

The Economic Impact of Charter and Party Boat Operations in the Gulf of Mexico

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ABSTRACT

In this paper we report upon the financial characteristics of charter boat operators in a five-state U.S. Gulf of Mexico study area. Revenues and expenditures provide a breakdown for a typical enterprise. This is used in conjunction with the IMPLAN (Impact analysis for PLANning) model to estimate economic impacts generated by charter and party boat operations. Because the charter and party boat industry is too small to be identified specifically as a separate sector in the IMPLAN model, the collection of the aforementioned more detailed data was necessary. The IMPLAN model was customized by developing specific output and purchasing relationships for these industries, to enable indirect and induced impacts to be estimated. Gulf of Mexico charter boat operations were estimated to have generated annual total (direct, indirect, and induced) output valued at \$131.0 million, incomes of \$60.3 million, and employment amounting to 3,116 jobs. The party boat industry generated annual total (direct, indirect, and induced) output valued at \$18.5 million, incomes of \$8.2 million, and employment amounting to 371 jobs. Practical implications of our research are numerous. Clearly, during times of policy change, this type of information provides a base of knowledge for informing government officials about the magnitude of industry impacts. At an individual level, boat operators can compare themselves to industry expenditure profiles. No one individual operator will likely match such an expenditure profile exactly but this information provides a basis for comparison, causing one to question reasons for large deviations from the norm.

KEYWORDS: Charter boats, party boats, economic impact

INTRODUCTION

Charter and party boat operators in the U.S. Gulf of Mexico are difficult to classify within a fisheries management framework. From one perspective, these operators may be viewed as part of the recreational sector because they provide a unique opportunity for anglers to fish offshore for recreation and food. From another perspective, charter and party boat operators may be viewed as part of the commercial sector because they operate a commercial service through which they earn their livelihood from fishing activity (albeit the fishing activity of others). Classification is further complicated because a certain number of these operators also use their boats for commercial fishing purposes. An alternative perspective is to view these operators as a sector unto themselves with ties to both the commercial and recreational sectors.

When implementing fishery regulations, it is important to understand the extent to which these regulations will impact the charter and party boat industry at various levels ranging from individual operators to the entire Gulf-wide industry. To disregard social and economic impacts to focus solely on stock assessment and recovery is to doom regulatory efforts to failure because management initiatives will be vigorously opposed in the political arena when people feel their livelihoods are threatened.

Business activity results in sales, employment, and income for individuals directly involved in the business. The sales by a business rely on the use of inputs to produce the goods and services desired by customers. Charter and party boats need fuel and oil, bait, ice, and a variety of other inputs to provide fishing services for their customers. As a result of the sales (output) of a charter or party boat business, other businesses make sales to charter and party boat operators. These other businesses then purchase inputs from additional businesses to produce their own products. This interaction between businesses leads to economic impacts that extend beyond the initial sale of a fishing trip by a charter or party boat.

Economic impact analysis provides measures of the interaction between businesses in particular regions, states or sub-state areas. In order to distinguish the sources of economic impact, three types of effects are commonly described. *Direct impacts* refer to the initial sales (output) of a business or a group of businesses contained within an industry. The direct impacts of sales by an industry cause *indirect impacts* as other businesses and industries provide goods and services. Finally, as employees earn income from the sales of businesses, the money these employees spend for goods and services for their households create additional *induced impacts* within the economy. The sum of the direct, indirect and induced impacts is the total impact of a business on an economy. These three impacts can be measured in terms of either output (spending), income or employment.

The total impact can also be used to determine *multipliers* that indicate how much additional spending, income, or employment would result from an increase (or decrease) in output in a particular industry in a region. Basically, the total economic impact of an industry is derived from the magnitude of the industry's direct expenditures and the multiplicative effect these have through re-spending in the

economy of concern. Economic multipliers are used to capture this re-spending effect. If no re-spending were to occur, the economic multiplier would have a magnitude of 1.0 and indicate that the only impact is the direct expenditure. This would imply that all re-spending by recipients of the initial expenditure (for goods and services used as production inputs) occurred outside of the region of concern. This unlikely event is termed "leakage" and it is unlikely because rarely would 100% of re-spending take place totally outside the region of concern. However, the greater the degree of leakage, the lower the economic multiplier will be for the region. For illustration, if the total economic multiplier were 1.5 we would estimate a total economic impact of \$1.50 for each dollar of direct expenditure occurring in the regional economy ($\$1 \times 1.5 = \1.50).

