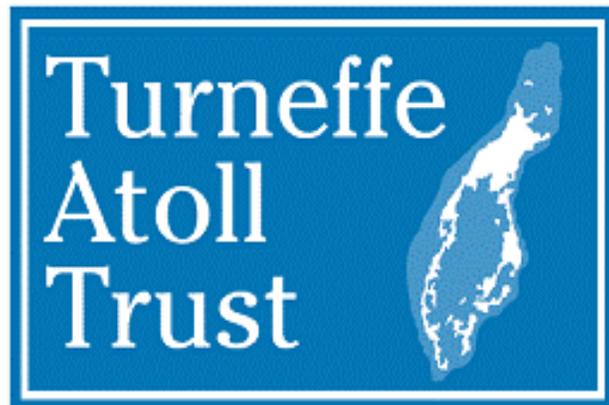


The Economic Value of Turneffe Atoll

Executive Summary



www.turneffeatoll.org

Prepared by:
Anthony J. Fedler, Ph.D.
Human Dimensions Consulting
tfedler@gru.net



August 2011

Executive Summary

The purpose of this project was to estimate the annual economic contribution of Turneffe Atoll to the economy of Belize. To do so, three sources of economic value were examined: overnight tourism, commercial fishing, and shoreline protection. In addition to these sources, two marine research facilities are located at Turneffe and there is significant potential for the development of Turneffe's educational opportunities. Neither Turneffe's educational opportunities nor the atoll's non-tourism related development, were addressed in this analysis.

The economic contribution from overnight tourism was derived from data collected through an online survey and from personal interviews with businesses that utilize Turneffe Atoll for Scuba diving, sport fishing and eco-tourism. Businesses provided data on the number of trips to Turneffe in 2010 and the number of tourists per trip. Tourist expenditures were estimated using data gathered through our survey as well as data from the Belize Tourism Board visitor survey. Although we estimate as many as 1,300 cruise ship tourists per year utilize Turneffe Atoll to dive and snorkel, these tourists do not stay overnight in Belize and this tourism activity was not included in the analysis.

The economic impacts of overnight tourism at Turneffe Atoll were examined from two perspectives. First, total expenditures by tourists visiting Turneffe during their vacation in Belize; and second, expenditures by tourists related specifically to the days these tourists spent at Turneffe. The total direct expenditures made by tourists visiting Turneffe as part of their vacation in Belize were US\$30 million. Adding the appropriate value added or multiplier effect to these expenditures resulted in a total economic effect of nearly US\$37 million. Direct expenditures related specifically to the days tourists spent at Turneffe totaled US\$19 million and this increased to US\$23 million with value added impacts. These are conservative estimates as they are based only on the data provided by businesses responding to the survey.

Turneffe's tourism industry generates significant tax revenue for Belize with approximately US\$5.1 million in tax revenue related to tourists who visit Turneffe during their stay in Belize, and US\$3.4 million in tax revenues related to the specific days tourists spent at Turneffe.

Summary of Turneffe Atoll Tourism direct economic and value added impacts (USD)		
Economic Component	Total Trip Expenditures	Turneffe-Specific Expenditures
Turneffe diving, fishing and eco-tourism activity	\$9,816,211	\$9,816,211
Non-Turneffe tourism activity	\$3,825,675	\$0
Accommodations	\$7,097,944	\$3,977,957
Other Expenditures	\$4,409,678	\$2,053,325
Taxes and licenses	\$5,157,595	\$3,430,578
Total direct impact	\$30,307,103	\$19,278,071
Value Added Multiplier	\$6,667,563	\$4,241,176

Total Economic Impact	\$36,974,666	\$23,519,247
------------------------------	---------------------	---------------------

The economic contribution of Turneffe's commercial fishery was evaluated primarily from information provided by the Belize Fisheries Department which summarizes data from the sale of commercial fishing products to Belize's fishing cooperatives. Additional input was obtained directly from Turneffe fishermen. Based on the most current data, lobster and conch harvested from Turneffe Atoll comprises about 5% of Belize's total cooperative sales in 2009 with additional lobster and conch sales outside of the cooperatives. The total value of Turneffe's lobster and conch fishery handled through cooperatives plus local markets was estimated at US\$518,479.

