The Impact of Surfing on the Local Economy of Mundaka, Spain

Melissa Murphy
College of Oceanic and Atmospheric Sciences
Oregon State University

Maria Bernal
University Madrid, Spain

Commissioned by Save The Waves Coalition

September 2008

Acknowledgements

I would like to thank Save The Waves Coalition, especially Greg Benoit, Will Henry, and Dean LaTourrette, for offering me this opportunity. Equal appreciation is given to Dr. Michael Harte, Robert Allan, Dr. Mark Needham, and Dr. Randall Rosenberg, for all their support and guidance through this process. A special thank you is given to the people of Mundaka and to Maria Bernal for all her help; without her assistance this study could not have been possible.

Abstract

This study looks at the potential economic impacts of surfing on the local economy of Mundaka, Spain. A small Basque village in northern Spain, Mundaka is home to one of the world's most famous wave breaks. Tourism is considered the main source of income with surfing and eco-tourism being the two main draws to the area. A 2004 river dredging project changed ocean dynamics leading to the disappearance of the sandbar that creates the Mundaka wave. This has resulted in a three-year drop in surf tourism to the area, partially from the loss of the Billabong Pro surf contest, which was cancelled in 2005, and held primarily at an alternate location in 2006.

The impacts and values of tourism activities such as surfing are difficult to measure due to lack of data and literature available. Surfing is not often included in recreation research and unlike fishing, hiking, or mountain biking it has not been looked at as a major tourist activity. In reality, surfing, as well as other similar activities such as skateboarding or windsurfing, can be extremely important to the local communities that host them.

To try and estimate the potential impacts of surf tourism to Mundaka's economy an economic impact analysis was conducted on surf market participant spending data collected for the area. Results were applied to four visitation levels and the overall total economic impacts range from $1.1 million at ten-thousand visitors, $2.2 million at twenty-thousand visitors, $3.4 million at thirty-thousand visitors, to more than $4.5 million at forty-thousand visitors. The personal income effects of the direct spending range from approximately $400,000 to $1.5 million and potentially support between 24

and 95 jobs for the area. Conservative multipliers were applied as *Direct Sales* 1.33*, Jobs* 1.19, and *Personal Income* 1.32, to calculate the impacts. Survey responses also showed the existence of the wave plays a major role in the decision to visit the area. Most respondents declared they had not visited while the wave was degraded and would not continue to visit the area if the wave was permanently degraded or destroyed. In addition to the economic analysis an OLS Regression test was run to reveal visitor and trip characteristics and to determine what, if anything, influenced overall visitor expenditures for the area.

This paper is intended to be used as a tool for future research, for local government decision making, and for the local surf community and market that directly benefits from the existence of the wave and the tourism it brings.

Introduction

Mundaka is the quintessential historic Spanish fishing village, small and unassuming with rich heritage and beautiful landscapes. Located in Bizkaia, one of the oldest provinces in Basque Country of Northern Spain, the town is known for its important history. Set inside the Urdaibai Biosphere Reserve, Mundaka has taken advantage of the growing nature-based tourism market while sustaining its culture and landscapes.

Home to approximately 1,900 people Mundaka's number one source of revenue comes from tourism (Turismo Mundaka 2007). Located on the left bank of the Guernica Estuary it is the doorway to the Urdaibai Biosphere reserve which is estimated to occupy 10% of the Bizkaia territory (Turismo Mundaka 2007). Tourists flock to the reserve as

well as the surrounding 19 townships that are housed within it. Mundaka plays host to many of these nature-based tourists, but is probably better known for its surfing and its famous 400 meter long left hand wave naturally formed by a sandbar and known as the best in Europe.

Historically known as a fishing village, Mundaka today has only two vessels that actively fish the surrounding waters (Turismo Mundaka 2007). Surfing brings thousands of tourists to the small village, and the Billabong Pro Mundaka is one of only 12 stops on the prestigious World Championship Tour. On average it is estimated that surfing brings between five thousand and fifteen thousand surfers to the small village every year with an additional twenty to thirty thousand attracted by the Billabong Pro contest.

Being placed within the Biosphere reserve has protected this coastal area from major pollution and exploitation issues; however shipbuilding, which takes place a few miles up river from the Guernica estuary in Mundaka, has threatened the local surf economy. Approximately one ship is built every five years and recently these ships have been getting larger (November 2006 The Independent). In 2004 a dredging project was needed to move the latest ship out to sea but an unfortunate side effect of this dredging was the destruction of the sandbar that shapes the wave. "The dredging project, which removed more than 243,000 cubic meters of sand from the Guernica Estuary and created sand dunes on shore opposite from where the wave breaks, changed the direction of the river flow and currents in the estuary which led to erosion of the sandbar on the river bed and the disappearance of the wave" (Sunday Herald 2005). This resulted in the cancellation of the 2005 Billabong Pro contest. The wave began to rejuvenate during the summer of 2006 and although not fully back to its original form, it was deemed healthy

enough to host the 2006 contest (due to lack of swell that year, however, a majority of the contest was held at nearby Bakio).

