SUPPLEMENTARY TABLES

**Supplementary Table S1**. Sources for cetacean rhodopsin sequences used in codon-based likelihood analyses

| Common name | Binomen | Clade | Accession number |
|---|---|---|---|
| Cattle | *Bos taurus* | Cetruminantia | NM_001014890.1 |
| Hippo | *Hippopotamus amphibius* | Whippomorpha | KC676928.1 |
| Bowhead whale | *Balaena mysticetus* | Balaenidae (Mysticeti) | KC676921.1 |
| N. Atlantic right whale | *Eubalaena glacialis* | Balaenidae (Mysticeti) | JQ730751.1 |
| Pygmy right whale | *Caperea marginata* | Neobalaenidae (Mysticeti) | KC676926.1 |
| N. Atlantic minke whale | *Balaenoptera acutorostrata acutorostrata* | Balaenopteridae (Mysticeti) | KC676922.1 |
| N. Pacific minke whale | *Balaenoptera acutorostrata scammoni* | Balaenopteridae (Mysticeti) | XM_007192608.1 |
| Blue whale | *Balaenoptera musculus* | Balaenopteridae (Mysticeti) | KC676923.1 |
| Fin whale | *Balaenoptera physalus* | Balaenopteridae (Mysticeti) | KC676924.1 |
| Sperm whale | *Physeter macrocephalus* | Physeteridae (Odontoceti) | XM_007126220.1 |
| South-Asian river dolphin | *Platanista minor* | Platanistidae (Odontoceti) | KC676936.1 |
| Sowerby's beaked whale | *Mesoplodon bidens* | Ziphiidae (Odontoceti) | AF055316.1 |
| Baird's beaked whale | *Berardius bairdii* | Ziphiidae (Odontoceti) | KC676925.1 |
| Cuvier's beaked whale | *Ziphius cavirostris* | Ziphiidae (Odontoceti) | KC676938.1 |
| Yangtze river dolphin | *Lipotes vexillifer* | Lipotidae (Odontoceti) | XM_007461564.1 |
| Franciscana | *Pontoporia blainvillei* | Pontoporidae (Odontoceti) | KC676937.1 |
| Amazon river dolphin | *Inia geoffrensis* | Iniidae (Odontoceti) | KC676929.1 |
| Beluga | *Delphinapterus leucas* | Monodontidae (Odontoceti) | KC676927.1 |
| Finless porpoise | *Neophocaena phocaenoides* | Phocoenidae (Odontoceti) | KC676932.1 |
| Harbour porpoise | *Phocoena phocoena* | Phocoenidae (Odontoceti) | KC676933.1 |
| Dall's porpoise | *Phocoenoides dalli* | Phocoenidae (Odontoceti) | KC676934.1 |
| Killer whale | *Orcinus orca* | Delphinidae (Odontoceti) | XM_004284305.1 |
| Bottlenose dolphin | *Tursiops truncatus* | Delphinidae (Odontoceti) | AF055456.1 |
| Pilot whale | *Globicephala melas* | Delphinidae (Odontoceti) | AF055315.1 |
| Common dolphin | *Delphinus delphis* | Delphinidae (Odontoceti) | AF055314.1 |

**Supplementary Table S2**. Likelihood ratio tests for random-sites models (PAML) of the cetacean RH1 Bayesian gene tree derived from only synonymous nucleotide sites

| Model | np | ln *L* | $\varkappa$ | Parameters[a] | | | Null | LRT | df | p |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | $\omega_0/p$ | $\omega_1/q$ | $\omega_2/\omega_p$ | | | | |
| M0 | 49 | -3178.83 | 4.17 | 0.12 | | | | | | |
| M1a | 50 | -3059.13 | 4.34 | 0.02 (87.9%) | 1 (12.1%) | | | | | |
| M2a | 52 | -3052.65 | 4.45 | 0.02 (87.8%) | 1 (11.1%) | 5.60 (1.1%) | M1a | 12.96 | 2 | 0.002* |
| M3 | 53 | -3052.36 | 4.44 | 0.02 (87.2%) | 0.86 (11.5%) | 4.80 (1.3%) | M0 | 252.94 | 4 | 0.000* |
| M7 | 50 | -3061.69 | 4.33 | 0.01 | 0.03 | | | | | |
| M8a | 51 | -3059.02 | 4.33 | 0.34 | 13.63 | 1 (11.3%) | | | | |
| M8 | 52 | -3053.53 | 4.44 | 0.06 | 0.49 | 4.32 (1.5%) | M7 | 16.32 | 2 | 0.000* |
| | | | | | | | M8a | 10.98 | 1 | 0.001* |

Note: np, number of parameters; ln *L*, ln likelihood; $\varkappa$, transition/transversion ratio; df, degrees of freedom. [a]For models M0-M3, the $\omega$ values for each site class ($\omega_0$ - $\omega_2$) are shown with their proportions in parentheses. For models M7-M8, *p* and *q* describe the shape of the beta distribution, and $\omega_p$ refers to the positively selected site class (with proportion in parentheses) for models M8 and M8a (where it is constrained to one).

