



Multi-Purpose Reefs and Economic Growth

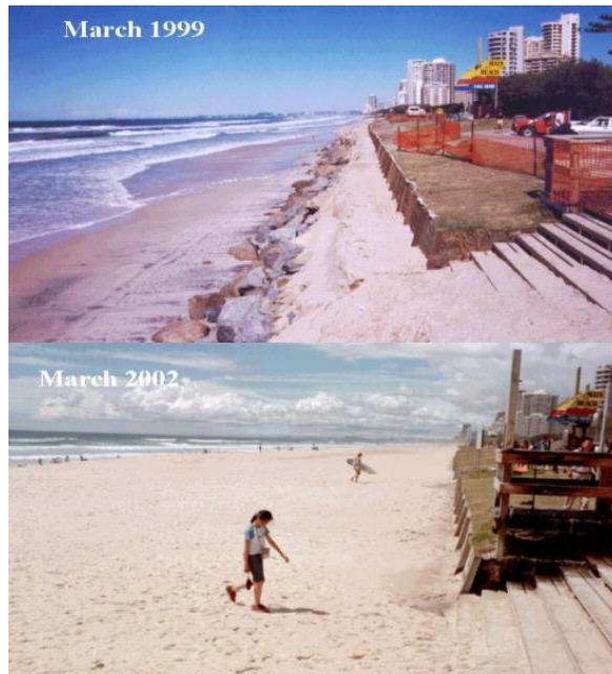
Amenity benefits associated with multi-purpose reefs are becoming increasingly more apparent, especially because of the economic spin-offs that are associated with them. While it is rare that any two reef locations will have the same socio-economic impacts, past studies give an indication of the likely socio-economic consequences of ASR construction. International studies have shown that multi-purpose reefs return at least \$20, due to increased tourism and beach protection, for every dollar spent on the reef. In some locations that have revenue based around beach activity, the benefit can be very large, like the 500:1 benefit to cost ratio gained by creating wider beaches in Miami ("The Economic Value of Beaches - A 2002 Update"; Houston, 2002).



Miami Beach before (left) and after (right) the beach was widened in the mid-1970's (Houston, 2002)

Studies into the economic benefits of artificial reefs are now becoming increasingly common. Indeed, a recent socio-economic study of reefs in southeast Florida demonstrates the huge economic contribution of reef related expenditures (boating, fishing, SCUBA diving, snorkelling) that artificial reefs make to the region (Johns *et al.*, 2001) – this area of the US is a world-leader in habitat enhancement.

Incorporating wide beaches and quality surfing conditions into artificial reefs adds more to this equation. For example, events associated with the beach and surf can be of considerable economic importance. A festival at Noosa in Australia to celebrate the restoration of the beach attracted an estimated 20-30,000 visitors over the weekend and therefore at least A\$1M into the economy if visitor spending was only A\$50/visitor. Surfing competitions are now heavily promoted and publicized - for instance, a single international level surfing event (short board or longboard or bodyboard, etc) can bring hundreds of thousands of dollars into the local economy. On the Gold Coast, it is estimated that a single high profile surfing event is worth AU\$2.2M (Raybould and Mules, 1998). In Cornwall, England, it is estimated that direct spend by surfers in the local economy is in the region of £21M each year (Ove Arup & Partners International, 2001). A recent 'surfnomics' study of the legendary big-wave break, Maverick's, in Half Moon Bay, California, concludes nearly US\$24M per year in economic value at the fabled break due to the 420,000 visitors per year (STW, 2009)



Before (top) and after (bottom) the construction of the Narrowneck multi-purpose reef on the Gold Coast, Australia.

Other studies of benefits associated with the construction of multi-purpose reefs at various locations around the world have all shown significant positive benefit/cost ratios. The lowest being approximately 20:1 for a small reef in Bournemouth, UK (Black *et al.*, 2000), to over 60:1 for the Narrowneck reef on the Gold Coast, Australia (Raybould and Mules, 1998) – since construction of the Narrowneck reef, the Benefit/cost ratio has since been re-evaluated at 70:1 (McGrath, 2002). A recent report for a multi-purpose reef in Wellington, New Zealand, estimated a “very conservative benefit:cost ratio of 24:1” (Baily and Lyons, 2003). Rafanelli (2004) undertook a socio-economic study on the impacts of a multi-purpose reef proposed for Back Beach in Geraldton, West Australia, and concluded that it would generate AU\$1.5M of spending by tourists per annum. Surfing is now the number one sport and recreation in West Australia, and is growing at an incredible rate nation-wide (see below) and around the world. Bournemouth Borough Council estimated that media exposure due to the planning and studies for the surfing reef at Boscombe (construction due in 2006) was worth at least £10M if the Council had paid for advertisements. Economic benefits from artificial reefs and beach enhancement are summarized below.

