**Questions from Cetacean Evolution & Diversity**

1. Looking at the phylogenetic tree in the figure, Arachaocetes is a group that includes all of the stray branches off of the tree before crown cetaceans evolved. What type of taxonomic group is this (hint: it ends in “–phyletic”)? What type of taxonomic groups are Mysticeti and Odontoceti?
2. What does this discovery tell us about the evolution of cetaceans and what can cetacean fossils tell us that extant cetacean bones cannot?
3. What changes in skull, limb, and body morphology do you see between Pakicetus and Ambulocetus?
4. Calculate the ratio of humerus:body length for each species and report them. What does the difference in this ratio suggest about the changing lifestyle of these groups? Describe THREE other pieces of morphological evidence of evolutionary change can you see in the models?
5. Interpret the figure, and compare and contrast the types of bodies of water that early cetaceans (e.g., pakicetids, ambulocetids), later proto- and remingtonocetids, and most modern marine cetaceans live in.