NEW ZEALAND PROGRESS REPORT ON CETACEAN RESEARCH, APRIL 2000 TO MARCH 2001, WITH STATISTICAL DATA FOR THE CALENDAR YEAR 2000

Compiled by S. Childerhouse
Department of Conservation, Te Papa Atawhai,
PO Box 10-420, Wellington, New Zealand

This report summarises information obtained from: Auckland, Massey, and Otago Universities, Te Papa Museum of New Zealand, Department of Conservation, Ministry of Fisheries, New England Aquarium and in dependent researchers.

1. Species and stocks studied

Common name	Scientific name	Area/stock(s)	Items referred to
Andrews beaked whale	*Mesoplodon bowdoini*	NZ	9
Arnoux's beaked whale	*Berardius arnuxii*	NZ	2.1.2
Beaked whales	Family *Ziphiidae*	NZ	2.1.2; 4.3
Bottlenose dolphins	*Tursiops truncatus*	NZ	2.1.1; 2.1.2; 3.1.1; 4.3
Bryde's whale	*Balaenoptera edeni*	NZ	2.1.1; 2.1.2; 3.1.1; 4.3
Common dolphin	*Delphinus delphis*	NZ	2.1.2; 3.1.1; 4.2; 4.3; 7.1; 8
Dusky dolphin	*Lagenorhynchus obscurus*	NZ	2.1.2; 4.2; 4.3; 7.1; 9
Dwarf sperm whale	*Kogia simus*	S. Hemisphere	4.4; 9
False killer whale	*Psuedorca crassidens*	NZ	4.3
Gray's beaked whale	*Mesoplodon grayi*	NZ	4.3
Hector's dolphin	*Cephalorynchus hectori*	NZ	2.1.1; 2.1.2; 3.1.1; 4.1; 4.2; 4.3; 4.4; 7.1; 8; 9
Hectors beaked whale	*Mesoplodon hectori*	NZ	9
Humpback whale	*Megaptera novaeangliae*	Area V	2.1.2; 3.1.1
Killer whale	*Orcinus orca*	NZ	2.1.2; 3.1.1; 4.1; 8
Long-finned pilot whale	*Globicephala melas*	NZ	2.1.2; 4.3; 8
Minke whale	*Balaenoptera acutorostrata*	Area V	2.1.2; 4.3
Pygmy right whale	*Caperea marginata*	NZ	4.3
Pygmy sperm whale	*Kogia breviceps*	S. Hemisphere	4.3; 4.4, 9
Sei whale	*Balaenoptera borealis*	NZ	2.1.2
Southern right whale	*Eubalaena australis*	NZ	2.1.2; 3.1.1; 4.1
Sperm whale	*Physeter macrocephalus*	NZ	2.1.1; 2.1.2; 3.1.1; 4.3; 9
Straptoothed whale	*Mesoplodon layardi*	NZ	4.3
Striped dolphin	*Stenella caeruleoalba*	NZ	4.3

2. Sightings data

2.1 Field work

2.1.1 Systematic

A three-year aerial survey for Bryde's whales is being conducted off NZ's north-eastern coast between Cape Colville and North Cape by A. Baker (Dept of Conservation). Flights at monthly intervals have been undertaken along a predetermined track, and whale sightings have been logged on a GPS. Feeding aggregations, associated with gannets and dolphins have been encountered in spring and summer (food items possibly pilchards, anchovies, or mackerel). Calves have been sighted in early summer, and there are indications of seasonal movement offshore in winter.

K. Russell and F. Pichler (Auckland Univ.) undertook vessel surveys for Hector's dolphin on the West Coast of the North Island, between Kaipara Harbour and Port Waikato. Fifteen trips were made and a cumulative total of 139 Hector's dolphins were seen during the season. Photo-ID and biopsies were taken. In addition, environmental readings were taken at the location of the 39 groups encountered, to help determine habitat preferences.