The issue remains if the ships being built continue to grow in size then the inevitable dredging of the river will become an issue once again. Attitudes of local officials have been mixed but according to an August 2005 article in Scotland's Sunday Herald, the local director of biodiversity referred to surf tourists as "surf hippies" and bluntly stated "If the shipyard needs to take out a 100 meter length ship, then of course further dredging will be done."

Without knowing the value of their wave or the impacts that surfing has on their local economy the local government and citizens are left without any tools to influence decision making. This study shows the potential economic impacts of surfing on the local Mundaka economy, who the average surf visitor to the area is, and what characteristics influence expenditures. This paper hopes to be used as a tool for future issues concerning the health and development of the local surf market.

Literature Review

The literature covering surf tourism is scarce but a growing focus on the subject can be seen. Universities, some in Australia, New Zealand and the U.S. are now offering degrees and courses in surf industry management and as more surfers enter academia the more research focused on the activity will become available.

According to the International World Games Association, "Surfing is practiced in basically all the countries in the world that are bordered with water and even in some landlocked countries such as Switzerland. The total number of licensed surfers is over

100,000 and it is estimated that there are more than 20 million recreational surfers worldwide. The International Surfing Association (ISA) currently has 46 member nations and 2 in the process of becoming affiliated - all members hold national championships" (www.worldgames-iwga.org). The surfing industry has seen record growth over the last twenty years and is estimated to be a multibillion dollar industry with companies such as Billabong, Quiksilver and Volcom leading the way (www.asrbiz.com). Surfing professionals, such as Kelly Slater and Andy Irons, have industry sponsorship deals in the millions and are regularly used in TV and movies. Surfing is now a recognized sport by the International Olympic Committee and most likely on its way to becoming an Olympic Sport.

Research in this area is difficult to perform due to the lack of data and information available. Tourism boards, local governments and the tourism industry have not begun to keep accurate records of surf visitation, tourist spending or stay duration making it almost impossible to conduct economic analysis. Surfing, however, has evolved from a "beach bum" sport to a billion dollar industry and those involved are well aware of its market power. This has led to an increased focus on the impacts and market importance of the activity.

Australia, New Zealand and the UK are to date the most progressive in their surf tourism development. At least three artificial reefs (Narrowneck, Cables, and Bagarra) have been or are planning to be built along the coasts of Australia for the intended purpose of developing the surf and general tourism markets. The UK is working to complete the first European artificial surf reef in Boscombe. This reef is estimated to bring an economic impact of €10 million annually to the area and support an additional

60 full-time and 30 part-time jobs (Bournemouth.gov 2006). In 2002 a proposed artificial surf reef at Mount Mauganui, New Zealand, was estimated to "generate an additional $500 thousand of annual expenditure locally based on attracting an additional 50 surfers per surfable day, and the proposed Opunake surf reef in South Taranaki, New Zealand, was estimated to have additional expenditures of $129,920 in year one and $288,120 in year five. This reef was proposed as a possible way to save the failing coastal tourism in the area which over a 15 to 20 year period saw a loss of 200 to 300 jobs" (Tourism Resource Consultants 2002).

A study conducted by Lazarow and Nelson utilized a multi-disciplinary approach to measuring the value of surfing at two locations, South Stradbroke Island in Queensland, Australia and Trestles Beach, CA. Incorporating techniques from economics, anthropology, and political science they found that for South Stradbroke Island the potential annual economic impact was twenty-million (Australian currency). They were also able to gather significant socio-economic information on surf participants at both these locations.

