

1. Executive Summary

1.1 Project Overview

The purpose of this study is to provide economic values for environmental resources of the Sarasota Bay Estuary and its adjacent barrier islands. Phase I of this study is comprised of two key components: a benefit transfer application to evaluate direct and indirect use values associated with coastal recreation, and a hedonic property price model application to evaluate the direct and indirect use values associated with coastal residential real estate. Phase II of this study is comprised of three additional components: 1) an economic impact study to evaluate the economic contribution of Sarasota Bay on the local two-county economy, 2) estimates for the number of recreation trips for calculating the value of recreation use values, and 3) a discrete choice experiment to evaluate the value of management-relevant environmental resources in the Sarasota Bay Estuary. The study area for this project is the Sarasota Bay Estuary, which encompasses an expansive lagoon system from Anna Maria Sound to the area just north of Venice Inlet as well as adjacent marine resources. This project measures economic values associated with Sarasota and Manatee County residents, residents of adjacent counties, and visitors to this region.

1.1.2 Environmental Goods and Services: Connecting Sarasota Bay to Human Well-being

The Sarasota Bay provides local residents and visitors with access to a wide variety of natural resources. These resources play a key role in explaining the popularity of the Sarasota Bay region. As population pressure grows, it is important we work to better understand society's connection to these resources in order to better meet the needs of the public. The Millennium Ecosystem

Assessment (2003) provides one such framework for assessing the complex connections between human societies and ecosystems.

The Millennium Ecosystem Assessment framework begins by accounting for the structure and function of ecosystems. The ecosystem structure and function represent the components of ecosystems and those components' natural processes. The Millennium Ecosystem Assessment connects the structure and function of ecosystem to human beings through ecosystem goods and services. It is ecosystem goods and services which contribute to human well-being. As ecosystems decline (increase), the services those ecosystems provide decline (increase), and human well-being diminishes (increases).

The Millennium Ecosystem Assessment has developed categories for ecosystem goods and services. The classifications are as follows:

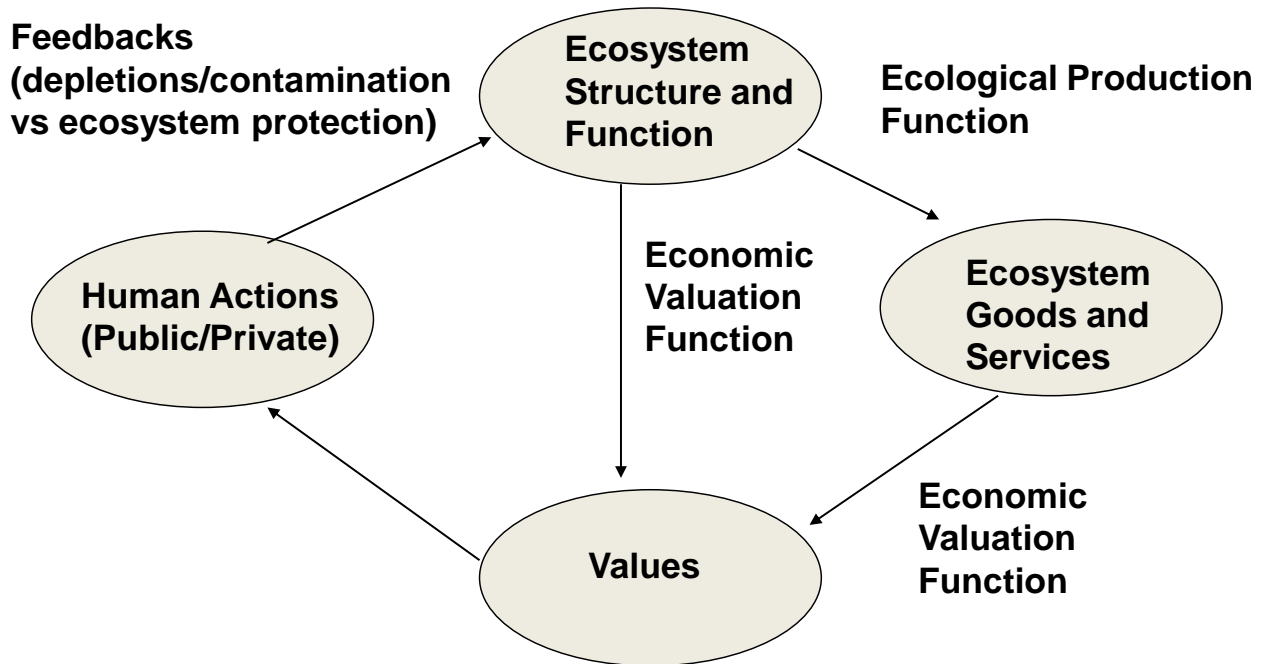
- **Provisioning Goods and Services:** These tend to be tangible goods and services provided by ecosystems. Examples include food, water, energy resources, and fuel wood.
- **Regulating Goods and Services:** This represents goods and services resulting from the regulation of ecosystem processes. Examples include climate regulation and natural hazard regulation.
- **Cultural Goods and Services:** These goods and services represent non-material benefits provided to society by ecosystems. Examples include spiritual, recreational, and aesthetic benefits.
- **Supporting Goods and Services:** These represent services necessary for the production of other ecosystem services. Examples include nutrient cycling, soil formation, and primary productivity.

People derive value from ecosystem goods and services and those values influence their future actions. We can view the interactions of people and ecosystems as a feedback loop. Figure 1, seen below, gives a heuristic model of the relationship between ecosystems, human value, and human actions. In this model, the structure and function of ecosystems can be translated into ecosystem goods and services through an ecological production function. People value these ecosystem services by either direct or indirect use.

Economists estimate the human value associated with these direct and indirect values by modeling their revealed (actual) and/or stated (anticipated) behavior.

People also value ecosystems because they exist and/or because they want themselves, their neighbors, and their descendants to have the option to use the resource at some future time. This represents non-use values, which can be measured using contingent valuation (a type of stated behavior method). These anthropocentric values (use and non-use) then influence the choices individuals make (private or public). Private and public actions finish the feedback loop by influencing the ecosystem structure and function.

Figure 1.1: Components of Ecosystem Valuation (Heal et al. 2005)



As an example, a mangrove habitat has specific structure and function associated with the relevant biotic (mangrove types, animal species, etc.) and abiotic (soil composition, water salinity, etc.) factors. This structure and function then translates into ecosystem services which individuals use directly or indirectly. People can use mangroves directly when they use the mangroves natural features to mitigate the risk associated with storm surge. They can use the mangroves indirectly when the mangroves contribute to biodiversity in an estuary. Increased biodiversity improves aesthetics and recreation. In addition

to direct and indirect use values, people also value ecosystems because they wish them to exist, even if they do not plan on using them (non-use value).

