

Annex J

Report of the Sub-Committee on Whalewatching

Members: Kato (Chair), Addison, Baldwin, Berggren, Carlson, Chen, Childerhouse, Clapham, Clark, Fabbri, Findlay, Goto, Gunmångsson, Hakamada, Hatanaka, Kawachi, Kim, Kock, Komatsu, Lawrence, Leaper, Lens, Miyashita, Moronuki, Nakamura, Nishiwaki, Notarbartolo di Sciara, Ohsumi, Papastavrou, Pérez-Cortés, Pinedo, Reijnders, Reilly, Robineau, Rogan, Rojas Bracho, Simmonds, Slooten, Stachowitsch, Swartz, Tanakura, Thiele, Tomita, Van Waerebeek, Walløe, Walters, Yamamura, Zeh.

1. OPENING REMARKS, ELECTION OF CHAIR AND APPOINTMENT OF RAPORTEURS

Kato was elected Chairman and Findlay was appointed rapporteur.

2. ADOPTION OF AGENDA

The adopted Agenda is given as Appendix 1.

3. REVIEW OF AVAILABLE DOCUMENTS

Documents relevant to items on the Agenda included SC/50/WW1-3; 5-11; SC/50/ProgReps Australia, UK, New Zealand, Japan, Spain and Mexico; and McCauley (1998).

4. ACTION ARISING FROM 1997 MEETING INCLUDING THE COMMISSION'S RESPONSE

No new resolution on whalewatching had been passed at the 1997 Commission meeting and consequently the previous resolution remains. Last year, Carlson offered to submit an updated version of Carlson (1996) to this year's meeting (SC/50/WW9). It was noted that this review was ongoing in that regulations from the Azores and the Code of Conduct from Madagascar had not been incorporated. Given the bulk of this document, individual copies were not distributed and a master copy was circulated for members comment.

5. PRIORITY ITEMS

5.1 Review of guidelines (including management policy on developing tourism industry in the broad sense)

A number of submissions were received from Australia. SC/50/WW1 reported on the management of a developing dwarf minke whale tourism industry in northern Queensland. Government, research and industry were working cooperatively on the management of this largely swim-based industry with research being carried out during all approaches. It was asked if research could be carried out from independent platforms (land, sea, air). Research could be carried out from other vessels or aircraft but their activity was generally undertaken too far from land. Ohsumi, noting there were no tourism activities of diving with whales in

Japan, questioned the safety aspect of swim tours. In response, it was noted that clients were linked to the vessel via ropes, thus providing some control by the operator. Information on other swim-based operations on Silver Banks was reported and Findlay provided anecdotal evidence of an aggressive encounter whilst filming right whales in South Africa. Stachowitsch supported the concept of having clients attached to the vessel by holding lines, this was seconded by Slooten. It was suggested that boat- and swim-based whalewatching were significantly different and that this group should review these separately. Swim operations were managed on a case by case basis in Australia. In response to a question regarding guidelines from swim programmes around the world, it was concluded that more detailed information was required.

SC/50/WW2 reported on management of cetacean tourism in Australia and the need for coordinated management between the eight government departments presently responsible. A two-tiered management system was proposed, in which the first tier would set national standards, while the second tier would address issues within this. Consensus had been reached for State and Commonwealth waters and comments were invited from industry NGOs and communities. It was noted that many nations were developing guidelines at a national level, but that situations differed by locality and species and that such differences needed to be considered in national, regional and local guidelines. The difference between the new Australian Draft National Guidelines and the existing legislation was that the National Guidelines would have a punitive aspect. Swartz commented that the experience of the United States is that it is very difficult to enforce legislation and, that consequently, possibly better enforcement arises through aggressive education and awareness campaigns.

SC/50/WW3 reported on the formation of a cetacean tourism industry association in Australia. Slooten suggested that such a body could raise standards of operations by offering training courses. Ohsumi encouraged the formation of such an association and questioned the relationship between the association and recreational boaters. In response it was stated that there was no relationship between the association and recreational boat users.

