

(Submitted by France)



Fonds Français pour
l'Environnement Mondial

Review of commercial humpback whale watching activities in the South Pacific

Aline SCHAFFAR and Claire GARRIGUE



ecolarge

Economists @ Large and Associates
Consulting Economists

Economists @Large & Associates
www.ecolarge.com

Opération Cétacés - B.P. 12 827
98802 Nouméa, Nouvelle Calédonie
Tél. / Fax : +687 24 16 34
Courriel : op.cetaces@offratel.nc
Web : operationcetaces.lagoon.nc
Ridet : 476804 001

Review of commercial humpback whale watching activities in the South Pacific
This is a translation of a report prepared in French for Opération Cétacés by:

Aline Schaffar et Claire Garrigue, consultant
16 rue Faidherbe
98800 Nouméa, Nouvelle-Calédonie
Courriel : aline.schaffar@laposte.net - op.cetaces@offratel.nc
Tél. : +687 24 16 34
Fax : +687 24 16 34

Economists @Large & Associates
Consulting Economists
"Adding value to society"
Simon O'Connor - Senior Consultant
PO Box 256
Noble Park VIC 3147, Australie
Courriel : info@ecolarge.com
Tél. : +61 3 9562 4472
Fax : +61 3 9562 4118
www.ecolarge.com

TABLE OF CONTENT

SUMMARY	6
1. INTRODUCTION	8
1.1 CONTEXT OF STUDY	8
1.2. OBJECTIVES	9
1.3. LIMITATIONS	9
1.4. REPORT STRUCTURE	9
2. METHODS.....	11
2.1. DEFINITIONS	11
2.2. AREA OF INTEREST	11
2.3. DATA COLLECTION	11
2.3.1. QUESTIONNAIRE.....	11
2.3.2. LITERATURE REVIEW	12
2.3.3. INTERVIEWS	12
2.4. CALCULATION OF THE ECONOMIC VALUE OF WHALE WATCHING	12
2.4.1. DEFINITIONS	12
2.4.2. CALCULATION OF DIRECT BENEFIT.....	12
2.4.3. CALCULATION OF INDIRECT BENEFIT	13
2.4.4. CALCULATION OF THE TOTAL ECONOMIC VALUE.....	13
2.5. ESTIMATING THE NUMBER OF OPPORTUNISTIC WHALE WATCHERS	14
2.6. CALCULATION OF ANNUAL GROWTH RATE	14
2.6.1 ANNUAL GROWTH RATE	14
2.6.2 AVERAGE ANNUAL GROWTH RATE.....	14
3. RESULTS.....	16
3.1. RESPONSE TO THE QUESTIONNAIRE	16
3.2. TYPE OF ACTIVITIES OFFERED.....	16
3.3. STATUS OF WHALE WATCHING IN THE SOUTH PACIFIC.....	17
3.3.1. GENERAL	17
3.3.2. PROTECTION MEASURES	17
3.3.3. WHALE WATCHING: A MULTIPLE-BENEFIT INDUSTRY.....	18
3.4. HUMPBACK WHALE WATCHING IN THE SOUTH PACIFIC	20
3.4.1. GENERAL	20
3.4.2. AMERICAN SAMOA.....	21
3.4.3. AUSTRALIA.....	21
3.4.4. COOK ISLANDS	29
3.4.5. FIJI	30
3.4.6. FRENCH POLYNESIA	31
3.4.7. NEW CALEDONIA.....	32
3.4.8. NEW ZEALAND	33
3.4.9. NIUE	35
3.4.10. SAMOA	36

3.4.11. TONGA.....36

4. CONCLUSIONS AND RECOMMENDATIONS.....38

5. REFERENCES40

APPENDIX 1 – QUESTIONNAIRE FOR MARINE TOUR OPERATORS43

APPENDIX 2 - LETTER TO MARINE TOUR OPERATORS.....47



LIST OF TABLES

Table 1A - Commercial humpback whale watching on the East coast of Australia (2003).	22
Table 1B - Commercial humpback whale watching on the East coast of Australia (2003).	23
Table 2 - Commercial humpback whale watching in the South Pacific, excluding Australia (2005).	24

LIST OF FIGURES

Figure 1 – Geographic distribution of countries, states and territories conducting commercial humpback whale watching.....	20
Figure 2 – Whale watching sites on the East coast of Australia.....	25
Figure 3 – Whale watching departure points in the Cook Islands.	30
Figure 4 - Whale watching departure points in French Polynesia... ..	31
Figure 5 – Humpback whale watching area in New Caledonia.	33
Figure 6 – Main humpback whale watching site in New Zealand.	34
Figure 7 - Whale watching departure points and land-based sites in Niue.	35
Figure 8 - Main humpback whale watching sites in Tonga.	37

SUMMARY

- ◆ Due to the migratory nature of the species, humpback whale watching in the South Pacific is a seasonal activity available during the southern winter. For the remainder of the year, whale watching companies offer charter services, diving, fishing or observation of other marine species.
- ◆ Humpback whales can either be watched during trips organised by tour operators dedicated to this activity during the time the species is present in local waters, or it can be opportunistic and undertaken as part of other marine-based tourism activities – most commonly during dive trips.
- ◆ In 2005, commercial humpback whale watching was available in eight countries in the South Pacific: Australia, New Zealand, New Caledonia, Tonga, Samoa, Niue, the Cook Islands and French Polynesia. Two additional countries, American Samoa and Fiji, had very low levels of opportunistic sightings of humpback whales by marine tour operators.
- ◆ Commercial humpback whale watching is a well-established industry in Australia, Tonga, New Caledonia and French Polynesia. It is emerging as an industry in Niue and the Cook Islands, and remains mainly opportunistic in New Zealand, Fiji, Samoa, and American Samoa.
- ◆ During the 2005 season, an estimated 171,387 tourists participated to humpback whale watching tours offered by some 120 tour operators in the South Pacific (including Australia and New Zealand).
- ◆ This activity generated a direct benefit of more than US\$6.7 million, and a total economic value (direct plus indirect benefit) of more than US\$38.3 million in 2005.
- ◆ In 2005, an estimated 15,694 tourists undertook humpback whale watching trips conducted by approximately 49 operators in the South Pacific Islands region (excluding Australia and New Zealand).
- ◆ For 2005, the direct benefit generated by humpback whale watching in the South Pacific Islands region is estimated at US\$1,298,955 and the total economic value at US\$3,666,955 (excluding Australia and New Zealand).
- ◆ In addition to its economic value, whale watching also provides educational and socio-economic benefits to the region.
- ◆ Exposure to whale watching boats can modify the behaviour of the animals being observed.
- ◆ Because of the significant development of whale watching throughout the South Pacific, there is the potential for humpback whales to be exposed to boats repeatedly in different parts of the region.
- ◆ Several international agreements and agencies ensure the conservation of marine mammal species in the Pacific Islands region: the Convention on International Trade in Endangered Species (CITES), the Convention on Migratory Species (CMS), the International Whaling Commission (IWC), and the Secretariat of the Pacific Regional Environment Programme (SPREP).

- ◆ Many of the countries involved in whale watching have declared their exclusive economic zone (EEZ) a sanctuary for cetacean species, including humpback whales. Some have also implemented regulations or guidelines relating to boat interactions with humpback whales or other cetacean species.



1. Introduction

1.1 Context of Study

The South Pacific is an important region for a great number of cetaceans, whether as a permanent habitat, a breeding ground or a migration corridor. Currently, more than thirty species of whales and dolphins have been identified in this area, which has a high level of biological diversity. Because of the important concentration of cetaceans in the South Pacific, it became the site of numerous whaling operations from the late 18th century onwards. These expeditions significantly reduced whales' populations, and several species were hunted to the brink of extinction. Some of them are still considered vulnerable today (IUCN, 1996). Since the IWC signed the moratorium on commercial whaling in 1982, conservation of the species has become a priority.

Over the last ten years, the presence of cetaceans in the South Pacific has led to the development of another industry, this time utilising natural resources in a non-lethal and non-consumptive way: whale watching or the observation of cetaceans in their natural environment. Today, this activity provides a strong alternative to whaling as it generates many benefits and contributes to sustainable development. In the South Pacific, a great part of the whale watching industry focuses on one species in particular, the humpback whale (*Megaptera novaeangliae*). In fact, the whales' migration to these tropical waters attracts thousands of whale watchers every winter.

The rapid growth of the whale watching industry is not without raising concerns. Several studies have shown that the presence of boats can modify the behaviour of the animals being observed (Baker and Herman, 1989; Corkeron, 1995; Sousa-Lima et al., 2002; Williams et al., 2002; Scheidat et al., 2004; Bejder et al., 2006). Today, there are questions as to the extent and the long-term implications of these effects. These findings underscore the need for commercial whale watching to be appropriately managed and regulated in order to minimise any potential impact.

In this context, assessing the status of commercial humpback whale watching activities in the South Pacific was considered essential in order to support management initiatives. Such a review provides a useful tool for developing a responsible tourism industry and will allow to appreciate its growth in the coming years. This assessment also supports regional humpback whale conservation initiatives, such as the 2003-2007 Whale and Dolphin Action Plan developed by the SPREP (2003), and currently being revised for the 2008-2012 period. The present report describes commercial humpback whale watching activities available throughout the South Pacific for the 2005 season, and is the result of a close collaboration between Economists @Large & Associates, IFAW (International Fund for Animal Welfare) and Opération Cétacés. This project was funded by FFEM (French Fund for the World's Environment).

1.2. Objectives

Data was collected in order to:

- ◆ Identify those countries with a commercial and/or informal humpback whale watching industry in the South Pacific.
- ◆ Describe the status of the industry in each of those countries.
- ◆ Estimate the number of tour operators in the industry.
- ◆ Estimate the number of participants to humpback whale watching tours.
- ◆ Identify the time of presence of humpback whales across the South Pacific.
- ◆ Evaluate regional, national and international protection measures.
- ◆ Estimate the economic value of whale watching for each country, state or territory where such industry exists.

1.3. Limitations

The extent and accuracy of the information used in this report highly relies on the co-operation of tour operators, governments and organisations surveyed. Therefore, the data presented here should not be considered exhaustive. The accuracy of some of the information could not be verified, but this room for error was accounted for by the use of multiple data sources where possible. This report therefore provides an estimate of commercial and informal humpback whale watching activities in the South Pacific.

The estimates presented in the report are conservative and should be considered as indicators of minimum possible values, this for a number of reasons. Firstly, the whale watching industry is in a growth phase and thus its characteristics are changing substantially from one year to another. Secondly, whale watching companies generally offer other types of marine activities as their core product due to the highly seasonal nature of the business. Marketing their products under labels other than whale watching makes it more difficult to assess the exact number of operators in a given area (eg, dive companies, yacht charters, game fishing). Furthermore, whale watching in the South Pacific is often conducted from geographically isolated areas, for which it can prove particularly difficult to obtain information. Some operators also conduct tours to observe other species than humpback whales. In such cases, extracting data specific to humpback whales can be challenging.