**Supplementary Table S3**. PARRIS test for positive selection (HYPHY) on the cetacean RH1 species tree

| **Model** | **ln *L*** | **Parameters** | | | **LRT** | **p** |
|---|---|---|---|---|---|---|
| | | $\omega_1$ | $\omega_2$ | $\omega_3$ | | |
| Null | -3006.79 | 0.01 (82.2%) | 1 (17.8%) | | | |
| Positive selection | -3003.68 | 0.00 (81.1%) | 1 (16.9%) | 2.78 (2.0%) | 6.22 | 0.043* |

**Supplementary Table S4**. Results from branch-site model (PAML) analyses on the cetacean RH1 species tree

| Partition[a] | Model | np | ln *L* | $\varkappa$ | Parameters[b] | | | | ΔAIC[c] | Null | LRT | df | p |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | $\omega_0$ | $\omega_1$ | $\omega_{2a}$ | $\omega_{2b}$ | | | | | |
| | M2a_rel | 52 | -3047.29 | 4.3 | 0.02 (87.9%) | 1.00 (11.6%) | 7.13 (0.5%) | | 4.34 | | | | |
| Cetacea | BrS_Null | 51 | -3047.42 | 4.3 | B: 0.02<br>F: 0.02 (86.8%) | B: 1.00<br>F: 1.00 (5.8%) | B: 0.02<br>F: 1.00 (6.9%) | B: 1.00<br>F: 1.00 (0.4%) | 2.60 | | | | |
| | BrS_Alt | 52 | -3047.2 | 4.3 | B: 0.02<br>F: 0.02 (87.4%) | B: 1.00<br>F: 1.00 (5.7%) | B: 0.02<br>F: 1.24 (6.4%) | B: 1.00<br>F: 1.24 (0.4%) | 4.16 | BrS_Null | 0.44 | 1 | 0.507 |
| | CmC | 53 | -3047.27 | 4.3 | B: 0.02<br>F: 0.02 (87.5%) | B: 1.00<br>F: 1.00 (5.1%) | B: 0.10<br>F: 1.26 (7.3%) | | 6.30 | M2a_rel | 0.04 | 1 | 0.841 |
| Odontoceti | BrS_Null | 51 | -3052.55 | 4.3 | B: 0.02<br>F: 0.02 (87.7%) | B: 1.00<br>F: 1.00 (11.2%) | B: 0.02<br>F: 1.00 (0.9%) | B: 1.00<br>F: 1.00 (0.1%) | 12.86 | | | | |
| | BrS_Alt | 52 | -3049.99 | 4.3 | B: 0.02<br>F: 0.02 (87.7%) | B: 1.00<br>F: 1.00 (11.6%) | B: 0.02<br>F: 6.24 (0.5%) | B: 1.00<br>F: 6.24 (0.1%) | 9.74 | BrS_Null | 5.12 | 1 | 0.024* |
| | CmC | 53 | -3047.28 | 4.4 | B: 0.02<br>F: 0.02 (87.9%) | B: 1.00<br>F: 1.00 (11.2%) | B: 5.89<br>F: 7.85 (0.9%) | | 6.32 | M2a_rel | 0.02 | 1 | 0.888 |
| Mysticeti | BrS_Null | 51 | -3052.82 | 4.3 | B: 0.02<br>F: 0.02 (88%) | B: 1.00<br>F: 1.00 (12%) | B: 0.02<br>F: 1.00 (0%) | B: 1.00<br>F: 1.00 (0%) | 13.40 | | | | |
| | BrS_Alt | 52 | -3052.82 | 4.3 | B: 0.02<br>F: 0.02 (88%) | B: 1.00<br>F: 1.00 (12%) | B: 0.02<br>F: 1.00 (0%) | B: 1.00<br>F: 1.00 (0%) | 15.40 | BrS_Null | 0 | 1 | 1.000 |
| | CmC | 53 | -3047.22 | 4.3 | B: 0.02<br>F: 0.02 (87.9%) | B: 1.00<br>F: 1.00 (11.4%) | B: 7.33 (0.7%)<br>F: 2.29 | | 6.20 | M2a_rel | 0.14 | 1 | 0.708 |
| Bath+Epi | BrS_Null | 51 | -3049.34 | 4.3 | B: 0.02<br>F: 0.02 (86.3%) | B: 1.00<br>F: 1.00 (10.2%) | B: 0.02<br>F: 1.00 (3.1%) | B: 1.00<br>F: 1.00 (0.4%) | 6.44 | | | | |
| | BrS_Alt | 52 | -3049.31 | 4.3 | B: 0.02<br>F: 0.02 (86.8%) | B: 1.00<br>F: 1.00 (10.2%) | B: 0.02<br>F: 1.25 (2.6%) | B: 1.00<br>F: 1.25 (0.3%) | 8.38 | BrS_Null | 0.06 | 1 | 0.806 |
| | CmC | 53 | -3046.38 | 4.3 | B: 0.02<br>F: 0.02 (87.9%) | B: 1.00<br>F: 1.00 (5.7%) | B: 0.40<br>F: 2.12 (6.4%) | | 4.52 | M2a_rel | 1.82 | 1 | 0.177 |
| Fresh | BrS_Null | 51 | -3054.04 | 4.3 | B: 0.02<br>F: 0.02 (85.3%) | B: 1.00<br>F: 1.00 (10.7%) | B: 0.02<br>F: 1.00 (3.6%) | B: 1.00<br>F: 1.00 (0.5%) | 15.84 | | | | |
| | BrS_Alt | 52 | -3052.82 | 4.3 | B: 0.02<br>F: 0.02 (87.3%) | B: 1.00<br>F: 1.00 (11.0%) | B: 0.02<br>F: 3.19 (1.5%) | B: 1.00<br>F: 3.19 (0.2%) | 15.40 | BrS_Null | 2.44 | 1 | 0.118 |
| | CmC | 53 | -3047.22 | 4.3 | B: 0.02<br>F: 0.02 (87.3%) | B: 1.00<br>F: 1.00 (11.2%) | B: 0.00<br>F: 2.41 (1.5%) | | 6.20 | M2a_rel | 0.14 | 1 | 0.708 |