Our primary foci herein regard 1) mean costs, returns and gross revenues in order to develop a financial profile for charter and party boat fisheries by state and 2) the direct and indirect economic impacts associated with charter and party boat fishing in the five states making up the U.S. Gulf of Mexico's economy (excluding the Florida Keys). Previous studies by Ditton et al. (1989) and Holland and Milon (1989) and subsequent journal articles (Ditton et al. 1992, Holland et al. 1992, Gill et al. 1993) provide a baseline of relevant socio-demographic information for charter and party boat fisheries in the U.S. Gulf of Mexico.

METHODS

Charter boats are commonly defined as for-hire vessels that carry six or fewer passengers in addition to the crew, whereas party boats are usually defined as for-hire vessels that carry more than six passengers (up to about 150). During the course of compiling the sampling frame, however, it was found that a number of operations were advertised as charter boats with a capacity of up to 25 passengers. Further examination revealed that the best discriminators of party boats and charter boats are the base fee charged per trip and the number of passengers included in the base fee. For the purpose of this study, charter boats are defined as for-hire vessels operating primarily in Federal waters that have a base fee that is charged on a group basis (two or more passengers). Party boats are defined as for-hire vessels operating primarily in Federal waters that have a base fee which is charged on a per-person basis. Boats that did not solicit public business for offshore fishing trips were not considered for inclusion in the sampling frame. Based on these definitions, vessels classified as charter boats tended to be smaller, carry six or fewer passengers, and operate only when the vessel is chartered. Party boats tended to be larger, carry a larger number of passengers, operate on a schedule, and operate with as many passengers on board as possible to maximize income.

Previous study findings and methodological concerns were used to guide the development of the final interview schedule administered to boat operators. Because of previously-documented levels of attrition and turnover in the charter boat industry (Ditton and Loomis 1985, Ditton and Vize 1987), charter and party boat database files maintained by the Gulf States Marine Fisheries Commission and the National

Marine Fisheries Service, respectively, were subjected to careful scrutiny and verification using various sources of public information prior to selecting a sample in each state. New boats were identified as well and added to the overall population of charter and party boats to be sampled. Even with careful verification ahead of field interviews, some boats were found to be no longer in business or operators were not available for a variety of reasons necessitating the use of a standardized replacement procedure. For more detail see Ditton et al. (1999) and Holland (1999).

Charter and party boat operators in Alabama, Florida, Mississippi, Louisiana, and Texas were interviewed by trained interviewers between May and September 1998. Personal interviews covered 59 questions and lasted from 30 - 60 minutes. There is consensus today among the human dimensions research community that the personal interview approach is the most effective means for collecting data from charter and party boat operators. Besides providing an opportunity for more open-ended questions and deeper understandings, personal interviews are seen as the best means for asking sensitive business and economic questions. Operators had to be convinced their individual responses were going to be held in confidence and only be reported in aggregate. This was accomplished through a series of mail and telephone communications about the project and its importance followed by a face-to-face interview.

Methods for Impact Assessment

The primary data used for impact analysis were the revenue and cost information provided by respondents. Sample data were extrapolated to the population of charter and party boats based on the number of boats of each type in each state as reported in Ditton et al. (1999) and Holland et al. (1999).

The survey data were used in the IMPLAN analysis for PLANning (IMPLAN) input-output modeling framework to produce estimates of purchases by charter and party boats, employment, income, and the corresponding multiplier effects within each state. IMPLAN is a flexible software package that can be used to develop impact analyses for any industry in a state or subregion within a state.¹ Some industries, such as charter and party boat fishing, are too small to be identified separately in the output, employment, and income data for any state. Therefore it is necessary to develop specific output and purchasing relationships for these industries and use the IMPLAN impact analyses procedures to estimate the indirect and induced impacts of these businesses.

One of the primary ingredients of an input-output model is the classification of purchases by an industry from other industries. The percentage of the total expenses attributable to each expense category is the input requirement (production coefficient) of charter and party boats from that sector. These production

¹ IMPLAN is a proprietary software package maintained by the Minnesota IMPLAN Group, Inc., Stillwater, MN.

coefficients for boats were used to modify the basic IMPLAN economic data for each state included in the survey in order to create distinct charter and party boat industries within each state. The production coefficients for each state were adjusted to account for differences in wages and salaries across the states. Also, due to the fact that only one party boat operated in Mississippi in 1997 and none in Louisiana, no party boat industries were developed for these states.