Many coastal sites are now trying to market their surf culture and are also seeing the environmental benefits that can be associated with a growing surf market. Coastal planners' attitudes are changing to look at all aspects of reef construction to ensure the safety of this *valuable consumer* as well as the protection of the precious shore lines (Jackson, et al 2002). A report on *Tourism and the Surf Coast Shire*, Australia, (Essential Economics 2002) focuses on how developing the surf image of the area can positively impact the local economies. In 1995 the Rip Curl Pro at Bells Beach, part of the Surf Coast Shire, "attracted 20,050 individual visitors who spent an estimated

$860,000 on surfing merchandise and had an estimated total increase in direct expenditure for the shire of $2.11 million"(Ernst and Young 1995, cited in Fluker 2003). Based on a 1988 Hawaii Sea Grant report by Mike Markrich on the *Economic Effects of Surfing Activities in Hawaii*, a 2003 study found that visitors to the *Triple Crown of Surfing* event, held at Hawaii's North Shore, had an estimated expenditure of $7.3 million over the six week event (Hoover 2003). Another 2003 report, *The Economics of Surf Reefs*, suggests that "a single high profile event on the Gold Coast of Australia is worth $2.2 million (Raybould and Mules 1998,cited in Weight 2003) and a major surf competition in Newquay would attract an income of about €1.7 million" (Weight 2003).

In 2000 a Travel Cost study, conducted by Charles Tilley, to measure the economic value of the Pleasure Point surf-break in Santa Cruz, California showed that this particular surf-break was worth an estimated $8.4 million annually (Tilley 2001). The results have been used in an on going debate over a seawall project in Santa Cruz that many say could have future detrimental effects on the surf.

The economic benefits associated with surf tourism are beginning to be noticed and considered in the development planning of coastal areas. Studies are branching out to include such topics as *Surfing and Coral Reef Conservation* (publicaffairs.noaa.gov 1997) and *Surf Tourism and Sustainable Development* (Buckley 2002). Research by Dolincar and Fluker has been done to understand the surf culture and assist the tourism industry in attracting this growing demographic. Economic value studies are also on the rise in estimating the value of surf tourism and the activity. Many of the artificial reef studies include methods to estimate an individual's attitude and behavior. One study, *The Socio Economic Impact of an Artificial Reef,* at Mahomet's Beach, Australia, looked at

both the economic impact and benefits of tourism associated with the reef as well as the social aspects and incorporated economic value methods such as contingent valuation (Rafanelli 2004).

Methods

This study reports visitor and trip characteristics and measures impact of surf market participant spending on the local economy of Mundaka, Spain using regression analysis and Economic Impact Analysis. Economic Impact Analysis (EIA), as defined by Frechtling in 1994, traces the flow of spending associated with tourism activity in a region to identify changes in sales, tax revenues, income, and jobs due to tourism activity (qtd. in Stynes 2007). Economic Impact Analysis is one of the quickest and most cost effective ways to analyze the market effects of a recreation activity.

To measure the total economic impact for a region, the *Direct, Indirect,* and *Induced Effects* (Total Economic Impact = Direct + Indirect + Induced Effects) of tourism spending in the impact region must be summed.

- *Direct Effect* – Production changes associated with the immediate effects of visitor spending. An increase in the number of tourists staying overnight in hotels would directly yield increased sales in the hotel sector. The additional hotel sales and associated changes in hotel payments for wages and salaries, taxes, and supplies and services are direct effects of tourist spending (Stynes 2007).
- *Indirect Effect* – Production changes resulting from various rounds of re-spending money in backward linkage industries. Changes in sales, jobs, and income in the linen supply industry, for example, represent indirect effects of changes in hotel

sales. Eventually we can see how hotels are linked by varying degrees to many other economic sectors in the region (Stynes 2007).

- *Induced Effect* – Economic activity generated from household spending of income earned directly or indirectly as a result of visitor spending. Purchases made by residents within the local economy with income made from directly and indirectly from tourism activity, such as food, transportation, household products and services (Stynes 2007).

An online survey was designed to obtain spending data, trip characteristics, and demographic information for the average surf market participant in the area (see Appendix A). Questions ranged from "How much did you spend on lodging per night?" to "Would you continue to visit Mundaka if the wave was permanently gone?"

Promotional cards to direct participants to the online survey were created and distributed at local businesses and in person on site. The online survey ran from mid September 2007 to mid December 2007. Target population for the survey ranged from 100 to 300 participants and the number of respondents to the online survey totaled 140 with an approximate 50% response rate.

Reasons for the discrepancy between those that entered the survey and those that participated are unclear but may have to do with the site region and the willingness to offer personal information or the participants understanding of the issue and willingness to take time to participate. It's assumed many people entered the survey just to view it but did not take the time to complete it. Nevertheless the data collected from this smaller sample is believed to be representative of the average surf participant in the area.

Using the Money Generation Model V.2 (MGM2), the potential range of economic impacts from surfing in Mundaka were assessed. Four levels of visitation, ranging from 10 thousand to 40 thousand, were used and visitation was the only variable changed for each analysis; all other variables (*spending, stay, and multiplier*) were held constant. Due to lack of data measuring actual surf tourism to the region, a range of visitation levels derived from estimates provided by the Mundaka Tourism Center were used to show potential impacts to the area. Percentage of visitors per segment were broken down into 35% Non Local Day Users, 35% Camp In (*In* refers to inside the impact region), 30% Motel In. Amounts spent by each visitor type were entered using a measure of 3 party nights per visit. Many participants indicated they normally traveled with others and split expenses, but this was excluded in the average daily amounts used.