[a]Partitions listed indicate the foreground lineages. In all cases, the background partition contains the remaining taxa. [b]ω values for each site class are shown with the proportion of each in parentheses. B and F refer to the background and foreground partitions. [c]Minimum overall AIC (foraging depth 3-partition of CmC; 6194.24) was used for all comparisons. Abbreviations np, number of parameters; lnL, ln likelihood; $\varkappa$, transition/transversion ratio; df, degrees of freedom; Bath, bathypelagic; Epi, Epipelagic; Fresh, Freshwater/estuarine.

**Supplementary Table S5**. Assignment of species and internal nodes on the cetacean species tree to foraging depth and habitat partitions for clade model analyses

| Node/terminus/clade | Assigned partition[a] | Source |
|---|---|---|
| Root Cetacea (Neoceti) | Mesopelagic, Oceanic | Ancestral neoceti morphology (Fordyce 2002a; Uhen 2008); diet/behaviour, dispersal (Uhen 2004; 2010); diving capacity (Mirceta et al. 2013) |
| Root Mysticeti | Mesopelagic, Oceanic | Ancestral odontocete and mysticete morphology (Uhen 2010; Marx 2012; Gatesy et al. 2013); dispersal (Steeman et al. 2009)<br>Ancestral odontocete diet/behaviour (Lindberg et al. 2007; Johnston & Berta 2010) |
| Root Odontoceti | Mesopelagic, Oceanic | |
| Balaenidae | Epipelagic, Coastal | Ancestral balaenid morphology (Fordyce 2002b)<br>Extant balaenid diet/behaviour, habitat (Curry and Brownell Jr. 2014) |
| *Caperea marginata* (Neobalaenidae) | Mesopelagic, Oceanic | Extant neobalaenid morphology, habitat (Kemper 2014) |
| Balaenopteridae | Mesopelagic, Oceanic | Ancestral balaenopterid morphology (Bisconti 2010)<br>Extant balaenopterid diet/behaviour, habitat (Demere 2014) |
| *Physeter macrocephalus* (Physeteridae) | Bathypelagic, Oceanic | Ancestral physeterid morphology (Lambert et al. 2013a)<br>Ancestral ziphiid morphology (Lambert et al. 2013b)<br>Ancestral physeterid and ziphiid diving capacity (Mirceta et al. 2013)<br>Extant physeterid diet/behaviour, habitat (Watwood et al. 2006)<br>Extant ziphiid diet/behaviour, habitat (Tyack et al. 2006) |
| Ziphiidae | Bathypelagic, Oceanic | |
| *Platanista minor* (Platanistidae) | Epipelagic, Freshwater | Ancestral river dolphin morphology, independent freshwater invasions (Cassens et al. 2000; Hamilton et al. 2001; Geisler et al. 2011) |
| *Lipotes vexillifer* (Lipotidae) | Epipelagic, Freshwater | |
| *Pontoporia blainvillei* (Pontoporidae) | Epipelagic, Freshwater | |
| *Inia geoffrensis* (Iniidae) | Epipelagic, Freshwater | |
| Root Delphinoidea | Mesopelagic, Oceanic | Ancestral delphinoid morphology, behaviour, habitat (Kazar et al. 2014) |
| Root Monodontidae + Phocoenidae | Epipelagic, Coastal | Ancestral monodontid and phocoenid morphology and habitat (Velez-Juarbe & Pyenson 2012; Lambert 2008) |
| *Delphinapterus leucas* (Monodontidae) | Mesopelagic, Coastal | Extant monodontid diet/behaviour, habitat (Richard 2014) |
| Root Phocoenidae | Epipelagic, Coastal | Ancestral phocoenid morphology, habitat (Lambert 2008) |
| *Neophocaena phocaenoides* | Epipelagic, Coastal | Extant *N. phocaenoides* diet/behaviour, habitat (Jefferson 2014) |
| *Phocoenoides dalli* | Epipelagic, Oceanic | Extant *P. dalli* diet/behaviour, habitat (Jefferson 2014; Fajardo-Mellor et al. 2006) |
| *Phocoena phocoena* | Epipelagic, Coastal | Extant *P. phocoena* diet/behaviour, habitat (Jefferson 2014) |
| Root Delphinidae | Mesopelagic, Oceanic | Ancestral delphinid habitat (Banguera-Hinestroza et al. 2014)<br>Ancestral delphinid morphology (Lindberg et al. 2007) |
| *Globicephala melas* | Mesopelagic, Oceanic | Extant *G. melas* diet/behaviour, habitat (Wang et al. 2014) |
| *Orcinus orca* | Epipelagic, Coastal | Extant *O. orca* diet/behaviour, habitat (Wang et al. 2014) |
| *Delphinus delphis* | Epipelagic, Oceanic | Extant *D. delphis* diet/behaviour, habitat (Wang et al. 2014) |
| *Tursiops truncatus* | Mesopelagic, Coastal | Extant *T. truncatus* diet/behaviour, habitat (Wang et al. 2014) |

