Sink it: But who will come?
Economic Value of Artificial Reef Tourism and Who Benefits

Vikki Schaffer, Meredith Lawley, University of the Sunshine Coast

Abstract

Artificial reefs are of increasing importance to the dive tourism industry worldwide. However, little research has investigated the economic value of artificial reefs in Australia specifically how much divers spend and who benefits from this expenditure. Using the ex-HMAS Brisbane Conservation Park as the context, 342 divers were surveyed over six months with results indicating divers were predominantly male, often travelling alone and spending on a range of goods and services throughout their stay. These results highlight significant opportunities for increasing the economic value of the Brisbane through more targeted marketing and co-operative relationships between various businesses.

Introduction

Numerous artificial reefs have been created around the world to enhance recreational diving and fishing, to increase commercial fisheries and for coastline stabilisation. In Australia, dive tourism sites have been developed using ex-naval vessels. In 2005, much excitement preceded the sinking of HMAS Brisbane off Queensland. Anticipation is mounting once more as Victoria prepares to sink HMAS Canberra in the next eight to 12 months. Economic data from several international sites suggest artificial reefs generate economic benefits and represent a significant economic opportunity that should not be underestimated (Dowling and Nichol, 2001; Pendleton, 2005; Rowe, 2006). However, limited comparable data on the economic benefits of artificial reefs is available in the Australian context where diver numbers are significantly lower. Similarly, limited updated, accurate, direct expenditure data and clarification of who actually benefits is available. Hence Australian governments, the dive industry and host communities must make the decision to sink or not to sink using international, estimated or outdated data. Research adding to the body of knowledge about divers and their spending behaviour is crucial to the marketing, promotion and sustainable future for these attractions (Horner and Swarbrooke, 2005).

Other issues relating to divers and their expenditure exist. Australian artificial reefs are exclusive use attractions. The assumption is that economic benefits are experienced only by those associated with diving and therefore the onus for marketing and promotion should be with the dive industry. Further, expenditure data is required by managing agents and dive groups to justify funding for the acquisition, development, management and maintenance of artificial reefs. Therefore, the purpose of this research is to address the issue of who uses tourist oriented artificial reefs and do the dive operators alone benefit from diver expenditure by developing a profile of current artificial reef users that identifies the origin and demographic data, determines total estimated expenditure per visit/per diver and expenditure categories. This was done using the ex-HMAS Brisbane Conservation Park.

Background

An artificial reef is “one or more objects of natural or human origin deployed purposefully on the seafloor to influence physical, biological or socio-economic processes related to living marine resources” (Seaman and Jensen, 2000, p.5). The artificial reef in this research has
been developed to influence the socio-economic processes. Studies in the United States demonstrate the income earned from scuba divers visiting artificial reefs to be in the millions of dollars annually (Pendleton, 2005). Enthusiasm for the creation of artificial reefs is high, both in Australia and New Zealand. HMAS Swan was sunk off Western Australia in 1997. Over the following 18 months, the economic impact was estimated at $US1.39 million (Dowling and Nichol, 2001). The economic value of the ships purposefully sunk off Tutukaka, New Zealand was estimated at $NZ20 million in 2002 (Sink F69 Charitable Trust, 2004).

The HMAS Brisbane was gifted to Queensland by the Australian Federal Government. The Queensland government sponsored the vessel as a regional economic development project with particular emphasis on the Sunshine Coast dive tourism market. In 2005, sinking the Brisbane nine kilometres off the Sunshine Coast created the ex-HMAS Brisbane Conservation Park. The objectives include providing a premier (world class) dive site and the enhancement of Sunshine Coast dive tourism (QPWS, 2008). As 216,250 visitors participated in scuba diving activities in south east Queensland during 2005, effective strategic marketing could increase visitor yield (Tourism Queensland, 2005).