The present report should therefore be read in light of these limitations.

1.4. Report Structure

The first section of the report describes the methods used to determine the status of commercial humpback whale watching activities in the South Pacific. The terminology used and the area covered by this study are defined. The methods used

to collect data are then described. The calculations referred to in this review are also detailed.

The following section presents the results of the study. The status of commercial humpback whale watching is described for the South Pacific as a whole. Regional protection measures and the benefits generated by the whale watching industry are presented. Countries offering this activity are then identified. The type of activity, the period during which the species can be observed, the number of operators, the number of tourists undertaking whale watching trips, the economic value of this activity, and existing regulations are analysed for each country.

Finally, conclusions are drawn from the results obtained and recommendations are made.



2. Methods

2.1. Definitions

Today, the term whale watching is widely used within the tourism industry and the scientific community. For the purpose of this report and to ensure the appropriate use of this term, it is defined as follows:

Whale watching refers to “viewing activities of any cetacean species (ie both whales and dolphins) from land, sea or air”.

This definition corresponds to the one used in other reports on whale watching (Hoyt, 2001; Economists @Large & Associates, 2004, 2005, in prep.) and thus ensures the consistent use of this term.

Any person taking part in a trip to view cetaceans in their natural environment can be designated a “whale watcher”.

2.2. Area of Interest

The purpose of this study is to evaluate commercial and informal humpback whale watching activities in the South Pacific. The area of interest includes the South Pacific islands, the east coast of Australia and New Zealand. The term “Pacific islands” includes all countries, states and territories South of the equator and more specifically, the island states of Melanesia, Polynesia and some parts of Micronesia.

2.3. Data collection

2.3.1. Questionnaire

South Pacific Islands: The data presented in this report were extracted from responses to a questionnaire sent to all tour operators providing marine-based activities within which cetaceans may be observed in the whole of the Pacific region (Appendix 1) (Economists @Large & Associates, in prep.). A few weeks after sending out the full questionnaire, a second mail with four questions (Appendix 2) was forwarded to all operators in order to maximise response rate (Economists @Large & Associates, in prep.). The questionnaire was thus sent to 139 operators in 22 states and territories. Phone interviews were also conducted with some operators.

The full version of the questionnaire was also sent to various tourist organisations, government agencies, universities, research centres and non-governmental organisations. A total of 31 organisations were contacted (Economists @Large & Associates, in prep.).

Australia and New Zealand: The data in this report are derived from studies previously conducted by Economists @ Large & Associates (Economists @ Large & Associates, 2004 and 2005). The information relating to whale watching in Australia refers to the 2003 season and to the 2004 season for New Zealand. The questionnaire sent to all tour operators likely to conduct whale watching tours can be

found in Economists @ Large & Associates, 2004 and 2005. A total of 250 operators were contacted in Australia and 59 in New Zealand.

2.3.2. Literature Review

Documents, reports and articles on whale watching in the South Pacific and world-wide were compiled by searching the University of Auckland's electronic database and by contacting different specialists in that field. Searches were also conducted on the internet in order to gather information on the type of tours provided by whale watching operators and on existing regulations in the area of interest.

2.3.3. Interviews

A number of scientists studying the various populations of humpback whales across the South Pacific were questioned as to the status of commercial humpback whale watching activities and regulations in effect in their study area. This information complemented the questionnaire and published data.

2.4. Calculation of the Economic Value of Whale Watching

2.4.1. Definitions

One of the objectives of this study is to estimate the economic value of humpback whale watching in the South Pacific. In this regard, a number of terms need to be defined.

The total **economic value** of whale watching corresponds to the sum of direct economic benefit resulting from this activity plus a conservative estimate of the indirect benefit generated by the participants' non-whale watching expenditure. The **direct economic benefit** refers to the whale watch ticket purchase price by participants. Beyond the cost of the trip itself, part of the amount spent by whale watchers for food, accommodation and travel can be allocated to whale watching and represents the **indirect benefit**. It has been shown that indirect expenditures are a significant contributor to a country's local economy (Hoyt, 2001).

These definitions correspond to those used by Hoyt in his economic assessment of commercial whale watching tourism world-wide (Hoyt, 2001), thus enabling data comparison and the analysis of the development of whale watching in the South Pacific.

All dollar values in this report are US dollars and are based on conversion rates from local currencies that were available at the time of undertaking this research (December 2006).

2.4.2. Calculation of Direct Benefit

The direct benefit has been calculated as follows (Economists @ Large & Associates, in prep.):

- ◆ Dedicated humpback whale watchers: 100% of the average price of a ticket, based on operators responses, multiplied by the total number of whale watchers.
- ◆ Opportunistic humpback whale watchers: 50% of the average ticket price multiplied by the number of opportunistic whale watchers (for a more detailed description, see Economists @ Large & Associates, 2004), accounting for the fact that whale watching is not the primary reason for purchasing the ticket (The method for estimating the number of opportunistic whale watchers can be found in paragraph 2.5).

2.4.3. Calculation of Indirect Benefit

In order for part of the indirect benefit to be allocated to commercial humpback whale watching, the average expenditures relating to this activity were calculated based on responses from operators and tourism organisations.

For the South Pacific Islands region, indirect expenditures correspond to accommodation (1 night) and the purchase of food and souvenirs. These were estimated at US\$250 per person based on average expenditure reported in regional tourism reports (Economists @ Large & Associates, in prep.). In general, participants to whale watching trips visit the South Pacific islands for other reasons than whale watching. Therefore, travelling expenses cannot be allocated to whale watching, even partially, and they were not included in the calculation of the indirect benefit (Economists @ Large & Associates, in prep.).

For Australia, indirect benefit was calculated on a region specific basis due to the availability of regional tourism data (Economists @ Large & Associates, 2004). Indirect expenditures tend to increase with the distance between whale watching sites and the main cities on the East coast of Australia. As for New Zealand, the same calculations were conducted on a regional basis using responses from operators and reports from tourism organisations (Economists @ Large & Associates, 2005). In this report, no economic value is presented for New Zealand due to the absence of dedicated humpback whale watching.

2.4.4. Calculation of the Total Economic Value

The total economic value of humpback whale watching was calculated as follows:

- ◆ Dedicated humpback whale watchers: The total economic value corresponds to the sum of the direct benefit plus 50% of the indirect benefit. This 50% figure reflects a conservative allocation of a proportion of a tourist's daily expenditure to whale watching, allowing for the fact that the whale watcher could participate in another activity on the same day to which the other 50% of expenditure could be allocated. Therefore, the total economic value represents a conservative estimate of the value of the industry.
- ◆ Opportunistic humpback whale watchers: indirect expenditure was not included in the total economic value for opportunistic humpback whale watchers. This reflects the fact that these whale watchers did not intentionally

seek out whale watching as an activity; it rather formed part of another marine tourist activity to which the indirect expenditure would need to be attributed.

The calculation of the total economic value of whale watching reflects the fact that the economic benefit of this activity to the local economy extends beyond the price of the whale watch trip itself through additional tourist expenditure on non-whale watching items as a result of participating in this activity. This allows to estimate the overall benefits generated by humpback whale watching for each country, state and territory.

2.5. Estimating the Number of Opportunistic Whale Watchers

This estimate is based on answers received from humpback whale watch operators, many of whom are predominantly dive, fishing or yacht charter operators in the South Pacific region. These operators do not rely on whale watching for the bulk of their income, however, when whales are present and accessible, they will undertake opportunistic viewing trips with tourists, or may divert an existing tour to view the whales. Due to the low number of whales in many of the countries of the region, this informal whale watching represents an important part of the emerging market, increasing the attraction of the region to tourists.

The total number of opportunistic humpback whale watchers is weighted by the percentage of trips during which humpback whales were sighted. For example, if an operator stated that humpback whales were seen during 10% of the trips in 2005 and that the total number of participants was 1,000 for that year, the number of opportunistic whale watchers for this period would be equal to 10% of the total number of participants – i.e., 100.

These figures were presented to tourism organisations, associations and research groups in each country in order to check their accuracy.

2.6. Calculation of Annual Growth Rate

2.6.1 Annual Growth Rate

Annual growth rate is calculated as a percentage of the increase in the number of whale watchers from one year to the next. For example, if 3,600 people took part in whale watching tours in 2005 versus 3,000 in 2004, the increase of 600 individuals represents an annual growth of 20%.

2.6.2 Average Annual Growth Rate

Average annual growth rate, calculated for a period of several years, corresponds to the average of the growth rates calculated for each year. For example, if 3,600 people participated to whale watching tours in 2005, against 2,000 in 2000, this represents an increase of 1,600 individuals over 5 years, or 320 individuals per year on average, under the assumption that growth is constant over

that time period (although this is likely to be incorrect, with year on year fluctuations in growth, this is the best possible calculation due to lack of data for the years in between). The average annual growth rate is thus 12.48%. The average annual growth rate corresponds to the average of the growth rates calculated for each year.



3. Results

3.1. Response to the Questionnaire

South Pacific Islands: Of the 139 questionnaires sent out, 44 were completed, resulting in a response rate of 32% for the whole of the Pacific region (Economists @ Large & Associates, in prep.). This sample is evenly distributed between the various states and territories surveyed and therefore provides a suitable data set for evaluating commercial humpback whale watching in the Pacific.

Australia and New Zealand: In Australia, 55 of the 250 operators contacted answered the questionnaire, or 22% (Economists @ Large & Associates, 2004). The response rate for New Zealand was 25.5% (Economists @ Large & Associates, 2005), with a total of 15 operators responding out of the 59 contacted.

3.2. Type of Activities Offered

The humpback whale is a migratory species. After feeding in the Antarctic during the summer months, humpback whales spend winter in the tropical waters of the South Pacific to breed and calve. Therefore, the species is only sighted in the South Pacific on a seasonal basis. As a result, humpback whale watching companies only operate during the southern winter, on the species' breeding grounds and along their migration corridors. Outside of the whale watching season, these marine-based companies generally offer charter services, diving, fishing or other trips related to the marine environment.

As humpback whales are only present on a seasonal basis, the beginning and end of the whale watching season vary from year to year depending on the presence and abundance of whales. Within the small island states and territories, whale watching is also subject to demand, as the presence of tourists – who make up the vast majority of the region's whale watchers - may vary during the whale season.

Commercial humpback whale watching in the South Pacific is mainly conducted by tour operators dedicated to this activity in season. Other operators observe whales opportunistically as part of other marine-based activities. It seems very likely that the possibility of seeing whales serves as an advertising tool for these opportunistic operators, as well as an additional attraction for tourists.

