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Tourists getting close to whales, is it what whale-watching is all about?

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Abstract

To date research on whale-watching has tended to focus on impacts on the whales. Management approaches often rely on minimum approach distances. An associated assumption is that whale-watchers wish to get close to whales. Studies of motivation for other recreational activities show that humans seldom undertake recreational activities for simplistic reasons. Thus, this study was developed to determine the influences over whale-watchers' enjoyment, more specifically, to assess the importance of the geographical proximity of whales. Twelve whale-watch cruises at Tangalooma, Australia were surveyed and 704 questionnaires analysed. Results showed the number of whales and their behaviour, numbers of fellow passengers, cruise duration, boat construction and sea-sickness influenced satisfaction. The geographical proximity of the whales was not a major influence. Many whale-watchers (35 per cent) returned satisfied even when no whales were sighted. Whale-watching is not simply about getting close to whales, many other variables are important. A better understanding of the watchers, as well as the whales, will assist in the sustainable management of this growing tourism industry.

Keywords: Ecotourism; Whale-watching; Satisfaction; Tangalooma

1. Introduction

The rapid growth of whale-watching as a tourism activity over the past decade has been widely reported in the literature (for example, Baker, Perry & Vequist, 1988; Beach & Weinrich, 1989; Baxter, 1993; Duffus & Dearden, 1993; Anderson, Forbes and Pirzl, 1995; International Fund for Animal Welfare, 1995; Duffus, 1996; Orams, 1997). Whale-watching now takes place in every continent and from countries as diverse as Argentina, South Africa, Japan, Norway, New Zealand and Tonga. Hoyt (1995) estimated that the economic impact derived from whale-watching activities in 1995 totaled more than US$550 million. Hoyt's review of the industry worldwide illustrates its spectacular growth. He claims that in 1983 whale-watching occurred in only 12 countries, however, by 1995 he found that it had expanded to 295 communities and 65 countries (Hoyt, 1996).

The International Whaling Commission (IWC), the organisation charged with management of whale stocks worldwide, first considered whale-watching as a "use" of whales in 1983 when a report on the non-consumptive utilisation of cetacean resources was tabled (Constantine, 1998). A decade later, in 1993, the IWC formally recognised whale-watching as a legitimate tourism industry which provided for the sustainable use of these animals (International Fund for Animal Welfare, 1995).

Many view whale-watching as a viable, sustainable and more desirable "use" of whales than the harvesting of whales for products (International Fund for Animal Welfare, 1995). However, there is widespread concern about the impacts that whale-watching activities have on whales (Beach & Weinrich, 1989; Blane, 1990; Forestell & Kaufman, 1990; Phillips & Baird, 1993; Jeffery, 1993; International Fund for Animal Welfare, 1995). Many of the species of whales that are popular for whale-watching are classified as endangered and the potential for disturbance of their natural behavioural patterns has attracted much research effort in recent times. Examples include Watkins (1986), Baker and Herman (1989), Briggs (1991), Gordon, Leaper, Hartley and Chappell (1992), Corkeron (1995); DeNardo (1996). Some of this research has suggested that close approach by tourist boats for whale-watching has altered the behaviour of the whales and it has been suggested that it could be detrimental to the whales. One view is that the "use" of whales as a tourist attraction can be seen as another form of harmful exploitation of these marine mammals (Orams, 1999).

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The research effort directed at understanding whale-watching has focussed almost entirely on the behaviour of the whales. In particular, scientists have attempted to understand the influence of the close approach of boats and aircraft (Constantine, 1998). Related work has focussed on the impact of noise on cetaceans (Norris, 1994; Richardson, Greene, Malme & Thomson, 1995; Reeves, 1992).

As a result of research like this and concerns about the influence of boats, divers, swimmers and aircraft close to whales many nations have adopted a regulatory approach to managing this industry (Carlson, 1996). Typical regulations restrict the number of vessels in close proximity to whales and specify minimum approach distances. For example, the state of Queensland, Australia permits a maximum of three vessels within 300 m of any whale and has a minimum approach distance of 100 m (Queensland Department of Environment and Heritage, 1994). Whilst management of whale-watching varies considerably around the world "of the countries that are actively managing their marine mammal-based tourism industries, the majority are using regulations to try and control approach distances…" (Constantine, 1998, p. 41). The fundamental assumption that forms the basis of these kinds of management approaches is that it is the close proximity of vessels that provides the greatest risk of disturbance to whales. This may be a reasonable assumption, however, it should be noted that globally there are few restrictions on commercial shipping and the tens of thousands of ferries, fishing and sailing vessels that travel the world's seas and oceans. Thus, in a few isolated areas restrictions are placed on cetacean based tourist activities, however, few restrictions exist elsewhere. In addition, some research has suggested that the type of vessel, the noise it creates and the way it is operated are far more important variables with regard to disturbance of whales than the geographical proximity of the vessels (Baker & Herman, 1989; Bauer, Mobley & Herman, 1993; Gordon et al., 1992; Norris, 1994; Blane & Jaakson, 1995; DeNardo, 1996). Nevertheless, in managing the cetacean-based tourism industry, minimum approach distances and restrictions on numbers of vessels predominate. This is likely the result of a perception that such regulations are easier to enforce and also that separation between the animal and the source of potential disturbance is important.

