

Assessment of the Economic Impact Associated with the Recreational Scallop Season in Hernando County, Florida¹

Brittany Hall-Scharf, Charles Adams, Alan Hodges, and Stephen Geiger²

Introduction

The Florida bay scallop is a bivalve mollusk that lives in seagrass beds in relatively shallow water, usually 4 to 10 feet deep. At one time, scallops were reported from as far east as West Palm Beach and as far west as Pensacola. Today, populations can only be harvested by recreational scallopers, and only in selected locations along Florida's west coast, primarily St. Joseph Bay, the Steinhatchee area of the Big Bend, and the areas near the Crystal and Homosassa rivers. In 2018, Pasco County was opened for a nine-day experimental scallop season.

Hernando County is in the southern range of healthy, harvestable bay scallop populations (Figure 1). Expansive seagrass beds, an estimated 240,000 acres (Yarbro and Carlson 2016), flourish in the coastal waters along this county and provide habitat where scallops thrive. These plentiful seagrass beds, coupled with clear waters and shallow depths, make Hernando County an ideal place to snorkel for scallops during the open season.

As recreational scalloping has increased in popularity in the Big Bend region, state resource managers and Hernando County administrators have expressed a need to know how the recreational scallop season impacts local economies. A previous study (Stevens, et al. 2003) found that the recreational scallop fishery generated 35 jobs and \$1.6 million in economic impact to the economy of neighboring Citrus County in 2003. However, this information is outdated and did not profile the economic impact for Hernando County. Therefore, this study's goal is to collect science-based information that identifies the origin of scallopers in Hernando County and quantifies the economic benefits derived from coastal and waterway access during recreational scalloping season in Hernando County.

1. This document is TP-235, one of a series of the Florida Sea Grant College Program and the Food and Resource Economics Department, UF/IFAS Extension. Original publication date August 2018. Visit the EDIS website at <http://edis.ifas.ufl.edu>.
2. Brittany Hall-Scharf, UF/IFAS Extension Hernando County Florida Sea Grant agent; Charles Adams, professor and marine economics specialist, Food and Resource Economics Department and Florida Sea Grant College Program; Alan Hodges, Extension scientist, Food and Resource Economics Department; and Stephen Geiger, Florida Fish and Wildlife Conservation Commission, Fish and Wildlife Research Institute; UF/IFAS Extension, Gainesville, FL 32611.

This study by University of Florida's Food and Resource Economics Department IMPLAN Program, UF/IFAS Extension, and Florida Sea Grant was funded by the Hernando County Tourism Development Department. Additional gratitude goes to the countless hours that volunteers Yvonne Woodard, Karina Nieves, Kathy Schmitz, and William Scharf dedicated to making this study possible.

The Institute of Food and Agricultural Sciences (IFAS) is an Equal Opportunity Institution authorized to provide research, educational information and other services only to individuals and institutions that function with non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, marital status, national origin, political opinions or affiliations. For more information on obtaining other UF/IFAS Extension publications, contact your county's UF/IFAS Extension office.

U.S. Department of Agriculture, UF/IFAS Extension Service, University of Florida, IFAS, Florida A & M University Cooperative Extension Program, and Boards of County Commissioners Cooperating. Nick T. Place, dean for UF/IFAS Extension.