Summary table of the economic benefits that multi-purpose reefs can provide.

Site	Cost:Benefit Ratio	Annual Spend/Value	Surfing Competitions	Reference
*Gold Coast, Australia	1:70	-	AU\$2.2M	Raybould and Mules, 1998; McGrath, 2002
†Mount Maunganui, New Zealand	-	NZ\$0.5M	-	Gough, 1998
‡Cornwall, England	-	£21M	-	Ove Arup & Partners International, 2001
‡Noosa Beach, Australia	-	-	AU\$1M	Jackson <i>et al.</i> , 1999
‡Florida, USA	-	US\$84.63M	-	Johns <i>et al.</i> , 2001
†Lyall Bay, New Zealand	1:24	-	-	Baily and Lyons, 2003
†Bournemouth, UK	1:20	-	-	Black <i>et al.</i> , 2000
**Miami Beach, USA	1:500	-	-	Houston, 2002
§Californian's Beaches	-	US\$5.5B	-	King <i>et al.</i> , 2001
‡Geraldton, West Australia	-	AU\$1.5M	-	Rafanelli, 2004
Mavericks, California	-	US\$24M	-	STW, 2009

*Based on the 'beach' amenity and associated businesses

†Based on additional income from attracting surfers

‡Based on revenue from all sources associated with surfing (e.g. hospitality, boat sales, equipment rental, etc.)

**This figure relates to the economic benefits of beach nourishment in Miami (i.e. is not associated with artificial reefs, although they can be used to greatly increase the success of nourishment projects).

§This is not an economic impact estimate of artificial reefs, but rather an estimate of the loss of GNP if beaches are not maintained in California, i.e. the present economic value of beaches in California.

Snapshot of Surfing growth in Australia / Sweeney Report



Surfing Australia

A snapshot of Surfing growth in Australia

Surfersvillage Global Surf News, 3 August, 2005 : - - The Sweeney Sports Report is regarded as the industry standard when reporting on Australia's sporting interests. For information about the history of the Sweeney Report and its methodology, visit www.sweeneyresearch.com.au/sports.asp.

The information outlined in this document is taken from the 18th Annual Sweeney Sports Report on Summer Sports participation. It also includes comparisons with previous and current data. This data highlights that surfing has strengthened its development, and is perceived as fashionable with male and females, all age

groups and across the different geographical locations.

Sporting Interests

29% of those surveyed were interested in surfing as either participants, spectators or through information gathered from newspaper, radio or television. This reinforces the unmistakable high interest Australians have with surfing.

Sporting Participation

2.8 million people took to the waves during the period of this survey. This highlights an increase from the previous survey period. The figure is based on a census from the Australian Bureau of Statistics stating that the Australian population is over 20 million. The Sweeny Report reports 14% of those surveyed actively participated in surfing, representing a 1% increase.

Female Participation Growth

Women's surfing has been identified as a core growth market displaying 100% growth in the last decade. The 1996 report estimated that 5% of surfers were female compared to the present figure of 10%.

Sports Attendance

7% of the Australian population attends surfing events. This highlights a 2% increase from last year, and places it above such sports as Golf, Hockey, Iron Man, Beach Volleyball and Gymnastics.

TV Viewing

19% of those surveyed watch surfing on TV. This showed a preference to watch surfing over such sports as fishing, netball, triathlons and surf life saving.

Read in Press

25% more people were reading about surfing in the previous 12 months in print media. While this is a positive figure, it is only an increase from 3% to 4% in the context of the report.

Interest by Capital City

Perth topped the interest levels in surfing with 37%, Brisbane 35%, Canberra 33%, Hobart 29%, Sydney 27%, Melbourne 26% and Adelaide 22%. A key factor arising from these statistics is that surfing has a high interest in cities not geographically positioned near the 'waves'. Brisbane city was the most likely to participate in surfing, and read about surfing in the press. Canberra was the most likely to watch surfing on the TV while Perth was the most likely city to attend a surfing event.

National trends and Conclusion

The national trends identified in the 18th, 2004/2005 Sweeny report show that the surfing industry is consolidating its position of one of Australia's "left of centre" sports. In the areas of participation, attendance and TV viewing trends, surfing is witnessing trends that are as high as they have ever been. There has been a steady rise in the proportion of urban Australians traveling to the coast with a surfboard and attendance of surfing events has also reached its highest level since the report started.

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