A generic rural multiplier given by MGM2 was used to calculate secondary spending effects for the region. Multipliers capture the secondary effects (indirect and induced) of visitor spending on an impact region and represent the interdependency among sectors of a region's economy. Multipliers are determined by four very simple factors; 1) The overall size and economic diversity of the impact region's economy, 2) The geographic extent of the region and its role within the broader region, 3) The nature of the economic sectors under consideration, and 4) The year. Simply put, regions with limited economic development and size usually have smaller multipliers and larger regions with extensive economic development usually have larger.

MGM2 was designed to measure economic impacts of recreation for different national parks and areas in the United States. The rural multiplier option was applied here because of population size and it is assumed that leakages are quite high for smaller

rural areas. MGM2 uses smaller sales multipliers than those usually applied to tourism, which are most often between 1.6 and 2.0. This gives a more conservative estimate and avoids exaggeration. An assumption was made that the MGM2 multipliers, even though calculated from U.S. markets, would represent the potential secondary effects of spending in Mundaka relatively well. Without available input output models for Mundaka or the Bizkaia region these multipliers are the best estimate at the regions secondary effects from surf tourist spending.

OLS Regression analysis was used to find key descriptive information about the type of surf visitor to Mundaka. Ten independent trip and visitor characteristic variables were measured against one computed dependent variable, *Total Expenditure,* to find which, if any, of the independent variables most influenced total expenditures by surf visitors to the region. Due to the small sample size the adjusted R^2 and standardized β is reported.

Table 1. Variables used in Regression analysis

Independent Variables
1. Age
2. Sex
3. Annual Income
4. Education Level
5. Distance Traveled
6. Did you visit other locations
7. Annual trips taken to Mundaka
8. Days spent surfing in Mundaka
9. Number of travel partners
10. Did you split expenses
Dependent Variable
Total Expenditure: total fuel + total lodging + total lessons + total meals + total stuff

Results

For the economic impact analysis, an average visitor type was determined for this study. Average daily spending was estimated to be $120 per party night and direct and total effects are shown in Table 6 and Table 7 for the different levels of visitor participation.

Descriptive data interpretation, using the regression model, showed the average visitor is male, thirty years of age, had a university level education and earns an annual income of approximately forty thousand dollars (twenty-six thousand euros). The average stay is three nights, four days surfing, and most traveled with approximately three other people, split expenses and traveled to other destinations during their trip. The average distance traveled was approximately 1,500km with the longest distance being from New Zealand. When asked whether or not they would continue to visit Mundaka if the wave did not exist and/or if the Billabong Pro was no longer held there, the majority answered *no they would no longer visit if no wave existed* but *would continue to visit regardless of the contest.*

Table 2. Average surf visitor characteristics for Mundaka, Spain

Category	Average/Majority*
Age	30 years
Sex	Male
Education Level	University
Annual Income	26,5000 euros
Annual Trips to Mundaka	3
Days spent surfing	4
Travel partners	3
Times attended Billabong Pro	2
Distance Traveled	1530km
Did you visit other locations	Yes*
Was surfing primary purpose of trip	Yes*
Did you split expenses	Yes*
What items did you split expenses on	Combination of items*
Where did you stay	Camped/friend*
Where did you eat	Restaurant/café*
Did you buy fuel in Mundaka	Fairly even split
Did you know about the disappearance of the wave	Yes*
Did you visit while wave was degraded	No*
Have you attended the Billabong Pro	Fairly even split
Would you continue to visit if the wave was permanently gone	No*
Would you continue to visit if the Billabong Pro was not held in Mundaka	Yes*

*Indicates majority of responses

The regression analysis showed no significant independent variable (all *p-values* >.001) and 48% (adjusted R^2 = .479) of the model (changes in expenditures) was explained by the ten independent variables. Due to the small sample size the regression results may be over or under estimated, however, some interesting observations were obtained. Interestingly, negative relationships were found with the variables Annual Income (standardized β = -.144), Education Level (standardized β = -.046), Distance Traveled (standardized β = -.973), which leads to the assumption that as income and education level rises odds are strong that spending will fall. The negative relationship between Distance Traveled and Total Expenditures could be better explained through a travel cost analysis to see if higher levels of spending on travel are taking from spending done on site.

