

**CONTRIBUTIONS TO
THE GLOBAL
MANAGEMENT
AND CONSERVATION OF**

MARINE MAMMALS



**INGRID NATASHA VISSER
JORGE CAZENAVE
(ORGANIZERS)**



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PREFACE

Contributions to the Global to Management and Conservation of Marine Mammals.

I write the introduction to this book after just having returned from a day out researching wild orca along the New Zealand coastline. During that encounter I had the opportunity to not only see the orca hunting for rays in the shallow waters, but an adult male orca, known to me since he was born, became stranded as he followed his family over a sand bank. His calm demeanour was indicative to me that he had experienced such an event before. Whilst stranded, he patiently tested the water depth, and his ability to get off the sand bank, by gently rolling from side to side every 10 mins or so. During the time that he was stranded our team poured water over him in order to prevent his skin drying out. Eventually the tide had returned enough for him to focus all his energy into getting off and into deeper water. Within minutes of freeing himself he was back with his family and within an hour he was catching rays again. It struck me as I was watching him, that he was around 30 years old, older than I was when I started studying his family. The changes he had seen in his lifetime are changes that I've documented too. Encroachment into his habitat with new marinas, wharfs, reclamation and dredging. Exclusion from prime hunting area from all of these man-made features as well as aquaculture farms expanding so fast it is hard to document them all. He has seen the numbers of vessels increase exponentially and the volume of noise pollution expand with it. He has experienced raw sewage flowing around him when he has entered into harbours and he has swum past floating garbage and viewed sunken junk discarded in his home. He has seen members of his social network drown when entangled, die when stuck on a beach and suffer from severe wounds when hit by boats. It is a wonder he has survived as long as he has with all this and more that he must contend with. But, despite all these negative aspects, there is some hope; New Zealand now has more than 30 marine reserves (protected areas to prevent fishing and habitat destruction). Although they are comprised of only a tiny part of the entire coastline, they are a start. I also see a growing number of scientists, lawyers, researchers and field biologists interested in contributing towards conservation and management issues. My hope is that this volume will provide a platform for some of those studies to reach a wide audience and to make a difference for individual cetaceans, their populations and the habitats that they not only live in but require to survive. The book is arranged by author, rather than, species, region or topic as the first two categories ranged across multiple species and around the globe and yet at times also overlapped, whilst the topics were just as diverse.

Ingrid N. Visser (PhD), New Zealand

In December 2019, the Society for Marine Mammalogy (SMM) and the European Cetacean Society (ECS) jointly hosted the World Marine Mammal Conference in Barcelona, Catalonia, Spain. That conference, the starting point for gathering the authors of this book, was the largest gathering of marine mammalogists that had ever occurred, with over 2,700 registered attendees, from more than 90 countries. It was only the second World Marine Mammal Conference, with the first being in 1998 in Monte Carlo, Monaco (and where approximately 1,200 people from 50 countries attended). With the Covid-19 pandemic now rampant across the globe it may be many years before such a similar gather occurs again. Regardless, the work of all those conference attendees will continue and this volume is just one of the many published works that are resulting from ongoing research.

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CHAPTER 2

INCREASING THE UNDERSTANDING OF MULTISPECIES FEEDING EVENTS IN MARINE HOTSPOTS BY MEDIUM TERM INSTRUMENTATION AND TRACKING

