Beyond the breach - Managing for whale conservation and whale watching in Hervey Bay Marine Park, Qld

Alan Jeffery
Department of Environment and Heritage
PO Box 101 Maryborough Qld 4650

A Whale Management and Monitoring Area (WMMA) was designated in conjunction with declaration of the Hervey Bay Marine Park in September 1989. The objective of the designated area is:

> To manage human activities in the vicinity of Humpback whales (***Megaptera novaeangliae***) and monitor the effects of such activities to ensure the protection of the whales.

Between 1 August and 30 November each year conditions apply to the use of and entry to the designated area in relation to:

- the conduct of tourist, research, and commercial photography/film making programs (permits required for these programs); and,

- activities in the vicinity of Humpback whales.

The WMMA is part of the area considered in the Commission of Inquiry into the Conservation, Management and Use of Fraser Island and the Great Sandy Region. In accordance with the inquiry a draft management plan (Qld. Govt. 1993) has been prepared to address planning, management and control of the region. The draft plan has recently been released for public comment.

Following inscription of Fraser Island on the World Heritage List in December 1992, part of the WMMA now falls within the Fraser Island World Heritage Property which comprises an area bounded by and including 500 metres seaward of Fraser Island and a number of small adjacent islands. The Queensland Government is committed to protecting the outstanding values of the remaining areas of the Great Sandy Region, as defined by the Commission of Inquiry, and will continue to press for World Heritage Listing of Cooloola National Park, the Great Sandy Strait and Hervey Bay.

This paper reports on the use of and entry to the WMMA during the 1992 season and follows similar reports for previous seasons (Stevens 1991, Stevens and Paton 1992).

TOURIST PROGRAMS BASED ON HUMPBACK WHALES.

Permitted operations

Twenty permits were issued in 1990 and reissued in 1991 for the conduct of tourist programs based on Humpback whales and associated vessel use. These permits are valid for a three year period, to 30 November 1993.

Permits are divided into six classifications based on vessel size and speed. The classification scheme is summarised below.

Table 1. WHALE MANAGEMENT AND MONITORING AREA
VESSEL CLASSIFICATION SCHEME - 1992

	LENGTH OVER ALL (metres)			
SPEED	15m or less	>15m to 20m	>20m to 30m	
More than 15 knots	Class 1 (7)	Class 3 (2)	Class 5 (1)	*FAST*
15 knots or less	Class 2 (3)	Class 4 (3)	Class 6 (4)	*SLOW*
	SMALL	<---------->	*LARGE*	

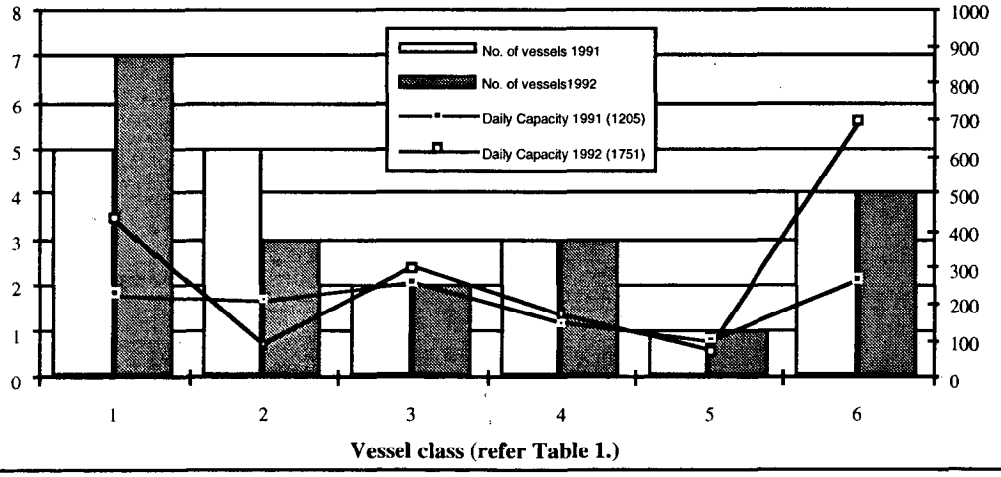
Number of vessels ( )

Fleet configuration, operation and capacity in 1992 altered from the 1991 season due to:

- permit transfers resulting in two new operators;
- two operations transferred between class (from Class 2 to Class 1);
- four vessels were replaced or upgraded;
- one permittee granted an exemption from operating in 1991 returned in 1992;
- one permittee did not operate throughout the season.