Despite the increasing amount of work directed at understanding the impacts of whale-watching on whales, little effort has been directed at the impact of whale-watching on the watchers themselves. This is surprising given that humans and their activities are the source of potential problems for whales. It would seem logical, therefore, that an understanding of what motivates humans to spend considerable effort and money to "experience" these animals would be important in developing management strategies for the industry. When the literature is examined few significant studies on the characteristics, motivations, attitudes and behaviour of whale watchers have been conducted. The basic assumption expressed, presumably as a result of the rapid growth of the industry, is that people are fascinated by the animals and want to get close to them. Marketing approaches for commercial whale-watching operations often focus on the attraction of getting "up close" to the whales. For example, Whale Watch Kaikoura in New Zealand, advertises "come face to face with this magnificent creature in its natural environment". Similar phrases and images predominate in the advertising of this industry. Thus, from a marketing perspective, the assumption is that getting close to the whales is what attracts customers to whale-watching businesses.

On the surface this assumption appears self-evident. An industry has developed around whales because people find then attractive and want to experience them in their natural environment — getting close to an icon of nature, the whale, is what whale-watching is all about for the tourist. However, this assumption is simplistic, it ignores the complexity of human nature and ignores the volume of literature pertaining to humans' motivation for other recreational activities.

Researchers and theorists have for decades struggled to understand why humans do what they do. From the classical model provided by Maslow's hierarchy of human needs (Maslow, 1968) to Fishbein & Ajzen's (1975) study of attitude formulation, motivation and behaviour, social scientists have shown that human motivation is dynamic, complex and seldom easily understood. This alone should challenge any assumption that states humans do something for simplistic reasons.

Furthermore, a significant amount of work has been conducted on human's motivation for recreational activities. This has revealed a similarly complex set of interrelated variables that lie behind human action. For example, Kenchington (1990, p. 26) states:

> The objectives of recreational fishing are complex but it is clear from several studies that the experience of attempting to catch fish, the pleasures of boating, and escape from work and domestic routine are generally more important than the reality of catching large amounts of fish.

Thus, catching fish does not adequately explain what the recreational activity of fishing is about! Similarly, studies of other recreational pastimes reveal that the games, sports and activities we choose to undertake meet a wide variety of human needs (Iso-Ahola, 1989). These needs include such things as the opportunity to challenge skills, to enhance self-esteem, to create opportunities to socialise with others, to relax, to produce stimulation and excitement and so on (Ewert, 1989).

Research conducted in the tourism field shows that the motivation to travel is also complex (Mansfield, 1992).

There is no widely accepted model that explains why humans choose particular activities for leisure or travel. Thus, we have a situation where, in whale-watching, management and operation of the industry appears to be based, at least in part, on an assumption that getting close to whales is what tourists want and that tourist boats close to whales is problematic for the whales. However, there is little empirical work that has tested the tourist aspect of this assumption. Furthermore, work in other areas on human motivation for both recreation and tourism reveals that motivation' for human action is rarely as simple as "getting close to whales".

As a consequence a study was developed to test whale-watchers' motivations. In particular, the influence of the whales' geographical proximity and the influence of their behaviour on the enjoyment of tourists were tested. The following questions formed the basis for this research.

1. What variables are important influences over whale-watchers' enjoyment and satisfaction? More specifically;
2. How important is the geographical proximity of the whales?
3. How does the behaviour of the whales influence whale-watchers' enjoyment and satisfaction?

1.1. Study site

Tangalooma Island Resort is located on the western side of Moreton Island, Queensland, Australia. From 1952 to 1962 Tangalooma was the largest whaling station in the southern hemisphere reponsible for harvesting 6277 humpback whales (*Megaptera novaeangliae*) (Orams & Forestell, 1995). It is now a tourist resort that offers whale watch cruises approximately three times each week. These cruises are conducted under a permit issued by the Queensland Department of Environment and Heritage and are controlled by the state regulations governing commercial whale watching operations in Queensland waters (Queensland Department of Environment and Heritage, 1994). The most significant of these regulations restrict vessels from approaching whales closer than 100 m (300 m for a cow–calf pair). They also prohibit vessels from crossing directly in front of the whales travel path and require that no more than three whale-watch vessels are within 300 m of any whale.