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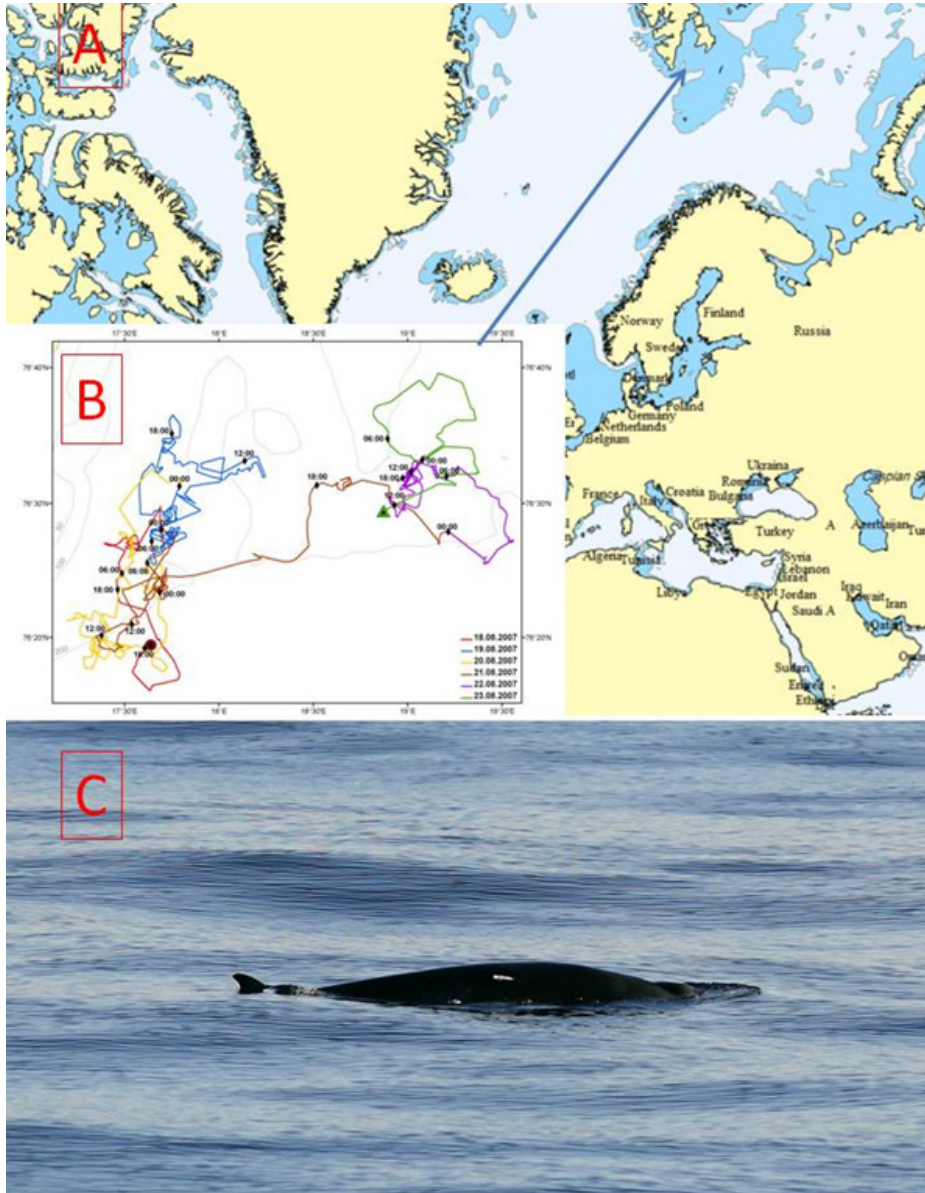
From a case study focusing on surface rate behaviour of minke whales, we tracked a vhf tagged whale for 5 days in the waters south of Svalbard, Norway (Øien et al. 2009). The tag was deployed with the whale-tag-launcher ARTS (Aerial Remote Tag System), and the tracking was enabled by the radio direction finder ADF setup with 4 yagi antennas. Tag position was vital in this project due to the need of hundred percent registration of surface rate activity of the whale, and albeit to ensure good tracking. The VHF tag had a signal path of 240ppm, with 30ms signals length, which gave us 4 to 8 signals during a surfacing. The data was sampled by a custom made voice recorder including a computer linked to a GPS and a

microphone. For tagging and tracking details we refer to Kleivane et al (in prep).