SC/50/WW5 commented on the whalewatching industry in Australia and the lack of biological research into whalewatching in the region. It was questioned if levies could be better distributed for research. Findlay questioned the two years of comparable aerial survey data from Hervey Bay (1989 and 1990) and it was noted that further comparable survey effort was planned. Ohsumi noted that whalewatching should be developed in close association with research and that in Japan research has increased at various whalewatching sites. This association was seconded by Rogan who suggested that a monitoring aspect be included in the guidelines.

SC/50/WW6 provided a review of management and research of the cetacean tourism industry in New Zealand. The legislation controlling whalewatching in New Zealand is the Marine Mammal Protection Act of 1978 and the Marine Mammal Protection Regulations of 1992, both of which are presently under review. Research into the effects of cetacean tourism activities in New Zealand include studies on the sperm whale, Hector's dolphin and dusky dolphin. Major difficulties encountered were the large number of operators and the lack of pre-industry baseline data.

SC/50/WW7 summarised on the growth of whalewatching in Iceland and noted the lack of regulations in this region.

SC/50/WW8 reported on whalewatching of killer whales at Tysfjord, Norway where operators were subject to voluntary guidelines and that interest in following guidelines was declining. Walløe commented that a recent decline in local herring abundance had resulted in fewer whales for whalewatching. It was questioned if any other information on whalewatching was available from Norway. The operation at Andenes was referred to and Carlson commented that the guidelines from this region were included in SC/50/WW9. It was reported that conflict between whalewatching and hunting was not evident in Norway. In response to a question of whether whaling resulted in fewer whales for whalewatching in Norway, Walløe replied that watching was based on killer and sperm whales and not minke whales. Therefore, there are no direct conflicts in terms of whales avoiding boats or reductions in whale abundance caused by whaling. SC/50/WW8 reported on shore-based theodolite tracking research combined with the use of video. Some members endorsed further development of this research approach.

Simmonds and Slooten proposed that five components raised in last year's meeting be restated in the record of this year's group. These included Permit System, Protective Guidelines, Punitive Aspects, Research and Educational Activities. They asked if the development of scientific guidelines for the evaluation of possible whalewatching impacts could form the basis of an Intersessional Working Group. Moronuki suggested that Permit System and Punitive Aspects were outside the competence of the IWC. Walters asked who Educational Activities were directed at and commented that guidelines have an educational component. Kato noted that education was within the competence of the IWC as referred as a priority item in IWC Resolution 1996-2 (IWC, 1997). Gambell stated that the references to whalewatching education in this resolution did not necessarily apply to the Scientific Committee and that whalewatching education was not within the realms of the Scientific Committee.

A suggestion that these issues be raised in an Intersessional Correspondence Group was endorsed by the sub-committee who recommended that the formation of an Intersessional Correspondence Group on scientific aspects of whalewatching should be investigated. The group will communicate by e-mail and other means on:

- (1) scientific protocols for research on the effects of whalewatching on cetaceans;
- (2) the scientific basis for management;
- (3) research on the effectiveness of management.

Moronuki expressed his concern that the discussions under Item 5.1 were proceeding in a direction which is outside of IWC competence. He noted that the issues of

whalewatching should not be handled from the viewpoint of development and analysis of tourism industries, but rather from the point of management of whale resources and providing proper scientific advice for the establishment of guidelines for whalewatching.

5.2 Assessment of short-term reactions

SC/50/WW10 reported on the use of land-based theodolite tracking to monitor the effects of tourism on dusky dolphins at Kaikoura, New Zealand. Dolphins were accompanied by vessels for a high proportion of daylight hours (72%) and almost 10% of approaches violated the regulations. Results suggest that dolphins are more sensitive to disturbance from midday onwards when they appeared to rest. One recommendation for mitigation of disturbance was the establishment of an afternoon period when no commercial approaches would be allowed. It was noted that given that dolphins are generally less active during this period operators may well support this recommendation.

Walters questioned whether there had been a determination of the most suitable size of vessel as related to distance of approaches. It was reported that Kaikoura vessels were initially about 21ft but now dolphin watching operators use vessels of about 25ft and whalewatching operations use vessels of between 30-40ft. Carlson commented that the sizes of whalewatching vessels around the world ranged between kayaks and vessels of over 100ft. It was questioned if blimps had ever been used for whalewatching to which Carlson commented that research had been conducted from a blimp off the coast of New England.