Humpback whale watching can be conducted using various platforms. Boat-based observations are the most common as they allow close proximity to the animals. A wide variety of vessels is used across the South Pacific, including semi-rigid craft, sailboats, and vessels designed specifically for the purpose of whale watching. A few operators conduct whale watching trips from aircraft and helicopters. Some land-based sites allow to observe whales present in travelling along the coast. A greater number of tourists can take advantage of this kind of platform for whale watching as no direct costs are involved.

3.3. Status of Whale Watching in the South Pacific

3.3.1. General

In 1998, whale watching world-wide (regardless of species) represented a strong industry attracting more than 9 million tourists per year in 87 states and territories (Hoyt, 2001). In the South Pacific (including Australia and New Zealand), the number of whale watchers was estimated at 976,063 (Hoyt, 2001). These figures have doubled since, as there are now more than 2 million whale watchers in the South Pacific (calculated from Economists @ Large & Associates, 2004, 2005, in prep.).

The humpback whale is the most commonly watched species in the world (Hoyt, 2001). Out of the sixteen countries of the South Pacific where whale watching was conducted in 2005, 10 offered trips specific to humpback whales (Economists @ Large & Associates, in prep.).

Commercial humpback whale watching in the South Pacific started in 1987 in Hervey Bay on the East coast of Australia (Hoyt, 2001). Today regarded as the humpback whale watching capital of the South Pacific, there are around 20 dedicated companies operating in Hervey Bay. Similar growth has occurred in other countries, such as New Caledonia, where humpback whale watching started in 1995 with five operators against 18 in 2005 (Garrigue and Virly, 2000; Schaffar and Garrigue, 2006). In the whole of the South Pacific, the number of humpback whale watchers was estimated at 171,387 in 2005, with approximately 120 tour operators. Excluding Australia and New Zealand, 49 operators conducted humpback whale watching trips for some 15,694 participants in the South Pacific Islands region in 2005.

3.3.2. Protection Measures

As a result of decades of whaling, the humpback whale is today considered as a vulnerable species by the International Union for the Conservation of Nature (IUCN, 1996). Despite a slight increase in the population off the East coast of Australia (Paterson et al, 2001; Noad et al, 2006), there are still no signs of recovery in the rest of the South Pacific (Garrigue et al, 2002), making this species particularly sensitive to potential threats.

The rapid growth of the whale watching industry has raised questions regarding the potential impact on humpback whale populations subjected to this type of tourism. Several scientific studies have shown the presence of boats or aircraft in close proximity to cetaceans can cause them to shift speed and direction, change the duration of dives, interrupt certain activities, move to other areas, or modify the frequency of certain behaviours (Baker and Herman, 1989; Corkeron, 1995; Great Barrier Reef Marine Park Authority, 2000; Sousa-Lima et al., 2002; Williams et al., 2002; Scheidat et al., 2004; Bejder et al., 2006). There is the potential for humpback whales to be repeatedly exposed to boats during their migration and their stay in breeding grounds. For example, commercial humpback whale watching is conducted at many locations along the East coast of Australia and animals following this migration route are likely to be exposed to whale watching vessels once again when they reach New Caledonia (Garrigue et al., 2000). In order to minimise potential adverse effects on populations, several countries have established whale sanctuaries and implemented regulations regarding the approach to and observation of marine mammals (IFAW, 1996). In fact, the implementation of a code of conduct and the

enforcement of protection measures is considered a valuable tool in reducing the potential impact of whale watching activities (Great Barrier Reef Marine Park Authority, 2000).

There is a broader level of protection for whales in the South Pacific, with several international conventions governing the conservation of marine mammals species in the region. These are:

- ◆ **The Convention on International Trade in Endangered Species (CITES).** The convention is designed to ensure that the international trade in plants and wild animals does not threaten their survival. The international market in protected species is strictly controlled and trade in all threatened species is prohibited. CITES lists the humpback whale as a threatened species in Appendix 1 of the convention.
- ◆ **The Convention on Migratory Species (CMS).** The purpose of this convention is to protect any migratory species and its habitat over its entire range. A Memorandum of Understanding (MoU) was signed in September 2006 by Australia, the Cook Islands, the Federated States of Micronesia, Fiji, France, New Zealand, Niue, Samoa, and Vanuatu. Additional countries (Papua New Guinea and the Solomon Islands) have subsequently signed this MoU. This Memorandum provides an institutional umbrella for member countries to work more closely together towards the conservation of cetaceans across the Pacific Islands region.
- ◆ **The International Whaling Commission (IWC).** This Commission provides for the proper conservation of whale stocks and the orderly development of the whaling industry. It is responsible for setting quotas for the commercial and subsistence catch of whales, and for creating whale sanctuaries. The 1982 moratorium on commercial whaling was introduced by the IWC. Efforts by the IWC to establish a South Pacific whale sanctuary have so far proved unsuccessful.

The **Secretariat of the Pacific Regional Environment Programme (SPREP)** works to promote co-operation throughout the Pacific Islands region, to support protection of the environment and to ensure the sustainable development for present and future generations. A co-operative management plan for the conservation of whales, dolphins and dugongs was established for the 2003-2007 period (SPREP, 2003). Through this action plan, all SPREP member countries and territories have undertaken to reinforce the conservation and protection of cetaceans, as well as their habitats and migratory corridors, reduce threats, respond to strandings and entanglements, ensure exchange of information, increase education and public awareness activities, improve training and research, and work towards sustainable and responsible cetacean-based tourism.

3.3.3. Whale watching: A Multiple-Benefit Industry

Watching cetaceans in their natural environment benefits our society in many ways, provided the industry is appropriately managed. In fact, whale watching makes an important contribution to the economy of numerous countries, represents a valuable educational tool and is of international socio-economic value.

In many countries, the economic benefit generated by whale watching has allowed this industry to become an alternative to whaling. In 1998, whale watching world-wide (regardless of species) generated an estimated direct benefit of US\$299 million, and a total economic value of more than US\$1 billion (Hoyt, 2001). The direct benefit generated by whale watching in the South Pacific for the same period was estimated at more than US\$35 million, for a total economic value of US\$123 million (Hoyt, 2001). The direct benefit from whale watching in the South Pacific for 2005 was estimated at more than US\$50 million, for a total economic value estimated at more than US\$300 million (based on Economists @ Large & Associates, 2004, 2005, in prep.).

The assessment of commercial humpback whale watching in the South Pacific has shown that this activity generated more than US\$6.7 million in direct benefits, for a total economic value over US\$38.3 million (Simon O'Connor, personal communication). For the South Pacific islands alone, the direct benefit was estimated at US\$1,298,955 and the total economic value at US\$3,666,955. Watching cetaceans, and humpback whales in particular, makes a major economic contribution to the gross national product of countries offering this activity. This contribution is even greater for those island states and territories where economy relies significantly on tourism (Economists @ Large & Associates, in prep.).

Today it is recognised that whale watching helps raising public awareness on the need for species protection, and for conservation of the marine ecosystem and of the environment as a whole (Great Barrier Reef Marine Park Authority, 2000; Hoyt, 2001). Dolphins and whales are flagship species, and observing them can raise awareness on threats to the environment and the conservation efforts they require. A better understanding of the biology and ecology of marine mammals and their environment also has an intrinsic value. In addition to the passive observation of these animals, many whale watching trips have an educational component. Books and other documents on the species are usually available, guides are trained so that the public is better informed, and some operators actively take part in scientific research projects. These measures are essential, as they allow to better appreciate the animals and their needs. Incorporating educational programme into whale watching trips builds bridges between operators and local communities, as well as between the public and the scientific community (IFAW, 1997).

Beyond these economic and educational benefits, the real value of whale watching is made up of multiple aspects: recreational, scientific, cultural, social, aesthetic, spiritual/psychological, political, environmental, or ecological (IFAW, 1999). Whale watching has increased employment opportunities, created a new source of income during the winter season in the South Pacific, provided for the establishment of marine protected areas and sanctuaries, led to the development of research projects, and represents an additional tourism attraction (IFAW, 1999; Hoyt, 2001). Whale watching also plays an important role at the community level: for example a number of countries, such as Australia, celebrate whale festivals each year (Hoyt, 2001). There are only few examples of whale watching having a negative social impact, but loss of cultural traditions as a result of the development of such activities has been documented in some communities (IFAW, 1999). Nevertheless, steps are currently being taken to address this issue under the SPREP Whale and Dolphin Action Plan review.

The benefits of whale watching tend to counterbalance any possible environmental cost, such as the potential impact on the animals or the pollution of the

marine environment caused by this activity (IFAW, 1999). However, such balance cannot be taken for granted, and it is essential to keep working towards minimising potential costs or impacts of whale watching and maximising its educational and scientific benefits.

3.4. Humpback Whale Watching in the South Pacific

3.4.1. General

Commercial humpback whale watching, whether opportunistic or dedicated, is conducted in 10 South Pacific countries, states and territories. These include Australia, New Zealand, New Caledonia, Tonga, Samoa, Niue, the Cook Islands and French Polynesia (Figure 1). Low levels of opportunistic viewing can be found in Fiji and American Samoa.

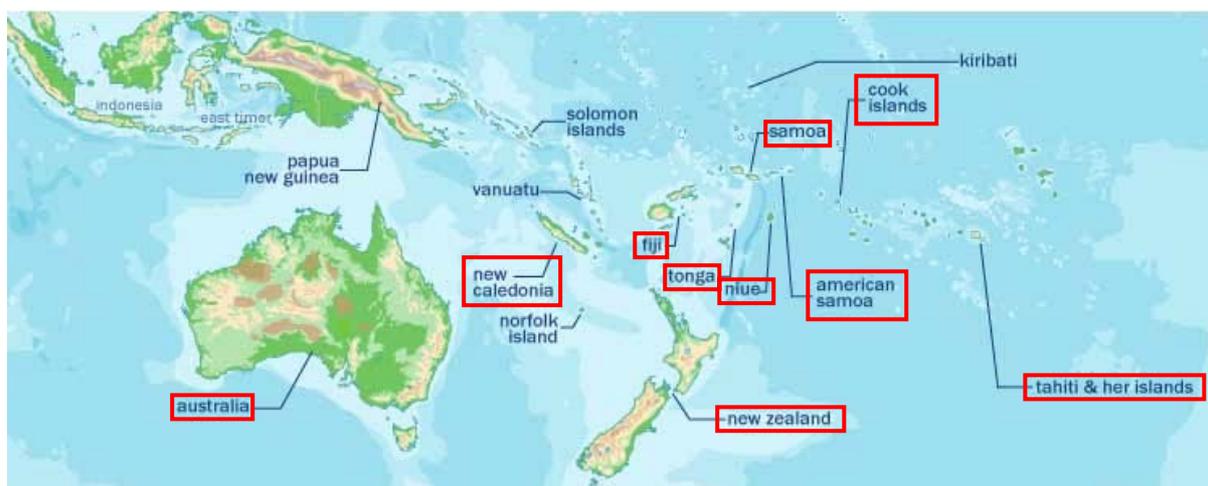


Figure 1. Geographical distribution of all countries, states and territories conducting commercial humpback whale watching (red box).