D. Lusseau and O. Boisseau (Otago Univ.) studied the population size, residency pattern, and behavioural ecology of bottlenose dolphins in Fiordland. From December 1999 to January 2001 they spent 148 days (955 hours) in Doubtful and Milford sounds looking for bottlenose dolphins, with most effort concentrated in Milford. Dolphins were sighted on 118 days (655 hours). In both fjords the impact of tourism activities on the resident populations was assessed and a study of the vocalisation pattern of bottlenose dolphins was made. This study aims at both defining relationships between physical surface behaviours and vocalisations, and assessing dialect differences between populations. A new part of the project was started in January 2001 looking at population abundance and residency patterns of bottlenose

dolphin throughout Fiordland area. Further investigation next year of vessel impacts will focus on assessing the impact of the research vessel using land-based observations. It is also planned to develop a hydrophone array to assess spatial variations in vocalisations.

Researchers from Otago University (E. Slooten, S. Dawson, W. Rayment and A-M. Martenson) conducted aerial surveys to investigate Hector's dolphin abundance on the West Coast of the South Island. This builds on previous vessel surveys along the north, east and south coast of the South Island with the aim of estimating total population size. Continuing research on Hector's dolphin within the Banks Peninsula Marine Mammal Sanctuary by researchers from Otago University (S. DuFresne, D. Clement, E. Slooten, S. Dawson, W. Rayment) focussed on reproductive rates, survival rates, offshore distribution and relationships between dolphin abundance and oceanography. Data is gathered via a non-invasive, statistically robust program of photo-ID surveys. An ongoing evaluation of whether or not the sanctuary has had the desired effect of increasing population growth rate will be completed in 2003.

From July to December 2000, approximately 870 km of perpendicular line-transects and alongshore distribution surveys on Hector's dolphins were sampled with the Banks Peninsula Sanctuary and areas north and south of Westport. Oceanographic data, including temperature, salinity, Chlorophyll-a (primary productivity), dissolved oxygen, and the pattern of tides, were collected on these surveys as well as CTD data (conductivity, temperature, depth). Separate behavioural sampling surveys of Hector's dolphins continue within the Banks Peninsula Sanctuary from inshore to four nautical miles offshore. This three-year project by D. Clement (Otago Univ.) aims to compare the changing oceanography of the study areas with seasonal and inter-annual fluctuations in relative distribution and densities of dolphins and investigate high and low areas of use by Hector's dolphin in relation to behavioural states.

Researchers from Otago University (C. Richter, Q. Rhinelander, N. Jaquet, E. Slooten, S. Dawson) carried out fieldwork on sperm whales off Kaikoura during June and November-December 2000 and February 2001. This three-year study to assess the impact of current whale watching activities on sperm whales is now in its last year. Boat-based observations of respiration patterns, diving and acoustic behaviour are combined with data on respiratory behaviour recorded by a shore-based team. In addition, long term changes in the spatial and temporal distribution can be assessed using a database compiled since 1990. Preliminary analyses of respiratory parameters indicate that sperm whales react to the presence of vessels. Sperm whales also appear to start clicking later in presence of boats. This research on the effects of whale watching is part of a wider ecological research program that uses oceanographic data collection, photographic identification, acoustics and photogrammetric measurements of whale length in order to study distribution, residency, habitat use, diving, foraging behaviour and vocal behaviour.

2.1.2 Opportunistic, platforms of opportunity

I. Visser (The Orca Project) has continued to collect behavioural and sighting data of killer whales including photo-ID. Calculations based on long-term data suggest that a small population (less than 200) inhabit NZ waters. Predation by killer whales from longlines has been identified, and a new elasmobranch identified as prey for NZ killer whales.

E. Martinez (Otago Univ.) is investigating the effects of dolphin watching on Hector's dolphins at Motunau. The research uses clifftop observations (with a theodolite) and vessel based observations (including photo-ID) to study the movements and behaviour of Hector's dolphins in the presence and absence of boats. One of the aims is to compare results from Motunau with those previously gathered at Porpoise Bay.

Cetacean surveys were conducted by C. Olavarría (Auckland Univ.), G. Stone (New England Aquarium), and P. Turnbull between the Auckland Islands, Campbell Island and the Ross Sea area, including open waters and pack ice as south as 72º33'S, between January and March 2001. Vessel and aerial surveys were conducted in sub-Antarctic and Antarctic waters. Seven cetacean species were observed during the survey. Photo-ID and biopsies were also collected. Sei, minke, humpback, sperm, southern right and killer whales were seen as well as dusky dolphins.

