# References for included source data

Aguirre-Fernandez, G. and Fordyce, R. E., 2014. *Papahu taitapu*, gen. et sp. nov., an early Miocene stem odontocete (Cetacea) from New Zealand. *Journal of Vertebrate Paleontology*, **34**, 195-210.

Aguirre-Fernandez, G., Barnes, L. G., Aranda-Manteca, F. J. and Fernandez-Rivera, J. R., 2009. *Protoglobicephala mexicana*, a new genus and species of Pliocene fossil dolphin (Cetacea; Odontoceti; Delphinidae) from the Gulf of California, Mexico. *Boletin de la Sociedad Geologica Mexicana*, **61**, 245-265.

Albright, L. B., Sanders, A. E. and Geisler, J. H., 2018. An unexpectedly derived odontocete from the Ashley Formation (upper Rupelian) of South Carolina, U.S.A. *Journal of Vertebrate Paleontology*, **34**, 1-15.

Arnold, P. W., Birtles, R., Dunstan, A., Lukoschek, V. and Matthews, M., 2005. Colour patterns of the Dwarf Minke Whale *Balaenoptera acutorostrata* sensu lato: description, cladistic analysis and taxonomic implications. *Memoirs of the Queensland Museum*, **51**, 277-307.

Benites-Palomino, A., Velez-Juarbe, J., Salas-Gismondi, R. and Urbina, M., in press. *Scaphokogia totajpe*, sp. nov., a new bulky-faced pygmy sperm whale (Kogiidae) from the late Miocene of Peru. *Journal of Vertebrate Paleontology*.

Benoit, J., Adnet, S., Welcomme, J.-L. and Fabre, P.-H., 2011. New skull of *Schizodelphis sulcatus* Gervais, 1861 (Mammalia, Odontoceti, Eurhinodelphinidae) from the Lower Miocene of Pignan (Hérault, France) and its implications for systematics of Eurhinodelphinidae. *Geobios*, **44**, 323-334.

Bianucci, G., 2013. *Septidelphis morii*, n. gen. et sp., from the Pliocene of Italy: new evidence of the explosive radiation of true dolphins (Odontoceti, Delphinidae). *Journal of Vertebrate Paleontology*, **33**, 722-740.

Bianucci, G. and Gingerich, P. D., 2011. *Aegyptocetus tarfa*, n. gen. et sp. (Mammalia, Cetacea), from the Middle Eocene of Egypt: clinorhynchy, olfaction, and hearing in a protocetid whale. *Journal of Vertebrate Paleontology*, **31**, 1173-1188.

Bianucci, G. and Landini, W., 2006. Killer sperm whale: a new basal physeteroid (Mammalia, Cetacea) from the Late Miocene of Italy. *Zoological Journal of the Linnean Society*, **148**, 103-131.

Bianucci, G., Lambert, O. and Post, K., 2007. A high diversity in fossil beaked whales (Mammalia, Odontoceti, Ziphiidae) recovered by trawling from the sea floor off South Africa. *Geodiversitas*, **29**, 561-618.

Bianucci, G., Lambert, O. and Post, K., 2010. High concentration of long-snouted beaked whales (genus *Messapicetus*) from the Miocene of Peru. *Palaeontology*, **53**, 1077-1098.

Bianucci, G., Mijan, I., Lambert, O., Post, K. and Mateus, O., 2013. Bizarre fossil beaked whales (Odontoceti, Ziphiidae) fished from the Atlantic Ocean floor off the Iberian Peninsula. *Geodiversitas*, **35**, 105-153.

Bianucci, G., Di Celma, C., Urbina, M. and Lambrt, O., 2016. New beaked whales from the late Miocene of Peru and evidence for convergent evolution in stem and crown Ziphiidae (Cetacea, Odontoceti). *PeerJ*, **4**, e2479.

Bianucci, G., Bosio, G., Malinvrno, E., de Muizon, C., Villa, I. M., Urbina, M. and Lambert, O., 2018. A new large squalodelphinid (Cetacea, Odontoceti) from Peru sheds light on the Early Miocene platanistoid disparity and ecology. *Royal Society Open Science*, **5**, 172302.

Bianucci, G., Pesci, F., Collareta, A. and Tinelli, C., 2019. A new Monodontidae (Cetacea, Delphinoidea) from the lower Pliocene of Italy supports a warm-water origin for narwhals and white whales. *Journal of Vertebrate Paleontology*, **39**, e1645148.

Bianucci, G., de Muizon, C., Urbina, M. and Lambert, O., 2020. Extensive diversity and disparity of the early Miocene platanistoids (Cetacea, Odontoceti) in the Southeastern Pacific (Chilcatay Formation, Peru). *Life*, **10**, 1-62.

Bisconti, M., 2008. Morphology and phylogenetic relationships of a new eschrichtiid genus (Cetacea: Mysticeti) from the Early Pliocene of northern Italy. *Zoological Journal of the Linnean Society*, **153**, 161-186.

Bisconti, M., 2010. New description of “*Megaptera*” *hubachi* Dathe, 1983 based on the holotype skeleton held in the Museum fur Naturkunde, Berlin. *Quaderni del Museo di storia naturale di Livorno*, **23**, 37-68.

