



# *Our Southwest Florida Natural Resources and Economy*

*Must we place a dollar figure on natural resources for them to have value?*



Artwork by Shelly Castle of Castlegraphics

Assigning a dollar value to goods and services provided by the environment is not easy because we usually do not buy these services directly. While we pay for food, housing, and gasoline with money that is easily counted, benefits such as clean air to breathe or the beauty of a pristine river are not goods that we pay for directly. Since these benefits are difficult to measure using traditional methods, economists have developed ways to indirectly measure how our natural resources influence our regional economy. A few of these methods were used in this study of natural resources and the economy of Southwest Florida.



City of Punta Gorda Nature Park

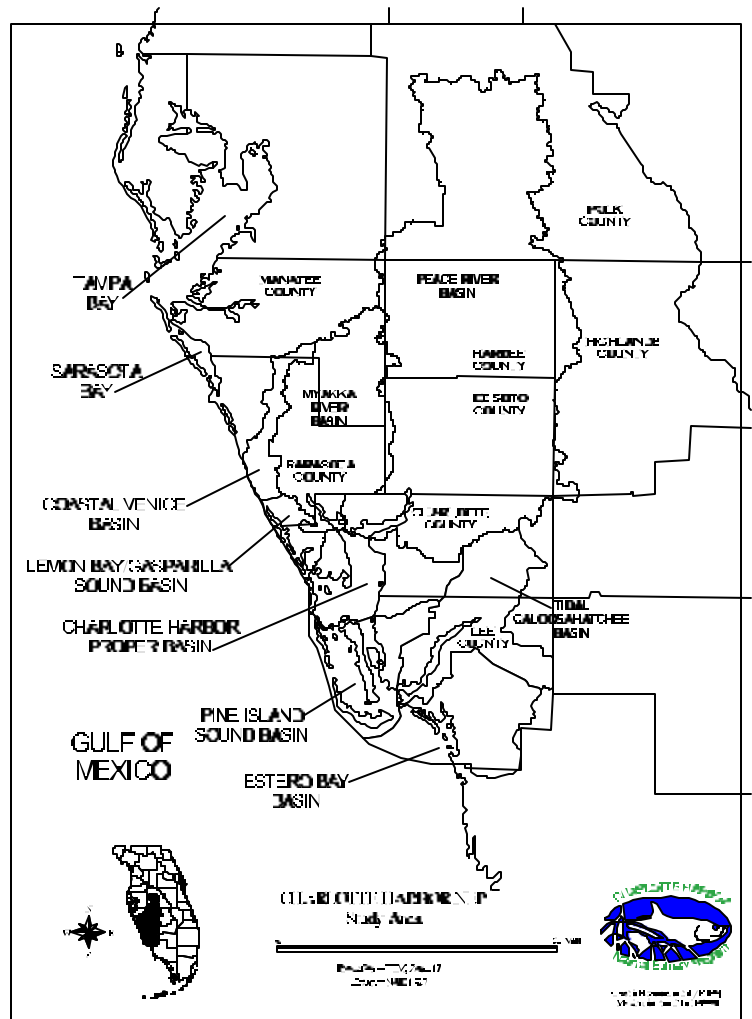
Photo by Jim Stilwell

*Natural resources provide an economic value and benefit that far surpasses simple profit calculations.*

## Background

Within the Charlotte Harbor National Estuary Program's study area you will find over 4,400 square miles of varied landscapes and natural resources. Land types such as wetlands, pine flatwoods, slow moving rivers, and hardwood hammocks provide natural goods and services such as flood control and support a variety of unique plants and animals. Resident Floridians enjoy resource-related benefits such as jobs in the phosphate mining industry, commercial and private fishing enterprises, and growing eco-tourism ventures. Tourists visit Southwest Florida year-round because of its pristine beaches, fine resorts and restaurants, world class fishing, and countless forms of other outdoor recreation.

To assess how our region's economy is affected by the use of natural resources, a study was conducted to measure economic value associated with the benefits we receive from these resources (see map). The natural resources considered in this study include wildlife ecosystems, water, minerals, fisheries, and agriculture. Significant benefits such as tourism, abundant clean water, and flood control are highly dependent on the quality and availability of natural resources.



## Measures of Economic Value

The results of the study show the economic value associated with the natural resources of the greater watershed. Examples of activities and benefits dependent on these natural resources include:

- *tourism and recreation industries (see table on back page);*
- *commercial fishing;*
- *recreational fishing;*
- *swimming, boating, and other water sports;*
- *mining;*
- *nature observation;*
- *“non-use” values of important wetland areas; and*
- *flood control.*

Any assessment that analyzes the area's natural resource value must make some assumptions and use estimates. These assumptions make the results imprecise and may overestimate some economic values, but nevertheless provide a very useful “ballpark” understanding of the region's economic values.

The economic assessment calculated two values:

- 1) *CONSUMER SURPLUS*, or the maximum amount of money a consumer like you would be WILLING to pay, ABOVE the price ACTUALLY paid, and
- 2) *TOTAL INCOME*, that includes income from direct, indirect, and induced wages (*induced* referring to income generated from businesses that provide goods and services to the employees of direct and indirect businesses).

# Consumer Surplus and Total Income

Given the best available information, this study estimated the *consumer surplus* and *total income* associated with the natural resources in the greater Charlotte Harbor watershed.

*Consumer surplus* may be thought of as consumer “profit.” Although this money doesn’t actually change hands, it represents the value of human well-being associated with current use of the resources. For example, if you purchased a car for \$10,000, but were willing to pay up to \$12,000, you would get a benefit of \$2,000 in consumer surplus above the price you actually paid.