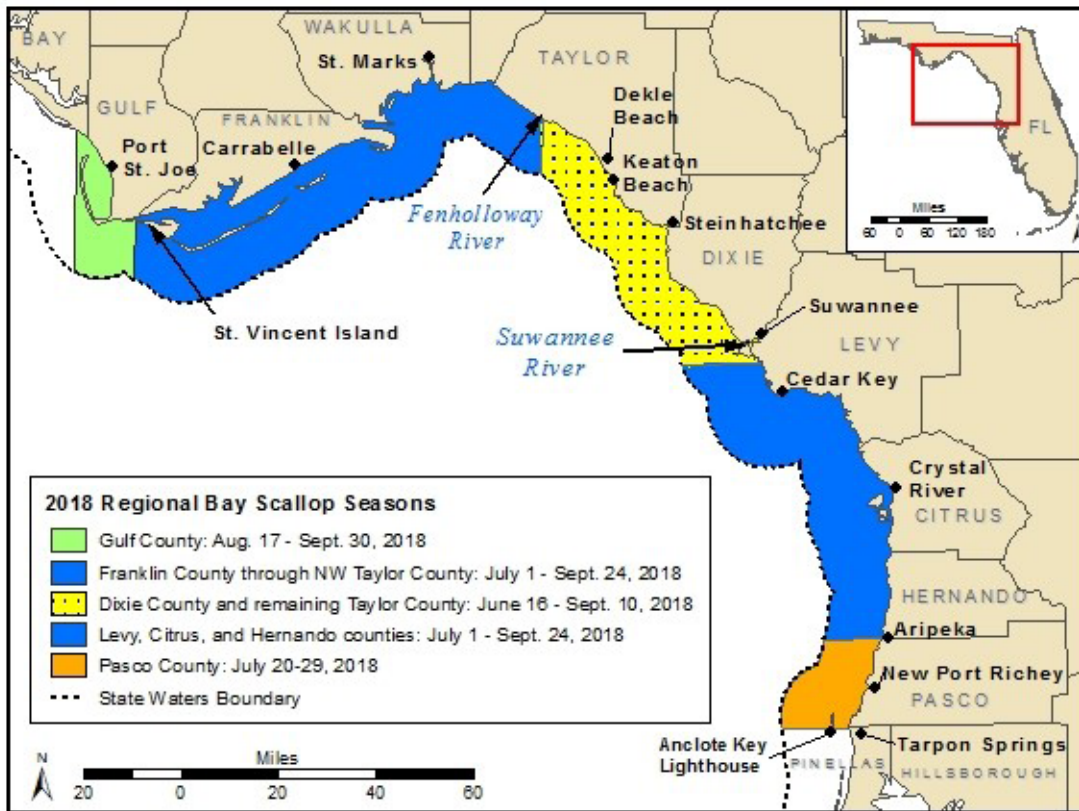


Figure 1. 2018 regional bay scallop seasons.
Credits: Florida Fish and Wildlife Conservation Commission

Project Objectives

To accomplish these goals, researchers implemented four methods that helped estimate expenditures associated with a recreational scalloping trip, determine survey participants' residency status, and document the differences between weekday and weekend scalloping excursions. They included:

1. A boat ramp parking lot survey to:

- Estimate how many trips originate from county boat ramps during recreational scalloping season.
- Quantify in-county, out-of-county, and out-of-state boat ramp visitation during recreational scalloping season.

2. In-person interviews and mail-in surveys of visitors and scallopers using boat ramps (Appendix B) to:

- Estimate how many recreational scalloping trips originate from county boat ramps.
- Quantify in-county, out-of-county, and out-of-state recreational scallopers.

- Estimate the recreational scalloper's average trip expenditure to determine the economic impact to Hernando County.

3. Reported interactions with recreational scallopers from a marine patrol survey to determine where recreational scallopers began their trips.

4. Flyover water aerial surveys to:

- Count the recreational scallopers on Hernando County waters during recreational scalloping season.
- Estimate the number of scalloping trips that originated from outside the county.

Survey Methodology

The in-person surveys were field tested, and the University of Florida Institutional Review Board approved the study (IRB201701612).

Survey Site, Time, Day Selection

The research team selected two boat ramps as survey locations for the boat ramp parking lot survey and the boat ramp survey of visitors and recreational scallopers.

To maximize the volunteers' time, the research team chose the two busiest ramps with the highest likelihood of gaining survey participants. The team chose Bayport Park boat ramp because its close proximity to the main scalloping area in Hernando County waters has made it the top public launch site. The Hernando Beach boat ramp was also chosen because of its large, public parking lot and proximity to marinas.

Surveys were conducted during the 2017 Hernando County scalloping season, which ran from July 1–September 24. Weather permitting, the surveys were administered from 11:30 a.m.–3:30 p.m. EDT, which is typically when scallopers return to the boat ramps. This time slot was initially set to begin at 10 a.m., but scallops were difficult to find in 2017, often resulting in extended trips and a later ramp return.

To document scalloping activity throughout the season, one weekday and one weekend day were selected for surveys each week. The days of the week were numbered consecutively one through seven. These labels were then entered into a random-number generator in Excel, and 25 survey days were selected.