A study of cetaceans in the inner Hauraki Gulf was undertaken by T. O'Callaghan (Auckland Univ.) working from a commercial marine mammal tour vessel between November 2000 and February 2001. Six species of cetaceans were recorded, with the common dolphin accounting for 92% of all sightings. A photo-ID catalogue of Bryde's whales was developed. Other species recorded were bottlenose dolphins, pilot whales, killer whales and Arnoux's beaked whale.

Sightings of North Island Hector's dolphins (n=29) were reported from a newly established sighting network which is maintained by K. Russell (Auckland Univ.).

New England Aquarium researchers (C. Nichols and G. Stone) have continued research to assess the impact of vessel traffic and tourism operations targeted on at Hector's dolphins in Akaroa Harbour. Cross-sectional survey obser-

vations were conducted from land using a theodolite tracking system. In addition, data was collected for the first year of a two-year project to observe Hector's dolphin behaviour around swim/tour boats from aboard the tour vessels.

D. Neumann and M. Orams (Massey Univ.) are completing a 3-year investigation of the behaviour and ecology of short-beaked common dolphins. This includes collecting data on their activity budget, seasonal movements, feeding strategies, and interactions with swim-with-dolphin tourism using photo ID and boat based behavioural observations. The bulk of the study was conducted around Whitianga on the Coromandel Peninsula, and comparative observations were undertaken around Whakatane in the Bay of Plenty. 408 distinct individuals have been identified, 18 of them were resighted at some stage over the 3-yr period.

M. Donoghue (Dept of Conservation) and C. S. Baker (Auckland Univ.) from the South Pacific Humpback Whale Project continue research on humpback whales in Vava'u, Tonga. Vessel based surveys are undertaken investigating distribution, residency, acoustics, abundance and genetics using photo-ID and biopsies. Matches of individual whales at Tonga with New Caledonia, East Australia, Cook Islands and NZ have been recorded. Fieldwork undertaken in August and September 2000 identified 71 individual whales and collected 69 biopsies.

2.2 Analyses/development of techniques
None

3. Marking data
3.1 Field work
3.1.1 Natural marking data

Species	Feature	Area/stock	Calendar year/season/	Catalogued (Y/N)	Catalogue total	Contact person/insititute
Bottlenose dolphin	Fin/body	Doubtful Sound	1990–2001	Yes	83	D. Lusseau/ Otago Univ.
Bottlenose dolphin	Fin/body	Milford Sound	2000–2001	Yes	50	D. Lusseau/ Otago Univ.
Bottlenose dolphin	Fin/body	Bay of Islands	1993–2001	Yes	378	R. Constantine/ Auckland Univ.
Brydes whale	Fin/body	Hauraki Gulf	2001	Yes	18	S. Baker/ Auckland Univ.
Common dolphin	Fin/body	Whitianga/ Whakatane	1998–2001	Yes	408	D. Neumann/ Massey Univ.
Hector's dolphin	Fin/body	North I.	1998–2001	Yes	28	K. Russell/ Auckland Univ.
Hector's dolphin	Fin/body	East South I. West South I.	1984–2001 1994–1997	Yes	473	E. Slooten/ Otago Univ.
Humpback whale	Fluke	Area V	1991–2001	Yes	360	C. S. Baker/ Auckland Univ.
Killer whale	Fins/saddles/ eye patches	NZ	1993–2000	Yes	117	I. Visser/ The Orca Project
Killer whale	Fins/saddles/ eye patches	Area V	2001	Yes	11	C. Olavarría/ Auckland Univ.
Southern right whale	Callosities/ lip lines	Area V	2001	Yes	2	C. Olavarría/ Auckland Univ.
Southern right whale	Callosities/ lip lines	NZ sub-antarctic	1995–1999	Yes	402	N. Patenaude/ Auckland Univ.; B. Todd/ Project Tohora
Sperm whale	Fluke	Kaikoura	1990–2001	Yes	190	E. Slooten/ Otago Univ.