Bisconti, M., 2015. Anatomy of a new cetotheriid genus and species from the Miocene of Herentals, Belgium, and the phylogenetic and palaeobiogeographical relationships of Cetotheriidae s.s. (Mammalia, Cetacea, Mysticeti). *Journal of Systematic Palaeontology*, **13**, 377-395.

Bisconti, M. and Bosselaers, M., 2016. *Fragilicetus velponi*: a new mysticete genus and species and its implications for the origin of Balaenopteridae (Mammalia, Cetacea, Mysticeti). *Zoological Journal of the Linnean Society*, **177**, 450-474.

Bisconti, M. and Bosselaers, M. E. J., 2020. A new balaenopterid species from the Southern North Sea Basin informs about phylogeny and taxonomy of *Burtinopsis* and *Protororqualus* (Cetacea, Mysticeti, Balaenopteridae). *PeerJ*, **8**, e9570.

Bisconti, M., Lambert, O. and Bosselaers, M., 2013. Taxonomic revision of *Isocetus depauwi* (Mammalia, Cetacea, Mysticeti) and the phylogenetic relationships of archaic ‘cetothere’ mysticetes’. *Palaeontology*, **56**, 95-127.

Bisconti, M., Lambert, O. and Bosselaers, M., 2017. Revision of “*Balaena*” *belgica* reveals a new right whale species, the possible ancestry of the northern right whale, *Eubalaena glacialis*, and the ages of divergence for the living right whale species. *PeerJ*, **5**, 373-414.

Bisconti, M., Munsterman, D. K. and Post, K., 2019. A new balaenopterid whale from the late Miocene of the Southern North Sea Basin and the evolution of balaenopterid diversity (Cetacea, Mysticeti). *PeerJ*, **7**, e6915.

Bisconti, M., Munsterman, D. K., Fraaije, R. H. B., Bosselaers, M. E. J. and Post, K., 2020. A new species of rorqual whale (Cetacea, Mysticeti, Balaenopteridae) from the Late Miocene of the Southern North Sea Basin and the role of the North Atlantic in the paleobiogeography of *Archaebalaenoptera*. *PeerJ*, **8**, e8315.

Bisconti, M., DaMarco, P., Mao, S., Pavia, S. and Carnevale, G., in press. The earliest baleen whale from the Mediterranean: large-scale implications of an Early Miocene thalassotherian mysticete from Piedmont, Italy. *Papers in Palaeontology*.

Boersma, A. T. and Pyenson, N. D., 2015. *Albicetus oxymycterus*, a new generic name and redescription of a basal physeteroid (Mammalia, Cetacea) from the Miocene of California, and the evolution of body size in sperm whales. *PLOS ONE*, **10**, e0135551.

Boersma, A. T. and Pyenson, N. D., 2016. *Arktocara yakataga*, a new fossil odontocete (Mammalia, Cetacea) from the Oligocene of Alaska and the antiquity of Platanistoidea. *PeerJ*, **4**, e2321.

Boersma, A. T., McCurry, M. R. and Pyenson, N. D., 2017. A new fossil dolphin *Dilophodelphis fordycei* provides insight into the evolution of supraorbital crests in Platanistoidea (Mammalia, Cetacea). *Royal Society Open Science*, **4**, 170022.

Boessenecker, R. W. and Fordyce, R. E., 2015. Anatomy, feeding ecology, and ontogeny of a transitional baleen whale: a new genus and species of Eomysticetidae (Mammalia: Cetacea) fromthe Oligocene of New Zealand. *PeerJ*, **3**, e1129.

Boessenecker, R. W. and Fordyce, R. E., 2015. A new genus and species of eomysticetid (Cetacea: Mysticeti) and a reinterpretation of ‘*Mauicetus*’ *lophocephalus* Marples, 1956: transitional baleen whales from the upper Oligocene of New Zealand. *Zoological Journal of the Linnean Society*, **175**, 607-660.

Boessenecker, R. W. and Fordyce, R. E., 2017. A new eomysticetid from the Oligocene Kokoamu Greensand of New Zealand and a review of the Eomysticetidae (Mammalia, Cetacea). *Journal of Systematic Palaeontology*, **15**, 429-469.

Boessenecker, R. W., Fraser, D., Churchill, M. and Geisler, J. H., 2017. A toothless dwarf dolphin (Odontoceti: Xenorophidae) points to explosive feeding diversification of modern whales (Neoceti). *Proceedings of the Royal Society of London B*, **284**, 20170531.

Boessenecker, R. W., Churchill, M., Buchholtz, E. A., Beatty, B. L. and Geisler, J. H., 2020. Convergent evolution of swimming adaptations in modern whales revealed by a large macrophagous dolphin from the Oligocene of South Carolina. *Current Biology*, **30**, 1-7.

Bosselaers, M. and Post, K., 2010. A new fossil rorqual (Mammalia, Cetacea, Balaenopteridae) from the Early Pliocene of the North Sea, with a review of the rorqual species described by Owen and Van Beneden. *Geodiversitas*, **32**, 331-363.