[a]Partitions refer to foraging depth and habitat categories: Epipelagic (0-200 m), Mesopelagic (200 - 1000 m), Bathypelagic (>1000 m), Freshwater (rivers, lakes, estuaries), Coastal (within continental shelves), Oceanic (beyond continental shelves).


Banguera-Hinestroza E, Hayano A, Crespo E, Hoelzel AR. 2014. Delphinid systematics and biogeography with a focus on the current genus *Lagenorhynchus*: Multiple pathways for antitropical and trans-oceanic radiation. Molecular Phylogenetics and Evolution 80:217–230.

Bisconti M. 2010. A new balaenopterid whale from the late Miocene of the Stirone River, northern Italy (Mammalia,

Cetacea, Mysticeti). Journal of Vertebrate Paleontology 30:943–958.
Cassens I, Vicario S, Waddell VG, Balchowsky H, Van Belle D, Ding W, Fan C, Mohan RS, Simões-Lopes PC, Bastida R, et al. 2000. Independent adaptation to riverine habitats allowed survival of ancient cetacean lineages. Proceedings of the National Academy of Sciences 97:11343–11347.
Curry BE, Brownell Jr RL. 2014. Family Balaenidae (right and bowhead whales). In: Wilson DE, Mittermeier RA, editors. Handbook of the mammals of the world vol. 4: Sea mammals. Barcelona (Spain): Lynx Edicions. p. 186-213.
Demere TA. 2014. Family Balaenopteridae (rorquals). In: Wilson DE, Mittermeier RA, editors. Handbook of the mammals of the world vol. 4: Sea mammals. Barcelona (Spain): Lynx Edicions. p. 242-299.
Fajardo-Mellor L, Berta A, Brownell RL, Boy CC, Natalie P Goodall R. 2006. The phylogenetic relationships and biogeography of true porpoises (Mammalia: Phocoenidae) based on morphological data. Marine Mammal Science 22:910–932.
Fordyce RE. 2002a. Neoceti. In: Perrin WF, Wursig B, Thewissen JG, editors. Encyclopedia of marine mammals. San Diego (CA): Academic Press. p. 787-791.
Fordyce RE. 2002b. Oligocene origins of skim-feeding right whales: a small archaic balaenid from New Zealand. Journal of Vertebrate Paleontology 22:54A.
Gatesy J, Geisler JH, Chang J, Buell C, Berta A, Meredith RW, Springer MS, Mcgowen MR. 2013. A phylogenetic blueprint for a modern whale. Molecular Phylogenetics and Evolution 66:479–506.
Geisler JH, Mcgowen MR, Yang G, Gatesy J. 2011. A supermatrix analysis of genomic, morphological, and paleontological data from crown Cetacea. BMC Evolutionary Biology 11:112.
Hamilton H, Caballero S, Collins AG, Brownell RL. 2001. Evolution of river dolphins. Proceedings of the Royal Society B: Biological Sciences 268:549–556.
Jefferson TA. 2014. Family Phocoenidae (porpoises). In: Wilson DE, Mittermeier RA, editors. Handbook of the mammals of the world vol. 4: Sea mammals. Barcelona (Spain): Lynx Edicions. p. 528-545.
Johnston C, Berta A. 2010. Comparative anatomy and evolutionary history of suction feeding in cetaceans. Marine Mammal Science 27:493–513.
Kazár E, Hampe O. 2014. A new species of *Kentriodon* (Mammalia, Odontoceti, Delphinoidea) from the middle/late Miocene of Groß Pampau (Schleswig-Holstein, North Germany). Journal of Vertebrate Paleontology 34:1216–1230.
Kemper CM. 2014. Family Neobalaenidae (pygmy right whale). In: Wilson DE, Mittermeier RA, editors. Handbook of the mammals of the world vol. 4: Sea mammals. Barcelona (Spain): Lynx Edicions. p. 214-221.
Lambert O, Bianucci G, 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, Post K, de Muizon C, Salas-Gismondi R, Urbina M, 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, Bianucci G. 2013. The most basal beaked whale *Ninoziphius platyrostris* Muizon, 1983: clues on the evolutionary history of the family Ziphiidae (Cetacea: Odontoceti). Zool J Linn Soc 167:569–598.
Lambert O. 2008. A new porpoise (Cetacea, Odontoceti, Phocoenidae) from the Pliocene of the North Sea. Journal of Vertebrate Paleontology 28:863–872.
Lindberg DR, Pyenson ND. 2007. Things that go bump in the night: evolutionary interactions between cephalopods and cetaceans in the tertiary. Lethaia 40:335–343.
Marx FG. 2010. The more the merrier? A large cladistic analysis of mysticetes, and comments on the transition from teeth to baleen. J Mammal Evol 18:77–100.
Mirceta S, Signore AV, Burns JM, Cossins AR, Campbell KL, Berenbrink M. 2013. Evolution of mammalian diving capacity traced by myoglobin net surface charge. Science 340:1234192–1234192.
Richard PR. 2014. Family Monodontidae (beluga and narwhal). In: Wilson DE, Mittermeier RA, editors. Handbook of the mammals of the world vol. 4: Sea mammals. Barcelona (Spain): Lynx Edicions. p. 394-409.
Steeman ME, Hebsgaard MB, Fordyce RE, Ho SYW, Rabosky DL, Nielsen R, Rahbek C, Glenner H, Sørensen MV, Willerslev E. 2009. Radiation of Extant Cetaceans Driven by Restructuring of the Oceans. Syst Biol 58:573–585.
Tyack PL, Johnson M, Soto NA, Sturlese A, Madsen PT. 2006. Extreme diving of beaked whales. J. Exp. Biol. 209:4238–4253.
Uhen MD. 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 MD. 2008. New protocetid whales from Alabama and Mississippi and a new cetacean clade, Pelagiceti. Journal of Vertebrate Paleontology 28:589-593.
Uhen MD. 2010. The origin(s) of whales. Annu. Rev. Earth Planet. Sci. 38:189–219.
Vélez-Juarbe J, Pyenson ND. 2012. *Bohaskaia monodontoides*, a new monodontid (Cetacea, Odontoceti, Delphinoidea) from the Pliocene of the western North Atlantic Ocean. Journal of Vertebrate Paleontology 32:476–484.
Wang JY, Riehl KN, Dungan SZ. 2014. Family Delphinidae (ocean dolphins). In: Wilson DE, Mittermeier RA, editors. Handbook of the mammals of the world vol. 4: Sea mammals. Barcelona (Spain): Lynx Edicions. p. 410-527.
Watwood SL, Miller PJO, Johnson M, Madsen PT, Tyack PL. 2006. Deep-diving foraging behaviour of sperm whales (*Physeter macrocephalus*). Journal of Animal Ecology 75:814–825.