3.1.2. Artificial Marking Data
None

3.1.3 Telemetry Data
None

4. Tissue/biological samples collected

4.1 Biopsy samples

Species	Area/stock	Calendar year/ season no. collected	Archived (Y/N)	No. analysed	Total holdings	Contact person/institute
Hector's dolphin	NZ	12	Yes	23	92	K. Russell, F. Pichler/ Auckland Univ.
Killer whale	Area V	1	Yes	0	1	C. Olavarría/ Auckland Univ.
Southern right whale	Area V	1	Yes	0	1	C. Olavarría/ Auckland Univ.

4.2 Samples from directed catches or bycatches

Species	Area/stock	Calendar year/ season total	Archived (Y/N)	Tissue type(s)	Contact person/institute
Common dolphin	NZ	1	Yes	Skin, blubber, fixed tissues, skeletons	P. Duignan/ Massey Univ.
Dusky dolphin	NZ	2	Yes	Skin, blubber, fixed tissues, skeletons	P. Duignan/ Massey Univ.
Hector's dolphin	NZ	10	Yes	Skin, blubber, fixed tissues, skeletons	P. Duignan/ Massey Univ.; A. van Helden/ Museum of NZ

No directed catches taken.

4.3 Samples from stranded animals

Species	Area/stock	Calendar year (total)	Archived (Y/N)	Tissue type(s)	Contact person/institute
Bottlenose dolphin	NZ	6	Y	Skin, blubber	M. Dalebout/ Auckland Univ.
Bottlenose dolphin	NZ	2	Y	Skin, blubber, fixed tissues	P. Duignan/ Massey Univ.
Bryde's whale	NZ	3	Y	Skin, blubber	M. Dalebout/ Auckland Univ.
Common dolphin	NZ	8	Y	Skin, blubber and fixed tissues	P. Duignan/Massey Univ.
Dusky dolphin	NZ	4	Y	Skin, blubber	M. Dalebout/ Auckland Univ.
False killer whale	NZ	1	Y	Skin, blubber	M. Dalebout/ Auckland Univ.
Gray's beaked whale	NZ	6	Y	Skin,blubber	M. Dalebout/ Auckland Univ.; P. Duignan/ Massey Univ.
Hector's dolphin	NZ	1	Y	Skin, blubber fixed tissues, skeletons	P. Duignan/ Massey Univ.; A. van Helden/ Museum of NZ
Pilot whale	NZ	21	Y	Skin, blubber	M. Dalebout/ Auckland Univ.
Pygmy right whale	NZ	1	Y	Skin, blubber, fixed tissues	P. Duigan/ Massey Univ.
Pygmy sperm whale	NZ	11	Y	Skin, blubber, fixed tissues	P. Duigan/ Massey Univ.; M. Dalebout/ Auckland Univ.
Southern minke whale	NZ	1	Y	Skin, blubber	M. Dalebout/ Auckland Univ.
Sperm whale	NZ	21	Y	Skin, blubber	M. Dalebout/ Auckland Univ.
Straptoothed whale	NZ	1	Y	Skin, blubber, fixed tissues	P. Duignan/ Massey Univ.
Striped dolphin	NZ	2	Y	Skin, blubber, fixed tissues	P. Duignan/ Massey Univ.

4.4 Analyses/development of techniques
F. Pichler and K. Russell (Auckland Univ.) continue to collect biopsy samples from Hector's dolphins using a Paxarms system.

5. Pollution studies
None.

6. Statistics for large cetaceans
6.1 Direct catches (commercial, aboriginal and scientific permits) for the calendar year 2000
None.

6.2 Other non-natural mortality for the calendar year 2000
None.

6.3 Earlier years' statistics
No amendments.

7. Statistics for small cetaceans
7.1 For the calendar year 2000

		Directed catch		Incidental mortality			Live-capture
Species	Area/stock	Reported	Est. total	Reported	Est. total	Source	Reported
Common dolphin	NZ	0	?	1 [1]	?	Trawl	0
Dusky dolphin	NZ	0	?	2 [2]	?	Trawl	1 [1]
Hector's dolphins	South I.	0	?	8 [2]	?	Gillnet	0
Hector's dolphins	North I.	0	?	2 [2]	?	Gillnet	0