Positive relationships were found for Age (standardized β = .298), Visiting Other Locations (standardized β = .197), Days Spent Surfing (standardized β = 1.23). This suggests that as age, number days surfing, and likelihood of visiting other locations increases, the odds are that expenditures will also increase.

Table 3. Predicting the overall expenditures of surf visitors to Mundaka, Spain

	Dependent Variable: Total Expenditure			
Independent Variable	Unstandardized coefficient (B)	SE	Standardized coefficient (β) [b]	*p-value*
Constant	-215.78	153.235		.202
Age	4.21	3.47	.298	.264
Sex	130.85	73.31	.464	.117
Annual Income	.000	.001	-.144	.622
Education Level	-9.61	52.01	-.046	.859
Distance traveled	-.017	.006	-.973	.026
Did you visit other locations	90.27	105.98	.197	.423
Annual trips taken to Mundaka	-.761	4.21	-.035	.862
Days spent surfing in Mundaka	31.21	8.47	1.23	.008
Number of travel partners	32.56	14.18	.532	.055
Did you share expenses	-19.27	57.35	-.076	.747

[a] Variables captured in the Dependent Variable Total Expenditure = total lodging, total meals, total lessons, total stuff (equipment, apparel, accessories), total fuel
[b] Standardized Beta (β) is reported and should be considered over the unstandardized due to the small sample size.
R = .886; Adjusted R^2 = .479; F = 2.565; *p-value* = .112

The Economic Impact analysis conducted on spending data was extrapolated across four levels of visitation. The average spending per visitor per party night was $120 and visitation was broken into percentages of Non Local Day (35%), Camp In (35%), and Motel In (30%) users. Rural multipliers were used to calculate the secondary effects of spending and were the same for each level of visitation. Tables 5, 6, and 7

below show the total spending, direct effects, and total effects (direct + indirect) for each level of visitation. Daily spending was averaged and applied to sectors according to weighting. Expenditures that were not directly calculated per day were divided by a three night stay to find a daily value. Lessons were included in the overall daily expenditures for visitors but it should be mentioned that only one survey participant indicated they had taken lessons. Lessons were included to show the potential from this sector.

Table 4. Daily spending (in dollars) per sector and visitor type in Mundaka, Spain

	Visitor Type		
	Non-Local Day User	Motel In	Camping In
Category	$	$	$
Motel/Hotel		57.00	
Camping			29.00
Restaurant & bars	18.00	16.00	18.00
Groceries	7.00	5.00	7.00
Fuel	28.00	7.65	9.30
Lessons		53.00	
Clothing	10.00	10.00	23.00
Sporting goods	2.00	26.00	23.00
Accessories	8.00	8.00	6.00

The three tables below show the different economic impacts to the area from visitor spending. Table 5 shows the total annual spending by visitors at each visitation level before accounting for leakage and capture rate for the region. Basically it is the number of visitors times the average daily spending amount.

Table 6 shows the direct effects of this total spending on the region. The direct effects are found by calculating each sector's capture rate, or how much of the total spending is actually staying in the area and captured by the individual sectors such as motel, café, and retail. Some money spent at different sector "leaks" out of the regions economy to pay for goods manufactured outside the area and to owners of local businesses (such as fuel and motels) that reside outside the area. Once these "leakages" are accounted for we can see the actual direct effects of spending on the region.

Table 7 shows the total effects of spending on the region. The indirect effects, or the effects of second round spending, have been added to the direct effects to calculate the total effects. Second round expenditures are those made by local businesses to other local businesses to replace goods consumed by visitors. These numbers show the multiplier effect of visitor spending on the local economy.

Table 5. Total annual spending at each visitation level in Mundaka, Spain

Visitation Level	*Annual Direct Spending ($000)*
10 Thousand	$1,200
20 Thousand	$2,400
30 Thousand	$3,600
40 Thousand	$4,800

Table 6. Direct effects (Total spending minus economic leakage) of surf visitor spending in Mundaka, Spain

Direct Impacts	*Sales ($000)*	*Jobs*	*Personal Income ($000)*
10 Thousand	$854	20	$293
20 Thousand	$1,707	40	$585
30 Thousand	$ 2,561	60	$878
40 Thousand	$ 3,415	80	$1,170

Table 7. Total effects (Direct + Indirect effects) of surf visitor spending in Mundaka, Spain

Total Impacts (adding In-Direct Impacts)	*Sales ($000)*	*Jobs*	*Personal Income ($000)*
10 Thousand	$1,137	24	$386
20 Thousand	$2,274	48	$772
30 Thousand	$3,411	71	$1,158
40 Thousand	$4,548	95	$1,544

Multipliers used (year 2006)*: Direct Sales* 1.33*, Jobs* 1.19, *Personal Income* 1.32

Leakage of income from the area is reflected by the capture rate, or amount of income retained by each sector. Using rural multipliers in MGM2 assumes that the area is relatively secluded and therefore many items may not be manufactured within the study region. Items such as fuel, retail items, and food are assumed to be manufactured and purchased from outside sources, resulting in the leakage of income from the study region. Capture rates used in the MGM2 models are assumed to be reflective of the study area but may vary slightly depending on the specific input/output structure of the Mundaka economy.