The commercial fishery at Turneffe also makes an economic contribution related to the sale of finfish to local markets and restaurants. Recent finfish harvest data is not available through the Belize Fisheries Department or elsewhere and it, therefore, could not be included in this analysis. Additionally, commercial fishermen from Turneffe report annual catches of deep-water snapper from pinnacles near Turneffe as high as 100,000 pounds with a market value of approximately US\$200,000. Firm economic data for this catch was unavailable and this contribution was, likewise, not included in the US\$518,479 estimate.

Fisheries cooperative and local sales of lobster and conch for 2009 (USD)		
Cooperative and Local Sales	Country-Wide	Turneffe
Lobster Cooperative Sales	\$5,886,875	\$377,337
Local Lobster Sales	\$883,031	\$56,601
Subtotal	\$6,769,906	\$433,938
Conch Cooperative Sales	\$4,048,099	\$80,515
Local Conch Sales	\$202,405	\$4,026
Subtotal	\$4,250,504	\$84,541
Total	\$11,020,410	\$518,479

Based on a 25 year major storm event, the annualized value of storm protection and damages avoided by Turneffe Atoll was US\$38 million. While the benefits of storm protection do not accrue directly to the economy of Belize, they do represent a valuable asset for Belize, particularly as it relates to the protection of Belize City.

Annual value of Turneffe Atoll shoreline protection services provided by coral reefs and mangroves (USD)					
	Total Acreage	Turneffe Acreage	% Turneffe	Value / Acre	Total Value
Coral Reef	116,136	17,072	14.7%	\$1,292	\$22,057,024
Mangrove	237,094	27,740	11.7%	\$587	\$16,255,640
Total					\$38,312,664

Overall, the total economic contribution provided by Turneffe Atoll from overnight tourism, commercial fishing and shoreline protection is substantial. When including all expenditures made by tourists visiting Turneffe during their stay in Belize, the economic value of Turneffe Atoll is US\$75 million. When apportioning tourist expenditures based only on the days Turneffe was visited, the value of Turneffe tourism, fisheries and shoreline protection was US\$62 million.

Total economic contribution of Turneffe Atoll to Belize (USD)		
Tourism	Total Belize Trip Expenditures	Turneffe Expenditures
Turneffe activity expenditures	\$9,816,211	\$9,816,211
Non-Turneffe activity expenditures	\$3,825,675	\$0
Accommodations	\$7,097,944	\$3,977,957
Other Expenditures	\$4,409,678	\$2,053,325
Taxes and service charges	\$5,157,595	\$3,430,578
Total Direct Impact	\$30,307,103	\$19,278,071
Value Added Impact	\$6,667,563	\$4,241,176
Tourism Value	\$36,974,666	\$23,519,247
Fisheries	Value	Value
Cooperative Lobster	\$377,337	\$377,337
Cooperative Conch	\$80,515	\$80,515
Lobster and conch sold outside of Cooperatives	\$60,627	\$60,627
Fisheries Value	\$518,479	\$518,479
Shoreline Protection	Value	Value
Annual value of protection from coral reefs	\$22,057,024	\$22,057,024
Annual value of protection from mangroves	\$16,283,380	\$16,283,380
Potentially Avoided Damages	\$38,340,404	\$38,340,404
Annual Value of Turneffe Benefits	\$75,833,549	\$62,378,130

Sustainability of this economic contribution is an important consideration. Our analysis of the tourism contribution reveals nothing to suggest that this impact is not sustainable and, in fact, it is likely that the annual tourism contribution can be expanded and remain sustainable. The apparent decline of the Turneffe's commercial fishery since 2004, however, leads us to conclude that this is not a sustainable economic situation and that the annual economic impact from commercial fishing at Turneffe Atoll will continue to decline without intervention. The value of shoreline protection is sustainable insofar as the integrity of both reefs and mangrove forests are maintained over time. Further, the protection value of Turneffe Atoll will only increasing with further development in and around Belize City.

