AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
http://ageconsearch.umn.edu
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

Journal of Agricultural and Applied Economics, 37,2(August 2005):475–484
© 2005 Southern Agricultural Economics Association

Opening a Public Recreation Area to Revitalize Coastal Communities and Preserve Natural Resources in Louisiana: The Case of Elmer's Island

Krishna P. Paudel, Rex H. Caffey, Nirmala Devkota, and Larry M. Hall

The income capitalization approach is used, based on expenditure and nonmarket values collected from travel-cost and contingent valuation methodologies, to measure the feasibility of running a self-sustaining recreational site in coastal Louisiana. Through Internet and intercept surveys, a total of 2,696 respondents, 88% of them anglers, provided information on economic expenditures, destination preferences, and preferences for specific site amenities regarding Elmer's Island. The purchase and subsequent opening of the area to the public were found to be self-sustaining even when considering conservative economic estimates.

Key Words: coastal community revitalization, market valuation, nonmarket valuation, public purchase of private recreational area

JEL Classifications: O13, Q26

Coastal areas in the southern United States and elsewhere have been impacted by environmental and financial problems. In Louisiana, for example, 4,920 km^2 have been lost in the past century, primarily due to anthropogenic factors. Current rates of coastal land loss are 50–65 km^2 a year, a situation that disrupts the economy and livelihood of coastal parish residents (Barras). Federal and state governments have invested money in restoration efforts at a cost that now exceeds $500 million, and additional support is being requested at the multibillion-dollar level. Coastal restoration projects may be cost-prohibitive and, even if implemented, may take several decades to achieve their goals. Additionally, the community may one day abandon the area, causing unwanted population pressure in other neighboring areas.

As coastal infrastructures decline, the direct impact is most often felt by local economies. This translates into the need to support and preserve coastal resources at the community level. Significant costs can be incurred in the purchase, management, and maintenance of coastal areas. From the benefit-cost analysis perspective, a community would be willing to participate only if the realized benefit to so-

Krishna P. Paudel is assistant professor, Rex H. Caffey is associate professor, and Nirmala Devkota and Larry M. Hall are graduate research assistants in the Center for Natural Resource Economics and Policy, Department of Agricultural Economics and Agribusiness, Louisiana State University, Baton Rouge, LA.

The authors wish to thank Jack Van Lopi, Ron Becker, and Mike Liffmann of the Louisiana Sea Grant College Program for providing the idea and funding for this research.