Informal personal interviews were also conducted with local business owners and managers to gauge their opinions on the importance of the wave and surf tourism to the area. Those directly connected to the surf market, or those that could see direct impacts from surfing to their business were very concerned about the health of the wave and the

future of the surf market. Most estimated that 10% to 40% of their customers are surfers or surf spectators and that the potential loss of business due to the degradation of the wave and/or the loss of the contest could be as high as 50%. Most individuals felt the wave and the contest were very important to their business, local tourism, and the local economy. One respondent expressed the importance of surfing to Mundaka by stating, "It is a unique source of employment and fundamental to the economy and culture of Mundaka. We are known worldwide for the surf and if it were to disappear Mundaka would be no different from other places and have no attraction to surfers". Some individuals did not see surfing as the main source of tourism income but did admit surfing was important to the community. These individuals were mostly associated with businesses that did not rely on surf tourism specifically such as grocery stores and some eateries.

Discussion

Coastal development is often seen as the answer to many governments' economic development needs, especially in the areas of tourism and transit. Many of the world's governments view their coastlines as untapped resources, last bastions of economic possibilities; as a result, we have seen such projects as motel and resort development, ocean attractions, new airports, new roads, artificial reef construction, and real estate investment take place in ever more remote coastal destinations. While it is the intention of these development projects to encourage new economic markets and growth, existing markets like surfing can be overshadowed and even destroyed in the process.

Surfing, on a global scale, is a multibillion dollar industry which includes the manufacturing and retail of both soft and hard goods (clothing and equipment), media publications, rentals and instruction, camps, contests, and surf-parks. The act of surfing, however, does not have an explicit value attached and trying to measure the actual value of the activity can be difficult, as is trying to measure the impact it makes on coastal economies. Combining economic impacts with measurements of the participant's value of the activity is the only way to calculate a true estimate for value of surfing. Scattered research has been done trying to place a value on specific aspects of surfing such as the impact of a contest, an artificial surf reef, and even natural surf breaks themselves, but to date no overall framework has been developed to calculate the economic impact of surfing on coastal communities. This economic tool is necessary for surfing to be seen as a viable part of coastal economies and its impact considered in any development plans.

Mundaka is a perfect example of how a small rural coastal community can benefit from a well developed surf tourism market. The loss of Mundaka's prize wave could have serious economic impacts on the village as well as on the surf community. Results here show that the potential economic impact, or loss to the region, could range from one million to more than four million dollars in total effects. As Table 7 shows, at a visitation level of thirty-thousand the total economic impacts for expenditures is potentially more than three million dollars ($3,000,000) and the personal income effects at this level are potentially more than a million dollars ($1,000,000). Even at the lower visitation levels the economic impacts are quite large for this small rural area with an estimated population of nineteen-hundred people. At ten-thousand visitors the total economic impacts for expenditures are potentially more than one-million dollars ($1,000,000) and

the total personal income effects are close to four-hundred-thousand dollars ($400,000). These numbers and impacts are considered low-end estimates due to the conservative tourism multipliers used for this study. Also, access to a larger sample size that includes visitor to the Billabong Pro Contest may increase the results.

Personal interviews conducted with local businesses showed that the importance of surfing to the local economy is not fully realized and that only those individuals that benefit directly saw surfing and the wave as a fundamental part of the Mundaka tourism industry. Those businesses more involved with the local surf culture estimated a potential 50% loss in business if the wave was permanently degraded or the Billabong Pro contests was no longer held there. Overall, surfing was considered important to local tourism.

This study clearly shows that the economic impact of surf tourism at any visitation level on the local economy of Mundaka, Spain is quite substantial and should be considered in any local market, coastal development, and cultural issues. These results may be enough to engage the local government in a discussion about the value and economic importance of surfing to the town and earn the local surf market a stakeholder seat at any debate. Knowing the value of a potential or existing market can be a powerful tool in developing and maintaining the surf market and culture for the town.