Another important element of economic impact analysis is identification of resident and nonresident shares of total operating revenues in each state. Nonresidents inject "new money" into a state that creates incomes that would not have existed without these expenditures. This new income is the source of *induced impacts* that occur in response to employees' purchases with this new income. Revenues from residents, on the other hand, do not create induced impacts because no new income within the state results from resident purchases². A purchase of charter boat services in a state by one resident from another resident simply reflects a transfer of income along with payment to cover the expenses of providing the charter boat service. The distribution of charter and party boat trips by residents and nonresidents within the five Gulf states in 1997 was determined from secondary sources. No data were available for party boats because the only ongoing survey to determine the number of party boat trips in the Gulf of Mexico does not identify the state of residence of party boat customers.³

Finally it should be noted that this economic impact analysis only considers the revenues received by charter and party boat operators. Other sources of economic activity associated with charter and party boat trips such as customers' travel costs, lodging, etc., are not included in this analysis. The inclusion of these expenditures would increase the overall economic impact of charter and party boat operations.

RESULTS

Firm Financial Profile

Only 40% of the firms comprising the charter boat industry in the Gulf of Mexico are corporations while roughly 85% of party boats chose a corporate form of organization. Investment at the time of purchase and current age for fixed factors of production are shown in Table 1. As expected hull and superstructure is the highest expenditure item followed by engine investment. While reported separately, in many instances it is suspected that the hull and superstructure purchase included the engine and electronics. Notably, given their typically larger size, party boats have a much higher average cost for hull and superstructure.

² This is true, unless one argues that the money would have been spent elsewhere if local (state) opportunities had not been available.

³ Party boats surveys are conducted by the National Marine Fisheries Service.

Table 1. Fixed Factors of Production for Charter and Party Boats

	Florida*						Rest of U.S. Gulf of Mexico					
	Charter Boats			Party Boats			Charter Boats			Party Boats		
	Mean	Std. Error	n	Mean	Std. Error	n	Mean	Std. Error	n	Mean	Std. Error	n
Hull and Superstructure	Present Age			14.67	12.86		15.99	20.97		15.99	20.97	
	Capital Investment			0.66	2.44		1.05	2.64		1.05	2.64	
Engine	Present Age			8.15	3.36		4.3	3.81		4.3	3.81	
	Capital Investment			0.65	1.13		0.48	1.22		0.48	1.22	
Electronics	Present Age			4.54	3		4.78	4.56		4.78	4.56	
	Capital Investment			0.37	0.7		1.17	1.19		1.17	1.19	
Other Equipment and Tackle	Present Age			4.1	3		3.24	4.69		3.24	4.69	
	Capital Investment			0.42	0.82		0.22	1.81		0.22	1.81	
Party Boats	Present Age			19	19		84	14		84	14	
	Capital Investment			10,488	35,749		11,213	37,918		11,213	37,918	
Charter Boats	Present Age			75	75		39	2		39	2	
	Capital Investment			40,518	13,513		20,438	18,000		20,438	18,000	
Party Boats	Present Age			54	3		78	8		78	8	
	Capital Investment			5,568	1,673		6,974	13,000		6,974	13,000	
Charter Boats	Present Age			79	79		73	6		73	6	
	Capital Investment			5,878	1,833		8,797	15,600		8,797	15,600	
Party Boats	Present Age			607	4,421		607	3,795		607	3,795	
	Capital Investment			607	4,421		607	3,795		607	3,795	

* Includes boats in Atlantic, Keys, and Gulf Coast areas of Florida.

Current expenditures in 1997 are indicated for a common set of boats by actual amount and as a proportion of total expenses in Tables 2 and 3. Average input purchases for charter boats in Florida and across the remaining four Gulf of Mexico states included in this survey and the corresponding IMPLAN sector are shown for each purchase category.

Wages and salaries and expenses to purchase and maintain the boat were the largest input purchases (Table 2). Wages and salaries are classified as the income earned by the captain and crew of the boat. Expenses to purchase and maintain the boat are classified as purchases from IMPLAN sector 393 (Boat Building and Repairing) and sector 357 (Motors and Generators). Other large purchase categories were fuel and oil, insurance and docking fees. For party boats (Table 3), fuel and oil, wages and salaries, and expenses to purchase and maintain the boat were the largest expense items. The data in these tables provide firm operators useful information for comparative purposes.