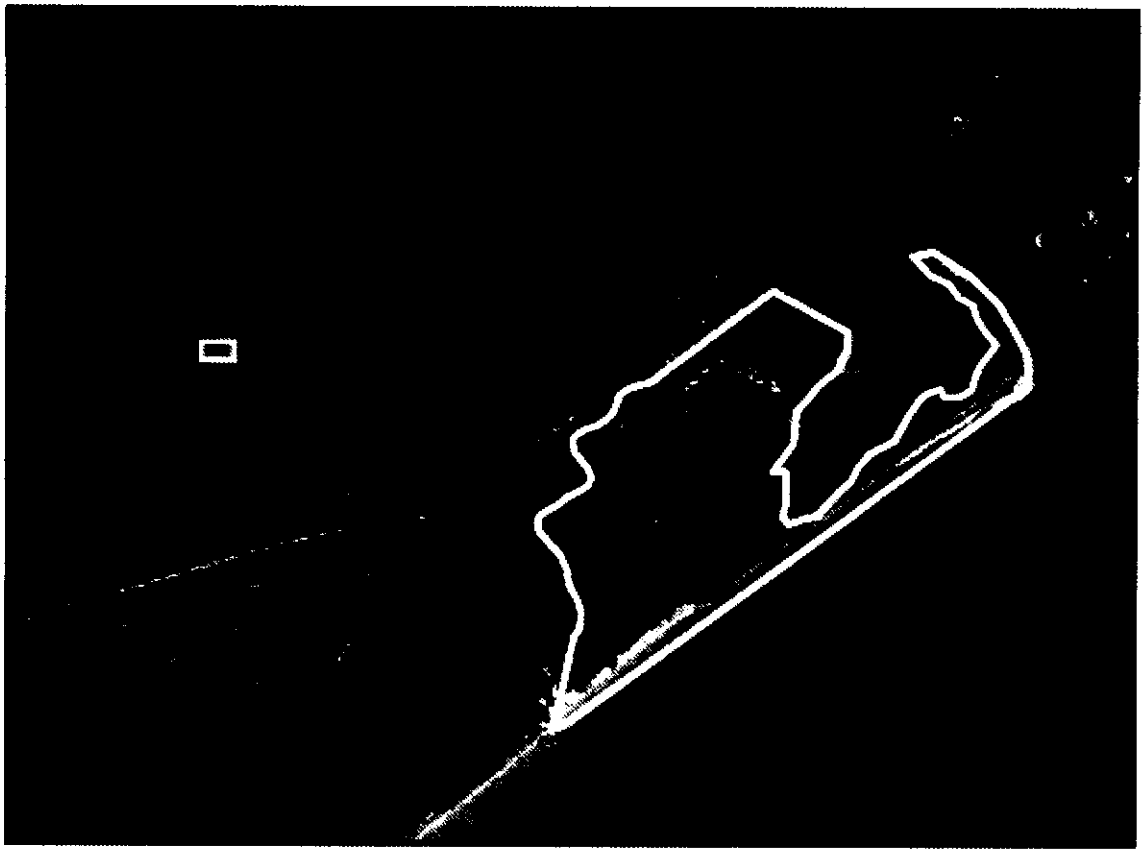

Figure 1. Location of Elmer's Island in Louisiana [source: Louisiana Department of Natural Resources]

ciety is higher than the cost incurred in preserving natural resources. Many public areas can be maintained while supporting the ecosystem and local community, the latter often dependent upon the tourist trade. We examine the economic feasibility of coastal resource use for community viability. The economic tools used in this assessment are market and nonmarket valuations of a recreational site visit. Additionally, we examine this issue using a traditional income capitalization approach. By doing so, we gauge the feasibility of a public purchase of private property to protect the integrity of the ecosystem and to support the local community.

Background

Louisiana's abundant coastal resources have attracted an increasing amount of consumptive and nonconsumptive tourists in recent years; however, most of the state's coastal region is comprised of isolated marsh, and very few areas are accessible by road. Of particular importance is Elmer's Island, located approximately 50 miles due south of the city of New Orleans (Figure 1). Although commonly referred to as an "island," Elmer's Island is actually a 1,160-acre tract of coastal land comprised of interior wetlands and adjoining seashore. Elmer's Island is a continuation of one of only three land-accessible beaches on the Louisiana coast.

For the past 30 years, Elmer's Island has been operated as a commercial campground and primitive area. The property has become a popular destination for many thousands of Louisiana citizens and out-of-state tourists (Curole and St. Pe). For a nominal fee, users have had access to the location for fishing,

bird watching, camping, and beachcombing. The area also provides significant habitat for numerous bird species and other forms of coastal marine life. In the summer of 2001, the land was closed to the public and advertised for sale. A resolution calling for state purchase and management of Elmer's Island was developed by the Louisiana Wildlife Federation in 2002 and unanimously supported by the Louisiana Legislature in April 2003 (Baldone et al.).

Survey Methods

A survey questionnaire was developed based on the travel-cost method (TCM), a standard approach for estimating the value of a recreational site based on the cost of traveling to the site (Emmert; Farber 1988; Garrod and Willis). The basic premise of the TCM is that demand for a particular site is a function of travel time and expenses incurred in visiting that site. Thus, site value can be represented by the number of trips taken by different users with different travel costs. Additional questions in the survey focused on demographics, primary recreation categories, and specific preferences for preservation or development. Finally, a subset of questions, based on the contingent valuation method (CVM), was included to provide estimates of specific nonuse values.