This research is part of a larger project that will use the Value Framework (Schaffer, Lawley and Foster, 2007) developed to assess the holistic value (economic, social and environmental values) of protected areas. The Conservation Park is a publicly owned, non-extraction site, for use by qualified scuba divers using private vessels or one of three authorised dive operators. All divers must purchase a permit from the local government authority for A$20.00. Between August 2005 and June 2007, 9,386 divers visited the Brisbane with the authorised dive operators generating over A$187,700 from permits. Furthermore, between August 2005 and May 2008, 1855 divers used the public mooring creating expenditure of over A$37,000 from permits (QPWS, 2008).

Many purpose built, privately owned attractions are specifically designed to attract tourists (Horner and Swarbrooke, 2005). A Canadian study found 63 percent of diving on artificial reefs is done by local residents (Enermark, 2001). Research on the HMAS Swan states “it is used extensively as a drawcard for international and interstate tourists to Western Australia”, but the results indicate the origin of divers is mostly domestic (81%) (Dowling and Nichol, 2001, p.228). Similarly, as a world class dive destination, international and interstate divers were key markets for the HMAS Brisbane. Understanding the origin of the target market is vital to ensure dollar value to advertising and promotional efforts.

There are more than 35,000 Australians over the age of 18 years participating in scuba diving (ABS, 2000). The average Australian scuba divers are male, aged between 25 and 34 years, who reside in Sydney or Brisbane and have never been married (ABS, 2000). Similar to other organised sports in Australia, more men than women scuba dive with 65.4 percent males and 34.6 percent females. By developing demographic profiles of artificial reef users marketing strategies can been developed and implemented with greater certainty (Wedel and Kamakura, 2000).

The main objective for Australian artificial reefs developed by sinking ex-naval ships including HMAS Brisbane is to support and enhance tourism. Managing agents, Queensland Parks and Wildlife, specifically state a major objective is to enhance dive tourism (QPWS, 2008). In order to determine what contribution is made, diver expenditure needs to be calculated. Dive operators are often considered to be the key recipients of resulting economic
benefits. Research suggests that only 38 percent of dive tourist expenditure goes to the dive industry (Enermark, 2001). This is important as knowing all those who potentially benefit can assist in determining how much expenditure stays in the region. Dive tourism, unlike some other service industries, directs much of the expenditure by tourists towards paying staff, so there is less leakage (Leeworthy et al., 2001). Research in Australia determining the economic contribution and which tourism sectors benefit from artificial reefs is limited.

Method

Data was collected from two of the three authorised dive operators during the first six months of an on-going, twelve month study. Three hundred and forty-two questionnaires were completed by divers. A short, three part questionnaire was developed for self-completion. Part one collected demographic information, part two is focused on the dive experience and part three requested details of spending within various categories such as holiday package, accommodation, travel, food and beverage, equipment, attractions and other.

Results

Diver profile
The following descriptive statistics develop a diver profile for divers visiting the Conservation Park over a six month period. Two hundred and eighty-five of the 342 participating divers were tourists (divers who do not reside within the Sunshine Coast Regional Council); 77 percent were male and 57 percent were aged between 32-50 years. Fifty-two percent of tourists came from the Brisbane metropolitan area, 35 percent from interstate and 13 percent from overseas. Furthermore, 44 percent of divers were day trippers while 43 percent stayed within the Sunshine Coast region between one and seven nights. The remaining 57 divers lived within the Sunshine Coast region. Of these, 61 percent lived within 20 kilometres of Mooloolaba (the location of the authorised dive operators). Fifty-nine percent were aged between 32-50 years and 81 percent were male.

When tourists were asked their main reason for visiting the Sunshine Coast, 74 percent said to dive the Brisbane. Of the remaining 26 percent, over half were on holidays and a third visited family and friends. Sixty-one percent of divers travelled to the region alone, while accompanied divers brought an additional 139 adults and 38 children to the region.

