

Temporal And Spatial Variability Of Vertical Diel Migration From ADCP Backscatter In The Upper Water Column Of Northern Arabian/Oman Seas

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Previous studies have shown that backscatter collected from ADCPs can estimate zooplankton and mesopelagic fish biomass over time and space. As part of the Lighthouse Ocean Research Initiative (LORI) project, three 75-kHz upward-looking ADCPs are recently deployed in northern Arabian/Oman Seas. The project is coordinated with the Oman Ministry of Agriculture and Fisheries Wealth through the Marine Science and Fisheries Centre. The ADCPs have collected velocities and acoustic backscatter intensity (ABI) since December 2009.

The Oman Sea has the highest density of myctophids in the region with *B. pterotum* being the only species (Shotton 1997). Our ABI data document substantial diel vertical migrations. The fish ascend into shallow (<130m) water at night and return to deep water (200 to 450 m) during the day. Two daytime layers and two nighttime layers are typically found. The upper daytime layer is centered at 230m and densely concentrated. The lower daytime layer ranges between 350-450 m. The upper nighttime layer is above 130 m and the lower nighttime layer is between 220 and 270 m. Fish vertical migration speeds will be estimated from the slopes of the scattering layers and compared with the direct measurements of vertical velocities from ADCP. Seasonal and spatial variations of vertical migrations and total biomass will be compared between stations and different monsoon seasons.

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