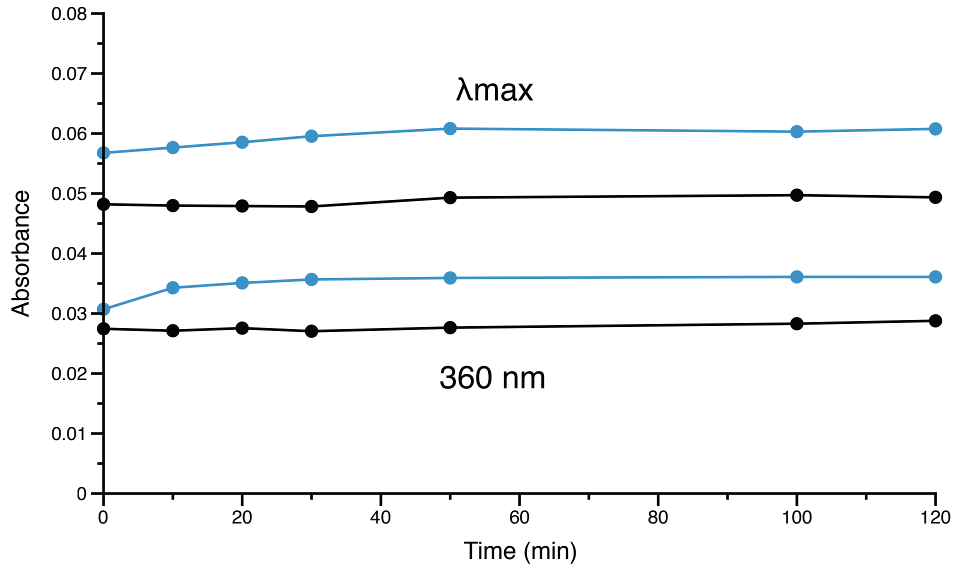


**Fig. S1.** Hydroxylamine (50 mM) exposure for wild-type bovine (black lines) and killer whale (blue lines) rhodopsins showing stability of the dark state peaks (487 nm, 499 nm) and retinal oxime peak (360 nm) over time.