Respondents reported annual gross revenues by choosing from equal sized categories ranging from "less than \$10,000" to "\$150,000 or more". For purposes of discussion and analysis here, these gross revenues were converted to approximate a continuous variable by using the mid-point of the equally sized categories (\$155,000 was used for the highest category). The average charter boat gross revenue was \$51,400 in the Gulf region of Florida and was \$68,934 annually for the remaining Gulf states.

Since a limited number of trips were made for other types of recreational purposes (such as diving), only a small proportion of additional annual revenue is expected from these other sources. Further, a number of boat operators responded that they had received revenues from commercial fishing activities. To the extent that operators viewed these two sources of income as separate from the gross revenue they reported when queried about charter expenses and revenues, our estimate of gross revenue is an underestimate.

Overall, from the data collected, the typical charter boat business appears to exist at the margin. On the other hand, many might argue that there are non-monetary returns from the charter operator's style of life for which we are unable to account with these financial data. But, at the bottom line, an enterprise must be able to cover its basic expenses in order to survive.

Party boat gross revenues were \$150,000 for Florida Gulf boats and \$137,308 for the remaining states. A majority of the party boat sample respondents indicated that their gross business revenues were in the top category of \$150,000 or more annually. This means that our estimates of gross revenues (which used \$155,000 to represent this category) are likely to be severely understated which has implications for any discussion of their business profitability.

Table 2. Average Charter Boat Purchases in 1997 for Florida and the rest of the U.S. Gulf of Mexico

Expense Category	State of Florida		Rest of U.S. Gulf		IMPLAN Sector
	Amount	Share	Amount	Share	
Hull and Superstructure	\$3,020.31	4.40%	\$18,300.00	22.53%	Boat Building and Repairing (393)
Maintenance and Repair	\$5,720.02	8.34%	\$8,584.43	10.57%	Boat Building and Repairing (393)
Engine	\$6,333.88	9.24%	\$4,890.16	6.02%	Motors and Generators (357)
Electronics	\$1,134.68	1.65%	\$1,538.20	1.89%	Electronic Components, N.E.C.(378)
Fuel and Oil	\$8,223.96	11.99%	\$10,256.21	12.63%	Automotive Dealers and Service Stations (451)
Other Equipment and Tackle	\$2,403.76	3.51%	\$2,020.98	2.49%	Sporting and Athletic Goods, N.E.C.(421)
Bait	\$2,021.85	2.95%	\$2,753.03	3.39%	Sporting and Athletic Goods, N.E.C.(421)
Docking Fees	\$4,604.04	6.71%	\$3,034.28	3.74%	Water Transportation (436)
Food and Drink	\$1,191.15	1.74%	\$417.70	0.51%	Food Stores (450)
Ice	\$823.75	1.20%	\$1,028.28	1.27%	Manufactured Ice (101)
Bookkeeping Services	\$1,388.98	2.03%	\$892.95	1.10%	Accounting, Auditing and Bookkeeping (507)
Advertising and Promotion	\$2,040.72	2.98%	\$2,986.62	3.68%	Advertising (469)
Insurance	\$2,970.40	4.33%	\$3,799.10	4.68%	Insurance Carriers (459)
Permits and Licenses	\$690.17	1.30%	\$986.23	1.21%	State and Local Government -- Non-education (523)
Wages and Salaries	\$25,810.35	37.64%	\$19,725.39	24.29%	
Total	\$68,578.02	100.00%	\$81,213.56	100.00%	

Table 3. Average Party Boat Purchases in 1997 for Florida and the rest of the U.S. Gulf of Mexico