The net result of these changes has been an increase in both potential trip frequency (transfers to a faster Class) and in passenger capacity (vessel replacement/upgrade). Figure 1 shows changes in the fleet composition and capacity from 1991 to 1992. Capacity increases reflecting the changes described above are evident in Classes 1 and 6.

Figure 1. Fleet composition and capacity 1991 - 1992



19 vessels operated a variety of tours, from half-day to extended overnight trips during the 1992 season.

A fee is payable, based on vessel size, for the issue or continuation of a permit for a commercial whale watching programme (<15 metres - $500, >15 to 20 metres - $800, >20 to 30 metres -$1500). A fee is also payable for each person carried on permitted commercial whale watching programmes (<5 years - $0, 5 to 14 years - $1, >14 years - $2). These fees are applied to the management of the WMMA. Charges have remained the same since the advent of the permit system in 1990. Fees will be considered in conjunction with the review of permitted operations.

Analysis of 1992 season from data returns.

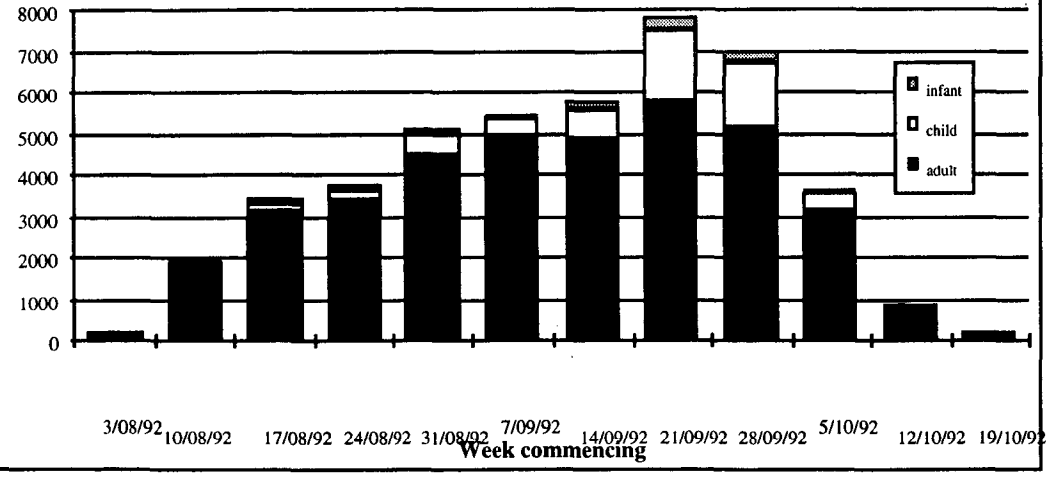
Permit operators are required to submit information relating to the number of clients who participate in the tourist program; trip duration; locations visited ; whale pods contacted; and details of notable incidents.

The 1992 whale watching season was characterised by moderate weather conditions with only 3 - 4 days of potential whale watching lost to bad weather.

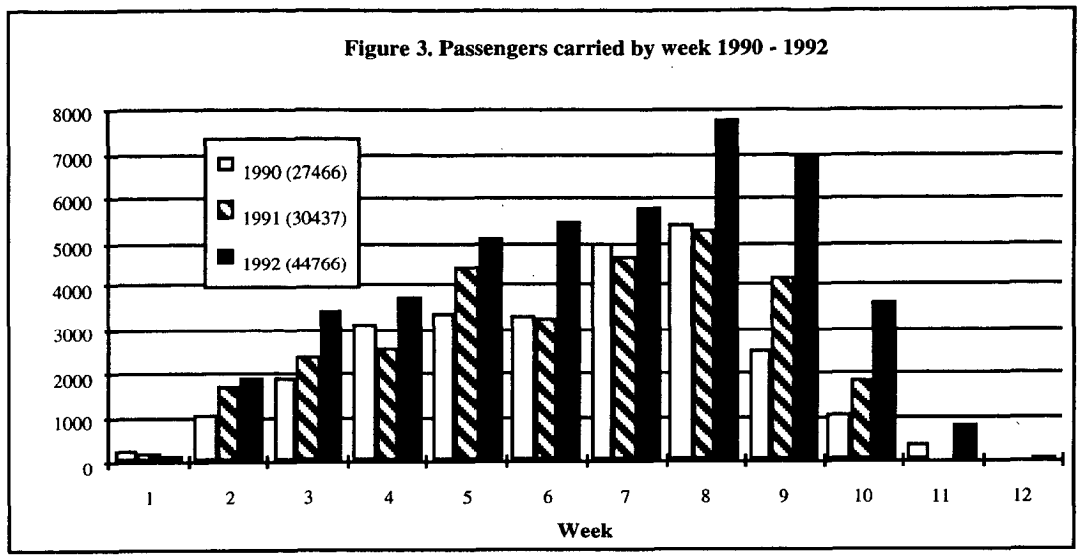
Whale watching trips were conducted from August 5 to October 19. A total of 44766 passengers were carried on 964 trips. This represents an increase of 47.5% on passengers carried in the 1991 season and 63% on the corresponding 1990 season (Table 2.).