To truly have an understanding of the value of this recreational resource to the region it is recommended that further research be done on the personal and cultural values of the wave and surfing to the town and visitors. In addition, it is recommended that an economic impact and possibly a travel cost study be run on the Billabong Pro contest to fully understand its impacts and value to the local area.

For surfing and surf tourism to really be considered an important tourism activity, increased research into the economic, personal and cultural value must be done. Better data needs to be gathered by the industry and governments, and surfing should be considered part of the growing eco and nature based tourism markets. Without further research into the true value of surfing, many important economic and cultural sites could be lost.

Literature Cited

Action Sports Retailer. www.asrbiz.com. January 2007ASR tradeshow statistics. www.asrbiz.com/asr/1554/show/show-statistics.jsp. 2007.

Bournemouth Council. 2006. Boscombe Surf Reef. www.bournmouth.gov.uk. 2007.

Buckley, R., 2002. *Surf Tourism and Sustainable Development in Indo-Pacific Islands: Recreational Capacity Management and Case Study*. Journal of Sustainable Tourism, v.10 No. 5. 2007.

Dolnicar, S. and Fluker, M., February 2003.*Behavioral Market SegmentsAmong Surf Tourists – Investigating Past Destination Choice*. Journal of Sport Tourism, v.8 Issue 4.2007.

Essential Economics PTY LTD. May 2002. *Tourism and the Surf Coast Shire: An Overview of Visitor Numbers, Spending and Employment.* Prepared for Surf Coast Tourism. 2007.

Hoover, W., February 2003. *Surf pros attract $7 million to North Shore each year.* Honolulu Advertiser. www.honoluluadvertiser.com. 2007.

International World Games Association. www.worldgames-iwga.org. 2007.

Jackson, L.A., et al., September 2002. *The Challenge of Combining Coastal Protection and Improved Surfing Amenity*. Prepared for Littoral 2002. 2007.

Lazarow, N. and Nelson, C., 2007. *The Value of Coastal Recreational Resources: A Case Study Approach to Examining the Value of Recreational Surfing to Specific Locales*. Prepared for the Coastal Zone Conference. 2007.

Mundaka Tourism Office. Turismo Mundaka. www.mundaka.org, 2007.

National Oceanic and Atmospheric Administration. May1997. *The Wave of the Future: Surfing and Coral Reef Conservation*. NOAA's Reporter's Coral Reef Tip Sheet. 2007.

Rafanelli, C., 2004. *Back Beach Improvement: Socio Economic Impact Study Artificial Surfing Reef*. 2007.

Stynes, D., *Economic Impacts of Tourism*. 2000. Michigan State University, Department of Economics. www.msu.edu. 2007.

Sunday Herald. August 2005. *Surf's not up: Competition cancelled after dredging destroys famous wave*. www.sundayherald.com. 2007.

Tilley, C., 2001. *A Valuation of the Pleasure Point Surf Zone in Santa Cruz, CA Using Travel Cost Modeling*. California State University, Monterey Bay. 2007.

Tourism Resource Consultants. March 2002. *Proposed Artificial Surf Reefs: Opunake, South Taranaki.* Economic and Social Impact Report. 2007.

Weight, D., June 2003. *Economics of Surf Reefs.* Prepared for the 3rd International Surfing Reef Symposium. 2007.

Appendix A

The Impact of Surfing on the Economy of Mundaka, Spain -
English Translation Survey

1. Do you wish to continue with the survey and are you at least 18 years old?

2. Do you live in Mundaka?

3. If yes, did you move to Mundaka because of the surfing or surf culture?

4. Did you buy property in Mundaka?

5. If Mundaka is not your home, what is your home city?

6. How far did you travel to Mundaka? (please specify in miles or kilometers)

7. Did you come to Mundaka to surf or to watch surfing?

8. If NO, why did you travel to Mundaka? (check all that apply)

9. Did you travel to other destinations on this trip?

10. Was surfing or surf watching the primary purpose of your entire trip?

11. If NO, what was the primary purpose of your trip?

12. If you said other, please tell us the primary purpose of your trip.

13. How often do you travel to Mundaka in a month?

14. How often do you travel to Mundaka in a year?

15. How long did you stay in Mundaka during this or a typical trip?

16. How many days did you spend surfing or watching surfing in Mundaka during this or a typical trip?

17. How many people did you travel with to Mundaka?

18. If you shared expenses with others during your visit to Mundaka, on which items did you share expenses? (check all that apply)