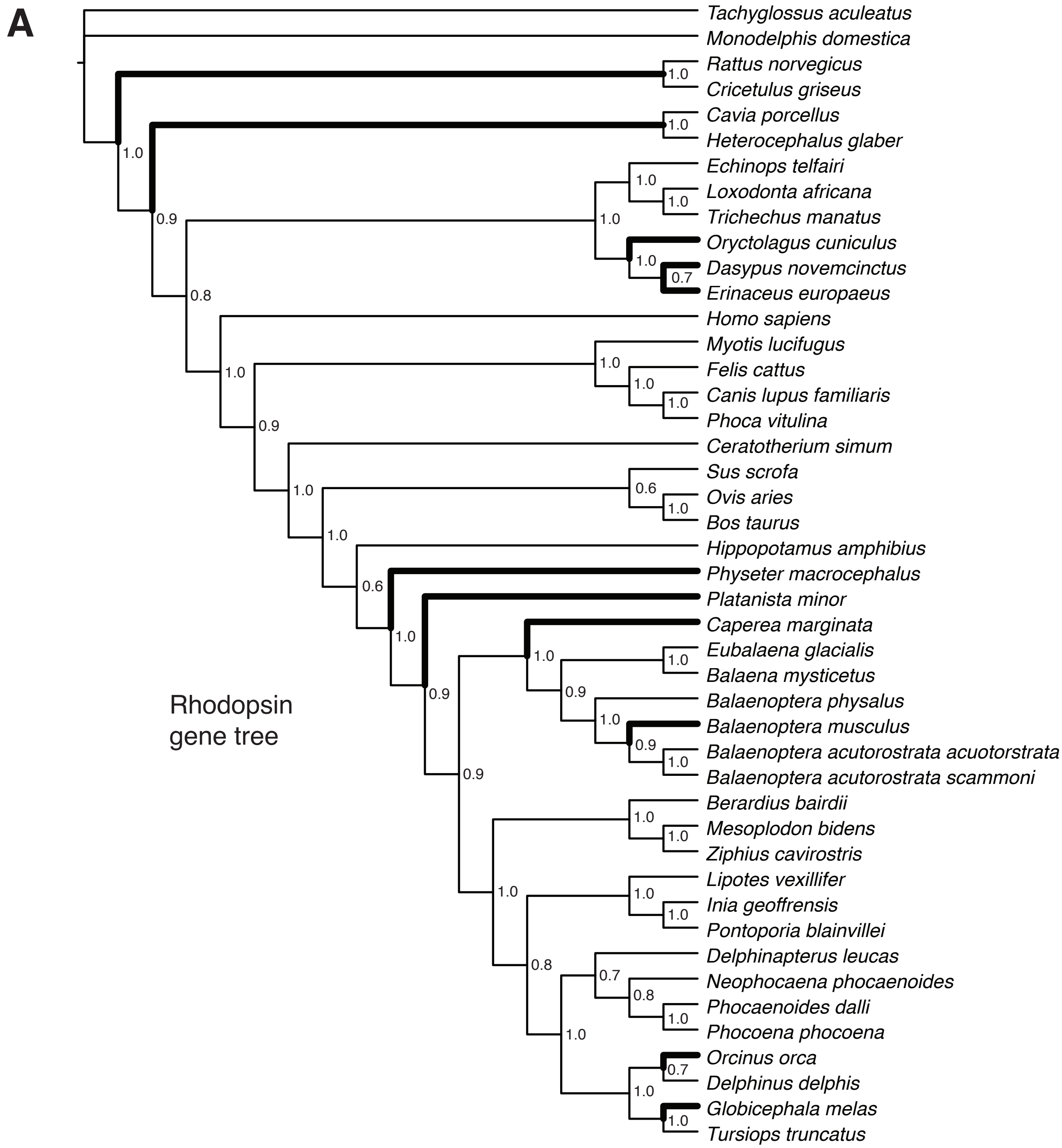


**Fig. S2.** A) Cetacean rhodopsin Bayesian gene tree topology with mammalian outgroups. Bolded branches denote clades with positions that deviate from accepted species relationships for mammals (Springer et al. 2004; Bininda-Emonds et al. 2007) and cetaceans (McGowen 2011; Gatesy et al. 2013). In particular, members of Euarchonta and Glires, which are known to be monophyletic sister lineages, were spread paraphyletically among the basal branches. Within cetacea, Mysticeti was incorrectly nested within Odontoceti, *C. marginata* was incorrectly placed as the most basal mysticete, and *O. orca*, which is now known to be a basal delphinid (McGowen 2011), was not placed as such. Numbers at nodes indicate posterior probabilities.