Figure 2 illustrates the weekly distribution of passengers carried throughout the 1992 season .

Figure 2. Passengers carried by week 1992



Rather than an even distribution across the fleet, the increased visitation over 1992 was largely sustained by two Class 6 vessels - one operating following an exemption in 1991, and the other a new vessel upgraded from within its class (Figure 4.).



The comparison between years shown in Figure 3 highlights the increased level and extent of visitation during 1992. Increased visitation during the school holiday period (weeks 8 and 9) is readily apparent. Increased passenger numbers in 1992 were sustained over a longer period than in previous seasons.

An examination of equivalent net change in passengers carried by the fleet from 1991 to 1992 reveals only 4 operations showed an increase of more than 10% in passengers carried over the period. Six operations showed an increase in the number of passengers carried of less than 6%, while the remaining 9 operations recorded a net decline.

Table 2 outlines summary information from the 1992 season (comparative figures for 1990 and 1991 are also included).

Commercial whale watching trips have increased in frequency, duration and extent in recent seasons as operators upgrade vessels and exploit market niches. Data from the period 1990 to 1992 indicate a 16% increase in vessel trips; 14% more total hours spent in the Marine Park; and a 14% rise in total pod contact. Anecdotal information suggests that recreational vessel use has also increased particularly during peak periods (school holidays and weekends).

Associated with the increased numbers of passengers has been an increase in fleet capacity over the corresponding period. Fleet capacity - the maximum number of passsenger seats available over time - increased during 1992 by 49% on 1991 capacity; and 26% on 1990 capacity, to 1751 per day (Figure 1, Table 2.).

Table 2. **Whale Management and Monitoring Program**
Summary information* 1990 - 1992

	1992	1991	1990
Passengers carried	**44766**	30437	27466
Trips undertaken	**964**	784	832
Hours in Marine Park	**4758**	3880	4172
Whale pod contacts(1)	**2609**	1644	2291
Number of vessels operating(2)	**19**	19	20
Daily fleet capacity(3)	**1751**	1205	1429
Theorertical daily fleet capacity	**2915**	1906	N/A

* data from permittee returns

(1) Refers to the total number of pods contacted through the season by all vessels.
Note: Some permittees do not record pods contacted -
these numbers underestimate total season contacts

(2) Commercial whale watch vessels -
configuration (vessel speed and length) may vary between years.

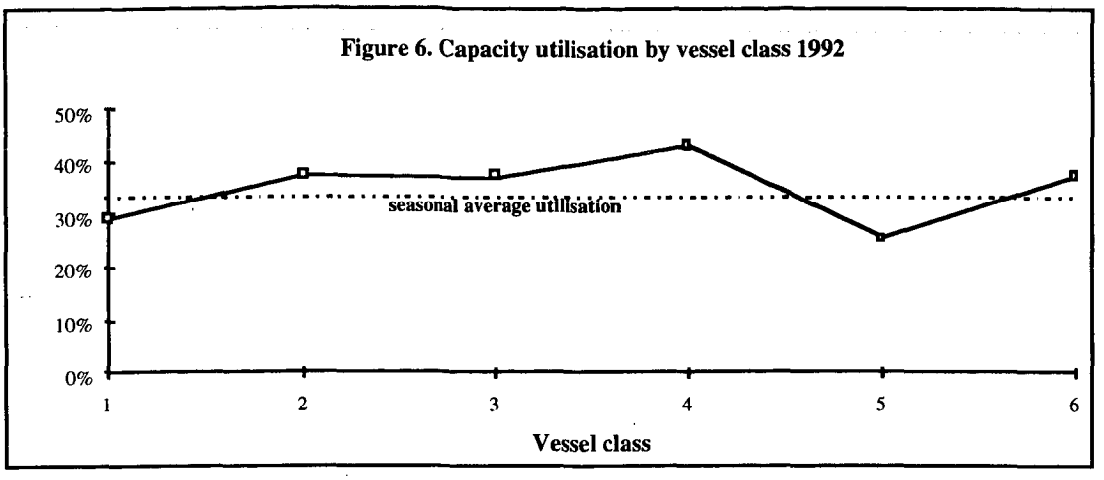
(3) Actual number of passenger seats available per day