The whales targeted for the Tangalooma cruises are humpbacks. These slow moving baleen cetaceans form part of the so-called "Group V" population that migrate up the east coast of Australia each austral winter from their feeding grounds in the Southern Ocean to their breeding grounds in the warm tropical waters of the Great Barrier Reef and beyond (Kaufman, Lagerquist, Forestell & Osmond, 1993). This same population forms the basis for whale-watching at other east-coast Australian locations such as Hervey Bay, Bundaburg and Byron Bay.

The humpbacks which migrate up the east-coast of Australia tend to swim close to the coast, usually within 1–2 km and, as a result, they are relatively easy to find for whale-watching purposes. The location used by the Tangalooma whale watch cruises is the area immediately adjacent to Cape Moreton — the north-eastern tip of Moreton Island (see Fig. 1). The vessel utilised on whale-watches is the 20 m aluminium catamaran "M.V. Tangalooma Flyer". It has a cruising speed of 21 knots and a passenger capacity for its whale-watching cruises of 110 people. Whale-watch passengers are collected from the mainland at Pinkenba, close to the city of Brisbane, and also from the resort on Moreton Island. The trip out to Cape Moreton from the resort commences at around 11.45 a.m. and usually returns by 3.00 p.m.

The vessel provides an elevated platform for viewing the whales and is crewed by four persons, the skipper, a mate, a host and a marine scientist who does a commentary for the passengers over a public address system on the vessel. Lunch is provided on the trip out to the Cape.

2. Methods

Self-reply questionnaires were administered to all whale-watch passengers on the return journey from watching the whales on a total of 12 cruises during the 1996 whale-watch season. These questionnaires were voluntary and written in English, as a consequence non-English speakers were excluded from the sample and a small number of passengers, mainly those who suffered from sea-sickness, declined to participate.

A total of 704 completed questionnaires were used in the study representing 71 per cent of all passengers who went on the cruises surveyed. Questionnaires used a combination of closed and open-ended questions to elicit responses on matters of motivation, enjoyment, satisfaction and socio-demographic information.

In addition, each whale-watch was ranked for "quality" on a scale of 1–10 by the principal researcher. A low score represented a whale watch of low quality (few whales seen and little surface behaviour) and high scores represented a whale-watch of high quality (many whales and much surface activity). This ranking system was necessary to classify the influence of whale-watch quality on whale-watcher satisfaction. Additional information on whale behaviour and whale proximity to the boat was also collected and tested for its influence on whale-watcher satisfaction.