The survey was implemented using two modes of data collection. Most responses (92%) were obtained using an Internet survey developed by using Microsoft FrontPage, Version 2002. The Internet survey was hosted on a Web server in the LSU Department of Agricultural Economics and Agribusiness, and responses were auto-loaded into a spreadsheet database maintained in Microsoft Excel, Version 2002. The database contained 120 columns of coded output representing 34 survey questions. Browser type, date, time, and remote computer identity were recorded. Duplicate responses were identified and deleted for any submissions sharing the same Internet protocol (IP) address.

The Internet survey was available to respondents from May 15 to July 31, 2003. Announcements were made in 28 media outlets to attract a diverse range of participants. Notices were made via direct E-mail, websites, newspapers, newsletters, magazines, and radio programs. To compare data collected from the Internet survey, an in-person survey, or "intercept" survey, was conducted at Grand Isle State Park and Holly Beach. These two locations served as proxy substitute sites for Elmer's Island. To encourage participation in the intercept survey, a commemorative cap was provided to all who fully completed the survey questionnaire. Intercept interview surveys were conducted using a series of two-day trips between June 20 and July 31, 2003. Data obtained from the intercept survey were coded and recorded in an identical manner to that used for data from the Internet survey.

Response to the on-line survey was much greater than expected. A total of 2,493 responses were received in the 77 days that the Internet survey was posted. In addition to the Internet survey, 203 individuals completed the intercept survey at the two proxy locations. Most intercept surveys (78%) were obtained at Grand Isle State Park, a substitute site a few miles from Elmer's Island. Together, the two modes of surveying produced 2,696 unique responses.

Results

Familiarity with Elmer's Island (outside of the survey) was 97% and 74% among Internet and intercept respondents, respectively. Only about half of intercept respondents (53%), compared with 86% who took the survey online, said that they had visited Elmer's Island at some time; however, of all those respondents who had visited Elmer's Island, the largest percentage (35%) included those who had visited 25 or more times. The primary recreational activity while visiting Elmer's Island was surf or marsh fishing (86%). Multiuse aspects of Elmer's Island were obtained by asking respondents about their second most favorite on-site recreational activity.

Survey respondents indicated that they would take an average of 5.27 trips annually to Elmer's Island if it were to reopen for pub-

Table 1. Visitation and Fees for Elmer's Island

Description	Total Weighted (n = 2,696)	Internet Survey (n = 2,493)	Intercept Survey (n = 203)
How many times a year would you visit?	5.27	5.3	4.95
Estimated visits (trips/year × n)	14,233	13,213	1,020
Daytime fees ($/person/day)			
Expected	$4.90	$4.91	$4.79
Maximum	$8.70	$8.69	$8.84
Average	$6.80	$6.80	$6.82
Overnight camping fees ($/person/day)			
Expected	$10.38	$10.26	$11.87
Maximum	$16.56	$16.52	$17.16
Average	$13.47	$13.39	$14.52
Estimated Fee Revenues			
Using Avg. Daytime fee	$96,685	$89,847	$6,875
Estimated Fee Revenues			
Using Avg. Overnight fee	$191,561	$176,920	$14,642

lic use (Table 1). Given the trip-to-day reconciliation, this amount of visitation equates to approximately 5 single days, or 2.5 weekends. Thus, the estimated total number of trips per year from all survey respondents alone would be 14,233.

Respondents were asked to provide a range of fees they would be willing to pay to visit Elmer's Island if the property were reopened to the public. On average, day-use fees ranged from $4.90 (expected) to $8.70 (maximum); overnight fees ranged from $10.38 (expected) to $16.56 (maximum). Thus, at the average per-day visitation fee of $6.80 per person, 14,233 visits would produce $96,685 in fees. The average trip was approximately 19 hours. Thus, if the average overnight fee is applied, revenues from respondents increased to $191,561. It is critical to emphasize here that these revenues are based solely on visitation by the survey respondents alone. No efforts have been made yet to extrapolate these calculations to a larger population of visitors.

