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Mid-frequency pelagic imaging multi-beam sonar

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A unique circular array multi-beam sonar is used to investigate volumetric imaging of pelagic marine environments. Imaging of a radial volume of the ocean up to a kilometer in range and at 8-12kHz will be discussed, focusing mainly on the imaging of large aggregations of fish in shallow water. Several imaging geometries are presented including backscatter imaging in a shallow water waveguide used to resolve the two-dimensional horizontal structure of large fish schools, and the autonomous deployment of the sonar in a fixed location to create a time series of images and observations of variability over a 24 hour period. The potential for new imaging geometries will be explored including vertical profiling to create volumetric images of different pelagic zones in the ocean. Operational issues related to specific scientific question, and signal processing issues related to circular arrays will be discussed. Preliminary field data will be presented.