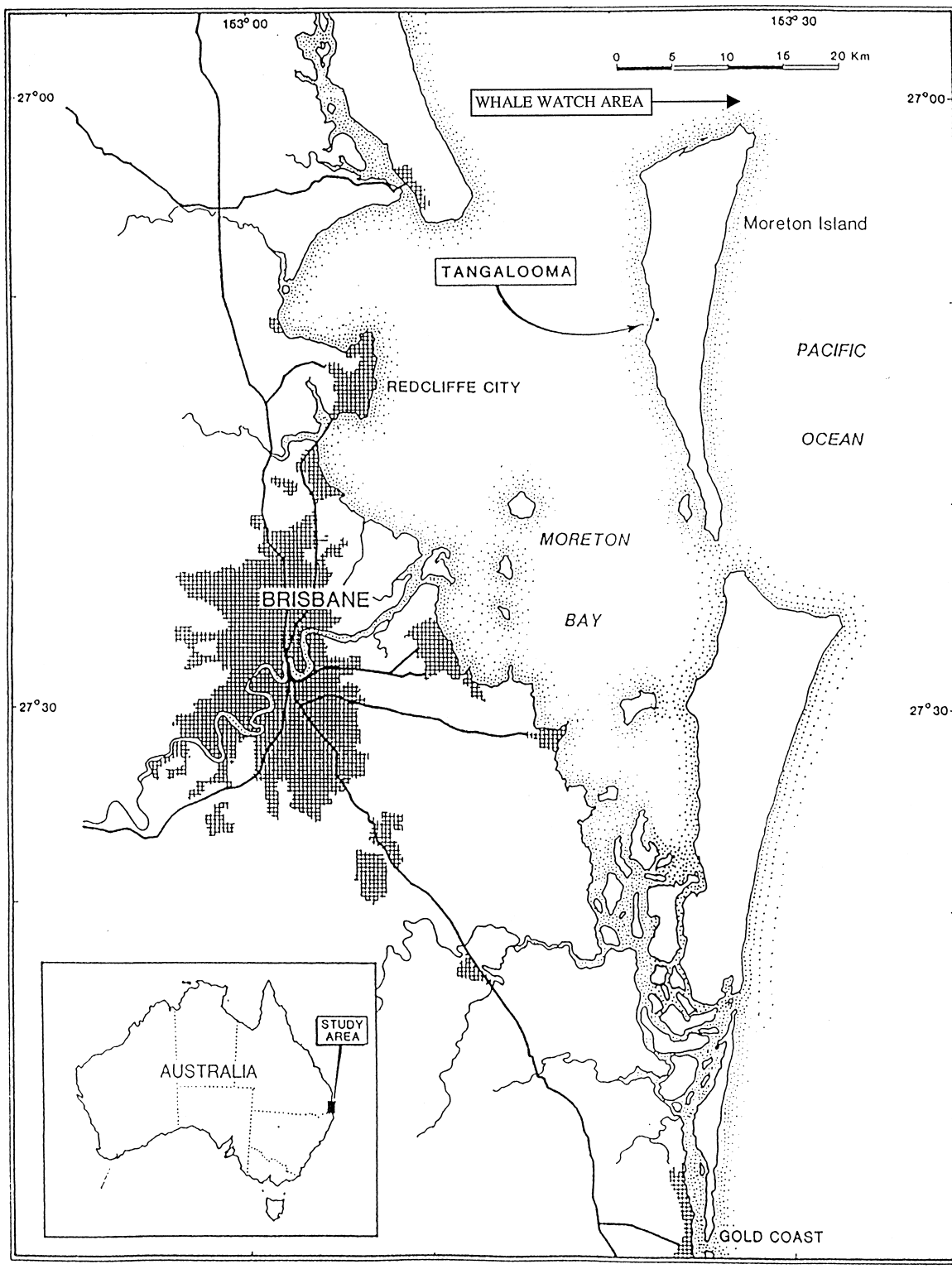

Fig. 1. Location of study site: Tangalooma, Moreton Island.

3. Results and discussion

The first question on the questionnaire asked respondents "how satisfied are you with today's whale-watch?" A seven category Likert-type scale response option was presented in the questionnaire. An eighth category, "do not know" was also presented. The results for all questionnaires are represented in Fig. 2.

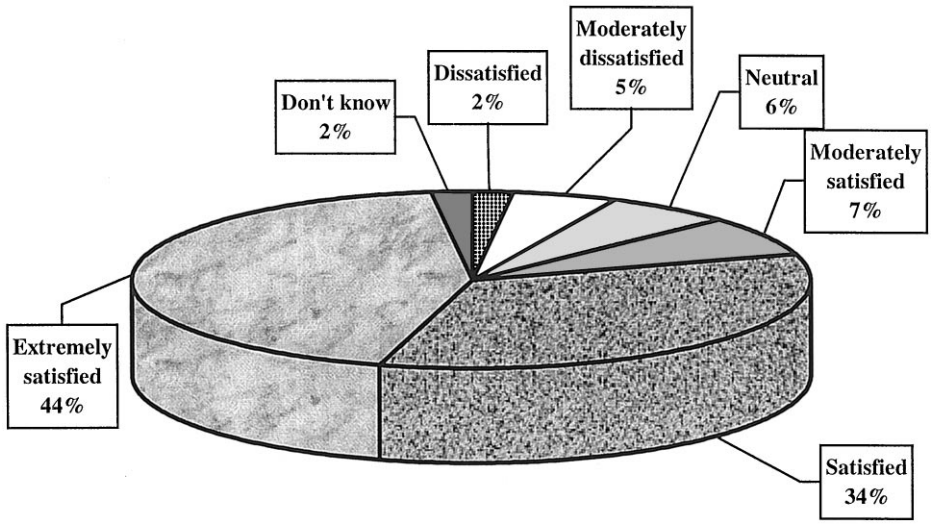

Fig. 2. Satisfaction with whale-watching.

As expected, satisfaction with the whale-watch was predominantly high. This was also illustrated by responses to open-ended questions. Comments such as "the day was perfect, magical. I didn't actually see the whale breach as we left — that would have been the icing on the cake. I'm just so delighted with the whole day — one to tell the grand and great-grand kids about" were typical. These comments are not surprising given the positive responses shown by tourists to interacting with and/or viewing wildlife (Shackley, 1996). This high degree of satisfaction was also shown in a study by Duffus (1988) on orca whale watchers off the coast of British Columbia, Canada. Similarly, Tilt (1987) found that 75 per cent of whale-watchers off the coast of California described their whale-watching experience as one of the most "fantastic" wildlife experiences in which they had participated.