With the exception of New Zealand and the Cook Islands, all the above states and territories serve as breeding grounds for humpback whales (SPWRC, 2006). New Zealand and the Cook Islands represent migration corridors along which whales travel (Constantine et al., 2006; Hauser and Clapham, 2006). Some parts of Australia are breeding grounds, while others are only transit areas.

Whale watching takes place in other South Pacific states and territories, such as Papua New Guinea and the Solomon Islands (Economists @ Large & Associates, in prep.), but do not focus on humpback whales and will therefore not be analysed in this report.

No whale watching activity has been recorded in some South Pacific states and territories, such as Tokelau, Kiribati, Tuvalu, Vanuatu and Wallis and Futuna, although humpback whales have been sighted in some of these locations, including Vanuatu (Garrigue et al, 2004) and Wallis and Futuna.

Humpback whales are also frequently seen in their feeding grounds during ecotourism cruises bound for the Antarctic (Hoyt, 2001). However, this area falls outside the scope of this study.

The information presented below is summarised in Table 1 for Australia and in Table 2 for the remainder of the South Pacific.

3.4.2. American Samoa

Recent scientific research in American Samoa indicates that humpback whales are present during the southern winter, and suggests that they use this area as a breeding ground (David Mattila, personal communication). There are some land-based observation sites reported on the main island of Tutuila. The observation of humpback whales and other cetacean species on a commercial basis appears to be mainly opportunistic, as demand for tourism-related activities is currently low. In fact, relatively few tourists visit this area (around 16,000 tourist arrivals per year) (Economists @ Large & Associates, in prep.). Only one operator conducts marine-based trips, and reports occasional sightings of humpback whales between August and November (Economists @ Large & Associates, in prep.).

The number of whale watchers, the direct benefit and total economic value derived from humpback whale watching in American Samoa are considered minimal (Economists @ Large & Associates, in prep.).

As American Samoa is a United States territory, U.S. federal laws on the protection of cetaceans apply to this area and prohibit the harassment, hunting and capture of these species. In addition to these laws, American Samoa established a sanctuary for marine mammals and turtles within its territorial waters in August 2004 (Economists @ Large & Associates, in prep.). The purpose of the sanctuary is to protect South Pacific marine mammal and turtle populations, to evaluate the use made of the sanctuary by these species, to promote education and raise public awareness, and to ensure the sustainable exploitation of this area (IFAW, in prep.).

3.4.3. Australia

Humpback whale watching is highly popular on the East coast of Australia and attracts a great number of participants every year. In terms of number of humpback whale watchers, it represents the leading country in the South Pacific.

Humpback whale watching along the East coast of Australia is predominantly undertaken in the States of Queensland and New South Wales, each state offering several humpback whale watching sites (Figure 2). In 2003, 71 whale watching companies were identified in this area, 44 of which conducted dedicated humpback whale watching trips. There is also an important dolphin watching industry along some parts of this coastline. It is estimated that in 2003 more than 155,000 people took part in humpback whale watching trips, and more than 300,000 watched whales from the different vantage points available along the coast. The direct benefit was approximately of US\$5.4 million and the total economic value exceeded US\$34.6 million.

Table 1A – Commercial humpback whale watching on the East coast of Australia (2003). For more detailed information on the calculation of this data, please refer to Economists @ Large & Associates, 2004.

Country	State	Area	Opportunistic Operators	Dedicated Operators	Total	Season	Average Price (US \$)	Sanctuary or equivalent national legislation	Whale watching regulations	Whale watching permits
Australia			27	44	71	June - October	80	Yes	Yes	
	Queensland		27	16	43			Yes	Yes	Yes
		Great Barrier Reef	27		27					
		Hervey Bay and the Gold Coast		16	16					
	New South Wales			28	28			Yes	Yes	No
		Byron Bay		2	2					
		Port Stephens		10	10					
		Sydney		3	3					
		Jervis Bay		9	9					
		Eden		4	4					

Table 1B – Commercial humpback whale watching on the East coast of Australia (2003). For more detailed information on the calculation of this data, please refer to Economists @ Large & Associates, 2004.

Country	State	Area	Whale Watchers (boat based)	Whale Watchers (land based)	Direct Benefit (US\$)	Total Value (US\$)
Australia			155,693	316,924	5,469,860	34,674,006
	Queensland		111,168		4,337,873	17,242,178
		Great Barrier Reef	40,000	not available	2,496,124	9,921,596
		Hervey Bay and the Gold Coast	71,168	not available	1,841,749	7,320,582
	New South Wales		44,525	316,924	1,131,987	17,431,828
		Byron Bay	not available	300,000	not available	9,319,050
		Port Stephens	20,000	minimal	492,960	3,463,200
		Sydney	2,075	16,924	8,891	249,803
		Jervis Bay	12,450	minimal	222,833	2,305,018
		Eden	10,000	not available	407,303	2,094,757

Table 2 – Commercial humpback whale watching in the South Pacific, excluding Australia (2005).

Country	Opportunistic Operators	Dedicated Operators	Total	Season	Average Price (US \$)	Sanctuary or equivalent national legislation	Whale watching regulations	Whale watching permits
Fiji	Yes	No		July-September		Yes	No	No
Cook Islands		1	1	July-October	46	Yes	Pending	Pending
Niue		1	1	July-October	40	Yes	Pending	Pending
New Caledonia		18	18	July-September	85	Yes	No	No
New Zealand	Yes	No*				Yes	Yes	Yes
French Polynesia		9	9	July-November	94	Yes	Yes	Yes
Samoa	3		3	July-October		Pending	Pending	Pending
American Samoa	Yes	No	1	August-October		Yes	No	No
Tonga		16	16	July-November	82	Yes	No	Yes

*despite there being dedicated whale watching operators in New Zealand, there are none dedicated solely to humpback whales.

Country	Whale Watchers (boat based)	Whale Watchers (land based)	Direct Benefit (US\$)	Total Value (US\$)
Fiji	not available			minimal
Cook Islands	215	3 500	9,890	474,265
Niue	120		4,800	19,800
New Caledonia	3,109		264,265	652,890
New Zealand	not available		not available	not available
French Polynesia	3,000		282,000	657,000
Samoa	250		minimal	minimal
American Samoa	minimal		minimal	minimal
Tonga	9,000		738,000	1,863,000



Figure 2. Whale watching sites on the East coast of Australia (Queensland, purple; New South Wales, blue).

Although most of these data refer to humpback whale watching, it may also include other species on a small scale. It is important to consider that this data vary greatly from one year to another because of the rapid development of this industry .

The whale watching industry in Australia has experienced phenomenal growth over recent years. To meet the demand, many types of tours are available, ranging from a few hours to several days, and using a wide variety of platforms. The vessels used for these trips can accommodate several dozen to several hundred passengers. The product offered goes well beyond simply observing humpback whales. Most boats are equipped with hydrophones, so that passengers can hear the whales singing. Some vessels have underwater viewing windows, give commentaries in several languages, and use aircraft to locate the animals. Most whale watching companies guarantee that whales will be sighted and allow passengers to come back for free if none are seen during the trip. Crews are generally experienced and have received special training. Whale watching trips cost an average of US\$80 per person, and take place from June to October.

In response to the rapid growth of whale watching and in order to regulate the activity, the Australian government has established marine protected areas, introduced national whale watching guidelines, and implemented management plans. In 1999, Australia's exclusive economic zone was declared a sanctuary for all species of cetaceans. This sanctuary highlights the will of the Australian government to work towards the management and conservation of cetaceans, and is part of a more general framework set up under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*, which is, in turn, based on the *Whale Protection Act 1980*. The act states that killing, capturing or interfering with any species of cetacean in Commonwealth waters by any person, boat or aircraft is strictly prohibited . Regulations on approaching cetaceans, together with fines applicable in case of non-compliance are also included in the act. Other national measures have been implemented for the conservation of whales and dolphins in Australian waters:

- ◆ **Action Plan for Australian Cetaceans, 1996.** This programme was established to review the status of various species of cetaceans in Australia and thus to enable the development and implementation of conservation measures, research projects, and management plans.
- ◆ **Australian National Guidelines for Whale and Dolphin Watching, 2005.** These recommendations provide advice on approaching cetaceans in order to minimise any potential impact on the animals and, at the same time, to enhance people's interaction with the whales. A first version of these recommendations was implemented in 2000.
- ◆ **Humpback Whale Recovery Plan 2005-2010.** This initiative demonstrates that the protection of humpback whales is a priority for the Australian government. The purpose of this plan is to: ensure the recovery of humpback whale populations, maintain protection from human threats, and return to a pre-exploitation distribution of the species. The plan sets out current management measures, existing and potential threats, and the actions to be undertaken to achieve the goals stated.

Each state implements and enforces the Commonwealth legislation and action plans through laws and regulations in accordance with the local context. Booklets have also been distributed to the general public, explaining the legislation covering cetacean watching in everyday language. Guidelines on approaching whales and dolphins serve as a national standard for this activity and ensure that the public is aware of the applicable rules.

3.4.3.1 Humpback Whale Watching in Queensland

In 2003, there were 43 commercial whale watching operators in Queensland. Of these, approximately nine were dedicated to 'swim-with' dwarf minke whales trips in the Great Barrier Reef area (Economists @ Large & Associates, 2004). Most of the remaining 32 operators conducted trips dedicated to humpback whale watching or other activities within which the species could be viewed depending in season.

Queensland is divided into three humpback whale watching areas: the Great Barrier Reef, Hervey Bay and the Gold Coast. The Great Barrier Reef is famous for diving and, even though it represents the main activity proposed by tour operators, many of them also have licences for opportunistic whale watching. In 2003, 27 whale watching licences were issued, including approximately nine specifically for swimming with dwarf minke whales (Economists @ Large & Associates, 2004). The number of licences has now been capped at 30 (Simon Allen, personal communication). In Hervey Bay and on the Gold Coast, whale watching focuses mainly on humpback whales. In 2003, approximately 16 operators conducted trips for the purpose of viewing this species (Economists @ Large & Associates, 2004). At present, a cap over licences has been set at 20 in Hervey Bay (Wally Franklin, personal communication). At least 4 whale watching companies operated on the Gold Coast during the 2006 season.

The average annual growth rate for whale tourism since 1998 is around 8% for the Queensland area (Economists @ Large & Associates, 2004). Although this rate appears lower than that of New South Wales, it is still considered a strong rate of

growth (Simon O'Connor, personal communication). This growth rate reflects the maturity of the industry in parts of Queensland, the restricted number of licences issued by the State government, and the development of other whale watching locations on the East coast of Australia (Economists @ Large & Associates, 2004).

