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**Comparison of sonar transmission models at mid-frequency for
synthetic and real environments**

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The suitability of sonar transmission loss models for application to the mid-range of acoustic frequencies has been studied by comparing the outputs from a number of models. Emphasis has been placed upon the requirements for models for circumstances relevant to both continental shelf and deep ocean zones within the Australian region. In particular, the ability to describe transmission in surface ducted environments for a deep ocean, and in a shallow ocean with both ducted and downward refracting environments has been considered. For the deep ocean case, a synthetic environment was selected, and the ability to describe duct trapping was examined. For the shallow ocean case, scenarios selected for comparison correspond with ocean tracks for which environmental parameters had been collected and received sound pressure time series measured. The subject transmission loss models are from a variety of types. To enable the most valid comparison, input parameters have been matched across models to the fullest extent. This paper presents the state of progress of this work, including a comparison of models amongst themselves and, for continental shelf scenarios, against measured transmission loss.