[1] *details provided by R. Blezard, Dept of Conservation from Ministry of Fisheries, Scientific Observer Programme*
[2] *details provided by N. Gibbs, Massey Univ. from Dept of Conservation, Carcass Recovery Programme*

7.2 Earlier years' statistics
No amendments.

8. Strandings
A. van Helden (Museum of NZ)maintains the NZ stranding database and reported that the total number of strandings for the calendar year was 75 incidents involving 173 animals. This excludes those animals that have been reported but for which stranding data forms have not been sent to the Museum of NZ before the end of March. At least 19 different species were recorded in the database for this period. The representation in the number of incidents of strandings for the different families that stranded in this period are: Balaenidae 4%, Balaenopteridae 6.66%, Ziphiidae 14.66%, Delphinidae 58.66%, Physeteridae 13.33% and unkown 2.66%. The representation in number of animals for the different families that stranded in this period are: Balaenidae 1.7%, Balaenopteridae 2.9%, Ziphiidae 6.9%, Delphinidae 80.9% and Physeteridae 6.4%. The species with the highest incidents of Strandings were Hector's dolphins with 12 incidents, and Common dolphins also with 12 incidents. The largest number of animals of a species to strand is 90 for Long-finned pilot whales, 52 % of the total number of animals stranded. The two strandings at Maori beach, Rakiura on Stewart Island is responsible for 67 of these. The total number of animals refloated in this period is 101, 29 of which restranded and died, therefore 72 are presumed to have survived.

I.Visser (The Orca Project) holds data on killer whale strandings around NZ. To date 40 strandings have occurred, the most recent in Jan 2000. This stranding was a live stranding and may be linked to a boat strike event four days prior. Rescue was successful, but the animal has yet to be resighted. There is a report of an killer whale which had stranded, was rescued and resighted. It was subsequently hit by a boat, but survived.

9. Other studies and analyses
A. Baker (Dept of Conservation) completed a review of the status, relationships and distribution of Andrew's beaked whale. Baker and others described a stranded Hector's beaked whale without functional throat grooves, and gave the first information on endoparasites in this species of whale.

S. Plön (Auckland Univ./Rhodes Univ.) completed analysis of the population structure of *Kogia* from the Southern Hemisphere, which forms part of a larger study on the natural history of *Kogia* from Southern Africa. Little

information is available on the general biology of *Kogia* to date and the cryptic behaviour of both species makes field studies virtually impossible at present. However, both species exhibit relatively high, localised stranding rates in Florida, South Africa and NZ. In order to determine basic natural history parameters such as age, growth, reproduction, diet and stranding patterns for both species, strandings of specimens along the entire Southern African coastline since the late 1950's were examined. The combined results of these analyses indicated an unexpectedly low age at sexual maturity and low life expectancy as well as high reproductive rates with strong seasonalities for both species. In addition, partitioning of the same ecological niche as evidenced by a great overlap in the diet of the two species was determined. Genetic analysis is currently being carried out at the University of Auckland and examines the genetic variation within the South African populations of both *Kogia* species and aims to determine how distinct these populations are from others in the Southern Hemisphere. Preliminary analyses of genetic data show 26 unique haplotypes for the pygmy sperm whales examined and 12 unique haplotypes for the dwarf sperm whales. Furthermore, there appears to be very little genetic variation between individuals from different geographical locations in the Southern Hemisphere.

K. Russell (Auckland Univ.) is investigating the diet of North Island Hector's dolphins through the analysis of stomach samples from beachcast animals.

Oceanographic surveys by F. Lariviere and M. Gibbs (Otago Univ.) were conducted in the Kaikoura Canyon in June 1999 and March, May, June, July, October 2000. CTD measurements (Conductivity, temperature, depth) were taken along a 25km transect line across the latitudinal axis of the Kaikoura Canyon. The aim of these surveys was to give us insight into the vertical structure of salinity, temperature and chlorophyll concentration in the canyon to investigate the relationship with foraging sperm whales. Satellite AVHRR SST and SeaWiFs data obtained during the same periods was also used to identify general circulation and production patterns offshore, east of Kaikoura. The results of this investigation suggest that mesoscale eddies off Kaikoura may contribute to enhance productivity within the canyon by influencing inshore oceanography but also by transporting planktonic organisms into the canyon's area. Local oceanography was also very complex and variable as indicated by the CTD data. Internal wave, small-scale eddies locked in place by the bathymetry and downwelling were observed. This work did not intend to identify and describe precisely the oceanographic processes in this area. Therefore more in-depth oceanographic surveys are necessary to complement this study.