In 2003, the number of boat-based humpback whale watchers was estimated at more than 111,000 for the whole of the state of Queensland, after deducting the proportion of tourists swimming with dwarf minke whales and watching dolphins (calculations in this section are based on data contained in Economists @ Large & Associates Report, 2004, unless otherwise indicated). This represents a direct economic benefit of more than US\$4.3 million and a total economic value of approximately US\$17.2 million. For Hervey Bay and the Gold Coast, an estimated 71,168 individuals took part in humpback whale watching activities in 2003, generating a direct benefit of more than US\$1.8 million, for a total value of more than US\$7.3 million. For the Great Barrier Reef area, there were approximately 40,000 opportunistic humpback whale watchers in 2003, giving a direct benefit of approximately US\$2.4 million and a total value estimated at US\$9.9 million.

Queensland has one of the most comprehensive management programmes in Australia and, in the entire South Pacific. Humpback whales conservation has been identified as a priority by the State and Territory governments. In addition to regulating the approach to whales and dolphins, Queensland has set up a licensing system covering all companies wanting to conduct commercial cetacean watching. A limit has been set on the number of licences granted for each area of Queensland and whale watching is prohibited in areas considered essential for the conservation of humpback whales. The requirements to obtain a licence include the substantial knowledge of the crew on the species observed, an educational programme incorporated into the trip, the level of noise produced by the vessel as well as its manoeuvrability, trip frequency, passenger comfort, and the quality of the waste-disposal system. Licences are initially issued for one season and thereafter for two, three or six seasons based on the operator's performance. A monitoring system was introduced in order to control operators' compliance with regulations. The State of Queensland has also implemented a number of measures and management plans to promote the conservation of cetacean species in this area. These include:

- ◆ **Management Programme Plan for the Conservation of Whales and Dolphins in Queensland, 1997.** This sets out management measures for each factor likely to threaten cetaceans, educational strategies to increase public awareness on the conservation of the marine environment, and priority research projects.
- ◆ **Code of Conduct for Commercial Whale Watching Activities, 1997.** This document deals with all aspects of responsible whale watching and, in particular, with approach regulations, communication and co-operation between operators, on-board educational material, and crew qualifications.
- ◆ **Marine Parks.** Several areas within Queensland, identified as priority protection zones, have been declared marine parks. It has enabled the implementation of management, educational and research methods adapted to the specific needs of each zone. Marine Parks were created in the Great Barrier Reef in 1975, in Moreton Bay in 1983, and in Hervey Bay in 1989. The establishment of Hervey Bay Marine Park enabled the implementation of whale watching regulations.

- ◆ **Great Barrier Reef Marine Park Regulations, 1983.** These regulations include a specific section regarding approach to cetaceans.
- ◆ **Whale and Dolphin Conservation Policy for the Great Barrier Reef Marine Park, 2000.** This programme includes a description of measures required to manage human activities that may affect the behaviour of dolphins and whales in the area. In particular, it deals with improving knowledge about the species present in the park, the development of educational material, the regulation of whale watching activities, and the identification of priority species. Considering the significant development of the park in recent years, this programme is currently being revised.

3.4.3.2 Humpback Whale Watching in New South Wales

In 2003, there were approximately 28 operators conducting whale watching trips the State of New South Wales (Economists @ Large & Associates, 2004). Every year, several communities spread along the coast of New South Wales participate to humpback whale watching. In 2003, it was estimated that two companies were operating in Byron Bay, ten in Port Stephens, three leaving from Sydney, nine from Jervis Bay and four around Eden (Economists @ Large & Associates, 2004). The presence of resident dolphin populations along the coast of New South Wales has resulted in year-round commercial cetacean watching activities. However, these companies conduct dedicated humpback whale watching trips when the species is present.

With an annual average growth rate of 37% since 1998, New South Wales is the Australian State with the most significant development of whale watching (dolphins and whales) (Economists @ Large & Associates, 2004). The industry is continuing to grow, with six operators in Byron Bay and six in Sydney for the 2006 season. With the growth of whale watching world-wide and the success of the industry in places like Hervey Bay, the potential to develop whale watching is being considered in many other areas. Thus, new humpback whale watching sites have emerged on a regular basis over the past ten years.

For the entire State of New South Wales and deducting the proportion relating to dolphin watching activities, the number of boat-based whale watchers was estimated at 44,525, with 316,924 land-based watchers in 2003. The large number of people watching whales from land is related to the popular vantage point at Cape Byron, from which several humpback whales can be observed every day in season. More than 2,000 people commonly visit Cape Byron for this purpose during a single weekend, and more than 300,000 people watch whales from this site each season (David Paton, personal communication). No estimate of the number of boat-based whale watchers is currently available for the Byron Bay area.

The total economic value of whale watching at Byron Bay was estimated at US\$9.3 million for 2003. Estimates for the 2003 season for other locations along the coast of New South Wales are as follows:

- ◆ **Port Stephens:** The number of humpback whale watchers was estimated at 20,000, generating a direct benefit of US\$492,960 and a total value of US\$3,463,200.

- ◆ **Sydney:** 2,075 tourists participated to boat-based trips, while 16,924 observed humpback whales from land, for a direct benefit of US\$89,891 and a total value of US\$249,803.
- ◆ **Jervis Bay:** there were 12,450 whale watchers in Jervis Bay. Land-based whale watching appears minimal in this area. The direct benefit of humpback whale watching sums up to US\$222,833, for a total value of US\$2,305,018.
- ◆ **Eden:** 10,000 tourists undertook humpback whale watching trips in the Eden area. No estimate of the number of land-based whale watchers is available for this area. The direct benefit is estimated at US\$407,303, for a total value of US\$2,094,757.

The relatively large difference between the direct benefit and the total economic value within New South Wales (excluding Sydney) can be linked to the difficulty to access whale watching sites. Therefore, transportation costs are higher, and indirect benefit increased. These values represent an overall direct benefit of US\$1,131,987 and a total economic value of US\$17,431,828 for the whole of New South Wales.

As opposed to Queensland, no commercial cetacean-watching licence is required in New South Wales. Approach to cetaceans has however been in place for some years under State legislation and in 2006, these regulations were amended to better reflect the national whale watching guidelines. There are also three marine parks in the area where humpback whales are commonly observed: Cape Byron (created in 2002), Jervis Bay (2003) and Port Stephens (2005).

3.4.4. Cook Islands

The Cook Islands represent a migratory corridor for humpback whales, which they use during the northern migration as well as when returning South to Antarctic waters (Hauser and Clapham, 2006). There is only one whale watching operator in the Cook Islands, its main activity being deep-sea diving. Depending on demand and on the presence of whales, this operator conducts two hour humpback whale watching trips departing from Rarotonga from July to October (Figure 3). The trip costs US\$46 per person. Humpback whale sightings in the Cook Islands appear to be too scarce for the development of dedicated commercial whale watching tourism (Nan Hauser, personal communication).

The Cook Islands are fringed by a reef, and the surrounding ocean quickly drops to great depths. For that reason whales migrate very close to the reef and can easily be observed from land. The government promotes land-based observations and maintains that “In the Cook Islands, we do not go to the whales; the whales come to us”. A land-based viewing platform was specifically built in 2006. The most popular land-based site for humpback whale watching is Black Rock on the western coast of Rarotonga. Whales can also be seen from Atiu, Mangaia, Mauke and Mitiano. A Centre for Cetacean Research and Conservation was set up at Avarua, Rarotonga, in 1998 and provides information on humpback whale watching sites around the Cook Islands,. The Centre also takes part in raising public awareness on the protection of the marine environment.



Figure 3. Whale watching departure points in the Cook Islands (in red).

The total number of whale watchers in the Cook Islands for the 2005 season was estimated at 3,715, of which 3,500 were land-based (Economists @ Large & Associates, in prep.). The direct benefit generated by this activity was estimated at US\$9,890 (Economists @ Large & Associates, in prep.). This figure remains low as most watchers are land-based. However, the total economic value is similar to that of other countries proposing this activity, as part of the daily expenditure from tourists taking part to land-based whale watching can be attributed to it. The total economic value was estimated at US\$474,265 for 2005 (Economists @ Large & Associates, in prep.). This represents an average annual growth rate of 64% since 1998 when whale watching was considered minimal in the Cook Islands (Economists @ Large & Associates, in prep.).

In 2001, the Cook Islands government declared the exclusive economic zone a sanctuary for marine mammals, thus prohibiting hunting, harassment, and mutilation of these species (Hoyt, 2005; Economists @ Large & Associates, in prep.). There are currently no regulations on approaching cetaceans nor any whale watching licensing system. In 2002, the Cook Islands Ministry of Marine Resources began a review of the fishing legislation and considered the development of whale watching regulations, of an enforcement system, and of a whale watching management plan (Hoyt, 2005; IFAW, in prep.). In the meantime, guidelines referring to approach to whales have been implemented by the Centre for Cetacean Research and Conservation.

3.4.5. Fiji

There are no dedicated humpback whale watching tour operators in Fiji. However, more than 70 operators offer deep-sea diving around the islands and report occasional sightings of humpback whales during the southern winter (July to September) (Economists @ Large & Associates, in prep.). The number of opportunistic whale watchers is however minimal. Scientific observations confirm that

humpback whales used to be abundant in this area but are rarely seen today, which is likely to be linked to the fact that this population was decimated by whaling operations (Gibbs et al., 2006).

Because of the opportunistic nature of humpback whale watching in this area, no economic value could be estimated for this activity. In May 2003, the Prime Minister of Fiji declared a national sanctuary for the protection of whales within Fiji's exclusive economic zone (IFAW, in prep.).

3.4.6. French Polynesia

Commercial humpback whale watching began in French Polynesia in 1992. Only one company was operating until 1995, whale watching following the rapid growth found in other South Pacific islands soon afterwards (Michael Poole, personal communication). Humpback whale watching in French Polynesia is of two types: trips are either dedicated to humpback whale watching or focus on diving with a 'swim-with whales' component. In 2005, three companies were dedicated to humpback whale watching and six dive clubs offered swimming with humpback whales. Trips on small motorboats accommodating about thirty passengers each take place from July to November and leave from Moorea and Rurutu (Figure 4). The average price per person is US\$94 (O'Connor, personal communication).

Until 1998, the number of whale watchers in French Polynesia was considered minimal (O'Connor, personal communication). At that time, the industry's main focus was on other species, such as spinner dolphins, present year-round in Moorea. As humpback whale watching grew in popularity, the number of participants in these activities increased rapidly. It was estimated that, in 2005, approximately 3,000 people either watched humpback whales or swam with them (O'Connor, personal communication). This represents a direct benefit of US\$282,000 and a total economic value of US\$657,000 (O'Connor, personal communication).

