newspapers	-.0755	-.4450	-.1634	-.1366	-.3000	-.3088	-7.44
175	Periodicals	-.0786	-.3607	-.0785	-.0802	-.1586	-.1623	-2.55
176	Book Publishing	-.1470	-.1600	-.0282	.0494	.0775	-.0796	-.81
178	Miscellaneous Publishing	-.0031	-.0219	-.0053	-.0072	.0125	-.0129	-.23
179	Commercial Printing	-.0391	-1.8246	-.4688	-.2417	-.7105	-.7554	-19.97
182	Blankbooks And Looseleaf	-.0032	-.0229	-.0067	-.0054	-.0121	-.0125	-.25
183	Bookbinding & Related	.0000	-.0009	-.0004	-.0002	-.0006	-.0006	-.02
184	Typesetting	.0000	-.0006	-.0002	-.0001	-.0004	-.0004	-.01
185	Plate Making	-.0000	-.0026	-.0011	-.0004	-.0015	-.0016	-.02
187	Industrial Gases	-.0009	-.0106	-.0048	-.0026	-.0073	-.0080	-.12
189	Inorganic Chemicals Nec.	-.0354	-.3957	-.1042	-.0884	-.1926	-.2038	-2.02
190	Cyclic Crudes, Interm. &	-.1894	-1.8375	-.2554	-.3759	-.6313	-.6590	-4.48
191	Plastics Materials And Re	-.0288	-.7717	-.1066	-.1097	-.2163	-.2271	-2.12
196	Soap And Other Detergents	-.2014	-.2207	-.0277	-.0436	-.0714	-.0725	-.88
197	Polishes And Sanitation G	-.0505	-.0558	-.0121	-.0169	-.0290	-.0292	-.46
199	Toilet Preparations	-.0251	-.0259	-.0040	-.0091	-.0131	-.0132	-.10
200	Paints And Allied Product	-.0013	-.0178	-.0024	.0031	-.0055	-.0055	-.08
134	Sawmills And Planing Mill	-.0000	-.0866	-.0159	-.0081	-.0239	-.0255	-.84
135	Hardwood Dimension And Fl	-.0002	-.0687	-.0284	-.0077	-.0361	-.0366	-1.40
137	Millwork	-.0005	-.0856	-.0261	-.0101	-.0361	-.0367	-1.18

138	Wood Kitchen Cabinets	-.0001	-.0026	-.0008	-.0004	-.0012	-.0012	-.05
142	Wood Pallets And Skids	-.0000	-.0078	-.0017	-.0004	-.0020	-.0021	-.17
144	Prefabricated Wood Buildi	-.0001	-.0004	-.0001	-.0000	-.0001	-.0001	-.00
145	Wood Preserving	-.0011	-.1736	-.0259	.0156	-.0415	-.0429	-.82
146	Reconstituted Wood Produc	-.0009	-.6496	-.1251	-.0894	-.2146	-.2226	-3.14
147	Wood Products, N.E.C	-.0115	-.0383	-.0133	-.0048	-.0181	-.0184	-.70
148	Wood Household Furniture	-.0868	-.0888	-.0238	-.0114	-.0352	-.0357	-1.36
150	Metal Household Furniture	-.0108	-.0113	-.0023	-.0014	-.0037	-.0037	-.14
151	Mattresses And Bedsprings	-.0279	-.0285	-.0063	-.0032	-.0095	-.0096	-.31
157	Wood Partitions And Fixtu	-.0001	-.0048	-.0017	-.0006	-.0023	-.0023	-.08
158	Metal Partitions And Fixt	-.0000	-.0078	-.0019	-.0009	-.0027	-.0027	-.09
159	Blinds, Shades, And Drape	-.0373	-.0374	-.0075	-.0051	-.0126	-.0127	-.49
162	Paper Mills, Except Build	-.0006	-.0029	-.0007	-.0004	-.0010	-.0011	-.02
164	Paperboard Containers And	-.0058	-.2501	-.0653	-.0211	-.0864	-.0878	-1.52
165	Paper Coated & Laminated	-.0022	-.0065	-.0012	-.0008	-.0020	-.0020	-.05
166	Paper Coated & Laminated	-.0171	-.0489	-.0137	-.0073	-.0210	-.0214	-.33
169	Die-cut Paper And Board	-.0007	-.0031	-.0007	-.0002	-.0009	-.0009	-.03
173	Converted Paper Products,	-.0018	-.0077	-.0016	-.0011	.0027	-.0028	-.07
174	Newspapers	-.0755	-.4450	-.1634	-.1366	-.3000	-.3088	-7.44
175	Periodicals	-.0786	-.3607	-.0785	-.0802	-.1586	-.1623	-2.55
176	Book Publishing	-.1470	-.1600	-.0282	.0494	.0775	-.0796	-.81
178	Miscellaneous Publishing	-.0031	-.0219	-.0053	-.0072	.0125	-.0129	-.23
179	Commercial Printing	-.0391	-1.8246	-.4688	-.2417	-.7105	-.7554	-19.97
182	Blankbooks And Looseleaf	-.0032	-.0229	-.0067	-.0054	-.0121	-.0125	-.25
183	Bookbinding & Related	.0000	-.0009	-.0004	-.0002	-.0006	-.0006	-.02
184	Typesetting	.0000	-.0006	-.0002	-.0001	-.0004	-.0004	-.01
185	Plate Making	-.0000	-.0026	-.0011	-.0004	-.0015	-.0016	-.02
187	Industrial Gases	-.0009	-.0106	-.0048	-.0026	-.0073	-.0080	-.12
189	Inorganic Chemicals Nec.	-.0354	-.3957	-.1042	-.0884	-.1926	-.2038	-2.02
190	Cyclic Crudes, Interm. &	-.1894	-1.8375	-.2554	-.3759	-.6313	-.6590	-4.48
191	Plastics Materials And Re	-.0288	-.7717	-.1066	-.1097	-.2163	-.2271	-2.12
196	Soap And Other Detergents	-.2014	-.2207	-.0277	-.0436	-.0714	-.0725	-.88
197	Polishes And Sanitation G	-.0505	-.0558	-.0121	-.0169	-.0290	-.0292	-.46
199	Toilet Preparations	-.0251	-.0259	-.0040	-.0091	-.0131	-.0132	-.10
200	Paints And Allied Product	-.0013	-.0178	-.0024	.0031	-.0055	-.0055	-.08
204	Agricultural Chemicals, N	-.0046	-.0068	-.0011	-.0017	-.0028	-.0028	-.02
209	Chemical Preparations, N.	-.0433	-.1906	-.0422	-.0378	-.0800	-.0810	-.67
210	Petroleum Refining	-8.4933	-12.0856	-.7151	-.4410	-1.1561	-2.5700	-9.87

213	Lubricating Oils And Grease	-.1776	-.8861	-.0560	-.0672	-.1232	-.1271	-1.82
218	Gaskets, Packing And Seal	-.0006	-.0030	-.0010	-.0004	-.0014	-.0014	-.03
219	Fabricated Rubber Product	-.0031	-.0132	-.0035	-.0012	-.0046	-.0047	-.13
220	Miscellaneous Plastics Products	-.0047	-.0333	-.0067	-.0040	-.0107	-.0109	-.27
229	Leather Goods, N.E.C	-.0093	-.0112	-.0039	-.0016	-.0055	-.0056	-.26
230	Glass And Glass Products, N.E.C	-.0211	-.1001	-.0226	-.0116	-.0342	-.0355	-1.55
241	Pottery Products, N.E.C	-.0001	-.0001	-.0000	-.0000	-.0001	-.0001	-.00
242	Concrete Block And Brick	.0000	-.0003	-.0001	-.0000	-.0001	-.0001	-.00
243	Concrete Products, N.E.C	-.0001	-.0008	-.0003	-.0001	-.0004	-.0004	-.01
244	Ready-mixed Concrete	-.0001	-.0028	-.0007	-.0003	-.0010	-.0011	-.03
246	Gypsum Products	-.0000	-.0042	-.0010	-.0005	-.0015	-.0015	-.03
247	Cut Stone And Stone Products	-.0001	-.0001	-.0000	-.0000	-.0001	-.0001	-.00
249	Asbestos Products	-.0004	-.0042	-.0021	-.0001	-.0022	-.0023	-.07
250	Minerals, Ground Or Treated	-.0000	-.0001	-.0000	-.0000	-.0001	-.0001	-.00
254	Blast Furnaces And Steel	-.0002	-1.0877	-.1770	-.0733	-.2503	-.2688	-5.34
259	Iron And Steel Foundries	-.0000	-.0102	-.0026	-.0007	-.0032	-.0034	-.16
265	Aluminum Rolling And Drawing	-.0005	-.1039	-.0153	-.0046	-.0198	-.0203	-.43
271	Metal Heat Treating	-.0001	-.0221	-.0065	-.0047	-.0112	-.0115	-.18
274	Metal Barrels, Drums And	-.0011	-.0464	-.0116	-.0019	-.0134	-.0138	-.39
278	Hardware, N.E.C.	-.0001	-.0010	-.0003	-.0001	-.0004	-.0004	.00
282	Fabricated Structural Metal	-.0053	-.3649	-.1106	-.0361	-.1468	-.1488	-2.69
283	Metal Doors, Sash, And Trusses	-.0005	-.0042	-.0011	-.0004	-.0015	-.0016	-.04
284	Fabricated Plate Work	-.0005	-.0099	-.0039	-.0008	-.0047	-.0047	-.12
285	Sheet Metal Work	-.0007	-.0081	-.0022	-.0009	-.0031	-.0031	-.07
286	Architectural Metal Work	-.0002	-.0033	-.0012	-.0005	-.0016	-.0017	-.04
287	Prefabricated Metal Buildings	-.0001	-.0053	-.0011	-.0007	-.0018	-.0018	-.05
290	Iron And Steel Forgings	-.0004	-.0168	-.0076	-.0010	-.0086	-.0088	-.13
294	Metal Stampings, N.E.C.	-.0306	-.0554	-.0117	-.0041	-.0158	-.0163	-.54
295	Plating And Polishing	-.0000	-.0037	-.0016	-.0004	-.0021	-.0021	-.07
296	Metal Coating And Allied	-.0002	-.0111	-.0026	-.0010	-.0036	-.0037	-.10
301	Industrial And Fluid Valves	-.0018	-1.6274	-.2747	-.1622	-.4369	-.4491	-9.89
303	Pipe, Valves, And Pipe Fittings	-.0007	-.6461	-.2392	-.0835	-.3227	-.3292	-7.11
304	Miscellaneous Fabricated Metal	-.0072	-.0550	-.0216	-.0084	-.0300	-.0302	-.69
306	Fabricated Metal Products	-.0015	-.0366	-.0059	-.0040	-.0099	-.0101	-.34
307	Steam Engines And Turbine	-.0000	-.0717	-.0209	-.0095	-.0304	-.0317	-.38
308	Internal Combustion Engines	-.0105	-1.6169	-.3003	-.1550	-.4553	-.4948	-8.90
309	Farm Machinery And Equipment	-.0207	-.1891	-.0465	-.0242	-.0707	-.0741	-1.51
311	Construction Machinery And Equipment	-.0025	-.4655	-.0755	-.0357	-.1112	-.1342	-3.09
313	Oil Field Machinery	-.0096	-.5837	-.2201	-.0200	-.2401	-.2527	-6.49

314	Elevators And Moving Stai	-.0002	-.0212	-.0080	-.0012	-.0091	-.0095	-.24
315	Conveyors And Conveying E	-.0008	-.0580	-.0162	-.0047	-.0209	-.0221	-.59
316	Hoists, Cranes, And Monor	-.0001	-.0136	-.0036	-.0011	-.0047	-.0048	-.17
317	Industrial Trucks And Tra	-.0003	-.0195	-.0064	-.0022	-.0086	-.0089	-.17
321	Special Dies And Tools An	-.0002	-.0727	-.0442	-.0077	-.0518	-.0532	-.97
330	Food Products Machinery	-.0004	-.0188	-.0069		-.0026	-.0095	-.0098
332	Pumps And Compressors	-.0002	-.0101	-.0016	-.0007	-.0023	-.0026	-.08
334	Blowers And Fans	-.0000	-.0003	-.0001	-.0000	-.0001	-.0001	-.01
337	Industrial Furnaces And O	-.0000	-.0003	-.0001	-.0000	-.0001	-.0001	-.00
338	General Industrial Machin	-.0001	-.0014	-.0003	-.0002	-.0005	-.0005	-.01
346	Commercial Laundry Equipm	-.0008	-.0249	-.0077	-.0041	-.0118	-.0119	-.25
347	Refrigeration And Heating	-.0997	-.8662	-.1828	-.1022	-.2850	-.2976	-5.35
349	Service Industry Machines	-.0120	-.9860	-.2200	-.1682	-.3882	-.3972	-7.28
351	Fluid Power Cylinders & A	.0000	-.0006	-.0001	-.0000	-.0001	-.0001	-.01
352	Fluid Power Pumps & Motor	-.0002	-.0251	-.0200	-.0024	-.0224	-.0238	-.57
354	Industrial Machines Nec.	-.0011	-.0174	-.0063	-.0015	-.0078	-.0082	-.22
356	Switchgear And Switchboar	-.0027	-.0606	-.0161	-.0096	-.0258	-.0261	-.54
357	Motors And Generators	-.0015	-.1089	-.0349	-.0137	-.0486	-.0494	-1.04
359	Relays & Industrial Contr	-.0063	-1.4362	-.5005	-.2113	-.7117	-.7270	-11.11
361	Household Cooking Equipme	-.0012	-.0019	-.0003	-.0003	-.0006	-.0006	-.01
373	Radio And Tv Communicatio	-.0185	-.7279	-.1654	-.1110	-.2763	-.2805	-4.57
374	Communications Equipment	-.0001	-.0018	-.0005	-.0003	-.0007	-.0008	.00
376	Printed Circuit Boards	-.0093	-.0765	-.0300	-.0115	-.0415	-.0421	-1.02
378	Electronic Components, N.	-.0096	-.1018	-.0191	-.0139	-.0330	-.0333	-.63
381	Engine Electrical Equipme	-.0015	-.0576	-.0153	-.0036	-.0189	-.0193	-.55
386	Motor Vehicle Parts And A	-.0014	-.0089	-.0012	-.0003	-.0014	-.0015	-.04
392	Ship Building And Repairi	-638.8181	-639.0388	-242.3911	-41.9176	-284.3087	-287.6723	-8858.54
393	Boat Building And Repairi	-28.7059	-28.7121	-10.6563	-5.3610	-16.0173	-16.1470	-172.15
396	Complete Guided Missiles	-.0041	-.2521	-.0943	-.0430	-.1374	-.1382	-1.58
399	Transportation Equipment,	-.0006	-.0019	-.0002	-.0002	-.0005	-.0005	-.01
400	Search & Navigation Equip	-.0058	-.7056	-.1987	-.0974	-.2961	-.3048	-5.17
403	Mechanical Measuring Devi	-.0051	-.1436	-.0517	-.0270	-.0787	-.0797	-1.00
407	Surgical And Medical Inst	-.0012	-.0322	-.0109	-.0080	-.0188	-.0190	-.17
408	Surgical Appliances And S	-.1307	-.2873	-.0681	-.0567	-.1248	-.1260	-2.20
409	Dental Equipment And Supp	-.0098	-.1396	-.0379	-.0360	-.0738	-.0742	-.75
412	Ophthalmic Goods	-.0275	-.0487	-.0208	-.0093	-.0300	-.0304	-.73
413	Photographic Equipment An	-.0029	-.0082	-.0014	-.0019	-.0032	-.0033	-.06
415	Jewelry, Precious Metal	-.0099	-.0100	-.0018	-.0015	-.0033	-.0034	-.15
417	Jewelers Materials And La	-.0109	-.0114	-.0016	-.0020	-.0036	-.0036	-.12

419	Dolls	-.0530	-.0530	-.0235	-.0072	-.0308	-.0310	-1.11
424	Marking Devices	-.0001	-.0029	-.0015	-.0008	-.0024	-.0024	-.06
425	Carbon Paper And Inked Ri	-.0002	-.0020	-.0004	-.0003	-.0008	-.0008	-.02
429	Signs And Advertising Dis	-.0005	-.0294	-.0079	-.0031	-.0110	-.0114	-.39
430	Burial Caskets And Vaults	-.0000	-.0009	-.0001	-.0001	-.0003	-.0003	-.01
432	Manufacturing Industries,	-.0002	-.0004	-.0001	-.0001	-.0001	-.0001	-.00
433	Railroads And Related Ser	-.2779	-1.0470	-.5336	-.1287	-.6623	-.7045	-8.03
434	Local, Interurban Passeng	-.7592	-.9494	-.5117	-.2346	-.7463	-.7565	-25.13
435	Motor Freight Transport A	-3.0087	-13.0433	-4.1087	-2.4623	-6.5710	-6.7983	-168.49
436	Water Transportation	-.9545	-1.6922	-.3048	-.0712	-.3760	-.4028	-9.26
437	Air Transportation	-1.7244	-2.9047	-.8354	-.2033	-1.0387	-1.2603	-20.80
438	Pipe Lines, Except Natura	-.0450	-.2575	-.0341	-.1689	-.2031	-.2163	-.65
439	Arrangement Of Passenger	-.0442	-.0940	-.0433	-.0175	-.0608	-.0618	-2.72
440	Transportation Services	-.0734	-.4416	-.1696	-.0921	-.2617	-.2628	-5.56
441	Communications, Except Ra	-5.6231	-8.2499	-2.5592	-2.6972	-5.2564	-6.2851	-57.11
442	Radio And Tv Broadcasting	-.0626	-.5640	-.1598	-.0443	-.2041	-.2237	-5.68
443	Electric Services	-8.5670	-19.9532	-3.3578	-8.1819	-11.5396	-12.5823	-57.74
444	Gas Production And Distri	-2.5946	-5.1966	-.6250	-.8843	-1.5094	-1.7423	-12.40
445	Water Supply And Sewerage	-.0791	-.0948	-.0124	.0037	-.0086	-.0132	-.42
446	Sanitary Services And Ste	-.2865	-1.0426	-.3453	-.0059	-.3512	-.3826	-10.54
447	Wholesale Trade	-12.9042	-31.8393	-14.5999	-2.2222	-16.8220	-21.6779	-441.45
448	Building Materials & Gard	-3.5516	-3.7023	-1.7659	-.6230	-2.3890	-3.0881	-86.67
449	General Merchandise Store	-8.1946	-8.5192	-4.3958	-.7801	-5.1759	-6.6284	-299.01
450	Food Stores	-10.4992	-10.9976	-5.0815	-2.3215	-7.4030	-9.6189	-412.85
451	Automotive Dealers & Serv	-10.9973	-11.2811	-5.7199	-1.7568	-7.4766	-9.4105	-238.39
452	Apparel & Accessory Store	-4.5676	-4.7617	-1.7209	-.5804	-2.3013	-3.0042	-154.47
453	Furniture & Home Furnishi	-3.5816	-3.7563	-1.8207	-.6233	-2.4440	-3.1120	-91.35
454	Eating & Drinking	-22.1036	-22.6102	-8.8999	-2.3020	-11.2019	-13.1857	-808.72
455	Miscellaneous Retail	-13.8658	-14.4114	-4.8836		-1.9873		-6.8709
456	Banking	-10.8232	-12.7685	-3.4073	-1.7389	-5.1462	-5.6565	-131.51
457	Credit Agencies	-.9313	-1.7756	-.7279	.6562	-.0717	-.1278	-41.43
458	Security And Commodity Br	-.4896	-.8000	-.4432	-.0880	-.5312	-.5344	-9.91
459	Insurance Carriers	-9.4368	-12.3847	-3.3528	.3292	-3.0235	-4.3178	-84.67
460	Insurance Agents And Brok	.0000	-2.0204	-.7407	-.8356	-1.5763	-1.5965	-36.16
461	Owner-occupied Dwellings	-37.0179	-37.0179	.0000	-20.7544	-20.7544	-27.9801	.00
462	Real Estate	-12.8615	-29.6305	-2.2788	-13.6392	-15.9180	-21.4848	-281.19
463	Hotels And Lodging Places	-2.4170	-3.8891	-1.8033	-.8793	-2.6826	-3.1683	-116.83
464	Laundry, Cleaning And Sho	-1.1427	-1.6608	-.5986	-.6050	-1.2036	-1.2839	-94.58
465	Portrait And Photographic	-.4702	-.5254	-.1145	-.1275	-.2420	-.2694	-16.42

466	Beauty And Barber Shops	-1.4424	-1.4424	-.5321	-.6005	-1.1327	-1.1638	-70.73
467	Funeral Service And Crema	-.4903	-.4903	-.1393	-.1862	-.3255	-.3359	-12.48
468	Miscellaneous Personal Se	-1.3155	-1.4307	-.1960	-.2459	-.4420	-.4875	-35.83
469	dvertising	-.0119	-.8395	-.3645	-.3014	-.6659	-.6739	-14.79
470	Other Business Services	-.1607	-3.5376	-1.1118	-1.4125	-2.5243	-2.6201	-74.49
471	Photofinishing, Commercia	-.3570	-.7783	-.1965	-.2406	-.4371	-.4580	-14.92
472	Services To Buildings	-.2353	-.9028	-.4153	-.2805	-.6957	-.7185	-52.78
473	Equipment Rental And Lea	-.1796	-2.3737	-.6049	-.8329	-1.4378	-1.7076	-29.22
474	Personnel Supply Services	-.1805	-1.8535	-1.0982	-.6393	-1.7375	-1.7488	-103.56
475	Computer And Data Process	-.0473	-1.6113	-.6268	-.4901	-1.1169	-1.1381	-25.57
476	Detective And Protective	-.0064	-.5439	-.3098	-.1876	-.4974	-.5071	-35.82
477	Automobile Rental And Lea	-.8111	-2.3372	-.4361	-.3733	-.8094	-1.0679	-28.74
478	Automobile Parking And Ca	-.4350	-.4484	-.1787	-.0981	-.2769	-.3007	-21.69
479	Automobile Repair And Ser	-8.6188	-10.3695	-1.4250	-1.6289	-3.0539	-3.3227	-96.14
480	Electrical Repair Service	-.5560	-.9957	-.3052	-.4034	-.7086	-.7160	-16.72
481	Watch, Clock, Jewelry And	-.1334	-.1334	-.0429	-.0183	-.0612	-.0646	-4.27
482	Miscellaneous Repair Shop	-.2465	-1.3327	-.4009	-.4649	-.8657	-.8803	-24.63
483	Motion Pictures	-1.0597	-2.5548	-.4209	-.2902	-.7111	-.7241	-39.27
484	Theatrical Producers, Ban	-.0574	-.1281	-.0373	-.0408	-.0781	-.0807	-5.04
485	Bowling Alleys And Pool H	-.3152	-.3152	-.1126	-.0775	-.1901	-.2050	-13.56
486	Commercial Sports Except	-.2299	-.4551	-.2296	-.1079	-.3375	-.3697	-4.22
487	Racing And Track Operatio	-.4731	-.4882	-.0398	-.0350	-.0748	-.3627	-16.53
488	Amusement And Recreation	-2.7251	-2.7253	-.6939	-.7804	-1.4743	-1.5772	-72.74
489	Membership Sports And Rec	-1.0370	-1.1779	-.4599	-.4693	-.9292	-.9778	-48.04
490	Doctors And Dentists	-24.7601	-24.7601	-13.9910	-6.7391	-20.7301	-20.9725	-289.50
491	Nursing And Protective Ca	-3.0431	-3.0431	-1.9451	-.4804	-2.4255	-2.4539	-168.18
492	Hospitals	-21.3078	-21.3124	-11.4765	-3.9543	-15.4308	-15.4718	-426.95
493	Other Medical And Health	-6.4582	-7.3670	-2.2748	-1.4177	-3.6925	-3.7120	-116.71
494	Legal Services	-6.0075	-12.6544	-4.3077	-4.9473	-9.2550	-9.3484	-116.94
495	Elementary And Secondary	-1.7501	-1.7501	-.8122	-.0288	-.8411	-.8411	-62.11
496	Colleges, Universities, S	-.2815	-.3025	-.1325	-.0096	-.1421	-.1421	-10.86
497	Other Educational Service	-1.6522	-1.6879	-.3838	-.0106	-.3944	-.3944	-31.57
498	Job Trainings & Related S	-.4418	-.4657	-.2627	.0000	-.2627	-.2627	-12.26
499	Child Day Care Services	-1.9357	-1.9357	-.4593	-.1836	-.6429	-.6429	-50.35
500	Social Services, N.E.C.	-1.5481	-1.5481	-.7088	.0000	-.7088	-.7088	-51.63
501	Residential Care	-.7436	-.7436	-.4708	.0000	-.4708	-.4708	-34.35
502	Other Nonprofit Organizat	-.7552	-.7811	-.2537	.0046	-.2491	-.2496	-14.57
503	Business Associations	-.2751	-.6020	-.5802	.0000	-.5802	-.5806	-16.97

504	Labor And Civic Organizat	-1.8239	-1.8239	-1.1576	.0000	-1.1576	-1.1708	-116.84
505	Religious Organizations	-1.1283	-1.1283	-.1168	.0000	-.1168	-.1168	-10.61
506	Engineering, Architectura	.0000	-1.1164	-.5267	-.1818	-.7085	-.7129	-19.02
507	Accounting, Auditing And	-.0702	-2.1463	-.9743	-.3809	-1.3552	-1.3587	-50.41
508	Management And Consulting	.0000	-1.1134	-.4290	-.1075	-.5365	-.5508	-22.48
509	Research, Development & T	.0000	-.7233	-.4333	-.1226	-.5560	-.5721	-28.28
510	Local Government Passenge	-.0295	-.0367	-.0058	.0045	-.0014	-.0014	-.87
511	State And Local Electric	-.1013	-.2359	-.0403	-.1004	-.1407	-.1407	-1.77
512	Other State And Local Gov	-5.8664	-7.5648	-1.7795	-2.4736	-4.2531	-4.2573	-82.95
513	U.S. Postal Service	-.5630	-1.8565	-1.5138	.1057	-1.4081	-1.4081	-32.22
519	Federal Government - Mili	.0000	.0000	.0000	.0000	.0000	.0000	.00
520	Federal Government - Non-	.0000	.0000	.0000	.0000	.0000	.0000	.00
522	State & Local Government	.0000	.0000	.0000	.0000	.0000	.0000	.00
523	State & Local Government	.0000	.0000	.0000	.0000	.0000	.0000	.00
525	Household Industry-low In	-1.2799	-1.2799	-1.2799	.0000	-1.2799	-1.2799	-187.19
528	Inventory Valuation Adjus	.0000	.0000	.0000	.0000	.0000	.0000	.00
TOTAL		-980.0013	-1174.0430	-410.6570	-160.7357	-571.3926	-614.5720	-17036.36
Change in Population =		-35744.						

AGRICULTURE \$MM 1992
Scenario AGJEF: Total Effects

Impact Report #906
2/ 8/95

		Base Year Final Demand	Base Year (TIO) (MM\$)	Employee Comp Income (MM\$)	Property Income (MM\$)	Total POW Income (MM\$)	Total Value Added (MM\$)	Employment (Number of Jobs)
Industry								
1	Dairy Farm Products	-.0001	-.0003	.0000	-.0001	-.0001	-.0001	-.00
2	Poultry And Eggs	-.0008	-.0270	-.0021	-.0159	-.0180	-.0181	-.48
3	AGRICULTURE	-78.9198	-82.1583	-3.9346	-34.4670	-38.4016	-39.5891	-1032.70
5	Cattle Feedlots	.0000	-.0014	-.0001	-.0003	-.0004	-.0005	-.05
7	Hogs, Pigs And Swine	.0000	-.0001	.0000	-.0000	-.0000	-.0000	-.00
23	Greenhouse And Nursery Pr	-.0483	-.1230	-.0193	-.0925	-.1118	-.1122	-6.68
24	Forestry Products	-.0001	-.0001	.0000	-.0000	-.0000	-.0000	.00
25	Commercial Fishing	-.0150	-.0189	-.0020	-.0147	-.0166	-.0172	-.65
26	Agricultural, Forestry, F	-.0032	-1.7895	-.6556	-.2352	-.8908	-.8908	-49.24
27	Landscape And Horticultr	.0000	-.0821	-.0347	-.0161	-.0508	-.0508	-3.15
29	Copper Ores	.0000	-.0001	-.0000	-.0000	-.0000	-.0000	.00
37	Coal Mining	-.0000	-.0013	-.0004	-.0004	-.0008	-.0008	-.00
38	Natural Gas & Crude Petro	-.2540	-.5573	-.0859	-.2355	-.3213	-.3677	-2.06
41	Sand And Gravel	.0000	-.0001	-.0000	-.0000	-.0001	-.0001	.00
44	Phosphate Rock	.0000	-.0004	-.0001	-.0001	-.0001	-.0001	-.00
45	Chemical, Fertilizer Mine	-.0001	-.0064	-.0016	-.0016	-.0032	-.0035	-.02
47	Misc. Nonmetallic Mineral	.0000	-.0000	.0000	.0000	.0000	.0000	.00
48	New Residential Structure	.0000	.0000	.0000	.0000	.0000	.0000	.00
49	New Industrial And Commer	.0000	.0000	.0000	.0000	.0000	.0000	.00
50	New Utility Structures	.0000	.0000	.0000	.0000	.0000	.0000	.00
51	New Highways And Streets	.0000	.0000	.0000	.0000	.0000	.0000	.00
53	New Mineral Extraction Fa	.0000	.0000	.0000	.0000	.0000	.0000	.00
54	New Government Facilities	.0000	.0000	.0000	.0000	.0000	.0000	.00
55	Maintenance And Repair, R	.0000	-.3362	-.1015	-.0600	-.1615	-.1664	-4.88
56	Maintenance And Repair Ot	.0000	-2.9965	-.9538	-.5489	-1.5027	-1.5479	-40.20
57	Maintenance And Repair Oi	.0000	-.0538	-.0373	-.0066	-.0439	-.0439	-1.40
58	Meat Packing Plants	-.0136	-.0161	-.0011	.0006	-.0005	-.0005	-.04
59	Sausages And Other Prepar	-.0222	-.0253	-.0018	-.0014	-.0032	-.0033	-.13
65	Fluid Milk	-.1794	-.2091	-.0219	-.0140	-.0359	-.0366	-.70
66	Canned Specialties	-.0007	-.0008	-.0001	-.0002	-.0003	-.0003	-.00
68	Dehydrated Food Products	-.0002	-.0002	-.0000	-.0000	-.0001	-.0001	-.00
69	Pickles, Sauces, And Sala	-.0075	-.0109	-.0015	-.0026	-.0042	-.0042	-.04

70	Frozen Fruits, Juices And	-.0002	-.0002	-.0000	-.0000	-.0001	-.0001	-.00
71	Frozen Specialties	-.0020	-.0023	-.0002	-.0002	-.0004	-.0005	-.02
78	Prepared Feeds, N.E.C	-.0008	-.0108	-.0011	.0001	-.0010	-.0010	-.03
79	Bread, Cake, And Related	-.0800	-.0971	-.0260	-.0281	-.0541	-.0551	-.84
80	Cookies And Crackers	-.1602	-.1858	-.0380	-.0483	-.0862	-.0875	-1.16
81	Sugar	-.0020	-.0033	-.0005	-.0003	-.0007	-.0008	-.01
82	Confectionery Products	-.0020	-.0024	-.0003	-.0003	-.0007	-.0007	-.02
89	Animal And Marine Fats An	-.0079	-.0494	-.0054	-.0094	-.0148	-.0154	-.17
95	Bottled And Canned Soft D	-.0106	-.0118	-.0016	-.0015	-.0031	-.0033	-.05
96	Flavoring Extracts And Sy	-.0003	-.0004	-.0001	-.0001	-.0002	-.0002	-.00
97	Canned And Cured Sea Food	-.0001	-.0002	-.0000	-.0000	-.0000	-.0000	-.00
98	Prepared Fresh Or Frozen	-.0018	-.0051	-.0004	-.0002	-.0006	-.0006	-.04
99	Roasted Coffee	-.0422	-.0738	-.0062	-.0120	-.0181	-.0183	-.18
101	Manufactured Ice	-.0029	-.0036	-.0013	-.0006	-.0020	-.0021	-.10
102	Macaroni And Spaghetti	-.0206	-.0242	-.0036	-.0043	-.0079	-.0081	-.19
103	Food Preparations, N.E.C	-.1543	-.1809	-.0283	-.0320	-.0603	-.0611	-1.03
108	Broadwoven Fabric Mills A	-.0007	-.0016	-.0004	-.0001	-.0006	-.0006	-.02
117	Carpets And Rugs	-.0004	-.0004	-.0001	-.0000	-.0001	-.0001	-.00
122	Cordage And Twine	-.0001	-.0004	-.0001	-.0001	-.0002	-.0002	-.00
123	Textile Goods, N.E.C	-.0001	-.0002	-.0001	-.0000	-.0001	-.0001	-.00
124	Apparel Made From Purchas	-.3106	-.3227	-.0961	-.0383	-.1344	-.1352	-5.31
125	Curtains And Draperies	-.0019	-.0019	-.0006	-.0002	-.0008	-.0008	-.04
126	Housefurnishings, N.E.C	-.0152	-.0168	-.0039	-.0044	-.0083	-.0083	-.12
127	Textile Bags	-.0030	-.0200	-.0076	-.0025	-.0100	-.0101	-.19
128	Canvas Products	-.0012	-.0033	-.0013	-.0003	-.0016	-.0016	-.05
129	Pleating And Stitching	-.0030	-.0044	-.0019	-.0012	-.0031	-.0031	-.08
132	Fabricated Textile Produc	-.0053	-.0068	-.0015	-.0005	-.0020	-.0020	-.06
133	Logging Camps And Logging	.0000	-.0014	-.0002	-.0002	-.0004	-.0004	-.01
134	Sawmills And Planing Mill	.0000	-.0021	-.0004	-.0002	-.0006	-.0006	-.02
135	Hardwood Dimension And Fl	-.0000	-.0013	-.0005	-.0001	-.0007	-.0007	-.03
137	Millwork	-.0001	-.0054	-.0016	-.0006	-.0023	-.0023	-.07
138	Wood Kitchen Cabinets	.0000	-.0003	-.0001	-.0000	-.0001	-.0001	-.01
142	Wood Pallets And Skids	.0000	-.0016	-.0003	-.0001	-.0004	-.0004	-.03
144	Prefabricated Wood Buildi	-.0000	-.0000	.0000	.0000	-.0000	-.0000	.00
145	Wood Preserving	-.0002	-.0104	-.0016	-.0009	-.0025	-.0026	-.05
146	Reconstituted Wood Produc	-.0001	-.0032	-.0006	-.0004	-.0011	-.0011	-.02
147	Wood Products, N.E.C	-.0017	-.0026	-.0009	-.0003	-.0012	-.0013	-.05
148	Wood Household Furniture	-.0131	-.0132	-.0035	-.0017	-.0052	-.0053	-.20