A predictable pattern also emerges when the responses are categorised according to the quality of the whale-watch. The whale-watch quality scoring system was later used to categorise each whale-watch as either "excellent" (scores of 7, 8 or 9 — no cruise was scored a 10 during this study), "okay" (scores of 4, 5 or 6) or "poor" (scores of 1, 2 or 3). This resulted in six whale-watches being classified as "excellent", three as "okay" and three as "poor".

The responses to the first question, when broken down by whale-watch quality, are shown in Fig. 3.

While it is true that "excellent" quality whale-watches resulted in greater satisfaction among respondents, what is interesting is that respondents remained highly satisfied after experiencing "okay" quality whale-watches. Furthermore, even after "poor" quality whale-watches the majority of passengers stated that they were satisfied (either mildly satisfied, 12 per cent; satisfied, 29 per cent; or extremely satisfied, 11 per cent). Even more surprisingly, on two whale-watches where no whales were sighted at all many respondents stated that they were still "satisfied" with the whale-watch (see Fig. 3). Thirty five per cent stated that they were satisfied even when no whales were sighted while only 39 per cent stated they were dissatisfied. Responses to open ended questions on cruises with no whale sightings predictably mentioned "seeing whales" as something that would have improved their enjoyment of the trip. However, comments such as "it was fun even without the whales" and "even though we did not see a whale the crew made the trip enjoyable and entertaining" were indicative of a degree of satisfaction amongst many of the passengers.

The second question on the questionnaire provided evidence that proximity of the whales was not a crucial influence on enjoyment. This question was open ended and asked "what do you think could have made today's whale watch more enjoyable?" The results from this question are represented in Table 1 and are illustrated in Fig. 4.

While whale related issues were important responses to this question, it should also be noted that many other factors were also identified as important influences on passenger enjoyment. These issues included; the number of passengers onboard (some respondents felt the boat was too crowded), the duration of the cruise (some thought it too long, others too short), the construction of the boat for viewing, the position of the boat allowing views of the whales and, of course, sea-sickness issues. Many indicated an understanding of items beyond the operator's control. Examples included, "if the water was calmer and if the whales had breached, but I realise that you have no control over this" and "only a breach or two, but you can't control that!". Predictably, sea-sickness

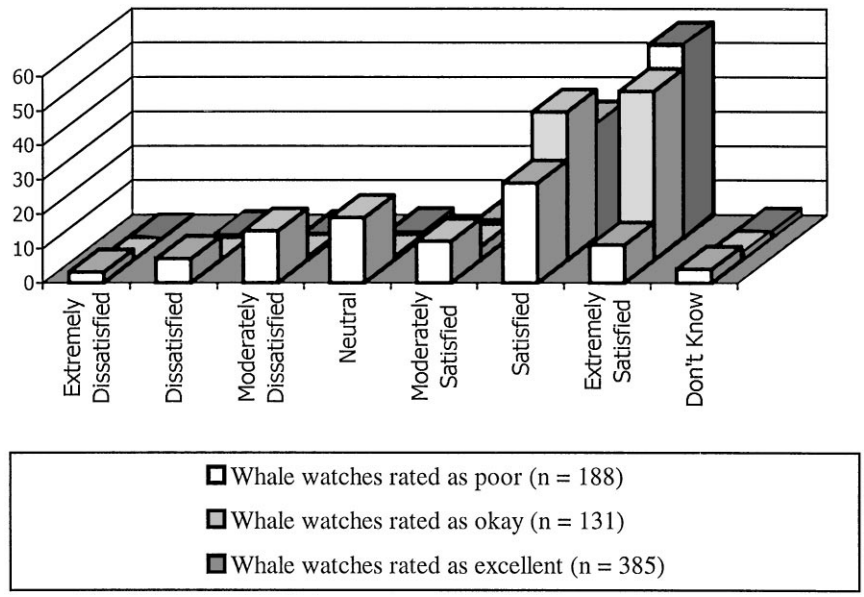

Fig. 3. Satisfaction of whale watchers by whale watch quality.