In Phase I of this study, we provided estimates of marginal value for recreational users and property owners in the Sarasota Bay Estuary region. The estimates provided in this project will contribute to an effort to evaluate the total economic value of the area. Economic Value represents ways in which a resource improves the economic well-being of individuals or society. Think of this value as the benefit individuals or society receives once costs have been accounted for. These costs could represent the costs for individuals or society to produce, provide, or protect the resource. The total economic value of a resource is divided into several components:

- **Direct Use Value:** Goods and Services Consumed by Individuals
 - **Marketed Goods and Services:** Fish (market), timber
 - **Non-marketed Goods and Services:** Recreation, aesthetics, education
- **Indirect Use Value:**
 - **Non-marketed Benefits Derived from Ecosystem Goods & Services:** Storm surge protection, climate regulation, water purification
- **Non-Use Value**
 - **Option Value:** Value associated with the option for future use
 - **Bequest Value:** Value associated with knowing the resource will be passed on to descendants
 - **Philanthropic Value:** Value associated with knowing the resource will be available to other people in the present
 - **Existence Value:** Value associated with knowing the resource exists

This project will work toward allowing policy makers to evaluate the existing natural capital and its associated services the area (total economic value) as well as the impact of changes in natural capital and ecosystem services (marginal value). As an analogy, the total economic value gives us a snapshot of the resources we have and how society values those resources. The marginal value gives us a snapshot of how the well-being of society changes when there is an incremental change in the resource. The marginal value provides the greatest

evaluation tool for policy because it allows policymakers to evaluate the trade-offs associated with different alternatives.

1.2 Benefit Transfer Model (Phase I Results)

In the Phase I benefit transfer study, we evaluate several distinct use values for a variety of potential recreation types in the region. The Sarasota Bay is comprised of numerous smaller bays and embayments with diverse biotic and abiotic characteristics. As a result, residents and visitors to these counties visit the Sarasota Bay Estuary and its adjacent resources to enjoy a wide variety of recreational opportunities. The value individuals derive directly from using the Bay's resources for recreational opportunities represents one type of economic value (use value). The problem faced by researchers is how to capture this value. While coastal and marine recreational opportunities provide significant value to residents and visitors, recreation itself is not traded in an explicit market. To overcome the problem, economists have developed a variety of methodologies to estimate the value of recreation for individuals based on their actual (observed) and anticipated (stated) behavior. In this study, we utilize the expansive economic literature on recreation use value to estimate individual's average willingness-to-pay for coastal and marine recreation trips using a methodology called meta-regression benefit transfer.

We estimate a benefit transfer meta-regression model with the goal of obtaining individuals' average willingness-to-pay for recreational trips with 95% confidence intervals. Our model enables us provide 76 estimates combining 19 activity types with trip purpose and trip duration. Table 1.1 lists all 76 average WTP estimates with 95% confidence intervals. Figures 1.2a – 1.2d gives graphical representations of these estimates.

Table 1.1: Estimated Mean Willingness-to-Pay for Recreation Trips by Activity Type (2011 Dollars)^a

	Day Trip		Multi-Day Trip	
	Single Purpose	Multi-Purpose	Single Purpose	Multi-Purpose
Beach	\$23.89 (\$21.28, \$26.49)	\$18.76 (\$16.07, \$21.44)	\$28.05 (\$25.40, \$30.69)	\$22.03 (\$19.30, \$24.75)
Big Game Hunting	\$57.79 (\$55.35, \$60.22)	\$45.38 (\$42.84, \$47.91)	\$67.83 (\$65.34, \$70.31)	\$53.27 (\$50.68, \$55.85)
Biking	\$68.96 (\$66.38, \$71.53)	\$54.16 (\$51.52, \$56.79)	\$80.95 (\$78.31, \$83.58)	\$63.57 (\$60.87, \$66.26)
Camping	\$24.72 (\$22.24, \$27.19)	\$19.41 (\$16.83, \$21.98)	\$29.02 (\$26.50, \$31.53)	\$22.79 (\$20.17, \$25.40)
Env. Education	\$21.19 (\$18.37, \$24.00)	\$16.64 (\$13.77, \$19.50)	\$24.87 (\$22.00, \$27.73)	\$19.53 (\$16.61, \$22.44)
Freshwater Fishing	\$37.47 (\$35.04, \$39.89)	\$29.43 (\$26.89, \$31.96)	\$43.99 (\$41.50, \$46.47)	\$34.54 (\$31.95, \$37.12)
Motor boating	\$37.42 (\$34.86, \$39.97)	\$29.39 (\$26.74, \$32.03)	\$43.93 (\$41.31, \$46.54)	\$34.5 (\$31.80, \$37.19)
Running/Hiking	\$54.42 (\$51.96, \$56.87)	\$42.73 (\$40.18, \$45.27)	\$63.87 (\$61.35, \$66.38)	\$50.16 (\$47.56, \$52.75)
Kayaking/Canoeing	\$44.9 (\$42.29, \$47.50)	\$35.26 (\$32.57, \$37.94)	\$52.7 (\$50.05, \$55.34)	\$41.39 (\$38.66, \$44.11)
Off-Road Vehicle	\$27.35 (\$24.80, \$29.89)	\$21.48 (\$18.84, \$24.11)	\$32.1 (\$29.54, \$34.65)	\$25.21 (\$22.56, \$27.85)
Picnicking	\$29.46 (\$27.00, \$31.91)	\$23.14 (\$20.59, \$25.68)	\$34.58 (\$32.07, \$37.08)	\$27.16 (\$24.56, \$29.75)
Saltwater Fishing	\$65.74 (\$63.25, \$68.22)	\$51.63 (\$49.02, \$54.23)	\$77.16 (\$74.61, \$79.70)	\$60.6 (\$57.94, \$63.25)
Scuba Diving	\$243.37 (\$240.24, \$246.49)	\$191.13 (\$187.86, \$194.39)	\$285.67 (\$282.51, \$288.82)	\$224.34 (\$221.04, \$227.63)
Sightseeing	\$51.25 (\$48.74, \$53.75)	\$40.25 (\$37.65, \$42.84)	\$60.16 (\$57.60, \$62.71)	\$47.24 (\$44.59, \$49.88)
Small Game Hunting	\$31.84 (\$29.34, \$34.33)	\$25 (\$22.40, \$27.59)	\$37.37 (\$34.82, \$39.91)	\$29.35 (\$26.71, \$31.98)
Snorkeling	\$104.18 (\$100.34, \$108.01)	\$81.81 (\$77.95, \$85.66)	\$122.28 (\$118.38, \$126.17)	\$96.03 (\$92.12, \$99.93)
Swimming	\$35.55 (\$33.03, \$38.06)	\$27.92 (\$25.32, \$30.51)	\$41.73 (\$39.17, \$44.28)	\$32.77 (\$30.12, \$35.41)
Waterfowl Hunting	\$40.80 (\$38.39, \$43.20)	\$32.05 (\$29.52, \$34.57)	\$47.9 (\$45.43, \$50.36)	\$37.62 (\$35.04, \$40.19)
Wildlife Viewing	\$35.47 (\$33.03, \$37.90)	\$27.86 (\$25.32, \$30.39)	\$41.64 (\$39.14, \$44.13)	\$32.7 (\$30.11, \$35.28)

^a 95% Confidence intervals in Parentheses

Figure 1.2a: Mean Willingness-to-Pay for Recreation Trips with 95% Confidence Intervals