Lawrence queried as to what extent the Kaikoura dusky dolphin watching industry could be allowed to increase, to which it was replied that the industry was presently at its probable maximum given the time that dolphins are subject to boat pressure.

SC/50/WW11 reported on responses of Hector's dolphins to swimmers and boats in New Zealand waters. Whereas swimmers (from shore) elicited weak response from the dolphins, reactions to the boats were stronger. Dolphins were initially attracted to the vessel, but became less interested as the encounter progressed. Dolphins were found to be more tightly bunched when a boat was in the vicinity. The advantage of observers being based on the land was stressed in that no disturbances arise from the monitor platform. Swartz noted that following their initial attraction to vessels, after approximately one hour the dolphins were even less likely to approach a vessel than before the encounter began (~30% compared to 10%), suggesting that dolphins progressively lose interest in vessels. Lawrence seconded the comment of Swartz and noted that dolphin responses to boats within bays or open waters differ.

Findlay reported on shore-based theodolite research on the effects of controlled vessel traffic on southern right whales in South Africa and offered to submit a report of this to a future meeting. Gambell reported the Omani commissioner had requested advice on whale approaches to fishing vessels in Omani waters. It was noted these were probably *Pseudorca crassidens*.

Papastavrou noted that the use of a theodolite in conjunction with video reported in SC/50/WW8 was promising and suggested others adopt this approach. It was suggested that a report be submitted to a future meeting of the Scientific Committee. Walters commented that this was not possible at present as the work was still in progress. The Group held some discussion on the use of the video camera for recording behaviour and it was noted that ideas on

technology could be exchanged through the Correspondence Group.

Kato reported on research of short-term reactions from land on humpback whales off the Bonin Islands, Japan. The report will probably be available at the next meeting.

Clark reported on some results from research projects in Hawaii investigating responses of humpback whales to low-frequency sounds from the Acoustic Thermography of Ocean Climate (ATOC) project and from the US Navy's low frequency active (LFA) sonar system. In 1994 off north Kauai while collecting baseline data prior to any ATOC transmissions, humpbacks were observed responding to vessels. He noted that cow-calf groups consistently responded to the approaches of various types of vessels as the vessels approached to within 100-300m of the whales. Clark suggested that animals were not responding to a particular sound level but rather an acoustic dynamic such as the rate of change of sound level or bearing rate. Van Waerebeek enquired as to the influence of a vessel's sound frequencies on response to which Clark replied that frequency content changes as a function of the vessel's distance from the whales and that there are multiple features in the frequency dynamic that could be cues on vessel proximity. Clark reported that these 1994 results will be published and that preliminary results from 1998 indicate humpback whales show no obvious responses to the ATOC sound. Carlson reported that an increasing number of nations were incorporating approach and departure angle into legislation for behaviour of whalewatching vessels over and above minimum approach distances. The sub-committee thanked Clark for his presentation and encouraged submission of the work to a future Scientific Committee meeting.

Findlay reported on short- and long-term effects of whalewatching on right whales as discussed in the Report on the Workshop on the Comprehensive Assessment of Right Whales (SC/50/Rep4).

5.3 Comparative studies

SC/50/ProgRep UK described two studies being carried out at Aberdeen University. The first is the study reported in SC/50/WW8, while the second is a study on distribution and acoustic behaviour of bottlenose dolphins in an area of intense dolphin watching activity.

5.4 Report from Monkey Mia, Western Australia

Aspects of the dolphin feeding programme at Monkey Mia, Western Australia (Appendix 2) were reported on, including the history of feeding activities, guidelines and feeding regimes and fatalities of dolphins. The sub-committee expressed its appreciation to Australia for submission of this report. Ohsumi noted that generally the feeding of wild animals resulted in the negative aspect of loss of their wild nature. At the same time he suggested that provisioning often results in a decrease in mortality, although at Monkey Mia, mortality trends were increasing as a result of provisioning. It was questioned if contamination of food could be a factor in dolphin deaths. In response it was stated that mortalities had declined since the new feeding regime and that there was no evidence that deaths result from contamination of food sources. Simmonds noted that 10 years after the 1989 mortality event it was gratifying to note that, post-1993, almost all deaths could be ascribed to causes and that none of these causes could be related to the existing feeding regime, and suggested that this was a credit to the existing