How much is spent
One hundred and seventy-three divers purchased permits and used the public mooring during March, April and May 2008 generating approximately A$3,460 (QPWS, 2008). The advertised average double dive with an authorised operator costs between A$136 and A$200. Eighty-two percent of divers paid between A$120 and A$239. Tourist divers spent approximately A$278,748 while visiting the Sunshine Coast region during the six months of this study. Average estimated expenditure by those divers staying in the region for at least one night was A$894 per diver. Day tripper estimates indicate average expenditure of A$366 per diver. Of the 57 local divers, 84 percent spent between A$51-250 for two dives with an authorised dive operator.

Who benefits
On assessing the various expenditure categories, it is estimated that of the total expenditure by tourists staying one night or more on the Sunshine Coast, twenty percent was for the dive experience. This expenditure is the estimated cost of the actual dive experience paid to the
dive operators. This was calculated and deducted from the estimated total expenditure. The remainder (80%) was spent on holiday packages, travel (transport), accommodation, food and beverage, attractions, equipment and other items such as merchandise (Table 1). Some of this expenditure would have been purchased from the dive operator (t-shirts, drinks, equipment). In contrast, the expenditure made by day trippers and locals is directed towards the dive operators with 25 percent being spent within the additional categories.

Table 1: Tourist expenditure by category

<table>
<thead>
<tr>
<th>Expenditure Category</th>
<th>Holiday Pckge</th>
<th>Travel</th>
<th>Accommod</th>
<th>Food &amp; Bev</th>
<th>Attract</th>
<th>Equip</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1-50</td>
<td>5%</td>
<td>29%</td>
<td>19%</td>
<td>31%</td>
<td>22%</td>
<td>43%</td>
<td>46%</td>
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<tr>
<td>51-150</td>
<td>9%</td>
<td>24%</td>
<td>23%</td>
<td>25%</td>
<td>21%</td>
<td>28%</td>
<td>37%</td>
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<tr>
<td>151-250</td>
<td>16%</td>
<td>11%</td>
<td>11%</td>
<td>15%</td>
<td>23%</td>
<td>19%</td>
<td>1%</td>
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<tr>
<td>251-400</td>
<td>11%</td>
<td>12%</td>
<td>11%</td>
<td>14%</td>
<td>16%</td>
<td>5%</td>
<td>4%</td>
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<tr>
<td>401-550</td>
<td>13%</td>
<td>5%</td>
<td>11%</td>
<td>5%</td>
<td>6%</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>551-700</td>
<td>9%</td>
<td>2%</td>
<td>5%</td>
<td>5%</td>
<td>3%</td>
<td>0%</td>
<td>2%</td>
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<tr>
<td>701-850</td>
<td>2%</td>
<td>2%</td>
<td>5%</td>
<td>2%</td>
<td>2%</td>
<td>1%</td>
<td>1%</td>
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<tr>
<td>851-1000</td>
<td>9%</td>
<td>5%</td>
<td>2%</td>
<td>0%</td>
<td>4%</td>
<td>0%</td>
<td>0%</td>
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<tr>
<td>1001+</td>
<td>24%</td>
<td>6%</td>
<td>11%</td>
<td>3%</td>
<td>0%</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>No. of Responses</td>
<td>97</td>
<td>226</td>
<td>114</td>
<td>233</td>
<td>112</td>
<td>150</td>
<td>127</td>
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<tr>
<td>% of total</td>
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<td>79%</td>
<td>40%</td>
<td>82%</td>
<td>39%</td>
<td>53%</td>
<td>45%</td>
</tr>
</tbody>
</table>

Tourists spent money in all categories. Travel and food and beverage were the categories most divers spent money on, with 76 percent spending between A$1-400 on travel and 85 percent spent between A$1-400 on food and beverage. The majority of the 150 tourists who purchased equipment, spent between A$1-250 (90%). Sixty-one tourists spent money on attractions with 82 percent spending between A$1-400. Eighty-three percent spent between A$1-150 on other items during their Sunshine Coast visit (Table 1). Finally, of the 97 tourists who purchased holiday packages, 24 percent spent over A$1000 and 11 percent of those purchasing accommodation spent over A$1000.