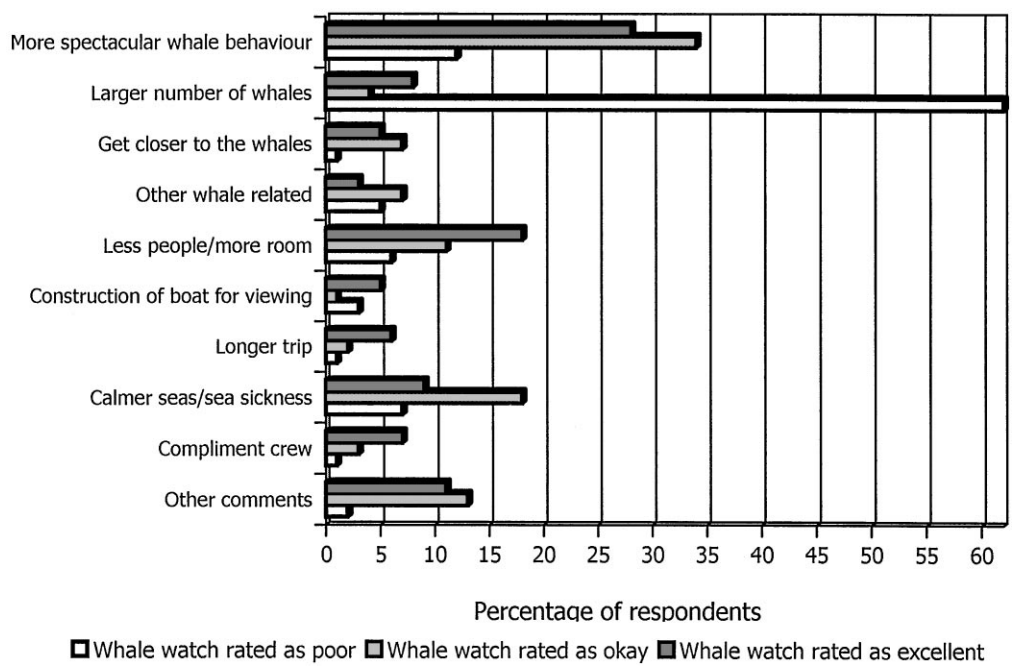

Fig. 4. Results of open-ended question: "What do you think could have made today's whale watch more enjoyable?".

issues contributed to some respondents' lack of enjoyment, "calmer seas — blame God" and "I wish I didn't throw up" and "the lunch tasted better going down!" were comments that illustrated the influence of sea conditions on passenger's enjoyment.

These data did show, however, that while factors other than the whales influenced satisfaction, the whales were the single most important influence on passenger enjoyment. What is interesting is that the geographical proximity of the whales was not mentioned often (only 4 per cent of respondents) in response to the question on factors influencing enjoyment. This may be because the respondents were satisfied with how close the whales were or because the proximity of the whales was not an important influence on enjoyment. This result appears to contradict the finding of Duffus (1988) who found that

Table 1
Comments regarding what could have made the whale watch more enjoyable

Category	Less people	Better photos	Less sea sick	More spectacular behaviour	Closer to whales	More whales	Other whale related	Longer trip	Boat construct./ angle for viewing	Compliment	Other	Totals
Whale watches classified as "excellent"	54 (18%)	9 (3%)	29 (9%)	88 (28%)	14 (5%)	26 (8%)	8 (3%)	18 (6%)	25 (8%)	21 (7%)	16 (5%)	308
Whale watches classified as "okay"	12 (11%)	1 (1%)	20 (19%)	40 (39%)	8 (8%)	5 (5%)	8 (8%)	2 (2%)	5 (3%)	3 (3%)	2 (2%)	103
Whale watches classified as "poor"	10 (6%)	0 (%)	14 (7%)	22 (13%)	1 (%)	107 (63%)	8 (4%)	1 (1%)	5 (3%)	1 (1%)	2 (1%)	171
Total	76 (13%)	10 (2%)	63 (10%)	150 (26%)	23 (4%)	138 (24%)	24 (4%)	21 (4%)	32 (5%)	25 (4%)	20 (4%)	582[a]

[a]Not all respondents ($n = 704$) answered this question.

orca whale watchers ranked close observation as the second most important aspect of their whale-watching trip (behind encountering the whales).

The results of this study provide support to the contention that whale-watching is not simply about getting close to whales. This is perhaps not surprising given the arguments presented earlier regarding the complex nature of human motivation (Iso-Ahola, 1989) and the diverse range of influences on human satisfaction (Mannell, 1989). It also shows a similar pattern to studies of the motivation and satisfaction associated with other marine leisure activities such as fishing (Kenchington, 1990). The message from the results is not, however, entirely one sided. Whilst whale proximity may not be paramount in the minds of watchers, whales and what they do are still the most important influences on satisfaction and enjoyment. What is significant, however, is that there are many other important influences in addition to the whales themselves. Whale-watching, therefore, is not simply about watching whales.

4. Conclusions

A number of important findings can be drawn from this study. First, the presence of whales and their behaviour are important influences on whale-watcher satisfaction. The proximity of the boat to the whales however, does not appear to be an important influence on whale-watcher satisfaction. Consequently, it can be concluded that whale-watch operators do not need to get close to whales to satisfy their customers. In fact, this research has shown that a high degree of customer satisfaction can be achieved even in the absence of whales. This is an important finding, for if vessel operators understand this, perceptions that patrons wish to get close to whales can be countered. Furthermore, agencies charged with the management of whale-watching can change their efforts from a reactive, punitive approach to transgression of regulations to a pro-active educational approach which points out that close geographical proximity to whales is not what their customers are actually looking for.