Fleet capacity may vary due to an alteration in one or more of the following factors:
-change to the actual number of vessels operating,
-upgrading vessel passenger capacity within the vessel classification scheme,
-movement between vessel classes (effectively altering trip frequency).

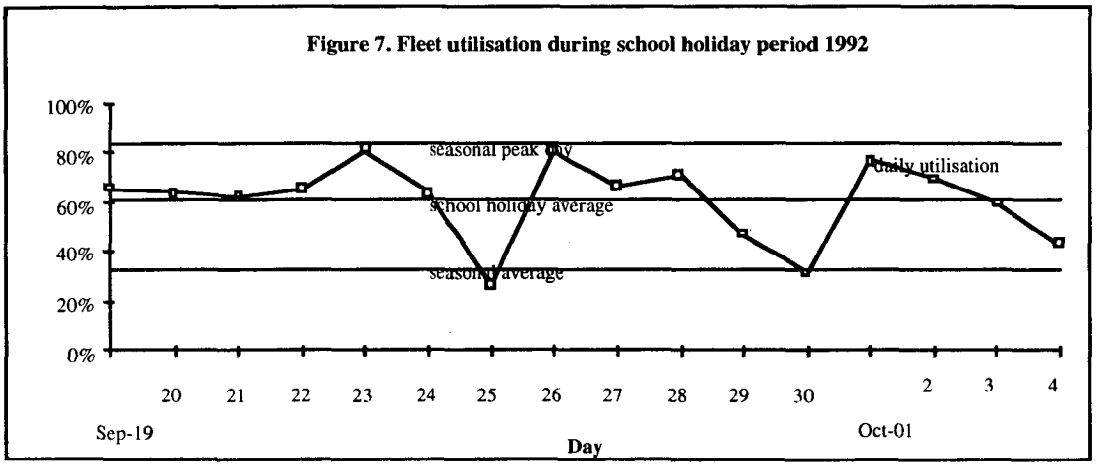
Each of these factors has come into play during the period.

Theoretical fleet capacity - a measure of estimated capacity if the limits of the classification scheme were exploited - when compared with actual capacity, allows an indication of potential growth in the fleet. Refining the conservative approach described by Stevens (1992), and adopting a high passenger capacity estimate (based on the largest carrier within each class) the theoretical capacity is 2915 passengers per day. This figure assumes Class 1 and 2 vessels will carry 65 passengers; Class 3 and 4, 100 passengers; and Class 5 and 6, 300 passengers.

It should be noted that while maximising passenger numbers and minimising vessels is a key objective of the management model (Chaloupka 1990), and serves to maximise whale protection objectives, the pursuit of maximum capacity may come at the expense of the whale watching experience. Clearly a suitable fleet capacity, in terms of passenger experience, would fall somewhere short of the theoretical capacity described above. Surveying visitor preference with respect to crowding may assist in determining an appropriate fleet capacity from the whale watchers' perspective and give a better indication of potential industry growth within the vessel classification scheme.



Fleet utilisation during the 1992 school holiday period, historically a high visitor demand period, is shown in Figure 7. An average of 62% of available seats were filled during this period. Interestingly the peak day in terms of visitation for the season fell outside this period when 1453 people (83% of capacity) went whale watching on commercial vessels on Saturday 5 September (the Father's Day weekend).



There remains considerable latent capacity within the fleet to satisfy future growth in visitor numbers both throughout the season and during high visitation periods. In addition there are significant opportunities to convert potential and as yet unrealised capacity, through vessels upgrading within the vessel classification system.

Incidents reported.