Nonmarket Value Estimates

The CVM is used by economists to estimate the value of ecosystem services (use and nonuse) that market-based transactions fail to reflect. The method typically involves asking survey participants to reveal their willingness to pay (WTP) for a specific set of environmental services or options. An often-cited weakness of CVM is that it is based on stated behavior and, unless stated values can be linked to real or revealed values, they are difficult to justify. However, there is no method other than CVM to determine the nonuse or passive values of the site.

Participants in this survey were asked to provide the maximum one-time amount they would be willing to pay to ensure future access to Elmer's Island for the following reasons: 1) option value—*so that I can visit in the future*; 2) bequest value—*so that my children, grandchildren, and great-grandchildren can visit*; and 3) existence value—*just to know it's there and will be maintained for the public, whether I visit or not.* After truncating the response range by 5% (upper and lower), very similar values emerged from both modes of surveying. On average, WTP estimates were $39, $42, and $29 for option, bequest, and existence values, respectively (Table 2). Though significant controversy remains over the validity and application of CVM estimates, numerous examples exist in which CVM is promoted as a decision-making tool in restoration and

Table 2. Option, Bequest, and Existence Values for Elmer's Island

Description	Total Weighted (n = 2,696)	Internet Survey (n = 2,493)	Intercept Survey (n = 203)
Option			
So that I can visit in the future.	$38.87	$38.87	$39.10
Bequest			
So that my children, grandchildren, and great grandchildren can visit.	$41.97	$41.91	$42.90
Existence			
Just to know it's there and will be maintained for the public, whether I visit or not.	$29.00	$28.94	$29.86
Total (per person)	$109.84	$109.72	$111.86
Total (all respondents)	$296,233	$273,532	$22,819

preservation initiatives (Costanza, Farber, and Maxwell; Farber 1996; Milon and Hodges).

Table 3 shows the variables affecting option, bequest, existence values, and WTP values for day and night visits. The seemingly unrelated regression approach was used to estimate the parameter values. This is because the nonuse values and WTP values are likely to be correlated through error terms. It was found that people who spent more time at the site in the past, people who spent more money to visit the site, and people who preferred to have more physical amenities in the site are willing to pay higher fees for passive value of site protection. WTP for both the day and night visits are positively affected by environmental quality of the site, potential for future visits, and public ownership.

Assessment of Economic Viability

Although no efforts were made to calculate recreational price elasticity for access to Elmer's Island, it is assumed that entrance fees could be slightly higher without affecting visitation. An average survey respondent expected a reopened Elmer's Island to have a daytime fee of $4.91 and an overnight fee of $10.38. The average of these two numbers, $7.64, is useful for revenue calculations for three reasons: it assumes an equal percentage of day and overnight trips; it is well below the $12.63 average maximum fee expressed by survey respondents; and it is less than the $11 per-person overnight rate for tent camping charged at commercial camping sites across Louisiana (KOA).

It is also assumed that the original visitation rate could be maintained under public ownership and substantially increased given limited site improvements. For calculation purposes, the upper end of the visitation range is assumed to be 60,000, a 50% increase in annual visitation. Because the context for this new business is a primitive camping area, higher visitation would be limited to the increased costs for advertising, road maintenance, and trash pick-up.

Finally, it is assumed that a minimum of $500,000 in start-up capital would be required for improvements to the infrastructure. Such investments would include fortification of existing roads and construction of an improved gatehouse with minimal restroom facilities. Assuming a 20-year loan period and a conservative 8% interest rate, debt services would be about $60,000 annually. Given additional increases of labor, insurance, and other unforeseen costs, the new owner-operator would face a total annual cost (TAC) range of $125,000 to $250,000. By comparison, the seasonal operating cost (April–October) for a substitute site at neighboring Grand Isle State Park is $192,083 (Johnson).