What is also important for whale-watch operators to realise is that a number of factors other than the whales and their behaviour influence whale-watcher satisfaction. This is important because whale-watch operators have little ability to influence the whales. However, there are other factors, over which the operators do have influence, that can affect customer satisfaction. Operators can influence their customers' enjoyment through such things as; the design of their boat, the positioning of their boat for viewing, the numbers of passengers they take aboard, the service provided by the crew, the duration of the trip and the commentary given regarding the whales and other attractions (the use of attractions other than the whales). Discretion with regard to the influence of sea

conditions on the sea-sickness of passengers may also be important.

This study has been one of few that has concentrated on the influence of the whale-watching on the watchers rather than the whales. It provides evidence that adds weight to the argument that understanding humans and what they do is as important as understanding the whales and the influence of the industry on them. It helps reveal the wisdom of Forestell & Kaufman (1993, p. 24) who state:

> It is probably a misnomer to talk about management of whales. It is not the whales that need to be managed, but the humans that hang out with them.

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References

Anderson, R. V., Forbes, M. A., & Pirzl, R. L. (1995). *A national overview of the development of whale watching in Australia*. Canberra: Australian Nature Conservation Agency.

Baxter, A. S. (1993). The management of whale and dolphin watching Kaikoura, New Zealand. In D. Postle, & N. Simmons, *Encounters with whales '93* (pp. 108–120). Townsville: Great Barrier Reef Marine Park Authority.

Baker, C. S., & Herman, L. M. (1989). *Behavioural responses of summering humpback whales to vessel traffic: Experimental and opportunistic observations*. Technical Report NPS-NR-TRS-89-01, National Park Service, United States Department of the Interior, Washington, DC.

Baker, C. S., Perry, A., & Vequist, G. (1988). Humpback whales of Glacier Bay, Alaska. *Whalewatcher*, *20*, 13–17.

Bauer, G. B., Mobley, J. R., & Herman, L. M. (1993). Responses of wintering humpback whales to vessel traffic (abstract only). *Journal of the Acoustic Society of America*, *94*(3), 1848.

Beach, D. W., & Weinrich, M. T. (1989). Watching the whales. *Oceanus*, *32*(1), 84–88.

Blane, J. M. (1990). *Avoidance and interactive behavior of the St Lawrence beluga whale (Delphinapterus leucas) in response to recreational boating*. MA Thesis, University of Toronto, 1990.

Blane, J. M., & Jaakson, R. (1995). The impact of ecotourism boats on the St Lawrence beluga whales. *Environmental Conservation*, *21*(3), 267–269.

Briggs, D. (1991). *Impact of human activities on killer whales at the rubbing beaches in the Robson Bight ecological reserve and adjacent waters during the summers of 1987 and 1989*. Unpublished report, Ministry of Parks, Victoria, British Columbia.

Carlson, C. A. (1996). *A review of whale watching guidelines and regulations around the world*. Report for the International Fund for Animal Welfare, Crowborough, East Sussex, UK.

Constantine, R. (1998). *The effects of tourism on marine mammals: A review of the literature relevant to managing the industry in New Zealand*. Wellington: Department of Conservation Science and Research Series.

Corkeron, P. J. (1995). Humpback whales (*Megaptera novaengliae*) in Hervey Bay, Queensland: Behaviour and responses to whale watch vessels. *Canadian Journal of Zoology*, *73*, 1290–1299.

DeNardo, C. (1996). *A behavioural study: the potential effects of boat tourist traffic on killer whale (Orcinus orca) group behaviour in Tysfjord, Northern Norway*. Unpublished report to the Whale and Dolphin Conservation Society, United Kingdom.

Duffus, D. A. (1996). The recreational use of grey whales in southern Clayoquot Sound, Canada. *Applied Geography*, *16*(3), 179–190.

Duffus, D. A. (1988). *Non-consumptive use and management of Cetaceans in British Columbia coastal waters*. Unpublished Ph.D. dissertation, University of Victoria, B.C. Canada.

Duffus, D. A., & Dearden, P. (1993). Recreational, valuation, and management of Killer whales (*Orcinus orca*) on Canada's Pacific coast. *Environmental Conservation*, *20*(2), 149–156.

Ewert, A. W. (1989). *Outdoor adventure pursuits: Foundations, models and theories*. Columbus, OH: Publishing Horizons.

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behaviour: An introduction to theory and research*. Sydney: Addison-Wesley.