The in-person surveys of boat ramp visitors/recreational scallopers were designed to be brief to minimize inconvenience from the interaction between the participants and surveyors at the busy ramps.

Each ramp was then assigned a surveyor, allowing both ramps to be covered simultaneously, when possible. During the 25 randomly selected days, surveys were administered nine days in July (Bayport Park n=8, Hernando Beach n=6), nine days in August (Bayport Park n=9, Hernando Beach n=6), and seven days in September (Bayport Park n=7, Hernando Beach n=6).

Although surveyors were at ramps throughout the month of September, most completed surveys occurred during July and August. Hurricane Irma hit this area of Florida on September 10–11, 2017. Instead of scalloping, many were prepping for the storm or cleaning up afterwards. Informal discussions with local charters noted that many were cancelling their booked charters once Irma was predicted to head toward Florida. In-person interviews at ramps also revealed that the hurricane stirred up the nearshore water and the bottom, creating turbidity that made it impossible to find any scallops.

Adding to the confusion associated with the storm impacts, the open dates for recreational scalloping changed for the

2017 season. What was once a continuous zone all season along the Big Bend was now split into three different zones, each with different start and end dates. Special harvest seasons existed for Gulf County and portions of Dixie and Taylor counties. These regional differences confused many scallopers. Many did not know the season was still open in late September.

Boat Ramp Parking Lot Survey

Forty-two parking lot surveys were completed throughout the 2017 recreational scalloping season. Surveyors walked through the assigned boat ramp parking lot and counted the in-state and out-of-state trailers. They also recorded in-state counties wherever they were noted on trailer license plates. Vehicles not connected to trailers were not included in the count, and surveyors made only one lap through the assigned parking lot to prevent double tallies. Surveyors did not confirm that all counted vehicles were there for scalloping trips; some of the recorded tags may represent people fishing.

Boat Ramp Visitor and Recreational Scalloper Survey

Once the parking lot survey was complete, surveyors administered in-person, online, and mail-in surveys to people visiting the ramp area. Most participants opted for in-person interviews (239 surveys completed) while retrieving their vehicles and trailers. When an in-person survey was not ideal, such as when boaters were busy launching their vessels or when there was inclement weather, mail-in or online surveys were distributed. Of those distributed, 16 mail-in surveys and 9 online surveys were completed.

Marine Patrol Survey

Throughout the recreational scalloping season, local marine patrol officers conducted routine boat inspections out on the water, many of which were within the recreational scalloping area. During these inspections, the origin of the boater's launch was noted and shared with the survey team.

Flyover Water Aerial Survey

The Florida Fish and Wildlife Conservation Commission simultaneously collected information on recreational scalloping via flyovers and additional ramp trailer censuses. Flyovers began at the Pasco/Hernando County line and extended through Gulf County. The FWC took aerial photos during the flyovers and counted the number of boats on the water. County lines were determined by known landmarks during flight. FWC also conducted on-the-ground ramp trailer censuses, separate from those of this study group.

Economic Impact Assessment

Methodology

Estimating the regional impacts of a particular industry or activity requires data describing the number of jobs and the magnitude of revenues directly generated by the industry and related industries or activities in that region. Once these data are acquired, impacts can be estimated by applying the appropriate economic multipliers for a specific industry or activity. These multipliers represent the secondary (indirect and induced) impacts that occur as the business revenues created by the initial direct consumer expenditures are re-spent (i.e., multiplied) by those same businesses for inputs, wages and supplies. In addition, further secondary impacts are generated as employees' wages or proprietors' earnings are spent on household living expenses. Finally, secondary impacts are also generated by local, state, and federal government institutions through tax and fee collections associated with those initial business revenues.

A glossary of economic impact terms and concepts related to economic impact assessment is provided in Appendix A.

Economic multipliers for the Hernando County region were estimated using the IMPLAN input-output analysis software (version 3.1) and county datasets for 2016 (IMPLAN Group LLC). The IMPLAN models built using this software and data were constructed using the regional trade flows method, with social accounts for households and local/state and federal governments included within the model. The total regional economic impacts represent the sum of these direct, indirect, and induced effects. Economic multipliers were applied for employment (full- and part-time jobs), wages (labor income, including employee compensation and business proprietor or owner income), and gross domestic product (value added). The economic activity associated with recreational scalloping was assumed to represent new final demand to Hernando County.