Bouetel, V. and de Muizon, C., 2006. The anatomy and relationships of *Piscobalaena nana* (Cetacea, Mysticeti), a Cetotheriidae s.s. from the early Pliocene of Peru. *Geodiversitas*, **28**, 319-395.

Buono, M. R. and Cozzuol, M. A., 2013. A new beaked whale (Cetacea, Odontoceti) from the Late Miocene of Patagonia, Argentina. *Journal of Vertebrate Paleontology*, **33**, 986-997.

Buono, M. R., Fernandez, M. S., Cozzuol, M. A., Cuitino, J. I. and Fitzgerald, E. M. G., 2017. The early Miocene balaenid *Morenocetus parvus* from Patagonia (Argentina) and the evolution of right whales. *PeerJ*, **5**, e4148.

Churchill, M., Berta, A. and Demere, T., 2012. The systematics of right whales (Mysticeti: Balaenidae). *Marine Mammal Science*, **28**, 497-521.

Churchill, M., Martinez-Caceres, M., de Muizon, C., Mnieckowski, J. and Geisler, J. H., 2016. The origin of high-frequency hearing in whales. *Current Biology*, **26**, 2144-2149.

Collareta, A., Lambert, O., de Muizon, C., Urbino, M. and Bianucci, G., 2017. *Koristocetus pescei* gen. et sp. nov., a diminutive sperm whale (Cetacea: Odontoceti: Kogiidae) from the late Miocene of Peru. *Fossil Record*, **20**, 259-278.

Collareta, A., Fulgosi, F. C. and Bianucci, G., 2019. A new kogiid sperm whale from northern Italy supports psychrospheric conditions in the early Pliocene Mediterranean Sea. *Acta Palaeontologica Polonica*, **64**, 609-626.

Colpaert, W., Bosselaers, M. and Lambert, O., 2015. Out of the Pacific: a second fossil porpoise from the Pliocene of the North Sea basin. *Acta Palaeontologica Polonica*, **60**, 1-10.

Demere, T. A., McGowen, M. R., Berta, A. and Gatesy, J., 2008. Morphological and molecular evidence for a stepwise evolutionary transition from teeth to baleen in mysticete whales. *Systematic Biology*, **57**, 15-37.

Dooley, A. C., Fraser, N. C. and Luo, Z.-X., 2004. The earliest known member of the rorqual-gray whale clade (Mammalia, Cetacea). *Journal of Vertebrate Paleontology*, **24**, 453-463.

Duboys de Lavigerie, G., Bosselaers,, M., Goolaerts, S., Park, T., Lambert, O. and Marx, F. G., in press. New Pliocene right whale from Belgium informs balaenid phylogeny and function. *Journal of Systematic Palaeontology*.

Ekdale, E. G., Berta, A. and Demere, T. A., 2011. The comparative osteology of the petrotympanic complex (ear region) of extant baleen whales (Cetacea: Mysticeti). *PLOS ONE*, **6**, e21311.

El Adli, J. J., Demere, T. A. and Boessenecker, R. W., 2014. *Herpetocetus morrowi* (Cetacea: Mysticeti), a new species of diminutive baleen whale from the Upper Pliocene (Piacenzian) of California, USA, with observations on the evolution and relationships of the Cetotheriidae. *Zoological Journal of the Linnean Society*, **170**, 400-466.

Fajardo-Mellor, L., Berta, A., Brownell, R., Boy, C. and Goodall, R. N., 2006. The phylogenetic relationships and biogeography of true porpoises (Mammalia: Phocoenidae) based on morphological data. *Marine Mammal Science*, **22**, 910-932.

Fitzgerald, E. M. G., 2010. The morphology and systematics of *Mammalodon colliveri* (Cetacea: Mysticeti), a toothed mysticete from the Oligocene of Australia. *Zoological Journal of the Linnean Society*, **158**, 367-476.

Fordyce, R. E., 1994. *Waipatia maerewhenua*, new genus and new species (Waipatiidae, new family), an archaic Late Oligocene dolphin (Cetacea: Odontoceti: Platanistoidea) from New Zealand. *Proceedings of the San Diego Society of Natural History*, **29**, 147-176.

Fordyce, R. E. and Marx, F. G., 2013. The pygmy right whale *Caperea marginata*: the last of the cetotheres. *Proceedings of the Royal Society of London B*, **280**, 20122645.

Fordyce, R. E. and Marx, F. G., 2016. Mysticetes baring their teeth: a new fossil whale, *Mammalodon hakataramea*, from the southwest Pacific. *Memoirs of Museum Victoria*, **74**, 107-116.

Fordyce, R. E. and Marx, F. G., 2018. Gigantism precedes filter feeding in baleen whale evolution. *Current Biology*, **28**, 1-7.

Gaetan, C. M., Buono, M. R. and Gaetano, L. C., 2019. *Prosqualodon australis* (Cetacea: Odontoceti) from the Early Miocene of Patagonia, Argentina: redescription and phylogenetic analysis. *Ameghiniana*, **56**, 1-27.

Geisler, J. H., 2001. New morphological evidence for the phylogeny of Artiodactyla, Cetacea, and Mesonychidae. *American Museum Novitates*, **3344**, 1-53.