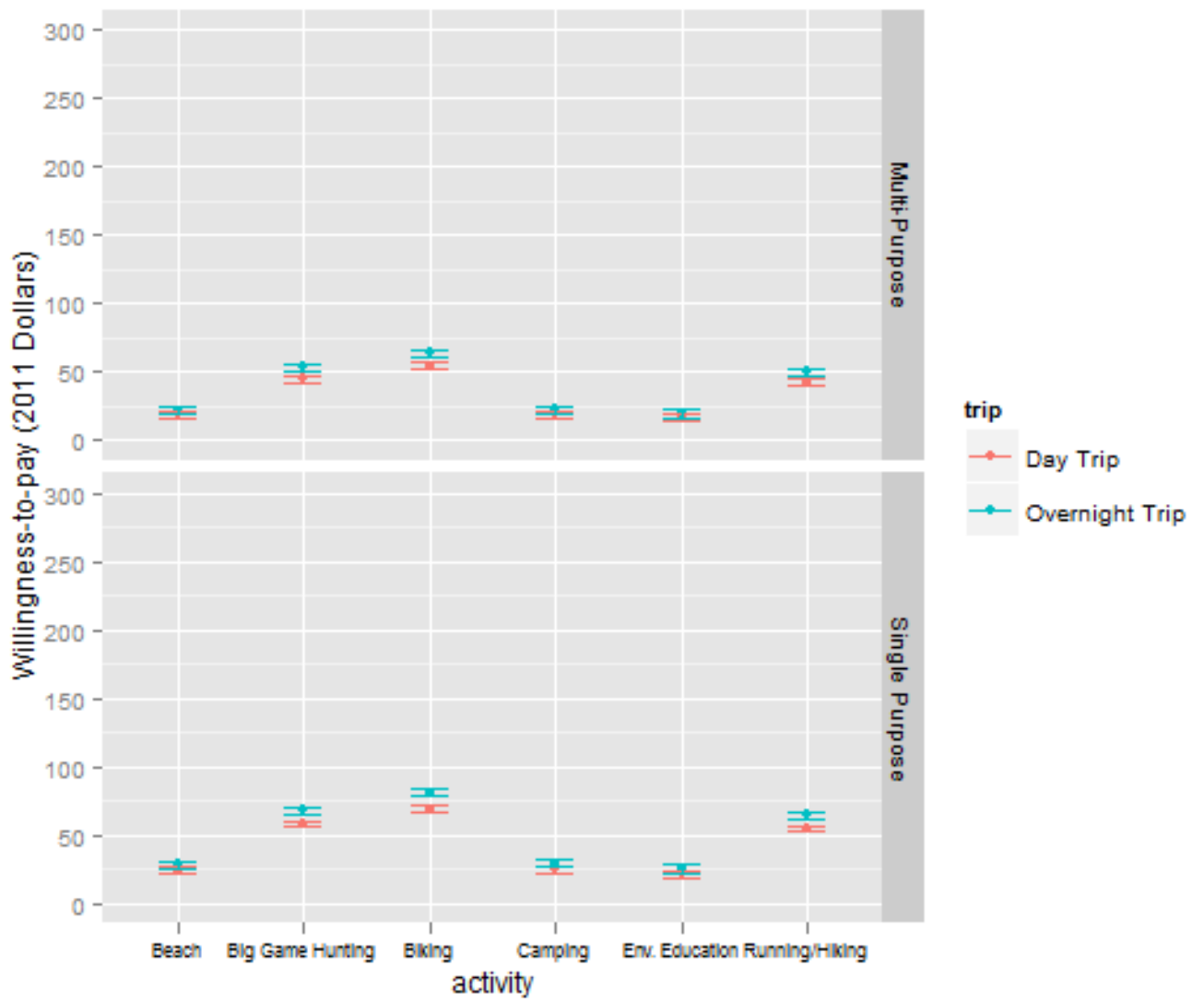


Figure 1.2b: Mean Willingness-to-Pay for Recreation Trips with 95% Confidence Intervals

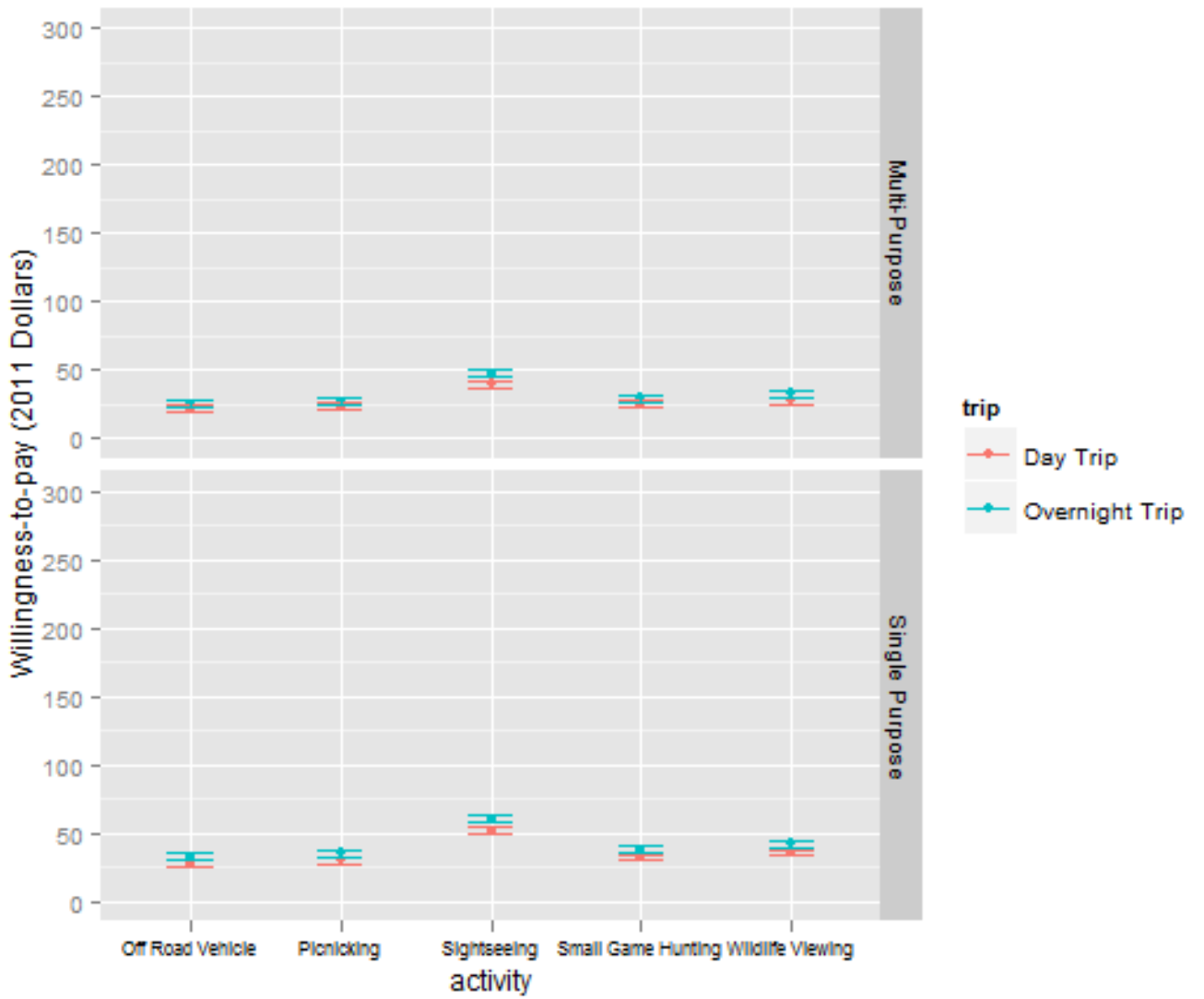


Figure 1.2c: Mean Willingness-to-Pay for Recreation Trips with 95% Confidence Intervals