The IMPLAN analysis was conducted by the Food and Resource Economics Department (FRED) at the University of Florida Institute of Food and Agricultural Sciences (IFAS). The IMPLAN Program within FRED has a long history of providing estimates of the economic contribution of agricultural and natural-resource-based industries to the county, regional, and state economies of Florida. To learn more about this program and recent economic impact studies within Florida, go to <http://fred.ifas.ufl.edu/extension/economic-impact-analysis-program/>.

Results

The results from the boat ramp parking lot surveys, boat ramp visitor/recreational scalloper survey, marine patrol survey, and flyover water aerial surveys are presented in a question-and-answer format.

Q: How many one-day recreational scalloping trips launch from Hernando County's public boat ramps and continue in Hernando County's waters?

Based on the FSG and FWC boat ramp surveys coupled with the FWC flyover water aerial survey, an estimated 9,589 recreational scalloping trips launched from the public ramps in Hernando County during the 2017 season.

The surveys may have underestimated the actual number of trips originating from Hernando County ramps. More frequent surveying may have been able to better measure actual number of trips, including the turnover that occurs within the ramp parking area. This turnover occurs as participants depart and arrive at different times of the day. Inadequately accounting for this turnover may result in an underestimation of the total number of trips.

Q: How many recreational scalloping trips originated from outside of Hernando County?

The surveys found that 68.2% of the total number of recreational scalloping trips that launched from the public ramps in Hernando County originated from outside the county (Table 1). The top counties contributing were Pasco (25%), Hillsborough (19.32%), Pinellas (12.12%), and Polk (4.17%). Combined, these top contributing counties account for 60.61% of the scalloping surveys.

In addition, 27 out-of-state tags were observed at ramps during trailer surveys. Only one interview from these out-of-state scallopers was documented. The out-of-state tags that were recorded were from: Georgia, California, Tennessee, North Carolina, Arkansas, Pennsylvania, Texas, New York, New Jersey, Ontario/Canada, South Carolina, Illinois, Michigan, Ohio, Nebraska, Colorado, and Arizona. Each of these states was only documented one to three times throughout the season. Aside from Florida, no one state was the majority contributor.

Table 1. County of origin determined from Florida Sea Grant in-person, mail-in, and online surveys.

County of Origin	Percent
Citrus	1.52%
Duval	0.38%
Hernando	31.82%
Hillsborough	19.32%
Lake	1.52%
Lee	0.38%
Orange	1.14%
Osceola	0.38%
Palm Beach	0.38%
Pasco	25.00%
Pinellas	12.12%
Polk	4.17%
Sarasota	0.38%
St. Johns	0.38%
Sumter	0.38%
Volusia	0.38%
Out of state–New Jersey	0.38%

Q: What are the total expenses related to recreational scalloping recorded by the study surveys?

The FSG surveys solicited information on trip expenditures. These data suggest the average, daily expenditure for a recreational scalloping trip during the 2017 season was \$84. Thus, the total expenditures by recreational scallopers in 2017 are estimated to be \$805,476.

The total expenditure estimate should be considered a preliminary, lower-bound, conservative estimate for the total recreational scalloping-related expenses in Hernando County. This is because the study surveys, with limited funding and available effort, purposefully targeted only those individuals using public boat ramps for day trips. The study did not account for those recreational scallopers who may have: 1) purchased lodging for overnight stays or multi-day visits, 2) accessed water via private boat docks or marinas, 3) rented boats, or 4) booked a for-hire charter. Including these other sources of activity and expenditures might not have impacted the average daily trip expense estimate but would have generated a larger estimate of participation and, thus, a larger estimate of total expenditures.

Q: Where did the trip expenses occur?

Along with Hernando County residents, those out-of-county visitors also incurred various expenditures associated with a recreational scalloping trip—for gasoline, food and drinks, ice, ramp fees, snorkel gear, etc. The study surveys

found that 63% of the total expenditures by all recreational scalloping participants who launched from Hernando County were spent in Hernando County. Therefore, the total seasonal expenditures within Hernando County that were associated with recreational scalloping during 2017 were estimated to be 63% of \$805,476, or \$507,450. This value is the estimate that was used by the IMPLAN model for assessing the economic impact of recreational scalloping to the Hernando County economy.

