

P2.131 ORBACH, DN*; MARSHALL, CD; WÜRSIG, B;
MESNICK, SL; Texas A&M University at Galveston, Southwest
Fisheries Science Center, NOAA; *orbachd@tamug.edu*

Potential evolution and function of vaginal folds in cetaceans

Whales, dolphins, and porpoises possess unusual folds of vaginal wall tissue, which vary strikingly in shape, number, development, and position across taxa. The evolutionary functions of vaginal folds are unclear and non-mutually exclusive hypotheses have been proposed. Natural selection (i.e. adaptations to mating in marine environments and/or parturition) or sexual selection (i.e. sperm retention or movement) pressures could drive the presence and variation of vaginal fold morphology. Vaginal folds could also reflect common ancestry as folds are present in some related terrestrial artiodactyls. We predicted that if vaginal folds function in natural selection, such as restricting seawater during copulation, species with longer vaginas would also have more folding. The reproductive tracts of 13 cetacean species were assessed during necropsies of fresh or frozen-thawed females (n = 48 specimens). Measurements of vaginal lengths and the sums of vaginal fold depths were collected per specimen. The mean values were calculated for each species and regressed on body lengths. Using a phylogenetically controlled regression (PGLS), we show that the cumulative depths of vaginal folds increased significantly with vaginal lengths ($P = 0.045$). Our data support the natural selection functional hypothesis of vaginal folds, but the strength of the relationship was driven by only one species. There was no significant relationship when the pygmy sperm whale (*Kogia breviceps*) was removed. An increase in species diversity and data on the genital morphology of both sexes will help elucidate the evolutionary forces driving the unusual vaginal folds of cetaceans.