A recent population viability analysis by the University of Otago has indicated that the Banks Peninsula Hector's dolphin population is still declining due to continued gillnet entanglement immediately outside the Banks Peninsula Marine Mammal Sanctuary. The North Island Hector's dolphin population has recently been listed as critically endangered by the IUCN. Researchers from Auckland and Otago Universities reviewed research data on this population.

D. Clement (Otago Univ.) compiled sixteen years of sighting data of Hector's dolphin within the Banks Peninsula Sanctuary. Utilising ArcView and Spatial Analyst extension, inter-annual and general density patterns of the dolphin within the Sanctuary during the summer season (December to February) were configured. Several high-density areas or hotspots were pinpointed and their consistency was investigated.

S. DuFresne, D. Clement, E. Slooten and W. Rayment (Otago Univ.) wrote several reports summarising research data on Hector's dolphins, to inform decisions on mussel farming applications for the Banks Peninsula and Clifford Bay areas. Some 40 mussel farming applications are currently pending for the Banks Peninsula area. There is an urgent need for research on the effects of this activity on Hector's dolphins in areas where mussel farms and Hector's dolphins already co-exist. The last in a series of four line-transect surveys for mussel farming applications are currently pending for the Banks Peninsula area. S. DuFresne, E. Slooten and S. Dawson carried out a preliminary study in one of these areas, Golden Bay. They made observations of dolphins around a mussel farm and in other parts of Golden Bay.

Researchers from the New England Aquarium and Department of Conservation (G. Stone and A. Hutt) continued work on acoustic pingers and provided advice to gillnet fishers in Canterbury on the use of pingers to mitigate bycatch of Hector's dolphin. Commercial gillnet fishers have voluntarily begun using pingers in the inshore gillnet fishery.

The laboratory of Molecular Ecology and Systematics at the University of Auckland is involved in studies of genetic variation and systematic relationships among endangered and commercially exploited species, including whales, dolphins, sea lions, fur seals and marine fish. C.S. Baker and G. Lento work on conservation genetics of cetaceans and pinnipeds. PhD students in the laboratory are conducting research on the genetic variation and population

structure of Hector's dolphins (F. Pichler), the molecular systematics of beaked whales (M. Dalebout), the behaviour and ecology of bottlenose dolphins in the Bay of Island (R. Constantine), the genetic and demographics structure of southern right whale populations (N. Patenaude) and ecology of North island Hector's dolphins (K. Russell).

With help from NZ Department of Conservation field centre staff, Massey University, and the Museum of NZ Te Papa Tongarewa, M. Dalebout (Auckland Univ.) has continued to collect tissue samples from stranded beaked whales and other cetaceans around NZ for genetic analysis.

R. Constantine (Auckland Univ.) continues work on bottlenose dolphins in the Bay of Islands including photo-identification, boat-based surveys, and the collection of behavioural data on habitat use and the effects of tourism on. 378 individual bottlenose dolphins have been identified in between Dec 1993 and Dec 2000. There is an 81% resight rate of individuals suggesting a relatively closed population for which the Bay of Islands forms an important part of their home range. Photographs taken in other areas along the coast show at least some of this population range from Doubtless Bay to Tauranga, a distance of approximately 400km. Data collected on swim with dolphin programmes indicates that bottlenose dolphin response to swimmers is affected by the method of swimmer placement. Research on the effects of swim-with-dolphin tourism conducted in 1994–95 by Constantine was compared to data collected in 1997–98. This showed a significant increase in avoidance responses to swimmers, and showed a significant change in response to swimmer placement over time.