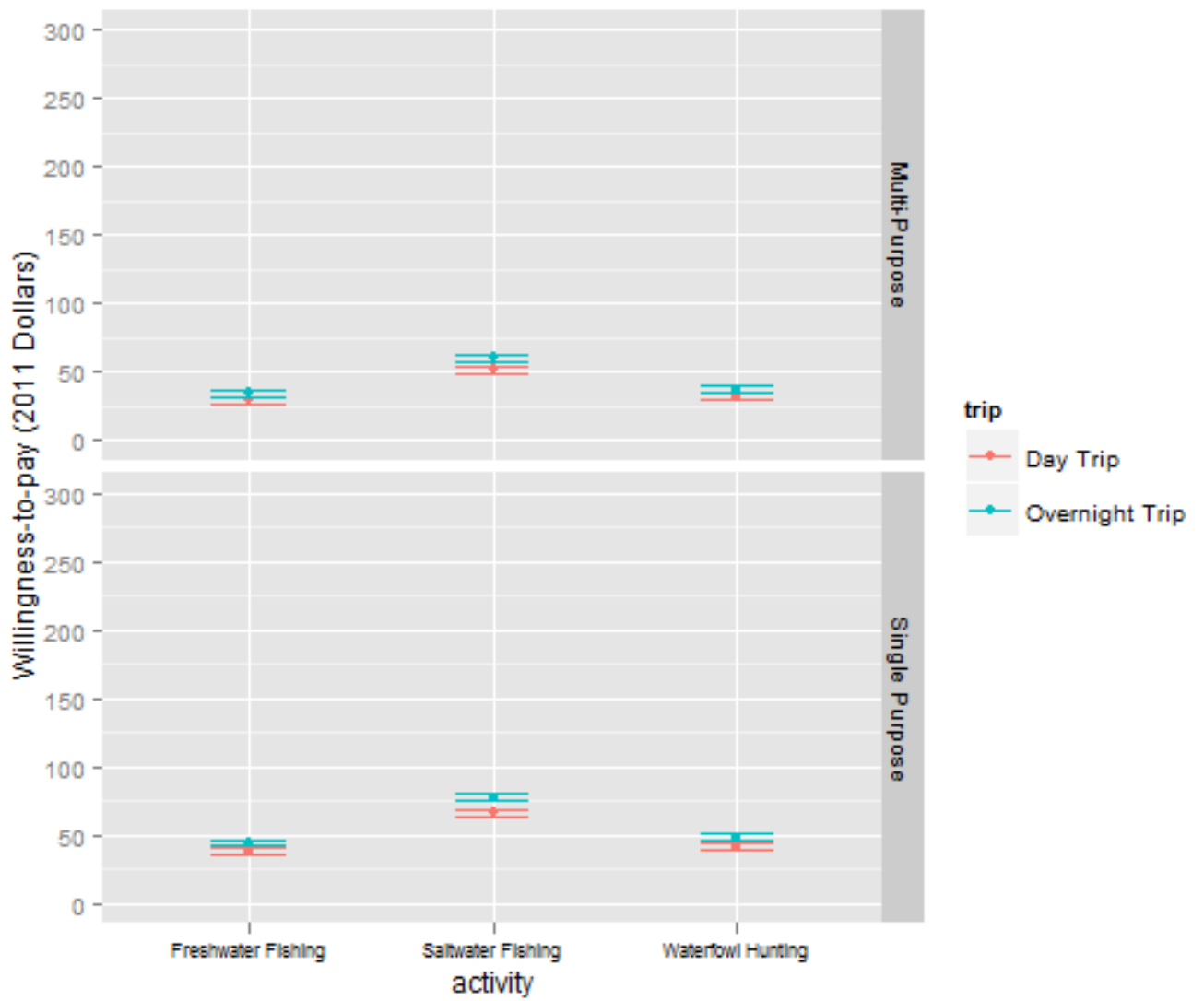
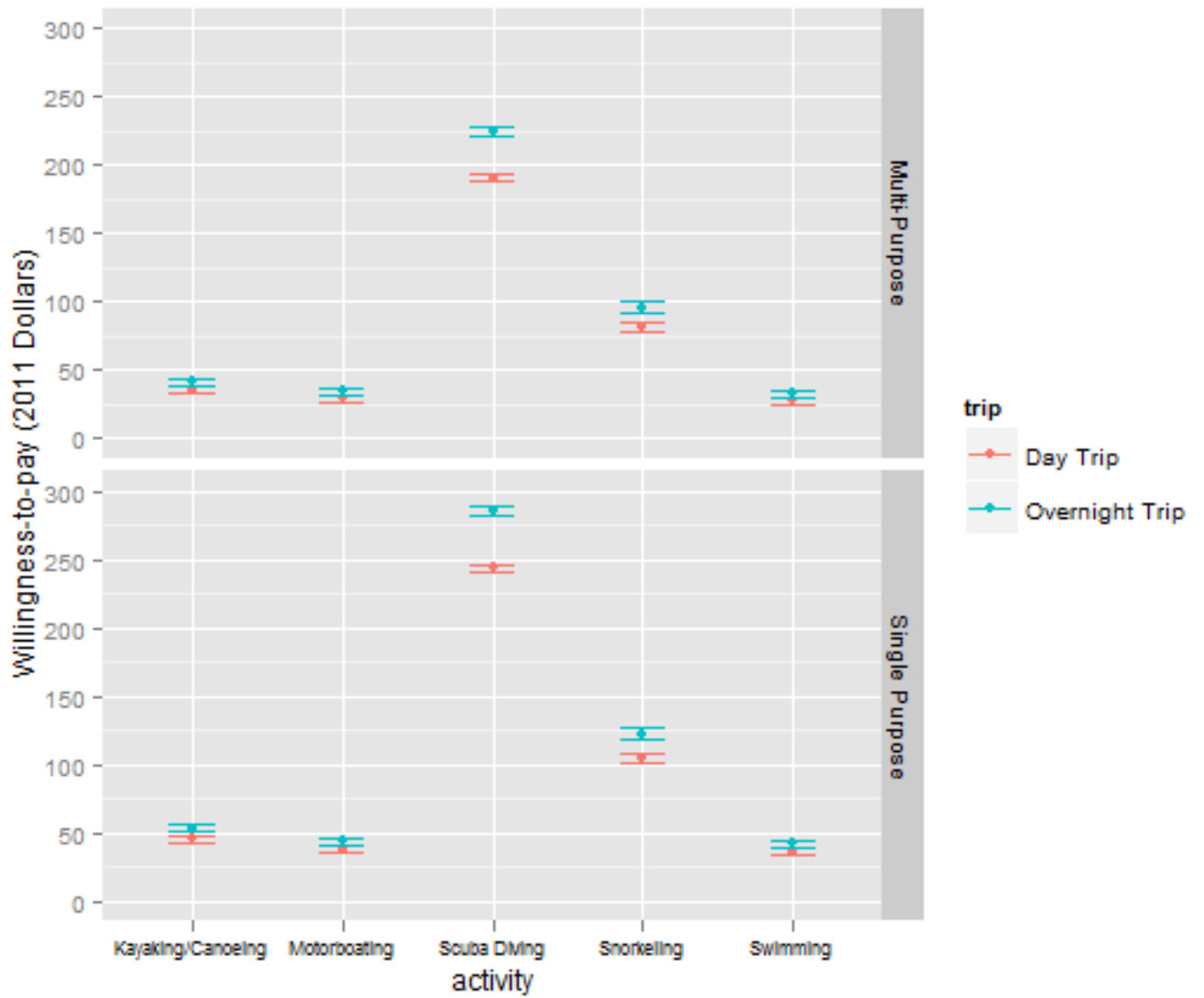