Table 3. Parameter Estimates of Willingness to Pay Values for Option, Bequest, Existence, Day Visit, and Night Visit for Elmer's Island Louisiana Using a Seemingly Unrelated Regression (GLS) Method

		Seemingly Unrelated Regression Coefficients				
Variables	Units	Option	Bequest	Existence	WTP for Day Visit	WTP for Night Visit
Constant term		14.45	64.003	−43.580	2.656	4.631
		(0.863)	(0.698)	(0.571)	(0.100)	(0.140)
Purpose primary	0, 1	47.02	51.938	23.492	0.729	−0.302
		(0.612)	(0.292)	(0.307)	(0.876)	(0.740)
Purpose joint	1–3	46.946	79.60	28.991	0.828	0.552
		(0.067)	(0.114)	(0.218)	(0.863)	(0.555)
Type of visit	Day visit = 1				−0.163	0.300
	Night = 0				(0.437)	(0.462)
Time spent	Hours	0.2254*	0.628*	0.226*	−0.225	−0.282
		(0.021)	(0.004)	(0.025)	(0.318)	(0.519)
Expenditure	Dollars	0.0290*	0.055*	0.030*	0.447	0.925*
		(0.021)	(0.025)	(0.008)	(0.847)	(0.040)
Environmental concern	0, 1	0.798	12.267	−21.424	0.391	−1.335
		(0.997)	(0.810)	(0.373)	(0.417)	(0.163)
Importance of Site Characteristics						
Physical	1–35	2.43*	3.851	1.158	0.127	0.736
		(0.053)	(0.119)	(0.315)	(0.590)	(0.104)
Environmental	1–15	−4.861	−5.057	−2.954	0.564	0.997
		(0.089)	(0.367)	(0.260)	(0.293)	(0.920)
Familiarity	0, 1	1.450	−47.209	9.018	−1.715	0.436
		(0.965)	(0.474)	(0.769)	(0.011)	0.714
Past visit	0, 1	1.550	8.756	0.791	0.194	0.177
		(0.815)	(0.481)	(0.85)	(0.114)	(0.223)
Number of past visits	Number				0.726	0.392
					(0.820)	(0.546)
Ownership	0, 1	−2.511	−26.481	−38.045*	−1.018*	−1.045
		(0.920)	(0.591)	(0.098)	(0.031)	(0.254)
Future visit	0, 1	68.675*	85.026	35.731	2.317*	1.363
		(0.105)	(0.306)	(0.358)	(0.003)	(0.379)
Travel time					0.176	0.258*
					(0.839)	(0.127)
Gender	0, 1	−43.071*	−68.433	−236.671	−0.475	1.273
		(0.048)	(0.113)	(0.182)	(0.246)	(0.110)
Marital status	1–4	−24.107*	−11.683	−20.960	−0.584*	−0.336
		(0.068)	(0.652)	(0.083)	(0.018)	(0.484)
Employment status		−7.471	−15.331	−5.701	−0.998	−0.113
		(0.415)	(0.395)	(0.497)	(0.556)	(0.734)
Flexibility of work	1–3	8.541	11.340	3.712	0.258	0.603
		(0.447)	(0.608)	(0.718)	(0.220)	(0.141)
Income	1–5	2.716	9.1525	6.237	0.422	0.495
		(0.738)	(0.565)	(0.401)	(0.005)	(0.094)
Age	Years	0.1480	−1.535	0.277	0.100	−0.165
		(0.767)	(0.120)	(0.541)	(0.289)	(0.370)
Data source	1 = interview	−43.655	−60.790	−25.821	0.605	1.688*
	0 = online	(0.149)	(0.306)	(0.352)	(0.285)	(0.125)
R^2		0.042	0.040	0.037	0.066	0.049
Number of observations		711	711	711	711	711