Forestell, P. H., & Kaufman, G. D. (1990). The history of whalewatching in Hawaii and its role in enhancing visitor appreciation for endangered species. In M. L. Miller, & J. Auyong, *Proceedings of the 1990 Congress on Coastal and Marine Tourism*, vol. 2 (pp. 399–407). Corvallis, OR: National Coastal Resources Research Institute.

Forestell, P. H., & Kaufman, G. D. (1993). Resource managers and field researchers: Allies or adversaries? In D. Postle, & M. Simmons, *Encounters with whales '93*, Workshop Series no. 20 (pp. 17–26). Townsville, Queensland: Great Barrier Reef Marine Park Authority.

Gordon, J., Leaper, R., Hartley, F. G., & Chappell, O. (1992). *Effects of whale-watching vessels on the surface and underwater acoustic behaviour of sperm whales off Kaikoura, New Zealand*. Science and Research Series 52. Wellington: Department of Conservation.

Hoyt, E. (1995). *The worldwide value and extent of whale watching: 1995*. Unpublished report to the Whale and Dolphin Conservation Society, United Kingdom.

Hoyt, E. (1996). Whale watching: A global overview of the industry's rapid growth and some recent implications and suggestions for Australia. In K. Colgan, S. Prasser, & A. Jeffery, *Encounters with whales 1995 proceedings* (pp. 31–36). Canberra: Australian Nature Conservation Agency.

International Fund for Animal Welfare (IFAW) and Tethys European Conservation (1995). *Report of the Workshop on the Scientific Aspects of Managing Whale Watching*. International Fund for Animal Welfare, Tethys European Conservation, Montecastello di Vibio, Italy.

Iso-Ahola, S. E. (1989). Motivation for leisure. In E. L. Jackson, & T. L. Burton, *Understanding leisure and recreation: mapping the past, charting the future* (pp. 247–279). State College, PA: Venture Publishing.

Jeffery, A. (1993). Beyond the breach-managing for whale conservation and whale watching in Hervey Bay Marine Park, Qld. In D. Postle, & M. Simmons, *Encounters with whales '93*. Workshop Series No. 20 (pp. 91–107). Townsville, Queensland: Great Barrier Reef Marine Park Authority.

Kaufman, G. D., Lagerquist, B. A., Forestell, P. H., & Osmond, M. G. (1993). *Humpback whales of Australia*. Brisbane: Queensland Department of Environment and Heritage.

Kenchington, R. A. (1990). *Managing marine environments*. New York: Taylor & Francis.

Mannell, R. C. (1989). Leisure satisfaction. In E. L. Jackson, & T. L. Burton, *Understanding leisure and recreation: Mapping the past, charting the future* (pp. 281–301). State College, PA: Venture Publishing.

Mansfield, Y. (1992). From motivation to actual travel. *Annals of Tourism Research*, *19*, 399–419.

Maslow, A. (1968). *Toward a psychology of being* (2nd edn). Toronto: Van Nos Reinhold.

Norris, T. (1994). Effects of boat noise on the acoustic behaviour of humpback whales. *Journal of the Acoustic Society of America*, *96*(5–2), 3251.

Orams, M. B. (1997). Historical accounts of human-dolphin interaction and recent developments in wild dolphin based tourism in Australasia. *Tourism Management*, *18*(5), 317–326.

Orams, M. B. (1999). *Marine tourism: Development, impacts and management*. London: Routledge Publishers.

Orams, M. B., & Forestell, P. H. (1995). From whale harvesting to whale watching: Tangalooma 30 years on. In O. Bellwood, & H. Choat, *Recent Advances in Marine Science and Technology '94* (pp. 667–673). Townsville, Queensland: PACON International and James Cook University .

Phillips, N. E., & Baird, R. W. (1993). Are killer whales harassed by boats? *The Victorian Naturalist*, *50*(3), 10–11.

Queensland Department of Environment and Heritage (1994). *Conservation plan for whales and dolphins (Order Cetacea) in Queensland 1994–1999*. Brisbane: Queensland Department of Environment and Heritage.

Reeves, R. R. (1992). *Whale responses to anthropogenic sounds: A literature review*. Department of Conservation Science and Research Series No. 47. Wellington: Department of Conservation.

Richardson, W. J., Greene, C. R., Malme, C. I., & Thomson, D. H. (1995). *Marine mammals and noise*. San Diego, CA: Academic Press.

Shackley, M. (1996). *Wildlife tourism*. London: International Thomson Business Press.

Tilt, W. C. (1987). From whaling to whale watching. *Transactions of the North American Wildlife and Natural Resources Conference*, *52*, 567–585.

Watkins, W. A. (1986). Whale reactions to human activities in Cape Cod waters. *Marine Mammal Science*, *2*(4), 251–262.