If the study overestimated the number of non-resident participants, 63% may be an underestimate of how much of the total expenditures were spent in-county. If the number of non-resident participants was underestimated, 63% may be an overestimate. They key consideration is the county in which the recreational scallopers spent their money.

Q: What is the economic impact of recreational scalloping for Hernando County?

The IMPLAN model estimates how the \$507,450 in expenditures was distributed among major types of goods and services. Of the total, approximately 33.5% was spent on food/beverages, 26.3% on transportation, 18.9% on entertainment/recreation, and 21.3% shopping/other. Those expenditures generated approximately \$413,000 in labor income, \$645,800 in value-added GDP, and \$1,145,900 in industry output. The economic activity supported 18 jobs within the county. In addition, the expenditures associated with recreational scalloping generated approximately \$86,000 in state and local taxes and \$108,900 in federal taxes (Table 2).

Table 2. Economic impacts of recreational scalloping during the Hernando County 2017 season.

Impact Type	Total
Labor income	\$413,000
Value-added GDP	\$645,800
Industry output	\$1,145,900
Employment (jobs)	18

Q: Are there peaks in the use of the resource throughout the season?

The use of boat ramps based on trailer tallies throughout the season was observed during opening week, the last week of July through the second week of August, and Labor Day weekend (Figure 2). Although there is no additional data to compare pre- and post-ramp use, the increased activity may be attributable to scalloping.

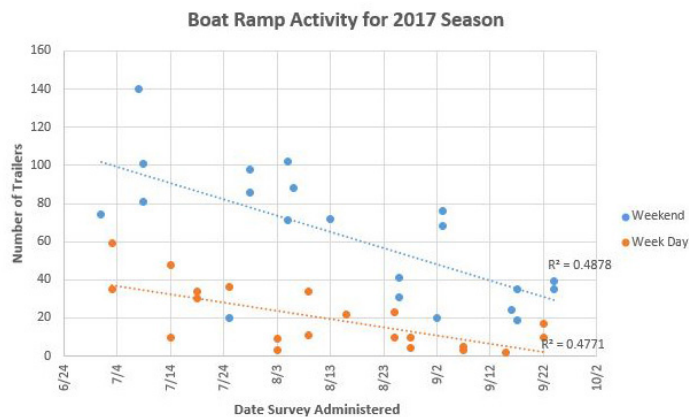


Figure 2. The total number of in-state trailers tallied during the selected survey days. Note: Counts are for Bayport Park and Hernando Beach boat ramps combined for the 2017 recreational scalloping season.

Q: What would be the economic impact of a Pasco County scallop season?

A potential change in trips originating from Hernando County may occur during the 2018 Pasco County recreational scalloping mini-season (per FWC February commission meeting, see <http://myfwc.com/fishing/saltwater/recreational/bay-scallops/>). Ramp interviews suggest that 25% of those surveyed launched from Hernando County ramps during the 2017 season originated from Pasco County. The Florida Marine Patrol has similar data. It reports that approximately 20% of the vessels randomly stopped for safety checks off Hernando County during the 2017 season originated from Pasco County. Thus, vessels in Hernando County waters could be launching from Pasco County or could be launching from Hernando County after trailering from Pasco County. From an economic perspective, the important consideration is where the trip expenses occur.

Since Pasco County has initiated a recreational scallop season, an increase in trips within Hernando County waters may occur if popular scalloping spots are close to the Pasco/Hernando County line. Evidence to the north suggests this might be an outcome. For example, the Florida Marine Patrol has found that 30% of those on the water in Hernando County are from Citrus County. The parking lot surveys from this study show that very few boaters are trailering their boats from Citrus County to launch at Hernando County ramps (Table 1 and Table 3). Thus, if Pasco County does open up and a popular location for scalloping falls near the Hernando/Pasco County line, an increase in Hernando launches may occur because boaters will be able to access the spot near the Bayport ramp and Pasco County much more easily. Another consideration is that it may become cheaper to trailer down from Citrus

to access the newly opened waters close to the Hernando/Pasco County line. If this is the case, Hernando County may benefit (i.e., more local expenditures) due to additional launches from local boat ramps as boaters travel from both Pasco and Citrus Counties. Potentially, boaters coming from out-of-county would simply continue to use familiar ramps like Bayport to access the novel location of Pasco.

