

ACOUSTICS2008/274 **Effects of noise on hearing in odontocetes**

James Finneran^a, Carolyn Schlundt^b and Sam Ridgway^c

^aUS Navy Marine Mammal Program, Space and Naval Warfare Systems Center, 53560 Hull St., Code 71510, San Diego, CA 92152, USA

^bEDO Professional Services, 3276 Rosecrans St., San Diego, CA 92110, USA

^cUniversity of California, San Diego, Dept. of Pathology, School of Medicine, 9500 Gilman Drive, La Jolla, CA 92093, USA

Increased public concern and regulation of activities involving anthropogenic sound have resulted in a pressing need for specific information regarding safe limits for marine mammals exposed to underwater noise. Since many marine mammals have sensitive hearing and rely upon underwater sound for communicating, foraging, and navigating, the potential effects of noise on their hearing is of particular concern. One of the most familiar consequences of noise exposure is an increase in threshold that persists after the cessation of the noise, called a temporary thresholds shift (TTS) or permanent threshold shift (PTS). Although there are no PTS data for marine mammals, there have been TTS measurements in a number of species, including bottlenose dolphins and belugas. These studies compare hearing thresholds before and after subjects are exposed to intense sounds. The results are analogous to data from terrestrial mammals, where TTS depends on the exposure frequency, sound pressure, duration, and temporal pattern. This talk reviews the major findings related to the growth of and recovery from TTS in bottlenose dolphins and belugas and discusses the application of these data to acoustic exposure guidelines.