Table 4. Income Capitalization Value of Elmer's Island

A. 40,000 visitors annually

Total Annual Cost	10% Capitalization Rate			15% Capitalization Rate		
	$4.91	$7.64	$10.38	$4.91	$7.64	$10.38
$150,000	460,000	1,556,000	2,652,000	306,667	1,037,333	1,768,000
$175,000	210,000	1,306,000	2,402,000	140,000	870,667	1,601,333
$200,000	—	1,056,000	2,152,000	—	704,000	1,434,667
$225,000	—	806,000	1,902,000	—	537,333	1,268,000
$250,000	—	556,000	1,652,000	—	370,667	1,101,333

B. 60,000 visitors annually

Total Annual Cost	10% Capitalization Rate			15% Capitalization Rate		
	$4.91	$7.64	$10.38	$4.91	$7.64	$10.38
$150,000	1,440,000	3,084,000	4,728,000	960,000	2,056,000	3,152,000
$175,000	1,190,000	2,834,000	4,478,000	793,333	1,889,333	2,985,333
$200,000	940,000	2,584,000	4,228,000	626,667	1,722,667	2,818,667
$225,000	690,000	2,334,000	3,978,000	460,000	1,556,000	2,652,000
$250,000	440,000	2,084,000	3,728,000	293,333	1,389,333	2,485,333

Table 4 depicts the results of income capitalization appraisals of the Elmer's Island property assuming the following: the expected, maximum, and average daily entrance fees; the TAC, ranging from $125,000 to $250,000; and capitalization rates of 10 and 15%. Given these variables, property values may vary from a low of $140,000 to a high of $4.7 million. A realistic combination of assumptions includes an average entrance fee of $7.64 and a minimum TAC of $175,000. For this combination, the value for the Elmer's Island is estimated to be $870,667 for the 15% capitalization rate and $1,306,000 for the 10% capitalization rate; however, if an annual visitation of 60,000 is assumed, these values increase dramatically to $1,889,333 and $2,834,000 for 15 and 10% capitalization rates, respectively.

The income capitalization approach best approximates the value of Elmer's Island because of its ability to account directly for historical use and indirectly for the unique size and location of the property. Unfortunately, the inherent sensitivity of the income capitalization approach results in a wide range of output. Although certainly a valid appraisal method, marginal changes in one or more assumptions produce large shifts in estimated value. Assumptions must be based on a conservative but fair assessment of all existing and potential costs and revenues.

Impact analysis is frequently used to evaluate the feasibility of recreational site development and regional impact (English and Bergstrom; Lieber and Allton). Impact analysis is based on economic multipliers that account for the total economic effect (respending and employment) of an investment within a specific local, state, or regional economy. The majority of impact analysis is conducted using input–output (I-O) models that are programmed into computer software containing the necessary databases, coefficients, and multipliers. If expenditure data and other variables are available, impact analyses can be calculat-

←

GLS is a generalized least squares regression. WTP is willingness to pay.
Note: Numbers in parentheses are *p*-values.
* Indicates significant at 10% or lower level.

Table 5. Specific Economic Impact of Elmer's Island Tourism (Assumes $92 expenditures per person, per visit)

Annual Visitation	40,000 visits			60,000 visits		
Specificity	0.20	0.30	0.40	0.20	0.30	0.40
Multiplier						
1.00	739,040	1,108,560	1,478,080	1,108,560	1,385,700	2,217,120
1.25	923,800	1,385,700	1,847,600	1,385,700	1,732,125	2,771,400
1.50	1,108,560	1,662,840	2,217,120	1,662,840	2,078,550	3,325,680
1.75	1,293,320	1,939,980	2,586,640	1,939,980	2,424,975	3,879,960
2.00	1,478,080	2,217,120	2,956,160	2,217,120	2,771,400	4,434,240

ed without formal I-O analyses, provided certain caveats are heeded.