150	Metal Household Furniture	-.0016	-.0017	-.0003	-.0002	-.0005	-.0005	-.02
151	Mattresses And Bedsprings	-.0042	-.0042	-.0009	-.0005	-.0014	-.0014	-.05
157	Wood Partitions And Fixtu	.0000	-.0003	-.0001	-.0000	-.0001	-.0001	-.00
158	Metal Partitions And Fixt	.0000	-.0003	-.0001	-.0000	-.0001	-.0001	-.00
159	Blinds, Shades, And Drape	-.0056	-.0056	-.0011	-.0008	-.0019	-.0019	-.07
162	Paper Mills, Except Build	-.0001	-.0003	-.0001	-.0000	-.0001	-.0001	-.00
164	Paperboard Containers And	-.0009	-.0630	-.0164	-.0053	-.0218	-.0221	-.38
165	Paper Coated & Laminated	-.0003	-.0009	-.0002	-.0001	-.0003	-.0003	-.01
166	Paper Coated & Laminated	-.0026	-.0066	-.0019	-.0010	-.0028	-.0029	-.04
169	Die-cut Paper And Board	-.0001	-.0005	-.0001	-.0000	-.0001	-.0001	-.01
173	Converted Paper Products,	-.0003	-.0004	-.0001	-.0001	-.0002	-.0002	-.00
174	Newspapers	-.0114	-.0611	-.0224	-.0187	-.0412	-.0424	-1.02
175	Periodicals	-.0119	-.0502	-.0109	-.0112	-.0221	-.0226	-.35
176	Book Publishing	-.0222	-.0244	-.0043	-.0075	-.0118	-.0121	-.12
178	Miscellaneous Publishing	-.0005	-.0030	-.0007	-.0010	-.0017	-.0018	-.03
179	Commercial Printing	-.0059	-.2574	-.0661	-.0341	-.1003	-.1066	-2.82
182	Blankbooks And Looseleaf	-.0005	-.0037	-.0011	-.0009	-.0020	-.0020	-.04
183	Bookbinding & Related	.0000	-.0001	-.0001	-.0000	-.0001	-.0001	-.00
184	Typesetting	.0000	-.0001	-.0000	-.0000	-.0001	-.0001	-.00
185	Plate Making	.0000	-.0004	-.0002	-.0001	-.0002	-.0002	-.00
187	Industrial Gases	-.0001	-.0015	-.0007	-.0004	-.0011	-.0011	-.02
189	Inorganic Chemicals Nec.	-.0053	-.0605	-.0159	-.0135	-.0295	-.0312	-.31
190	Cyclic Crudes, Interm. &	-.0286	-.3185	-.0443	-.0652	-.1094	-.1142	-.78
191	Plastics Materials And Re	-.0043	-.0419	-.0058	-.0060	-.0117	-.0123	-.12
196	Soap And Other Detergents	-.0304	-.0341	-.0043	-.0067	-.0110	-.0112	-.14
197	Polishes And Sanitation G	-.0076	-.0116	-.0025	-.0035	-.0060	-.0060	-.09
199	Toilet Preparations	-.0038	-.0039	-.0006	-.0014	-.0020	-.0020	-.02
200	Paints And Allied Product	-.0002	-.0007	-.0001	-.0001	-.0002	-.0002	-.00
204	Agricultural Chemicals, N	-.0007	-.0495	-.0077	-.0122	-.0199	-.0205	-.14
209	Chemical Preparations, N.	-.0065	-.0574	-.0127	-.0114	-.0241	-.0244	-.20
210	Petroleum Refining	-1.2815	-2.4583	-.1455	-.0897	-.2351	-.5228	-2.01
213	Lubricating Oils And Gre	-.0268	-.2064	-.0131	-.0156	-.0287	-.0296	-.42
218	Gaskets, Packing And Seal	-.0001	-.0003	-.0001	-.0000	-.0001	-.0001	-.00
219	Fabricated Rubber Product	-.0005	-.0014	-.0004	-.0001	-.0005	-.0005	-.01
220	Miscellaneous Plastics Pr	-.0006	-.0034	-.0007	-.0004	-.0011	-.0011	-.03
229	Leather Goods, N.E.C	-.0014	-.0037	-.0013	-.0005	-.0018	-.0018	-.09
230	Glass And Glass Products,	-.0032	-.0080	-.0018	-.0009	-.0027	-.0028	-.12
241	Pottery Products, N.E.C	-.0000	-.0000	.0000	.0000	.0000	.0000	.00

242	Concrete Block And Brick	.0000	-.0000	.0000	.0000	.0000	.0000	.00
243	Concrete Products, N.E.C	-.0000	-.0001	-.0000	.0000	-.0000	-.0000	.00
244	Ready-mixed Concrete	-.0000	-.0002	-.0000	-.0000	-.0001	-.0001	-.00
246	Gypsum Products	.0000	-.0002	-.0001	-.0000	-.0001	-.0001	-.00
247	Cut Stone And Stone Produ	.0000	-.0000	.0000	.0000	.0000	.0000	.00
249	Asbestos Products	-.0001	-.0006	-.0003	-.0000	-.0003	-.0003	-.01
250	Minerals, Ground Or Treat	.0000	-.0001	-.0000	-.0000	-.0000	-.0000	-.00
254	Blast Furnaces And Steel	-.0000	-.0047	-.0008	-.0003	-.0011	-.0012	-.02
259	Iron And Steel Foundries	.0000	-.0004	-.0001	-.0000	-.0001	-.0001	-.01
265	Aluminum Rolling And Draw	-.0001	-.0006	-.0001	-.0000	-.0001	-.0001	-.00
271	Metal Heat Treating	-.0000	-.0008	-.0002	-.0002	-.0004	-.0004	-.01
274	Metal Barrels, Drums And	-.0002	-.0102	-.0025	-.0004	-.0029	-.0030	-.09
278	Hardware, N.E.C.	-.0000	-.0001	-.0000	.0000	-.0000	-.0000	.00
282	Fabricated Structural Met	-.0003	-.0019	-.0006	-.0002	-.0007	-.0008	-.01
283	Metal Doors, Sash, And Tr	-.0001	-.0003	-.0001	-.0000	-.0001	-.0001	-.00
284	Fabricated Plate Work	-.0000	-.0002	-.0001	-.0000	-.0001	-.0001	-.00
285	Sheet Metal Work	-.0001	-.0005	-.0001	-.0001	-.0002	-.0002	-.00
286	Architectural Metal Work	-.0000	-.0002	-.0001	-.0000	-.0001	-.0001	-.00
287	Prefabricated Metal Build	-.0000	-.0003	-.0001	-.0000	-.0001	-.0001	-.00
290	Iron And Steel Forgings	-.0001	-.0012	-.0005	-.0001	-.0006	-.0006	-.01
294	Metal Stampings, N.E.C.	-.0046	-.0066	-.0014	-.0005	-.0019	-.0019	-.06
295	Plating And Polishing	.0000	-.0001	-.0000	.0000	-.0000	-.0000	-.00
296	Metal Coating And Allied	-.0000	-.0006	-.0001	-.0001	-.0002	-.0002	-.01
301	Industrial And Fluid Valv	-.0003	-.0138	-.0023	-.0014	-.0037	-.0038	-.08
303	Pipe, Valves, And Pipe Fi	-.0001	-.0055	-.0020	-.0007	-.0028	-.0028	-.06
304	Miscellaneous Fabricated	-.0011	-.0095	-.0037	-.0015	-.0052	-.0052	-.12
306	Fabricated Metal Products	-.0002	-.0011	-.0002	-.0001	-.0003	-.0003	-.01
307	Steam Engines And Turbine	.0000	-.0010	-.0003	-.0001	-.0004	-.0004	-.01
308	Internal Combustion Engin	-.0016	-.0105	-.0020	-.0010	-.0030	-.0032	-.06
309	Farm Machinery And Equipm	-.0031	-.9797	-.2407	-.1254	-.3660	-.3838	-7.84
311	Construction Machinery An	-.0001	-.0039	-.0006	-.0003	-.0009	-.0011	-.03
313	Oil Field Machinery	-.0014	-.0206	-.0078	-.0007	-.0085		-.0089
314	Elevators And Moving Stai	-.0000	-.0015	-.0006	-.0001	-.0006	-.0007	-.02
315	Conveyors And Conveying E	-.0001	-.0040	-.0011	-.0003	-.0014	-.0015	-.04
316	Hoists, Cranes, And Monor	-.0000	-.0005	-.0001	-.0000	-.0002	-.0002	-.01
317	Industrial Trucks And Tra	-.0000	-.0035	-.0011	-.0004	-.0015	-.0016	-.03
321	Special Dies And Tools An	-.0000	-.0018	-.0011	-.0002	-.0013	-.0013	-.02
330	Food Products Machinery	-.0001	-.0038	-.0014	-.0005	-.0019	-.0020	-.04

332	Pumps And Compressors	-.0000	-.0005	-.0001	-.0000	-.0001	-.0001	-.00
334	Blowers And Fans	.0000	-.0000	.0000	.0000	.0000	.0000	.00
337	Industrial Furnaces And O	.0000	-.0000	.0000	.0000	.0000	.0000	.00
338	General Industrial Machin	-.0000	-.0001	-.0000	-.0000	-.0000	-.0000	-.00
346	Commercial Laundry Equipm	-.0001	-.0033	-.0010	-.0005	-.0016	-.0016	-.03
347	Refrigeration And Heating	-.0150	-.0605	-.0128	-.0071	-.0199	-.0208	-.37
349	Service Industry Machines	-.0018	-.0131	-.0029	-.0022	-.0052	-.0053	-.10
351	Fluid Power Cylinders & A	.0000	.0000	.0000	.0000	.0000	.0000	.00
352	Fluid Power Pumps & Motor	-.0000	-.0004	-.0003	-.0000	-.0003	-.0004	-.01
354	Industrial Machines Nec.	-.0002	-.0011	-.0004	-.0001	-.0005	-.0005	-.01
356	Switchgear And Switchboar	-.0004	-.0039	-.0010	-.0006	-.0017	-.0017	-.03
357	Motors And Generators	-.0002	-.0027	-.0009	-.0003	-.0012	-.0012	-.03
359	Relays & Industrial Contr	-.0009	-.0081	-.0028	-.0012	-.0040	-.0041	-.06
361	Household Cooking Equipme	-.0002	-.0002	-.0000	-.0000	-.0001	-.0001	-.00
373	Radio And Tv Communicatio	-.0028	-.0124	-.0028	-.0019	-.0047	-.0048	-.08
374	Communications Equipment	.0000	-.0000	.0000	.0000	-.0000	-.0000	.00
376	Printed Circuit Boards	-.0014	-.0046	-.0018	-.0007	-.0025	-.0025	-.06
378	Electronic Components, N.	-.0015	-.0058	-.0011	-.0008	-.0019	-.0019	-.04
381	Engine Electrical Equipme	-.0002	-.0029	-.0008	-.0002	-.0010	-.0010	-.03
386	Motor Vehicle Parts And A	-.0002	-.0019	-.0002	-.0001	-.0003	-.0003	-.01
392	Ship Building And Repairi	-.0004	-.0029	-.0011	-.0002	-.0013	-.0013	-.04
393	Boat Building And Repairi	-.0007	-.0011	-.0004	-.0002	-.0006	-.0006	-.01
396	Complete Guided Missiles	-.0006	-.0021	-.0008	-.0004	-.0011	-.0011	-.01
399	Transportation Equipment,	-.0001	-.0009	-.0001	-.0001	-.0002	-.0002	-.00
400	Search & Navigation Equip	-.0009	-.0014	-.0004	-.0002	-.0006	-.0006	-.01
403	Mechanical Measuring Devi	-.0008	-.0111	-.0040	-.0021	-.0061	-.0061	-.08
407	Surgical And Medical Inst	-.0002	-.0042	-.0014	-.0010	-.0024	-.0025	-.02
408	Surgical Appliances And S	-.0197	-.0412	-.0098	-.0081	-.0179	-.0181	-.32
409	Dental Equipment And Supp	-.0015	-.0211	-.0057	-.0054	-.0112	-.0112	-.11
412	Ophthalmic Goods	-.0041	-.0045	-.0019	-.0009	-.0028	-.0028	-.07
413	Photographic Equipment An	-.0004	-.0012	-.0002	-.0003	-.0005	-.0005	-.01
415	Jewelry, Precious Metal	-.0015	-.0015	-.0003	-.0002	-.0005	-.0005	-.02
417	Jewelers Materials And La	-.0016	-.0017	-.0002	-.0003	-.0005	-.0005	-.02
419	Dolls	-.0080	-.0080	-.0035	-.0011	-.0046	-.0047	-.17
424	Marking Devices	-.0000	-.0004	-.0002	-.0001	-.0004	-.0004	-.01
425	Carbon Paper And Inked Ri	-.0000	-.0003	-.0001	-.0000	-.0001	-.0001	-.00
429	Signs And Advertising Dis	-.0001	-.0039	-.0011	-.0004	-.0015	-.0015	-.05

430	Burial Caskets And Vaults	.0000	-.0001	-.0000	-.0000	-.0000	-.0000	-.00
432	Manufacturing Industries,	-.0000	-.0001	.0000	.0000	-.0000	-.0000	.00
433	Railroads And Related Ser	-.3032	-.4641	-.2365	-.0571	-.2936	-.3122	-3.56
434	Local, Interurban Passeng	-.1155	-.1470	-.0792	-.0363	-.1156	-.1171	-3.89
435	Motor Freight Transport A -1.6787	-4.3988	-1.3856	-.8304	-2.2160	-2.2927	-56.82	
436	Water Transportation - .8085	-1.0056	-.1811	-.0423	-.2234	-.2394	-5.50	
437	Air Transportation	-.3349	-.5143	-.1479	-.0360	-.1839	-.2232	-3.68
438	Pipe Lines, Except Natura	-.0068	-.0563	-.0075	-.0370	-.0444	-.0473	-.14
439	Arrangement Of Passenger	-.0067	-.0173	-.0079	-.0032	-.0112	-.0113	-.50
440	Transportation Services	-.0301	-.1462	-.0562	-.0305	-.0867	-.0870	-1.84
441	Communications, Except Ra	-.8484	-1.2347	-.3830	-.4037	-.7867	-.9406	-8.55
442	Radio And Tv Broadcasting	-.0094	-.0767	-.0217	-.0060	-.0278	-.0304	-.77
443	Electric Services	-1.2926	-2.6245	-.4417	-1.0762	-1.5178	-1.6550	-7.59
444	Gas Production And Distri	-.3915	-.9257	-.1113	-.1575	-.2689	-.3104	-2.21
445	Water Supply And Sewerage	-.0119	-.0143	-.0019	.0006	-.0013	-.0020	-.06
446	Sanitary Services And Ste	-.0432	-.4473	-.1481	-.0025	-.1507	-.1641	-4.52
447	Wholesale Trade	-4.9359	-7.3854	-3.3866	-.5155	-3.9020	-5.0284	-102.40
448	Building Materials & Gard	-.7540	-.7840	-.3739	-.1319	-.5059	-.6539	-18.35
449	General Merchandise Store	-1.9410	-2.0058	-1.0349	-.1837	-1.2186	-1.5606	-70.40
450	Food Stores	-4.9104	-5.0113	-2.3155	-1.0579	-3.3734	-4.3831	-188.13
451	Automotive Dealers & Serv	-2.0101	-2.0664	-1.0477	-.3218	-1.3695	-1.7237	-43.67
452	Apparel & Accessory Store	-.6892	-.7272	-.2628	-.0886	-.3515	-.4588	-23.59
453	Furniture & Home Furnishi	-.6646	-.6993	-.3390	-.1160	-.4550	-.5793	-17.01
454	Eating & Drinking	-3.3351	-3.4123	-1.3432	-.3474	-1.6906	-1.9900	-122.05
455	Miscellaneous Retail	-3.6663	-3.7766	-1.2798	-.5208	-1.8005	-2.3477	-118.72
456	Banking	-1.6330	-2.1520	-.5743	-.2931	-.8673	-.9533	-22.16
457	Credit Agencies	-.1405	-.3064	-.1256	.1132	-.0124	-.0221	-7.15
458	Security And Commodity Br	-.0739	-.1274	-.0706	-.0140	-.0846	-.0851	-1.58
459	Insurance Carriers	-1.4239	-2.6800	-.7255	.0712	-.6543	-.9344	-18.32
460	Insurance Agents And Brok	.0000	-.4372	-.1603	-.1808	-.3411	-.3455	-7.82
461	Owner-occupied Dwellings	-5.5854	-5.5854	.0000	-3.1315	-3.1315	-4.2217	.00
462	Real Estate	-1.9406	-7.0232	-.5401	-3.2328	-3.7730	-5.0924	-66.65
463	Hotels And Lodging Places	-.3647	-.6461	-.2996	-.1461	-.4457	-.5263	-19.41
464	Laundry, Cleaning And Sho	-.1724	-.2444	-.0881	-.0890	-.1771	-.1889	-13.92
465	Portrait And Photographic	-.0709	-.0837	-.0182	-.0203	-.0385	-.0429	-2.61
466	Beauty And Barber Shops	-.2176	-.2176	-.0803	-.0906	-.1709	-.1756	-10.67

467	Funeral Service And Crema	-.0740	-.0740	-.0210	-.0281	-.0491	-.0507	-1.88
468	Miscellaneous Personal Se	-.1985	-.2249	-.0308	-.0387	-.0695	-.0767	-5.63
469	Advertising	-.0018	-.1129	-.0490	-.0405	-.0895	-.0906	-1.99
470	Other Business Services	-.0242	-.5481	-.1722	-.2188	-.3911	-.4059	-11.54
471	Photofinishing, Commercia	-.0539	-.1200	-.0303	-.0371	-.0674	-.0706	-2.30
472	Services To Buildings	-.0355	-.1593	-.0733	-.0495	-.1227	-.1268	-9.31
473	Equipment Rental And Lea	-.0271	-.1606	-.0409	-.0563	-.0973	-.1155	-1.98
474	Personnel Supply Services	-.0272	-.2753	-.1631	-.0950	-.2581	-.2598	-15.38
475	Computer And Data Process	-.0071	-.2304	-.0896	-.0701	-.1597	-.1628	-3.66
476	Detective And Protective	-.0010	-.0681	-.0388	-.0235	-.0622	-.0635	-4.48
477	Automobile Rental And Lea	-.1224	-.3018	-.0563	-.0482	-.1045	-.1379	-3.71
478	Automobile Parking And Ca	-3.29	-.0656	-.0680	-.0271	-.0149	-.0420	-.0456
479	Automobile Repair And Ser	-14.56	-1.3004	-1.5706	-.2158	-.2467	-.4626	-.5033
480	Electrical Repair Service	-.0839	-.1812	-.0556	-.0734	-.1290	-.1303	-3.04
481	Watch, Clock, Jewelry And	-.0201	-.0201	-.0065	-.0028	-.0092	-.0098	-.64
482	Miscellaneous Repair Shop	-.0372	-.6133	-.1845	-.2139	-.3984	-.4051	-11.34
483	Motion Pictures	-.1599	-.3882	-.0640	-.0441	-.1080	-.1100	-5.97
484	Theatrical Producers, Ban	-.0087	-.0167	-.0049	-.0053	-.0102	-.0105	-.66
485	Bowling Alleys And Pool H	-.0476	-.0476	-.0170	-.0117	-.0287	-.0309	-2.05
486	Commercial Sports Except	-.73	-.0347	-.0783	-.0395	-.0186	-.0581	-.0636
487	Racing And Track Operatio	-2.70	-.0714	-.0798	-.0065	-.0057	-.0122	-.0593
488	Amusement And Recreation	-10.98	-.4112	-.4112	-.1047	-.1177	-.2224	-.2380
489	Membership Sports And Rec	-.1565	-.1815	-.0709	-.0723	-.1432	-.1507	-7.40
490	Doctors And Dentists	-3.7359	-3.7359	-2.1110	-1.0168	-3.1278	-3.1644	-43.68
491	Nursing And Protective Ca	-.4592	-.4592	-.2935	-.0725	-.3660	-.3703	-25.38
492	Other Medical And Health	-.9744	-1.1988	-.3702	-.2307	-.6009	-.6040	-18.99
494	Legal Services	-.9064	-1.9495	-.6636	-.7622	-1.4258	-1.4402	
495	Elementary And Secondary	-.2641	-.2641	-.1226	-.0044	-.1269	-.1269	-9.37
496	Colleges, Universities, S	-.0425	-.0464	-.0203	-.0015	-.0218	-.0218	-1.66
497	Other Educational Service	-.2493	-.2551	-.0580	-.0016	-.0596	-.0596	-4.77
498	Job Trainings & Related S	-.0667	-.0710	-.0401	.0000	-.0401	-.0401	-1.87
499	Child Day Care Services	-.2921	-.2921	-.0693	-.0277	-.0970	-.0970	-7.60
500	Social Services, N.E.C.	-.2336	-.2336	-.1070	.0000	-.1070	-.1070	-7.79
501	Residential Care	-.1122	-.1122	-.0710	.0000	-.0710	-.0710	-5.18
502	Other Nonprofit Organizat	-.1140	-.1181	-.0383	.0007	-.0377	-.0377	-2.20
503	Business Associations	-.0415	-.0950	-.0916	.0000	-.0916	-.0917	-2.68
504	Labor And Civic Organizat	-.2752	-.2752	-.1747	.0000	-.1747		-1.767
505	Religious Organizations	-.1702	-.1702	-.0176	.0000	-.0176	-.0176	-1.60

506	Engineering, Architectura	.0000	-.0431	-.0203	-.0070	-.0273	-.0275	-.73
507	Accounting, Auditing And	-.0106	-.4062	-.1844	-.0721	-.2565	-.2572	-9.54
508	Management And Consulting	.0000	-.1683	-.0649	-.0162	-.0811	-.0833	-3.40
509	Research, Development & T	.0000	-.1094	-.0655	-.0185	-.0841	-.0865	-4.28
510	Local Government Passenge	-.0045	-.0056	-.0009	.0007	-.0002	-.0002	-.13
511	State And Local Electric	-.0153	-.0310	-.0053	-.0132	-.0185	-.0185	-.23
512	Other State And Local Gov	-.9012	-1.3094	-.3080	-.4282	-.7362	-.7369	-14.36
513	U.S. Postal Service	-.0850	-.2709	-.2209	.0154	-.2055	-.2055	-4.70
519	Federal Government - Non-	.0000	.0000	.0000	.0000	.0000	.0000	.00
522	State & Local Government	.0000	.0000	.0000	.0000	.0000	.0000	.00
523	State & Local Government	.0000	.0000	.0000	.0000	.0000	.0000	.00
525	Household Industry-low In	-.1931	-.1931	-.1931	.0000	-.1931	-.1931	-28.24
528	Inventory Valuation Adjus	.0000	.0000	.0000	.0000	.0000	.0000	.00
TOTAL		-137.6014	-172.9565	-32.6903	-54.1839	-86.8742	-96.2442	-2570.74
Change in Population =		-5394.						

COMMERCIAL FISHING \$MM 1992

Impact Report #906

Scenario POUNDSFS: Total Effects

12/ 8/95

		Base Year Final Demand	Base Year (TIO) (MM\$)	Employee Comp Income (MM\$)	Property Income (MM\$)	Total POW Income (MM\$)	Total Value Added (MM\$)	Employment (Number of Jobs)
Industry								
1	Dairy Farm Products	-.0001	-.0001	.0000	-.0000	-.0000	-.0000	-.00
2	Poultry And Eggs	-.0009	-.0022	-.0002	-.0013	-.0015	-.0015	-.04
3	Ranch Fed Cattle	-.0002	-.0011	-.0001	-.0003	-.0003	-.0004	-.03
4	Range Fed Cattle	-.0000	-.0002	.0000	-.0000	-.0000	-.0000	-.00
5	Cattle Feedlots	.0000	-.0002	-.0000	-.0001	-.0001	-.0001	-.01
6	Sheep, Lambs And Goats	.0000	.0000	.0000	.0000	.0000	.0000	.00
7	Hogs, Pigs And Swine	.0000	-.0000	.0000	.0000	.0000	.0000	.00
8	Other Meat Animal Product	.0000	.0000	.0000	.0000	.0000	.0000	.00
9	Miscellaneous Livestock	-.0047	-.0051	-.0001	-.0016	-.0017	-.0018	-.04
12	Feed Grains	.0000	-.0000	.0000	.0000	.0000	-.0000	.00
13	Hay And Pasture	-.0001	-.0002	.0000	-.0001	-.0001	-.0001	-.00
16	Fruits	-.0037	-.0039	-.0000	-.0008	-.0008	-.0008	-.03
18	Vegetables	-.0072	-.0078	-.0001	-.0032	-.0033	-.0033	-.05
19	Sugar Crops	-.0003	-.0014	-.0001	-.0006	-.0007	-.0007	-.02
23	Greenhouse And Nursery Pr	-.0543	-.0609	-.0096	-.0458	-.0554	-.0555	-3.31
24	Forestry Products	-.0001	-.0001	.0000	-.0000	-.0000	-.0000	.00
25	Commercial Fishing	-50.2442	-50.2555	-5.2686	-39.0455	-44.3141	-45.6868	-1743.97
26	Agricultural, Forestry, F	-.0036	-.0049	-.0018	-.0006	-.0024	-.0024	-.14
27	Landscape And Horticultur	.0000	-.0691	-.0292	-.0136	-.0428	-.0428	-2.65
29	Copper Ores	.0000	-.0000	-.0000	-.0000	-.0000	-.0000	.00
37	Coal Mining	-.0000	-.0010	-.0003	-.0003	-.0006	-.0007	-.00
38	Natural Gas & Crude Petro	-.2856	-.4463	-.0688	-.1886	-.2574	-.2945	-1.65
41	Sand And Gravel	.0000	-.0001	-.0000	-.0000	-.0000	-.0000	.00
44	Phosphate Rock	.0000	-.0004	-.0001	-.0001	-.0001	-.0001	-.00
45	Chemical, Fertilizer Mine	-.0001	-.0062	-.0015	-.0016	-.0031	-.0034	-.02
47	Misc. Nonmetallic Mineral	.0000	.0000	.0000	.0000	.0000	.0000	.00
48	New Residential Structure	.0000	.0000	.0000	.0000	.0000	.0000	.00
49	New Industrial And Commer	.0000	.0000	.0000	.0000	.0000	.0000	.00
50	New Utility Structures	.0000	.0000	.0000	.0000	.0000	.0000	.00
51	New Highways And Streets	.0000	.0000	.0000	.0000	.0000	.0000	.00
53	New Mineral Extraction Fa	.0000	.0000	.0000	.0000	.0000	.0000	.00
54	New Government Facilities	.0000	.0000	.0000	.0000	.0000	.0000	.00

55	Maintenance And Repair, R	.0000	-.3063	-.0925	-.0547	-.1472	-.1516	-4.45
56	Maintenance And Repair Ot	.0000	-1.5956	-.5079	-.2923	-.8002	-.8243	-21.40
57	Maintenance And Repair Oi	.0000	-.0431	-.0299	-.0053	-.0352	-.0352	-1.12
58	Meat Packing Plants	-.0153	-.0179	-.0012	.0007	-.0005	-.0005	-.05
59	Sausages And Other Prepar	-.0250	-.0285	-.0020	-.0016	-.0036	-.0037	-.15
65	Fluid Milk	-.2017	-.2353	-.0246	-.0158	-.0404	-.0412	-.79
66	Canned Specialties	-.0008	-.0009	-.0001	-.0002	-.0003	-.0003	-.00
68	Dehydrated Food Products	-.0002	-.0002	-.0000	-.0000	-.0001	-.0001	-.00
69	Pickles, Sauces, And Sala	-.0084	-.0121	-.0017	-.0029	-.0046	-.0047	-.04
70	Frozen Fruits, Juices And	-.0002	-.0003	-.0000	-.0000	-.0001	-.0001	-.00
71	Frozen Specialties	-.0022	-.0026	-.0002	-.0003	-.0005	-.0005	-.02
78	Prepared Feeds, N.E.C	-.0009	-.0011	-.0001	.0000	-.0001	-.0001	-.00
79	Bread, Cake, And Related	-.0899	-.1089	-.0291	-.0316	-.0607	-.0619	-.94
80	Cookies And Crackers	-.1801	-.2085	-.0426	-.0542	-.0968	-.0982	-1.30
81	Sugar	-.0023	-.0033	-.0005	-.0003	-.0007	-.0008	-.01
82	Confectionery Products	-.0023	-.0027	-.0004	-.0004	-.0007	-.0008	-.02
89	Animal And Marine Fats An	-.0088	-.0264	-.0029	-.0050	-.0079	-.0082	-.09
95	Bottled And Canned Soft D	-.0119	-.0132	-.0018	-.0017	-.0035	-.0036	-.05
96	Flavoring Extracts And Sy	-.0004	-.0004	-.0001	-.0001	-.0002	-.0002	-.00
97	Canned And Cured Sea Food	-.0002	-.0002	-.0000	-.0000	-.0000	-.0000	-.00
98	Prepared Fresh Or Frozen	-.0020	-.0187	-.0016	-.0006	-.0021	-.0022	-.15
99	Roasted Coffee	-.0475	-.0825	-.0069	-.0134	-.0203	-.0204	-.20
101	Manufactured Ice	-.0033	-.8148	-.3005	-.1460	-.4465	-.4794	-23.69
102	Macaroni And Spaghetti	-.0232	-.0272	-.0040	-.0049	-.0088	-.0091	-.21
103	Food Preparations, N.E.C	-.1735	-.2027	-.0317	-.0359	-.0676	-.0685	-1.15
108	Broadwoven Fabric Mills A	-.0008	-.0018	-.0005	-.0001	-.0006	-.0006	-.02
117	Carpets And Rugs	-.0004	-.0004	-.0001	-.0000	-.0001	-.0001	-.00
122	Cordage And Twine	-.0001	-.0036	-.0009	-.0004	-.0013	-.0013	-.04
123	Textile Goods, N.E.C	-.0001	-.0002	-.0001	-.0000	-.0001	-.0001	-.00
124	Apparel Made From Purchas	-.3492	-.3615	-.1076	-.0429	-.1506	-.1515	-5.95
125	Curtains And Draperies	-.0021	-.0021	-.0007	-.0002	-.0009	-.0009	-.04
126	Housefurnishings, N.E.C	-.0171	-.0187	-.0044	-.0049	-.0093	-.0093	-.14
127	Textile Bags	-.0033	-.0063	-.0024	-.0008	-.0032	-.0032	-.06
128	Canvas Products	-.0013	-.0081	-.0032	-.0007	-.0039	-.0039	-.13
129	Pleating And Stitching	-.0034	-.0049	-.0021	-.0013	-.0034	-.0034	-.09
132	Fabricated Textile Produc	-.0059	-.0072	-.0016	-.0005	-.0021	-.0021	-.06
133	Logging Camps And Logging	.0000	-.0008	-.0001	-.0001	-.0002	-.0003	-.01
134	Sawmills And Planing Mill	.0000	-.0011	-.0002	-.0001	-.0003	-.0003	-.01