Figure 1.2d: Mean Willingness-to-Pay for Recreation Trips with 95% Confidence Intervals



These average individual values of willingness-to-pay will be combined with future survey results to estimate the recreation use value component of the total economic value of the Sarasota Bay Estuary.

1.3 Hedonic Property Model (Phase I Results)

The Phase I hedonic property study estimates the effect proximity of Sarasota Bay confers on nearby homeowners' property values. Given the empirical evidence that being located near resources, such as bays, oceans, rivers etc., increases property values, we expect that proximity to Sarasota Bay, for general access and leisure purposes, will have a similar positive value effect. The unique dataset used in the analysis includes detailed information on real estate market sales and housing characteristics, as well as locational and environmental attributes for over 11,000 properties across Sarasota and Manatee counties. An important detail in the data is that we identify the location of each property at a very fine geographic resolution, enabling its proximity to local amenities to be analyzed. Regression analysis is conducted to determine how a home's value is impacted by its proximity to Sarasota Bay, and to quantify the value placed on that proximity.

Results from two statistical models indicate that, on average, being in close proximity to Sarasota Bay increases the value of properties in Sarasota and Manatee counties, holding other factors constant. Based on these findings, we report two economic impact measures. First, we report the estimated marginal value of proximity to the Bay. This represents the mean additional increase in property value attributable to being more proximate to the Bay as opposed to being farther away, all else being equal. In this model we measure the value of proximity to the Gulf of Mexico and the Sarasota Bay Estuary by using categorical distance bands in 1,000 foot increments. In each case, we use the following eight distance bands: 1) homes less than 1,000 feet from Sarasota Bay, 2) homes between 1,000 and 2,000 feet from Sarasota Bay, 3) homes between 2,000 and 3,000 feet from Sarasota Bay, 4) homes between 3,000 and 4,000 feet from

Sarasota Bay, 5) homes less than 1,000 feet from the Gulf of Mexico, 6) homes between 1,000 and 2,000 feet from the Gulf of Mexico, 7) homes between 2,000 and 3,000 feet from the Gulf of Mexico, and 8) homes between 3,000 and 4,000 feet from the Gulf of Mexico. Marginal willingness-to-pay estimates for these proximity measures are summarized in Table 1.2. Figures 1.3a and 1.3b give graphical representations.

Table 1.2. Marginal Willingness-to-Pay Estimates for Proximity to Sarasota Bay and the Gulf of Mexico

	Distance to Bay			
	1,000 Feet	2,000 Feet	3,000 Feet	4,000 Feet
Upper Bound	\$113,122	\$66,906	\$52,402	\$37,709
Mean	\$90,235	\$49,840	\$36,774	\$26,031
Lower Bound	\$67,348	\$32,773	\$21,145	\$14,353

	Distance to Gulf			
	1,000 Feet	2,000 Feet	3,000 Feet	4,000 Feet
Upper Bound	\$205,717	\$105,952	\$53,314	\$35,696
Mean	\$148,841	\$65,823	\$24,354	\$9,579
Lower Bound	\$91,966	\$25,694	-\$4,605	-\$16,537