*Total income* is the second method to consider. Any business that relies on natural resources to make money typically depends also on supplies and services from other companies. Most businesses rely on other companies to provide support such as food, transportation, utilities, office supplies, and business/professional services. These related goods and services also produce an income, and additional benefit to our community. The combined income of a business and the related sales it generates from other companies is the *total income* that business generates in the region’s economy.

For example, if a family on vacation rented kayaks at the wildlife refuge, they likely spent money at a hotel for lodging, rented a car for local travel, and purchased meals. In this case, total income would attempt to capture expenditures associated with this resource use.

## Summary

The adjoining table provides estimates of consumer surplus and total income from this study. This one-year snapshot of the economic benefits from current uses of the region’s resources is based upon the best information available.



Photo by Joy Duperault

### Annual Consumer Surplus and Annual Total Income Associated with the Current Uses of the Natural Resources for the Charlotte Harbor National Estuary Program Study Area

<u>Resource Activity/Amenity</u>	<u>Consumer Surplus</u>	<u>Total Direct and Indirect Income</u>
Tourism & Recreational Industries	(in Other Recreational Activities)	\$2,196,941,059
Commercial Fishing	not available	\$22,635,667
Recreational Fishing	\$107,228,991	(in Tourism)
Other Recreational Activities*	\$809,448,482	(in Tourism)
Agriculture	not available	\$671,580,307
Mining	not available	\$270,250,299
Non-use value of wetland areas in the Charlotte Harbor NEP study area	\$884,028,344	not applicable
<b>Total</b>	<b>\$1,800,705,816</b>	<b>\$3,161,407,332</b>

\*(e.g. boating; swimming and other water sports; nature observation)

*The Greater Charlotte Harbor Watershed is a unique land and water resource that provides about \$1.8 billion per year in net value to recreators and Florida households, and is used to produce about \$3.2 billion per year in income to the area.*

# Economic Valuation and the Environment

Without a doubt, Floridians benefit economically from unique natural resources. The white sandy beaches, championship fishing, and multi-billion dollar agriculture industry are directly related to the quality of the environment. Natural resources support jobs and industry profit as well as other benefits such as recharging groundwater aquifers and providing essential wildlife habitat.

What happens to these economic benefits if our natural resources are damaged? Well, certainly the wildlife will decline, and so will other benefits such as recharging our drinking water supply and providing natural pollution control. While jobs may be created from new retail

and manufacturing opportunities, declines in environmental quality can have costs such as less tourism-related jobs and higher pollution control costs.

When considering land use changes, we must realize all short and long-term costs and benefits, as well as cumulative effects. For example, building roads and causeways not only increases access to public lakes, trails, and beaches, but also increases the value of adjacent private lands for more intensive uses. Therefore, the cost of such new facilities should take into account the natural benefits lost not only from the right-of-ways, but also from the adjacent lands opened up for urban development. We must

consider these total costs when planning future trade-offs.

The results from this study are a snapshot of our dynamic economy and ever-changing mix of goods and services. This study helps us to understand the basic linkage between our natural resources and our economy. Resources are commonly taken for granted, or simply undervalued when assessed with more common methods of economic valuation. Without this appreciation, unrecognized costs of today's natural resource alterations will simply be passed on to future generations.

## Estimated User Occasions by Recreational Activities in the Charlotte Harbor NEP by Residents

### 1995 Annual Number of User Occasions by Activity

Activity	Charlotte	DeSoto	Hardee	Polk	Manatee	Sarasota	Lee	Total
Saltwater Beach Activities	183,240	0	0	0	0	275,556	335,734	794,530
Bicycle Riding	590,752	69,883	59,570	678,863	157,419	888,373	1,082,383	3,527,243
Saltwater Fishing (Boat)	39,743	0	0	0	0	59,766	72,818	172,326
Freshwater Beach Activities	14,303	15,813	13,479	153,611	28,182	21,509	26,206	273,103
Picnicking	36,343	7,544	6,431	73,285	36,436	54,653	66,588	281,280
Freshwater Fishing (Boat)	32,240	17,182	16,646	166,912	7,385	48,482	59,070	345,918
Saltwater Fishing (Non-boat)	13,365	0	0	0	0	20,098	24,487	57,950
RV/Trailer Camping	2,579	13,236	11,282	128,574	652	3,879	4,726	164,927
Tent Camping	5,158	564	481	5,477	869	7,757	9,451	29,757
Freshwater Boat Ramp Use	4,572	7,920	6,751	76,936	1,901	6,876	8,377	113,333
Saltwater Boat Ramp Use	13,599	0	0	0	0	20,451	24,917	58,967
Visiting Archaeological and Historical Sites	14,889	4,886	4,165	47,466	2,715	22,390	27,280	123,791
Hiking	17,351	5,047	4,302	49,030	19,386	26,092	31,791	152,999
Nature Study	97,775	11,866	10,115	115,274	7,168	147,034	179,144	568,376
Freshwater Fishing (Non-boat)	27,081	9,665	8,239	93,888	3,149	40,725	49,619	232,367
Horseback Riding	4,103	1,289	1,098	12,518	1,683	6,170	7,518	34,381
Canoeing	5,158	2,470	2,105	23,994	4,235	7,757	9,451	55,171
Hunting	11,724	1,557	1,327	15,126	217	17,630	21,480	69,062

For a copy of the economic valuation study, please contact:

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