135	Hardwood Dimension And Fl	-.0000	-.0009	-.0004	-.0001	-.0005	-.0005	-.02
137	Millwork	-.0001	-.0031	-.0010	-.0004	-.0013	-.0013	-.04
138	Wood Kitchen Cabinets	-.0000	-.0002	-.0001	-.0000	-.0001	-.0001	-.00
142	Wood Pallets And Skids	.0000	-.0006	-.0001	-.0000	-.0001	-.0002	-.01
144	Prefabricated Wood Buildi	-.0000	-.0000	.0000	.0000	.0000	.0000	.0000
145	Wood Preserving	-.0002	-.0059	-.0009	-.0005	-.0014	-.0015	-.03
146	Reconstituted Wood Produc	-.0002	-.0031	-.0006	-.0004	-.0010	-.0010	-.01
147	Wood Products, N.E.C	-.0020	-.0021	-.0007	-.0003	-.0010	-.0010	-.04
148	Wood Household Furniture	-.0147	-.0148	-.0040	-.0019	-.0059	-.0059	-.23
150	Metal Household Furniture	-.0018	-.0018	-.0004	-.0002	-.0006	-.0006	-.02
151	Mattresses And Bedsprings	-.0047	-.0047	-.0011	-.0005	-.0016	-.0016	-.05
157	Wood Partitions And Fixtu	-.0000	-.0002	-.0001	-.0000	-.0001	-.0001	-.00
158	Metal Partitions And Fixt	.0000	-.0002	-.0000	-.0000	-.0001	-.0001	-.00
159	Blinds, Shades, And Drape	-.0063	-.0063	-.0013	-.0009	-.0021	-.0021	-.08
162	Paper Mills, Except Build	-.0001	-.0004	-.0001	-.0000	-.0001	-.0001	-.00
164	Paperboard Containers And	-.0010	-.0352	-.0092	-.0030	-.0122	-.0124	-.21
165	Paper Coated & Laminated	-.0004	-.0008	-.0001	-.0001	-.0002	-.0002	-.01
166	Paper Coated & Laminated	-.0029	-.0058	-.0016	-.0009	-.0025	-.0026	-.04
169	Die-cut Paper And Board	-.0001	-.0004	-.0001	-.0000	-.0001	-.0001	-.00
173	Converted Paper Products,	-.0003	-.0004	-.0001	-.0001	-.0001	-.0002	-.00
174	Newspapers	-.0128	-.0482	-.0177	-.0148	-.0325	-.0334	-.81
175	Periodicals	-.0133	-.0406	-.0088	-.0090	-.0178	-.0182	-.29
176	Book Publishing	-.0249	-.0268	-.0047	-.0083	-.0130	-.0133	-.14
178	Miscellaneous Publishing	-.0005	-.0025	-.0006	-.0008	-.0014	-.0015	-.03
179	Commercial Printing	-.0066	-.1874	-.0482	-.0248	-.0730	-.0776	-2.05
182	Blankbooks And Looseleaf	-.0005	-.0034	-.0010	-.0008	-.0018	-.0018	-.04
183	Bookbinding & Related	.0000	-.0001	-.0001	-.0000	-.0001	-.0001	-.00
184	Typesetting	.0000	-.0001	-.0000	-.0000	-.0000	-.0000	-.00
185	Plate Making	.0000	-.0003	-.0001	-.0001	-.0002	-.0002	-.00
187	Industrial Gases	-.0002	-.0012	-.0005	-.0003	-.0008	-.0009	-.01
189	Inorganic Chemicals Nec.	-.0060	-.0450	-.0119	-.0101	-.0219	-.0232	-.23
190	Cyclic Crudes, Interm.	.0321	-.2140	-.0297	-.0438	-.0735	-.0767	-.52
191	Plastics Materials And Re	-.0049	-.0308	-.0043	-.0044	-.0086	-.0091	-.08
196	Soap And Other Detergents	-.0342	-.0373	-.0047	-.0074	-.0121	-.0122	-.15
197	Polishes And Sanitation G	-.0086	-.0094	-.0020	-.0028	-.0049	-.0049	-.08
199	Toilet Preparations	-.0043	-.0044	-.0007	-.0015	-.0022	-.0022	-.02
200	Paints And Allied Product	-.0002	-.0007	-.0001	-.0001	-.0002	-.0002	-.00
204	Agricultural Chemicals, N	-.0008	-.0011	-.0002	-.0003	-.0004	-.0004	-.00

209	Chemical Preparations, N.	-.0073	-.0273	-.0060	-.0054	-.0115	-.0116	-.10
210	Petroleum Refining	-1.4408	-2.1278	-.1259	-.0776	-.2035	-.4525	-1.74
213	Lubricating Oils And Grease	-.0301	-.5505	-.0348	-.0417	-.0765	-.0789	-1.13
218	Gaskets, Packing And Seal	-.0001	-.0002	-.0001	-.0000	-.0001	-.0001	
219	Fabricated Rubber Product	-.0005	-.0012	-.0003	-.0001	-.0004	-.0004	-.01
220	Miscellaneous Plastics Products	-.0007	-.0025	-.0005	-.0003	-.0008	-.0008	-.02
229	Leather Goods, N.E.C	-.0016	-.0018	-.0006	-.0003	-.0009	-.0009	-.04
230	Glass And Glass Products, N.E.C	-.0036	-.0082	-.0019	-.0010	-.0028	-.0029	-.13
241	Pottery Products, N.E.C	-.0000	-.0000	.0000	.0000	.0000	.0000	.00
242	Concrete Block And Brick	.0000	.0000	.0000	.0000	.0000	.0000	.00
243	Concrete Products, N.E.C	-.0000	-.0000	-.0000	.0000	-.0000	-.0000	.00
244	Ready-mixed Concrete	-.0000	-.0001	-.0000	-.0000	-.0000	-.0000	-.00
246	Gypsum Products	.0000	-.0001	-.0000	-.0000	-.0000	-.0000	.00
247	Cut Stone And Stone Products	.0000	-.0000	.0000	.0000	.0000	.0000	.00
249	Asbestos Products	-.0001	-.0004	-.0002	.0000	-.0002	-.0002	-.01
250	Minerals, Ground Or Treated	.0000	-.0000	.0000	.0000	.0000	.0000	.00
254	Blast Furnaces And Steel	-.0000	-.0013	-.0002	-.0001	-.0003	-.0003	-.01
259	Iron And Steel Foundries	.0000	-.0001	-.0000	.0000	-.0000	-.0000	.00
265	Aluminum Rolling And Drawing	-.0001	-.0005	-.0001	-.0000	-.0001	-.0001	-.00
271	Metal Heat Treating	-.0000	-.0003	-.0001	-.0001	-.0001	-.0001	-.00
274	Metal Barrels, Drums And	-.0002	-.0097	-.0024	-.0004	-.0028	-.0029	-.08
278	Hardware, N.E.C.	-.0000	-.0001	-.0000	.0000	-.0000	-.0000	.00
282	Fabricated Structural Metal	-.0004	-.0008	-.0003	-.0001	-.0003	-.0003	-.01
283	Metal Doors, Sash, And Trim	-.0001	-.0002	-.0001	-.0000	-.0001	-.0001	-.00
284	Fabricated Plate Work	-.0000	-.0001	-.0000	.0000	-.0001	-.0001	-.00
285	Sheet Metal Work	-.0001	-.0003	-.0001	-.0000	-.0001	-.0001	-.00
286	Architectural Metal Work	-.0000	-.0001	-.0000	-.0000	-.0000	-.0000	.00
287	Prefabricated Metal Buildings	-.0000	-.0000	.0000	.0000	.0000	.0000	.00
290	Iron And Steel Forgings	-.0001	-.0003	-.0002	-.0000	-.0002	-.0002	-.00
294	Metal Stampings, N.E.C.	-.0052	-.0063	-.0013	-.0005	-.0018	-.0019	-.06
295	Plating And Polishing	.0000	-.0001	-.0000	.0000	-.0000	-.0000	-.00
296	Metal Coating And Allied	-.0000	-.0004	-.0001	-.0000	-.0001	-.0001	-.00
301	Industrial And Fluid Valves	-.0003	-.0075	-.0013	-.0007	-.0020	-.0021	-.05
303	Pipe, Valves, And Pipe Fittings	-.0001	-.0030	-.0011	-.0004	-.0015	-.0015	-.03
304	Miscellaneous Fabricated Metal	-.0012	-.0035	-.0014	-.0005	-.0019	-.0019	-.04
306	Fabricated Metal Products	-.0003	-.0011	-.0002	-.0001	-.0003	-.0003	-.01
307	Steam Engines And Turbine	.0000	-.0008	-.0002	-.0001	-.0003	-.0003	-.00
308	Internal Combustion Engines	-.0018	-.0070	-.0013	-.0007	-.0020	-.0021	-.04

309	Farm Machinery And Equipm	-.0035	-.0126	-.0031	-.0016	-.0047	-.0049	-.10
311	Construction Machinery An	-.0001	-.0006	-.0001	-.0000	-.0001	-.0002	-.00
313	Oil Field Machinery	-.0016	-.0093	-.0035	-.0003	-.0038	-.0040	-.10
314	Elevators And Moving Stai	-.0000	-.0009	-.0003	-.0000	-.0004	-.0004	-.01
315	Conveyors And Conveying E	-.0001	-.0023	-.0006	-.0002	-.0008	-.0009	-.02
316	Hoists, Cranes, And Monor	-.0000	-.0003	-.0001	-.0000	-.0001	-.0001	-.00
317	Industrial Trucks And Tra	-.0000	-.0014	-.0004	-.0002	-.0006	-.0006	-.01
321	Special Dies And Tools An	-.0000	-.0008	-.0005	-.0001	-.0006	-.0006	-.01
330	Food Products Machinery	-.0001	-.0037	-.0014	-.0005	-.0019	-.0019	-.04
332	Pumps And Compressors	-.0000	-.0001	-.0000	.0000	-.0000	-.0000	.00
334	Blowers And Fans	.0000	-.0000	.0000	.0000	.0000	.0000	.00
337	Industrial Furnaces And O	.0000	-.0000	.0000	.0000	.0000	.0000	.00
338	General Industrial Machin	-.0000	-.0001	-.0000	-.0000	-.0000	-.0000	.00
346	Commercial Laundry Equipm	-.0001	-.0028	-.0009	-.0005	-.0013	-.0013	-.03
347	Refrigeration And Heating	-.0169	-.0471	-.0099	-.0056	-.0155	-.0162	-.29
349	Service Industry Machines	-.0020	-.0079	-.0018	-.0013	-.0031	-.0032	-.06
351	Fluid Power Cylinders & A	.0000	.0000	.0000	.0000	.0000	.0000	.00
352	Fluid Power Pumps & Motor	-.0000	-.0002	-.0002	-.0000	-.0002	-.0002	-.00
354	Industrial Machines Nec.	-.0002	-.0006	-.0002	-.0001	-.0003	-.0003	-.01
356	Switchgear And Switchboar	-.0005	-.0025	-.0007	-.0004	-.0011	-.0011	-.02
357	Motors And Generators	-.0003	-.0008	-.0002	-.0001	-.0003	-.0003	-.01
359	Relays & Industrial Contr	-.0011	-.0062	-.0022	-.0009	-.0031	-.0032	-.05
361	Household Cooking Equipme	-.0002	-.0002	-.0000	-.0000	-.0001	-.0001	-.00
373	Radio And Tv Communicatio	-.0031	-.0087	-.0020	-.0013	-.0033	-.0034	-.05
374	Communications Equipment	-.0000	-.0000	.0000	.0000	.0000	.0000	.00
376	Printed Circuit Boards	-.0016	-.0044	-.0017	-.0007	-.0024	-.0024	-.06
378	Electronic Components, N.	-.0016	-.0054	-.0010	-.0007	-.0018	-.0018	-.03
381	Engine Electrical Equipme	-.0002	-.0006	-.0002	-.0000	-.0002	-.0002	-.01
386	Motor Vehicle Parts And A	-.0002	-.0012	-.0002	-.0000	-.0002	-.0002	-.01
392	Ship Building And Repairi	-.0005	-.0325	-.0123	-.0021	-.0145	-.0146	-.45
393	Boat Building And Repairi	-.0008	-.0019	-.0007	-.0004	-.0011	-.0011	-.01
396	Complete Guided	.0007	-.0018	-.0007	-.0003	-.0010	-.0010	-.01
399	Transportation Equipment,	-.0001	-.0001	-.0000	-.0000	-.0000	-.0000	.00
400	Search & Navigation Equip	-.0010	-.0014	-.0004	-.0002	-.0006	-.0006	-.01
403	Mechanical Measuring Devi	-.0009	-.0077	-.0028	-.0014	-.0042	-.0043	-.05
407	Surgical And Medical Inst	-.0002	-.0045	-.0015	-.0011	-.0026	-.0027	-.02

408	Surgical Appliances And S	-.0222	-.0455	-.0108	-.0090	-.0197	-.0199	-.35
409	Dental Equipment And Supp	-.0017	-.0223	-.0060	-.0057	-.0118	-.0118	-.12
412	Ophthalmic Goods	-.0047	-.0049	-.0021	-.0009	-.0030	-.0031	-.07
413	Photographic Equipment An	-.0005	-.0011	-.0002	-.0003	-.0005	-.0005	-.01
415	Jewelry, Precious Metal	-.0017	-.0017	-.0003	-.0003	-.0006	-.0006	-.02
417	Jewelers Materials And La	-.0018	-.0019	.0003	-.0003	-.0006	-.0006	-.02
419	Dolls	-.0090	.0090	-.0040	-.0012	-.0052	-.0053	-.19
424	Marking Devices	-.0000	.0003	-.0002	-.0001	-.0002	-.0002	-.01
425	Carbon Paper And Inked Ri	.0000	-.0002	-.0001	-.0000	-.0001	-.0001	-.00
429	Signs And Advertising Dis	-.0001	-.0028	-.0008	-.0003	-.0011	-.0011	-.04
430	Burial Caskets And Vaults	.0000	-.0001	.0000	-.0000	-.0000	-.0000	-.00
432	Manufacturing Industries,	-.0000	-.0000	.0000	.0000	-.0000	-.0000	.00
433	Railroads And Related Ser	-.0471	-.0976	-.0498	-.0120	-.0618	-.0657	-.75
434	Local, Interurban Passeng	-.1288	-.1506	-.0812	-.0372	-.1184	-.1200	-3.99
435	Motor Freight Transport A	-.5104	1.0658	-.3357	-.2012	-.5369	-.5555	-13.77
436	Water Transportation	-.1619	-.3024	-.0545	-.0127	-.0672	-.0720	-1.65
437	Air Transportation	-.2925	-.3984	-.1146	-.0279	-.1425	-.1729	-2.85
438	Pipe Lines, Except Natura	-.0076	-.0456	-.0061	-.0299	-.0360	-.0383	-.12
439	Arrangement Of Passenger	-.0075	-.0146	-.0067	-.0027	-.0094	-.0096	-.42
440	Transportation Services	-.0125	-.0442	-.0170	-.0092	-.0262	-.0263	-.56
441	Communications, Except Ra	-.9539	-1.1676	-.3622	-.3817	-.7439	-.8895	-8.08
442	Radio And Tv Broadcasting	-.0106	-.0584	-.0165	-.0046	-.0211	-.0231	-.59
443	Electric Services	-1.4533	-2.0428	-.3438	-.8376	-1.1814	-1.2881	-5.91
444	Gas Production And Distri	-.4401	-.7266	-.0874	-.1237	-.2111	-.2436	-1.73
445	Water Supply And Sewerage	-.0134	-.0152	-.0020	.0006	-.0014	-.0021	-.07
446	Sanitary Services And Ste	-.0486	-.0741	-.0246	-.0004	-.0250	-.0272	-.75
447	Wholesale Trade	-2.1890	-2.8952	-1.3276	-.2021	-1.5296	-1.9712	-40.14
448	Building Materials & Gard	-.6025	-.6180	-.2948	-.1040	-.3988	-.5155	-14.47
449	General Merchandise Store	-1.3901	-1.4238	-.7346	-.1304	-.8650	-1.1078	-49.97
450	Food Stores	-1.7811	-1.8322	-.8466	-.3868	-1.2334	-1.6026	-68.78
451	Automotive Dealers & Serv	-1.8655	-1.8948	-.9607	-.2951	-1.2558	-1.5806	-40.04
452	Apparel & Accessory Store	-.7748	-.7953	-.2874	-.0969	-.3844	-.5018	-25.80
453	Furniture & Home Furnishi	-.6076	-.6256	-.3032	-.1038	-.4070	-.5183	-15.21
454	Eating & Drinking	-3.7496	-3.8021	-1.4966	-.3871	-1.8837	-2.2173	-135.99
455	Miscellaneous Retail	-2.3522	-2.4097	-.8166	-.3323	-1.1489	-1.4980	-75.75
456	Banking	-1.8360	-2.0261	-.5407	-.2759	-.8166	-.8976	-20.87
457	Credit Agencies	-.1580	-.2835	-.1162	.1048	-.0114	-.0204	-6.61
458	Security And Commodity Br	-.0831	-.1292	-.0716	-.0142	-.0858	-.0863	-1.60

459	Insurance Carriers	-1.6008	-2.0720	-.5609	.0551	-.5058	-.7224	-14.17
460	Insurance Agents And Brok	.0000	-.3380	-.1239	-.1398	-.2637	-.2671	-6.05
461	Owner-occupied Dwellings	-6.2796	-6.2796	.0000	-3.5207	-3.5207	-4.7465	.00
462	Real Estate	-2.1818	-3.6637	-.2818	-1.6864	-1.9682	-2.6565	-34.77
463	Hotels And Lodging Places	-.4100	-.5724	-.2654	-.1294	-.3948	-.4663	-17.20
464	Laundry, Cleaning And Sho	-.1938	-.2531	-.0912	-.0922	-.1834	-.1956	-14.41
465	Portrait And Photographic	-.0798	-.0849	-.0185	-.0206	-.0391	-.0435	-2.65
466	Beauty And Barber Shops	-.2447	-.2447	-.0903	-.1019	-.1921	-.1974	-12.00
467	Funeral Service And Crema	-.0832	-.0832	-.0236	-.0316	-.0552	-.0570	-2.12
468	Miscellaneous Personal Se	-.2232	-.2339	-.0320	-.0402	-.0722	-.0797	-5.86
469	Advertising	-.0020	-.0808	-.0351	-.0290	-.0641	-.0649	-1.42
470	Other Business Services	-.0273	-.3926	-.1234	-.1568	-.2802	-.2908	-8.27
471	Photofinishing, Commercia	-.0606	-.1070	-.0270	-.0331	-.0601	-.0630	-2.05
472	Services To Buildings	-.0399	-.1235	-.0568	-.0384	-.0952	-.0983	-7.22
473	Equipment Rental And Lea	-.0305	-.1123	-.0286	-.0394	-.0680	-.0808	-1.38
474	Personnel Supply Services	-.0306	-.2249	-.1332	-.0776	-.2108	-.2122	-12.57
475	Computer And Data Process	-.0080	-.1906	-.0742	-.0580	-.1321	-.1346	-3.03
476	Detective And Protective	-.0011	-.0509	-.0290	-.0175	-.0465	-.0474	-3.35
477	Automobile Rental And Lea	-.1376	-.3124	-.0583	-.0499	-.1082	-.1427	-3.84
478	Automobile Parking And Ca	-.0738	-.0753	-.0300	-.0165	-.0465	-.0505	-3.64
479	Automobile Repair And Ser	-1.4621	-1.6170	-.2222	-.2540	-.4762	-.5181	-14.99
480	Electrical Repair Service	-.0943	-.1396	-.0428	-.0566	-.0994	-.1004	-2.34
481	Watch, Clock, Jewelry And	-.0226	-.0226	-.0073	-.0031	-.0104	-.0110	-.72
482	Miscellaneous Repair Shop	-.0418	-.2054	-.0618	-.0716	-.1334	-.1357	-3.80
483	Motion Pictures	-.1798	-.4076	-.0672	-.0463	-.1134	-.1155	-6.27
484	Theatrical Producers, Ban	-.0097	-.0165	-.0048	-.0053	-.0101	-.0104	-.65
485	Bowling Alleys And Pool H	-.0535	-.0535	-.0191	-.0132	-.0323	-.0348	-2.30
486	Commercial Sports Except	-.0390	-.0721	-.0364	-.0171	-.0535	-.0586	-.67
487	Racing And Track Operatio	-.0802	-.0828	-.0067	-.0059	-.0127	-.0615	-2.80
488	Amusement And Recreation	-.4623	-.4623	-.1177	-.1324	-.2501	-.2676	-12.34
489	Membership Sports And Rec	-.1759	-.1927	-.0752	-.0768	-.1520	-.1600	-7.86
490	Doctors And Dentists	-4.2002	-4.2002	-2.3734	-1.1432	-3.5166	-3.5577	-49.11
491	Nursing And Protective Ca	-.5162	-.5162	-.3300	-.0815	-.4115	-.4163	-28.53
492	Hospitals	-3.6146	-3.6151	-1.9467	-.6707	-2.6175	-2.6244	-72.42
493	Other Medical And Health	-1.0956	-1.2497	-.3859	-.2405	-.6264	-.6297	-19.80
494	Legal Services	-1.0191	-1.7483	-.5951	-.6835	-1.2786	-1.2915	-16.16
495	Elementary And Secondary	-.2969	-.2969	-.1378	-.0049	-.1427	-.1427	-10.54
496	Colleges, Universities, S	-.0478	-.0548	-.0240	-.0017	-.0258	-.0258	-1.97

497	Other Educational Service	-.2803	-.2853	-.0649	-.0018	-.0667	-.0667	-5.34
498	Job Trainings & Related S	-.0749	-.0787	-.0444	.0000	-.0444	-.0444	-2.07
499	Child Day Care Services	-.3284	-.3284	-.0779	-.0311	-.1091	-.1091	-8.54
500	Social Services, N.E.C.	-.2626	-.2626	-.1202	.0000	-.1202	-.1202	-8.76
501	Residential Care	-.1261	-.1261	-.0799	.0000	-.0799	-.0799	-5.83
502	Other Nonprofit Organizat	-.1281	-.1311	-.0426	.0008	-.0418	-.0419	-2.45
503	Business Associations	-.0467	-.0944	-.0909	.0000	-.0909	-.0910	-2.66
504	Labor And Civic Organizat	-.3094	-.3094	-.1964	.0000	-.1964	-.1986	-19.82
505	Religious Organizations	-.1914	-.1914	-.0198	.0000	-.0198	-.0198	-1.80
506	Engineering, Architectura	.0000	-.0342	-.0161	-.0056	-.0217	-.0218	-.58
507	Accounting, Auditing And	-.0119	-.2568	-.1166	-.0456	-.1621	-.1625	-6.03
508	Management And Consulting	.0000	-.1299	-.0500	-.0125	-.0626	-.0642	-2.62
509	Research, Development & T	.0000	-.0844	-.0505	-.0143	-.0649	-.0667	-3.30
510	Local Government Passenge	-.0050	-.0058	-.0009	.0007	-.0002	-.0002	-.14
511	State And Local Electric	-.0172	-.0241	-.0041	-.0103	-.0144	-.0144	-.18
512	Other State And Local Gov	-.9952	-1.1628	-.2735	-.3802	-.6538	-.6544	-12.75
513	U.S. Postal Service	-.0955	-.2552	-.2081	.0145	-.1935	-.1935	-4.43
519	Federal Government - Mili	.0000	.0000	.0000	.0000	.0000	.0000	.00
520	Federal Government - Non-	.0000	.0000	.0000	.0000	.0000	.0000	.00
522	State & Local Government	.0000	.0000		.0000	.0000	.0000	.0000
523	State & Local Government	.0000	.0000	.0000	.0000	.0000	.0000	.00
525	Household Industry-low In	-.2171	-.2171	-.2171	.0000	-.2171	-.2171	-31.75
528	Inventory Valuation Adjus	.0000	.0000	.0000	.0000	.0000	.0000	.00
TOTAL		-103.2354	-118.1674	-26.5083	-54.4515	-80.9598	-88.0700	-2890.26
Change in Population =		-6064						

COMMERCIAL HUNTING AND TRAPPING \$MM 1992
Scenario TRAPJF: Total Effects

Impact Report #906
12/ 20/95

		Base Year Final Demand	Base Year (TIO) (MMS)	Employee Comp Income (MMS)	Property Income (MMS)	Total POW Income (MMS)	Total Value Added (MMS)	Employment (Number of Jobs)
Industry								
1	Dairy Farm Products	.0000	-.0000	.0000	.0000	.0000	.0000	.00
2	Poultry And Eggs	-.0000	-.0040	-.0003	-.0024	-.0027	-.0027	-.07
3	Ranch Fed Cattle	.0000	-.0007	-.0000	-.0002	-.0002	-.0002	-.02
4	Range Fed Cattle	.0000	-.0002	.0000	-.0000	-.0000	-.0000	-.00
5	Cattle Feedlots	.0000	-.0000	.0000	.0000	.0000	.0000	.00
6	Sheep, Lambs And Goats	.0000	.0000	.0000	.0000	.0000	.0000	.00
7	Hogs, Pigs And Swine	.0000	-.0000	.0000	.0000	.0000	.0000	.00
8	Other Meat Animal Product	.0000	.0000	.0000	.0000	.0000	.0000	.00
9	Miscellaneous Livestock	-.0001	-.0013	-.0000	-.0004	-.0005	-.0005	-.01
12	Feed Grains	.0000	-.0000	.0000	-.0000	-.0000	-.0000	.00
13	Hay And Pasture	.0000	-.0005	-.0000	-.0002	-.0002	-.0003	-.01
16	Fruits	-.0001	-.0005	.0000	-.0001	-.0001	-.0001	-.00
18	Vegetables	-.0001	-.0011	-.0000	-.0005	-.0005	-.0005	-.01
19	Sugar Crops	.0000	-.0087	-.0004	-.0038	-.0042	-.0043	-.11
23	Greenhouse And Nursery Pr	-.0011	-.0087	-.0014	-.0065	-.0079	-.0079	-.47
24	Forestry Products	-5.3297	-5.3298	-.4591	-1.9752	-2.4343	-2.6613	-18.00
25	Commercial Fishing	-.0003	-.0004	-.0000	-.0003	-.0004	-.0004	-.01
26	Agricultural, Forestry, F	-.0001	-.3076	-.1127	-.0404	-.1531	-.1531	-8.47
27	Landscape And Horticultur	.0000	-.0028	-.0012	-.0006	-.0017	-.0017	-.11
29	Copper Ores	.0000	.0000	.0000	.0000	.0000	.0000	.00
37	Coal Mining	.0000	-.0000	.0000	.0000	-.0000	-.0000	.00
38	Natural Gas & Crude Petro	-.0056	-.0098	-.0015	-.0042	-.0057	-.0065	-.04
41	Sand And Gravel	.0000	.0000	.0000	.0000	.0000	.0000	.00
44	Phosphate Rock	.0000	-.0000	.0000	.0000	.0000	.0000	.00
45	Chemical, Fertilizer Mine	.0000	-.0002	-.0000	-.0000	-.0001	-.0001	.00
47	Misc. Nonmetallic Mineral	.0000	.0000	.0000	.0000	.0000	.0000	.00
48	New Residential Structure	.0000	.0000	.0000	.0000	.0000	.0000	.00
49	New Industrial And Commer	.0000	.0000	.0000	.0000	.0000	.0000	.00
50	New Utility Structures	.0000	.0000	.0000	.0000	.0000	.0000	.00

51	New Highways And Streets	.0000	.0000	.0000	.0000	.0000	.0000	.00
53	New Mineral Extraction Fa	.0000	.0000	.0000	.0000	.0000	.0000	.00
54	New Government Facilities	.0000	.0000	.0000	.0000	.0000	.0000	.00
55	Maintenance And Repair, R	.0000	-.0061	-.0019	-.0011	-.0030	-.0030	-.09
56	Maintenance And Repair Ot	.0000	-.1143	-.0364	-.0209	-.0573	-.0590	-1.53
57	Maintenance And Repair Oi	.0000	-.0009	-.0007	-.0001	-.0008	-.0008	-.02
58	Meat Packing Plants	-.0003	-.0004	-.0000	.0000	-.0000	-.0000	.00
59	Sausages And Other Prepar	-.0005	-.0006	-.0000	-.0000	-.0001	-.0001	-.00
65	Fluid Milk	-.0040	-.0046	-.0005	-.0003	-.0008	-.0008	-.02
66	Canned Specialties	-.0000	-.0000	.0000	.0000	.0000	.0000	.00
68	Dehydrated Food Products	.0000	.0000	.0000	.0000	.0000	.0000	.00
69	Pickles, Sauces, And Sala	-.0002	-.0002	-.0000	-.0001	-.0001	-.0001	.00
70	Frozen Fruits, Juices And	.0000	.0000	.0000	.0000	.0000	.0000	.00
71	Frozen Specialties	-.0000	-.0001	.0000	.0000	-.0000	-.0000	.00
78	Prepared Feeds, N.E.C	-.0000	-.0021	-.0002	.0000	-.0002	-.0002	-.01
79	Bread, Cake, And Related	-.0018	-.0021	-.0006	-.0006	-.0012	-.0012	-.02
80	Cookies And Crackers	-.0035	-.0041	-.0008	-.0011	-.0019	-.0019	-.03
81	Sugar	-.0000	-.0001	.0000	.0000	-.0000	-.0000	.00
82	Confectionery Products	-.0000	-.0001	.0000	.0000	-.0000	-.0000	.00
89	Animal And Marine Fats An	-.0002	-.0010	-.0001	-.0002	-.0003	-.0003	-.00
95	Bottled And Canned Soft D	-.0002	-.0003	-.0000	-.0000	-.0001	-.0001	.00
96	Flavoring Extracts And Sy	.0000	.0000	.0000	.0000	.0000	.0000	.00
97	Canned And Cured Sea Food	.0000	.0000	.0000	.0000	.0000	.0000	.00
98	Prepared Fresh Or Frozen	-.0000	-.0001	.0000	.0000	-.0000	-.0000	.00
99	Roasted Coffee	-.0009	-.0016	-.0001	-.0003	-.0004	-.0004	-.00
101	Manufactured Ice	-.0001	-.0001	-.0000	-.0000	-.0000	-.0000	-.00
102	Macaroni And Spaghetti	-.0005	-.0005	-.0001	-.0001	-.0002	-.0002	-.00
103	Food Preparations, N.E.C	-.0034	-.0040	-.0006	-.0007	-.0013	-.0013	-.02
108	Broadwoven Fabric Mills A	-.0000	-.0000	-.0000	.0000	-.0000	-.0000	.00
117	Carpets And Rugs	.0000	.0000	.0000	.0000	.0000	.0000	.00
122	Cordage And Twine	.0000	-.0000	.0000	.0000	-.0000	-.0000	.00
123	Textile Goods, N.E.C	.0000	-.0000	.0000	.0000	.0000	.0000	.00
124	Apparel Made From Purchas	-.0069	-.0071	-.0021	-.0008	-.0030	-.0030	-.12
125	Curtains And Draperies	-.0000	-.0000	-.0000	.0000	-.0000	-.0000	.00
126	Housefurnishings, N.E.C	-.0003	-.0004	-.0001	-.0001	-.0002	-.0002	-.00
127	Textile Bags	-.0001	-.0019	-.0007	-.0002	-.0009	-.0009	-.02
128	Canvas Products	-.0000	-.0008	-.0003	-.0001	-.0004	-.0004	-.01
129	Pleating And Stitching	-.0001	-.0001	-.0000	-.0000	-.0001	-.0001	-.00