Figure 1.3a. Distribution of MWTP for Distance Bands to the Sarasota Bay Estuary

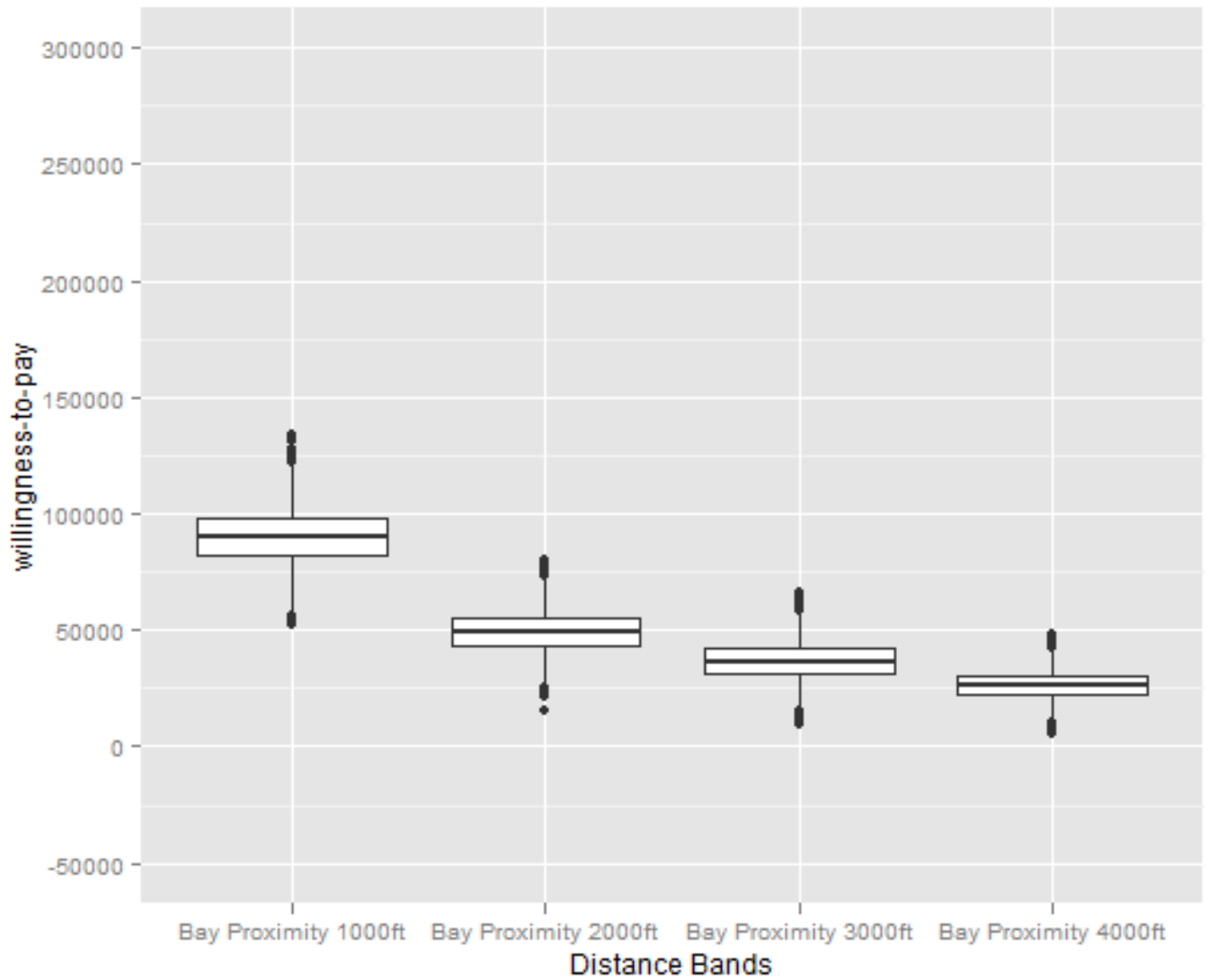
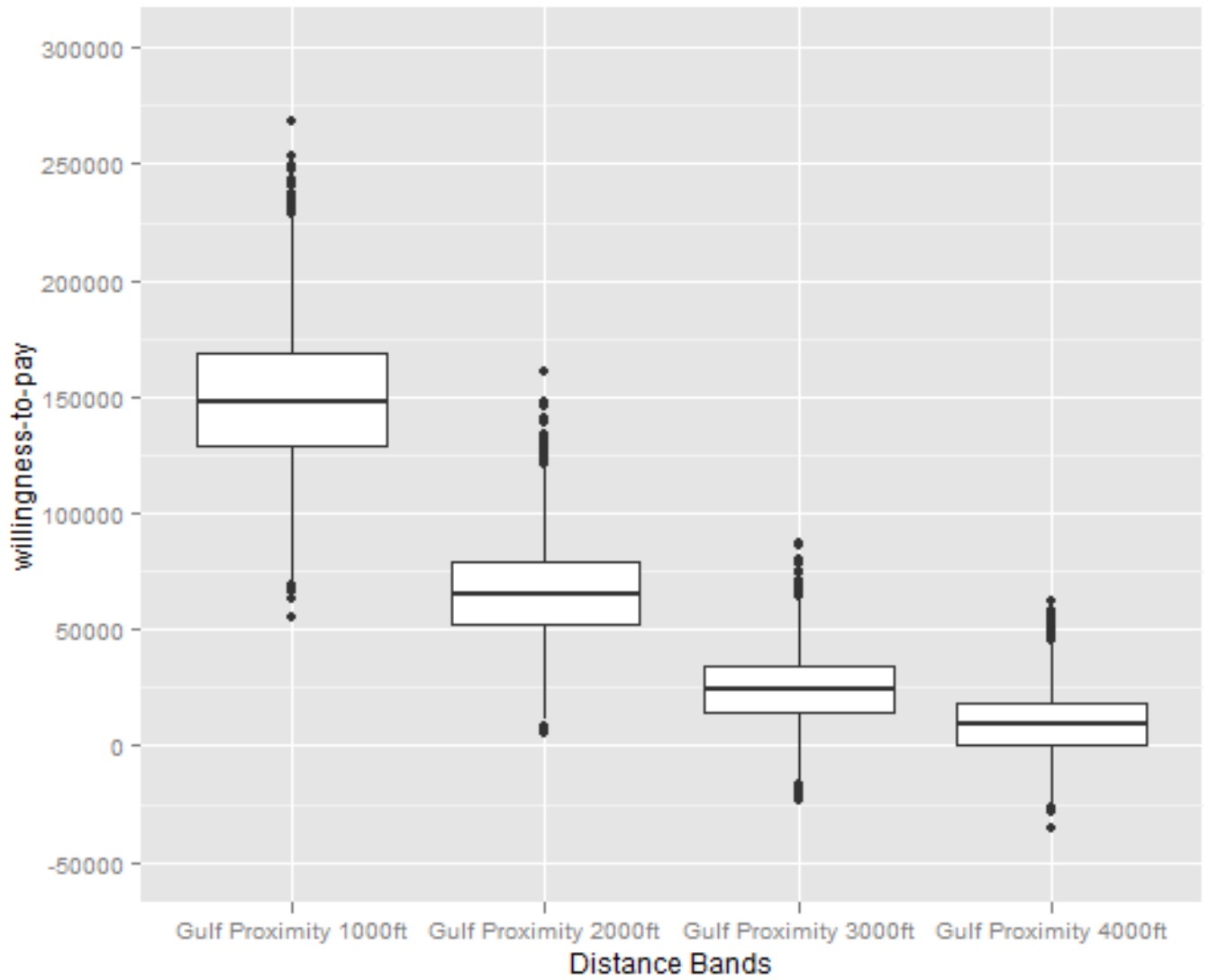


