

Table S2. Direct Economic Impact of Manta Ray Watching Tourism (US\$)

Expenditure Ratios from Diving Expenditure Sources	Local Expenditure / Participant	Dive Expenditure	Total Local Exp. / Dive Exp. (DEI Ratio)	Trip Type	Ref Year	Source		
Australia, GBR (N. Queensland) - Per Trip	AUD 2,600	AUD 1,300	200%	Live aboard - varied	2006-7	[42]		
W. Australia (Ningaloo) - Per Day	AUD 186	AUD 76	246%	Whale sharks	2006	[43]		
Fiji - Per Day	USD 212	USD 84	252%	Sharks	2011	[18]		
Fr. Polynesia (Moorea) - Per Day	USD 377	USD 139	271%	Lemon sharks	2011	[6]		
Palau - Per Trip	USD 2,081	USD 749	278%	Sharks	2010	[50]		
Thailand - Per Trip	THB 40,000	THB 24,010	167%	Diving	2007-9	[49]		
Expenditure Ratios from Whale Watching Expenditure Sources	WW Ticket Exp. / Participant	Assoc. Exp. / Participant WW	Total Local Exp. / Participant WW	Manta Dive Trip Cost / Participant	Total Exp. /Participant Manta Diving	Total Exp. / WW Ticket Cost (DEI Ratio WW)	Total Exp. / MD Cost (DEI Ratio Manta Diving)	Ref Year / Source
Australia, GBR (Queensland)	\$28	\$146	\$174	\$108	\$254	616%	235%	[20], 2008
W. Australia	\$34	\$156	\$191	\$108	\$264	554%	245%	[20], 2008
Costa Rica	\$50	\$150	\$200	\$100	\$250	398%	250%	[20], 2008
Ecuador	\$1,171	\$234	\$1,405	\$150	\$384	120%	256%	[20], 2008
FSM	\$46	\$111	\$157	\$120	\$231	343%	192%	[20], 2008
Fr. Polynesia (Bora Bora)	\$94	\$121	\$215	\$137	\$258	229%	188%	[20], 2008
Indonesia	\$14	\$33	\$47	\$78	\$111	332%	142%	[20], 2008

Direct Economic Impact of Manta Ray Watching Tourism (US\$)

Japan	\$38	\$80	\$118	\$211	\$330	308%	156%	[20], 2008
Madagascar	\$51	\$63	\$115	\$76	\$139	224%	184%	[20], 2008
Maldives	\$36	\$40	\$76	\$44	\$84	211%	191%	[20], 2008
Mexico	\$53	\$450	\$503	\$446	\$896	942%	201%	[20], 2008
Mozambique	\$58	\$85	\$143	\$118	\$203	246%	171%	[20], 2008
New Caledonia	\$85	\$125	\$210	\$103	\$229	247%	221%	[20], 2008
Philippines	\$32	\$60	\$92	\$94	\$154	289%	164%	[20], 2008
Sudan (Egypt #s)	\$58	\$98	\$156	\$142	\$240	269%	169%	[20], 2008
USA, Hawaii	\$38	\$254	\$292	\$110	\$364	778%	331%	[20], 2008
<hr/>								
Country	Manta Dive Expenditure	Trip Exp / Dive Exp	Direct Economic Impact	Source(s)				
Australia	\$6,529,435	223%	\$14,560,640	[42,43]				
Costa Rica	\$109,200	250%	\$273,000	[20]				
Ecuador	\$726,126	256%	\$1,858,883	[20]				
Fiji	\$630,148	252%	\$1,587,973	[18]				
Fr. Polynesia	\$1,367,625	271%	\$3,706,264	[6]				
FSM	\$4,091,520	192%	\$7,855,718	[20]				
India	\$198,890	167%	\$332,146	[49]				
Indonesia	\$10,655,022	142%	\$15,130,131	[20]				
Japan	\$11,400,103	156%	\$17,784,161	[20]				
Kiribati	\$17,500	192%	\$33,600	[20] - FSM				
Madagascar	\$206,498	184%	\$379,956	[20]				
Maldives	\$8,100,000	191%	\$15,471,000	[20]				
Mexico	\$5,084,600	201%	\$10,220,046	[20]				
Mozambique	\$7,640,351	171%	\$13,065,000	[20]				
Myanmar	\$157,606	167%	\$263,202	[49]				
New Caledonia	\$524,988	221%	\$1,160,223	[20]				
Palau	\$2,455,108	278%	\$6,825,200	[50]				
Papua New Guinea	\$175,561	192%	\$337,077	[20] - FSM				
Philippines	\$863,479	164%	\$1,416,106	[20]				
Solomon Islands	\$319,332	192%	\$613,117	[20] - FSM				

Direct Economic Impact of Manta Ray Watching Tourism (US\$)

Sudan	\$13,506	169%	\$22,825	[20] - Egypt
Thailand	\$7,418,750	167%	\$12,389,313	[49]
USA	\$4,661,938	331%	\$15,431,015	[20]
Global Total	\$73,347,286		\$140,716,597	

DEI Ratio Notes

Summary:

13 - Ratios adapted from O'Connor et al. [20] replacing WW ticket expenditure (DE) with Manta dive trip cost: Costa Rica, Ecuador, FSM, Indonesia, Japan, Madagascar, Maldives, Mexico, Mozambique, New Caledonia, Philippines, Sudan (using #'s from Egypt), USA (Hawaii)

3 - Applied FSM ratio from [20]: Solomon Islands, Papua New Guinea and Kiribati

4 - Ratios from published studies on economic impact of shark diving:

Australia [42,43], Fiji [18], French Polynesia [6], Palau [50]

3 - Ratio from published study by Tourism Authority Thailand[49] on scuba diving tourists and expenditures:

Thailand and applied same ratio to Myanmar and India, since trips to these locations originate from Thailand on Thai boats

Australia: There were two published expenditure estimates for diving - Jones et al. [43] for Western Australia; Stoeckl et al. [42] for GBR (Queensland); and two estimates for whale watching expenditures from O'Connor et al. [20] - one for Western Australia and one for GBR (Queensland).

Stoeckl ratio: Median cost of live aboard dive trip ~ AUD 1,300; Median regional assoc. exp./diver ~ AUD 1,300

Jones ratio: Whale shark tourism participants - Mean expenditure / day; Mean activity expenditure / day

We opted to use the average of the 2 shark diving expenditure estimates.

The four Australia estimates were:

	Queensland	W. Australia	Avg Australia
O'Connor [20]	235%		240%
O'Connor [20]		245%	
Stoeckl [42]	200%		223%
Jones [43]		246%	

Fiji: Average daily local expenditures by divers in Fiji per Vianna et al. [18];

Average daily cost for manta diving per this study, since dive costs were not available.

Direct Economic Impact of Manta Ray Watching Tourism (US\$)

French Polynesia: Ratio estimated from the following values provided in Clua et al. [6]:							
Avg. Daily Associated Expenditures: (\$186 acc. + \$52 meals)= \$ 238 (AE)							
Avg. Cost (Int'l and Local divers) of 2 tank dive trip = \$139 (DE)							
Dive expenditure plus associated expenditures = \$377							
Palau: From Vianna et al. [50], avg. trip expenditure per diver; avg. dive expenditure per diver per trip							
Thailand: From Tourism Authority Thailand [49], avg. trip expenditure per diver; avg. dive expenditure per diver per trip							