132	Fabricated Textile Produc	-.0001	-.0002	-.0000	-.0000	-.0000	-.0001	-.00
133	Logging Camps And Logging	.0000	-.0000	.0000	.0000	-.0000	-.0000	.00
134	Sawmills And Planing Mill	.0000	-.0001	-.0000	.0000	-.0000	-.0000	.00
135	Hardwood Dimension And Fl	.0000	-.0000	-.0000	.0000	-.0000	-.0000	.00
137	Millwork	.0000	-.0002	-.0001	-.0000	-.0001	-.0001	-.00
138	Wood Kitchen Cabinets	.0000	.0000	.0000	.0000	.0000	.0000	.00
142	Wood Pallets And Skids	.0000	-.0000	.0000	.0000	.0000	.0000	.00
144	Prefabricated Wood Buildi	.0000	.0000	.0000	.0000	.0000	.0000	.00
145	Wood Preserving	.0000	-.0004	-.0001	-.0000	-.0001	-.0001	-.00
146	Reconstituted Wood Produc	.0000	-.0001	-.0000	-.0000	-.0000	-.0000	.00
147	Wood Products, N.E.C	-.0000	-.0000	-.0000	.0000	-.0000	-.0000	.00
148	Wood Household Furniture	-.0003	-.0003	-.0001	-.0000	-.0001	-.0001	-.00
150	Metal Household Furniture	-.0000	-.0000	.0000	.0000	-.0000	-.0000	.00
151	Mattresses And Bedsprings	-.0001	-.0001	-.0000	-.0000	-.0000	-.0000	-.00
157	Wood Partitions And Fixtu	.0000	.0000	.0000	.0000	.0000	.0000	.00
158	Metal Partitions And Fixt	.0000	.0000	.0000	.0000	.0000	.0000	.00
159	Blinds, Shades, And Drape	-.0001	-.0001	-.0000	-.0000	-.0000	-.0000	-.00
162	Paper Mills, Except Build	.0000	.0000	.0000	.0000	.0000	.0000	.00
164	Paperboard Containers And	-.0000	-.0018	-.0005	-.0001	-.0006	-.0006	-.01
165	Paper Coated & Laminated	.0000	-.0000	.0000	.0000	.0000	.0000	.00
166	Paper Coated & Laminated	-.0001	-.0002	-.0000	-.0000	-.0001	-.0001	-.00
169	Die-cut Paper And Board	.0000	-.0000	.0000	.0000	-.0000	-.0000	.00
173	Converted Paper Products,	.0000	-.0000	.0000	.0000	.0000	.0000	.00
174	Newspapers	-.0003	-.0011	-.0004	-.0003	-.0007	-.0007	-.02
175	Periodicals	-.0003	-.0009	-.0002	-.0002	-.0004	-.0004	-.01
176	Book Publishing	-.0005	-.0005	-.0001	-.0002	-.0003	-.0003	-.00
178	Miscellaneous Publishing	-.0000	-.0001	-.0000	-.0000	-.0000	-.0000	.00
179	Commercial Printing	-.0001	-.0046	-.0012	-.0006	-.0018	-.0019	-.05
182	Blankbooks And Looseleaf	-.0000	-.0025	-.0007	-.0006	-.0013	-.0013	-.03
183	Bookbinding & Related	.0000	-.0000	.0000	.0000	.0000	.0000	.00
184	Typesetting	.0000	.0000	.0000	.0000	.0000	.0000	.00
185	Plate Making	.0000	.0000	.0000	.0000	.0000	.0000	.00
187	Industrial Gases	.0000	-.0000	-.0000	.0000	-.0000	-.0000	.00
189	Inorganic Chemicals Nec.	-.0001	-.0012	-.0003	-.0003	-.0006	-.0006	-.01
190	Cyclic Crudes, Interm. &	-.0006	-.0057	-.0008	-.0012	-.0020	-.0021	-.01
191	Plastics Materials And Re	-.0001	-.0008	-.0001	-.0001	-.0002	-.0002	-.00
196	Soap And Other Detergents	-.0007	-.0007	-.0001	-.0001	-.0002	-.0002	-.00
197	Polishes And Sanitation G	-.0002	-.0002	-.0000	-.0001	-.0001	-.0001	-.00

199	Toilet Preparations	-.0001	-.0001	-.0000	-.0000	-.0000	-.0000	.00
200	Paints And Allied Product	.0000	-.0000	.0000	.0000	.0000	.0000	.00
204	Agricultural Chemicals, N	-.0000	-.0002	-.0000	-.0001	-.0001	-.0001	.00
209	Chemical Preparations, N.	-.0001	-.0017	-.0004	-.0003	-.0007	-.0007	-.01
210	Petroleum Refining	-.0283	-.0474	-.0028	-.0017	-.0045	-.0101	-.04
213	Lubricating Oils And Grease	-.0006	-.0017	-.0001	-.0001	-.0002	-.0002	-.00
218	Gaskets, Packing And Seal	.0000	-.0000	.0000	.0000	.0000	.0000	.00
219	Fabricated Rubber Product	-.0000	-.0000	.0000	.0000	-.0000	-.0000	.00
220	Miscellaneous Plastics Products	-.0000	-.0001	-.0000	-.0000	-.0000	-.0000	.00
229	Leather Goods, N.E.C	-.0000	-.0000	-.0000	.0000	-.0000	-.0000	.00
230	Glass And Glass Products, N.E.C	-.0001	-.0002	-.0001	-.0000	-.0001	-.0001	-.00
241	Pottery Products, N.E.C	.0000	.0000	.0000	.0000	.0000	.0000	.00
242	Concrete Block And Brick	.0000	.0000	.0000	.0000	.0000	.0000	.00
243	Concrete Products, N.E.C	.0000	.0000	.0000	.0000	.0000	.0000	.00
244	Ready-mixed Concrete	.0000	.0000	.0000	.0000	.0000	.0000	.00
246	Gypsum Products	.0000	.0000	.0000	.0000	.0000	.0000	.00
247	Cut Stone And Stone Products	.0000	.0000	.0000	.0000	.0000	.0000	.00
249	Asbestos Products	.0000	-.0000	.0000	.0000	.0000	.0000	.00
250	Minerals, Ground Or Treated	.0000	.0000	.0000	.0000	.0000	.0000	.00
254	Blast Furnaces And Steel	.0000	-.0001	-.0000	.0000	-.0000	-.0000	.00
259	Iron And Steel Foundries	.0000	.0000	.0000	.0000	.0000	.0000	.00
265	Aluminum Rolling And Drawing	.0000	-.0000	.0000	.0000	.0000	.0000	.00
271	Metal Heat Treating	.0000	-.0000	.0000	.0000	.0000	.0000	.00
274	Metal Barrels, Drums And	.0000	-.0003	-.0001	-.0000	-.0001	-.0001	-.00
278	Hardware, N.E.C.	.0000	.0000	.0000	.0000	.0000	.0000	.00
282	Fabricated Structural Metal	.0000	-.0000	-.0000	.0000	-.0000	-.0000	.00
283	Metal Doors, Sash, And Trusses	.0000	.0000	.0000	.0000	.0000	.0000	.00
284	Fabricated Plate Work	.0000	.0000	.0000	.0000	.0000	.0000	.00
285	Sheet Metal Work	.0000	-.0000	.0000	.0000	.0000	.0000	.00
286	Architectural Metal Work	.0000	.0000	.0000	.0000	.0000	.0000	.00
287	Prefabricated Metal Buildings	.0000	.0000	.0000	.0000	.0000	.0000	.00
290	Iron And Steel Forgings	.0000	-.0000	-.0000	.0000	-.0000	-.0000	.00
294	Metal Stampings, N.E.C.	-.0001	-.0002	-.0000	-.0000	-.0000	-.0000	-.00
295	Plating And Polishing	.0000	.0000	.0000	.0000	.0000	.0000	.00
296	Metal Coating And Allied	.0000	-.0000	.0000	.0000	.0000	.0000	.00
301	Industrial And Fluid Valves	.0000	-.0004	-.0001	-.0000	-.0001	-.0001	-.00
303	Pipe, Valves, And Pipe Fittings	.0000	-.0001	-.0001	-.0000	-.0001	-.0001	-.00
304	Miscellaneous Fabricated	-.0000	-.0023	-.0009	-.0003	-.0012	-.0012	-.03

306	Fabricated Metal Products	.0000	-.0000	.0000	.0000	.0000	.0000	.00
307	Steam Engines And Turbine	.0000	-.0000	.0000	.0000	.0000	.0000	.00
308	Internal Combustion Engin	-.0000	-.0007	-.0001	-.0001	-.0002	-.0002	-.00
309	Farm Machinery And Equipm	-.0001	-.0168	-.0041	-.0022	-.0063	-.0066	-.13
311	Construction Machinery An	.0000	-.0001	-.0000	.0000	-.0000	-.0000	.00
313	Oil Field Machinery	-.0000	-.0004	-.0002	-.0000	-.0002	-.0002	-.00
314	Elevators And Moving Stai	.0000	-.0001	-.0000	.0000	-.0000	-.0000	.00
315	Conveyors And Conveying E	.0000	-.0001	-.0000	.0000	-.0000	-.0000	.00
316	Hoists, Cranes, And Monor	.0000	-.0000	.0000	.0000	.0000	.0000	.00
317	Industrial Trucks And Tra	.0000	-.0001	-.0000	.0000	-.0000	-.0000	.00
321	Special Dies And Tools An	.0000	-.0000	-.0000	.0000	-.0000	-.0000	.00
330	Food Products Machinery	.0000	-.0001	-.0000	-.0000	-.0000	-.0000	.00
332	Pumps And Compressors	.0000	.0000	.0000	.0000	.0000	.0000	.00
334	Blowers And Fans	.0000	.0000	.0000	.0000	.0000	.0000	.00
337	Industrial Furnaces And O	.0000	.0000	.0000	.0000	.0000	.0000	.00
338	General Industrial Machin	.0000	.0000	.0000	.0000	.0000	.0000	.00
346	Commercial Laundry Equipm	.0000	-.0001	-.0000	-.0000	-.0000	-.0000	.00
347	Refrigeration And Heating	-.0003	-.0017	-.0004	-.0002	-.0006	-.0006	-.01
349	Service Industry Machines	-.0000	-.0003	-.0001	-.0001	-.0001	-.0001	-.00
351	Fluid Power Cylinders & A	.0000	.0000	.0000	.0000	.0000	.0000	.00
352	Fluid Power Pumps & Motor	.0000	.0000	.0000	.0000	.0000	.0000	.00
354	Industrial Machines Nec.	.0000	-.0000	.0000	.0000	-.0000	-.0000	.00
356	Switchgear And Switchboar	.0000	-.0001	-.0000	-.0000	-.0001	-.0001	-.00
357	Motors And Generators	.0000	-.0000	.0000	.0000	-.0000	-.0000	.00
359	Relays & Industrial Contr	-.0000	-.0002	-.0001	-.0000	-.0001	-.0001	-.00
361	Household Cooking Equipme	.0000	.0000	.0000	.0000	.0000	.0000	.00
373	Radio And Tv Communicatio	-.0001	-.0004	-.0001	-.0001	-.0002	-.0002	-.00
374	Communications Equipment	.0000	.0000	.0000	.0000	.0000	.0000	.00
376	Printed Circuit Boards	-.0000	-.0001	-.0001	-.0000	-.0001	-.0001	-.00
378	Electronic Components, N.	-.0000	-.0002	-.0000	-.0000	-.0001	-.0001	-.00
381	Engine Electrical Equipme	.0000	-.0000	.0000	.0000	.0000	.0000	.00
386	Motor Vehicle Parts And A	.0000	-.0000	.0000	.0000	.0000	.0000	.00
392	Ship Building And Repairi	.0000	-.0001	-.0000	.0000	-.0000	-.0000	.00
393	Boat Building And Repairi	-.0000	-.0000	.0000	.0000	-.0000	-.0000	.00
396	Complete Guided Missiles	-.0000	-.0001	-.0000	.0000	-.0000	-.0000	.00
399	Transportation Equipment,	.0000	-.0000	.0000	.0000	.0000	.0000	.00
400	Search & Navigation Equip	-.0000	-.0000	-.0000	.0000	-.0000	-.0000	.00
403	Mechanical Measuring Devi	-.0000	-.0023	-.0008	-.0004	-.0013	-.0013	-.02

407	Surgical And Medical Inst	.0000	-.0001	-.0000	-.0000	-.0001	-.0001	.00
408	Surgical Appliances And S	-.0004	-.0010	-.0002	-.0002	-.0004	-.0004	-.01
409	Dental Equipment And Supp	-.0000	-.0005	-.0001	-.0001	-.0002	-.0002	-.00
412	Ophthalmic Goods	-.0001	-.0001	-.0000	-.0000	-.0001	-.0001	-.00
413	Photographic Equipment An	.0000	-.0000	.0000	.0000	-.0000	-.0000	.00
415	Jewelry, Precious Metal	-.0000	-.0000	.0000	.0000	-.0000	-.0000	.00
417	Jewelers Materials And La	-.0000	-.0000	.0000	.0000	-.0000	-.0000	.00
419	Dolls	-.0002	-.0002	-.0001	-.0000	-.0001	-.0001	-.00
424	Marking Devices	.0000	-.0000	.0000	.0000	.0000	.0000	.00
425	Carbon Paper And Inked Ri	.0000	.0000	.0000	.0000	.0000	.0000	.00
429	Signs And Advertising Dis	.0000	-.0001	-.0000	.0000	-.0000	-.0000	.00
430	Burial Caskets And Vaults	.0000	.0000	.0000	.0000	.0000	.0000	.00
432	Manufacturing Industries,	.0000	.0000	.0000	.0000	.0000	.0000	.00
433	Railroads And Related Ser	-.0009	-.0033	-.0017	-.0004	-.0021	-.0022	-.03
434	Local, Interurban Passeng	-.0025	-.0033	-.0018	-.0008	-.0026	-.0026	-.09
435	Motor Freight Transport A	-.0100	-.0373	-.0117	-.0070	-.0188	-.0194	-.48
436	Water Transportation	-.0032	-.0071	-.0013	-.0003	-.0016	-.0017	-.04
437	Air Transportation	-.0057	-.0125	-.0036	-.0009	-.0045	-.0054	-.09
438	Pipe Lines, Except Natura	-.0001	-.0011	-.0001	-.0007	-.0008	-.0009	-.00
439	Arrangement Of Passenger	-.0001	-.0004	-.0002	-.0001	-.0002	-.0002	-.01
440	Transportation Services	-.0002	-.0014	-.0006	-.0003	-.0008	-.0009	-.02
441	Communications, Except Ra	-.0187	-.0246	-.0076	-.0080	-.0157	-.0187	-.17
442	Radio And Tv Broadcasting	-.0002	-.0013	-.0004	-.0001	-.0005	-.0005	-.01
443	Electric Services	-.0285	-.0446	-.0075	-.0183	-.0258	-.0281	-.13
444	Gas Production And Distri	-.0086	-.0156	-.0019	-.0027	-.0045	-.0052	-.04
445	Water Supply And Sewerage	-.0003	-.0005	-.0001	.0000	-.0000	-.0001	-.00
446	Sanitary Services And Ste	-.0010	-.0017	-.0005	.0000	-.0006	-.0006	-.02
447	Wholesale Trade	-.0430	-.0878	-.0402	-.0061	-.0464	-.0598	-1.22
448	Building Materials & Gard	-.0118	-.0123	-.0059	-.0021	-.0079	-.0103	-.29
449	General Merchandise Store	-.0273	-.0283	-.0146	-.0026	-.0172	-.0220	-.99
450	Food Stores	-.0350	-.0365	-.0169	-.0077	-.0246	-.0319	-1.37
451	Automotive Dealers & Serv	-.0366	-.0375	-.0190	-.0058	-.0249	-.0313	-.79
452	Apparel & Accessory Store	-.0152	-.0158	-.0057	-.0019	-.0076	-.0100	-.51
453	Furniture & Home Furnishi	-.0119	-.0125	-.0060	-.0021	-.0081	-.0103	-.30
454	Eating & Drinking	-.0736	-.0753	-.0297	-.0077	-.0373	-.0439	-2.69
455	Miscellaneous Retail	-.0462	-.0479	-.0162	-.0066	-.0228	-.0298	-1.51
456	Banking	-.0360	-.0524	-.0140	-.0071	-.0211	-.0232	-.54
457	Credit Agencies	-.0031	-.0062	-.0025	.0023	-.0003	-.0004	-.14

458	Security And Commodity Br	-.0016	-.0031	-.0017	-.0003	-.0020	-.0020	-.04
459	Insurance Carriers	-.0314	-.0504	-.0136	.0013	-.0123	-.0176	-.34
460	Insurance Agents And Brok	.0000	-.0082	-.0030	-.0034	-.0064	-.0065	-.15
461	Owner-occupied Dwellings	-.1232	-.1232	.0000	-.0691	-.0691	-.0931	.00
462	Real Estate	-.0428	-.0774	-.0060	-.0356	-.0416	-.0561	-.73
463	Hotels And Lodging Places	-.0080	-.0163	-.0075	-.0037	-.0112	-.0133	-.49
464	Laundry, Cleaning And Sho	-.0038	-.0073	-.0026	-.0027	-.0053	-.0057	-.42
465	Portrait And Photographic	-.0016	-.0017	-.0004	-.0004	-.0008	-.0009	-.05
466	Beauty And Barber Shops	-.0048	-.0048	-.0018	-.0020	-.0038	-.0039	-.24
467	Funeral Service And Crema	-.0016	-.0016	-.0005	-.0006	-.0011	-.0011	-.04
468	Miscellaneous Personal Se	-.0044	-.0047	-.0006	-.0008	-.0015	-.0016	-.12
469	Advertising	-.0000	-.0019	-.0008	-.0007	-.0015	-.0015	-.03
470	Other Business Services	-.0005	-.0185	-.0058	-.0074	-.0132	-.0137	-.39
471	Photofinishing, Commercia	-.0012	-.0030	-.0008	-.0009	-.0017	-.0018	-.06
472	Services To Buildings	-.0008	-.0033	-.0015	-.0010	-.0025	-.0026	-.19
473	Equipment Rental And Lea	-.0006	-.0031	-.0008	-.0011	-.0019	-.0022	-.04
474	Personnel Supply Services	-.0006	-.0076	-.0045	-.0026	-.0072	-.0072	-.43
475	Computer And Data Process	-.0002	-.0148	-.0057	-.0045	-.0102	-.0104	-.23
476	Detective And Protective	-.0000	-.0070	-.0040	-.0024	-.0064	-.0065	-.46
477	Automobile Rental And Lea	-.0027	-.0061	-.0011	-.0010	-.0021	-.0028	-.07
478	Automobile Parking And Ca	-.0014	-.0015	-.0006	-.0003	-.0009	-.0010	-.07
479	Automobile Repair And Ser	-.0287	-.0468	-.0064	-.0073	-.0138	-.0150	-.43
480	Electrical Repair Service	-.0019	-.0046	-.0014	-.0019	-.0033	-.0033	-.08
481	Watch, Clock, Jewelry And	-.0004	-.0004	-.0001	-.0001	-.0002	-.0002	-.01
482	Miscellaneous Repair Shop	-.0008	-.0098	-.0030	-.0034	-.0064	-.0065	-.18
483	Motion Pictures	-.0035	-.0082	-.0014	-.0009	-.0023	-.0023	-.13
484	Theatrical Producers, Ban	-.0002	-.0003	-.0001	-.0001	-.0002	-.0002	-.01
485	Bowling Alleys And Pool H	-.0010	-.0010	-.0004	-.0003	-.0006	-.0007	-.05
486	Commercial Sports Except	-.0008	-.0017	-.0009	-.0004	-.0013	-.0014	-.02
487	Racing And Track Operatio	-.0016	-.0027	-.0002	-.0002	-.0004	-.0020	-.09
488	Amusement And Recreation	-.0091	-.0091	-.0023	-.0026	-.0049	-.0053	-.24
489	Membership Sports And Rec	-.0035	-.0040	-.0016	-.0016	-.0032	-.0033	-.16
490	Doctors And Dentists	-.0824	-.0824	-.0466	-.0224	-.0690	-.0698	-.96
491	Nursing And Protective Ca	-.0101	-.0101	-.0065	-.0016	-.0081	-.0082	-.56
492	Hospitals	-.0709	-.0710	-.0382	-.0132	-.0514	-.0515	-1.42
493	Other Medical And Health	-.0215	-.0246	-.0076	-.0047	-.0123	-.0124	-.39
494	Legal Services	-.0200	-.0460	-.0157	-.0180	-.0336	-.0340	-.42
495	Elementary And Secondary	-.0058	-.0058	-.0027	-.0001	-.0028	-.0028	-.21

496	Colleges, Universities, S	-.0009	-.0023	-.0010	-.0001	-.0011	-.0011	-.08
497	Other Educational Service	-.0055	-.0056	-.0013	-.0000	-.0013	-.0013	-.11
498	Job Trainings & Related S	-.0015	-.0015	-.0009	.0000	-.0009	-.0009	-.04
499	Child Day Care Services	-.0064	-.0064	-.0015	-.0006	-.0021	-.0021	-.17
500	Social Services, N.E.C.	-.0052	-.0052	-.0024	.0000	-.0024	-.0024	-.17
501	Residential Care	-.0025	-.0025	-.0016	.0000	-.0016	-.0016	-.11
502	Other Nonprofit Organizat	-.0025	-.0026	-.0009	.0000	-.0008	-.0008	-.05
503	Business Associations	-.0009	-.0030	-.0029	.0000	-.0029	-.0029	-.08
504	Labor And Civic Organizat	-.0061	-.0061	-.0039	.0000	-.0039	-.0039	-.39
505	Religious Organizations	-.0038	-.0038	-.0004	.0000	-.0004	-.0004	-.04
506	Engineering, Architectura	.0000	-.0012	-.0006	-.0002	-.0008	-.0008	-.02
507	Accounting, Auditing And	-.0002	-.1411	-.0641	-.0250	-.0891	-.0893	-3.31
508	Management And Consulting	.0000	-.0042	-.0016	-.0004	-.0020	-.0021	-.09
509	Research, Development & T	.0000	-.0027	-.0016	-.0005	-.0021	-.0022	-.11
510	Local Government Passenge	-.0001	-.0001	-.0000	.0000	.0000	.0000	-.00
511	State And Local Electric	-.0003	-.0005	-.0001	-.0002	-.0003	-.0003	-.00
512	Other State And Local Gov	-.0195	-.0302	-.0071	-.0099	-.0170	-.0170	-.33
513	U.S. Postal Service	-.0019	-.0070	-.0057	.0004	-.0053	-.0053	-.12
519	Federal Government - Mili	.0000	.0000	.0000	.0000	.0000	.0000	.00
520	Federal Government - Non-	.0000	.0000	.0000	.0000	.0000	.0000	.00
522	State & Local Government	.0000	.0000	.0000	.0000	.0000	.0000	.00
523	State & Local Government	.0000	.0000	.0000	.0000	.0000	.0000	.00
525	Household Industry-low In	-.0043	-.0043	-.0043	.0000	-.0043	-.0043	-.62
528	Inventory Valuation Adjus	.0000	.0000	.0000	.0000	.0000	.0000	.00
TOTAL		-6.3700	-7.4252	-1.1483	2.4136	-3.5619	-3.9156	-57.00
Change in Population =		-120.						

RECREATIONAL FISHING \$MM 1992
Scenario RECFISHJ: Total Effects

Impact Report #906
1/18/96

		Base Year Final Demand	Base Year (TIO) (MMS)	Employee Comp Income (MMS)	Property Income (MMS)	Total POW Income (MMS)	Total Value Added (MMS)	Employment (Number of Jobs)
Industry								
1	Dairy Farm Products	-.0004	-.0005	-.0000	-.0001	-.0001	-.0001	-.00
2	Poultry And Eggs	-.0032	-.0126	-.0010	-.0074	-.0084	-.0084	-.22
3	Ranch Fed Cattle	-.0006	-.0046	-.0003	-.0011	-.0014	-.0015	-.11
4	Range Fed Cattle	-.0002	-.0010	-.0000	-.0001	-.0002	-.0002	-.01
5	Cattle Feedlots	-.0000	-.0009	-.0001	-.0002	-.0003	-.0003	-.03
6	Sheep, Lambs And Goats	.0000	.0000	.0000	.0000	.0000	.0000	.00
7	Hogs, Pigs And Swine	-.0000	-.0001	.0000	-.0000	-.0000	-.0000	-.00
8	Other Meat Animal Product	.0000	.0000	.0000	.0000	.0000	.0000	.00
9	Miscellaneous Livestock	-.0171	-.0185	-.0005	-.0058	-.0063	-.0065	-.15
12	Feed Grains	-.0000	-.0001	.0000	-.0000	-.0000	-.0000	.00
13	Hay And Pasture	-.0003	-.0007	-.0000	-.0003	-.0003	-.0004	-.01
16	Fruits	-.0135	-.0146	-.0002	-.0029	-.0031	-.0032	-.12
18	Vegetables	-.0264	-.0307	-.0003	-.0125	-.0128	-.0131	-.19
19	Sugar Crops	-.0012	-.0057	-.0003	-.0025	-.0028	-.0029	-.07
23	Greenhouse And Nursery Pr	-.1984	-.2276	-.0358	-.1712	-.2069	-.2075	-12.36
24	Forestry Products	-.0002	-.0003	-.0000	-.0001	-.0001	-.0001	.00
25	Commercial Fishing	-.0614	-.0928	-.0097	-.0721	-.0819	-.0844	-3.22
26	Agricultural, Forestry, F	-.0131	-.0183	-.0067	-.0024	-.0091	-.0091	-.50
27	Landscape And Horticultur	.0000	-.3189	-.1346	-.0626	-.1973	-.1973	-12.23
29	Copper Ores	.0000	-.0001	-.0000	-.0000	-.0001	-.0001	.00
37	Coal Mining	-.0001	-.0060	-.0019	-.0016	-.0036	-.0039	-.02
38	Natural Gas & Crude Petro	-1.0426	-1.9023	-.2931	-.8038	-1.0970	-1.2553	-7.04
41	Sand And Gravel	.0000	-.0004	-.0001	-.0001	-.0002	-.0002	-.00
44	Phosphate Rock	-.0000	-.0012	-.0002	-.0002	-.0004	-.0005	-.01
45	Chemical, Fertilizer Mine	-.0004	-.0195	-.0048	-.0050	-.0097	-.0108	-.07
47	Misc. Nonmetallic Mineral	-.0000	-.0000	.0000	.0000	.0000	-.0000	.00
48	New Residential Structure	.0000	.0000	.0000	.0000	.0000	.0000	.00
49	New Industrial And Commer	.0000	.0000	.0000	.0000	.0000	.0000	.00
50	New Utility Structures	.0000	.0000	.0000	.0000	.0000	.0000	.00

51	New Highways And Streets	.0000	.0000	.0000	.0000	.0000	.0000	.00
53	New Mineral Extraction Fa	.0000	.0000	.0000	.0000	.0000	.0000	.00
54	New Government Facilities	.0000	.0000	.0000	.0000	.0000	.0000	.00
55	Maintenance And Repair, R	.0000	-1.2246	-.3698	-.2187	-.5885	-.6060	-17.79
56	Maintenance And Repair Ot	.0000	-11.1136	-3.5374	-2.0360	-5.5733	-5.7411	-149.08
57	Maintenance And Repair Oi	.0000	-.1838	-.1273	-.0226	-.1500	-.1500	-4.79
58	Meat Packing Plants	-.0558	-.0732	-.0049	.0027	-.0021	-.0022	-.19
59	Sausages And Other Prepar	-.0913	-.1169	-.0083	-.0066	-.0149	-.0153	-.62
65	Fluid Milk	-.7366	-.9290	-.0972	-.0623	-.1595	-.1625	-3.11
66	Canned Specialties	-.0030	-.0039	-.0005	-.0007	-.0012	-.0012	-.02
68	Dehydrated Food Products	-.0007	-.0009	-.0001	-.0001	-.0003	-.0003	-.01
69	Pickles, Sauces, And Sala	-.0307	-.0559	-.0079	-.0133	-.0212	-.0215	-.20
70	Frozen Fruits, Juices And	-.0007	-.0012	-.0001	-.0001	-.0002	-.0003	-.01
71	Frozen Specialties	-.0082	-.0108	-.0010	-.0011	-.0021	-.0021	-.10
78	Prepared Feeds, N.E.C	-.0034	-.0041	-.0004	.0000	-.0004	-.0004	-.01
79	Bread, Cake, And Related	-.3283	-.4711	-.1260	-.1365	-.2625	-.2675	-4.07
80	Cookies And Crackers	-.6576	-.8542	-.1745	-.2219	-.3965	-.4023	-5.33
81	Sugar	-.0084	-.0137	-.0020	-.0011	-.0030	-.0031	-.04
82	Confectionery Products	-.0084	-.0111	-.0015	-.0015	-.0030	-.0031	-.08
89	Animal And Marine Fats An	-.0322	-.0731	-.0080	-.0139	-.0219	-.0227	-.25
95	Bottled And Canned Soft D	-.0435	-.0533	-.0071	-.0070	-.0141	-.0147	-.20
96	Flavoring Extracts And Sy	-.0013	-.0017	-.0002	-.0006	-.0008	-.0008	-.01
97	Canned And Cured Sea Food	-.0006	-.0007	-.0001	-.0000	-.0002	-.0002	-.01
98	Prepared Fresh Or Frozen	-.0073	-.0353	-.0030	-.0011	-.0041	-.0041	-.27
99	Roasted Coffee	-.1733	-.4255	-.0355	-.0691	-.1045	-.1054	-1.02
101	Manufactured Ice	-.0120	-.0144	-.0053	-.0026	-.0079	-.0084	-.42
102	Macaroni And Spaghetti	-.0847	-.1142	-.0167	-.0204	-.0371	-.0382	-.89
103	Food Preparations, N.E.C	-.6336	-.8094	-.1265	-.1433	-.2698	-.2734	-4.59
108	Broadwoven Fabric Mills A	-.0028	-.0069	-.0018	-.0005	-.0023	-.0023	-.08
117	Carpets And Rugs	-.0015	-.0015	-.0003	-.0001	-.0004	-.0004	-.01
122	Cordage And Twine	-.0004	-.0039	-.0010	-.0005	-.0014	-.0014	-.04
123	Textile Goods, N.E.C	-.0003	-.0004	-.0001	-.0000	-.0002	-.0002	-.00
124	Apparel Made From Purchas	-1.2749	-1.3646	-.4063	-.1621	-.5684	-.5719	-22.47
125	Curtains And Draperies	-.0076	-.0080	-.0026	-.0006	-.0032	-.0032	-.16
126	Housefurnishings, N.E.C	-.0624	-.0710	-.0166	-.0186	-.0352	-.0353	-.52
127	Textile Bags	-.0121	-.0245	-.0092	-.0030	-.0123	-.0123	-.23
128	Canvas Products	-.0048	-.0291	-.0114	-.0025	-.0139	-.0140	-.47
129	Pleating And Stitching	-.0123	-.0180	-.0077	-.0049	-.0126	-.0127	-.33

132	Fabricated Textile Produc	-.0217	-.0266	-.0058	-.0020	-.0078	-.0079	-.24
133	Logging Camps And Logging	.0000	-.0049	-.0008	-.0006	-.0015	-.0015	-.03
134	Sawmills And Planing Mill	-.0000	-.0069	-.0013	-.0006	-.0019	-.0020	-.07
135	Hardwood Dimension And Fl	-.0001	-.0049	-.0020	-.0005	-.0026	-.0026	-.10
137	Millwork	-.0003	-.0199	-.0061	-.0023	-.0084	-.0085	-.27
138	Wood Kitchen Cabinets	-.0000	-.0011	-.0003	-.0001	-.0005	-.0005	-.02
142	Wood Pallets And Skids	-.0000	-.0027	-.0006	-.0001	-.0007	-.0007	-.06
144	Prefabricated Wood Buildi	-.0001	-.0001	-.0000	-.0000	-.0000	-.0000	-.00
145	Wood Preserving	-.0007	-.0382	-.0057	-.0034	-.0091	-.0094	-.18
146	Reconstituted Wood Produc	-.0006	-.0131	-.0025	-.0018	-.0043	-.0045	-.06
147	Wood Products, N.E.C	-.0071	-.0084	-.0029	-.0011	-.0040	-.0041	-.15
148	Wood Household Furniture	-.0538	-.0540	-.0145	-.0069	-.0214	-.0217	-.83
150	Metal Household Furniture	-.0067	-.0068	-.0014	-.0008	-.0022	-.0022	-.08
151	Mattresses And Bedsprings	-.0173	-.0173	-.0038	-.0019	-.0058	-.0058	-.19
157	Wood Partitions And Fixtu	-.0000	-.0010	-.0004	-.0001	-.0005	-.0005	-.02
158	Metal Partitions And Fixt	-.0000	-.0012	-.0003	-.0001	-.0004	-.0004	-.01
159	Blinds, Shades, And Drape	-.0231	-.0231	-.0046	-.0032	-.0078	-.0078	-.31
162	Paper Mills, Except Build	-.0003	-.0012	-.0003	-.0001	-.0004	-.0004	-.01
164	Paperboard Containers And	-.0036	-.1918	-.0500	-.0162	-.0662	-.0673	-1.16
165	Paper Coated & Laminated	-.0014	-.0041	-.0007	-.0005	-.0012	-.0013	-.03
166	Paper Coated & Laminated	-.0106	-.0307	-.0086	-.0046	-.0132	-.0135	-.20
169	Die-cut Paper And Board	-.0004	-.0021	-.0004	-.0001	-.0006	-.0006	-.02
173	Converted Paper Products,	-.0011	-.0017	-.0004	-.0002	-.0006	-.0006	-.02
174	Newspapers	-.0468	-.4569	-.1678	-.1402	-.3080	-.3170	-7.64
175	Periodicals	-.0487	-.3574	-.0778	-.0794	-.1572	-.1608	-2.52
176	Book Publishing	-.0911	-.1003	-.0176	-.0309	-.0486	-.0499	-.51
178	Miscellaneous Publishing	-.0019	-.0200	-.0048	-.0066	-.0114	-.0118	-.21
179	Commercial Printing	-.0242	-1.8739	-.4815	-.2483	-.7297	-.7758	-20.50
182	Blankbooks And Looseleaf	-.0020	-.0165	-.0049	-.0039	-.0087	-.0090	-.18
183	Bookbinding & Related	.0000	-.0006	-.0003	-.0001	-.0004	-.0004	-.01
184	Typesetting	.0000	-.0006	-.0002	-.0001	-.0003	-.0004	-.01
185	Plate Making	.0000	-.0028	-.0011	-.0005	-.0016	-.0016	-.02
187	Industrial Gases	-.0006	-.0038	-.0017	-.0009	-.0026	-.0028	-.04
189	Inorganic Chemicals Nec.	-.0219	-.1419	-.0374	-.0317	-.0691	-.0731	-.73
190	Cyclic Crudes, Interm. &	-.1173	-.6742	-.0937	-.1379	-.2316	-.2418	-1.64
191	Plastics Materials And Re	-.0179	-.1001	-.0138	-.0142	-.0280	-.0294	-.27
196	Soap And Other Detergents	-.1247	-.1394	-.0175	-.0276	-.0451	-.0458	-.55
197	Polishes And Sanitation G	-.0313	-.0356	-.0077	-.0108	-.0185	-.0186	-.29