Table 3. Counties of origin determined by trailer tag surveys. Note: It cannot be concluded that all vehicles were present for scalloping. Although many fishermen returned to the ramp before scallopers, some of these tags may represent people fishing.

County of Origin	Percent
Alachua	0.45%
Brevard	0.45%
Citrus	2.03%
Collier	0.23%
Columbia	0.45%
Duval	0.45%
Hernando	48.31%
Hillsborough	10.84%
Lake	2.71%
Lee	0.45%
Levy	0.23%
Manatee	0.90%
Marion	1.13%
Monroe	0.23%
Orange	4.29%
Osceola	0.23%
Palm Beach	0.45%
Pasco	11.06%
Pinellas	8.80%
Polk	4.06%
Sarasota	0.68%
Seminole	0.68%
Sumter	0.68%
Volusia	0.23%

Q: What are potential quantitative changes in the economic impact findings?

Although the research team is confident that the IRB-approved survey methods and the resulting 264 completed survey responses have provided a reasonable proxy estimate of the numbers of trips, expenditures, and other parameters, the IMPLAN results are associated with the following key baseline assumptions:

- 9,589 recreational scalloping trips originated in Hernando County.

- Recreational scallopers spent an average of \$84 daily per trip.
- The total seasonal expenditures totaled \$805,500.
- 63% of the expenditures occurred in Hernando County during the season.
- \$507,450 of seasonal expenditures were spent in Hernando County.

Table 4 provides changes to the key study findings given percentage changes in these key assumptions. This sensitivity analysis provides insight into how the study findings may change given a more precise or comprehensive assessment of the number of trips, the quantity/location of expenditures, and other key characteristics of the recreational scallop season in Hernando County.

Future refinements in the effort and expenditure data collection may provide different values for these key assumptions. In addition, future changes in recreational scallop regulations, facilities, and seasons may impact participation and, thus, expenditures.

Each of the key study assumptions was allowed to deviate from the baseline by +/- 10% and 20%. For example, the baseline assumption for the number of daily trips for the 2017 recreational scallop season in Hernando County was 9,589. This value was changed by positive/negative increments of 10% and 20%, which resulted in 11,509 and 8,630 trips respectively. This same process was done with each of the three study assumptions (e.g., number of trips, expenditures per trip, and % of expenditures occurring within Hernando County). By changing all three of the key assumptions by an increase of 20%, the resulting total expenditure for the 2017 season was \$877,041, which generated an economic output estimate of \$1,980,446, the latter representing a 73% increase from the baseline estimate. A decrease in all of the key assumptions by 10% generated an economic output estimate of \$839,751, which represents a 27% decrease from the baseline estimate. This exercise demonstrates the potential change in the estimated total economic consequences associated with the recreational scallop season due to alternative baseline assumptions.

Future refinements in the effort and expenditure data collection may provide different values for these key assumptions. In addition, future changes in recreational scallop regulations, facilities, and seasons may impact participation and, thus, expenditures.

Q: Are there any additional adjustments in the underlying impact assessment assumptions?

Improvements to truck/trailer parking at boat ramps may increase participation, particularly if the current parking facilities are inadequate. The study surveys did not attempt to address this issue.

However, survey volunteers observed that the Bayport Park ramp parking area fills up quickly. Surveyors observed vehicles being issued parking citations for parking outside of the designated area. Others disconnected their trailers from vehicles to fit around existing obstacles and other tight spots. At the Hernando Beach ramp, some launched their boats and then proceeded to search for a place to park only to find there was no parking available. These individuals would often get creative with their parking solutions and would subsequently be cited with a violation. At present, the two main ramps in Hernando County cannot handle the current load of scallopers during the recreational season. Additional parking may entice more participation, which would most likely result in increased spending and a larger economic impact. The addition of simple (or improved) restroom facilities, cleaning stations, and extra staging docks and parking spaces at ramps would likely increase boater satisfaction and return visits by families.