management regime. Findlay asked whether the results of investigations at Monkey Mia had been incorporated in feeding programmes elsewhere in Australia (for example, Tangalooma). In response it was noted that feeding at Tangalooma was initiated after the Monkey Mia report and that the feeding activities were markedly different. Notarbartolo di Sciara reported that the Monkey Mia example was the only example reviewed at the Montecastello Workshop (IFAW, 1995) where long-term trend could be linked to short-term effects from cetacean tourism activities. This may result from the difficulties of conducting long-term research on the effects of tourism activities on cetaceans and the lack of pre-industry baseline data. Carlson commented that a number of long-term studies were available which could be utilised to monitor long-term effects of whalewatching. It was questioned whether research, and particularly research on biological parameters, were continuing at Monkey Mia to which it was stated a long-term ecological and behavioural study was being undertaken on the bottlenose dolphins of Shark Bay.

5.5 Other information

SC/50/ProgRep Spain noted that a revision of the Decree regulating whalewatching activities in the Canary Islands is in progress to include the introduction of monitor-guides on whalewatching vessels and the use of a 'blue boat' distinctive by the boats that comply with the regulations. It was also reported that a training course for the monitors was carried out in 1997 and another one is programmed for 1998. Some discussion was held regarding approach distance limitations in the region and Carlson noted that although approach distances varied greatly around the world, approach conditions generally did not. Walters noted that this information highlights the need for research on long-term impacts of whalewatching.

SC/50/ProgRepMexico reported that during the last season the ongoing studies of the short and long-term effects of whalewatching in the gray whale breeding lagoons of Mexico had been compromised in one of three sites where research into El Niño conditions was being carried out.

It was noted that the World Marine Mammal Science Conference, Monaco 1998, included workshops on Whalewatching. The minutes of one of these workshops are available on the World Wide Web (<http://office.geog.uvic.ca/dept/whale/wrlmp.html>).

Clark suggested that it would be extremely difficult to design an experiment to adequately assess the long-term impacts of whalewatching but that whalewatching is one area where a common ethic of courtesy to whales can be demonstrated. Carlson recommended a precautionary approach where no data are available. Findlay noted the difficulties that had been experienced in South Africa in designing an experiment to measure long-term effects of whalewatching on right whales. Simmonds suggested that the ongoing studies conducted by Aberdeen University might be useful in this respect.

Kato reported on several research activities on whalewatching being carried out in Japan including work on Bryde's, humpback whales and bottlenose dolphins.

Rojas Bracho suggested that the Group hold some future discussion of which areas would best be suited for a long-term study of the effects of whalewatching on cetaceans. The sub-committee agreed that this would be best achieved through the Intersessional Correspondence Group and initial aspects of discussion could be criteria for selection of such areas.

6. OTHER MATTERS

The sub-committee agreed that all items on this year's Agenda (excluding Monkey Mia) be included as future priorities and that an item on assessment of long-term effects be included as a further future priority.

The sub-committee requests submission of documents on long-term effects of whalewatching.

7. ADOPTION OF REPORT

This report was adopted at 12.45 on 3 May 1998.

REFERENCES

- Carlson, C.A. 1996. A review of whale watching guidelines and regulations around the world. Paper SC/48/O 25 presented to IWC Scientific Committee, June 1996, Aberdeen (unpublished). 59pp.
- IFAW, 1995. Report on the workshop on the scientific aspects of managing whale watching. Montecastello di Vibio, Italy, 30 March-4 April 1995. 40pp.
- International Whaling Commission. 1997. Chairman's Report of the Forty-eighth Annual Meeting. Appendix 2. *Rep. int. Whal. Commn* 47: 48.
- McCauley, R.D., Cato, D.H. and Jeffery, A.F. 1998. A study of the impacts of vessel noise on humpback whales in Hervey Bay. (Unpublished ms.).