Geisler, J. H. and Luo, Z.-C., 1996. The petrosal and inner ear of *Herpetocetus* sp. (Mammalia: Cetacea) and their implications for the phylogeny and hearing of archaic mysticetes. *Journal of Paleontology*, **70**, 1045-1066.

Geisler, J. H. and Sanders, A. E., 2003. Morphological evidence for the phylogeny of Cetacea. *Journal of Mammalian Evolution*, **10**, 23-129.

Geisler, J. H. and Theodor, J. M., 2009. Hippopotamus and whale phylogeny. *Nature*, **458**, E1-E4.

Geisler, J. H. and Uhen, M. D., 2003. Morphological support for a close relationship between hippos and whales. *Journal of Vertebrate Paleontology*, **23**, 991-996.

Geisler, J. H. and Uhen, M. D., 2005. Phylogenetic relationships of extinct cetartiodactyls: results of simultaneous analyses of molecular, morphological, and stratigraphic data. *Journal of Mammalian Evolution*, **12**, 145-160.

Geisler, J. H., Sanders, A. E. and Luo, Z.-X., 2005. A new protocetid whale (Cetacea: Archaeoceti) from the late Middle Eocene of South Carolina. *American Museum Novitates*, **3480**, 1-65.

Geisler, J. H., McGowan, M. R., Yang, G. and Gatesy, J., 2011. A supermatrix analysis of genomic, morphological, and paleontological data from crown Cetacea. *BMC Evolutionary Biology*, **11**, 1-33.

Geisler, J. H., Godfrey, S. J. and Lambert, O., 2012. A new genus and species of late Miocene inioid (Cetacea, Odontoceti) from the Meherrin River, North Carolina, U.S.A. *Journal of Vertebrate Paleontology*, **32**, 198-211.

Geisler, J. H., Colbert, M. W. and Carew, J. L., 2014. A new fossil species supports an early origin for toothed whale echolocation. *Nature*, **508**, 383-386.

Geisler, J. H., Boessenecker, R. W., Brown, M. and Beatty, B. L., 2017. The origin of filter feeding in whales. *Current Biology*, **27**, 2036-2042.

Gibson, M. L., Mnieckowski, J. and Geisler, J. H., 2018. *Tupelocetus palmeri*, a new species of protocetid whale (Mammalia, Cetacea) from the middle Eocene of South Carolina. *Journal of Vertebrate Paleontology*, **38**, e1555165.

Godfrey, S. J., Uhen, M. D., Osborne, J. E. and Edwards, L. E., 2016. A new specimen of *Agorophius pygmaeus* (Agorophiidae, Odontoceti, Cetacea) from the Early Oligocene Ashley Formation of South Carolina, USA. *Journal of Paleontology*, **90**, 154-169.

Godfrey, S. J., Barnes, L. G. and Lambert, O., 2017. The Early Miocene odontocete *Araeodelphis natator* Kellogg, 1957 (Cetacea; Platanistidae), from the Calvert Formation of Maryland, U.S.A. *Journal of Vertebrate Paleontology*, **37**, e1278607.

Gol’din, P., 2018. New Paratethyan dwarf baleen whales mark the origin of cetotheres. *PeerJ*, **6**, e5800.

Gol’din, P. and Startsev, D., 2014. *Brandtocetus*, a new genus of baleen whales (Cetacea, Cetotheriidae) from the late Miocene of Crimea, Ukraine. *Journal of Vertebrate Paleontology*, **34**, 419-433.

Gol’din, P. and Startsev, D., 2017. A systematic review of cetothere baleen whales (Cetacea, Cetotheriidae) from the Late Miocene of Crimea and Caucasus, with a new genus. *Papers in Palaeontology*, **3**, 49-68.

Gol’din, P. and Steeman, M. E., 2015. From problem taxa to problem solver: a new Miocene family, Tranatocetidae, brings perspective on baleen whale evolution. *PLOS ONE*, **10**, e0135500.

Gol’din, P. and Zvonok, E., 2013. *Basilotritus uheni*, a new cetacean (Cetacea, Basilosauridae) from the late Middle Eocene of Eastern Europe. *Journal of Paleontology*, **87**, 254-268.

Gol’din, P., Zvonok, E. and Rekovets, L., 2014. *Basilotritus* (Cetacea: Pelagiceti) from the Eocene of Nagornoye (Ukraine): New data on anatomy, ontogeny and feeding of early basilosaurids. *Comptes Rendus Palevol*, **13**, 267-276.

Gol’din, P., Startsev, D. and Krakhmalnaya, T., 2014. The anatomy of *Cetotherium riabinini* Hofstein, 1948, a baleen whale from the late Miocene of Ukraine. *Acta Palaeontologica Polonica*, **59**, 795-814.

Hernandez Cisneros, A. E., 2018. A new group of late Oligocene mysticetes from Mexico. *Palaeontologia Electronica*, **21.1.7A**, 1-30.

Heyning, J. E., 1997. Sperm whale phylogeny revisited: analysis of the morphological evidence. *Marine Mammal Science*, **13**, 596-613.

Kimura, T. and Hasegawa, Y., 2010. A new baleen whale (Mysticeti: Cetotheriidae) from the earliest late Miocene of Japan and a reconsideration of the phylogeny of cetotheres. *Journal of Vertebrate Paleontology*, **30**, 577-591.