However, the spinoff of this project was all what the tag did not record during the 116 hours tracking event in August 2007, and this is what we would like to spotlight here. Especially with focus on the time between and the resident time at different “Hotspots”, and the mix of co-species and other species in the four “Hotspots” observed. A total of 193 nm track was registered during these days, crossing in the waters of the outer Storfjorden, with the mapping of “Hotspot 1 and 2” to the West of the outer fjord with a duration of 6 and 2 hours, respectively, while the “Hotspots 3 and 4” were registered East of this, with a duration of 3 hours and 12 hours, respectively. Typically the hotspots were in the slops of the fjord at depth of 100m to 200m, all from dense areas up to about 3nm in spacing. On tracking day 3, no other observations were registered other than 2 white-beaked dolphin groups of each 20-30 animals, resulting in evading behaviour of the tagged minke whale, speeding up and turning away. Observations during the presence in “Hotspots 1-4”, included for all a number of

minke whales and fin whales, while for some also humpback whales, sperm whales, white-beaked dolphins, harp seals, fulmars and kittiwakes. The boomerang registrations observed during the tracking events with the returning pattern of the tagged whale to the “Hotspots”, indicate the need of periodic feeding events as well as the need of scouting for new feeding grounds. Especially for “Hotspot 4”, where the tagged whale seeking out on SE for 7nm before returning to find no activity, then seeking out to the North, returning and then a third time seeking to the East and returning to the same area. Same returning pattern was seen at “Hotspot 1”. The development of tag sensors (depth, GPS, orientation, acoustics and video), tag attachment and tracking abilities the last 10 years, make this type of ecological approach to an ecosystem interesting, using an individual tagged whale as a biological track. This type of novel approach would also be an interesting add and supplement to standard line transect and station surveys applied during ecosystem surveys. Especially with the option to observe the feeding strategies of different species, by applying sensors (datalogers) and visually observe these events, and then combine this with data collected from prey mapping and samples from trawl settings. In short: Ecosystem research in “Hotspots”, with the help of simple tracking sensors and sophisticated datalogers, combined with standard instruments and equipment on modern research vessels.

Figure 1. Showing the map (A), with the details of the boat during the tracking days (B), and the the tagged minke whale (C).



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ABOUT THE ORGANIZERS

Ingrid N. Visser

Ingrid has had a passion for cetaceans since she was a child. She gained her first University degree, in Zoology, after having spent her teenage years sailing around the world. This was soon followed by a Masters degree also in Zoology. When she started her PhD in Environmental and Marine Science, with the topic of the New Zealand coastal orca, she founded the Orca Research Trust. That non-profit continues to this day and is the foundation for the data collected in Chapter 6. Her research has featured in a number of documentaries, for companies such as BBC, National Geographic, Discovery Channel. Ingrid has observed more than half of the worlds marine mammals and visited all seven continents in her quest to learn more about these fascinating animals. She has published more than 30 scientific articles, along with numerous popular-style articles for wildlife magazines and children's books and an autobiography. Since 2010 she has divided her time between working with wild cetaceans and advocating for those in captivity (see Chapter 5). As part of that work, Ingrid has observed 15 different species of cetaceans (plus other marine mammals; i.e., pinnipeds, sirenians, marine otters and polar bears), in 50 facilities around the world. She has appeared as an expert witness in Environmental and High Courts, as well as before Governments who are investigating the issues of keeping marine mammals in captivity. As part of her conservation work, she has founded (or co-founded) seven non-profit organisations, all with a focus on marine mammals, such as Punta Norte Orca Research (Chapter 1) and Whale Rescue (Chapter 6).

Jorge Cazenave

Jorge started his professional career as a lawyer in Argentina, however after 10 years in this field he switched to tourism. He co-founded (and was President of) Agricultural Tour Operators International and was on the board of the National Tour Association, both whilst photographing wildlife. As an experienced naturalist, he currently guides guests to view and photograph wildlife around the world, specialising in apex predators such as puma, jaguar and orca. His expertise is sought after by documentary making companies such as the BBC, ZED and National Geographic. Since 2001, Jorge has been photographing the unique orca of Punta Norte on the remote Península Valdés, Argentina (see Chapter 1), who exhibit a range of unique behaviours including intentionally stranding to capture sea lion pups. His work with conservation extends to include collaboration with several projects in different regions of Argentina, including Punta Norte Orca Research, of which he is a board member.

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