Gordon and Mulkey established that economic multipliers will generally be higher for communities that have a diverse economy, have low per-capita income, and are located a substantial distance from competitive retail or service centers. Hughes provides general policy guidelines on the use of economic multipliers for the purpose of impact analysis. The author provides a probable range of economic multipliers ranging from 1.5 to 2.5 for employment classes of 1,000 to 50,000, respectively. Given these parameters, a relevant multiplier range can be developed for estimating the economic impact associated with Elmer's Island tourism. This range of multiplier is considered to be conservative compared with the multipliers typically used to justify public recreation areas. For example, the Louisiana Office of State Parks estimates that every dollar spent in association with park visitation fosters an economic impact of $5.62 to $6.53 for the local and state economy, respectively (Earle and Loughridge).

Expenditures for coastal tourism (weighted average) were approximately $149 per person per trip (day) for the combined expenses of lodging, fuel, food, and beverages, equipment, supplies, fees, and other; however, only 62% of respondents indicated that recreational tourism was the primary purpose for their coastal visits. Expenditures can be reduced by 38% to account for this response. Thus, $92 per person is assumed to be the daily expenditure level generated solely from coastal recreation. Given the average respondent's willingness to visit Elmer's Island 5.3 times annually, a total of $1,313,107 would be spent each year by the 2,693 respondents of this survey alone, assuming no extrapolation or multiplier effects.

The economic impact associated with Elmer's Island tourism can be calculated under various visitation scenarios. The annual visitation to Elmer's Island historically was estimated to be 40,000. It was further estimated that an annual visitation of 60,000 could be achieved with modest site improvements and limited advertising. Given these two scenarios and a $92 per visit expenditure, base expenditures would range from $3,695,200 to $5,542,800 annually. Assuming a multiplier of 2.0, the range of economic impact in lower Lafourche Parish and the Grand Isle community would range between $7,390,400 and $11,085,600 annually.

The broad range of economic impact listed above requires some qualification. Whereas it is likely that the historic visitation (40,000) is associated with $3,695,200 in direct expenditures, it is not clear what the fate of these expenditures has been since closure of the property in 2002. Clearly, some of this spending has simply stopped; some of it has likely been switched to substitution sites. The question ultimately becomes one regarding the specificity of Elmer's Island expenditures.

Table 5 provides a range of nonsubstitutable expenditures and economic impacts that are specific to Elmer's Island. An "expenditure specificity" schedule of 20, 30, and 40% was developed through consideration of spe-

cific survey questions that solicited names and preferences for alternate (substitute) sites. If a minimum rate of 20% expenditure specificity is assumed, $739,040 in direct expenditures and $1,478,080 in economic impact have been lost annually because of the closure of Elmer's Island. Conversely, reopening Elmer's Island under a public management regime would likely recapture all of this economic activity. Indeed, at 60,000 visitors, the state could reasonably net a minimum of $2,217,120 in economic activity related solely to Elmer's Island tourism.

Summary and Conclusions

The income capitalization approach can be used to generate property values based on the feasibility of reopening Elmer's Island. Given a broad range of revenue and cost assumptions, property values ranging from $140,000 to $4.7 million are generated. The most realistic portion of this range, from $1.9 million to $2.8 million, is based on a preliminary but objective assessment of visitation, fee structure, fixed and operating costs, and capitalization rates.

Data collected from this survey suggest that respondents alone would spend an estimated $1.3 million on tourism associated with a reopened Elmer's Island. At the historic annual visitation rate of 40,000, $3.7 million in expenditures would be associated with Elmer's Island tourism. Assuming a conservative multiplier, these expenditures produce an economic impact of $7.3 million. Indeed, as much as $11 million in economic impact could be achieved if the annual visitation of Elmer's Island were to reach 60,000. Although this visitation level represents a 50% increase over historic levels, it is not considered overly optimistic. Grand Isle State Park averages 100,000 visitors annually and, at 144 acres, it is only 11% of the size of Elmer's Island.