Notable incidents reported by the whale watch fleet during the 1992 season included:

-the first Humpback calf sighted on September 1;
-an all-white Humpback sighted on September 13;
-a collision with a whale reported by a commercial whale watch vessel returning to Urangan Harbour; minor injury was sustained by the whale, identification photographs were taken of the animal and accompanying pod members. No damage was sustained by the vessel;
-high recreational boat traffic during the middle of the season; and,
-whale song recorded throughout the season by a number of vessels.

Issues raised by Commercial Tour Operators.

On completion of the 1992 season, and at a meeting to review the season, commercial tour permittees were invited to forward reports on the season. Four written reports were received. The following points represent issues of concern raised:

- Private vessel activity appears to have increased.
  ..some operators felt that further restrictions should be imposed on private vessel use, and that management effort be directed toward increasing awareness amongst private boat operators about the regulations applied to whale watching.

- Research access to whales is too liberal.
  ..some operators considered research organisations were given too much access to the whales in terms of approach distance and time spent with whales.
  ..concern was expressed at the apparently excessive amount of time spent with the white whale in particular.

- Regulations should be adequate, fair, achievable, and realistic.

- The white whale as a special case.
  ..operators were concerned that access to this animal be maintained but that potential harassment be minimised. Suggestions were put forward relating to possible revised approach distances and contact times with this animal.

- Potential whale/vessel collisions and near misses.
  ..some operators reported on the increasing risk of collisions during the season. A number of suggestions were forwarded relating to vessel speed limits, the establishment of transit corridors, and the need to increase awareness of the risk of such events in Hervey Bay.

In addition to these issues some operators provided feedback on other aspects of the season including:

- a high degree of cooperation was developed amongst permittees;
- travelling time to whales appeared to be less than in previous years (particularly compared with 1991);
- mother/calf pods appeared earlier, and in larger numbers than in previous years. These pods apparently showed a greater tendency to remain in the vicinity of vessels than in previous years;
- a substantial increase in passenger numbers was noted;
- fleet occupancy was reduced due to the introduction of larger vessels;
- lower profitability was reported due to increased competition; and,
- a marked reduction of passengers was noted following the school holiday period.

RESEARCH PROGRAMS BASED ON HUMPBACK WHALES.

Calls for expressions of interest for research permits in the Hervey Bay Marine Park were sought in April 1992. Individuals and organisations who had previously conducted research were contacted and an advertisement was placed in the bulletin of the Australian Marine Science Association outlining assessment criteria and identified research needs.

The following criteria were used to assess research applications:

- research must be of a bona fide scientific nature;
- justification must be provided for the research to be undertaken in the Marine Park, as opposed to other marine areas; and,
- preference will be given to research of an applied nature which will assist with ongoing management of the Park and the future conservation of whales.

Research needs identified included:

- vessel/whale interaction
  .. acoustic impacts
  .. whale behaviour
- spatial and temporal use of Hervey Bay by the migrating Humpback whale population
  .. aerial survey
  .. photo-identification

Seven proposals were received from four research groups/individuals addressing a wide range of projects including:

- photographic identification;
- aerial survey;
- radio telemetric studies;
- seasonal distribution and abundance patterns;
- interspecies communication; and,
- structured data collection.

Six proposals were submitted for peer review. The remaining proposal did not address identified research needs and did not meet the assessment criteria. One proposal (structured data collection) did not require a permit.

Following consideration of reveiwer comments one permit was issued for the conduct of boat based surveys to:

- undertake photographic identification of individual animals;
- document distribution and movement patterns;
- describe behavioural characteristics associated with different social groupings;
- document surface temperature and turbidity characteristics; and,
- opportunistically collect acoustic data.

Initial results from this research project reveal that 216 whales were uniquely identified by tail fluke markings. Thirty-one whales were observed on more than one occasion, from one to thirty days following initial identification - 80% of these resights occurred within three days of the original sighting (Forestell and Kaufman, 1993).

In addition two commercial whale watch vessels devoted extensive effort to structured data gathering - recording and compiling information including whale locations, behaviours and song, and physical conditions.

A number of vessels undertook incidental recording or used the data return forms to provide anecdotal information on the 1992 migration.

Aerial Survey.

