

# MINKE WHALE PROJECT

at the

2024 Society for Marine Mammalogy Conference, Perth



Photo by Matt Curnock  
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## IN THIS ISSUE:

- SMM Workshop: Sharing the Mysteries of the Minkes
- Phylogenetic Relationships Amongst Dwarf Minke Whales in the Southern Hemisphere
- Three Decades of Insight: Long-Term Monitoring of Individual Dwarf Minke Whales in the Great Barrier Reef
- Dwarf Minke Whale Mother and Calf Ecology
- Dwarf Minke Whales in the Northern Great Barrier Reef: A Cohort Study of the World's Only Known Predictable Annual Aggregation
- Our SMM2024 Presenters

## SMM2024 - The 25<sup>th</sup> Biennial Conference on the Biology of Marine Mammals

11-15 November 2024 - Perth, Western Australia

The Society for Marine Mammalogy (SMM) holds a conference every two years to promote science, collaboration and improve the quality of research on marine mammals around the globe. It is the largest global organisation of individuals interested in marine mammal research and conservation. This year, the SMM holds its 25<sup>th</sup> biennial conference in Perth, Australia. Minke Whale Project researchers submitted four abstracts to present dwarf minke whale research at the conference; all four were accepted! The MWP was also selected to hold an official workshop at the Conference entitled "Sharing the Mysteries of the Minkes," in which we will collaborate with researchers from around the world to share research findings and field observations on this elusive and little-known whale and prioritise research and management for the future of our beloved dwarf minkes. This special edition MWP newsletter showcases our dwarf minke whale research presented at the SMM2024 conference.

## Workshop: Sharing the Mysteries of the Minkes

**Details:** Sunday, November 10 / 1:30-5:30 PM

**Workshop Leaders:** Prof Alastair Birtles and Dr Naomi Gardiner

The Minke Whale Project is hosting a half-day workshop this year, bringing together marine mammal researchers and others interested in dwarf minke whales to review the latest research and discuss the many unpublished reports and other valuable field observations of this little-known but highly charismatic whale. Australia's forgotten "other whale" is often only observed fleetingly, but many experienced researchers, marine managers, whale-watching operators and members of the public have a potential treasure trove of useful observations that when shared, will help to substantially increase our understanding of this enigmatic, but inquisitive little rorqual. A particular focus will be on sharing, comparing and contrasting research from Western Australia with long-running programs of research like the 30-year Minke Whale Project studies in the Great Barrier Reef (GBR) and other international studies on minke populations.

Brief summaries of recent dwarf minke research findings, including the four accepted SMM2024 presentations, will be joined with presentations on other key minke whale biology and behaviour topics. These will be shared with participants to engage in the latest and greatest findings around this elusive species. These will be followed (after PM tea/coffee) by breakout groups that workshop a range of key issues around the biology and behaviour of dwarf minkes such as: taxonomy (including genetics), biology (including spatial and temporal patterns of abundance, migration pathways, predation), threats (including the impacts of ship-strike, fishing gear entanglement, hunting and climate change), behaviour (including acoustics, feeding, courtship & mating), conservation and sustainable management. There will also be a focus on the only known aggregation of these elusive whales in the Great Barrier Reef, including their interaction with, and sustainable management of, the swim-with-minke industry. Groups will be facilitated to identify and review the most important gaps in our knowledge and set priorities for future research on these whales. A final panel Q&A and plenary session will draw these together and share the priorities with all participants to guide their future research endeavours and support managers with the latest evidence-based information and contribute to more sustainable management.

