

A NEW PLIOCENE DOLPHIN (CETACEA: PONTOPORIIDAE), FROM THE LEE CREEK MINE, NORTH CAROLINA

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With only a single extant species, *Pontoporia blainvillei*, Pontoporiidae is a relict group that is presently restricted to Atlantic coastal waters of Brazil, Uruguay, and Argentina (Crespo, 2002). The extinct diversity of this family is much greater, with at least 6 named species, and possibly more if the long-snouted genus *Parapontoporia* is included (see Barnes, 1985; Godfrey and Barnes, 2008). Extinct taxa are known from the east and west coasts of South America (Burmeister, 1885; Muizon, 1984, 1988a), the East Coast of North America (Morgan, 1994; Godfrey and Barnes, 2008), and the North Sea Basin of the Eastern Atlantic (Lambert and Post, 2005; Pyenson and Hoch, 2007). Both morphological (e.g. Muizon, 1988b; Geisler and Sanders, 2003) and molecular data (e.g. Cassens et al., 2000; Nikaido et al., 2001) support the Amazonian River Dolphin *Inia geoffrensis* as the closest extant taxon to *Pontoporia*; together these taxa have been placed in the Superfamily Inioidea. While the distributions of extant taxa of Inioidea do not hint at the former wider geographic distribution of this clade, several analyses (Nikaido et al., 2001; Yan et al., 2005) support the Yangtze River dolphin as the sister-group to Inioidea. If this is the case, the far flung distribution of these taxa, two of which are restricted to river basins, raises several important questions. Was the common ancestor of *Lipotes* and Inioidea riverine or marine? Were pontoporiids primitively riverine, and is the reduction in inioid diversity related to the recent radiation of oceanic dolphins (i.e. Delphinidae)? Although answering these questions is beyond the scope of the present study, this paper will add to the growing extinct diversity of Pontoporiidae.

Here we describe a new genus and species, *Auroracetus bakerae*, based on an incomplete skull and associated fragments from the Lee Creek Mine of coastal North Carolina. Pontoporiid petrosals were reported from this quarry by Whitmore (1994) and then described by Whitmore and Kaltenbach (2008); however, these authors did not assign the petrosals to a particular species of pontoporiid. Thus this study represents the first pontoporiid species named and described from the Lee Creek Quarry, and only the second named, extinct pontoporiid from the East Coast of North America. Additionally, we develop a hypothesis for its placement in an existing pontoporiid phylogeny and discuss the biogeographic implications of this new taxon.

Institutional Abbreviations—USNM, United States National Museum of Natural History, Washington D.C.; GSM, Georgia Southern Museum, Georgia Southern University, Statesboro, GA.

SYSTEMATIC PALEONTOLOGY

Order CETACEA Brisson, (1762) Rice, 1998
Suborder ODONTOCETI (Flower, 1867) *sensu* Rice, 1998
Superfamily DELPHINIDA Muizon, 1984
Family PONTOPORIIDAE (Gill, 1871) Kasuya, 1973
Subfamily PONTOPORIINAE Gray 1870
AURORACETUS gen. nov.

Type Species—*Auroracetus bakerae*, sp. nov.

Etymology—*Aurora* for the town in North Carolina, USA near the type locality of the type specimen of the type species.

Diagnosis—As for the type and the only known species.

AURORACETUS BAKERAE, sp. nov.

Holotype—USNM 534002. A fragmentary skull of a juvenile pontoporiid represented by a complete right nasal and portions of the other bones surrounding the nasal passages. Most of the supraoccipital and the left exoccipital with its condyle were also preserved, but the rostrum and basicranium were not.

Etymology—*bakerae*, named for Aura Baker, who with Wayne Baker found the holotype specimen.

Diagnosis—Autapomorphy of taxon: space between premaxilla and nasal greater than width of right nasal. Differs from *Pontoporia blainvillei* in lacking: maxillary ridge and posteromedial sulcus of premaxillary foramen; differs from *Stenasodelphis russellae* in lacking: maxillary excavation on side of nasal, a dorsally exposed mesethmoid between premaxillae, posteromedial sulcus of premaxillary foramen; differs from *Pliopontos littoralis* in lacking: maxillary ridge and foramen at the posterior edge of premaxilla; differs from *Brachydelphis mazeasi* in a narrower premaxilla anterolateral to premaxillary foramen, in lacking premaxilla/nasal contact; differs from *Protophocaena minima* in lacking premaxilla/nasal contact and in having closer premaxillary foramina; differs from *Pontistes rectifrons* in lacking premaxilla/nasal contact and in a narrower premaxilla anterolateral to premaxillary foramen.

Type Locality and Horizon—Lee Creek phosphate mine in Aurora, North Carolina: 35° 20.851' N, 76° 46.978' W. Coordinates are from immediate vicinity of referred specimen, and holotype was found within a 5 mile radius. The holotype is from the Sunken Meadow Member of the Yorktown Formation, early Pliocene in age or roughly 4.0 Ma to 3.8 Ma (Snyder et al., 1983; Ward et al., 1991). Identification of provenance based on sediment adhering to holotype (L. Ward, pers. comm., 2007).

Referred Specimen—GSM 1293, a skull fragment from an adult individual including the left premaxillary eminence and part of the maxilla lateral to it. Member unknown, Yorktown Formation, Lee Creek Mine (see **Type Locality** for more information). Whitmore and Kaltenbach (2008) listed isolated pontoporiid petrosals from the Lee Creek Mine as cf. *Pontoporia* sp. Although some or all of these petrosals may be those of *Auroracetus bakerae*, we decided not to refer them to *Auroracetus* because a partial, odontocete cranial vertex in the USNM collections documents a different, undescribed species of pontoporiid from the Lee Creek Mine (i.e., USNM 310810).

DESCRIPTION

The following description is based on the holotype specimen, unless otherwise noted. From what was preserved of the skull, the right and left sides appear to be symmetric in dorsal view (Fig. 1A), although it could not be determined if the frontal

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