Kimura, T. and Hasegawa, Y., 2019. A new species of Kentriodon (Cetacea, Odontoceti, Kentriodontidae) from the Miocene of Japan. *Journal of Vertebrate Paleontology*, **39**, e1566739.

Kimura, T. and Hasegawa, Y., in press. *Norisdelphis annakaensis*, a new Miocene delphinid from Japan. *Journal of Vertebrate Paleontology*.

Lambert, O., 2005. stematics and phylogeny of the fossil beaked whales *Ziphirostrum* du Bus, 1868 and *Choneziphius* Duvernoy, 1851 (Mammalia, Cetacea, Odontoceti), from the Neogene of Antwerp (North of Belgium). *Geodiversitas*, **27**, 443-497.

Lambert, O., 2008. A new porpoise (Cetacea, Odontoceti, Phocoenidae) from the Pliocene of the North Sea. *Journal of Vertebrate Paleontology*, **28**, 863-872.

Lambert, O., 2008. Sperm whales from the Miocene of the North Sea: a re-appraisal. *Bulletin de l’Institut royal des Sciences naturelles de Belgique, Sciences de la Terre*, **78**, 277-316.

Lambert, O. and Louwye, S., 2016. A new early Pliocene species of *Mesoplodon*: a calibration mark for the radiation of this species-rich beaked whale genus. *Journal of Vertebrate Paleontology*, **36**, e1055754.

Lambert, O., Bianucci, G. and De Muizon, C., 2008. A new stem-sperm whale (Cetacea, Odontoceti, Physeteroidea) from the latest Miocene of Peru. *Comptes Rendus Palevol*, **7**, 361-369.

Lambert, O., Bianucci, G. and Post, K., 2009. A new beaked whale (Odontoceti, Ziphiidae) from the Middle Miocene of Peru. *Journal of Vertebrate Paleontology*, **29**, 910-922.

Lambert, O., Bianucci, G., Post, K., de Muizon, C., Salas-Gismondi, R., Urbina, M. and Reumer, J., 2010. The giant bite of a new raptorial sperm whale from the Miocene epoch of Peru. *Nature*, **466**, 105-108.

Lambert, O., De Muizon, C. and Bianucci, G., 2013. The most basal beaked whale *Ninoziphius platyrostris* Muizon, 1983: clues on the evolutionary history of the family Ziphiidae (Cetacea: Odontoceti). *Zoological Journal of the Linnean Society*, **167**, 569-598.

Lambert, O., Bianucci, G. and Urbina, M., 2014. *Huaridelphis raimondii*, a new early Miocene Squalodelphinidae (Cetacea, Odontoceti) from the Chilcatay Formation, Peru. *Journal of Vertebrate Paleontology*, **34**, 987-1004.

Lambert, O., de Muizon, C. and Bianucci, G., 2015. A new archaic homodont toothed cetacean (Mammalia, Cetacea, Odontoceti) from the early Miocene of Peru. *Geodiversitas*, **37**, 79-108.

Lambert, O., Martinez-Caceres, M., Bianucci, G., Di Celma, C., Salas-Gismondi, R., Steurbaut, E., Urbina, M. and de Muizon, C., 2017. Earliest mysticete from the Late Eocene of Peru sheds new light on the origin of baleen whales. *Current Biology*, **27**, 1531-1541.

Lambert, O., Bianucci, G., Urbina, M. and Geisler, J. H., 2017. A new inioid (Cetacea, Odontoceti, Delphinida) from the Miocene of Peru and the origin of modern dolphin and porpoise families. *Zoological Journal of the Linnean Society*, **179**, 919-946.

Lambert, O., de Muizon, C., Malinverno, E., Di Celma, C., Urbina, M. and Bianucci, G., 2018. A new odontocete (toothed cetacean) from the Early Miocene of Peru expands the morphological disparity of extinct heterodont dolphins. *Journal of Systematic Palaeontology*, **16**, 981-1016.

Lambert, O., Godfrey, S. J. and Fitzgerald, E. M. G., 2018. *Yaquinacetus meadi*, a new latest Oligocene-early Miocene dolphin (Cetacea, Odontoceti, Squaloziphiidae, fam. nov.) from the Nye Mudstone (Oregon, U.S.A.). *Journal of Vertebrate Paleontology*, **38**, e1559174.

Lambert, O., Auclair, C., Cauxeiro, C., Lopez, M. and Adnet, S., 2018. A close relative of the Amazon river dolphin in marine deposits: a new Iniidae from the late Miocene of Angola. *PeerJ*, **6**, e5556.

Lambert, O., Bianucci, G., Salas-Gismondi, R., Di Celma, C., Steurbaut, E., Urbina, M. and de Muizon, C., 2019. An amphibious whale from the Middle Eocene of Peru reveals early South Pacific dispersal of quadrupedal cetaceans. *Current Biology*, **29**, 1352-1359.

Lambert, O., de Muizon, C., Urbina, M. and Bianucci, G., 2020. A new longirostrine sperm whale (Cetacea, Physeteroidea) from the lower Miocene of the Pisco Basin (southern coast of Peru). *Journal of Systematic Palaeontology*, **18**, 1707-1742.

