

THE EARLIEST KNOWN ODONTOCETE; A CETACEAN WITH AGOROPHIID AFFINITIES FROM LATEST EOCENE TO EARLIEST OLIGOCENE ROCKS IN WASHINGTON STATE

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A new taxon of archaic fossil toothed cetacean, the oldest known odontocete, has been found in Washington State. The specimen consists of a nearly complete skull, with an associated partial mandible, and most of the dentition. It was collected from rocks spanning the Eocene/Oligocene boundary in the lower part of the Lincoln Creek Formation, exposed near Matlock, Mason County, Washington. The age of the specimen is indicated by well-documented stratigraphy and by foraminiferal assemblages.

This cetacean has 11 teeth on each side of the palate, as do protocetid archaeocetes and generalized land mammals. It belongs in the suborder Odontoceti because it has flattened spiracular plates on the premaxillae on either side of the narial opening and has a foramen in the dorsal surface of each premaxilla. More specifically, it has cranial characters of the primitive odontocete family Agorophiidae, such as elongate nasal bones overhanging the posterior part of the narial opening, a flat-topped intertemporal region with a wide exposure of parietal bones, large temporal fossae, ascending processes of the maxillae spreading posteriorly over the supraorbital processes of the frontals and each bearing a posterior maxillary foramen, and a heterodont dentition in which the anterior teeth are incisiform and the posterior teeth are premolariform, having small anterior and posterior denticles on the crowns and two roots. The animal differs from the Late Oligocene *Agorophius pygmaeus* (Müller, 1849) from South Carolina by having a wider braincase and a shorter rostrum, and appears to represent a previously undescribed genus and species.

This is the geochronologically earliest known odontocete in the world, and it is surprising that for its early age it has such a relatively derived cranial architecture. Its cranial characters are more derived than those of many "typical" Late Oligocene odontocetes, including *Agorophius pygmaeus*, and indicates that the suborder Odontoceti must have originated at least in Late Eocene time. This is much earlier than previously expected. If, as it appears, the new taxon belongs in the Agorophiidae, it represents not only a geologic range extension for the family, but also a geographic range extension into the eastern North Pacific Ocean.