19. Where did you stay while in Mundaka? (check all that apply)

20. How much did you spend on lodging while in Mundaka per night?

21. Where did you eat during your visit to Mundaka? (check all that apply)

22. How many meals did you buy in a typical day at the following while in Mundaka? (check all that apply)

23. How much did you spend on food in a typical day at the following while in Mundaka?

24. How much did you spend on the following during your visit to Mundaka?

25. If you took surf lessons while in Mundaka, how much did you spend per lesson? (Assuming one lesson a day)

26. If you purchased fuel while in Mundaka, how much did you spend?

27. Excluding the amount spent in Mundaka, how much total was spent per day on your trip?

28. Did you know about the disappearance of the Mundaka wave?

29. Did you surf/visit Mundaka when the wave was “gone”?

30. How was your experience?

31. How many times have you attended the Billabong Pro contest?

32. Would you continue to surf/visit Mundaka if the wave was degraded?

33. Would you visit Mundaka if the Billabong Pro was NOT held there?

34. Are you a competitor in or part of the event staff at the Billabong Pro?

35. Personal Information

36. Gender (Male, Female)

37. Ethnicity

38. Education Level (Elementary, Secondary, Professional, University)

39. Annual Household Income?

Appendix B

Example of MGM2 Tables – Results for visitation level of 30 thousand

SUMMARY OF RESULTS

Park	**Mundaka, Spain**	
Region	**Basque Country, N. Spain**	
Application	**Econ Impact of Surfing**	
Spending data set	Parks-Medium	
Year	2006	
Multipliers	Rural	
Visits	30,000	Party-night
Average spending	$ 120.70	Per Party-night

Table 1. Spending and Visits by Segment

Segment	Visits in Party-night ,	Avg Spending ($)	Total Spending $000's	Pct of Spending
L-Day User	-	-	-	0%
NL-Day User	10,500	73.00	766.5	21%
Motel-In	9,000	182.65	1,643.9	45%
Camp-In	10,500	115.30	1,210.7	33%
Backcountry Campers	-	-	-	0%
Motel-Out	-	-	-	0%
Camp-Out	-	-	-	0%
VFR	-	-	-	0%
	-	-	-	0%
	-	-	-	0%
	-	-	-	0%
	-	-	-	0%
TOTAL	30,000	120.70	$ 3,621	100%

Table 2. Economic Impacts of Visitor Spending : Direct & Secondary Effects

Sector/Spending category	Direct Effects: Direct Sales $000's	Jobs	Personal Income $000's	Value Added $000's
Motel, hotel cabin or B&B	513	12	149	226
Camping fees	305	2	46	112
Restaurants & bars	522	14	164	229
Admissions & fees	477	12	164	268
Gambling	-	-	-	-
Other vehicle expenses	-	-	-	-
Local transportation	-	-	-	-
Retail Trade	613	19	313	488
Wholesale Trade	102	1	41	70
Local Production of goods	30	0	1	1
Total Direct Effects	2,561	60	878	1,394
Secondary Effects	850	11	280	520
Total Effects	$ 3,411	71	$ 1,158	$ 1,914
Multiplier	1.33	1.19	1.32	1.37

Table 3. Marginal Impacts per dollar of spending and per 1,000 party nights

	change per $1,000 of visitor spending	change per 1,000 party nights
Direct personal income	$ 242	$ 29,259
Direct value added	$ 385	$ 46,483
Direct jobs	0.017	2.004
Total personal income	$ 320	$ 38,606
Total value added	$ 529	$ 63,809
Total jobs	0.020	2.378

Table 3. Total spending by Visitors

($000's)

	SEGMENT												Total
	L-Day User	NL-Day User	Motel-In	Camp-In	Backcountry Campers	Motel-Out	Camp-Out	VFR	0	0	0	0	
Motel, hotel cabin or B&B	0	0	513	0	0	0	0	0	0	0	0	0	513
Camping fees	0	0	0	305	0	0	0	0	0	0	0	0	305
Restaurants & bars	0	189	144	189	0	0	0	0	0	0	0	0	522
Groceries, take-out food/drinks	0	74	45	74	0	0	0	0	0	0	0	0	192
Gas & oil	0	294	69	98	0	0	0	0	0	0	0	0	461
Other vehicle expenses	0	0	0	0	0	0	0	0	0	0	0	0	0
Local transportation	0	0	0	0	0	0	0	0	0	0	0	0	0
Admissions & fees	0	0	477	0	0	0	0	0	0	0	0	0	477
Clothing	0	105	90	242	0	0	0	0	0	0	0	0	437
Sporting goods	0	21	234	242	0	0	0	0	0	0	0	0	497
Gambling	0	0	0	0	0	0	0	0	0	0	0	0	0
Souvenirs and other expenses	0	84	72	63	0	0	0	0	0	0	0	0	219
Total	0	767	1,644	1,211	0	0	0	0	0	0	0	0	3,621