Lambert, O., Bianucci, G. and de Muizon, C., in press. Macroraptorial sperm whales (Cetacea, Odontoceti, Physeteroidea) from the Miocene of Peru. *Zoological Journal of the Linnean Society*.

Lambert, O., Collareta, A., Benites-Palomino, A., Di Celma, C., Muizon, C., Urbina, M. and Bianucci, G., in press. A new small, mesorostrine inioid (Cetacea, Odontoceti, Delphinida) from four upper Miocene localities in the Pisco Basin, Peru. *Papers in Palaeontology*.

Luo, Z.-C. and Marsh, K., 1996. Petrosal (periotic) and inner ear of a Pliocene kogiine whale (Kogiinae, Odontoceti): implications on relationships and hearing evolution of toothed whales. *Journal of Vertebrate Paleontology*, **16**, 328-348.

Martinez-Caceres, M., Lambert, O. and de Muizon, C., 2017. The anatomy and phylogenetic affinities of *Cynthiacetus peruvianus*, a large *Dorudon*-like basilosaurid (Cetacea, Mammalia) from the late Eocene of Peru. *Geodiversitas*, **39**, 7-163.

Marx, F., 2011. The more the merrier? A large cladistic analysis of mysticetes, and comments on the transition from teeth to baleen. *Journal of Mammalian Evolution*, **18**, 77-100.

Marx, F. G. and Fordyce, R. E., 2015. Baleen boom and bust: a synthesis of mysticete phylogeny, diversity and disparity. *Royal Society Open Science*, **2**, 140434.

Marx, F. G. and Fordyce, R. E., 2016. A link no longer missing: new evidence for the cetotheriid affinities of *Caperea*. *PLOS ONE*, **11**, e0164059.

Marx, F. G., Tsai, C.-H. and Fordyce, R. E., 2015. A new Early Oligocene toothed ‘baleen’ whale (Mysticeti: Aetiocetidae) from western North America: one of the oldest and the smallest. *Royal Society Open Science*, **2**, 150476.

Marx, F. G., Bosselaers, M. E. J. and Louwye, S., 2016. A new species of *Metopocetus* (Cetacea, Mysticeti, Cetotheriidae) from the Late Miocene of the Netherlands. *PeerJ*, **4**, e1572.

Marx, F. G., Lambert, O. and de Muizon, C., 2017. A new Miocene baleen whale from Peru deciphers the dawn of cetotheriids. *Royal Society Open Science*, **4**, 170560.

Marx, F. G., Post, K., Bosselaers, M. and Munsterman, D. K., 2019. A large Late Miocene cetotheriid (Cetacea, Mysticeti) from the Netherlands clarifies the status of Tranatocetidae. *PeerJ*, **7**, e6426.

Messenger, S. L. and McGuire, J. A.., 1998. Morphology, molecules, and the phylogenetics of cetaceans. *Systematic Biology*, **47**, 90-124.

Mijan, I., Louwye, S. and Lambert, O., in press. A new *Beneziphius* beaked whale from the ocean floor off Galicia, Spain and biostratigraphic reassessment of the type species. *Acta Palaeontologica Polonica*.

Muizon, C. D., Bianucci, G., Martinez-Caceres, M. and Lambert, O., 2019. *Mystacodon selenensis*, the earliest known toothed mysticete (Cetacea, Mammalia) from the late Eocene of Peru: anatomy, phylogeny, and feeding adaptations. *Geodiversitas*, **41**, 401-499.

Murakami, M., Shimada, C., Hikida, Y. and Hirano, H., 2012. Two new extinct basal phocoenids (Cetacea, Odontoceti, Delphinoidea), from the upper Miocene Koetoi Formation of Japan and their phylogenetic significance. *Journal of Vertebrate Paleontology*, **32**, 1172-1185.

Murakami, M., Shimada, C., Hikida, Y. and Hirano, H., 2012. A new basal porpoise, *Pterophocaena nishinoi* (Cetacea, Odontoceti, Delphinoidea) from the Upper Miocene of Japan and its phylogenetic relationships. *Journal of Vertebrate Paleontology*, **32**, 1157-1171.

Murakami, M., Shimada, C., Hikida, Y., Soeda, Y. and Hirano, H., 2014. *Eodelphis kabatensis*, a new name for the oldest true dolphin *Stenella kabatensis* Horikawa, 1977 (Cetacea, Odontoceti, Delphinidae), from the upper Miocene of Japan, and the phylogeny and paleobiogeography of Delphinoidea. *Journal of Vertebrate Paleontology*, **34**, 491-511.

Murakami, M., Shimada, C., Hikida, Y. and Hirano, H., 2014. Asymmetrical basal delphinoid skull from the upper Lower Miocene Yamato Formation of Hokkaido, northern Japan: implications on evolution of cranial asymmetry and symmetry in Odontoceti. *Paleontological Research*, **18**, 134-149.

Murakami, M., Shimada, C., Hikia, Y. and Hirano, H., in press. New small phocoenid from the Pliocene of Hokkaido, northern Japan: insight into the growth rate and vertebral evolution of porpoises. *Acta Palaeontologica Polonica*.