199	Toilet Preparations	-.0155	-.0161	-.0025	-.0056	-.0081	-.0082	-.06
200	Paints And Allied Product	-.0008	-.0027	-.0004	-.0005	-.0008	-.0009	-.01
204	Agricultural Chemicals, N	-.0028	-.0046	-.0007	-.0011	-.0018	-.0019	-.01
209	Chemical Preparations, N.	-.0268	-.1199	-.0266	-.0238	-.0503	-.0509	-.42
210	Petroleum Refining	-5.2608	-8.2702	-.4893	-.3018	-.7911	-1.7586	-6.75
213	Lubricating Oils And Grease	-.1100	-.2516	-.0159	-.0191	-.0350	-.0361	-.52
218	Gaskets, Packing And Seal	-.0004	-.0011	-.0003	-.0001	-.0005	-.0005	-.01
219	Fabricated Rubber Product	-.0019	-.0054	-.0014	-.0005	-.0019	-.0019	-.05
220	Miscellaneous Plastics Products	-.0024	-.0140	-.0028	-.0017	-.0045	-.0046	-.12
229	Leather Goods, N.E.C	-.0057	-.0068	-.0024	-.0010	-.0034	-.0034	-.16
230	Glass And Glass Products, N.E.C	-.0131	-.0354	-.0080	-.0041	-.0121	-.0125	-.55
241	Pottery Products, N.E.C	-.0000	-.0001	-.0000	.0000	-.0000	-.0000	-.00
242	Concrete Block And Brick	.0000	-.0001	-.0000	.0000	-.0000	-.0000	.00
243	Concrete Products, N.E.C	-.0001	-.0002	-.0001	-.0000	-.0001	-.0001	-.00
244	Ready-mixed Concrete	-.0000	-.0007	-.0002	-.0001	-.0003	-.0003	-.01
246	Gypsum Products	-.0000	-.0008	-.0002	-.0001	-.0003	-.0003	-.00
247	Cut Stone And Stone Products	-.0000	-.0001	-.0000	.0000	-.0000	-.0000	.00
249	Asbestos Products	-.0002	-.0017	-.0009	-.0000	-.0009	-.0009	-.03
250	Minerals, Ground Or Treated	-.0000	-.0000	-.0000	.0000	-.0000	-.0000	.00
254	Blast Furnaces And Steel	-.0001	-.0078	-.0013	-.0005	-.0018	-.0019	-.04
259	Iron And Steel Foundries	-.0000	-.0007	-.0002	-.0000	-.0002	-.0002	-.01
265	Aluminum Rolling And Drawing	-.0003	-.0026	-.0004	-.0001	-.0005	-.0005	-.01
271	Metal Heat Treating	-.0001	-.0019	-.0006	-.0004	-.0010	-.0010	-.02
274	Metal Barrels, Drums And	-.0007	-.0263	-.0066	-.0011	-.0076	-.0078	-.22
278	Hardware, N.E.C.	-.0001	-.0004	-.0001	-.0001	-.0002	-.0002	.00
282	Fabricated Structural Metal	-.0014	-.0044	-.0013	-.0004	-.0018	-.0018	-.03
283	Metal Doors, Sash, And Trim	-.0003	-.0011	-.0003	-.0001	-.0004	-.0004	-.01
284	Fabricated Plate Work	-.0002	-.0008	-.0003	-.0001	-.0004	-.0004	-.01
285	Sheet Metal Work	-.0004	-.0019	-.0005	-.0002	-.0007	-.0007	-.02
286	Architectural Metal Work	-.0001	-.0006	-.0002	-.0001	-.0003	-.0003	-.01
287	Prefabricated Metal Buildings	-.0001	-.0002	-.0000	-.0000	-.0001	-.0001	-.00
290	Iron And Steel Forgings	-.0003	-.0025	-.0011	-.0001	-.0013	-.0013	-.02
294	Metal Stampings, N.E.C.	-.0190	-.0252	-.0053	-.0019	-.0072	-.0074	-.25
295	Plating And Polishing	-.0000	-.0004	-.0002	-.0000	-.0002	-.0002	-.01
296	Metal Coating And Allied	-.0001	-.0035	-.0008	-.0003	-.0011	-.0012	-.03
301	Industrial And Fluid Valves	-.0011	-.0880	-.0149	-.0088	-.0236	-.0243	-.53
303	Pipe, Valves, And Pipe Fittings	-.0005	-.0350	-.0130	-.0045	-.0175	-.0178	-.39
304	Miscellaneous Fabricated	-.0044	-.0614	-.0241	-.0094	-.0335	-.0338	-.77

306	Fabricated Metal Products	-.0009	-.0088	-.0014	-.0009	-.0024	-.0024	-.08
307	Steam Engines And Turbine	-.0000	-.0043	-.0013	-.0006	-.0018	-.0019	-.02
308	Internal Combustion Engin	-.0065	-.0680	-.0126	-.0065	-.0192	-.0208	-.37
309	Farm Machinery And Equipm	-.0128	-.0514	-.0126	-.0066	-.0192	-.0201	-.41
311	Construction Machinery An	-.0002	-.0042	-.0007	-.0003	-.0010	-.0012	-.03
313	Oil Field Machinery	-.0059	-.0669	-.0252	-.0023	-.0275	-.0290	-.74
314	Elevators And Moving Stai	-.0001	-.0055	-.0020	-.0003	-.0023	-.0025	-.06
315	Conveyors And Conveying E	-.0005	-.0109	-.0030	-.0009	-.0039	-.0041	-.11
316	Hoists, Cranes, And Monor	-.0001	-.0015	-.0004	-.0001	-.0005	-.0005	-.02
317	Industrial Trucks And Tra	-.0002	-.0057	-.0019	-.0006	-.0025	-.0026	-.05
321	Special Dies And Tools An	-.0001	-.0374	-.0227	-.0040	-.0267	-.0274	-.50
330	Food Products Machinery	-.0002	-.0159	-.0059	-.0022	-.0080	-.0083	-.16
332	Pumps And Compressors	-.0001	-.0009	-.0001	-.0001	-.0002	-.0002	-.01
334	Blowers And Fans	-.0000	-.0001	-.0000	.0000	-.0000	-.0000	-.00
337	Industrial Furnaces And O	-.0000	-.0001	-.0000	.0000	-.0000	-.0000	.00
338	General Industrial Machin	-.0001	-.0005	-.0001	-.0001	-.0002	-.0002	-.00
346	Commercial Laundry Equipm	-.0005	-.0119	-.0037	-.0020	-.0057	-.0057	-.12
347	Refrigeration And Heating	-.0617	-.2284	-.0482	-.0269	-.0751	-.0785	-1.41
349	Service Industry Machines	-.0074	-.0400	-.0089	-.0068	-.0157	-.0161	-.29
351	Fluid Power Cylinders & A	.0000	-.0000	.0000	.0000	.0000	.0000	.00
352	Fluid Power Pumps & Motor	-.0001	-.0018	-.0014	-.0002	-.0016	-.0017	-.04
354	Industrial Machines Nec.	-.0007	-.0058	-.0021	-.0005	-.0026	-.0027	-.07
356	Switchgear And Switchboar	-.0017	-.0145	-.0039	-.0023	-.0062	-.0062	-.13
357	Motors And Generators	-.0009	-.0041	-.0013	-.0005	-.0018	-.0018	-.04
359	Relays & Industrial Contr	-.0039	-.0378	-.0132	-.0056	-.0187	-.0192	-.29
361	Household Cooking Equipme	-.0007	-.0009	-.0001	-.0001	-.0003	-.0003	-.01
373	Radio And Tv Communicatio	-.0115	-.0477	-.0108	-.0073	-.0181	-.0184	-.30
374	Communications Equipment	-.0000	-.0001	-.0000	-.0000	-.0001	-.0001	.00
376	Printed Circuit Boards	-.0058	-.0206	-.0081	-.0031	-.0112	-.0113	-.27
378	Electronic Components, N.	-.0060	-.0262	-.0049	-.0036	-.0085	-.0086	-.16
381	Engine Electrical Equipme	-.0009	-.0026	-.0007	-.0002	-.0009	-.0009	-.03
386	Motor Vehicle Parts And A	-.0009	-.0048	-.0006	-.0001	-.0008	-.0008	-.02
392	Ship Building And Repairi	-.0018	-.0635	-.0241	-.0042	-.0283	-.0286	-.88
393	Boat Building And Repairi	-.0030	-.0042	-.0015	-.0008	-.0023	-.0023	-.03
396	Complete Guided Missiles	-.0025	-.0078	-.0029	-.0013	-.0043	-.0043	-.05
399	Transportation Equipment,	-.0002	-.0015	-.0002	-.0002	-.0003	-.0003	-.01
400	Search & Navigation Equip	-.0036	-.0058	-.0016	-.0008	-.0024	-.0025	-.04
403	Mechanical Measuring Devi	-.0032	-.0283	-.0102	-.0053	-.0155	-.0157	-.20

407	Surgical And Medical Inst	-.0008	-.0187	-.0063	-.0046	-.0109	-.0110	-.10
408	Surgical Appliances And S	-.0810	-.1691	-.0401	-.0334	-.0734	-.0741	-1.30
409	Dental Equipment And Supp	-.0061	-.0848	-.0230	-.0218	-.0448	-.0450	-.46
412	Ophthalmic Goods	-.0170	-.0183	-.0078	-.0035	-.0113	-.0114	-.27
413	Photographic Equipment An	-.0018	-.0053	-.0009	-.0012	-.0021	-.0021	-.04
415	Jewelry, Precious Metal	-.0061	-.0062	-.0011	-.0009	-.0020	-.0021	-.09
417	Jewelers Materials And La	-.0068	-.0069	-.0010	-.0012	-.0022	-.0022	-.07
419	Dolls -	.0328	-.0328	-.0146	-.0045	-.0191	-.0192	-.69
424	Marking Devices	-.0001	-.0018	-.0009	-.0005	-.0014	-.0014	-.04
425	Carbon Paper And Inked Ri	-.0001	-.0015	-.0003	-.0002	-.0006	-.0006	-.02
429	Signs And Advertising Dis	-.0003	-.0321	-.0086	-.0034	-.0120	-.0125	-.42
430	Burial Caskets And Vaults	-.0000	-.0005	-.0001	-.0001	-.0002	-.0002	-.01
432	Manufacturing Industries,	-.0001	-.0003	-.0000	-.0000	-.0001	-.0001	-.00
433	Railroads And Related Ser	-.1721	-.4356	-.2220	-.0536	-.2755	-.2931	-3.34
434	Local, Interurban Passeng	-1.0460	-1.2443	-.6707	-.3074	-.9781	-.9914	-32.94
435	Motor Freight Transport A	-1.8636	-5.0394	-1.5875	-.9513	-2.5388	-2.6266	-65.10
436	Water Transportation	-47.9414	-54.8587	-9.8807	-2.3074	-12.1881	-13.0581	-300.21
437	Air Transportation	-1.0681	-1.8066	-.5196	-.1264	-.6460	-.7839	-12.93
438	Pipe Lines, Except Natura	-.0279	-.1799	-.0239	-.1180	-.1419	-.1511	-.46
439	Arrangement Of Passenger	-.0274	-.1886	-.0868	-.0351	-.1219	-.1239	-5.46
440	Transportation Services	-.0645	-1.3046	-.5011	-.2721	-.7732	-.7765	-16.43
441	Communications, Except Ra	-3.4829	-5.0599	-1.5696	-1.6543	-3.2239	-3.8548	-35.03
442	Radio And Tv Broadcasting	-.0388	-.5981	-.1694	-.0470	-.2164	-.2372	-6.02
443	Electric Services	-5.3064	-12.1694	-2.0479	-4.9901	-7.0380	-7.6739	-35.22
444	Gas Production And Distri	-1.6071	-3.1661	-.3808	-.5388	-.9196	-1.0615	-7.56
445	Water Supply And Sewerage	-.0490	-.0641	-.0084	.0025	-.0058	-.0089	-.28
446	Sanitary Services And Ste	-.1775	-.4905	-.1625	-.0028	-.1652	-.1800	-4.96
447	Wholesale Trade	-7.9929	-11.5419	-5.2925	-.8056	-6.0981	-7.8583	-160.03
448	Building Materials & Gard	-2.1998	-2.2649	-1.0803	-.3812	-1.4615	-1.8892	-53.02
449	General Merchandise Store	-5.0757	-5.2165	-2.6916	-.4777	-3.1693	-4.0587	-183.09
450	Food Stores	-29.5671	-29.7975	-13.7682	-6.2900	-20.0582	-26.0621	-1118.61
451	Automotive Dealers & Serv	-94.5916	-94.7601	-48.0465	-14.7567	-62.8031	-79.0475	-2002.43
452	Apparel & Accessory Store	-2.8292	-2.9142	-1.0532	-.3552	-1.4084	-1.8386	-94.54
453	Furniture & Home Furnishi	-2.2184	-2.2938	-1.1118	-.3806	-1.4925	-1.9004	-55.78
454	Eating & Drinking	-29.2059	-29.6535	-11.6723	-3.0191	-14.6914	-17.2932	-1060.65
455	Miscellaneous Retail	-70.5469	-70.9188	-24.0322	-9.7795	-33.8118	-44.0862	-2229.47
456	Banking	-6.7039	-8.4880	-2.2650	-1.1560	-3.4210	-3.7603	-87.42
457	Credit Agencies	-.5769	-1.7001	-.6970	.6283	-.0686	-.1224	-39.67

458	Security And Commodity Br	-.3033	-.5045	-.2795	-.0555	-.3350	-.3370	-6.25
459	Insurance Carriers	-5.8451	-7.4729	-2.0231	.1987	-1.8244	-2.6054	-51.09
460	Insurance Agents And Brok	.0000	-1.2191	-.4469	-.5042	-.9511	-.9633	-21.82
461	Owner-occupied Dwellings	-22.9289	-22.9289	.0000	-12.8553	-12.8553	-17.3309	.00
462	Real Estate	-7.9664	-19.4344	-1.4947	-8.9458	-10.4405	-14.0917	-184.43
463	Hotels And Lodging Places	-6.9046	-7.8641	-3.6464	-1.7780	-5.4244	-6.4065	-236.24
464	Laundry, Cleaning And Sho	-.7078	-1.0995	-.3963	-.4005	-.7968	-.8500	-62.61
465	Portrait And Photographic	-.2912	-.3128	-.0681	-.0759	-.1441	-.1604	-9.77
466	Beauty And Barber Shops	-.8934	-.8934	-.3296	-.3720	-.7016	-.7209	-43.81
467	Funeral Service And Crema	-.3037	-.3037	-.0863	-.1153	-.2016	-.2080	-7.73
468	Miscellaneous Personal Se	-.8148	-.8601	-.1178	-.1479	-.2657	-.2931	-21.54
469	Advertising	-.0074	-.9306	-.4041	-.3341	-.7382	-.7470	-16.39
470	Other Business Services	-.0995	-2.6457	-.8315	-1.0564	-1.8878	-1.9595	-55.71
471	Photofinishing, Commercia	-.2211	-.5883	-.1485	-.1818	-.3304	-.3462	-11.28
472	Services To Buildings	-.1457	-.6460	-.2972	-.2007	-.4979	-.5142	-37.77
473	Equipment Rental And Lea	-.1113	-.8125	-.2071	-.2851	-.4921	-.5845	-10.00
474	Personnel Supply Services	-.1118	-1.6014	-.9488	-.5523	-1.5012	-1.5109	-89.47
475	Computer And Data Process	-.0293	-1.4383	-.5595	-.4375	-.9970	-1.0159	-22.83
476	Detective And Protective	-.0039	-.4372	-.2490	-.1508	-.3997	-.4076	-28.79
477	Automobile Rental And Lea	-.5024	-1.4201	-.2650	-.2268	-.4918	-.6489	-17.46
478	Automobile Parking And Ca	-.2694	-.2769	-.1104	-.0606	-.1710	-.1857	-13.39
479	Automobile Repair And Ser	-5.3385	-6.5579	-.9012	-1.0302	-1.9313	-2.1013	-60.80
480	Electrical Repair Service	-.3444	-.7509	-.2302	-.3042	-.5344	-.5400	-12.61
481	Watch, Clock, Jewelry And	-.0826	-.0826	-.0266	-.0113	-.0379	-.0400	-2.64
482	Miscellaneous Repair Shop	-.1527	-.7420	-.2232	-.2588	-.4820	-.4901	-13.71
483	Motion Pictures	-.6564	-1.6783	-.2765	-.1906	-.4671	-.4757	-25.80
484	Theatrical Producers, Ban	-.0355	-.0803	-.0234	-.0256	-.0489	-.0506	-3.16
485	Bowling Alleys And Pool H	-.1952	-.1952	-.0697	-.0480	-.1178	-.1270	-8.40
486	Commercial Sports Excep t	-.1424	-.4590	-.2316	-.1089	-.3404	-.3729	-4.26
487	Racing And Track Operatio	-.2930	-.3030	-.0247	-.0217	-.0464	-.2250	-10.25
488	Amusement And Recreation	-1.6879	-1.6881	-.4298	-.4834	-.9132	-.9769	-45.05
489	Membership Sports And Rec	-.6423	-.8010	-.3127	-.3191	-.6319	-.6649	-32.67
490	Doctors And Dentists	-15.3364	-15.3364	-8.6660	-4.1742	-12.8402	-12.9903	-179.32
491	Nursing And Protective Ca	-1.8849	-1.8849	-1.2048	-.2976	-1.5024	-1.5200	-104.17
492	Hospitals	-13.1980	-13.2050	-7.1108	-2.4500	-9.5608	-9.5862	-264.53
493	Other Medical And Health	-4.0002	-4.5632	-1.4090	-.8781	-2.2872	-2.2993	-72.29
494	Legal Services	-3.7210	-12.3083	-4.1899	-4.8120	-9.0018	-9.0926	-113.74
495	Elementary And Secondary	-1.0840	-1.0840	-.5031	-.0179	-.5210	-.5210	-38.47

496	Colleges, Universities, S	-.1744	-.1882	-.0825	-.0059	-.0884	-.0884	-6.76
497	Other Educational Service	-1.0234	-1.0482	-.2383	-.0066	-.2449	-.2449	-19.60
498	Job Trainings & Related S	-.2737	-.3213	-.1813	.0000	-.1813	-.1813	-8.46
499	Child Day Care Services	-1.1990	-1.1990	-.2845	-.1137	-.3982	-.3982	-31.19
500	Social Services, N.E.C.	-.9589	-.9589	-.4390	.0000	-.4390	-.4390	-31.98
501	Residential Care	-.4606	-.4606	-.2916	.0000	-.2916	-.2916	-21.28
502	Other Nonprofit Organizat	-.4678	-.4956	-.1609	.0029	-.1580	-.1583	-9.24
503	Business Associations	-.1704	-.5205	-.5016	.0000	-.5016	-.5019	-14.67
504	Labor And Civic Organizat	-1.1298	-1.1298	-.7170	.0000	-.7170	-.7252	-72.37
505	Religious Organizations	-.6989	-.6989	-.0723	.0000	-.0723	-.0723	-6.57
506	Engineering, Architectura	.0000	-.1547	-.0730	-.0252	-.0982	-.0988	-2.63
507	Accounting, Auditing And	-.0435	-1.6858	-.7653	-.2992	-1.0644	-1.0672	-39.59
508	Management And Consulting	.0000	-1.6766	-.6461	-.1618	-.8079	-.8293	-33.85
509	Research, Development & T	.0000	-1.0892	-.6525	-.1846	-.8372	-.8614	-42.59
510	Local Government Passenge	-.0406	-.0483	-.0077	.0059	-.0018	-.0018	-1.15
511	State And Local Electric	-.0627	-.1439	-.0246	-.0612	-.0858	-.0858	-1.08
512	Other State And Local Gov	-4.0632	-5.3941	-1.2689	1.7638	-3.0328	-3.0357	-59.15
513	U.S. Postal Service	-.3487	-1.3519	-1.1024	.0770	1.0254	-1.0254	-23.46
519	Federal Government - Mili	.0000	.0000	.0000	.0000	.0000	.0000	.00
520	Federal Government - Non-	.0000	.0000	.0000	.0000	.0000	.0000	.00
522	State & Local Government	.0000	.0000	.0000	.0000	.0000	.0000	.00
523	State & Local Government	-3.7722	-3.7722	-3.7722	.0000	-3.7722	-3.7722	-145.26
525	Household Industry-low In	-.7928	-.7928	-.7928	.0000	-.7928	-.7928	-115.94
528	Inventory Valuation Adjus	.0000	.0000	.0000	.0000	.0000	.0000	.00
TOTAL		-439.4426	-540.0966	-187.9744	-100.3446	-288.3190	-343.0915	-10552.30
Change in Population =		-22140.						

RECREATIONAL HUNTING AND TRAPPING \$MM 1992
Scenario RECHUNTJ: Total Effects

Impact Report #906
1/18/96

		Base Year Final Demand	Base Year (TIO) (MMS)	Employee Comp Income (MMS)	Property Income (MMS)	Total POW Income (MMS)	Total Value Added (MMS)	Employment (Number of Jobs)
Industry								
1	Dairy Farm Products	-.0002	-.0003	.0000	-.0001	-.0001	-.0001	-.00
2	Poultry And Eggs	-.0022	-.0079	-.0006	-.0047	-.0053	-.0053	-.14
3	Ranch Fed Cattle	-.0004	-.0031	-.0002	-.0008	-.0009	-.0010	-.07
4	Range Fed Cattle	-.0001	-.0007	-.0000	-.0001	-.0001	-.0001	-.01
5	Cattle Feedlots	.0000	-.0006	-.0000	-.0001	-.0002	-.0002	-.02
6	Sheep, Lambs And Goats	.0000	.0000	.0000	.0000	.0000	.0000	.00
7	Hogs, Pigs And Swine	.0000	-.0001	.0000	-.0000	-.0000	-.0000	-.00
8	Other Meat Animal Product	.0000	.0000	.0000	.0000	.0000	.0000	.00
9	Miscellaneous Livestock	-.0117	-.0127	-.0003	-.0040	-.0043	-.0045	-.10
12	Feed Grains	-.0000	-.0000	.0000	-.0000	-.0000	-.0000	.00
13	Hay And Pasture	-.0002	-.0005	-.0000	-.0002	-.0002	-.0002	-.00
16	Fruits	-.0093	-.0100	-.0001	-.0020	-.0021	-.0021	-.08
18	Vegetables	-.0181	-.0208	-.0002	-.0085	-.0087	-.0089	-.13
19	Sugar Crops	-.0008	-.0039	-.0002	-.0017	-.0019	-.0019	-.05
23	Greenhouse And Nursery Pr	-.1361	-.1558	-.0245	-.1171	-.1416	-.1420	-8.46
24	Forestry Products	-.0002	-.0002	-.0000	-.0001	-.0001	-.0001	.00
25	Commercial Fishing	-.0421	-.0615	-.0065	-.0478	-.0543	-.0559	-2.14
26	Agricultural, Forestry, F	-.0090	-.0125	-.0046	-.0016	-.0062	-.0062	-.34
27	Landscape And Horticultur	.0000	-.2146	-.0906	-.0421	-.1327	-.1327	-8.23
29	Copper Ores	.0000	-.0001	-.0000	-.0000	-.0000	-.0001	.00
37	Coal Mining	-.0001	-.0037	-.0012	-.0010	-.0022	-.0024	-.01
38	Natural Gas & Crude Petro	-.7151	-1.2380	-.1908	-.5231	-.7139	-.8169	-4.58
41	Sand And Gravel	.0000	-.0003	-.0001	-.0001	-.0002	-.0002	-.00
44	Phosphate Rock	-.0000	-.0008	-.0001	-.0001	-.0003	-.0003	-.00
45	Chemical, Fertilizer Mine	-.0003	-.0128	-.0031	-.0033	-.0064	-.0071	-.05
47	Misc. Nonmetallic Mineral	.0000	-.0000	.0000	.0000	.0000	.0000	.00
48	New Residential Structure	.0000	.0000	.0000	.0000	.0000	.0000	.00
49	New Industrial And Commer	.0000	.0000	.0000	.0000	.0000	.0000	.00
50	New Utility Structures	.0000	.0000	.0000	.0000	.0000	.0000	.00
51	New Highways And Streets	.0000	.0000	.0000	.0000	.0000	.0000	.00

53	New Mineral Extraction Fa	.0000	.0000	.0000	.0000	.0000	.0000	.00
54	New Government Facilities	.0000	.0000	.0000	.0000	.0000	.0000	.00
55	Maintenance And Repair, R	.0000	-.8335	-.2517	-.1488	-.4005	-.4124	-12.11
56	Maintenance And Repair Ot	.0000	-7.3911	-2.3525	-1.3540	-3.7065	-3.8181	-99.15
57	Maintenance And Repair Oi	.0000	-.1196	-.0829	-.0147	-.0976	-.0976	-3.12
58	Meat Packing Plants	-.0383	-.0489	-.0033	.0018	-.0014	-.0015	-.12
59	Sausages And Other Prepar	-.0626	-.0787	-.0056	-.0045	-.0100	-.0103	-.42
65	Fluid Milk	-.5052	-.6301	-.0659	-.0422	-.1082	-.1102	-2.11
66	Canned Specialties	-.0020	-.0026	-.0003	-.0005	-.0008	-.0008	-.01
68	Dehydrated Food Products	-.0005	-.0006	-.0001	-.0001	-.0002	-.0002	-.01
69	Pickles, Sauces, And Sala	-.0211	-.0371	-.0052	-.0088	-.0141	-.0143	-.13
70	Frozen Fruits, Juices And	-.0005	-.0008	-.0001	-.0001	-.0002	-.0002	-.01
71	Frozen Specialties	-.0056	-.0072	-.0007	-.0007	-.0014	-.0014	-.06
78	Prepared Feeds, N.E.C	-.0023	-.0028	-.0003	.0000	-.0003	-.0003	-.01
79	Bread, Cake, And Related	-.2251	-.3153	-.0843	-.0914	-.1757	-.1791	-2.72
80	Cookies And Crackers	-.4510	-.5758	-.1176	-.1496	-.2672	-.2711	-3.59
81	Sugar	-.0057	-.0092	-.0013	-.0007	-.0020	-.0021	-.03
82	Confectionery Products	-.0057	-.0075	-.0010	-.0010	-.0020	-.0021	-.05
89	Animal And Marine Fats An	-.0221	-.0484	-.0053	-.0092	-.0145	-.0151	-.16
95	Bottled And Canned Soft D	-.0298	-.0360	-.0048	-.0047	-.0095	-.0099	-.14
96	Flavoring Extracts And Sy	-.0009	-.0012	-.0002	-.0004	-.0005	-.0005	-.01
97	Canned And Cured Sea Food	-.0004	-.0004	-.0001	-.0000	-.0001	-.0001	-.01
98	Prepared Fresh Or Frozen	-.0050	-.0223	-.0019	-.0007	-.0026	-.0026	-.17
99	Roasted Coffee	-.1188	-.2752	-.0229	-.0447	-.0676	-.0682	-.66
101	Manufactured Ice	-.0082	-.0098	-.0036	-.0018	-.0054	-.0058	-.28
102	Macaroni And Spaghetti	-.0581	-.0765	-.0112	-.0137	-.0249	-.0256	-.59
103	Food Preparations, N.E.C	-.4346	-.5462	-.0854	-.0967	-.1821	-.1845	-3.10
108	Broadwoven Fabric Mills A	-.0019	-.0046	-.0012	-.0003	-.0015	-.0016	-.05
117	Carpets And Rugs	-.0010	-.0010	-.0002	-.0001	-.0003	-.0003	-.01
122	Cordage And Twine	-.0003	-.0005	-.0001	-.0001	-.0002	-.0002	-.01
123	Textile Goods, N.E.C	-.0002	-.0003	-.0001	-.0000	-.0001	-.0001	-.00
124	Apparel Made From Purchas	-.8744	-.9074	-.2701	-.1078	-.3779	-.3803	-14.94
125	Curtains And Draperies	-.0052	-.0055	-.0018	-.0004	-.0022	-.0022	-.11
126	Housefurnishings, N.E.C	-.0428	-.0485	-.0113	-.0127	-.0240	-.0241	-.36
127	Textile Bags	-.0083	-.0161	-.0061	-.0020	-.0080	-.0081	-.15
128	Canvas Products	-.0033	-.0055	-.0022	-.0005	-.0026	-.0027	-.09
129	Pleating And Stitching	-.0084	-.0122	-.0052	-.0034	-.0086	-.0086	-.22
132	Fabricated Textile Produc	-.0149	-.0178	-.0039	-.0014	-.0052	-.0053	-.16

133	Logging Camps And Logging	.0000	-.0032	-.0006	-.0004	-.0010	-.0010	-.02
134	Sawmills And Planing Mill	.0000	-.0045	-.0008	-.0004	-.0012	-.0013	-.04
135	Hardwood Dimension And Fl	-.0001	-.0033	-.0014	-.0004	-.0017	-.0017	-.07
137	Millwork	-.0002	-.0133	-.0040	-.0016	-.0056	-.0057	-.18
138	Wood Kitchen Cabinets	-.0000	-.0007	-.0002	-.0001	-.0003	-.0003	-.01
142	Wood Pallets And Skids	-.0000	-.0016	-.0003	-.0001	-.0004	-.0004	-.03
144	Prefabricated Wood Buildi	-.0001	-.0001	-.0000	.0000	-.0000	-.0000	-.00
145	Wood Preserving	-.0005	-.0255	-.0038	-.0023	-.0061	-.0063	-.12
146	Reconstituted Wood Produc	-.0004	-.0081	-.0016	-.0011	-.0027	-.0028	-.04
147	Wood Products, N.E.C	-.0049	-.0058	-.0020	-.0007	-.0027	-.0028	-.11
148	Wood Household Furniture	-.0369	-.0371	-.0099	-.0048	-.0147	-.0149	-.57
150	Metal Household Furniture	-.0046	-.0046	-.0009	-.0006	-.0015	-.0015	-.06
151	Mattresses And Bedsprings	-.0118	-.0119	-.0026	-.0013	-.0040	-.0040	-.13
157	Wood Partitions And Fixtu	-.0000	-.0007	-.0002	-.0001	-.0003	-.0003	-.01
158	Metal Partitions And Fixt	-.0000	-.0008	-.0002	-.0001	-.0003	-.0003	-.01
159	Blinds, Shades, And Drape	-.0158	-.0159	-.0032	-.0022	-.0053	-.0054	-.21
162	Paper Mills, Except Build	-.0002	-.0008	-.0002	-.0001	-.0003	-.0003	-.00
164	Paperboard Containers And	-.0025	-.1260	-.0329	-.0106	-.0435	-.0442	-.77
165	Paper Coated & Laminated	-.0010	-.0025	-.0004	-.0003	-.0008	-.0008	-.02
166	Paper Coated & Laminated	-.0072	-.0187	-.0052	-.0028	-.0080	-.0082	-.12
169	Die-cut Paper And Board	-.0003	-.0014	-.0003	-.0001	-.0004	-.0004	-.02
173	Converted Paper Products,	-.0008		-.0011	-.0002	-.0002	-.0004	-.0004
174	Newspapers	-.0321	-.3196	-.1174	-.0981	-.2155	-.2217	-5.34
175	Periodicals	-.0334	-.2496	-.0543	-.0555	-.1098	-.1123	-1.76
176	Book Publishing	-.0625	-.0687	-.0121	-.0212	-.0333	-.0342	-.35
178	Miscellaneous Publishing	-.0013	-.0138	-.0033	-.0045	-.0079	-.0081	-.15
179	Commercial Printing	-.0166	-1.2961	-.3330	-.1717	-.5047	-.5366	-14.18
182	Blankbooks And Looseleaf	-.0014	-.0108	-.0032	-.0025	-.0057	-.0059	-.12
183	Bookbinding & Related	.0000	-.0004	-.0002	-.0001	-.0003	-.0003	-.01
184	Typesetting	.0000	-.0004	-.0001	-.0001	-.0002	-.0002	-.01
185	Plate Making	.0000	-.0019	-.0008	-.0003	-.0011	-.0011	-.01
187	Industrial Gases	-.0004	-.0025	-.0011	-.0006	-.0017	-.0019	-.03
189	Inorganic Chemicals Nec.	-.0150	-.0930	-.0245	-.0208	-.0453	-.0479	-.48
190	Cyclic Crudes, Interm. &	-.0804	-.4407	-.0612	-.0902	-.1514	-.1581	-1.07
191	Plastics Materials And Re	-.0122	-.0666	-.0092		-.0095	-.0187	-.0196
196	Soap And Other Detergents	-.0856	-.0952	-.0120	-.0188	-.0308	-.0313	-.38
197	Polishes And Sanitation G	-.0215	-.0244	-.0053	-.0074	-.0127	-.0127	-.20
199	Toilet Preparations	-.0107	-.0110	-.0017	-.0039	-.0056	-.0056	-.04