Figure 1.3b. Distribution of MWTP for Distance Bands to the Gulf of Mexico

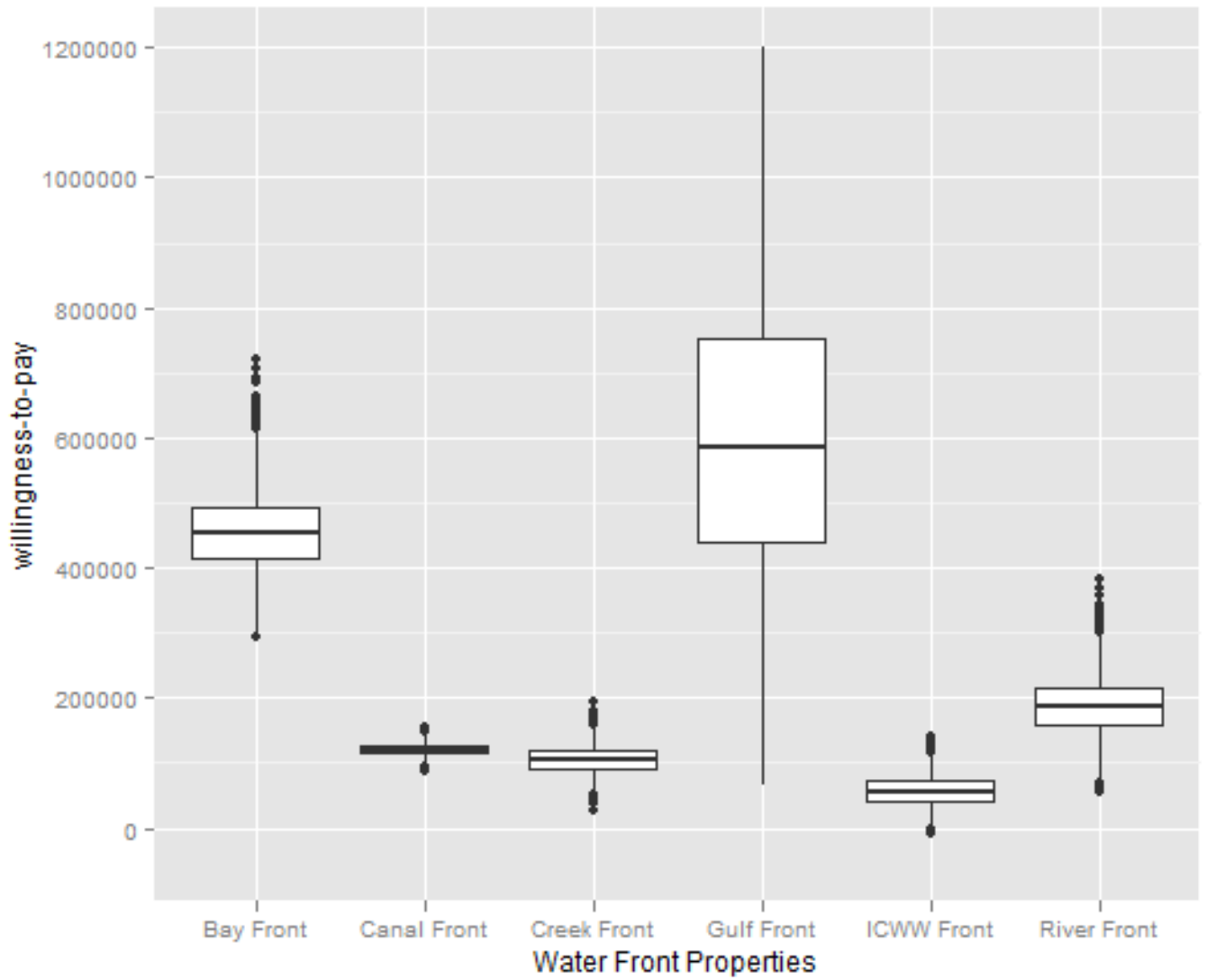


We also account for adjacency to the Gulf of Mexico, Sarasota Bay, and other water bodies in an effort to account for homes that are water front properties. Based on the marginal analysis from our model, the mean willingness to pay for a property less than 1,000 feet from Sarasota Bay is \$90,235. The mean willingness to pay for a property less than 1,000 feet from the Gulf of Mexico is \$148,841. Marginal willingness-to-pay estimates for these adjacency measures are summarized in Table 1.3. Figure 1.4 gives graphical representations of these estimates.

Table 1.3. Marginal Willingness-to-Pay Estimates for Frontage

	Resource Frontage					
	Bay	Canal	Creek	Gulf	ICWW	River
Upper Bound	\$570,701	\$140,180	\$144,649	\$1,087,781	\$100,511	\$270,808
Mean	\$454,809	\$121,249	\$104,348	\$595,141	\$57,049	\$186,368
Lower Bound	\$338,917	\$102,318	\$64,046	\$102,502	\$13,588	\$101,929

Figure 1.4. Distribution of MWTP for Resource Frontage



The second measure converts impacts into a total “capitalized value” that aggregates the marginal values over properties whose prices are influenced by proximity to the Bay. Based on the total number of properties influenced by proximity to the Bay across the two-county region, the total capitalized value associated with proximity to the Sarasota Bay and its tributaries is \$3.1 billion. With regard to the Gulf of Mexico, the total capitalized value is \$500 million. The total capitalized value for the two counties is \$3.6 billion.

An important factor to note is that “capitalized value” does not represent the value of what is lost, absent the Bay. Instead, it provides an estimate of the increased property tax base that local communities enjoy as a result of the presence of the Bay and its provision of aesthetic, leisure, and recreational amenities to nearby homeowners. As such, it is important to understand that this value constitutes one component of the overall benefit Sarasota Bay provides to local communities.

1.4 Economic Impact Study Results

Tourism to Sarasota Bay plays a critical role in the economic makeup and growth of Manatee and Sarasota counties as well as the quality of life of its residents. Tourists, attracted to the area to enjoy the many amenities provided by the Bay translates into a flow of Bay-related spending that drives local employment, sales, and personal income. Despite the significance of Bay-related visitor spending, the magnitude of the Bay's contribution to the local economy has not been examined. This component of the study fills the gap by measuring the economic contribution of Sarasota Bay-related spending on the local two-county economy. These dollar value estimates are calculated by tracing visitor spending as it flows through the supply chain of the regional economy.

The most recent annual visitor trip counts were provided by the Manatee and Sarasota Visitor Bureaus. A break down of trip counts, by trip type is provided in Table 1.4. In 2012, there were a total of 4,680,800 visitors in Sarasota County and 2,796,500 visitors in Manatee County, giving a total annual visitor count of 7,477,300.

Table 1.4. Visitor-Trip Counts, by Type and by County, 2012

Trip Type	Sarasota	Manatee	Total
Day Trips	3,054,200	1,454,080	4,508,280
Overnight Trips	879,300	978,900	1,858,200
Staying with			
Friends/relatives	747,300	363,520	1,110,820
Total	4,680,800	2,796,500	7,477,300

Visitor spending estimates were derived from both onsite and online survey instruments. Aggregating all spending by category across all visitor types provides an estimate for the total Bay-related visitor spending.

Table 1.5. Total Visitor Spending by Expenditure Category

Spending Category	Mean Spending per Visitor	Sarasota	Manatee	Total
Accommodation	\$394.3	\$201,962,714	\$221,311,750	\$423,274,464
Gas	\$87.1	\$61,237,037	\$48,828,161	\$110,065,198
Other Trans	\$50.9	\$23,379,718	\$19,736,816	\$43,116,534
Groceries	\$164.6	\$74,446,625	\$65,065,367	\$139,511,992
Restaurants	\$172.1	\$139,967,654	\$102,944,048	\$242,911,702
Boats	\$8.3	\$2,314,483	\$1,115,469	\$3,429,952
Rec. Equipment	\$7.0	\$5,127,846	\$4,019,591	\$9,147,436
Fishing Gear	\$7.5	\$3,772,692	\$3,140,985	\$6,913,677
Licenses	\$15.4	\$4,412,742	\$3,444,193	\$7,856,936
Entertainment	\$86.1	\$13,945,046	\$10,845,340	\$24,790,386
Shopping	\$46.2	\$58,811,380	\$51,310,229	\$110,121,608
Gifts	\$13.7	\$10,329,512	\$8,961,577	\$19,291,090
Other	\$5.6	\$7,698,364	\$6,592,865	\$14,291,230
Total	\$1,070.7	\$607,405,814	\$547,316,392	\$1,154,722,206

Total annual Bay-related spending is approximately \$1.15 billion. These represent the direct flows that form inputs into the region-specific input-output model. The total (direct plus indirect plus induced) economic impacts of Bay-related expenditures are described in Table 1.6.

Table 1.6. Total Economic Impacts of Bay-related Expenditures

Category	Direct	Indirect	Induced	Total
Employment	14,639	3,169	3,660	21,468
Income (\$Millions)	\$472.8	\$123.1	\$135.0	\$730.9
Output (\$Millions)	\$1,154.7	\$363.7	\$422.8	\$1,941.2

The annual economic impact generated by Bay-related visitor spending includes the creation of approximately 21,000 jobs and \$731 million in earnings. These estimates infer that Bay-related spending accounts for about 1 in every 17 jobs in the two-county region. Bay-related activity creates an impact on the regional economy valued at \$1.94 billion. This represents about 4 percent of the region’s gross regional product. Finally, the additional activity generates approximately \$184 million in additional tax revenues.

It is important to note that the present study, as other economic impact studies, only reports the level of the gross impacts of financial (spending) flows and ignores many of the wider economic benefits that arise from tourism-based expenditures. The contribution of the tourism industry to Manatee and Sarasota County’s economic activity goes beyond the economic impacts of visitor spending and secondary trickle down effects. The same quality of life amenities that attract visitors also attract permanent residents, either in a direct sense, as they choose to retire or relocate to the region to enjoy those amenities, or indirectly, as they are attracted by the economic opportunity associated with a growing population. This in turn generates further spending that occurs due to additional household wealth that can be attributed to factors such as the price appreciation of local real estate above and beyond the rate experienced by the nation as a whole. These values are not estimated during this study.