Nelson, M. D. and Uhen, M. D., in press. First occurrence of a squalodelphinid (Cetacea, Odontoceti) from the early Miocene of Washington State. *Journal of Vertebrate Paleontology*.

Nelson, M. D. and Uhen, M. D., in press. A new platanistoid, *Perditicetus yaconensis* gen. et sp. nov. (Cetacea, Odontoceti), from the Chattian-Aquitanian Nye Formation of Oregon. *Journal of Systematic Paleontology*.

O’Leary, M. A. and Gatesy, J., 2008. Impact of increased character sampling on the phylogeny of Cetartiodactyla (Mammalia): combined analysis including fossils. *Cladistics*, **24**, 397-442.

Paolucci, F., Buono, M. R., Fernandez, M. S., Marx, F. G. and Cuitino, J. I., in press. *Diaphorocetus poucheti* (Cetacea, Odontoceti, Physeteroidea) from Patagonia, Argentina: one of the earliest sperm whales. *Journal of Systematic Palaeontology*.

Peredo, C. M. and Pyenson, N. D., 2018. *Salishicetus meadi*, a new aetiocetid from the late Oligocene of Washington State and implications for feeding transitions in early mysticete evolution. *Royal Society Open Science*, **5**, 172336.

Peredo, C. M. and Uhen, M. D., 2016. A new basal chaeomysticete (Mammalia: Cetacea) from the Late Oligocene Pysht Formation of Washington, U.S.A. *Papers in Palaeontology*, **2**, 533-554.

Peredo, C. M., Pyenson, N. D., Marshall, C. D. and Uhen, M. D., 2018. Tooth loss precedes the origin of baleen in whales. *Current Biology*, **28**, 1-9.

Peredo, C. M., Uhen, M. D. and Nelson, M. D., in press. A new kentriodontid (Cetacea: Odontoceti) from the early Miocene Astoria Formation and a revision of the stem delphinidan family Kentriodontidae. *Journal of Vertebrate Paleontology*.

Post, K., Louwye, S. and Lambert, O., 2017. *Scaldiporia vandokkumi*, a new pontoporiid (Mammalia, Cetacea, Odontoceti) from the Late Miocene to earliest Pliocene of the Westerschelde estuary (The Netherlands). *PeerJ*, **5**, e3991.

Pyenson, N. D., Velez-Juarbe, J., Gutstein, C. S., Little, H., Vigil, D. and O’Dea, A., 2015. *Isthminia panamensis*, a new fossil inioid (Mammalia, Cetacea) from the Chagres Formation of Panama and the evolution of ‘river dolphins’ in the Americas. *PeerJ*, **3**, 1227.

Racicot, R. A., Boessenecker, R. W., Darroch, S. A. F. and Geisler, J. H., 2019. Evidence for convergent evolution of ultrasonic hearing in toothed whales (Cetacea: Odontoceti). *Biology Letters*, **15**, 20190083.

Ramassamy, B., 2016. Description of a new long-snouted beaked whale from the Late Miocene of Denmark: evolution of suction feeding and sexual dimorphism in the Ziphiidae (Cetacea: Odontoceti). *Zoological Journal of the Linnean Society*, **178**, 381-409.

Sanders, A. E. and Geisler, J. H., in press. A new basal odontocete from the upper Rupelian of South Carolina, U.S.A., with contributions to the systematics of *Xenorophus* and *Mirocetus* (Mammalia, Cetacea). *Journal of Vertebrate Paleontology*.

Shipps, B. K., Peredo, C. M. and Pyenson, N. D., 2019. *Borealodon osedax*, a new stem mysticete (Mammalia, Cetacea) from the Oligocene of Washington State and its implications for fossil whale-fall communities. *Royal Society Open Science*, **6**, 182168.

Solis-Anorve, A., Gonzalez-Barba, G. and Hernandez-Rivera, R., 2019. Description of a new toothed mysticete from the Late Oligocene of San Juan de La Costa, B.C.S., Mexico. *Journal of South American Earth Sciences*, **89**, 337-346.

Spaulding, M., O’Leary, M. A. and Gatesy, J., 2009. Relationships of Cetacea (Artiodactyla) among mammals: increased taxon sampling alters interpretations of key fossils and character evolution. *PLoS One*, **4**, e7062.

Steeman, M. E., 2007. Cladistic analysis and a revised classification of fossil and recent mysticetes. *Zoological Journal of the Linnean Society*, **150**, 875-894.

Tanaka, Y. and Fordyce, R. E., 2014. Fossil dolphin *Otekaikea marplesi* (latest Oligocene, New Zealand) expands the morphological and taxonomic diversity of Oligocene cetaceans. *PLOS One*, **9**, e107972.

Tanaka, Y. and Fordyce, R. E., 2015. A new Oligo-Miocene dolphin from New Zealand: *Otekaikea huata* expands diversity of the early Platanistoidea. *Palaeontologia Electronica*, **18**, 1-71.

Tanaka, Y. and Fordyce, R. E., 2016. Papahu-like fossil dolphin from Kaikoura, New Zealand, helps to fill the Early Miocene gap in the history of Odontoceti. *New Zealand Journal of Geology and Geophysics*, **59**, 551-567.