Participants in this survey were asked to provide the maximum one-time amount they would be willing to pay to ensure future access to Elmer's Island for the option, bequest, and existence value. On average, WTP estimates were $39, $42, and $29 for option, bequest, and existence values, respectively. These non-use estimates represent additional value that can be used in the purchase decision of the Island.

Whereas Elmer's Island has undoubtedly generated a sizeable economic impact for the state and local economy over the past three decades, the question ultimately becomes one of specificity. In short, how unique is the Elmer's Island experience? Although this is a subjective question with no single correct answer, some insight is provided using survey data related to substitution sites for coastal recreation. Assuming an expenditure specificity rate of 20%, a minimum of $740,000 in direct expenditures and $1.5 million in economic activity has been lost annually since the closure of Elmer's Island. Given that substitution effects are factored out, this loss extends to the economy of the entire state of Louisiana. However, the brunt of this loss is felt in lower Lafourche Parish and Grand Isle, communities that are clearly linked to the viability of coastal tourism.

References

Baldone, D.J., H. Downer, H. Powell, and C. Ullo. House Concurrent Resolution No. 116. Louisiana House of Representatives, 2003.

Barras, J. Historical and Predicted Coastal Louisiana Land Changes: 1978–2050. Washington, DC: U.S. Geological Survey Open File Report, July 2003, 11p.

Curole, W., and K. St. Pe. Resolution of the Barataria-Terrebonne National Estuary Program Management Conference, July 31, 2002.

Costanza, R., S. Farber, and J. Maxwell. "The Valuation and Management of Wetland Ecosystems." *Ecological Economics* 1(1989):335–363.

Earle, D., and D. Loughridge. Louisiana State Parks Master Plan 1997–2012. 1997. 44p. Internet site: www.lastateparks.com/pdffiles/Mplan.htm (Accessed March 15, 2005).

Emmert, J.J. "Income and Substitution Effects in the Travel Cost Model: An Application to Indiana State Parks." *American Journal of Agricultural Economics* 81(1999):1330–1337.

English, D.B.K., and J.C. Bergstrom. "The Conceptual Links Between Recreation Site Development and Regional Economic Impacts."

Journal of Regional Science, 34(1994):599–611.

Farber, S. "The Value of Coastal Wetlands for Recreation: An Application of Travel Cost and Contingent Valuation Methodologies." *Journal of Environmental Management* 26(1988):299–312.

———. "The Economic Welfare Loss of Projected Louisiana Wetlands Disintegration." *Contemporary Economic Policy* 14(1996):92–106.

Garrod, G.D., and K.G. Willis. "The Amenity Value of Woodland in Great Britain: A Comparison of Estimates." *Environmental and Resource Economics* 2(1992):415–434.

Gordon, J., and D. Mulkey. "Income Multipliers for Community Impact Analysis—What Size is Reasonable?" *Journal of the Community Development Society* 9(1978):85–93.

Hughes, D. "Policy Uses of Economic Multiplier and Impact Analysis." *Choices* 2(2003):1–6.

Johnson, S. (2003) Deputy Assistant Secretary, Office of State Parks, LA Department of Culture, Recreation, and Tourism. Personal Communication, October 2003.

[KOA] Kampgrounds of America. 2001 Per Camper Night Averages, Schedules A–D. Carol Preble, Franchise Sales, Billings, MT, 2001.

Lieber, R., and D. Allton. "Visitor expenditures and the economic impact of public recreation facilities in Illinois." *Recreation Planning and Management.* S. Leiber, and D. Fesenmaier, ed. State College, PA: Venture Publishing, 1983, pp. 35–64.

Milon, J., and A.W. Hodges. "Who Wants to Pay for Everglades Restoration?" *Choices* 2(2000): 12–16.