Ongoing research by S. Yin (Texas A&M University) and R. Constantine (Auckland Univ.) into the vocalisations and movement patterns of dusky dolphins off Kaikoura was conducted from January–June 2001. This follows previous work by S. Yin and B. Wursig (Texas A&M University) in this area. This research involves the use of hydrophone recordings from small boats to determine the whistle repertoire of dusky dolphins. Previous research by Yin has suggested that whistles do not play an important part in dusky dolphin vocal communication. The current research aims to clarify this question. Shore-based theodolite tracking of dusky dolphin groups and the effects of commercial and recreational vessel traffic are being examined. This is part of an ongoing study into the effects of commercial swim-with-dolphin and dolphin watching tourism on this population.

10. Literature cited

None

11. Publications

11.1 Published or 'In Press' papers only

Baker, A.N.; Duignan, P.J.; Norman, R.; van Helden, A.L. 2001. A juvenile Hector's beaked whale, Mesoplodon hectori (Gray, 1871) with out functional throat grooves, plus notes on endoparasites. (Cetacea: Ziphiidae). *Marine Mammal Science 17 (1)*: 171–175.

Baker, A.N. 2001. Status, relationships and distribution of *Mesoplodon bowdoini* Andrews, 1908 (Cetacea:Ziphiidae). *Marine Mammal Science 17 (3)*: 273–293.

Baker, C.S.; Lento, G.M.; Cipriano, F.; Dalebout, M.L.; Palumbi, S.R. 2000. Scientific whaling: source of illegal products for market*? Science* 290: 1695.

Bräger, S.; Chong, A.; Dawson, S.M.; Slooten, E.; Würsig, B. 2000. A combined stereo-photogrammetry and underwater-video system to study group composition of dolphins. *Helgoland Marine Research 53*: 122–128.

Constantine, R. *in Press*. Increased avoidance of swimmers by wild bottlenose dolphins (*Tursiops truncatus*) due to long-term exposure to swim-with-dolphin tourism. *Marine Mammal Science*.

Dalebout, M.L.; Hooker, S.K.; Christensen, I. 2001. Genetic diversity and population structure among northern bottlenose whales, *Hyperoodon ampullatus*, in the western North Atlantic Ocean. *Canadian Journal of Zoology 79*: 478–484.

Dawson, S.; Pichler, F.; Slooten, E.; Russell, K.; Baker, C.S. *in press*. The North Island Hector's dolphin is vulnerable to extinction. *Marine Mammal Science*.

Jaquet, N.; Dawson, S.M.; Douglas, L. 2001. Vocal behavior of male sperm whales: why do they click? *Journalof the Acoustic Society of America 109 (5).*

Jaquet, N.; Dawson, S.M.; Slooten, E. 2000. Seasonal distribution and diving behaviour of male sperm whales off Kaikoura: Foraging implications. *Canadian Journal of Zoology 78*: 407–419.

Lusseau, D.; Schneider, K. *in press*. Behavior of bottlenose dolphins (*Tursiops sp.*) towards mother and deceased calf pairs and responses to boat approaches in Doubtful Sound, Fiordland, New Zealand. *Aquatic Mammals*

Patenaude, N.J.; Baker, C.S. 2001. Population status and habitat use of southern right whales in the sub-antarctic Auckland Islands of New Zealand. *Journal of Cetacean Research and Management* , Special Issue 2.

Patenaude, N.J.; Todd, B.; Stewart, R. 2001. Movements of southern right whales between the sub-Antarctic Auckland and Campbell Islands. *Journal of Cetacean Research and Management*, Special Issue 2.