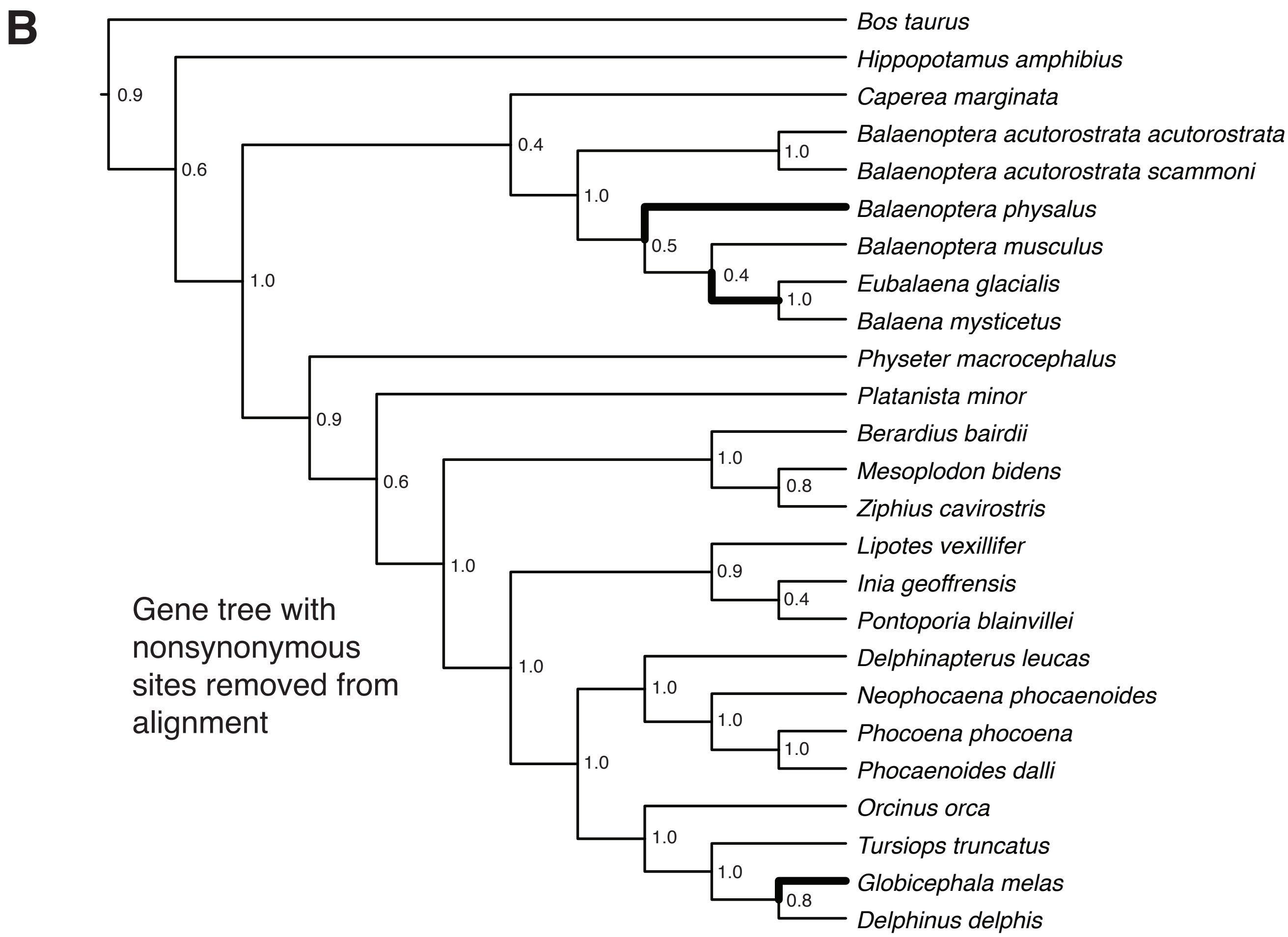


**Fig. S2 cont.** B) The pruned Bayesian topology that results when nonsynonymous sites are removed from the alignment (numbers at nodes indicate posterior probabilities). Bolded branches denote clades with positions that deviate from accepted species relationships for cetaceans (McGowen 2011; Gatesy et al. 2013). Removing nonsynonymous nucleotides (79 of 1059 nucleotides) from the alignment corrected the misplacement of Mysticeti within Odontoceti (*P. macrocephalus* and *P. minor* were no longer placed as basal cetaceans). Additionally, *O. orca* was moved to its proper position as a basal delphinid, but incorrect placements were still present among the mysticetes. Thus, overall, when nonsynonymous nucleotides were removed from the alignment, the gene tree was a considerably better match to the accepted species topology. Accession numbers for outgroups not listed in Supplementary Table S1 are as follows: JX103830.1, XM_001366188.2, NM_001280858.1, XM_004702378.1, AF055319.1, XM_004477246.1, U49742.1, NM_001082349.1, EF457995.1, XM_004902702.1, NM_001244407.1, NM_033441.1, XM_007517079.1, XM_006083811.1, NM_001009242.1, NM_001008276.1, AF055317.1, XM_004442424.1, AF008947.1, XM_004018534.1

