
МАТЕРИАЛЫ КОНФЕРЕНЦИИ
И ШКОЛЫ

**VISUAL RESOLUTION OF THE RETINA OF NEONATAL BOTTLENOSE
DOLPHINS TURSIOPS TRUNCATUS BY RETINAL TOPOGRAPHY DATA**

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Cetacean have amphibious-type vision, effective in both aquatic and air environments. The study of the retina in the early stages of development may help to understand the unique properties of cetacean visual system. Topography of ganglion cells in the retina of three neonatal bottlenose dolphins were studied in retinal wholemounds. It was used method for the vision resolution for difficult-to access animals by retinal topography on retinal wholemounds. Morphological structure of the ganglion cell layer was studied, and main types of ganglion cells were identified, number and density of cells was measured. Maps of ganglion cells distribution revealed two areas of increased cell density responsible for visual discrimination. The maps displayed two spots of high cell density located in the temporal and nasal

quadrants, 10–11 mm from the geometric center of retina. The mean peak density is 657 and 636 cells/mm² in temporal and nasal high-density areas respectively. With posterior nodal distance of 13 mm, the temporal high-density data predict a retinal resolution in water 0.16° and 0.17° in nasal areas respectively. These data are similar to results for adult dolphins. Thus, by the time of birth, the dolphin has completely former both the topographic structure of the retina and retinal resolution. It is natural to associate this character of retinal maturation with a way of life (aerial respiration during viviparity in the aquatic environment), which requires the ability to actively locomotion immediately after birth.