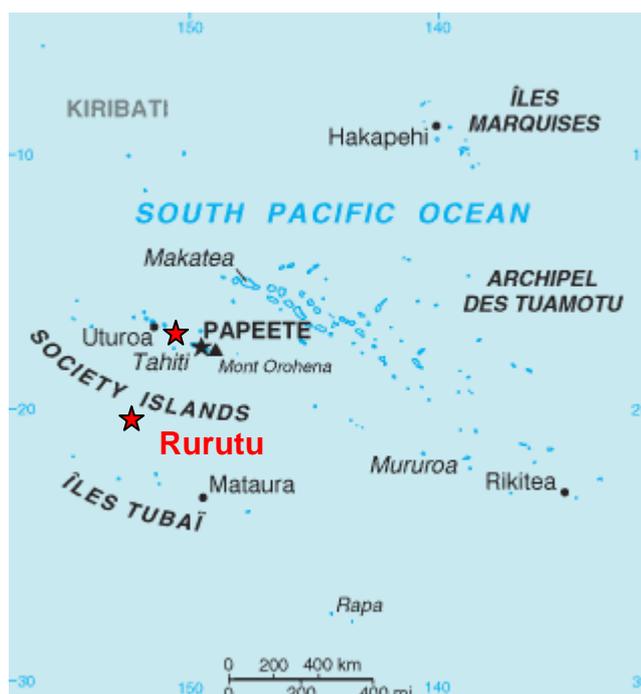


Figure 4. Whale watching departure points in French Polynesia (red stars).

In December 1995, the government of French Polynesia designated all species of marine mammals present in interior waters, in the territorial sea and in the exclusive economic zone, as protected species, prohibiting their mutilation, harassment, and capture, as well as their consumption, hunting, detention, transportation, importation and exportation. In 2002, the territorial sea and the exclusive economic zone of French Polynesia were declared a sanctuary for the protection and conservation of whales and other marine mammals. Whale watching activities are regulated within the sanctuary, with specific legislation on approaching marine mammals. A commercial licence is also required. However, obtaining a licence strictly relies on complying with maritime laws. Current regulations in French Polynesia are not adequately enforced and do not seem to be entirely respected (Marc Oremus, personal communication). It also appears that some unlicensed operators offer humpback whale watching trips on a commercial basis (Economists @ Large & Associates, in prep.).

3.4.7. New Caledonia

Commercial humpback whale watching in New Caledonia has shown consistent growth since its start in 1995. At that time, only five companies were operating, and this number grew to 18 in 2005, and 24 in 2006 (Garrigue and Virly, 2000; Schaffar and Garrigue, 2006). Whale watching activities concentrate around the Baie du Prony, in the southernmost part of the territory. Trips generally take place from mid-July to mid-September, departing from Baie de la Somme and from Noumea (Figure 5). The average cost of a trip is US\$85 per person. Whale watching companies mainly operate charter services, the presence of whales in winter allowing them to make greater use of their boats during the low season. While some operators conduct whale watching trips during the week, most companies operate over weekends when demand is the highest. Commercial humpback whale watching in New Caledonia presents some unique characteristics when compared to the other South Pacific islands. First of all, sailboats are used almost exclusively, mainly catamarans which can take about fifteen passengers each. In addition, participants are mainly from New Caledonia, as international tourism remains relatively low (Economists @ Large & Associates, in prep.).

In 2005, approximately 3,109 people participated to humpback whale watching trips, generating a direct benefit of US\$264,265 and a total economic value of US\$652,890 (O'Connor, personal communication). Since 1998, the average annual growth rate is 46%. Given the development of whale watching in New Caledonia and the small population of humpback whales using the area, this activity may have reached its maximum capacity. A study was therefore initiated in 2005 to assess the potential effect of boats on the behaviour of humpback whales in this area (Schaffar and Garrigue, 2006).

Despite considerable growth, there are no whale watching regulations in New Caledonia. Guidelines on how to approach whales have been published by the Southern Province, but compliance is rare. In 2003, the waters around New Caledonia were declared a whale sanctuary, and includes the exclusive economic zone as well as the territorial and interior waters under the territory's jurisdiction. Legislation implemented in the Northern (2001) and in the Southern (2004) Provinces provide cetaceans and sirenians with a general level of protection against hunting,

harassment, capture and mutilation in the coastal waters of these two provinces (Garrigue, 2006).



Figure 5. Humpback whale watching area in New Caledonia (red star).

3.4.8. New Zealand

Whale watching is a well-developed activity in New Zealand and many tourists choose this destination for the specific purpose of watching and swimming with the various species of marine mammals found along its coasts. Regardless of species, 90 whale watching companies were operating in New Zealand in 2004 with more than 425,000 participants (Economists @ Large & Associates, 2005). As in Australia, the product offered by New Zealand whale watching companies is of a high quality. Marine mammals sightings are guaranteed, many operators have training in marine biology or ecology, all trips have an educational component, and part of the direct benefit derived from ticket sales is used to finance scientific research.

A certain number of humpback whales migrate along the coast of New Zealand, but sightings remain scarce. For that reason, and because many other species can be seen on a daily basis, no whale watching company focuses on humpback whales. However, the species is occasionally sighted during the southern winter. This is particularly true for the small whale watching community based in Kaikoura, on the East coast of the South Island (Figure 6). A local company specialised in sperm whale watching reported seeing humpback whales on 7.7% of the days their boat went out at sea in 2005. Sightings take place from the end of May to the beginning of November, most of them occurring in July. Two other companies based in Kaikoura and offering sperm whale watching trips by aircraft or helicopter report occasional sightings of humpback whales during the winter (Simon Childerhouse, personal communication). As for the rest of the country, operators have reported sightings of humpback whales in Cook Strait (between the North and South Island), as well as off the north-eastern coast of North Island, but not more than once a year on average (Rochelle Constantine, personal communication).

Because of the opportunistic nature of humpback whale watching in New Zealand, no estimate could be made of the number of participants or the economic benefit derived from this activity. As an indication, the direct benefit generated by the overall whale watching industry in New Zealand for 2004 was US\$22,619,579, for a total economic value of US\$81,061,445 (Economists @ Large & Associates, 2005).

New Zealand's marine mammal protection regulations are internationally recognised and are frequently used as models by other countries. All whale watching operators are licensed. The licences are issued on a case-by-case basis and this process takes into consideration the number and types of boats used, the frequency and duration of trips, the geographical limits of the activity, the number of passengers, the number of days operated each year, the educational content of the trips and the knowledge of the crew, as well as the time spent with the animals. This system controls not only the number of boats in a given area, but also the quality of the trips conducted. The need for an onboard educational programme to obtain a licence, as well as the financial support of research by tour operators through the licensing system, are specific to New Zealand (IFAW, 1997; Hoyt, 2001).



Figure 6. Main humpback whale watching site in New Zealand (red star).

The legislation protecting cetaceans in New Zealand dates back to 1978, and establishes the country's exclusive economic zone as a sanctuary for all marine mammals species. Marine mammal protection regulations were implemented in 1990 for the purpose of managing human activities and of preventing potential impact on the animals. The regulations set out a detailed code of conduct for tour operators and anyone wanting to interact with marine mammals. Because of the rapid growth of the whale watching industry, these regulations were reviewed in 1992 and several amendments relative to specific whale watching conditions in certain areas have been made since then.

3.4.9. Niue

Niue's interest in marketing cetacean watching began in 1996 when the economic benefits of this activity became apparent in other South Pacific states and territories, such as Tonga (Economists @ Large & Associates, in prep.). In 1998, an evaluation of the potential for developing whale watching in Niue was commissioned by the country's Tourism Department (Economists @ Large & Associates, in prep.). One operator currently conducts humpback whale watching trips during the whale season – i.e., July to October (O'Connor, personal communication). This operator, specialised in diving, offers dolphin and whale watching trips on demand, and also proposes to swim with these species as it is not prohibited by the government. Humpback whale watching trips are undertaken on a semi-rigid boat taking 10 passengers and lasting approximately three hours. The cost per person is US\$40. This operator is located on the western side of the island, in Alofi (Figure 7).

As in the Cook Islands, humpback whales remain close to the coast of Niue, providing for land-based observations. The best-known whale watching sites are located in Avatele and Tamakautoga (Figure 7). Some hotels use the possibility of viewing whales as an advertising asset.



Figure 7. Whale watching departure points (red box) and land-based sites (red stars) in Niue.

It has been estimated that 120 tourists participated to humpback whale watching trips during the 2005 season (O'Connor, personal communication). The direct benefit generated by this activity is US\$4,800, for a total economic value of US\$19,800 (O'Connor, personal communication). The humpback whale watching industry in Niue is small at present, but may well develop as tourism grows in the years to come.

In May 2002, Niue declared its exclusive economic zone a sanctuary for whales and dolphins. The sanctuary was established in 2003 (Government of Niue, 2003; Hoyt, 2005; Economists @ Large & Associates, in prep.). Two whale watching

workshops were held respectively in 2001 and 2003 (Andrews, 2001, 2003), and resulted in the establishment of a code of conduct for approaching cetaceans around Niue. This code, as well as a licensing system, are currently awaiting approval by the local government (IFAW, in prep.). The proposed regulations are based on those existing in other countries, such as Australia and New Zealand, and are adapted to the local situation. A management programme plan was developed in 2005 in order to identify priority species and measures, and to put forward actions needed to be undertaken in order to reduce potential threats within the sanctuary (Andrews, 2005).

3.4.10. Samoa

Humpback whale watching in Samoa is solely opportunistic as only a small number of humpback whales are present in the waters off Samoa during winter. Three operators specialising in surfing and diving activities report occasional sightings of humpback whales between July and October (Economists @ Large & Associates, in prep.). In 2005, the number of opportunistic humpback whale watchers in Samoa was estimated at 250 (O'Connor, personal communication). The direct benefit and total economic value generated are currently considered minimal.

There are two marine protected areas off the main island of Samoa, Upolu: one at Aleipata and the other at Safata. These areas have a similar function to sanctuaries and protect marine mammals against hunting, capture, and mutilation. Fishing regulations protect all species of delphinids since 1995 (IFAW, in prep.). Regulations to protect marine fauna and flora are currently being prepared. These include laws on approaching marine mammals, as well as a licensing system for all commercial whale watching operators (IFAW, in prep.).