1.5 Recreation Use Values

In this study, we combine results from the benefit transfer study with estimates of recreation behavior in Sarasota Bay. First, we utilize four data sources to estimate recreation trips to the Sarasota Bay Estuary. We estimate 9,205,155 day trips and 2,969,020 multi-day trips to the bay for a total of 12,174,175 trips. Table 1.7 details these estimates.

Table 1.7: Day and Multi-day Recreation Trips to the Sarasota Bay Estuary by Residents and Visitors

Trip Type	User Groups	Lower Bound	Total	Upper Bound
Day Trips	All Users	8,146,458	9,205,155	10,258,004
	Sarasota & Manatee Counties	3,638,178	4,696,875	5,749,724
	Adjacent Counties	2,265,657	2,731,138	3,182,370
	Non-Adjacent County Visitors	2,242,623*	1,777,142	1,325,910*
Multi-Day Trips	All Users	2,969,020	2,969,020	2,969,020
	Adjacent Counties	422,733	574,727	729,095
	Non-Adjacent County Visitors	2,546,287*	2,394,293	2,239,925*
All Trips	All Users	11,115,478	12,174,175	13,227,024

* Estimates for Non-Adjacent County Visitors calculated using data from the Manatee and Sarasota Visitor Bureaus

Next, we combine trip estimates and reported activity types with the Phase I meta-regression results to generate economic value of recreation trips to the Sarasota Bay Estuary by residents and visitors. Table 1.8 details these results. We find the aggregated economic value of recreation trips to be \$487 million. We would like to remind the reader that this estimate does not include the value of several types of

recreation, for example sailing. A full accounting of recreation types would lead to larger estimates. Further research is necessary to calculate estimate for missing values.

Table 1.8: Aggregated Economic Value Estimates (Day and Multi-Day Trips)

User Groups	Lower Bound Estimate	Mean Estimate	Upper Bound Estimate
Manatee and Sarasota County Day Trips	\$115,621,769.30	\$185,358,225.90	\$271,358,895.33
Adjacent County Visitor Day Trips	\$70,628,847.49	\$106,406,763.22	\$149,442,808.42
Adjacent County Visitor Multi-Day Trips	\$14,304,640.39	\$24,337,736.81	\$37,090,997.88
Non-Adjacent County Visitor Day Trips	\$39,139,481.28	\$64,381,305.93	\$97,587,675.16
Non-Adjacent County Visitor Multi-Day Trips	\$81,687,485.25	\$106,867,724.21	\$134,384,448.40
Totals	\$321,382,223.70	\$487,351,756.08	\$689,864,825.19

1.6 Discrete Choice Experiment Study Results

The main purpose of this chapter is to evaluate household preferences for the key environmental resources within the Sarasota Bay Estuary. These resources capture bundles of local public goods under the purview of the Sarasota Bay Estuary Program. We estimate individuals' willingness-to-pay for wetlands, oyster beds, sea grass beds, artificial reefs, and ecological parks with estuarine access. Because these resources are not traded in explicit markets, we employ a discrete choice experiment (DCE) to assess households' preferences for these resources.

We use an Error Components Logistic Regression to estimate the discrete choice model. We utilize two different model specifications. In the first specification, we focus on all households in the region, as defined by Manatee County, Sarasota County, and those counties adjacent to Manatee and Sarasota Counties. Next, we specify a model that separates those who use the Sarasota Bay Estuary and those who do not. Table 1.9 provides the Marginal Willingness-to-pay for these resources. The marginal willingness-to-pay tells us the value of an incremental increase in a resource. For example, households would be willing-to-pay \$2.48 for an additional acre of wetland.

Table 1.9 Marginal Willingness-to-pay for Sarasota Bay Estuarine Resources.

	Regional Mean MWTP	Regional Mean MWTP for Users	Regional Mean MWTP for Non-users
Wetland Restoration	\$2.48 (\$1.82, \$3.14)	\$3.66 (\$2.35, \$4.98)	\$1.42 (\$0.80,\$2.05)
Oyster Restoration	\$5.93 (\$2.54, \$9.32)	\$13.55 (\$6.68,\$20.42)	
Sea Grass Restoration	\$0.36 (\$0.20, \$0.51)	\$0.60 (\$0.32,\$0.88)	
Artificial Reef	\$0.34 (\$0.17, \$0.51)	\$0.70 (\$0.35, \$1.04)	
Ecological Park	\$9.87 (\$6.04, \$13.70)	\$17.62 (\$9.89 , \$25.35)	

Next, we calculate the regional economic value of Sarasota Bay Resources as well as the economic value of these resources to residents of Manatee and Sarasota Counties. Table 1.10 provides the regional economic value of Sarasota Bay Estuarine resources for all households, with 95% confidence intervals. Table 1.11 provides the economic value of Sarasota Bay Estuarine resources for all Manatee and Sarasota county households, with 95% confidence intervals. Our estimates indicate the regional value of Sarasota Bay resources and access at \$58 billion and the value to Sarasota and Manatee County households at \$11.8 billion.

Table 1.10 Regional Economic Value of Sarasota Bay Resources for Users and Non-Users (With 95% Confidence Intervals)

Attribute	Quantity	WTP (Lower Bound)	WTP (Mean)	WTP (Upper Bound)
Wetland Restoration (Acres)	9,596 Acres	\$25,803,198,170	\$35,160,401,902	\$44,517,605,634
Oyster Restoration (Acres)	1,596 Acres	\$5,989,333,746	\$13,982,972,093	\$21,976,610,440
Increase in Seagrass Area (Acres)	12,641 Acres	\$3,735,281,505	\$6,723,506,710	\$9,524,967,839
Artificial Reef Enhancement (# of Reef Domes)	3,000 Reef Domes	\$753,497,970	\$1,506,995,940	\$2,260,493,910
Ecological Park with Access (#)	38 Parks	\$339,103,635	\$554,131,272	\$769,158,908
Totals		\$36,620,415,027	\$57,928,007,916	\$79,048,836,730

Table 1.11 Economic Value of Sarasota Bay Resources for Manatee and Sarasota County Resource Users and Non-Users (With 95% Confidence Intervals)

Attribute	Quantity	WTP (Lower Bound)	WTP (Mean)	WTP (Upper Bound)
Wetland Restoration (Acres)	9,596 Acres	\$5,258,173,109	\$7,164,983,138	\$9,071,793,167
Oyster Restoration (Acres)	1,596 Acres	\$1,220,505,824	\$2,849,448,637	\$4,478,391,449
Increase in Seagrass Area (Acres)	12,641 Acres	\$761,175,287	\$1,370,115,516	\$1,940,996,981
Artificial Reef Enhancement (# of Reef Domes)	3,000 Reef Domes	\$153,547,740	\$307,095,480	\$460,643,220
Ecological Park with Access (#)	38 Parks	\$69,102,504	\$112,920,814	\$156,739,124
Totals		\$7,462,504,465	\$11,804,563,585	\$16,108,563,942