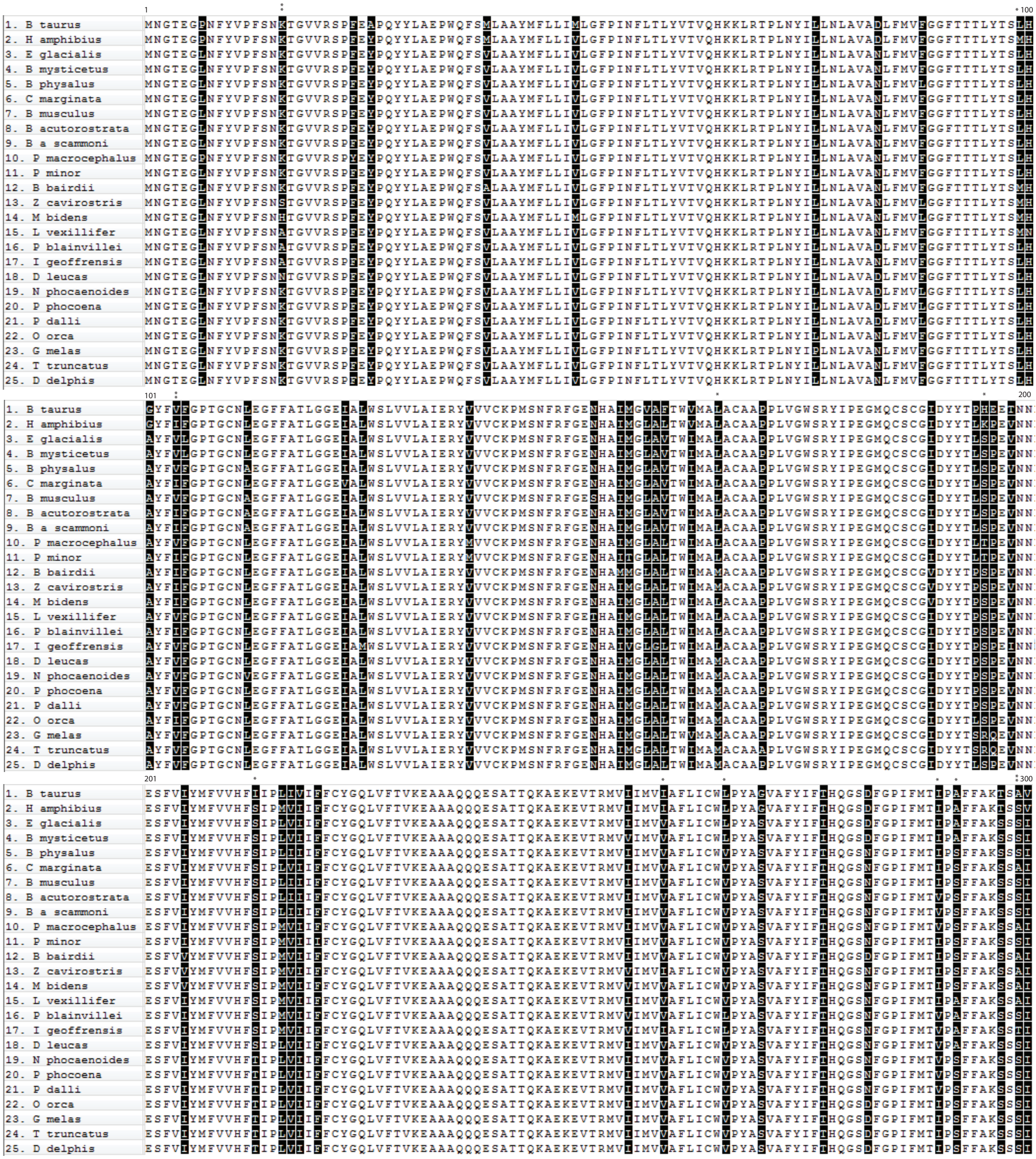
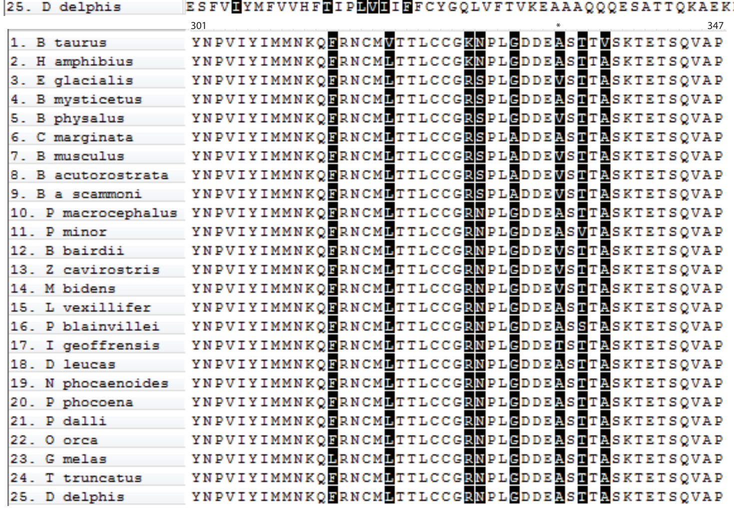


**Fig. S3.** Cetacean rhodopsin amino acid alignment translated from coding sequences (Supplementary File) used with codon-based likelihood analyses. Asterisks correspond to Table 4 and indicate >80% posterior probability of belonging to a positively selected site class in two (*) or all three (**) random-sites models (M8, REL, FUBAR). Non-conserved sites are indicated with black bars.