3.4.11. Tonga

The whale watching industry in Tonga is regarded as the most established in the South Pacific Islands region. In Tonga, humpback whales can be observed on a regular basis during the southern winter and, more specifically, from July to October. The waters around Tonga serve as a breeding ground for the species. Swimming with humpback whales is also actively marketed. Humpback whale watching started in 1994 with four licensed operators and some informal whale watching occurring prior to this date (Economists @ Large & Associates, in prep.). Since then, the activity has taken an important position within Tonga's tourism industry. In fact, Tonga is the only country in the South Pacific Islands region attracting tourists worldwide specifically to watch and swim with humpback whales (O'Connor, personal communication). It is not unusual for the same visitors to go on several whale watching trips during their stay. Faced with growing demand over the years, whale watching companies have invested in purpose-build boats offering greater comfort and better viewing opportunities (Hoyt, 2001). Many boats are now equipped with hydrophones and platforms for swimmers to enter the water. Whales have also become an advertising tool in Tonga and 82% of the local tourism industry highlights whale watching or shows pictures of whales in their brochures (Orams, 1999). Most trips depart from Vava'u (Figure 8). In recent years, some companies started to operate in the Ha'apai Island group (Figure 8). In 2005, 16 operators conducted trips to watch and swim with humpback whales. The average cost of a trip is US\$82 per person (O'Connor, personal communication).

In 1998, the number of whale watchers was estimated at 2,300, more than in any other areas for the same period (Hoyt, 2001). At that time, 63% of all tourists visiting Tonga took part in whale watching activities at least once during their stay (Hoyt, 2001). In 2005, there were approximately 9,000 participations in humpback whale watching trips, representing an average annual growth rate of 22% over the last seven years (Economists @ Large & Associates, in prep.). On the economic side, the direct benefit generated in 2005 was US\$738,000, for a total economic value of US\$1,863,000 (Economists @ Large & Associates, in prep.). In 1998, the total economic value generated by humpback whale watching was US\$422,000 (Hoyt, 2001).



Figure 8. Main humpback whale watching sites in Tonga (red box).

The whale watching industry in Tonga appears to be reaching maturity and growth may start to flatten out. Since March 2006, the number of licences has been limited to 13. Whale watching operators have formed the Tonga Whale Watching Operators Association with the objective of managing this activity in a sustainable manner. Towards that goal, they have established a code of conduct for approaching whales. In 2005, the Department of Fisheries initiated the implementation of regulations in order to protect marine mammals in the area and to enforce rules for approaching whales (IFAW, in prep.). The Tongan Whale Watching Operators Association is working with government for these regulations to be adopted. Although there are no sanctuaries in Tongan waters, cetaceans are protected throughout the exclusive economic zone under the *Whaling Industry Act* dating back to 1979 .

4. Conclusions and Recommendations

Humpback whale watching has developed into an important and valuable activity within the South Pacific. On a commercial basis, it is now widespread throughout the region, stretching from French Polynesia to Australia and including a number of other states and territories. The level of development of this industry varies greatly between countries. Whale watching is an established industry in places like Australia, Tonga, New Caledonia and French Polynesia, but is in its infancy in other locations, such as Niue and the Cook Islands. Humpback whale watching remains mainly opportunistic in New Zealand, Fiji, Samoa, and American Samoa. An assessment of the presence of humpback whales in other areas of the South Pacific may allow other countries to develop this activity. This report will serve as a reference in evaluating the future growth of humpback whale watching in the South Pacific.

The financial role of humpback whale watching within the tourism industry is considerable. The direct and indirect benefits generated by whale watching make a significant contribution to the economy of South Pacific states and territories. This is the case not only for countries where whale watching is an established industry but also for those where whale watching occurs on an opportunistic basis. It seems likely that the potential of seeing humpback whales will render any marine-based activity more attractive. In addition to the economic benefits, whale watching also has an educational and a socio-economic value for countries proposing this activity.

Several factors influence a country's ability to invest in and support a tourist activity such as whale watching. First of all, the presence and abundance of cetaceans in its surrounding waters is of paramount importance. Humpback whales may be observed several times per day in certain areas, but are only sighted occasionally in others. This type of tourist activity can only be developed if the product can be offered on a regular basis. Whales must therefore be present consistently and in sufficient numbers.

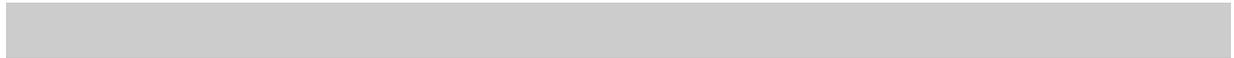
An well-established marine-based tourism industry also seems to be a prerequisite in the development of humpback whale watching. Due to the seasonal presence of humpback whales, whale watching operators gain the most significant part of their income from other activities, such as charter services, diving or fishing. This is equally true for those countries where humpback whales are only seen occasionally, with operators marketing this activity when the species is present as a supplement to trips offered year-round.

Another factor to consider is the demand for this type of activity. When tourism levels are low and the island's economic development does not provide for local residents to participate in such activities, the presence of cetaceans alone may not be enough to generate a viable industry. With the exceptions of locations such as Va'ava'u in Tonga and Hervey Bay in Australia, viewing cetaceans in general, and humpback whales in particular, makes up part of a broader appeal of a tourist destination. In most South Pacific states and territories, it seems very likely that the development of whale watching will represent one component of the tourist industry as a whole.

For the sustainable development of whale watching it is essential that this activity does not have adverse effects on the whale populations. The data collected within this report tend to show that humpback whale watching may be approaching

full capacity in several areas of the South Pacific. It seems likely that, if participants were to perceive the activity as detrimental to the animals observed, the popularity of watching whales would be greatly reduced.

With the growth of the whale watching industry in the region, comes the increased responsibility to ensure that the industry is accurately managed. Towards that goal, management measures in the South Pacific need to be addressed and, as such, improvements are currently being made by Pacific Island states and territories. In addition to the sanctuaries created in the several whale watching areas, regulations and enforcement are necessary. Scientific studies are also needed in order to assess the potential impact of whale watching activities on the animals and to determine maximum carrying capacity in each area. Improving the management of commercial humpback whale watching will not only allow the sustainable development of the tourism industry but will also contribute to the conservation of humpback whale populations in the South Pacific.



5. References

- Andrews, O. (2001). The Development of Whale Watching in the South Pacific. A Report on the Training Programme for the Sustainable Development of Whale Watching Nature Tourism in the Kingdom of Tonga, Island of Niue, and the Eco-Tourism Assessment of Vanuatu. Whales Alive & IFAW Asia Pacific, Sydney: 16 p.
- Andrews, O. (2003). Development of Whale Watching in Niue, 2003. Season Report, Whales Alive & IFAW Asia Pacific, Sydney : 6 p.
- Andrews, O. (2005). Plan of Management for the Niue Whale Sanctuary. School of Environmental Science and Management, Southern Cross University, Lismore & IFAW Asia Pacific, Sydney: 36 p.
- Baker, C.S., and Herman, L.M. (1989). Behavioural responses of summering humpback whales to vessel traffic: experimental and opportunistic observations. Report to National Park Service; NP-NR-TRS-89-01, 50 p.
- Bejder, L., Samuels, A., Whitehead, H., Gales, N., Mann, J., Connor, R., Heithaus, M., Watson-Capps, J., Flaherty, C., and Krützen, M. (2006). Decline in relative abundance of bottlenose dolphins exposed to long-term disturbance. *Conservation Biology* 20 (06): 1791-1798.
- Constantine, R., Russell, K., Gibbs, N., Childerhouse, S., and Baker, S. (2006). Photo-identification of humpback whales in New Zealand waters and their migratory connections to breeding grounds of Oceania. Paper SC/A06/HW50 presented to the IWC workshop on Comprehensive Assessment of Southern Hemisphere Humpback Whales, Hobart, Tasmania, 3-7 April 2006. 5 p.
- Corkeron, P.J. (1995). Humpback whales (*Megaptera novaeangliae*) in Hervey Bay, Queensland: behaviour and responses to whale watching vessels. *Canadian Journal of Zoology* 73 (7): 1290-1299.
- Economists @ Large & Associates (2004). From whalers to whale watchers: The growth of whale watching tourism in Australia. An IFAW Report: 34 p.
- Economists @ Large & Associates (2005). The Growth of the New Zealand Whale Watching Industry. An IFAW Report: 26 p.
- Economists @ Large & Associates (in prep.). Pacific Islands Whale Watch Tourism 2005: A region wide review of activity. An IFAW report: 63 p.
- Garrigue, C., and Virly, S. (2000). Whale watching in New Caledonia : a new industry. Poster presented at the Humpback 2000 conference, 29 August-1 September 2000, Brisbane, Australia.
- Garrigue, C., Forestell, P., Greaves, J., Gill, P., Naessig, P., Baker, C.S., and Patenaude, N. (2000). Migratory movement of humpback whales (*Megaptera novaeangliae*) between New Caledonia, East Australia and New Zealand. *Journal of Cetacean Research and Management* 2 (2): 111-115.
- Garrigue, C., Aguayo, A., Amante-Helweg, V.L.U., Baker, C.S., Caballero, S., Clapham, P., Constantine, R., Denkiger, J., Donoghue, M., Florez-Gonzalez, L., Greaves, J., Hauser, N., Olavarria, C., Pairo, C., Peckman, H., and Poole, M. (2002). Movements of humpback whales in Oceania, South Pacific. *Journal of Cetacean Research and Management* 4 (3): 255-260.
- Garrigue, C., Russell, K., and Dodemont, R. (2004). A preliminary survey of humpback whales and other cetaceans in Vanuatu, South-West Pacific. Report to the International Whaling Commission, SC/56/SH18.