Pichler, F.B.; Dalebout, M.L.; Baker, C.S. 2001 Non-destructive DNA extraction from sperm whale teeth and scrimshaw. *Molecular Ecology Notes 1*. B2–B2.
Slooten, E.; Fletcher, D.; Taylor, B.L. 2000. Accounting for uncertainty in risk assessment: Case study of Hector's dolphin mortality due to gillnet entanglement. *Conservation Biology 14*: 1264–1270.
Stone, G.; Yoshinaga, A. 2000. Hector's Dolphin (Cephalorhynchus hectori) calf mortalities may indicate new risks from boat traffic and habituation. *Pacific Conservation Biology 6(2)*:162–171.
van Helden, A.L.; Baker, A.N.; Dalebout, M.; Reyes, J.C.; Van Waerebeek, K.; Baker, C.S. *in review* Resurrection of *Mesoplodon traversii* (Gray, 1874), senior synonym of *M.bahamondi* Reyes, Van Waerebeek, Cárdenas and Yañez, 1995 (CETACEA:ZIPHIIDAE). *Marine Mammal Science*.
Visser, I.N. 2000. Killer whale (*Orcinus orca*) interactions with longlines fisheries in New Zealand waters. *Aquatic Mammals 26 (3)*: 241–252.
Visser, I.N.; Fertl, D.; Berghan, J.; van Meurs, R. 2000. Killer whale (*Orcinus orca*) predation on a shortfin mako shark (*Isurus oxyrinchus*), in New Zealand waters. *Aquatic Mammals 26 (3)*: 229–231.
Visser, I.N.; Fertl, D.C. 2000. Stranding, resighting and boat strike of a killer whale (Orcinus orca) off New Zealand. *Aquatic Mammals 26 (3)*: 232–240.

11.2 Unpublished literature

Clement, D.; Jones, G.; Slooten, E. 1999. Report on the potential effects of mussel farming in Clifford Bay on the Hector's dolphin population in the area. Report for Clifford Bay Marine Farms Ltd.
Clement, D.; Slooten, E.; Dawson, S.M.; DuFresne, S. 2000. Line-transect survey of Hector's dolphin abundance between Farewell Spit and Motunau. Report for Department of Conservation.
Dawson, S.; DuFresne, S.; Slooten, E.; Wade, P. 2000. Line-transect survey of Hector's Dolphin abundance between Motunau and Timaru. Published client report on contract 3072, funded by Conservation Services Levy. Department of Conservation, Wellington. 18 p.
DuFresne, S.; Dawson, S.M.; Slooten, E. 2001. Line-transect survey of Hector's dolphin abundance between Timaru and Long Point, and effect of attraction to survey vessel. Published client report on contract 3074, funded by Conservation Services Levy. Department of Conservation, Wellington, NZ. 19 p.
DuFresne, S.; Slooten, E.; Rayment, W.; Clement, D.; Jones, G. 1999. Report on the potential effects on Hector's dolphins of a proposed mussel farm in Port Levy. Report for Southern Marine Farms Ltd.
Patenaude, N.J. 2000. Management of right whales at the Auckland Islands. Conservancy Advisory Science Report. New Zealand Department of Conservation, Wellington.
Slooten, E.; Dawson, S.M.; DuFresne, S. 2001. Report on interactions between Hector's dolphins (Cephalorhynchus hectori) and a Golden Bay mussel farm. Report for Environment Canterbury.
Slooten, E.; Dawson, S.M.; Rayment, W. 2001. Quantifying abundance of Hector's dolphins between Farewell Spit and Milford Sound. Report for Department of Conservation
Slooten, E.; DuFresne, S.; Clement, D. 2000. Potential effects of mussel farming on Hector's dolphins in the Banks Peninsula region. Report for Environment Canterbury.
Slooten, E.; Rayment, W.; Clement, D.; Jones, G.; DuFresne, S. 2000. Report on the potential effects on Hector's dolphins of proposed mussel farming in Akaroa Harbour. Report for National Institute of Water and Atmosphere.
Stone, G.; Hutt, A.; Yoshinaga, A.; Nichols, C. 2000. Pinger use on gillnets, Instruction and background information. Manual. Final Report to the New Zealand Department of Conservation. Project MIT 9903. Wellington, New Zealand.
Stone, G.; Cavagnaro, L.; Hutt, A.; Kraus, S.; Baldwin, K.; Brown, J. 2000. Reactions of Hector's dolphins to acoustic gillnet pingers. New Zealand Department of Conservation Technical report series, Wellington, New Zealand.
Lusseau, D.; Slooten, E. *in press*. Cetacean sightings off the Fiordland Coastline. *Science for Conservation*
Visser, I.N. 2000. Orca (*Orcinus orca*) in New Zealand waters. Ph. D. Dissertation. Univ. of Auckland, Auckland.
Yin, S.E. 1999. Movement patterns, behaviors, and whistle sounds of dolphin groups off Kaikoura, New Zealand. MSc. Thesis, Texas A&M University. P. 107.