Local divers spent money within four categories. Thirty-nine percent of local divers spent between A$1-50 on food and beverage while 44 percent was spent on transport. Thirty-five percent of locals spent between A$1-150 on equipment. Local divers spent no more than A$250 on additional purchases.

Conclusion and Implications

Identifying the diver profile including the origin destination will aid in effectively directing marketing efforts and in creating effective strategies for attracting new markets. Many purpose built, privately owned attractions are specifically designed to attract tourists. Publicly owned attractions are generally established to increase the recreational options for local residents (Horner and Swarbrooke, 2005). Interestingly, the ex-HMAS Brisbane Conservation Park has characteristics of both. It is publicly owned and managed but like purpose built phenomena such as theme parks the Conservation Park was specifically established to increase tourism. Horner and Swarbrooke (2005) state most regional attractions are marketed locally. This raises the issue of whether the Conservation Park is being effectively marketed. Comments by New Zealand travel advisors suggest local tourism businesses should value add by emphasising the existence and availability of this unique attraction to international markets (Discover Maroochy, 2007).
The connection between the diver and the attraction needs to be recognised as 74 percent of divers said they came specifically to dive the Brisbane suggesting this is expenditure that would not otherwise be realised. O’Neill et al. (2000) highlight the confusion regarding the dive tourism product and the requirements of the dive tourist. This research confirms that divers usually travel as individuals and create economic benefits for the host destination. Economic benefits are experienced by various tourism providers (accommodation, food and beverage etc) suggesting these aspects are required by dive tourists. This information highlights the other aspects that could be used to enhance the dive product and satisfy this unique group.

For an artificial reef to fulfil its objective of developing and maximising dive tourism, the whole community must realise the potential contribution and benefits it can create (Enermark, 2001). Accommodation, food outlets and other attractions all benefit from these tourists but may not realise to what extent. Their support in researching, marketing and promoting the attraction is vital. Enermark (2001) found that dive operators gain about forty percent of the total tourism expenditure related to taking divers to the artificial reef. This research found the economic benefit to the operators to be less. Expenditure by visiting divers benefits dive operators but they are not the main beneficiaries. Knowing this, more should be done to maximise the economic potential, particularly to local businesses. Tourism bodies could take the lead in assisting local businesses to understand the significance the resource has to the region and to encourage co-operative marketing efforts focused on the Conservation Park.

As many small businesses have limited budgets, partnerships and co-operative relationships can offer mutual benefits (Thomas, 2008). Creating widespread appreciation of the business environment related to the Conservation Park may facilitate cooperative behaviour between other attractions and regional, national and international tourism providers (Pearce and Schott, 2005). Dive operators focus on this niche market and the dive experience. However, by strategically developing partnerships and co-operative relationships, visitor yield could be dramatically increased. By broadening the focus to include additional land or sea-based activities, adventure and/or learning opportunities appropriate to the defined dive tourist, per diver expenditure could be increased (Pearce and Schott, 2005). Furthermore, less than one third of divers were accompanied by family and friends. By effectively packaging tours, accommodation and other suitable activities, more of this male dominated market could be enticed to bring partners, family and friends thus significantly increasing overall expenditure. Packages could include entry to similarly themed attractions (Underwater World) or more diverse offerings (food and wine or shopping tours), various accommodation and restaurant options.

A strategic promotional approach to artificial reefs will not only increase regional dive tourism but general tourism as well. Now that it is understood who is coming, where they are coming from and who benefits, developing marketing relationships that focus on attracting both the international diver market and accompanying non-diver market should be a priority. Combining this with further developing the domestic diver and non-diver markets will greatly enhance the value of the artificial reef and the overall desirability of the region. In addition, this information will assist national and international destinations to make more informed decisions regarding the continued investment in the acquisition, preparation, maintenance and sustainability of these purpose built attractions.
References