Conclusions and Implications for Future Research

Although the preliminary nature of this study suggests refinements in resulting economic impact estimates may be possible, it is clear that recreational scalloping season in Hernando County is of benefit to the local economy. In addition, economic information and more precise estimates of the economic impact of recreational scalloping will help managers better understand the benefits this popular activity generates locally and across Florida. While understanding the economic impact is important, additional research regarding the types of fishing and boating activity both on and off of the water throughout the week is crucial. These types of data could help existing businesses in the area make decisions about expansion, help inform the county commission regarding agenda items such as the boat ramp master plan and the [strategic marine area plan](#), and help law enforcement apportion their staff appropriately. Finally, they will improve the accuracy of [estimates of mortality](#) related to fishing, which will be useful in managing the harvest.

Table 4. Sensitivity analysis due to changes in key assumptions.

	+20%	+10%	Baseline	-10%	-20%
# of trips	11,509	10,548	9,589	8,630	7,761
Exp/trip	\$101	\$92	\$84	\$76	\$67
In-county %	75.6%	69.3%	63%	56.7%	50.4%
Total exp	\$877,041	\$675,422	\$507,450	\$371,884	\$262,856
Econ output	\$1,980,446	\$1,525,170	\$1,145,865	\$839,751	\$593,555

Note: The resulting total expenditure (Total exp) and economic output (Econ output) estimates are based on the summation of the % changes across *all* of the key parameters, including total number of trips (# of trips), daily expenditure per trip (Exp/trip) and percent of daily expenditures spent within Hernando County (In-county %).

References

IMPLAN Group, LLC. "United States Economic Data." <http://www.implan.com/data/>

Stevens, T., C. Adams, A. Hodges, and D. Mulkey. 2003. *Economic Impact on the Re-Opened Scalloping Area for Citrus County, Florida–2003*. FE493. Gainesville: University of Florida Institute of Food and Agricultural Sciences. <http://edis.ifas.ufl.edu/fe493>

Yarbro, L. A., and P. R. Carlson Jr. 2016. Seagrass Integrated Mapping and Monitoring Report No. 2. Florida Fish and Wildlife Research Institute Technical Report TR-17, version 2. Florida Fish and Wildlife Conservation Commission, St. Petersburg, Florida.

Appendix A: Glossary of Economic Impact Terms

Economic contribution represents the gross change in economic activity associated with an industry, event, or policy in an existing regional economy.

Employee compensation is comprised of wages, salaries, commissions, and benefits such as health and life insurance, retirement, and other forms of cash or non-cash compensation.

Employment is a measure of the number of jobs involved, including full-time, part-time and seasonal positions. It is not a measure of full-time equivalent (FTE).

Exports are sales of goods to customers outside the region in which they are produced, which represents a net inflow of money to the region. This applies to sales of goods and services to customers visiting from other regions.

Final demand represents sales to final consumers, including households, governments, and exports from the region.

Gross Regional Product is a measure of total economic activity in a region, or total income generated by all goods and services. It equals the total value added by all industries in that region and is equivalent to Gross Domestic Product for the nation.

IMPLAN is a computer-based input-output modeling system that enables users to create regional economic models and multipliers for any region consisting of one or more counties or states in the United States. The current version of the *IMPLAN* software, version 3.1, accounts for commodity production and consumption for 536 industry sectors, 10 household income levels, taxes to local/state and federal governments, capital investment, imports and exports, transfer payments, and business inventories. Regional datasets for individual counties or states are purchased separately.

Impact or **total impact** is the net change in total regional economic activity, like output or employment, that results from a change in final demand, direct industry output, or direct employment. It is estimated based on regional economic multipliers.

Imports are purchases of goods and services originating outside the region of analysis.

Income is the money earned within a region from production and sales. Total income includes labor income such as wages, salaries, employee benefits, and business proprietor income, plus other property income.

Taxes on production and imports are taxes paid to governments by individuals or businesses for property, excise and sales taxes. They do not include income taxes.

Input-Output (I-O) and Social Accounting Matrix (SAM) models are representations of the transactions between industry sectors within a regional economy. They capture what each sector purchases from every other sector in order to produce that sector's output of goods or services.

Using such a model, flows of economic activity associated with any change in spending or employment may be traced backward through the supply chain.

Local refers to goods and services that are sourced from within the region, which may be defined as a county, multi-county cluster, or state. Non-local refers to economic activity originating outside the region.

Margins represent the portion of the purchaser price accruing to the retailer, wholesaler, and producer/manufacturer, in the supply chain. Typically, only the retail margins of many goods purchased by consumers accrue to the local region, as the wholesaler, shipper, and manufacturer often lie outside the local area.