200	Paints And Allied Product	-.0005	-.0017	-.0002	-.0003	-.0005	-.0005	-.01
204	Agricultural Chemicals, N	-.0019	-.0026	-.0004	-.0006	-.0011	-.0011	-.01
209	Chemical Preparations, N.	-.0184	-.0710	-.0157	-.0141	-.0298	-.0302	-.25
210	Petroleum Refining	-3.6081	-4.8572	-.2874	-.1772	-.4646	-1.0329	-3.97
213	Lubricating Oils And Grease	-.0754	-.1685	-.0107	-.0128	-.0234	-.0242	-.35
218	Gaskets, Packing And Seal	-.0003	-.0006	-.0002	-.0001	-.0003	-.0003	-.01
219	Fabricated Rubber Product	-.0013	-.0033	-.0009	-.0003	-.0011	-.0012	-.03
220	Miscellaneous Plastics Products	-.0017	-.0072	-.0014	-.0009	-.0023	-.0023	-.06
229	Leather Goods, N.E.C	-.0039	-.0047	-.0016	-.0007	-.0023	-.0023	-.11
230	Glass And Glass Products, N.E.C	-.0090	-.0238	-.0054	-.0028	-.0081	-.0084	-.37
241	Pottery Products, N.E.C	-.0000	-.0000	-.0000	.0000	-.0000	-.0000	-.00
242	Concrete Block And Brick	.0000	-.0000	-.0000	.0000	-.0000	-.0000	.00
243	Concrete Products, N.E.C	-.0001	-.0001	-.0000	-.0000	-.0001	-.0001	-.00
244	Ready-mixed Concrete	-.0000	-.0005	-.0001	-.0001	-.0002	-.0002	-.00
246	Gypsum Products	.0000	-.0005	-.0001	-.0001	-.0002	-.0002	-.00
247	Cut Stone And Stone Products	-.0000	-.0000	-.0000	.0000	-.0000	-.0000	.00
249	Asbestos Products	-.0002	-.0012	-.0006	-.0000	-.0006	-.0006	-.02
250	Minerals, Ground Or Treated	.0000	-.0000	.0000	.0000	-.0000	-.0000	.00
254	Blast Furnaces And Steel	-.0001	-.0044	-.0007	-.0003	-.0010	-.0011	-.02
259	Iron And Steel Foundries	-.0000	-.0002	-.0001	-.0000	-.0001	-.0001	-.00
265	Aluminum Rolling And Drawing	-.0002	-.0013	-.0002	-.0001	-.0003	-.0003	-.01
271	Metal Heat Treating	-.0000	-.0010	-.0003	-.0002	-.0005	-.0005	-.01
274	Metal Barrels, Drums And	-.0004	-.0170	-.0042	-.0007	-.0049	-.0051	-.14
278	Hardware, N.E.C.	-.0000	-.0002	-.0000	-.0000	-.0001	-.0001	.00
282	Fabricated Structural Metal	-.0010	-.0026	-.0008	-.0003	-.0011	-.0011	-.02
283	Metal Doors, Sash, And Trim	-.0002	-.0007	-.0002	-.0001	-.0003	-.0003	-.01
284	Fabricated Plate Work	-.0001	-.0004	-.0001	-.0000	-.0002	-.0002	-.00
285	Sheet Metal Work	-.0003	-.0011	-.0003	-.0001	-.0004	-.0004	-.01
286	Architectural Metal Work	-.0001	-.0003	-.0001	-.0000	-.0001	-.0001	-.00
287	Prefabricated Metal Buildings	-.0000	-.0001	-.0000	-.0000	-.0000	-.0000	.00
290	Iron And Steel Forgings	-.0002	-.0010	-.0004	-.0001	-.0005	-.0005	-.01
294	Metal Stampings, N.E.C.	-.0130	-.0162	-.0034	-.0012	-.0046	-.0048	-.16
295	Plating And Polishing	-.0000	-.0002	-.0001	-.0000	-.0001	-.0001	-.00
296	Metal Coating And Allied	-.0001	-.0023	-.0005	-.0002	-.0008	-.0008	-.02
301	Industrial And Fluid Valves	-.0008	-.0273	-.0046	-.0027	-.0073	-.0075	-.17
303	Pipe, Valves, And Pipe Fittings	-.0003	-.0109	-.0040	-.0014	-.0054	-.0055	-.12
304	Miscellaneous Fabricated Metal	-.0030	-.0137	-.0054	-.0021	-.0075	-.0076	-.17
306	Fabricated Metal Products	-.0006	-.0020	-.0003	-.0002	-.0005	-.0006	-.02

307	Steam Engines And Turbine	.0000	-.0027	-.0008	-.0004	-.0011	-.0012	-.01
308	Internal Combustion Engin	-.0045	-.0096	-.0018	-.0009	-.0027	-.0029	-.05
309	Farm Machinery And Equipm	-.0088	-.0338	-.0083	-.0043	-.0126	-.0132	-.27
311	Construction Machinery An	-.0002	-.0020	-.0003	-.0002	-.0005	-.0006	-.01
313	Oil Field Machinery	-.0041	-.0306	-.0115	-.0010	-.0126	-.0132	-.34
314	Elevators And Moving Stai	-.0001	-.0036	-.0014	-.0002	-.0016	-.0016	-.04
315	Conveyors And Conveying E	-.0004	-.0068	-.0019	-.0006	-.0025	-.0026	-.07
316	Hoists, Cranes, And Monor	-.0000	-.0010	-.0003	-.0001	-.0003	-.0003	-.01
317	Industrial Trucks And Tra	-.0001	-.0035	-.0011	-.0004	-.0015	-.0016	-.03
321	Special Dies And Tools An	-.0001	-.0029	-.0017	-.0003	-.0020	-.0021	-.04
330	Food Products Machinery	-.0002	-.0106		-.0039	-.0015	-.0054	-.0056
332	Pumps And Compressors	-.0001	-.0005	-.0001	-.0000	-.0001	-.0001	-.00
334	Blowers And Fans	-.0000	-.0000	-.0000	.0000	-.0000	-.0000	.00
337	Industrial Furnaces And O	-.0000	-.0000	.0000	.0000	-.0000	-.0000	.00
338	General Industrial Machin	-.0001	-.0003	-.0001	-.0000	-.0001	-.0001	-.00
346	Commercial Laundry Equipm	-.0003	-.0080	-.0025	-.0013	-.0038	-.0039	-.08
347	Refrigeration And Heating	-.0423	-.1545	-.0326	-.0182	-.0508	-.0531	-.96
349	Service Industry Machines	-.0051	-.0263	-.0059	-.0045	-.0104	-.0106	-.19
351	Fluid Power Cylinders & A	.0000	-.0000	.0000	.0000	.0000	.0000	.00
352	Fluid Power Pumps & Motor	-.0001	-.0006	-.0005	-.0001	-.0006	-.0006	-.01
354	Industrial Machines Nec.	-.0005	-.0019	-.0007	-.0002	-.0009	-.0009	-.02
356	Switchgear And Switchboar	-.0012	-.0097	-.0026	-.0015	-.0041	-.0042	-.09
357	Motors And Generators	-.0006	-.0023	-.0007	-.0003	-.0010	-.0010	-.02
359	Relays & Industrial Contr	-.0027	-.0206	-.0072	-.0030	-.0102	-.0104	-.16
361	Household Cooking Equipme	-.0005	-.0005	-.0001	-.0001	-.0002	-.0002	-.00
373	Radio And Tv Communicatio	-.0079	-.0318	-.0072	-.0048	-.0121	-.0122	-.20
374	Communications Equipment	-.0000	-.0001	-.0000	-.0000	-.0000	-.0000	.00
376	Printed Circuit Boards	-.0040	-.0129	-.0051	-.0019	-.0070	-.0071	-.17
378	Electronic Components, N.	-.0041	-.0164	-.0031	-.0022	-.0053	-.0054	-.10
381	Engine Electrical Equipme	-.0006	-.0016	-.0004	-.0001	-.0005	-.0005	-.02
386	Motor Vehicle Parts And A	-.0006	-.0033	-.0004	-.0001	-.0005	-.0006	-.02
392	Ship Building And Repairi	-.0013	-.0032	-.0012	-.0002	-.0014	-.0014	-.04
393	Boat Building And Repairi	-.0021	-.0022	-.0008	-.0004	-.0012	-.0012	-.01
396	Complete Guided Missiles	-.0017	-.0051	-.0019	-.0009	-.0028	-.0028	-.03
399	Transportation Equipment,	-.0002	-.0003	-.0000	-.0000	-.0001	-.0001	-.00
400	Search & Navigation Equip	-.0025	-.0039	-.0011	-.0005	-.0016	-.0017	-.03
403	Mechanical Measuring Devi	-.0022	-.0170	-.0061	-.0032	-.0093	-.0094	-.12
407	Surgical And Medical Inst	-.0005	-.0113	-.0038	-.0028	-.0066	-.0067	-.06

408	Surgical Appliances And S	-.0555	-.1152	-.0273	-.0227	-.0500	-.0505	-.88
409	Dental Equipment And Supp	-.0042	-.0561	-.0152	-.0144	-.0296	-.0298	-.30
412	Ophthalmic Goods	-.0117	-.0126	-.0054	-.0024	-.0077	-.0078	-.19
413	Photographic Equipment An	-.0012	-.0035	-.0006	-.0008	-.0014	-.0014	-.03
415	Jewelry, Precious Metal	-.0042	-.0042	-.0007	-.0006	-.0014	-.0014	-.06
417	Jewelers Materials And La	-.0046	-.0048	-.0007	-.0008	-.0015	-.0015	-.05
419	Dolls	-.0225	-.0225	-.0100	-.0031	-.0131	-.0132	-.47
424	Marking Devices	-.0000	-.0011	-.0006	-.0003	-.0009	-.0009	-.02
425	Carbon Paper And Inked Ri	-.0001	-.0009	-.0002	-.0002	-.0004	-.0004	-.01
429	Signs And Advertising Dis	-.0002	-.0225	-.0061	-.0024	-.0084	-.0088	-.30
430	Burial Caskets And Vaults	.0000	-.0004	-.0001	-.0001	-.0001	-.0001	-.01
432	Manufacturing Industries,	-.0001	-.0002	-.0000	-.0000	-.0001	-.0001	-.00
433	Railroads And Related Ser	-.1181	-.2837	-.1446	-.0349	-.1795	-.1909	-2.18
434	Local, Interurban Passeng	-.6298	-.7644	-.4120	-.1889	-.6009	-.6091	-20.24
435	Motor Freight Transport A	-1.2781	-3.2164	-1.0132	-.6072	-1.6204	-1.6764	-41.55
436	Water Transportation	-.4055	-.6045	-.1089	-.0254	-.1343	-.1439	-3.31
437	Air Transportation	-.7326	-1.1577	-.3329	-.0810	-.4139	-.5023	-8.29
438	Pipe Lines, Except Natura	-.0191	-.1049	-.0139	-.0688	-.0827	-.0881	-.27
439	Arrangement Of Passenger	-.0188	-.0407	-.0187	-.0076	-.0263	-.0268	-1.18
440	Transportation Services	-.0312	-.1250	-.0480	-.0261	-.0741	-.0744	-1.57
441	Communications, Except Ra	-2.3887	-3.4331	-1.0650	-1.1224	-2.1874	-2.6155	-23.77
442	Radio And Tv Broadcasting	-.0266	-.4189	-.1187	-.0329	-.1516	-.1662	-4.22
443	Electric Services	-3.6394	-7.6863	-1.2935	-3.1518	-4.4453	-4.8469	-22.24
444	Gas Production And Distri	-1.1022	-2.1509	-.2587	-.3660	-.6247	-.7212	-5.13
445	Water Supply And Sewerage	-.0336	-.0439	-.0057	.0017	-.0040	-.0061	-.19
446	Sanitary Services And Ste	-.1217	-.2322	-.0769	-.0013	-.0782	-.0852	-2.35
447	Wholesale Trade	-5.4819	-7.3709	-3.3799	-.5144	-3.8943	-5.0185	-102.20
448	Building Materials & Gard	-1.5088	-1.5523	-.7404	-.2612	-1.0017	-1.2948	-36.34
449	General Merchandise Store	-3.4812	-3.5754	-1.8449	-.3274	-2.1723	-2.7819	-125.49
450	Food Stores	-14.4156	-14.5661	-6.7304	-3.0748	-9.8052	-12.7401	-546.82
451	Automotive Dealers & Serv	-62.6537	-62.7661	-31.8245	-9.7744	-41.5988	-52.3586	-1326.35
452	Apparel & Accessory Store	-1.9404	-1.9974	-.7219	-.2434	-.9653	-1.2602	-64.80
453	Furniture & Home Furnishi	-1.5215	-1.5720	-.7620	-.2608	-1.0228	-1.3023	-38.23
454	Eating & Drinking	-18.6573	-18.9663	-7.4656	-1.9310	-9.3966	-11.0607	-678.39
455	Miscellaneous Retail	-62.3360	-62.6173	-21.2191	-8.6348	-29.8539	-38.9256	-1968.50
456	Banking	-4.5978	-5.3750	-1.4343	-.7320	-2.1663	-2.3812	-55.36
457	Credit Agencies	-.3956	-.8258	-.3385	.3052	-.0333	-.0595	-19.27
458	Security And Commodity Br	-.2080	-.3325	-.1842	-.0366	-.2208	-.2221	-4.12

459	Insurance Carriers	-4.0089	-5.0925	-1.3786	.1354	-1.2433	-1.7755	-34.82
460	Insurance Agents And Brok	.0000	-.8308	-.3046	-.3436	-.6482	-.6565	-14.87
461	Owner-occupied Dwellings	-15.7256	-15.7256	.0000	-8.8167	-8.8167	-11.8862	.00
462	Real Estate	-5.4637	-12.9420	-.9953	-5.9573	-6.9527	-9.3841	-122.82
463	Hotels And Lodging Places	-4.1868	-4.8322	-2.2406	-1.0925	-3.3331	-3.9366	-145.16
464	Laundry, Cleaning And Sho	-.4854	-.7675	-.2766	-.2796	-.5562	-.5933	-43.70
465	Portrait And Photographic	-.1997	-.2129	-.0464	-.0517	-.0981	-.1092	-6.65
466	Beauty And Barber Shops	-.6127	-.6127	-.2261	-.2551	-.4812	-.4944	-30.05
467	Funeral Service And Crema	-.2083	-.2083	-.0592	-.0791	-.1383	-.1427	-5.30
468	Miscellaneous Personal Se	-.5589	-.5865	-.0804	-.1008	-.1812	-.1999	-14.69
469	Advertising	-.0051	-.6526	-.2834	-.2343	-.5177	-.5239	-11.49
470	Other Business Services	-.0683	-1.7274	-.5429	-.6897	-1.2326	-1.2794	-36.37
471	Photofinishing, Commercia	-.1516	-.4063	-.1026	-.1256	-.2282	-.2391	-7.79
472	Services To Buildings	-.1000	-.4432	-.2038	-.1377	-.3415	-.3527	-25.91
473	Equipment Rental And Lea	-.0763	-.4349	-.1108	-.1526	-.2634	-.3129	-5.35
474	Personnel Supply Services	-.0767	-1.0591	-.6275	-.3653	-.9928	-.9993	-59.18
475	Computer And Data Process	-.0201	-.7651	-.2976	-.2327	-.5304	-.5404	-12.14
476	Detective And Protective	-.0027	-.1962	-.1118	-.0677	-.1794	-.1829	-12.92
477	Automobile Rental And Lea	-.3446	-.9898	-.1847	-.1581	-.3428	-.4522	-12.17
478	Automobile Parking And Ca	-.1848	-.1898	-.0757	-.0415	-.1172	-.1273	-9.18
479	Automobile Repair And Ser	-3.6613	-4.5384	-.6237	-.7129	-1.3366	-1.4543	-42.08
480	Electrical Repair Service	-.2362	-.5105	-.1565	-.2068	-.3633	-.3671	-8.57
481	Watch, Clock, Jewelry And	-.0567	-.0567	-.0182	-.0078	-.0260	-.0275	-1.81
482	Miscellaneous Repair Shop	-.1047	-.4515	-.1358	-.1575	-.2933	-.2983	-8.35
483	Motion Pictures	-.4502	-1.1532	-.1900	-.1310	-.3210	-.3269	-17.73
484	Theatrical Producers, Ban	-.0244	-.0541	-.0158	-.0173	-.0330	-.0341	-2.13
485	Bowling Alleys And Pool H	-.1339	-.1339	-.0478	-.0329	-.0808	-.0871	-5.76
486	Commercial Sports Except	-.0977	-.3291	-.1660	-.0780	-.2441	-.2673	-3.05
487	Racing And Track Operatio	-.2010	-.2078	-.0169	-.0149	-.0318	-.1544	-7.03
488	Amusement And Recreation	-1.1577	-1.1577	-.2948	-.3315	-.6263	-.6700	-30.90
489	Membership Sports And Rec	-.4405	-.5516	-.2154	-.2198	-.4351	-.4579	-22.50
490	Doctors And Dentists	-10.5183	-10.5183	-5.9435	-2.8628	-8.8064	-8.9093	-122.98
491	Nursing And Protective Ca	-1.2927	-1.2927	-.8263	-.2041	-1.0304	-1.0425	-71.44
492	Hospitals	-9.0518	-9.0543	-4.8757	-1.6799	-6.5556	-6.5730	-181.38
493	Other Medical And Health	-2.7435	-3.1296	-.9664	-.6023	-1.5686	-1.5769	-49.58
494	Legal Services	-2.5520	-8.8280	-3.0052	-3.4513	-6.4565	-6.5216	-81.58
495	Elementary And Secondary	-.7435	-.7435	-.3450	-.0123	-.3573	-.3573	-26.38
496	Colleges, Universities, S	-.1196	-.1275	-.0559	-.0040	-.0599	-.0599	-4.58

497	Other Educational Service	-.7019	-.7177	-.1632	-.0045	-.1677	-.1677	-13.42
498	Job Trainings & Related S	-.1877	-.2226	-.1256	.0000	-.1256	-.1256	-5.86
499	Child Day Care Services	-.8223	-.8223	-.1951	-.0780	-.2731	-.2731	-21.39
500	Social Services, N.E.C.	-.6577	-.6577	-.3011	.0000	-.3011	-.3011	-21.93
501	Residential Care	-.3159	-.3159	-.2000	.0000	-.2000	-.2000	-14.59
502	Other Nonprofit Organizat	-.3208	-.3402	-.1105	.0020	-.1085	-.1087	-6.35
503	Business Associations	-.1169	-.2982	-.2874	.0000	-.2874	-.2876	-8.40
504	Labor And Civic Organizat	-.7748	-.7748	-.4918	.0000	-.4918	-.4974	-49.64
505	Religious Organizations	-.4793	-.4793	-.0496	.0000	-.0496	-.0496	-4.51
506	Engineering, Architectura	.0000	-.0969	-.0457	-.0158	-.0615	-.0618	-1.65
507	Accounting, Auditing And	-.0298	-1.1265	-.5114	-.1999	-.7113	-.7132	-26.46
508	Management And Consulting	.0000	-.6120	-.2358	-.0591	-.2949	-.3027	-12.36
509	Research, Development & T	.0000	-.3976	-.2382	-.0674	-.3056	-.3145	-15.55
510	Local Government Passenge	-.0245	-.0296	-.0047	.0036	-.0011	-.0011	-.71
511	State And Local Electric	-.0430	-.0909	-.0155	-.0387	-.0542	-.0542	-.68
512	Other State And Local Gov	-2.8006	-3.6985	-.8700	-1.2094	-2.0794	-2.0814	-40.56
513	U.S. Postal Service	-.2392	-.9300	-.7584	.0530	-.7054	-.7054	-16.14
519	Federal Government - Mili	.0000	.0000	.0000	.0000	.0000	.0000	.00
520	Federal Government - Non-	.0000	.0000	.0000	.0000	.0000	.0000	.00
522	State & Local Government	.0000	.0000	.0000	.0000	.0000	.0000	.00
523	State & Local Government	-7.5066	-7.5066	-7.5066	.0000	-7.5066	-7.5066	-289.07
525	Household Industry-low In	-.5437	-.5437	-.5437	.0000	-.5437	-.5437	-79.52
528	Inventory Valuation Adjus	.0000	.0000	.0000	.0000	.0000	.0000	.00
<hr/>								
TOTAL		-277.6891	-335.7251	-125.2370	-66.3191	-191.5560	-228.4198	-7237.40
Change in Population =		-15185.						

WILDLIFE VIEWING \$MM 1992
Scenario VIEWINGJ: Total Effects

Impact Report #906
1/18/96

		Base Year Final Demand	Base Year (TIO) (MMS)	Employee Comp Income (MMS)	Property Income (MMS)	Total POW Income (MMS)	Total Value Added (MMS)	Employment (Number of Jobs)
Industry								
1	Dairy Farm Products	-.0000	-.0000	.0000	.0000	.0000	.0000	.00
2	Poultry And Eggs	-.0003	-.0015	-.0001	-.0009	-.0010	-.0010	-.03
3	Ranch Fed Cattle	-.0001	-.0004	-.0000	-.0001	-.0001	-.0001	-.01
4	Range Fed Cattle	-.0000	-.0001	.0000	-.0000	-.0000	-.0000	-.00
5	Cattle Feedlots	.0000	-.0001	.0000	-.0000	-.0000	-.0000	-.00
6	Sheep, Lambs And Goats	.0000	.0000	.0000	.0000	.0000	.0000	.00
7	Hogs, Pigs And Swine	.0000	.0000	.0000	.0000	.0000	.0000	.00
8	Other Meat Animal Product	.0000	.0000	.0000	.0000	.0000	.0000	.00
9	Miscellaneous Livestock	-.0015	-.0016	-.0000	-.0005	-.0005	-.0006	-.01
12	Feed Grains	.0000	.0000	.0000	.0000	.0000	.0000	.00
13	Hay And Pasture	-.0000	-.0001	.0000	-.0000	-.0000	-.0000	.00
16	Fruits	-.0012	-.0013	-.0000	-.0003	-.0003	-.0003	-.01
18	Vegetables	-.0023	-.0028	-.0000	-.0012	-.0012	-.0012	-.02
19	Sugar Crops	-.0001	-.0005	-.0000	-.0002	-.0003	-.0003	-.01
23	Greenhouse And Nursery Pr	-.0170	-.0195	-.0031	-.0146	-.0177	-.0178	-1.06
24	Forestry Products	-.0000	-.0000	.0000	.0000	-.0000	-.0000	.00
25	Commercial Fishing	-.0053	-.0096	-.0010	-.0074	-.0084	-.0087	-.33
26	Agricultural, Forestry, F	-.0011	-.0016	-.0006	-.0002	-.0008	-.0008	-.04
27	Landscape And Horticultr	.0000	-.0265	-.0112	-.0052	-.0164	-.0164	-1.02
29	Copper Ores	.0000	-.0000	.0000	.0000	.0000	.0000	.00
37	Coal Mining	.0000	-.0004	-.0001	-.0001	-.0003	-.0003	-.00
38	Natural Gas & Crude Petro	-.0895	-.1527	-.0235	-.0645	-.0881	-.1008	-.57
41	Sand And Gravel	.0000	-.0000	-.0000	.0000	-.0000	-.0000	.00
44	Phosphate Rock	.0000	-.0001	-.0000	-.0000	-.0000	-.0000	.00
45	Chemical, Fertilizer Mine	-.0000	-.0016	-.0004	-.0004	-.0008	-.0009	-.01
47	Misc. Nonmetallic Mineral	.0000	.0000	.0000	.0000	.0000	.0000	.00
48	New Residential Structure	.0000	.0000	.0000	.0000	.0000	.0000	.00
49	New Industrial And Commer	.0000	.0000	.0000	.0000	.0000	.0000	.00
50	New Utility Structures	.0000	.0000	.0000	.0000	.0000	.0000	.00
51	New Highways And Streets	.0000	.0000	.0000	.0000	.0000	.0000	.00
53	New Mineral Extraction Fa	.0000	.0000	.0000	.0000	.0000	.0000	.00

54	New Government Facilities	.0000	.0000	.0000	.0000	.0000	.0000	.00
55	Maintenance And Repair, R	.0000	-.1028	-.0310	-.0183	-.0494	-.0509	-1.49
56	Maintenance And Repair Ot	.0000	-.8598	-.2737	-.1575	-.4312	-.4441	-11.53
57	Maintenance And Repair Oi	.0000	-.0148	-.0102	-.0018	-.0120	-.0120	-.38
58	Meat Packing Plants	-.0048	-.0070	-.0005	.0003	-.0002	-.0002	-.02
59	Sausages And Other Prepar	-.0078	-.0114	-.0008	-.0006	-.0014	-.0015	-.06
65	Fluid Milk	-.0633	-.0876	-.0092	-.0059	-.0150	-.0153	-.29
66	Canned Specialties	-.0003	-.0004	-.0000	-.0001	-.0001	-.0001	-.00
68	Dehydrated Food Products	-.0001	-.0001	-.0000	-.0000	-.0000	-.0000	.00
69	Pickles, Sauces, And Sala	-.0026	-.0060	-.0009	-.0014	-.0023	-.0023	-.02
70	Frozen Fruits, Juices And	-.0001	-.0001	-.0000	-.0000	-.0000	-.0000	.00
71	Frozen Specialties	-.0007	-.0011	-.0001	-.0001	-.0002	-.0002	-.01
78	Prepared Feeds, N.E.C	-.0003	-.0004	-.0000	.0000	-.0000	-.0000	-.00
79	Bread, Cake, And Related	-.0282	-.0481	-.0129	-.0139	-.0268	-.0273	-.42
80	Cookies And Crackers	-.0565	-.0830	-.0170	-.0216	-.0385	-.0391	-.52
81	Sugar	-.0007	-.0013	-.0002	-.0001	-.0003	-.0003	-.00
82	Confectionery Products	-.0007	-.0011	-.0002	-.0001	-.0003	-.0003	-.01
89	Animal And Marine Fats An	-.0028	-.0068	-.0007	-.0013	-.0020	-.0021	-.02
95	Bottled And Canned Soft D	-.0037	-.0051	-.0007	-.0007	-.0013	-.0014	-.02
96	Flavoring Extracts And Sy	-.0001	-.0002	-.0000	-.0001	-.0001	-.0001	.00
97	Canned And Cured Sea Food	-.0001	-.0001	.0000	.0000	-.0000	-.0000	.00
98	Prepared Fresh Or Frozen	-.0006	-.0045	-.0004	-.0001	-.0005	-.0005	-.03
99	Roasted Coffee	-.0149	-.0484	-.0040	-.0079	-.0119	-.0120	-.12
101	Manufactured Ice	-.0010	-.0013	-.0005	-.0002	-.0007	-.0007	-.04
102	Macaroni And Spaghetti	-.0073	-.0113	-.0017	-.0020	-.0037	-.0038	-.09
103	Food Preparations, N.E.C	-.0544	-.0763	-.0119	-.0135	-.0254	-.0258	-.43
108	Broadwoven Fabric Mills A	-.0002	-.0006	-.0002	-.0000	-.0002	-.0002	-.01
117	Carpets And Rugs	-.0001	-.0001	-.0000	.0000	-.0000	-.0000	.00
122	Cordage And Twine	-.0000	-.0001	-.0000	.0000	-.0000	-.0000	.00
123	Textile Goods, N.E.C	-.0000	-.0000	-.0000	.0000	-.0000	-.0000	.00
124	Apparel Made From Purchas	-.1095	-.1137	-.0339	-.0135	-.0474	-.0477	-1.87
125	Curtains And Draperies	-.0007	-.0007	-.0002	-.0001	-.0003	-.0003	-.01
126	Housefurnishings, N.E.C	-.0054	-.0065	-.0015	-.0017	-.0032	-.0032	-.05
127	Textile Bags	-.0010	-.0020	-.0008	-.0002	-.0010	-.0010	-.02
128	Canvas Products	-.0004	-.0007	-.0003	-.0001	-.0003	-.0003	-.01
129	Pleating And Stitching	-.0011	-.0015	-.0007	-.0004	-.0011	-.0011	-.03
132	Fabricated Textile Produc	-.0019	-.0022	-.0005	-.0002	-.0007	-.0007	-.02
133	Logging Camps And Logging	.0000	-.0004	-.0001	-.0000	-.0001	-.0001	-.00

134	Sawmills And Planing Mill	.0000	-.0005	-.0001	-.0000	-.0001	-.0002	-.01
135	Hardwood Dimension And Fl	-.0000	-.0004	-.0002	-.0000	-.0002	-.0002	-.01
137	Millwork	-.0000	-.0016	-.0005	-.0002	-.0007	-.0007	-.02
138	Wood Kitchen Cabinets	.0000	-.0001	-.0000	-.0000	-.0000	-.0000	-.00
142	Wood Pallets And Skids	.0000	-.0002	-.0000	.0000	-.0001	-.0001	-.00
144	Prefabricated Wood Buildi	.0000	-.0000	.0000	.0000	.0000	.0000	.00
145	Wood Preserving	-.0001	-.0030	-.0004	-.0003	-.0007	-.0007	-.01
146	Reconstituted Wood Produc	-.0001	-.0010	-.0002	-.0001	-.0003	-.0003	-.00
147	Wood Products, N.E.C	-.0006	-.0007	-.0003	-.0001	-.0003	-.0003	-.01
148	Wood Household Furniture	-.0046	-.0046	-.0012	-.0006	-.0018	-.0019	-.07
150	Metal Household Furniture	-.0006	-.0006	-.0001	-.0001	-.0002	-.0002	-.01
151	Mattresses And Bedsprings	-.0015	-.0015	-.0003	-.0002	-.0005	-.0005	-.02
157	Wood Partitions And Fixtu	.0000	-.0001	-.0000	-.0000	-.0000	-.0000	-.00
158	Metal Partitions And Fixt	.0000	-.0001	-.0000	-.0000	-.0000	-.0000	-.00
159	Blinds, Shades, And Drape	-.0020	-.0020	-.0004	-.0003	-.0007	-.0007	-.03
162	Paper Mills, Except Build	-.0000	-.0001	-.0000	-.0000	-.0000	-.0000	.00
164	Paperboard Containers And	-.0003	-.0166	-.0043	-.0014	-.0057	-.0058	-.10
165	Paper Coated & Laminated	-.0001	-.0003	-.0001	-.0000	-.0001	-.0001	-.00
166	Paper Coated & Laminated	-.0009	-.0022	-.0006	-.0003	-.0010	-.0010	-.01
169	Die-cut Paper And Board	-.0000	-.0002	-.0000	-.0000	-.0000	-.0000	-.00
173	Converted Paper Products,	-.0001	-.0001	-.0000	-.0000	-.0001	-.0001	-.00
174	Newspapers	-.0040	-.0341	-.0125	-.0105	-.0230	-.0237	-.57
175	Periodicals	-.0042	-.0269	-.0058	-.0060	-.0118	-.0121	-.19
176	Book Publishing	-.0078	-.0086	-.0015	-.0026	-.0042	-.0043	-.04
178	Miscellaneous Publishing	-.0002	-.0015	-.0004	-.0005	-.0009	-.0009	-.02
179	Commercial Printing	-.0021	-.1388	-.0357	-.0184	-.0541	-.0575	-1.52
182	Blankbooks And Looseleaf	-.0002	-.0013	-.0004	-.0003	-.0007	-.0007	-.01
183	Bookbinding & Related	.0000	-.0001	-.0000	-.0000	-.0000	-.0000	.00
184	Typesetting	.0000	-.0000	-.0000	.0000	-.0000	-.0000	.00
185	Plate Making	.0000	-.0002	-.0001	-.0000	-.0001	-.0001	-.00
187	Industrial Gases	-.0000	-.0003	-.0001	-.0001	-.0002	-.0002	-.00
189	Inorganic Chemicals Nec.	-.0019	-.0116	-.0030	-.0026	-.0056	-.0060	-.06
190	Cyclic Crudes, Interm. &	-.0101	-.0549	-.0076	-.0112	-.0189	-.0197	-.13
191	Plastics Materials And Re	-.0015	-.0081	-.0011	-.0012	-.0023	-.0024	-.02
196	Soap And Other Detergents	-.0107	-.0124	-.0016	-.0024	-.0040	-.0041	-.05
197	Polishes And Sanitation G	-.0027	-.0031	-.0007	-.0009	-.0016	-.0016	-.03
199	Toilet Preparations	-.0013	-.0014	-.0002	-.0005	-.0007	-.0007	-.01
200	Paints And Allied Product	-.0001	-.0002	-.0000	-.0000	-.0001	-.0001	.00