## A look at the MWP Presentations at SMM2024:

### Speed Talk: Phylogenetic Relationships Amongst Dwarf Minke Whales (*Balaenoptera acutorostrata*) in the Southern Hemisphere: Resolving Taxonomic Status

**Authors:** Caylee Lindsay (Presenter), Laura Missen, Kyall Zenger, Nikos Andreakis, John Totterdell & Alastair Birtles

**Session:** Ecology and Evolution- Genetics

**Details:** Monday, November 11 / BelleVue Ballroom 1 / Video Presentations Session / 5:00-5:05 PM

**Abstract.** Effective conservation management of a species or population requires an accurate understanding of its biological boundaries and taxonomy. Dwarf minke whales are currently regarded as an undescribed subspecies of the common minke whale (*Balaenoptera acutorostrata*). Fully resolved phylogenetic and taxonomic relationships within the group are necessary to determine appropriate conservation status. Using the most comprehensive mtDNA dataset to-date, this study examines the phylogenetic and phylogeographic relationships of dwarf minke whales located in Eastern Australian (Great Barrier Reef, GBR) and Western Australian (Ningaloo Reef) waters. Sequences of the mtDNA Control Region (CR) were obtained from a total of 275 new dwarf minke whale samples and phylogenies were inferred against minke whale samples collected globally. Preliminary mitochondrial phylogenies revealed that GBR minke whales share synapomorphies with dwarf minke whales from the West South Pacific, thus forming a genetically distinct haplogroup. Further in-depth global phylogenetic analyses, outcomes and their interpretations will be also presented. These imminent results will be pivotal for greater understanding of the minke whale species complex and management of dwarf minke whales across the Southern Hemisphere. As the only known predictable, annual aggregation of dwarf minke whales in the world, the GBR population

provides indispensable morphological, behavioural and genetic data for this proposed subspecies. Given the increased power of this global mitochondrial database in resolving evolutionary and taxonomic relationships amongst distinct minke whale mitochondrial lineages, this study aims to resolve species status of the dwarf minke whale, as well as provide novel insights into the phylogeographic relationships amongst mitochondrial lineages and populations of minke whale populations from Western and Eastern Australia and the GBR.

**Poster: Three Decades of Insight: Long-Term Monitoring of Individual Dwarf Minke Whales (*Balaenoptera acutorostrata*) in the Great Barrier Reef Reveals Extensive >10 Year Spatial Philopatry Especially of Females- and Recently, the First Record of Natal Philopatry (SE 77)**

**Authors:** Alastair Birtles (Presenter), Claire Barr, Naomi Gardiner, Genevieve Williams & Danielle Moffat

**Session:** Spatial Ecology

**Details:** Tuesday, November 12 / Pavilion 1&2 / Poster Session / 5:30-7:00 PM

**Abstract.** For over 30 years, the Minke Whale Project (MWP) has been studying dwarf minke whales (*Balaenoptera acutorostrata*) in the northern Great Barrier Reef (GBR) during the austral winter. A remote stretch of shelf-edge reefs is the only known predictable aggregation area in the world for this inquisitive little oceanic rorqual whale. Field research has been conducted annually with near-total reliance on in-kind donations of trips from swim-with-whale permitted dive tourism industry 'platforms of opportunity' which allow teams of researchers, crew and their passengers to remain on-site at this otherwise inaccessible location in often highly inclement weather. Collection of 100s of 1000s of underwater images by researchers, guests and crew (currently usually >50,000/year) allows extensive photo-identification of individual whales and the longevity of the research program has only been guaranteed by passenger cash donations. Analysis of the spatial and temporal patterns of known individuals is presented and discussed. While an open population results in many new whales in seasonal totals of >400 individuals, between season resights are frequent. Over 50 whales have been re-sighted in more than one year and 14 have been seen over a period of five or more years. All these long-term resights are female, six have resighting intervals of 12 years and three have been sighted with calves. Just last year we found the long-sought images that allowed us to link another 12-year whale from 2017 ("Rudi") back through appearances in 2013, 2011 and 2008 to his first sighting as a calf in 2006. These long-term resighting histories provide a unique window into the life of this smallest member of the oceanic rorqual genus *Balaenoptera*; vital information about use of the aggregation area, important aspects of dwarf minke biology such as calving intervals and changes in whale behaviour, that collectively underpin sustainable management of this ecotourism industry.