Multipliers capture the total effects, both direct and secondary, in a given region, generally as a ratio of the total change in economic activity in the region relative to the direct change. Multipliers are derived from an I-O model of the regional economy. Multipliers may be expressed as ratios of sales, income, or employment, or as ratios of total income or employment changes relative to direct sales. Multipliers express the degree of interdependency between sectors in a region's economy and therefore vary considerably across regions and sectors. A **sector-specific multiplier** gives the total changes to the economy associated with a unit change in output or employment in a given sector (i.e., the **direct or initial economic effect**). **Indirect effects multipliers** represent the changes in sales, income, or employment within the region in backward-linked industries supplying goods and services to businesses (e.g., increased sales in input supply firms resulting from more nursery industry sales). **Induced effects multipliers** represent the increased sales within the region from household spending of the income earned in the direct and supporting industries for housing, utilities, food, etc. An **imputed multiplier** is calculated as the ratio of the total impact divided by direct effect for any given measure (e.g., output, employment).

Other property income represents income received from investments, such as corporate dividends, royalties, property rentals, or interest on loans.

Output is the dollar value of a good or service produced or sold, and is equivalent to sales revenues plus changes in business inventories.

Producer prices are the prices paid for goods at the factory or point of production. For manufactured goods, the purchaser price equals the producer price plus a retail margin,

a wholesale margin, and a transportation margin. For services, the producer and purchaser prices are equivalent.

Proprietor income is income received by non-incorporated private business owners or self-employed individuals.

Purchaser prices are the prices paid by the final consumer of a good or service.

Region and **regional economy** are the geographic area and the economic activity it contains for which impacts are estimated. A region may consist of an individual county, an aggregation of several counties, a state, or an aggregation of states. These aggregations are sometimes defined on the basis of worker commuting patterns.

Sector is an individual industry or group of industries that produce similar products or services, or have similar production processes. Sectors are classified according to the North American Industrial Classification System (NAICS).

Value added is a broad measure of income representing the sum of employee compensation, proprietor income, other property income, indirect business taxes, and capital consumption (depreciation). Value added is a commonly used measure of the contribution of an industry to a regional economy because it avoids double counting of intermediate sales.

Hernando County Scalloping Survey

Purpose: University of Florida is trying to confirm that the recreational scallop season has a large and lasting impact on the local economy. Your response to this brief survey will help us ensure the scallop season will continue into the future.

(This survey seeks to gather information about your expenses while recreationally scalloping in Hernando County. Completion of the survey will require no more than 5 minutes of your time. There are no direct benefits or risks to you for participating in this survey. Participation is voluntary and you will not be compensated. Your direct identity will remain anonymous and your response will be kept confidential. You cannot be penalized for choosing not to answer certain questions. If you have any concerns or questions, please call 352-294-7667.)

Please return within 7 days of receiving survey using the self-addressed stamped envelope provided.

1. **Date collected scallops:** _____ / _____ / _____
(MONTH) (DAY) (YEAR)

2. **Number of collectors / scallopers during this trip:** _____

3. **Total volume of scallops collected on this trip:** _____

4. **Total time spent collecting:** _____

5. **What is your COUNTY and STATE of residence?** _____
(COUNTY) , (STATE)

6. **Did this scalloping trip involve an overnight stay?** Yes No

7. **Please estimate your total expenses for this scallop trip:** \$ _____

a. **Of those expenses, what percent was spent in Hernando County?** _____ %

OR

b. **Please estimate your expenses for the following items for this scalloping trip and indicate if items were purchased in Hernando County.**

Item	Estimated cost	Purchased in Hernando County	
Boat and vehicle fuel	\$ _____	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Fishing supplies	\$ _____	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Food/groceries/ice	\$ _____	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Lodging	\$ _____	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Ramp user fee	\$ _____	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Slip rental/marina user fee	\$ _____	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Other purchases (specify):	\$ _____	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	\$ _____	<input type="checkbox"/> Yes	<input type="checkbox"/> No
TOTAL estimated expenditures for this trip	\$ _____		

Thank you for participating in this survey. Your feedback is greatly appreciated.



16110 Aviation Loop Drive, Brooksville, FL 34604