Expense Category	State of Florida		Rest of U.S. Gulf		IMPLAN Sector
	Amount	Share	Amount	Share	
Hull and Superstructure	\$3,333.33	2.46%	\$23,076.92	8.68%	Boat Building and Repairing (393)
Maintenance and Repair	\$13,384.61	9.86%	\$26,919.46	10.12%	Boat Building and Repairing (393)
Engine	\$9,450.00	6.96%	\$15,153.85	5.70%	Motors and Generators (357)
Electronics	\$182.35	0.13%	\$8,869.23	3.33%	Electronic Components, N.E.C.(378)
Fuel and Oil	\$18,020.00	13.28%	\$61,366.77	23.07%	Automotive Dealers and Service Stations (451)
Other Equipment and Tackle	\$291.66	0.21%	\$8,538.46	3.21%	Sporting and Athletic Goods, N.E.C.(421)
Bait	\$6,352.91	4.68%	\$14,171.23	5.33%	Sporting and Athletic Goods, N.E.C.(421)
Docking Fees	\$11,533.07	8.50%	\$4,050.85	1.52%	Water Transportation (436)
Food and Drink	\$0.00	0.00%	\$1,989.85	0.75%	Food Stores (450)
Ice	\$1,798.23	1.33%	\$2,515.38	0.95%	Manufactured Ice (101)
Bookkeeping Services	\$1,420.00	1.05%	\$14,233.08	5.35%	Accounting, Auditing and Bookkeeping (507)
Advertising and Promotion	\$7,242.30	5.34%	\$8,321.23	3.13%	Advertising (469)
Insurance	\$8,569.57	6.31%	\$11,491.08	4.32%	Insurance Carriers (459)
Permits and Licenses	\$2,157.69	1.59%	\$1,236.46	0.47%	State and Local Government - Non-education (523)
Wages and Salaries	\$52,000.00	38.31%	\$64,064.69	24.08%	---
Total	\$135,736.72	100.00%	\$266,010.54	100.00%	---

ECONOMIC IMPACTS OF CHARTER AND PARTY BOAT INDUSTRY

The charter fishing industry has significant impacts on local economies (Table 4). We estimate the total direct, indirect, and induced economic impact of output, income, and employment of the charter industry in the Gulf section of Florida to be \$88.3 million, \$44.6 million, and 2,132 jobs and for the remaining four states in 1997 amounted to \$42.7 million, \$15.8 million, and 984 jobs, respectively. We should note that the economic impacts estimated in our study refer only to those impacts generated from fees paid directly to charter businesses for services rendered. Our study did not include measures of money spent by charter boat customers on other goods and services such as meals, accommodations, equipment, etc. related to their charter fishing trip. These additional expenditures are likely significant, especially in Alabama and Mississippi where the majority of charter boat customers are not residents of those states. Estimating the total economic impact of the charter fishing industry would require an additional survey of charter boat customers to estimate their total charter fishing-related expenditures.

We estimate the 1997 total direct, indirect, and induced economic impact for output, income, and employment of the party boat industry in the Gulf section of Florida to be \$14.2 million, \$6.1 million, and 278 jobs and for the remaining four-state study region amounted to \$4.4 million, \$2.1 million, and 93 jobs, respectively (Table 5). As with the charter industry, these estimates do not include impacts of money spent by party boat customers on other goods and services related to party boat fishing experiences.

DISCUSSION

The charter fishing fleet of the Gulf of Mexico consists of approximately 432 boats in the Gulf section of Florida and another 430 boats distributed throughout Alabama, Mississippi, Louisiana, and Texas. The average charter boat operator has invested over \$100,000 to purchase the equipment currently used for the charter business and is taking in gross annual revenues of approximately \$51,000 in the Gulf Florida region and \$69,000 for the rest of the Gulf. After annual expenditures are accounted for, it appears as though most charter operations are not highly profitable.

The party boat fleet consists approximately of 35 boats in the Gulf section of Florida and 23 boats in the remaining Gulf. The average party boat operator has invested over \$200,000 to purchase equipment used for the party boat business. We estimate the average operator is taking in gross annual revenues of approximately \$140,000. We expect, however, that this estimate of party boat annual revenue is low because our method of collecting this information did not provide accurate data on operators who had annual revenues exceeding \$150,000. Otherwise, given annual expenditures reported by party boat operators, most operations would be taking an annual net loss.

Table 4. Total Economic Impacts in U.S. Gulf of Mexico from Charter Boat Revenues by State