**Oral Presentation: Dwarf Minke Whale (*Balaenoptera acutorostrata*) Mother and Calf Ecology in their Northern Great Barrier Reef Winter Aggregation Area and Southeast Australian Migration Pathway**

**Authors:** Claire Barr (Presenter), Alastair Birtles & Naomi Gardiner

**Session:** Ecology, Evolution and Movement

**Details:** Wednesday, November 13 / BelleVue Ballroom 1 / Long/Short Video Presentations Session / 11:24-11:36 AM

**Abstract:** Knowledge of mother-calf pair occurrence, migratory patterns, female reproductive cycles and calf development in the first year of life are all essential to understanding risks in these critical life stages, and for monitoring little-known dwarf minke whale (*Balaenoptera acutorostrata*) populations. Rare sightings of dwarf minke whale females with calves were compiled and analysed between 2003-2023 by the Minke Whale Project in the Great Barrier Reef (GBR) and from all available online resources across the southeastern coastline. Imagery was used to identify individual whales, and calf length data collected. We then assessed mother-calf spatio-temporal distribution, calving grounds, use of the GBR by mother-calf pairs, and calving intervals of resighted females in the GBR. Over 21 years, 215 of 293 (73.4%) sightings were recorded from the northern GBR austral winter aggregation area, and 76 (26.6%) along the southeastern coastline. Mother-calf sightings shifted north until late May and then south from August, with no spatial shifting apparent over

the core June-July aggregation period. Together with calf length data, this indicates calving probably occurs in southern regions during the northbound migration, and that the GBR aggregation area is unlikely to be a destination calving ground. Re-sightings of individual mother-calf pairs in the GBR confirm at least some remain in the area for extended periods during the austral winter. Calving intervals of 1-3 years were recorded, using long-term resighting histories of mature females in the GBR. This study is the first of its kind for dwarf minke whales, allowing insight into both this population and others around the world. It highlights the need for investigating dwarf minke spatio-temporal patterns of migration, especially mothers with calves, to better inform population monitoring, risk management and the development of predictive models.

## Poster: Dwarf Minke Whales in the Northern Great Barrier Reef: A Population-based, Within Season, Cohort Study of the World's Only Known Predictable Annual Aggregation Reveals Temporal Patterns of Use of this Apparently Unique Breeding Area (E&E 56)

**Authors:** Naomi Gardiner (Presenter), Claire Barr, Emily Daley, Caylee Lindsay, Suzanne Hillcoat, Danielle Moffat & Alastair Birtles

**Session:** Ecology and Evolution

**Details:** Thursday, November 14 / Pavilion 1&2 / Poster Session / 5:30-7:00 PM

**Abstract:** The only known predictable aggregation of dwarf minke whales occurs in the Great Barrier Reef (GBR) during austral winter. The consistency of this annual aggregation has led to a highly regulated swim-with-whale industry, allowing key research into the dynamics of the interacting population and the use of the aggregation area on an individual level. The Minke Whale Project (MWP), a James Cook University-based non-profit research group, collected over 50,000 time and date stamped underwater images from researchers and passengers observing the 2017 minke whale seasonal aggregation. These were analysed to identify individual whales and calculate sighting frequency, spatial use and their individual interaction times in encounters with the live-aboard vessels. A minimum total of 437 individual whales were recorded and incorporated into the MWP Photo-identification Catalogue, and almost a third were resighted within the season. Spatial and temporal patterns of use within the aggregation area varied between individual whales, minimum residency averaged seven days, ranging from 1-36 days. An extended 29-day period between first and second sightings was observed for one individual, indicating the possibility of temporary emigration. An average individual encounter duration of three hours and maximum of 15 hours was found across the season. This is the second census of its kind for this population after a 2006-2008 season PhD study, and while the findings presented here suggest a near doubling in interacting population size, individual interaction characteristics remain consistent, suggesting explanations such as the substantially increased photographic evidence obtained by expanded support from the dive industry and their passengers is likely to have contributed significantly. The use of a fully analysed June-July field season of sightings has allowed vital new insights into this interacting population of dwarf minke whales and strengthens long-term monitoring options to inform sustainable management practices in the Great Barrier Reef.

### Our Presenters at SMM2024



Caylee Lindsay, MMB



Prof Alastair Birtles



Claire Barr, MSc



Dr Naomi Gardiner

### Contact Us

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