

# NSW Threatened Species Scientific Committee

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## Notice and reasons for the Final Determination

The NSW Threatened Species Scientific Committee, established under the *Biodiversity Conservation Act 2016* (the Act), has made a Final Determination to support a proposal to remove *Megaptera novaeangliae* (Humpback Whale) Borowski, 1781 from the Schedules of the Act by omitting reference to this species from Part 3 of Schedule 1 (Vulnerable species). The omission of species from the Schedules is provided for by Part 4 of the Act.

The NSW Threatened Species Scientific Committee is satisfied that *Megaptera novaeangliae* (Humpback Whale) Borowski, 1781 has been duly assessed by the Commonwealth Threatened Species Scientific Committee under the Common Assessment Method (DAWE 2022). The acceptance of the Common Assessment Method is provided for in section 4.14 of the Act.

## Summary of Conservation Assessment

The Threatened Species Scientific Committee accepts the assessment undertaken by the Commonwealth Threatened Species Scientific Committee in its *Listing Advice Megaptera novaeangliae* (Humpback Whale) (DAWE 2022).

*Megaptera novaeangliae* (Humpback Whale) Borowski, 1781 was found to be not eligible to be listed as a threatened species in any category under the Act.

The NSW Threatened Species Scientific Committee has found that:

1. Humpback Whales (*Megaptera novaeangliae*, Borowski 1781) (family Balaenopteridae) can be distinguished by their long pectoral fins (up to 5 m in length), tail fluke shape and pigmentation patterns (Winn and Reichley 1985). The tail fluke shape and pigmentation pattern are unique to each individual and are used by researchers to reliably identify individuals for studies of population distribution, migratory patterns and population structure. Mature Humpback Whales are between 15-18 m and can weigh up to 40 tonnes (Winn and Reichley 1985). Humpback Whales are filter feeders and have 14-22 widely spaced throat grooves and 270- 400 baleen plates that enable effective prey capture (Clapham and Mead 1999). Another characteristic of Humpback Whales are the protuberances or tubercles on the head, jaws and pectoral fins (Clapham and Mead 1999).
2. Humpback Whales are found in all ocean basins worldwide. Across this range there are multiple subpopulations that are genetically and demographically distinct units and recognised by the International Whaling Commission (IWC) which refers to them as stocks (Gales *et al.* 2011). Within Australian waters there are two subpopulations: the Eastern Australian subpopulation that migrates from the Southern Ocean northwards along the east of Australia to breed during winter in the Great Barrier Reef region and the Western Australian subpopulation, that migrates along the West Australian coast to breed in the region between North

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West Cape (Exmouth) and the Kimberley (Chittleborough 1965; DAWE 2022). There is some overlap of individuals from the two subpopulations during the summer feeding season, but it is limited and the subpopulations remain separate in most years (Chittleborough 1965).

3. Several Indigenous groups regard whales as totemic species (Cahir *et al.* 2018; Darkinjung LALC 2019). It appears that Indigenous Australians did not hunt Humpback Whales but would opportunistically take advantage of strandings (Cahir *et al.* 2018). Historically, indigenous people in the Twofold Bay area of south-east NSW would encourage Killer Whales (*Orcinus orca*) to bring their Humpback Whale prey to the shore where they could feast on the meat (the Killer Whales eating only the tongue and lips) (Mathews 1904 in Clarke (2018)). This association was later capitalised upon by shore-based commercial whalers (Wellings 1944).
4. Humpback Whales principally feed on *Euphausia superba* (krill) in the Southern Ocean (Chittleborough 1965) and migrate annually to the northern coastlines of Australia to breed. However, a study indicated a significant male bias in the sex ratio of migrating Humpback Whales (Brown *et al.* 1995), and it concluded that not all females migrate every year due to resource limitations (Paton and Kneist 2011).
5. Humpback Whales become sexually mature at approximately six years. Gestation generally takes 11.5 months, with calves weaning from approximately six months and becoming independent from their mothers after their first year (Clapham and Mead 1999). The mean inter-birth interval is 2.36 years, and they cease reproducing at approximately 55 years of age (Taylor *et al.* 2007). The estimated generation length (IUCN 2022) for Humpback Whales is 21.5 years (Taylor *et al.* 2007).
6. The geographic distribution of the Humpback Whale is not restricted. The extent of occurrence (EOO) of Humpback Whale in Australia is at least 2,844,816 km<sup>2</sup>. Area of Occupancy (AOO) has not been estimated precisely, but for the Eastern Australian subpopulation alone the breeding area in the Great Barrier Reef World Heritage Area is over 30,000 km<sup>2</sup> (Smith *et al.* 2012; Smith *et al.* 2020) and the breeding range of the Western Australian subpopulation extends 1,000 km<sup>2</sup> along the coast (Irvine *et al.* 2018).
7. Historically the population of Humpback Whales in Australia was severely reduced by commercial whaling. By 1962, the Eastern Australian sub-population was reduced to 200-500 whales and the Western Australian sub-population to 800-1000 whales (Chittleborough 1965; IWC 2015). Most commercial whaling of the species ceased in 1963, and they were protected worldwide in 1965 after recognition of a dramatic global decline in numbers. Since the cessation of whaling, both subpopulations have grown continuously at close to the estimated maximum biologically plausible rate and the most recent surveys for each suggest they continue to do so (Bejder *et al.* 2016). The Eastern Australian subpopulation has experienced a long-term average rate of increase of around 11% per annum (Noad *et al.* 2019). To date there has not been a decline in the rate of subpopulation growth recorded, nor have there been observations consistent with density-dependent effects occurring (e.g. a consistently increasing number of stranded,