- Garrigue, C. (2006). Baleine à bosse. In B. Capecchi (ed.) 101 mots pour comprendre l'environnement de la Nouvelle-Calédonie : 35-36.
- Gibbs, N., Paton, D., Childerhouse, S., and Clapham, P. (2006). Assessment of the current abundance of humpback whales in the Lomaiviti Island Group of Fiji and comparison with historical data. Paper SC/A06/HW34 presented to the IWC workshop on Comprehensive Assessment of Southern Hemisphere Humpback Whales, Hobart, Tasmania, 3-7 April 2006. 12 p.
- Great Barrier Reef Marine Park Authority (2000). Whale and dolphin conservation in the Great Barrier Reef Marine Park. 69 p.
- Government of Niue (2003). Niue Whales Sanctuary Regulations, Fale Fono, Alofi, Niue.
- Hauser, N., and Clapham, P. (2006). Occurrence and habitat uses of humpback whales in the Cook Islands. Paper SC/A06/HW49 presented to the IWC workshop on Comprehensive Assessment of Southern Hemisphere Humpback Whales, Hobart, Tasmania, 3-7 April 2006. 12 p.
- Hoyt, E. (2001). Whale watching 2001: World-wide tourism numbers, expenditures, and expanding socioeconomic benefits. International Fund for Animal Welfare. 158 p.
- Hoyt, E. (2005). Marine Protected Areas for Whales Dolphins and Porpoise : A World Handbook for Cetacean Habitat Conservation. Earthscan, London. 516 p.
- IFAW (1996). Report of the workshop on the scientific aspects of managing whale watching. Montecastello di Vibio, Italy, 30 March-4 April 1995. 40 p.
- IFAW (1997). Report of the workshop on the educational values of whale watching. Provincetown, Massachusetts, USA, 8-11 May 1997. 39 p.
- IFAW (1999). Report of the workshop on the socioeconomic aspects of whale watching. Kaikoura, New Zealand, 8-12 December 1997. 88 p.
- IFAW (2000). Report of the workshop on the legal aspects of whale watching. Punta Arenas, Chile, 17-20 November 1997. 48 p.
- IFAW (in prep.). A Review of Measures for Marine Mammal Conservation, Protection and Management in the Pacific Islands Region. Working Paper presented at the Review Meeting of the SPREP Whales and Dolphin Action Plan, Apia, March 2007. IFAW Asia Pacific.
- IUCN (1996). IUCN Red List of Threatened Species. <www.iucnredlist.org>
- Noad, M.J., Paton, D., and Cato, D.H. (2006). Absolute and relative abundance estimates of Australian east coast humpback whales (*Megaptera novaeangliae*). Paper SC/A06/HW27 presented to the IWC workshop on Comprehensive Assessment of Southern Hemisphere Humpback Whales, Hobart, Tasmania, 3-7 April 2006. 15 p.
- Orams, M.B. (1999). The economic benefits of whale watching in Vava'u, the Kingdom of Tonga. Centre for Tourism Research, Massey University, Albany, New Zealand. 65 p.
- Paterson, R.A., Paterson, P., and Cato, D.H. (2001). Status of humpback whales, *Megaptera novaeangliae*, in east Australia at the end of the 20th century. *Memoirs of the Queensland Museum* 47: 579-586.
- SPREP (2003). Whale and Dolphin Action Plan, 2003-2007. Document SPREP mars 2003. 11p.
- Schaffar, A., and Garrigue, C. (2006). Whale watching activities in the Southern Lagoon of New Caledonia: current status and evolution since 1995. Poster presented at the 20th annual conference of the European Cetacean Society, 2-7 April 2006, Gdynia, Poland.

- Scheidat, M., Castro, C., Gonzalez, J., and Williams, R. (2004). Behavioural responses of humpback whales (*Megaptera novaeangliae*) to whale watching boats near Isla de la Plata, Machalilla National Park, Ecuador. *Journal of Cetacean Research and Management* 6 (1): 63-68.
- SPWRC (2006). Report of the Annual Meeting of the South Pacific Whale Research Consortium, Auckland, New Zealand, 11-13 March 2005. Paper SC/57/SH9, 11 p.
- Sousa-Lima, R.S., Morete, M.E., Fortes, R.C., Freitas, A.C., and Engel, M.H. (2002). Impact of boats on the vocal behavior of humpback whales off Brazil. *The Journal of the Acoustical Society of America* 112 (5): 2430-2431.
- Williams, R., Trites, A.W., and Bain, D.E. (2002). Behavioural responses of killer whales (*Orcinus orca*) to whale watching boats: opportunistic observations and experimental approaches. *Journal of Zoology, London*, 256, 255-270.
- 

Appendix 1 - Questionnaire for Marine Tour Operators

Questionnaire for marine tour operators:

Whale, dolphin, dugong and sea turtle watching tourism activities in the Pacific Islands region:

Economic assessment and potential for development

Project partners: International Fund for Animal Welfare, South Pacific Tourism Organisation, Secretariat for Pacific Regional Environment, and the South Pacific Whale Research Consortium.

Thank you for assisting in this study. Below is a brief set of questions aiming to establish an overview of the extent of the whale, dolphin, sea turtle and dugong marine-based tourism activities in the Pacific Islands region.

The study will be presenting a baseline estimate on the size of the industry, including numbers of tourist participants and operators, key locations of these tourism activities, direct and indirect economic valuation and growth patterns of the industry. The study also aims to identify the potential for further growth in the industry as a sustainable tourism option for the region.

As an important part of this industry evaluation, we are including both dedicated tourism operators focused solely on tourism activities based around these marine species, as well as opportunistic operators who may occasionally see, swim with or observe these species whilst conducting their core business. These activities may be land, sea or air based, formal or informal, full time or part time. Questions are presented below in order to determine the level of importance these species play to attracting tourists to your business.

The questions set out below are key to completing this important regional assessment. We welcome any input, including best estimates from your own local knowledge of the industry where actual data is not available. We are aiming to present the results of this assessment at the mid year International Whaling Commission meeting. As a result, time is short and we'd appreciate your early response to this questionnaire.

If it's easier for you to respond to questions on the phone, we can also organise a time to call that's convenient for (or online via Skype). Otherwise, please respond below and email back. Thanks greatly for your assistance in providing information for this regional study.

Simon O'Connor
Economists @ Large & Associates
Melbourne, Australia
Email : simon@ecolarge.com
Web : www.ecolarge.com

1. Please write your company's name and contact details below:
Contact name:
Company name:
Vessel name/s (where relevant):
Mailing Address:
Island:
Country:
Phone:
Fax:
Email:
Website:
Main location/s of operations:
2. Please describe the nature of your business activities:
3. Does your company participate in tourism activities that in any way involve or interact with:
 - a. Whales?
 - b. Dolphins or porpoises?
 - c. Dugongs?
 - d. Sea turtles?Please describe the nature of this involvement:
4. From the above list, which species do you interact with?
5. Where do your operations take place that interact with these marine species (if different to the business address). Please list point of departure/s and island/s:
6. Would you describe your business activities as:
 - a. Boat-based?
 - b. Land-based?
 - c. Dedicated (core business based around whales, dolphins, dugongs or sea turtles)?
 - d. Opportunistic (occasional sightings of whales, dolphins, dugongs or sea turtles)?
 - e. Other (e.g. tour company, resort etc.)? Please describe:
If required, please add further explanation to your selection above:
7. If opportunistic, can you estimate the proportion of trips where whales, dolphins, dugongs or sea turtles are seen (please itemise)? %
8. Can you estimate how many tourists participated in your operations in 2005?
9. What proportion of these are local vs international?
Local: %
International: %
10. For a one hour - one day tours: What is the average cost of an adult ticket to participate in your operations?

Local currency:
US Dollar:

11. For a multi-day tour: What is the average cost of an adult ticket to participate in your tour? What is the length of the tour?

Local currency:
US Dollar:

12. Can you estimate the average amount of additional expenses incurred by tourists participating in your business (excluding ticket price)?

- a. Travel?
- b. Accommodation?
- c. Food?
- d. Film?
- e. Souvenirs?
- f. Other?

13. When is the peak season for your businesses activities?

14. Do you use whales, dolphins, dugongs or sea turtles as part of your marketing materials?

15. Could you estimate the importance of these marine species in attracting visitors to:

Your region/island?

- a. The main reason tourists visit
 - b. Very important
 - c. Quite important
 - d. Neutral
 - e. Not very important
 - f. Not a factor in attracting tourists
- On what do you base this estimate?

Your business?

- a. The main reason tourists participate
 - b. Very important
 - c. Quite important
 - d. Neutral
 - e. Not very important
 - f. Not a factor in attracting tourists to the business
- On what do you base this estimate?

16. Do any other tourism activities take place in your country involving or interacting with:
- a. Whales?
 - b. Dolphins or porpoises?
 - c. Dugongs?
 - d. Sea turtles?

(This could be boat-based or land-based, dedicated or opportunistic, full time or part time) Where it occurs, please stipulate the type of activities:

17. Could you estimate the number of other operators involved in tourism activities in your country involving:
- Whales?
 - Dolphins or porpoises?
 - Dugongs?
 - Sea turtles?

Comments:

Names and contacts details:

18. Could you estimate how many tourists participated in whale, dolphin, dugong or sea turtle based activities by all operators in 2005 in your region?
19. Could you provide an estimate of the length of time that these marine-based tourism industries have been running in your country and any other historical issues of relevance?
20. Have there been any previous estimates of the value of whale watch or other nature-based marine tourism activities within your country or other similar research undertaken?
21. Are there other whale, dolphin, dugong or turtle species that are regular visitors to your country that are not the focus of established tourism activities?
22. In your opinion, is there any potential for the further development of a sustainable tourism industry surrounding such marine animal watching activities, whether land-based or sea-based?
23. Could you please list any contacts in your country that you think it would be useful to speak to regarding this project such as tourism representatives, government departments, resort operators etc.
- 

Appendix 2 - Letter to Marine Tour Operators

Dear xxx,

Our organisation is currently undertaking research on behalf of the Secretariat of the Pacific Regional Environment Programme (SPREP), South Pacific Tourism Organisation (SPTO), the South Pacific Whale Research Consortium (SPWRC) and the International Fund for Animal

Welfare (IFAW). The project aims to evaluate the level of whale, dolphin, dugong and sea turtle watching tourism activities in the Pacific Islands region (the main focus being on whale and dolphin watching) and the value of this to the local economies. The project will estimate the current level of activity (in terms of operator numbers, tourist participation numbers and locations of operations), estimate an approximate value both directly and indirectly to the local economies through tourism expenditure, and then assess the potential for the development of a sustainable tourism industry around these species.

The project aims to establish levels of tourism surrounding these activities, both formal and informal, land and sea-based, dedicated tourism or opportunistic tourism. In previous studies we have undertaken on the NZ and Australian whale watching industries, we have found that informal whale watching practices can have a significant contribution to local economies. It appears that in much of the Pacific, cetacean watching or swimming is often undertaken on an opportunistic basis by dive or other cruise companies. It is our intention to gather data that incorporates estimates for these levels.

The project partners are committed to progressing the economic development of the Pacific Islands region for the benefit of the local population. An important part of this is the development of a sustainable tourism industry. A growing niche in the region is the use of whales and dolphins as an attraction to tourists. This study hopes, with your assistance, to estimate the current level of whale and dolphin watch tourism in the region leading to the further promotion of tourism and the conservation of these marine species.

Your help is critical to this project. A questionnaire is being sent attached to an email following this one. However, to minimise the time required by yourselves, we have summarised the key data we are seeking into the following questions:

* How many tourists participated in your cruises/tours/activities in 2005?

* On what proportion of these were whales (___%), dolphins (___%), dugongs (___%) or sea turtles (___%) seen?

* What is an average ticket cost for participation in your cruises/ tours/activities? (local currency___; US Dollar___)

*How many similar tourism operations exist in your country (please estimate)? _____

If you could please complete the questions above and return the results to this email address, it would be most useful. Our preference remains the completion of the full survey attached to a second email following this one.

Kind regards and thanks in advance,

Simon O'Connor

On behalf of SPREP, SPTO, SPWRC and IFAW.