204	Agricultural Chemicals, N	-.0002	-.0003	-.0001	-.0001	-.0001	-.0001	.00
209	Chemical Preparations, N.	-.0023	-.0088	-.0019	-.0017	-.0037	-.0037	-.03
210	Petroleum Refining	-.4518	-.5965	-.0353	-.0218	-.0571	-.1268	-.49
213	Lubricating Oils And Grease	-.0094	-.0201	-.0013	-.0015	-.0028	-.0029	-.04
218	Gaskets, Packing And Seal	-.0000	-.0001	-.0000	-.0000	-.0000	-.0000	.00
219	Fabricated Rubber Product	-.0002	-.0004	-.0001	-.0000	-.0001	-.0001	-.00
220	Miscellaneous Plastics Products	-.0002	-.0009	-.0002	-.0001	-.0003	-.0003	-.01
229	Leather Goods, N.E.C	-.0005	-.0006	-.0002	-.0001	-.0003	-.0003	-.01
230	Glass And Glass Products, N.E.C	-.0011	-.0034	-.0008	-.0004	-.0012	-.0012	-.05
241	Pottery Products, N.E.C	.0000	.0000	.0000	.0000	.0000	.0000	.00
242	Concrete Block And Brick	.0000	.0000	.0000	.0000	.0000	.0000	.00
243	Concrete Products, N.E.C	.0000	-.0000	.0000	.0000	.0000	.0000	.00
244	Ready-mixed Concrete	.0000	-.0001	-.0000	.0000	-.0000	-.0000	.00
246	Gypsum Products	.0000	-.0001	-.0000	.0000	-.0000	-.0000	.00
247	Cut Stone And Stone Products	.0000	.0000	.0000	.0000	.0000	.0000	.00
249	Asbestos Products	-.0000	-.0001	-.0001	.0000	-.0001	-.0001	-.00
250	Minerals, Ground Or Treated	.0000	.0000	.0000	.0000	.0000	.0000	.00
254	Blast Furnaces And Steel	-.0000	-.0005	-.0001	-.0000	-.0001	-.0001	-.00
259	Iron And Steel Foundries	.0000	-.0000	.0000	.0000	.0000	.0000	.00
265	Aluminum Rolling And Drawing	-.0000	-.0002	-.0000	.0000	-.0000	-.0000	.00
271	Metal Heat Treating	.0000	-.0001	-.0000	-.0000	-.0001	-.0001	.00
274	Metal Barrels, Drums And	-.0001	-.0022	-.0006	-.0001	-.0006	-.0007	-.02
278	Hardware, N.E.C.	.0000	-.0000	.0000	.0000	.0000	.0000	.00
282	Fabricated Structural Metal	-.0001	-.0003	-.0001	-.0000	-.0001	-.0001	-.00
283	Metal Doors, Sash, And Frames	-.0000	-.0001	-.0000	.0000	-.0000	-.0000	.00
284	Fabricated Plate Work	-.0000	-.0000	-.0000	.0000	-.0000	-.0000	.00
285	Sheet Metal Work	-.0000	-.0001	-.0000	-.0000	-.0000	-.0001	-.00
286	Architectural Metal Work	-.0000	-.0000	-.0000	.0000	-.0000	-.0000	.00
287	Prefabricated Metal Buildings	.0000	.0000	.0000	.0000	.0000	.0000	.00
290	Iron And Steel Forgings	-.0000	-.0001	-.0001	.0000	-.0001	-.0001	.00
294	Metal Stampings, N.E.C.	-.0016	-.0020	-.0004	-.0002	-.0006	-.0006	-.02
295	Plating And Polishing	.0000	-.0000	-.0000	.0000	-.0000	-.0000	.00
296	Metal Coating And Allied	-.0000	-.0002	-.0001	-.0000	-.0001	-.0001	-.00
301	Industrial And Fluid Valves	-.0001	-.0033	-.0006	-.0003	-.0009	-.0009	-.02
303	Pipe, Valves, And Pipe Fittings	-.0000	-.0013	-.0005	-.0002	-.0007	-.0007	-.01
304	Miscellaneous Fabricated Metal	-.0004	-.0016	-.0006	-.0002	-.0009	-.0009	-.02
306	Fabricated Metal Products	-.0001	-.0002	-.0000	-.0000	-.0001	-.0001	-.00
307	Steam Engines And Turbines	.0000	-.0003	-.0001	-.0000	-.0001	-.0001	-.00

308	Internal Combustion Engin	-.0006	-.0012	-.0002	-.0001	-.0003	-.0004	-.01
309	Farm Machinery And Equipm	-.0011	-.0041	-.0010	-.0005	-.0015	-.0016	-.03
311	Construction Machinery An	-.0000	-.0002	-.0000	-.0000	-.0001	-.0001	-.00
313	Oil Field Machinery	-.0005	-.0036	-.0014	-.0001	-.0015	-.0016	-.04
314	Elevators And Moving Stai	.0000	-.0004	-.0002	-.0000	-.0002	-.0002	-.00
315	Conveyors And Conveying E	-.0000	-.0009	-.0003	-.0001	-.0003	-.0004	-.01
316	Hoists, Cranes, And Monor	.0000	-.0001	-.0000	.0000	-.0000	-.0000	-.00
317	Industrial Trucks And Tra	-.0000	-.0004	-.0001	-.0000	-.0002	-.0002	-.00
321	Special Dies And Tools An	.0000	-.0003	-.0002	-.0000	-.0002	-.0002	-.00
330	Food Products Machinery	-.0000	-.0017	-.0006	-.0002	-.0009	-.0009	-.02
332	Pumps And Compressors	.0000	-.0000	.0000	.0000	-.0000	-.0000	.00
334	Blowers And Fans	.0000	.0000	.0000	.0000	.0000	.0000	.00
337	Industrial Furnaces And O	.0000	.0000	.0000	.0000	.0000	.0000	.00
338	General Industrial Machin	.0000	-.0000	.0000	.0000	-.0000	-.0000	.00
346	Commercial Laundry Equipm	-.0000	-.0010	-.0003	-.0002	-.0005	-.0005	-.01
347	Refrigeration And Heating	-.0053	-.0186	-.0039	-.0022	-.0061	-.0064	-.11
349	Service Industry Machines	-.0006	-.0032	-.0007	-.0005	-.0013	-.0013	-.02
351	Fluid Power Cylinders & A	.0000	.0000	.0000	.0000	.0000	.0000	.00
352	Fluid Power Pumps & Motor	.0000	-.0001	-.0001	.0000	-.0001	-.0001	-.00
354	Industrial Machines Nec.	-.0001	-.0002	-.0001	-.0000	-.0001	-.0001	-.00
356	Switchgear And Switchboar	-.0001	-.0011	-.0003	-.0002	-.0005	-.0005	-.01
357	Motors And Generators	-.0001	-.0003	-.0001	-.0000	-.0001	-.0001	-.00
359	Relays & Industrial Contr	-.0003	-.0026	-.0009	-.0004	-.0013	-.0013	-.02
361	Household Cooking Equipme	-.0001	-.0001	-.0000	-.0000	-.0000	-.0000	.00
373	Radio And Tv Communicatio	-.0010	-.0038	-.0009	-.0006	-.0014	-.0015	-.02
374	Communications Equipment	.0000	-.0000	.0000	.0000	.0000	.0000	.00
376	Printed Circuit Boards	-.0005	-.0016	-.0006	-.0002	-.0009	-.0009	-.02
378	Electronic Components, N.	-.0005	-.0020	-.0004	-.0003	-.0006	-.0006	-.01
381	Engine Electrical Equipme	-.0001	-.0002	-.0001	-.0000	-.0001	-.0001	-.00
386	Motor Vehicle Parts And A	-.0001	-.0004	-.0001	-.0000	-.0001	-.0001	-.00
392	Ship Building And Repairi	-.0002	-.0004	-.0002	-.0000	-.0002	-.0002	-.01
393	Boat Building And Repairi	-.0003	-.0003	-.0001	-.0001	-.0002	-.0002	-.00
396	Complete Guided Missiles	-.0002	-.0006	-.0002	-.0001	-.0003	-.0003	-.00
399	Transportation Equipment,	-.0000	-.0000	.0000	.0000	.0000	.0000	.00
400	Search & Navigation Equip	-.0003	-.0005	-.0001	-.0001	-.0002	-.0002	-.00
403	Mechanical Measuring Devi	-.0003	-.0020	-.0007	-.0004	-.0011	-.0011	-.01
407	Surgical And Medical Inst	-.0001	-.0014	-.0005	-.0004	-.0008	-.0008	-.01
408	Surgical Appliances And S	-.0070	-.0144	-.0034	-.0028	-.0063	-.0063	-.11

409	Dental Equipment And Supp	-.0005	-.0070	-.0019	-.0018	-.0037	-.0037	-.04
412	Ophthalmic Goods	-.0015	-.0016	-.0007	-.0003	-.0010	-.0010	-.02
413	Photographic Equipment An	-.0002	-.0004	-.0001	-.0001	-.0002	-.0002	-.00
415	Jewelry, Precious Metal	-.0005	-.0005	-.0001	-.0001	-.0002	-.0002	-.01
417	Jewelers Materials And La	-.0006	-.0006	-.0001	-.0001	-.0002	-.0002	-.01
419	Dolls	-.0028	-.0028	-.0013	-.0004	-.0016	-.0017	-.06
424	Marking Devices	.0000	-.0001	-.0001	-.0000	-.0001	-.0001	-.00
425	Carbon Paper And Inked Ri	-.0000	-.0001	-.0000	-.0000	-.0000	-.0000	-.00
429	Signs And Advertising Dis	-.0000	-.0024	-.0006	-.0002	-.0009	-.0009	-.03
430	Burial Caskets And Vaults	.0000	-.0000	.0000	.0000	-.0000	-.0000	.00
432	Manufacturing Industries,	.0000	-.0000	.0000	.0000	.0000	.0000	.00
433	Railroads And Related Ser	-.0148	-.0353	-.0180	-.0043	-.0223	-.0238	-.27
434	Local, Interurban Passeng	-.1636	-.1791	-.0965	-.0443	-.1408	-.1427	-4.74
435	Motor Freight Transport A	-.1601	-.4023	-.1267	-.0759	-.2027	-.2097	-5.20
436	Air Transportation	-.0917	-.1405	-.0404	-.0098	-.0503	-.0610	-1.01
438	Pipe Lines, Except Natura	-.0024	-.0128	-.0017	-.0084	-.0101	-.0108	-.03
439	Arrangement Of Passenger	-.0023	-.0055	-.0025	-.0010	-.0035	-.0036	-.16
440	Transportation Services	-.0039	-.0155	-.0060	-.0032	-.0092	-.0092	-.20
441	Communications, Except Ra	-.2991	-.4160	-.1290	-.1360	-.2650	-.3169	-2.88
442	Radio And Tv Broadcasting	-.0033	-.0443	-.0126	-.0035	-.0160	-.0176	-.45
443	Electric Services	-.4557	-.9099	-.1531	-.3731	-.5262	-.5738	-2.63
444	Gas Production And Distri	-.1380	-.2658	-.0320	-.0452	-.0772	-.0891	-.63
445	Water Supply And Sewerage	-.0042	-.0054	-.0007	.0002	-.0005	-.0008	-.02
446	Sanitary Services And Ste	-.0152	-.0290	-.0096	-.0002	-.0098	-.0106	-.29
447	Wholesale Trade	-.6865	-.9477	-.4346	-.0661	-.5007	-.6453	-13.14
448	Building Materials & Gard	-.1889	-.1943	-.0927	-.0327	-.1254	-.1621	-4.55
449	General Merchandise Store	-.4359	-.4475	-.2309	-.0410	-.2719	-.3482	-15.71
450	Food Stores	-3.8069	-3.8268	-1.7682	-.8078	-2.5760	-3.3470	-143.66
451	Automotive Dealers & Serv	-6.4876	-6.5008	-3.2961	-1.0123	-4.3084	-5.4228	-137.37
452	Apparel & Accessory Store	-.2430	-.2500	-.0904	-.0305	-.1208	-.1577	-8.11
453	Furniture & Home Furnishi	-.1905	-.1967	-.0954	-.0326	-.1280	-.1630	-4.78
454	Eating & Drinking	-4.2593	-4.2922	-1.6895	-.4370	-2.1265	-2.5031	-153.52
455	Miscellaneous Retail	-4.5010	-4.5288	-1.5347	-.6245	-2.1592	-2.8153	-142.37
456	Banking	-.5758	-.6672	-.1781	-.0909	-.2689	-.2956	-6.87
457	Credit Agencies	-.0495	-.1094	-.0448	.0404	-.0044	-.0079	-2.55
458	Security And Commodity Br	-.0260	-.0416	-.0230	-.0046	-.0276	-.0278	-.51
459	Insurance Carriers	-.5020	-.6337	-.1716	.0168	-.1547	-.2209	-4.33
460	Insurance Agents And Brok	.0000	-.1034	-.0379	-.0428	-.0807	-.0817	-1.85

461	Owner-occupied Dwellings	-1.9693	-1.9693	.0000	-1.1041	-1.1041	-1.4885	.00
462	Real Estate	-.6842	-1.5276	-.1175	-.7031	-.8206	-1.1076	-14.50
463	Hotels And Lodging Places	-1.4971	-1.5692	-.7276	-.3548	-1.0824	-1.2783	-47.14
464	Laundry, Cleaning And Sho	-.0608	-.0929	-.0335	-.0339	-.0673	-.0718	-5.29
465	Portrait And Photographic	-.0250	-.0267	-.0058	-.0065	-.0123	-.0137	-.83
466	Beauty And Barber Shops	-.0767	-.0767	-.0283	-.0319	-.0603	-.0619	-3.76
467	Funeral Service And Crema	-.0261	-.0261	-.0074	-.0099	-.0173	-.0179	-.66
468	Miscellaneous Personal Se	-.0700	-.0735	-.0101	-.0126	-.0227	-.0251	-1.84
469	Advertising	-.0006	-.0683	-.0297	-.0245	-.0542	-.0548	-1.20
470	Other Business Services	-.0085	-.2042	-.0642	-.0815	-.1457	-.1512	-4.30
471	Photofinishing, Commercia	-.0190	-.0477	-.0120	-.0147	-.0268	-.0281	-.91
472	Services To Buildings	-.0125	-.0546	-.0251	-.0170	-.0421	-.0435	-3.19
473	Equipment Rental And Lea	-.0096	-.0504	-.0128	-.0177	-.0305	-.0362	-.62
474	Personnel Supply Services	-.0096	-.1317	-.0780	-.0454	-.1234	-.1242	-7.36
475	Computer And Data Process	-.0025	-.0869	-.0338	-.0264	-.0602	-.0613	-1.38
476	Detective And Protective	-.0003	-.0232	-.0132	-.0080	-.0212	-.0216	-1.53
477	Automobile Rental And Lea	-.0432	-.1119	-.0209	-.0179	-.0387	-.0511	-1.38
478	Automobile Parking And Ca	-.0231	-.0238	-.0095	-.0052	-.0147	-.0160	-1.15
479	Automobile Repair And Ser	-.4585	-.5502	-.0756	-.0864	-.1620	-.1763	-5.10
480	Electrical Repair Service	-.0296	-.0616	-.0189	-.0250	-.0439	-.0443	-1.03
481	Watch, Clock, Jewelry And	-.0071	-.0071	-.0023	-.0010	-.0033	-.0034	-.23
482	Miscellaneous Repair Shop	-.0131	-.0530	-.0159	-.0185	-.0344	-.0350	-.98
483	Motion Pictures	-.0564	-.1406	-.0232	-.0160	-.0391	-.0398	-2.16
484	Theatrical Producers, Ban	-.0031	-.0080	-.0023	-.0025	-.0049	-.0050	-.31
485	Bowling Alleys And Pool H	-.0168	-.0168	-.0060	-.0041	-.0101	-.0109	-.72
486	Commercial Sports Except	-.0122	-.0364	-.0183	-.0086	-.0270	-.0295	-.34
487	Racing And Track Operatio	-.0252	-.0260	-.0021	-.0019	-.0040	-.0193	-.88
488	Amusement And Recreation	-.1450	-.1450	-.0369	-.0415	-.0784	-.0839	-3.87
489	Membership Sports And Rec	-.0552	-.0670	-.0262	-.0267	-.0528	-.0556	-2.73
490	Doctors And Dentists	-1.3172	-1.3172	-.7443	-.3585	-1.1028	-1.1157	-15.40
491	Nursing And Protective Ca	-.1619	-.1619	-.1035	-.0256	-.1290	-.1305	-8.95
492	Hospitals	-1.1335	-1.1338	-.6106	-.2104	-.8209	-.8231	-22.71
493	Other Medical And Health	-.3436	-.3919	-.1210	-.0754	-.1964	-.1975	-6.21
494	Legal Services	-.3196	-.9599	-.3268	-.3753	-.7021	-.7091	-8.87
495	Elementary And Secondary	-.0931	-.0931	-.0432	-.0015	-.0447	-.0447	-3.30
496	Colleges, Universities, S	-.0150	-.0159	-.0070	-.0005	-.0075	-.0075	-.57
497	Other Educational Service	-.0879	-.0899	-.0204	-.0006	-.0210	-.0210	-1.68

498	Job Trainings & Related S	-.0235	-.0277	-.0156	.0000	-.0156	-.0156	-.73
499	Child Day Care Services	-.1030	-.1030	-.0244	-.0098	-.0342	-.0342	-2.68
500	Social Services, N.E.C.	-.0824	-.0824	-.0377	.0000	-.0377	-.0377	-2.75
501	Residential Care	-.0396	-.0396	-.0250	.0000	-.0250	-.0250	-1.83
502	Other Nonprofit Organizat	-.0402	-.0422	-.0137	.0002	-.0135	-.0135	-.79
503	Business Associations	-.0146	-.0364	-.0350	.0000	-.0350	-.0351	-1.02
504	Labor And Civic Organizat	-.0970	-.0970	-.0616	.0000	-.0616	-.0623	-6.22
505	Religious Organizations	-.0600	-.0600	-.0062	.0000	-.0062	-.0062	-.56
506	Engineering, Architectura	.0000	-.0118	-.0055	-.0019	-.0075	-.0075	-.20
507	Accounting, Auditing And	-.0037	-.1308	-.0594	-.0232	-.0826	-.0828	-3.07
508	Management And Consulting	.0000	-.0716	-.0276	-.0069	-.0345	-.0354	-1.45
509	Research, Development & T	.0000	-.0465	-.0279	-.0079	-.0358	-.0368	-1.82
510	Local Government Passenge	-.0064	-.0070	-.0011	.0009	-.0003	-.0003	-.17
511	State And Local Electric	-.0054	-.0108	-.0018	-.0046	-.0064	-.0064	-.08
512	Other State And Local Gov	-.3434	-.4492	-.1057	-.1469	-.2525	-.2528	-4.93
513	U.S. Postal Service	-.0300	-.1075	-.0877	.0061	-.0815	-.0815	-1.87
519	Federal Government - Mili	.0000	.0000	.0000	.0000	.0000	.0000	.00
520	Federal Government - Non-	.0000	.0000	.0000	.0000	.0000	.0000	.00
522	State & Local Government	.0000	.0000	.0000	.0000	.0000	.0000	.00
523	State & Local Government	.0000	.0000	.0000	.0000	.0000	.0000	.00
525	Household Industry-low In	-.0681	-.0681	-.0681	.0000	-.0681	-.0681	-9.96
528	Inventory Valuation Adjus	.0000	.0000	.0000	.0000	.0000	.0000	.00
TOTAL		-34.1489	-40.9029	-14.9683	-8.3225	-23.2907	-27.8597	-906.54
Change in Population = -1902.								

Overview

Micro IMPLAN's industry/commodity numbering system is based on classifications defined by the Bureau of Economic Analysis (BEA -Department of Commerce), and the Standard Industrial Classification (SIC) used by the US Office of Management and Budget (OMB). The following list shows the linkage between the three numbering systems. Keep in mind that;

- You will find TWO bridge tables in this Appendix. The first shows the IMPLAN numbering system that applies to the 1982 and 1985 databases. Immediately following that bridge table is the sectoring/numbering system for the 1990 database. They are printed in very different fonts to aid you in distinguishing between them.
- The BEA Industry numbering system is similar to that used in the " *I-0 Study of the U.S., 1977* for the 1982 and 1985 databases.. "
- The BEA Industry numbering system is similar to that used in the " *I-0 Study of the U.S., 1982* for the 1990 database.. "
- The 1977 SIC codes follow the scheme published in the " *Standard Industrial Classification Manual, 1977*". *Executive Office of the President, Office of Management and Budget.*
- The 1987 SIC codes follow the scheme published in the " *Standard Industrial Classification Manual, 1987*". *Executive Office of the President, Office of Management and Budget.*

No.	1990 IMPLAN Database Sector Name	1982 BEA commodity	Standrad Industry Classification (1987 SIC)	
1	DAIRY FARM PRODUCTS	(1.0100)	0241	Also: part of 0191, 0259, 0291
2	POULTRY AND EGGS	(1.0200)	0251 0252 0253	Also: part of 0191, 0219, 0259, 0291
3	RANCH FED CATTLE	(1.0311)		Part of 0191, 0219, 0259, 0291
4	RANGE FED CATTLE	(pt 1.0301)		Part of 0191, 0219, 0259, 0291
5	CATTLE FEEDLOTS	(pt 1.0301)	02110	Also: part of 0191, 0219, 0259, 0291
6	SHEEP LAMBS AND GOATS	(pt 1.0301)	0214	Also: part of 0191, 0219, 0259, 0291
7	HOGS, PIGS AND SWINE	(pt 1.0301)	0213	Also: part of 0191, 0219, 0259, 0291
8	OTHER MEAT ANIMAL PRODUCTS	(pt 1.0301)		Part of 0191, 0219, 0259, 0291
9	MISCELLANEOUS LIVESTOCK	(1.0302)	0271 0272	Also: part of 0191, 0219, 0259, 0273, 0279, 0291
10	COTTON	(2.0100)	0131	Also: part of 0191, 0219, 0259, 0291
11	FOOD GRAINS	(2.0201)	0111 0112	Also: part of 0191, 0219, 0259, 0291
12	FEED GRAINS	(pt 2.0202)	0115	Also: part of 0139, 0191, 0219, 0259, 0291
13	HAY AND PASTURE	(pt 2.0202)		Part of 0139, 0191, 0219, 0259, 0291
14	GRASS SEEDS GRASS SEEDS	(2.0203)		Part of 0139, 0191, 0219, 0259, 0291
15	TOBACCO	(2.0300)	0132	Also: part of 0191, 0219, 0259, 0291
16	FRUITS	(2.0401)	0171 0172 0174 0175	Also: part of 0179, 0191, 0219, 0259, 0291
17	TREE NUTS	(2.0402)		Part of 0173, 0179, 0191, 0219, 02589, 0291
18	VEGETABLES	(2.0501)	0134 0161	Also: part of 0119, 0139, 0191, 0219, 0259, 0291
19	SUGAR CROPS	(2.0502)	0133	Also: par of 0191, 0219, 0259, 0291
20	MISCELLANEOUS CROPS	(2.0503)		Part of 0119, 0139, 0191, 0219, 0259, 0291
21	OIL SEAR'NG CROPS	(2.0600)	0116	Also: part of 0119, 0139, 0173, 0219, 0259, 0291
22	FOREST PRODUCTS	(2.0701)		Part of 0181, 0191, 0219, 0259, 0291
23	GREENHOUSE AND NURSERY PRODUCTS	(2.0702)	0182	Also: part of 0181, 0191, 0219, 0259, 0291
24	FORESTRY PRODUCTS	(3.001)	0810 0830 0970	
25	COMMERCIAL FISHING	(3.002)	0910	
26	AGRICULTURAL. FORESTRY. FWERY SERVICES	(4.001)	0710 0720 0750 0760 0254 0850 0920	Also: part of 0279
27	LANDSCAPE AND HORTICULTURAL SERVICES	(4.0022)	0780	
28	IRON ORES	(pt 5.0000)	1010	
29	COPPER ORES	(6.0100)	1020	
30	LEAD AND ZINC ORES	(pt 6.0200)	1030	
31	GOLD ORES	(pt 6.0200)	1041	
32	SILVER ORES	(pt 6.0200)	1044	
33	FERROALLOY ORES, EXCEPT VANADIUM	(pt 5.0000)	1060	
34	METAL MINING SERVICES	(pt 6.0200)	1080	
35	URANIUM-RADIUM-VANADIUM ORES	(pt 6.0200)	1094	
36	METAL ORES, NOT ELSWHERE CLASSISIFIED	(pt 6.0200)	1099	
37	COAL MINING	(7.0000)	1200	
38	NATURAL GAS & CRUDE PETROLEUM	(pt 8.000)	1310	
39	NATURAL GAS LIQUIDS	(pt 8.0000)	1320	
40	DIMENSION STONE	(pt. 9.0001)	1410 1420	
41	SAND AND GRAVEL	(Pt 9.0002)	1440	
42	CLAY, CERAMIC, REFRACTORY MINERALS. N.E.C.	(9.0003)	1450	
43	POTASH. SODA. AND BORATE MINERALS	(10.0300)	1474	
44	PHOSPHATE ROCK	(10.0400)	1475	
45	CHEMICAL. FERTILIZER MINERAL MINING. N.E.C.	(10.0700)	1479	

No.	1990 IMPLAN Database Sector Name	1982 BEA commodity	Standrad Industry Classification (1987 SIC)
46	NONMETALLIC MINERALS (EXCEPT FUELS) SERVICE	(9.0004)	1480
47	MISC. NONMETALLIC MINERALS. N. E. C.	(9.0004)	1490
48	NEW RESIDENTIAL STRUCTURES	(11.0100)	Part 15, 16, 17
49	NEW INDUSTRIAL AND COMMERCIAL BUILDINGS	(11.0200)	Part 15, 16, 17
50	NEW UTILITY STRUCTURES	(11.0300)	Part 15, 16, 17
51	NEW HIGHWAYS AND STREETS	(11.0400)	Part 15, 16, 17
52	NEW FARM STRUCTURES	(11.0500)	Part 15, 16, 17
53	NEW MINERAL EXTRACTION FACILITIES	(11.0600)	Part 15, 16, 17
54	NEW GOVERNMENT FACILITIES	(11.0700)	Part 15, 16, 17
55	MAINTENANCE AND REPAIR RESIDENTIAL	(12.0100)	Part 15, 16, 17
56	MAINTENANCE AND REPAIR OTHER FACILITIES	(12.0200)	Part 15, 16, 17
57	MAINTENANCE AND REPAIR OIL AND GAS WELLS	(12.0215)	1380
58	MEAT PACKING PLANTS	(14.0101)	2011
59	SAUSAGES AND OTHER PREPARED MEATS	(14.0102)	2013
60	POULTRY PROCESSING	(14.0103, 14.0104)	2015
61	CREAMERY BUTTER	(14.0200)	2021
62	CHEESE, NATURAL AND PROCESSED	(14.0300)	2022
63	CONDENSED AND EVAPORATED MILK	(14.0400)	2023
64	ICE CREAM AND FROZEN DESSERTS	(14.0500)	2024
65	FLUID MILK	(14.0600)	2026
66	CANNED SPECIALTIES	(14.0800)	2032
67	CANNED FRUIT AND VEGETABLES	(14.0900)	2033
68	DEHYDRATED FOOD PRODUCTS	(14.1000)	2034
69	PICKLES, SAUCES, AND SALAD DRESSINGS	(14.1100)	2035
70	FROZEN FRUITS, JUICES AND VEGETABLES	(14.3101)	2037
71	FROZEN SPECIALTIES	(14.1302)	2038
72	FLOUR AND OTHER GRAIN MILL PRODUCTS	(14.1401)	2041
73	CEREAL PREPARATIONS	(14.1402)	2043
74	RICE MILLING	(14.1600)	2044
75	BLENDED AND PREPARED FLOUR	(14.1403)	2045
79	WET CORN MILLING	(14.1700)	2046
77	DOG, CAT, AND OTHER PET FOOD	(14.1501)	2047
78	PREPARED FEEDS, N.E.C.	(14.1502)	2048
79	BREAD, CAKE, AND RELATED PRODUCTS	(14.1801)	2051 2053
80	COOKIES AND CRACKERS	(14.1802)	2052
81	SUGAR	(14.1900)	2061 2062 2063
82	CONFECTIONERY PRODUCTS	(14.2001)	2064
83	CHOCOLATE AND COCOA PRODUCTS	(14.2002)	2066
84	CHEWING GUM	(14.2003)	2067
85	SALTED AND ROASTED NUTS & SEEDS	(pt 14.2001, pt 14.1000, pt 14.3200)	2068
86	COTTONSEED OIL MILLS	(14.2400)	2074
87	SOYBEAN OIL MILLS	(14.2500)	2075
88	VEGETABLE OIL MILLS, N.E.C.	(14.2600)	2076
89	ANIMAL AND MARINE FATS AND OILS	(14.2700)	2077
90	SHORTENING AND COOKING OILS	(14.2900)	2079

No.	1990 IMPLAN Database Sector Name	1982 BEA commodity	Standrad Industry Classification (1987 SIC)
91	MALT BEVERAGES	(14.2101)	2082
92	MALT	(14.2102)	2083
93	WINES. BRANDY, AND BRANDY SPIRITS	(14.2103)	2084
94	DISTILLED LIQUOR. EXCEPT BRANDY	(14.2104)	2085
95	BOTTLED AND CANNED SOFT DRINKS & WATER	(14.2200)	2086
96	FLAVORING EXTRACTS AND SYRUPS, N. E. C.	(14.2300)	2087
97	CANNED AND CURED SEA FOODS	(14.0700)	20914
98	PREPARED FRESH OR FROZEN FISH OR SEAFOOD	(14.1200)	2092
99	ROASTED COFFEE	(14.2800)	2095
100	POTATO CHIPS & SIMILAR SNACKS	(pt 14.3200)	2096
101	MANUFACTUREDICE	(14.3000)	2097
102	MACARONI AND SPAGHETTI	(14.3100)	2098
103	FOOD PREPARATIONS. N.E.C	(pt 14. 3200)	2099
104	CIGARETTES	(15.0101)	2110
105	CIGARS	(15.0102)	2120
106	CHEWING AND SMOKING TOBACCO	(15.0103)	2130
107	T08ACCO STEMMING AND REDRYING	(15.0200)	2140
108	BROADWOVEN FABRIC MILLS AND FINISHING	(16.0100)	2210 2220 2230 2261 2262
109	NARROW FABRIC MILLS	(16.0200)	2240
110	WOMENS HOSIERY, EXCEPT SOCKS	(18.0101)	2251
111	HOSIERY, N.E.C	(18.0102)	2252
112	KNIT OUTERWEAR MILLS	(18.0201)	2253
113	KNIT UNDERWEAR MILLS	(18.0202)	2254
114	KNIT FABRIC MILLS	(18.0300)	2257 2258
115	KNITTING MILLS, N. E.C	(18.0203)	2259
116	YARN MILLS AND FINISHING OF TEXTLES NEC	(16.0300)	2269 2281 2282
117	CARPETS AND RUGS	(17.0100)	2270
118	THREAD MILLS	(16.0400)	2284
119	COATED FABRICS, NOT RUBBERIZED	(17.0600)	2295
120	TIRE CORD AND FABRIC	(17.0700)	2296
121	NONWOVEN FABRICS	(17.1001)	2297
122	CORDAGE AND TWINE	(17.0900)	2298
123	TEXTILE GOODS, N.E.C.	(17.1002)	2299
124	APPAREL MADE FROM PURCHASED MATERIALS	(18.0400)	2310 2320 2330 2340 2350 2360 2370 2380
125	CURTAINS AND DRAPERIES	(19.0100)	2391
126	HOUSEFURNISHINGS, N.E.C.	(19.0200)	2392
127	TEXTILE BAGS	(19.0301)	2393
128	CANVAS PRODUCTS	(19.0302)	2394
129	PLEATING AND STITCHING	(19.0303)	2395
130	AUTOMOTIVE AND APPAREL TRIMMINGS	(19.0304)	2396
131	SCHIFFI MACHINE EMBROIDERIES	(19.0305)	2397
132	FABRICATED TEXTILE PRODUCTS, N.E.C.	(19.0306)	2399
133	LOGGING CAMPS AND LOGGING CONTRACTORS	(20.0100)	2410
134	SAWMILLS AND PLANNING MILLS, GENERAL	(20.0200)	2421
135	HARDWOOD DIMENSION AND FLOORING MILLS	(20.0300)	2426