Tanaka, Y. and Fordyce, R. E., in press. *Awamokoa tokarahi*, a new basal dolphin in the Platanistoidea (late Oligocene, New Zealand). *Journal of Systematic Palaeontology*.

Tanaka, Y. and Watanabe, M., in press. An early and new member of Balaenopteridae from the upper Miocene of Hokkaido, Japan. *Journal of Systematic Palaeontology*.

Tanaka, Y., Ando, T. and Sawamura, H., 2018. A new species of Middle Miocene baleen whale from the Nupinai Group, Hikatagawa Formation of Hokkaido, Japan. *PeerJ*, **6**, e4934.

Tanaka, Y., Furusawa, H. and Kimura, M., 2020. A new member of fossil balaenid (Mysticeti, Cetacea) from the early Pliocene of Hokkaido, Japan. *Royal Society Open Science*, **7**, 192182.

Theodor, J. M. and Foss, S. E., 2005. Deciduous dentitions of Eocene cebochoerid artiodactyls and cetartiodactyl relationships. *Journal of Mammalian Evolution*, **12**, 161-181.

Thewissen, J. G. M., Williams, E. M., Roe, L. J. and Hussain, S. T., 2001. Skeletons of terrestrial cetaceans and the relationship of whales to artiodactyls. *Nature*, **413**, 277-281.

Thewissen, J. G. M., Cooper, L. N., Clementz, M. T., Bajpai, S. and Tiwari, B. N., 2007. Whales originated from aquatic artiodactyls in the Eocene epoch of India. *Nature*, **450**, 1190-1194.

Tsai, C.-H. and Fordyce, R. E., 2018. A new archaic baleen whale *Toipahautea waitaki* (early Late Oligocene, New Zealand) and the origins of crown Mysticeti. *Royal Society Open Science*, **5**, 172453.

Tsai, C.-H. and Fordyce, R. E., in press. The earliest gulp-feeding mysticete (Cetacea: Mysticeti) from the Oligocene of New Zealand. *Journal of Mammal Evolution*.

Tsai, C.-H. and Fordyce, R. E., in press. Archaic baleen whale from the Kokoamu Greensand: earbones distinguish a new Late Oligocene mysticete (Cetacea: Mysticeti) from New Zealand. *Journal of the Royal Society of New Zealand*.

Uhen, M. D., 1999. New species of protocetid archaeocete whale, *Eocetus wardii* (Mammalia: Cetacea) from the Middle Eocene of North Carolina. *Journal of Paleontology*, **73**, 512-528.

Uhen, M. D., 2004. Form, function, and anatomy of *Dorudon atrox* (Mammalia, Cetacea): an archaeocete from the Middle to Late Eocene of Egypt. *University of Michigan Papers on Paleontology*, **34**, 1-222.

Uhen, M., 2014. New material of *Natchitochia jonesi* and a comparison of the innominata and locomotor capabilities of Protocetidae. *Marine Mammal Science*, **30**, 1029-1066.

Uhen, M. D. and Gingerich, P. D., 2001. New genus of dorudontine archaeocete (Cetacea) from the Middle-to-Late Eocene of South Carolina. *Marine Mammal Science*, **17**, 1-34.

Uhen, M. D., Pyenson, N. D., Devries, T. J., Urbina, M. and Renne, P. R., 2011. New Middle Eocene whales from the Pisco Basin of Peru. *Journal of Paleontology*, **85**, 955-969.

Velez-Juarbe, J., Wood, A. R., De Gracia, C. and Hendy, A. J. W., 2015. Evolutionary patterns among living and fossil kogiid sperm whales: evidence from the Neogene of Central America. *PLOS ONE*, **10**, e0123909.

Velez-Juarbe, J., in press. A new stem odontocete from the late Oligocene Pysht Formation in Washington State, U.S.A. *Journal of Vertebrate Paleontology*.

Viglino, M., Buono, M. R., Fordyce, R. E., Cuitino, J. I. and Fitzgerald, E. M. G., 2019. Anatomy and phylogeny of the large shark-toothed dolphin *Phoberodon arctirostris* Cabrera, 1926 (Cetacea: Odontoceti) from the early Miocene of Patagonia (Argentina). *Zoological Journal of the Linnean Society*, **185**, 511-542.

Viglino, M., Buono, M. R., Gutstein, C. S., Cozzuol, M. A. and Cuitiño, J. I., in press. A new dolphin from the early Miocene of Patagonia, Argentina: insights into the evolution of Platanistoidea in the Southern Hemisphere. *Acta Palaeontologica Polonica*.

Viglino, M., Gaetán, C. M., Cuitiño, J. I. and Buono, M. R., in press. First toothless platanistoid from the Early Miocene of Patagonia: The golden age of diversification of the Odontoceti. *Journal of Mammalian Evolution*.

Wichura, H., Jacobs, L. L., Lin, A., Polcyn, M. J., Manthi, F. K., Winkler, D. A., Strecker, M. R. and Clemens, M., 2015. A 17-My-old whale constrains onset of uplift and climate change in east Africa. *Proceedings of the National Academy of Sciences, USA*, **112**, 3910-3915.

# References for excluded source data (too recently discovered)