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emaciated calves, increased inter-calving period or greater age at maturation) (Noad *et al.* 2019). As a result of a global moratorium, there is no expectation that commercial whaling will commence again.

8. Both Australian subpopulations of Humpback Whales are currently very close to, or above, their estimated carrying capacity and the estimated total population size for Humpback Whales (combined Western and Eastern subpopulations) is well in excess of 40,000 whales (DAWE 2022). The Eastern Australian subpopulation is now expected to be close to 26,133 (21,605- 29,033 90% probability interval PI), the estimated population size prior to exploitation (IWC 2015; DAWE 2022).
9. The species is subject to a number of impacts; however, these are not presently threatening the species as evidenced by its strong recovery. These impacts include collisions and disturbance by vessels (Vanderlaan and Taggart 2007; Peel *et al.* 2018); entanglements from commercial fisheries or aquaculture equipment, shark safety equipment and marine debris (Tulloch *et al.* 2020); and anthropogenic noise interference such as seismic exploration, industrial noise, shipping noise, and sonar systems (Nowacek *et al.* 2007; Southall *et al.* 2007). Although not influencing species numbers now, these impacts are known to have a negative impact on individuals health, population viability and may result in habitat disturbance or displacement (Vanderlaan and Taggart 2007; Wright *et al.* 2007; Tulloch *et al.* 2020). The continued increase in boating and fishery activities around Australia (Clifton *et al.* 2007; Bureau of Resources and Energy Economics 2012) increases the chance for negative impacts on this species.
10. Identified plausible future threats to the Humpback Whale include impacts from climate change resulting in increasing sea surface temperatures, decreasing sea ice cover, rising sea levels, changes to ocean circulations, ocean acidification and changes in salinity (Learmonth *et al.* 2006). This may lead to changes in species abundance, migration timing and range, species distribution, changes to prey/predator relationships, prey availability and reproductive timing and success, which could impact on the health and survival of species (IWC 2006). Other potential future threats include habitat degradation from continued coastal development and port expansion; pollution; overharvesting of prey and; disease. While these future impacts are of concern, there is not sufficient evidence to demonstrate that they will cause a 30 percent decline in the Australian Humpback Whale population over the next 100 years (DAWE 2022).
11. Despite removal from the BC Act, the Humpback Whale is still afforded protection nationally through existing EPBC Act mechanisms including listing as a Migratory Species (a Matter of National Environmental Significance) and listing as a Cetacean under EPBC Act Division 3, where it is an offence to kill, injure, take, trade, keep, move or interfere with a cetacean. Internationally, Australia continues to actively manage this risk through strong international policy on cetaceans and engagement with the IWC.

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12. In view of the above, the NSW Threatened Species Scientific Committee is of the opinion that *Megaptera novaeangliae* (Humpback Whale) Borowski, 1781 is not eligible to be listed as a threatened species in any category under the Act.

Professor Caroline Gross  
Deputy Chairperson  
NSW Threatened Species Scientific Committee

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