No.	1990 IMPLAN Database Sector Name	1982 BEA commodity	Standrad Industry Classification (1987 SIC)
136	SPECIAL PRODUCT SAWMILLS, N.E.C.	(20.0400)	2429
137	MILLWORK	(20.0501)	2431
138	WOOD KITCHEN CABINETS	(20.0502)	2434
139	VENEER AND PLYWOOD	(20.0600)	2435 2436
140	STRUCTURAL WOOD MEMBER, N.E.C.	(20.0701)	2439
141	WOOD CONTAINERS	(21.0000)	2441 2449
142	WOOD PALLETS AND SKIDS	(20.9001)	2448
143	MOBILE HOMES	(61.0602)	2451
144	PREFABRICATED WOOD BUILDINGS	(20.0702)	2452
145	WOOD PRESERVING	(20.0800)	2491
146	RECONSTITUTED WOOD PRODUCTS	(20.0902)	2493
147	WOOD PRODUCTS, N.E.C	(20.0903)	2499
148	WOOD HOUSEHOLD FURNITURE	(22.0101)	2511
149	UPHOLSTERED HOUSEHOLD FURNITURE	(22.0200)	2512
150	METAL HOUSEHOLD FURNITURE	(22.0300)	2514
151	MATTRESSES AND BEDSPRINGS	(22.0400)	2515
152	WOOD TV AND RADIO CABINETS	(22.0103)	2517
153	HOUSEHOLD FURNITURE. N. E.C	(22.0102)	2519
154	WOOD OFFICE FURNITURE	(23.0100)	2521
155	METAL OFFICE FURNITURE	(23.0200)	2522
156	PUBLIC BUILDING FURNITURE	(23.0300)	2530
157	WOOD PARTITIONS AND FIXTURES	(23.0400)	2541
158	METAL PARTITIONS AND FIXTURES	(23.0500)	2542
159	BLINDS SHADES AND DRAPERY HARDWARE	(23.0600)	2591
160	FURNITURE AND FIXTURES, N. E.C	(23.0700)	2599
161	PULP MILLS	(24.0100)	2610
162	PAPER MILLS, EXCEPT BUILDING PAPER	(24.0200)	2620
163	PAPERBOARD MILLS	(24.0300, 24.0602)	2630
164	PAPERBOARD CONTAINERS AND BOXES	(25.0000)	2650
165	PAPER COATED & LAMINATED PACKAGING	(pt 24.0701)	2671
166	PAPER COATED & LAMINATED NEC	(pt 24.0701)	2672
167	BAGS. PLASTIC	(pt 24.0702)	2673
168	BAGS, PAPER	(pt 24.0702)	2674
169	OIE-CUT PAPER AND BOARD	(24.0703)	2675
170	SANITARY PAPER PRODUCTS	(24.0500)	2676
171	ENVELOPES	(24.0400)	2677
172	STATIONERY PRODUCTS	(24.0705)	2678
173	CONVERTED PAPER PRODUCTS. N.E.C	(24.0704, 24.0706)	2679
174	NEWSPAPERS	(26.0100)	2710
175	PERIODICALS	(26.0200)	2720
176	BOOK PUBLISHING	(26.0301)	2731
177	BOOK PRINTING	(26.0302)	2732
178	MISCELLANEOUS PUBLISHING	(26.0400)	2740
179	COMMERCIAL PRINTING	(26.0501)	2750
180	MANIFOLD BUSSMMFORMS	(26.0601)	2760
181	GREETING CARD PUBLISHING	(26.0700)	2770

No.	1990 IMPLAN Database Sector Name	1982 BEA commodity	Standrad Industry Classification (1987 SIC)
182	BLANKSOOKS AND LOO SELEAF BINDERS	(26.0602)	2782
183	BOOKBINDING & RELATED	(26.0802)	2789
184	TYPESETTING	(26.0803)	2791
185	PLATE MAKING	(26.0801, 26.0801, 26.0804)	2796
186	ALKALIES & CHLORINE	(27.0101)	2812
187	INDUSTRIAL GASES	(27.0102)	2813
188	INORGANIC PIGMENTS	(27.0103)	2816
189	INORGANIC CHEMICALS NEC.	(27.0104)	2819
190	CYCLIC CRUDES. INTERM. & INDUS. ORGANIC CHER	(27.0105)	2865 2869
191	PLASTICS MATERIALS AND RESINS	(28.0100)	2821
192	SYNTHETIC RU88ER	(28.0200)	2822
193	CELLULOSIC MAN-MADE FIBERS	(28.0300)	2823
194	ORGANIC FIBER& NONCELLULOSIC	(28.0400)	2824
195	DRUGS	(29.0100)	2830
196	SOAP AND OTHER DETERGENTS	(29.0201)	2841
197	POLISHES AND SANITATION GOODS	(29.0202)	2842
198	SURFACE ACTIVE AGENTS	(29.0203)	2843
199	TOILET PREPARATIONS	(29.0300)	2844
200	PAINTS AND ALLIED PRODUCTS	(30.0000)	2850
201	GUM AND WOOD CHEMICALS	(27.0401)	2861
202	NITROGENOUS AND PHOSPHATIC FERTILIZERS	(27.0201)	2873 2874
203	FERTILIZERS. MIXING ONLY	(27.0202)	2875
204	AGRICULTURAL CHEMICALS, N E.C	(27.0300)	2879
205	ADHESIVES AND SEALANTS	(27.0402)	2891
206	EXPLOSIVES	(27.0403)	2892
207	PRINTING INK	(27.0404)	2893
208	CARBON BLACK	(27.0405)	2895
209	CHEPACAL PREPARATIONS, N.E.C	(27.0406)	2899
210	PETROLEUM REFINING	(31.0101)	2910
211	PAVING MIXTURES AND BLOCKS	(31.0200)	2951
212	ASPHALT FELTS AND COATINGS	(31.0300)	2952
213	LUBRICATING OLS AND GREASES	(31.0102)	2992
214	PETROLEUM AND COAL PRODUCTS, N.E.C.	(31.0103)	2999
215	TIRES AND INNER TUBES	(32.0100)	3010
216	RUBBER AND PLASTICS FOOTWEAR	(32.0200)	3020
217	RUBBER AND PLASTICS HOSE AND BELTING	(32.0500)	3052
218	GASKETS. PACKING AND SEALING DEVICES	(36.1800)	3053
219	FABRICATED RUBBER PRODUCTS N E C	(32.0301, 32.0302)	3060
220	MISCELLANEOUS PLASTICS PRODUCTS	(32.0400)	3080
221	LEATHER TANNING AND FINISHING	(33.0001)	3110
222	FOOTWEAR CUT STOCK	(34.0100)	3130
223	HOUSE SLIPPERS	(34.0202)	3142
224	SHOES, EXCEPT RUBBER	(34.0201)	3143 3144 3149
225	LEATHER GLOVES AND M17ENS	(34.0301)	3150
226	LUGGAGE	(34.0302)	3160

No.	1990 IMPLAN Database Sector Name	1982 BEA commodity	Standrad Industry Classification (1987 SIC)
227	WOMENS HANDBAGS AND PURSES	(34.0303)	3171
228	PERSONAL LEATHER GOODS	(34.0304)	3172
229	LEATHER GOODS. N E.C	(34.0305)	3190
230	GLASS AND GLASS PRODUCTS, EXC CONTAINERS	(35.0100)	3210 3229 3230
231	GLASS CONTAINERS	(35.0200)	3221
232	CEMENT HYDRAULIC	(36.0100)	3240
233	BRICK AND STRUCTURAL CALY TILE	(36.0200)	3251
234	CERAMC WALL AND FLOOR TILE	(36.0300)	3253
235	CLAY REFRACTORIES	(36.0400)	3255
236	STRUCTURAL CLAY PRODUCTS, N E.C	(36.0500)	3259
237	VITREOUS PLUMBING FIXTURES	(36.0600)	3261
238	VITREOUS CHINA FOOD UTENSILS	(36.0701)	3262
239	FINE EARTHENWARE FOOD UTENSILS	(36.0702)	3263
240	PORCELAIN ELECTRICAL SUPPLIES	(36.0800)	3264
241	POTTERY PRODUCTS. N.E.C	(36.0900)	3269
242	CONCRETE BLOCK AND BRICK	(36.1000)	3271
243	CONCRETE PRODUCTS, N.E.C	(36.1100)	3272
244	READY-MIXED CONCRETE	(36.12W)	3273
245	LIME	(36.1300)	3274
246	GYPSUM PRODUCTS	(36.1400)	3275
247	CUT STONE AND STONE PRODUCTS	(36.1500)	3280
248	ABRASIVE PRODUCTS	(36.1600)	3291
249	ASBESTOS PRODUCTS	(36.1700)	3292
250	MINERALS, GROUND OR TREATED	(36.1900)	3295
251	MINERAL WOOL	(36.2000)	3296
252	NONCLAY REFRACTORIES	(36.2100)	3297
253	NONMETALLIC MINERAL PRODUCTS. N E. C	(36.2200)	3299
254	BLAST FURNACES AND STEEL MILLS	(37.0101)	3312
255	ELECTROMETALLURGICAL. PRODUCTS	(37.0102)	3313
256	STEEL WIRE AND RELATED PRODUCTS	(37.0103)	3315
257	COLD FINISHING OF STEEL SHAPES	(37.0104)	3316
258	STEEL PIPE AND TUBES	(37.0105)	3317
259	IRON AND STEEL FOUNDRIES	(37.0200)	3320
260	PRIMARY COPPER	(38.0100)	3331
261	PRIMARY ALUMINUM	(38.0400)	3334
262	PRIMARY NONFERROUS METAM N.E.C	(36.0200,38.0300, 38.0500)	3339
263	SECONDARY NONFERROUS MEFTALS	(38.0600)	3340
264	COPPER ROLLING AND DRAWING	(38.0700)	3351
265	ALUMINUM ROLLING AND DRAWING	(38.0800)	3353 3354 3355
266	NONFERROUS ROLLING AND DRAWING, N. E. C	(38.0900)	3356
267	NONFERROUS WIRE DRAWING AND INSULATING	(38.1000)	3357
268	ALUMINUM FOUNDRIES	(38.1100)	3363 3365
269	BRASS. BRONZE, AND COPPER FOUNDRIES	(38.1200)	3364 3366
270	NONFERROUS CASTINGS, N.E.C.	(38.1300)	3369
271	METAL HEAT TREATING	(37.0401)	3398

No.	1990 IMPLAN Database Sector Name	1982 BEA commodity	Standrad Industry Classification (1987 SIC)
272	PRIMARY METAL PRODUCTS. N E.C	(37.0402)	3399
273	METAL CANS	(39.0100)	3411
274	METAL BARRELS. DRUMS AND PAILS	(39.0200)	3412
275	CUTLERY	(42.0100)	3421
276	HAND AND EDGE TOOLS, N E.C	(42.0201)	3423
277	HAND SAWS AND SAW BLADES	(42.0202)	3425
278	HARDWARE. N.E.C.	(42.0300)	3429
279	METAL SANITARY WARE	(40.0100)	3431
280	PLUMBING FIXTURE FITTINGS AND TRIM	(40.0200)	3432
281	HEATING EQUIPMENT. EXCEPT ELECTRIC	(40.0300)	3433
282	FABRICATED STRUCTURAL METAL	(40.0400)	3441
283	METAL DOORS, SASH, AND TRIM	(40.0500)	3442
284	FABRICATED PLATE WORK (BOILER SHOPS)	(40.0600)	3443
285	SHEET METAL WORK	(40.0700)	3444
286	ARCHITECTURAL METAL WOPK	(40 .800)	3446
287	PREFABRICATED METAL BUILDINGS	(40.0901)	3448
288	MISCELLANEOUS METAL WORK	(40.0902)	3449
289	SCREW MACHINE PRODUCTS AND BOLTS, ETC	(41.0100)	3450
290	IRON AND STEEL FORGINGS	(37.0300)	3462
291	NONFERROUS FORGINGS	(38.1400)	3463
292	AUTOMOTIVE STAMPINGS	(41.0201)	3465
293	CROWNS AND CLOSURES	(41.0202)	3466
294	METAL STAMPINGS, N E.C.	(41.0203)	3469
295	PLATING AND POLISHING	(42.0401)	3471
296	METAL COATING AND ALLIED SERVICES	(42.0402)	3479
297	SMALL ARMS AMMUNITION	(13.0600)	3482
298	AMMUNITION, EXCEPT FOR SMALL ARMS, N E,C	(13.0200)	3483
299	SMALL ARMS	(13.0500)	3484
300	OTHER ORDNANCE AND ACCESSORIES	(13.0700)	3489
301	INDUSTRIAL AND FLUID VALVES	(pt 42.0800)	3491 3492
302	STEEL SPRINGS, EXCEPT WIRE	(42.0700)	3493
303	PIPE, VALVES. AND PIPE FITTINGS	(pt 42.0800)	3494 3498
304	WSCCELLANEOUS FABRICATED WIRE PRODUCTS	(42.0500)	3465 3496
305	METAL FOL AND LEAF	(42.1000)	3467
306	FABRICATED METAL PRODUCTS, N.E.C.	(42.1100)	3499
307	STEAM ENGINES AND TURBINES	(43.0100)	3511
308	INTERNAL COMBUSTION ENGINES. N.E.C.	(43.0200)	3519
309	FARM MACHINERY AND EQUIPMENT	(44.0001)	3523
310	LAWN AND GARDEN EQUIPMENT	(44.0002)	3524
311	CONSTRUCTION MACHINERY AND EQUIPMENT	(45.0100)	3531
312	MINING MACHINERY, EXCEPT OIL FIELD	(45.0200)	3532
313	OIL FIELD MACHINERY	(40.0300)	3533
314	ELEVATORS AND MOVING STAIRWAYS	(46.0100)	3534
315	CONVEYORS AND CONVEYING EQUIPMENT	(46.0200)	3535
316	HOISTS, CRANES. AND MONORAILS	(46.0300)	3536
317	INDUSTRIAL TRUCKS AND TRACTORS	(46.0400)	3537

No.	1990 IMPLAN Database Sector Name	1982 BEA commodity	Standrad Industry Classification (1987 SIC)
318	MACHINE TOOLS, METAL CUTTING TYPES	(47.0100)	3541
319	MACHINE TOOLS, METAL FORMING TYPES	(47.0200)	3542
320	INDUSTRIAL PATTERNS	(49.0400)	3543
321	SPECIAL DIES AND TOOLS AND ACCESSORIES	(47.0300)	3544 3445
322	POWER DRIVEN HAND TOOLS	(47.0401)	3546
323	ROLLING MILL MACHINERY	(47.0402)	3547
324	WELDING APPARATUS	(53.0600)	3548
325	METALWORKING MACHINERY, N E.C.	(47.0403)	3549
326	TEXTILE MACHINERY	(48.0200)	3552
327	WOODWORKING MACHINERY	(48.0300)	3553
328	PAPER INDUSTRIES MACHINERY	(48.0400)	3554
329	PRINTING TRADES MACHINERY	(48.0500)	3555
330	FOOD PRODUCTS MACHINERY	(pt 48.0100)	3556
331	SPECIAL INDUSTRY -ACHINERY NEC	(48.0600, pt 54.0600)	3559
332	PUMPS AND COMPRESSORS	(pt 49.0100)	3561 3563
333	BALL AND ROLLER BEARINGS	(49.0200)	3562
334	BLOWERS AND FANS	(49.0300)	3564
335	PACKAGING MACHINERY	(pt 48.0100, pt 49.0700)	3565
336	POWER TRANSMISSION EQUIPMENT	(49.0500)	3566 3568
337	INDUSTRIAL FURNACES AND OVENS	(49.0600)	3567
338	GENERAL INDUSTRIAL MACHINERY. N.E.C.	(pt 49.0700)	3569
339	ELECTRONIC COMPUTERS	(pt 51.0101)	3571
340	COMPUTER STORAGE DEVICES	(pt 51.0101)	3572
341	COMPUTER TERMINALS	(pt 51.0101)	3575
342	COMPUTER PERIPHERAL EQUIPMENT, NEC.	(Pt 51.0101)	3577
343	CALCULATING AND ACCOUNTING MACHINES	(51.0102)	3578
344	TYPEWRITERSANO OFFICE VACHINES. N.E.C.	(51.0400)	3579
345	AUTOMATIC MERCHANDISING MACHINES	(52.0100)	3581
346	COMMERCIAL LAUNDRY EQUIPMENT	(52.0200)	3582
347	REFRIGERATION AND HEATING EQUIPMENT	(52.0300)	3585
348	MEASURING AND DISPENSING PUMPS	(52.0400)	3586
349	SERVICE INDUSTRY MACHINES, N.E.C.	(52.0500)	3589
350	CARBURETORS. PISTONS. RINGS. VALVES	(50.0001)	3592
351	FLUID POWER CYLINDERS & ACTUATORS	(50.0003)	3593
352	FLUID POWER PUMPS& MOTORS	(pt 49.0100)	3594
353	SCALES AND BALANCES	(51.0300)	3596
354	INDUSTRIAL MACHINES NEC.	(pt 50.0002)	3599
355	TRANSFORMERS	(53.0200)	3612
356	SWITCHGEAR AND SWITCHBOARD APPARATUS	(51.0300)	3613
357	MOTORS AND GENERATORS	(53.0400)	3621
358	CARBON AND GRAPHITE PRODUCTS	(53.0700)	3624
359	RELAYS& INDUSTRIAL CONTROLS	(53.0500)	3625
360	ELECTRICAL INDUSTRIAL APPARATUS. N E C	(53.0800)	3629
361	HOUSEHOLD COOKING EQUIPMENT	(54.0100)	3631
362	HOUSEHOLD REFRIGERATORS AND FREEZERS	(54.0200)	3632
363	HOUSEHOLD LAUNDRY EQUIPMENT	(54.0300)	3633

No.	1990 IMPLAN Database Sector Name	1982 BEA commodity	Standrad Industry Classification (1987 SIC)
364	ELECTRIC HOUSEWARES AND FANS	(54.0400)	3634
365	HOUSEHOLD VACUUM CLEANERS	(54.0500)	3635
366	HOUSEHOLD APPLIANCES. N E.C.,	(pt 54.0600 54.0700)	3639
367	ELECTRIC LAMPS	(55.0100)	3641
368	WIRING DEVICES	(55.0300)	3643 3644
369	LIGHTING FL)(TURES AND EQUIPMENT	(55.02001	3645 3646 3647 3648
370	RADIO AND TV RECEIVING SETS	(56.0100)	3651
371	PHONOGRAPH RECORDS AND TAPE	(56.0200)	3652
372	TELEPHONE AND TELEGRAPH APPARATUS	(56.0300)	3661
373	RADIO AND TV COMMUNICATION EQUIPMENT	(pt 56.0400)	3663
374	COMMUNICATIONS EQUIPMENT NEC	(pt 56.0400)	3669
375	ELECTRON TUBES	(57.0100)	3671
376	PRINTED CIRCUIT BOARDS	(pt 57.0300)	3672
377	SEMICONDUCTORS AND RELATED DEVICES	(57.0200)	3674
378	ELECTRONIC COMPONENTS, N.E.C.	(pt 57.0300)	36753674 3676 3677 3678 3679
379	STORAGE BATTERIES	(58.0100)	3691
380	PRIMARY BATTERIES, DRY AND WET	(58.0200)	3692
381	ENGINE ELECTRICAL EQUIPMENT	(58.0400)	3694
382	MAGNETIC & OPTICAL RECORDING MEDIA	(pt 51.0101, pt 57.0300)	3695
383	ELECTRICAL EQUIPMENT N.E.C.	(58.0500)	3699
384	MOTOR VEHICLES	(59.0301)	3711
385	TRUCKAND BUS BODIES	(59.0100)	3713
386	MOTOR VEHICLE PARTS AND ACCESSORIES	(59.0302)	3714
387	TRUCK TRAILERS	(59.0200)	3715
388	MOTOR HOMES	(61.0603)	3716
389	AIRCRAFT	(60.0100)	3721
390	AIRCRAFT AND MIS-SILE ENGINES AND PARTS	(60.0200)	3724 3764
391	AIRCRAFT AND MISSILE EQUIPMENT, N.E.C.	(60.0400)	3728 3769
392	SHIP BUILDING AND REPAIRING	(61.0100)	3731
393	BOAT BUILDING AND REPAIRING	(61.0200)	3732
394	RAILROAD EQUIPMENT	(61.0300)	3740
395	MOTORCYCLES, BICYCLES, AND PARTS	(61.0500)	3750
396	COMPLETE GUIDED MISSILES	(13.0100)	3761
397	TRAVEL TRAILERS AND CAMPERS	(61.0601)	3792
398	TANKS AND TANK COMPONENTS	(13.0300)	3795
399	TRANSPORTATION EQUIPMENT. N E.C.	(61.0700)	3799
400	SEARCH & NAVIGATION EQUIPMENT	(pt 62.0100)	3812
401	LABORATORY APPARATUS & FURNITURE	(pt 62.0100)	3821
402	AUTOMATIC TEMPERATURE CONTROLS	(62.0300)	3822
403	MECHANICAL MEASURING DEVICES	(pt 62.0100, 62.0202)	3823 3824 3829
404	INSTRUMENTS TO MEASURE ELECTRICITY	(53.0100)	3825
405	ANALYTICAL INSTRUMENTS	(pt 62.0100, pt 63.0100)	3826
406	OPTICAL INSTRUMENTS & LENSES	(pt 63.0100)	3827
407	SURGICAL AND MEDICAL INSTRUMENTS	(62.0400)	3841
408	SURGICAL APPLIANCES AND SUPPLIES	(62.05001	3842

No.	1990 IMPLAN Database Sector Name	1982 BEA commodity	Standrad Industry Classification (1987 SIC)	
409	DENTAL EQUIPMENT AND SUPPLIES	(62.0600)	3843	
410	X-RAY APPARATUS	(pt 58.0300)	3844	
411	ELECTROMEDICAL APPARATUS	(pt 58.0300)	3845	
412	OPHTHALMIC GOODS	(63.0200)	3850	
413	PHOTOGRAPHIC EQUIPMENT AND SUPPLIES	(63.0300)	3860	
414	WATCHES, CLOCKS. AND PARTS	(62.0700)	3870	
415	JEWELRY. PRECIOUS METAL	(64.0101)	3911	
416	SILVERWARE AND PLATED WARE	(64.0104)	3914	
417	JEWELERS MATERIALS AND LAPIDARY WORK	(64.0102)	3915	
418	MUSICAL INSTRUMENTS	(64.0200)	3930	
419	DOLLS	(64.0302)	3942	
420	GAMES, TOYS, AND CHILDRENS VEHICLES	(64.0301)	3944	
421	SPORTING AND ATHLETIC GOODS N.E.C.	(64.0400)	3949	
422	PENS AND MECHANICAL PENCILS	(64.0501)	3951	
423	LEAD PENCILS AND ART GOODS	(64.0502)	3952	
424	MARKING DEVICES	(64.0503)	3953	
425	CARBON PAPER AND INKED RIBBONS	(64.0504)	3955	
426	COSTUME JEWELRY	(64.0105)	3961	
427	FASTENERS, BUTTONS. NEEDLES. PINS	(64.0701 64.1702)	3965	
428	BROOMS AND BRUSHES	(64.0800)	3991	
429	SIGNS AND ADVERTISING DISPLAYS	(64.1100)	3993	
430	BURIAL CASKETS AND VAULTS	(64.000)	3995	
431	HARD SURFACE FLOOR COVERINGS	(64.0900)	3996	
432	MANUFACTURING INDUSTRIES. N.E.C.	(40.600, 64.200)	3999	
433	RAILROADS AND RELATED SERVICES	(65.0100)	4010 4740	Also part of 4789
434	LOCAL. INTERURBAN PASSENGER TRANSIT	(65.0200)	4100	
435	MOTOR FREIGHT TRANSPORT AND WAREHOUSING	(65.0300)	4200	Also part of 4789
436	WATER TRANSPORTATION	(65.0400)	4400	
437	AIR TRANSPORTATION	(65.0500)	4500	
438	PIPE LINES. EXCEPT NATURAL GAS	(65.0600)	4600	
439	ARRANGEMENT OF PASSENGER TRANSPORTATION	(65.0702)	4720	
440	TRANSPORTATION SERVICES	(65.0701)	4730 4783 4785	Also part of 4789
441	COMMUNICATIONS, EXCEPT RADIO AND TV	(66.0000)	4810 4820 4840 4890	
442	RADIO AND TV BROADCASTING	(67.0000)	4830	
443	ELECTRIC SERVICES	(68.0100)	4910	Also part of 4930
444	GAS PRODUCTION AND DISTRIBUTION	(68.0200)	4920	Also part of 4930
445	WATER SUPPLY AND SEWERAGE SYSTEMS	(68.0301)	4940 4952	
446	SANITARY SERVICES AND STEAM SUPPLY	(68.0302)	4953 4959 4960 4970	
447	WHOLESALE TRADE	(69.0100)	5000 5100	
448	BUILDING MATERIALS & GARDENING SUPPLIES	(pt 69.0200)	5200	
449	GENERAL MERCHANDISE STORES	(pt 69.0200)	5300	
450	FOOD STORES	(pt 69.0200)	5400	
451	AUTOMOTIVE DEALERS & SERVICE STATIONS	(pt 69.0200)	5500	
452	APPAREL & ACCESSORY STORES	(pt 69.0200)	5600	
453	FURNITURE & HOME FURNISHINGS STORES	(pt 69.0200)	5700	
454	EATING & DRINKING	(74.0000)	5800	

No.	1990 IMPLAN Database Sector Name	1982 BEA commodity	Standrad Industry Classification (1987 SIC)
455	MISCELLANEOUS RETAIL	(pt 69.0200)	5900
456	BANKING	(70.0100)	6000
457	CREDIT AGENCIES	(70.0200)	61006000 6710 6720 6733 6790
458	SECURITY AND COMMODITY BROKERS	(70.0300)	6200
459	INSURANCE CARRIERS	(70.0400)	6300
460	INSURANCE AGENTS AND BROKERS	(70.0500)	6400
461	OWNER-OCCUPIED DWELLINGS	(71.0100)	
462	REAL ESTATE	(71.0201, 71.0202)	6500
463	HOTELS AND LODGING PLACES	(72.0100)	7000
464	LAUNDRY. CLEANING AND SHOE REPAIR	(72.0201)	7210 7250
465	PORTRAIT AND PHOTOGRAPHIC STUDIOS	(pt 72.0203)	7220
466	BEAUTY AND BARBER SHOPS	(72.0300)	7230 7240
467	FUNERAL SERVICE AND CREMATORIES	(72.0202)	7260
468	MISCELLANEOUS PERSONAL SERVICES	(pt 72.0203)	7290
469	ADVERTISING	(73.0200)	7310
470	OTHER BUSINESS SERVICES	(73.0109)	7320 7331 7338 7383 7389
471	PHOTOFINISHING, COMMERCIAL PHOTOGRAPHY	(71.0108)	7334 7335 7336 7384
472	SERVICES TO BUILDINGS	(73.0102)	7340
473	EQUIPMENT RENTAL AND LEASING	(73.0107)	7350
474	PERSONNEL SUPPLY SERVICES	(73.0103)	7360
475	COMPUTER AND DATA PROCESSING SERVICES	(73.0104)	7370
476	DETECTIVE AND PROTECTIVE SERVICES	(73.0106)	7381 7382
477	AUTOMOBILE RENTAL AND LEASING	(75.0001)	7510
478	AUTOMOBILE PARKING AND CAR WASH	(75.0003)	7520 7542
479	AUTOMOBILE REPAIR AND SERVICES	(75.0002)	7530 7549
480	ELECTRICAL REPAIR SERVICES	(72.0204)	7620
481	WATCH, CLOCK, JEWELRY AND FURNITURE REPAIR	(72.0205)	7630 7640
482	MISCELLANEOUS REPAIR SHOPS	(73.0101)	7690
483	MOTION PICTURES	(76 0100)	7800
484	THEATRICAL PRODUCERS. BANDS ETC.	(76.0201)	7920
485	BOWLING ALLEYS AND POOL HALLS	(76.0202)	7930
486	COMMERCIAL SPORTS EXCEPT RACING	(76.0203)	7941
487	RACING AND TRACK OPERATION	(76.0204)	7948
488	AMUSEMENT AND RECREATION SERVICES, NEC	(76.0206)	7910 7991 7992 7993 7996 7999
489	MEMBERSHIP SPORTS AND RECREATION CLUBS	(73.0205)	7997
490	DOCTORS AND DENTISTS	(77.0100)	8010 8020 8030 8040
491	NURSING AND PROTECTIVE CARE	(77.0301)	8050
492	HOSP-TALS	(77.0200)	8060
493	OTHER MEDICAL AND HEALTH SERVICES	(77.0302)	0740 8070 8080 8090
494	LEGAL SERVICES	(73.0301)	8110
495	R EMENTARY AND SECONDARY SCHOOLS	(77.0401)	8210
496	COLLEGES, UNIVERSITIES, SCHOOLS	(77.0402)	8220
497	OTHER EDUCATIONAL SERVICES	(77.0403)	8230 8240 8290
498	JOB TRAININGS & RELATED SERVICES	77.06	8330

No.	1990 IMPLAN Database Sector Name	1982 BEA commodity	Standrad Industry Classification (1987 SIC)
499	CHILD DAY CARE SERVICES	77.07	8350
500	SOCIAL SERVICES N E, , -	(77.0900)	8320 8390
501	RESIDENTIAL CARE	(77.0800)	8360
502	OTHER NONPROFIT ORGANIZATIONS	(77.0504)	8400 8650 8690 6732 8922
503	BUSINESS ASSOCIATIONS	(77.0501)	8610 8620
504	LABOR AND CIVIC ORGANIZATIONS	(77.0502)	8630 8620
505	RELIGIOUS ORGANIZATIONS	(77.0503)	8660
506	ENGINEERING. ARCHITECTURAL SERVICES	(73.0302)	8710
507	ACCOUNTING, AUDITING AND BOOKKEEPING	(73.0303)	8720, 8890
508	MANAGEMENT AND CONSULTING SERVICES	(pt 73.0105)	8740
509	RESEARCH. DEVELOPMENT & TESTING SERVICES	(pt 73.0105)	8730
510	LOCAL GOVERNMENT PASSENGER TRANSJT	(79.0100)	Part of 4100
511	STATE AND LOCAL ELECTRIC UTILITIES	(79.0200)	Part of 4910
512	OTHER STATE AND LOCAL GOVT ENTERPRISES	(79.0300)	-
513	U S POSTAL SERVICE	(78.0100)	4311
514	FEDERAL ELECTRIC UTILITIES	(78.0200)	Part of 4910
515	OTHER FEDERAL GOVERNMENT ENTERPRISES	(78.0400)	-
516	NONCOMPARABLE IMPORTS	(80.0000)	-
517	SCRAP	(81.0001)	-
518	USED AND SECONDHAND GOODS	(81.0002)	-
519	FEDERAL GOVERNMENT . MILITARY	(pt 82.0000)	-
520	FEDERAL GOVERNMENT - NON-MILITARY	(pt 82.0000)	-
521	COMMODITY CREDIT CORPORATION	(78.0300)	-
522	STATE & LOCAL GOVERNMENT - EDUCATION	(pt 82.0000)	-
523	STATE & LOCAL GOVERNMENT - NON-EDUCATION	(pt 82.0000)	-
524	REST OF THE WORLD INDUSTRY	(83.0000)	-
525	HOUSEHOLD INOUSTRY4LOW INCOME	(pt 84 0000)	8800
526	HOUSEHOLD INDUSTRY-MED INCOME	(pt 84 0000)	8800
527	HOUSEHOLD INOUSTRY-HIGH INCOME	(pt 84.0000)	8800
528	INVENTORY VALUATION ADJUSTMENT	(85.0000)	-

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