Aerial surveys have been conducted by external organisations and by DEH, from 1988 to 1992 (Bryden et al 1988, Bryden and Corkeron 1989, Bryden 1990, Forestell et al 1993), in an attempt to:

- determine patterns of spatial and temporal distribution of Humpback whales and vessels;
- determine whale pod composition;
- document the behaviour of whales adjacent to and remote from vessels;
- determine the proportion and nature of the migratory Humpback whale population that uses Hervey Bay; and,
- obtain incidental information on the distribution of other marine mammals and marine turtles.

Management planning initiatives

The Draft Great Sandy Region Management Plan (Qld. Govt. 1993) has been prepared to protect natural, cultural and economic values and to provide a framework for decision making so that the following outcomes may be achieved by or before the year 2010:

- a secure future for the natural and cultural environment;
- a secure community setting for residents;
- community access to resources and opportunities; and,
- a basis for sustainable use of renewable resources.

The plan proposes guidelines and actions with implications for the Whale Management and Monitoring Program included within the following strategies:

- Marine and terrestrial wildlife;
- Research, monitoring and scientific sites;
- Recreation tourism and visitor use;
- Charges for access and use;
- Recreation research and monitoring;
- Public contact;
- Nature Tourism;
- Whale watching; and ,
- Motorised water activities.

Efforts to attract visitors earlier in the season may prove beneficial to whale conservation and to the whale watch industry by exploiting a poorly patronised time when relatively high numbers of whale pods have been reported in Hervey Bay (see Figure 8.), and by limiting impacts on the more vulnerable mother and calf component of the population.

Nature tourism to the Great Sandy Region is to be promoted via a $500 000 Tourism Promotion Strategy for Fraser Island, Hervey Bay and Maryborough. Specific funding is to be allocated from the strategy for the promotion of whale watching. Interest in and visitation during the whale watch season is expected to increase as a result.

It remains important to generate a realistic expectation for whale watchers through focussing on the opportunity for viewing wild animals in the wild. It is also important to educate Park visitors about the biology and ecology of Humpback whales and the marine environment in general. In this regard tour operators have an important role to play. In accordance with recommendations in the Draft Great Sandy Region Management Plan (Qld. Govt 1993) consideration will be given to the development of a tour operator accreditation program whereby the tourism industry is provided with training in quality interpretation to increase visitor enjoyment and understanding of Humpback whales and the marine environment.

Liaison

A seminar attended by approximately sixty people representing permit holders, vessel skippers and crew, booking agents, management agencies, researchers and film makers was conducted as a preliminary to the 1992 season, addressing the following program:

-An introduction to the 1992 season;

-DEH operations in Hervey Bay Marine Park;

-Australian research and management - Hervey Bay's Humpback whales in a national perspective;

-Humpback whale population interchange;

-A commercial tour operator's perspective on Humpback whale research and management;

-Research and filming in the Hervey Bay Marine Park 1992.

A meeting was held with three tour operators and their crews, representing operations which had been transferred since 1991, to explain in detail the regulations applying to whale watching; the Hervey Bay Marine Park Zoning Plan; tour operator permit conditions; the code of ethics and appropriate practices for whale watching; and DEH roles and responsibilities in the area. This process will be a standard requirement for the transfer or issue of any permitted operation.

Patrol activities/enforcement

Field operations involved use of the Departmental vessel **MV Prion**, supported by surveillance flights and undercover operations. 57 patrol days proceeded between August 16 and October 20. The patrol vessel undertook both enforcement and education duties throughout the season making contact with 51 private vessels (Table 3.).

Prosecutions resulting from alleged breaches of the Hervey Bay Marine Park Zoning Plan in 1991, were brought before the courts in 1992/93. Two persons were convicted; one case was dismissed; and three cases were withdrawn. An investigation from an alleged breach of the whale watch regulations during the 1992 season is proceeding.

Table 3. Patrol and enforcement outcomes

USER GROUP	CONTACTS	CAUTIONS	INVESTIGATIONS
Private	51	5	-
Research	Frequent	-	-
Commercial Operator	Frequent	4	1

Field operations conducted throughout the year continue to support the value of patrol presence and covert operations in the Marine Park as effective management tools.

The commercial whale watch fleet offers a diverse range of opportunities for passengers including early morning departures and late afternoon cruises. Management activities need to be flexible enough to allow coverage in conjunction with all user group activities.

The lack of a locally based designated vessel and crew for use in Hervey Bay continues to impact on the efficiency and effectiveness of the DEH management program in the area, and on other areas from where vessels are withdrawn.