Appendix 1

AGENDA

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| 1. Opening remarks, election of Chairman and appointment of rapporteurs | 5.1 Review of guidelines (including management policy on developing tourism industry in the broad sense) |
| 2. Adoption of Agenda | 5.2 Assessment of short-term reactions |
| 3. Review of available documents | 5.3 Comparative studies |
| 4. Action arising from 1997 meeting including Commission's response | 5.4 Report from Monkey Mia, Western Australia |
| 5. Priority items | 5.5 Other information |
| | 6. Other matters |
| | 7. Publication of documents |
| | 8. Adoption of report |

Appendix 2

REPORT ON THE DOLPHIN FEEDING PROGRAM AT MONKEY MIA SHARK BAY, WESTERN AUSTRALIA

Milena Rafic

Wildlife Management - Biodiversity Group, Environment Australia, Canberra, ACT

In IWC (1997), it was noted that the dolphin feeding program at Monkey Mia, Western Australia, was the 'only operation for which there was an assessment of a direct adverse impact on juvenile survivorship from a long-term provisioning program'. A report was requested on this program and any associated fatalities that may have occurred there.

History

Feeding dolphins at Monkey Mia beach in Shark Bay, Western Australia began with casual handouts to the dolphins by fishermen in the area. A caravan park was built in 1975, however numbers of visitors remained relatively low at approximately 10,000 a year due to a lack of facilities, difficulty in accessing the area and scarcity of public awareness (Department of Conservation and Land Management and Shire of Shark Bay, 1993). A rapid increase in visitor numbers occurred after improvements in roads to the area and an expansion in facilities and access. Currently visitor numbers are relatively constant at 100,000 per year with peak numbers of 114,000 in 1989 and 102,000 in 1990. The most popular months are in the austral winter

period of July to September and visitor surveys show that the majority of visitors are there for the first time; revisits are not common.

Feeding regime and guidelines

In the early days of feeding dolphins, frozen fish was sold to the general public to ensure the public access to a supply of fish and to collect monies to support a foundation for education and dolphin interaction awareness. At this time, the number of fish given out, the number of people offering fish and the quality of fish were not regulated. The dolphins were then visiting the beach on a more regular basis in response to the more continuous supply of fish available year round. In early 1987, Rangers at Monkey Mia stopped buying fish from Perth and were supplied by the local fishermen thus ensuring dolphins were being fed fish from their natural habitat. Researchers from the University of Michigan studying the Monkey Mia dolphins became concerned that abnormal behavioural changes during mating were directly associated with the provisioning of these dolphins (Gales, 1994). In discussions with the Rangers it was agreed to limit the amount of food sold daily to 21-28 kg

in September 1987, down from the previous high of 35kg of fish per day. The total was then again cut down to a maximum of 15kg per day in June 1988. The sale of fish ended in February 1989 to allow the Rangers more control over the feeding. A modified feeding regime was then introduced in September 1994 following the recommendations of the Wilson Report (1994).

Of the total population of 250-300 dolphins that are found offshore in the Shark Bay Marine Park, 5-8 are considered 'regular' visitors to the beach and about another 20 are 'infrequent' visitors. A high juvenile mortality rate for calves born to provisioned females led to a report commissioned by the Department of Conservation and Land Management (CALM) WA. The report, by Dr Barry Wilson, presented in 1994, led to the new feeding regime introduced in that year. Wilson recommended a number of changes to the way dolphins were fed and the following guidelines were introduced in September 1994.

- (1) Feeding of calves is banned until they are fully weaned.
- (2) No feeding of male dolphins.
- (3) Regular feeding times were introduced to avoid the tendency for feeding.
- (4) Fresh fish is made available, with frozen fish kept only as a back-up.

The dolphins are fed a maximum of one third of their estimated daily food requirements based on their estimated body weight. The Rangers from CALM regulate the feeding by handing selected people in the designated dolphin interaction area fish to feed the dolphins. Swimming and boating is not allowed in the dolphin interaction area and visitors are advised that if swimming outside the area and approached by dolphins, they are not to attempt to touch or disturb them.