Category	Alabama	Florida Gulf Region	Louisiana	Mississippi	Texas	Total
Total "Output" Impact						
a) Direct	\$9,011,530	\$49,618,040	\$3,187,500	\$4,411,695	\$13,280,410	\$79,509,175
b) Indirect	\$3,439,881	\$19,545,935	\$878,086	\$1,578,259	\$4,301,830	\$29,741,991
c) Induced	\$1,423,220	\$19,144,785	\$384,978	\$676,680	\$140,369	\$21,770,012
d) Total	\$13,874,631	\$88,308,740	\$4,450,564	\$6,664,634	\$17,722,609	\$131,021,178
e) Multiplier (d/a)	1.54	1.78	1.40	1.51	1.33	1.65
Total "Income" Impact						
a) Direct	\$2,858,350	\$20,997,858	\$1,101,827	\$847,940	\$3,594,117	\$29,400,082
b) Indirect	\$1,887,330	\$11,403,814	\$510,258	\$888,103	\$2,497,833	\$17,185,338
c) Induced	\$866,538	\$12,187,729	\$235,791	\$401,156	\$85,698	\$13,776,912
d) Total	\$5,612,218	\$44,589,401	\$1,847,876	\$2,135,199	\$6,177,648	\$60,362,342
e) Multiplier (d/a)	1.96	2.12	1.68	2.52	1.72	2.05
Total "Employment" Impact (jobs)						
a) Direct	220	1,541	100	179	333	2,373
b) Indirect	28	305	12	21	50	416
c) Induced	22	286	6	11	2	327
d) Total	270	2,132	118	211	385	3,116
e) Multiplier (d/a)	1.23	1.38	1.18	1.18	1.15	1.31

Table 5. Total Economic Impacts in U.S. Gulf of Mexico from Party Boat Revenues by State

Category	Region					Total
	Alabama	Florida Gulf	Louisiana	Mississippi	Texas	
Output						
a) Direct	\$620,000	\$9,568,552	n/a	n/a	\$2,593,636	\$12,782,190
b) Indirect	\$212,845	\$4,597,584	n/a	n/a	\$932,613	\$5,743,142
c) Induced	---	---	---	---	---	---
d) Total	\$832,845	\$14,166,136	n/a	n/a	\$3,526,251	\$18,525,332
e) Multiplier (d/a)	1.34	1.48	n/a	n/a	1.36	1.45
Income						
a) Direct	\$239,000	\$3,536,058	n/a	n/a	\$1,125,558	\$4,900,616
b) Indirect	\$109,979	\$2,568,687	n/a	n/a	\$615,587	\$3,294,253
c) Induced	---	---	---	---	---	---
d) Total	\$348,979	\$6,104,745	n/a	n/a	\$1,741,145	\$8,194,869
e) Multiplier (d/a)	1.46	1.73	n/a	n/a	1.55	1.67
Employment (jobs)						
a) Direct	13	211	n/a	n/a	65	289
b) Indirect	3	67	n/a	n/a	12	82
c) Induced	---	---	---	---	---	---
d) Total	16	278	n/a	n/a	77	371
e) Multiplier (d/a)	1.22	1.32	n/a	n/a	1.19	1.28

In this paper we have summarized estimates of the economic impacts associated with charter and party boat operations in the five states comprising the U.S. Gulf of Mexico. This information can be used to inform businesses as well as local, state, and federal officials about the economic contribution of charter and party boat operations to their respective state economies.

Another use of this information is to evaluate the economic effects of policies and/or events that change the revenues received by charter and party boat operations. For example, an output multiplier can be calculated from the ratio of total to direct output. In the case of charter boats in Alabama, the output multiplier is 1.54 ($\$13,874,631 \div 9,011,530$). An event such as a hurricane that occurred during a peak season and resulted in a loss of \$1,000,000 in charter boat revenues would have a \$1,540,000 total output impact on the Alabama economy.

Other multipliers can also be computed to evaluate the effects of changes in output on employment and income. These multipliers, while simple to compute, should be used with caution. The use of multipliers to predict the impacts of changes in policies or events requires certain assumptions. One important assumption is that the policy or event does not change the cost structure of providing the service. Also, it is necessary to assume that the structure of the industries providing inputs does not change. For short term analysis (2 to 3 years) such considerations are not a problem but longer term evaluations may need to consider how changes may occur. Several other issues should be considered in using multipliers for impact analysis; the interested reader should consult more comprehensive sources (e.g., Miller and Blair 1985, Propst and Gavrilis 1987, Stevens and Lahr 1988)

Finally, it should be noted that the economic impacts described in this section apply to the entire state economies for the respective states. For this reason our total Gulf impacts are rough estimates in that they are sums of individual state results, not strictly legitimate. Likewise, and probably more so, it would be inappropriate to use the relationships (such as output multipliers) to evaluate impacts of charter and party boat operations on local economies such as one county or a group of two or three counties around a bay. Local economies will always have smaller impacts (and therefore smaller multipliers) of changes in output because there are more "leakages" from the local economy in the form of input purchases from other parts of the state. Impact analyses can be developed for these local economies using the IMPLAN framework if data are available on charter and party boat revenues in the local area.

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