

**1pAO4. Hypotheses on the exploitation of bubble acoustics by cetaceans.** Timothy Leighton, Daniel Finfer, and Paul White (Inst. of Sound and Vib. Res., Univ. of Southampton, Highfield, Southampton SO17 1BJ, UK)

Man-made sonar does not operate well in bubbly water, and yet cetaceans not only function effectively in shallow coastal waters, but also at times generate large bubble fields to assist with catching prey. This paper outlines the challenges faced by cetaceans in using acoustics in such environments, and proposes acoustical techniques which would work. The validity of such proposed acoustical solutions is explored through theory, simulation, and experimentation. The scenarios in question relate to the circular and spiral bubble nets generated to trap prey by humpback whales, and solutions to difficulties associated with echolocation by dolphins and porpoises in bubbly water. Whether the solutions are exploited by cetaceans is uncertain, but their efficacy in test tanks and implications for man-made sonar are demonstrated.