The Wilson Report (1994) noted that researchers found that infant survival rates during 1985-93 were much higher for non-provisioned females than for those females being regularly fed at the beach. This was especially significant for first year calf survival rates, i.e. 67% for calves with non-provisioned mothers and 36% for calves from provisioned females. At the time of the report being written, since provisioning was regulated, only 2 calves from 11 named offspring of the provisioned dolphins survived.

Pollution event

The disappearance of seven of the provisioned dolphins, including 3 calves, over 18 days in early 1989, was believed to be linked to a pollution event involving a contamination of faecal bacteria in the area of the Monkey Mia beach. The area was affected by sewage contamination (Environmental Protection Authority, 1989) and it is possible that the disappearance of the dolphins was directly related to this event but this has remained unproven. The contamination has not recurred and a review and modification of the area's sewage disposal system was undertaken.

Fatalities at Monkey Mia

Researchers attribute at least two deaths indirectly to the provisioning system at Monkey Mia (Wilson, 1994). 'Hobbit', a female calf born to one of the long term provisioned females at Monkey Mia, was small at birth and at three months of age showed a stunted growth rate. She was killed by a shark (19 March 1994) within sight of the Monkey Mia beach while her mother and other group

females were interacting with people. Provisioning was held to be a factor in her death for two reasons: her low growth rate was attributed to the poor nutritional quality of food available to her mother; and the protection normally given to calves by their mothers and others in the group was lacking as they were engaged in feeding activities at the beach when Hobbit was by herself at some distance from the beach.

'Finnick', the juvenile male killed by possible shark attack (Table 2) was also born to a long term provisioned female and had been regularly hand fed as he visited the Monkey Mia beach with his mother. He showed markedly different behaviours from that displayed by non-provisioned juvenile male dolphins in the area: i.e. decline of time spent hunting; daylight hours spent at the beach or begging for food handouts from fishermen; no alliances formed with other male dolphins; approaches to boats travelling at speed, and aggressive behaviours to people on the beach and fishermen in the area. In early 1994, his health deteriorated and as tests showed no signs of pathogens, it was concluded that poor nutrition from habituation to hand feeding was a direct cause. He survived a shark attack but was left weak and vulnerable, and later disappeared in May of that year.

It was shortly after these two fatalities that the Wilson Report recommended the change in feeding regime that was instated in September 1994.

Rangers and researchers at Monkey Mia keep records of any deaths or injuries that occur to the Monkey Mia dolphin population. A database kept at CALM lists nine dolphin deaths with causes of death ranging from pneumonia, sting ray barb, shark attack and unknown cause of death. A summary of these deaths follows.

Table 1
Summary of deaths and cause of deaths.

Sex/age	Date of death	Cause of death
Male calf	28 Apr. 1988	Unknown
Male calf	5 Oct. 1988	Acute pneumonia
Male calf	18 Jul. 1989	Unknown
Male	17 Sep. 1989	Unknown
Female	19 May 1992	Unknown
Male	31 Dec. 1992	Stranded and shot
Unknown	10 Sep. 1993	Unknown
Female	27 Jul. 1995	Sting ray barb in heart
Unknown	9 Jul. 1997	Shark attack, bite over genitals

The Wilson Report (1994) lists the deaths of calves born to provisioned dolphins from 1989 to 1994.

Table 2
Deaths of calves born to provisioned dolphins from 1989-1994 from Wilson (1994).

Sex/age	Date of death	Cause of death
Newborn?	Feb. 1990?	At birth? Mother seen heavily pregnant but no calf subsequently seen or recorded
Male calf	Mar. 1990	Unknown
Male calf	Jun. 1991	Unknown
Female calf	Mar. 1992	Shark attack
Male calf	Mar. 1993	Unknown
Female calf	Mar. 1994	Shark attack
Male juvenile	May 1994	Possible shark attack, weak, in poor health, recovering from previous shark attack
Male calf	Jul. 1994	Unknown

Officers from CALM and researchers stationed at Monkey Mia were contacted about information on any fatalities after the last database entry (9 July 1997) but no information was available.

REFERENCES

- Department of Conservation and Land Management, W.A. and Shire of Shark Bay. 1993. Draft Management Plan, Monkey Mia Reserve.
- Environmental Protection Authority. 1989. Disappearance of dolphins at Monkey Mia. *EPA Bulletin* 381.
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