

ocean sound trends and whale density from CTBTO data

While deep water ambient sound level increases have been documented in the eastern North Pacific Ocean over the past 60 years, it remains unclear whether this trend increasing is observed globally. Data from the Comprehensive Nuclear-Test-Ban Treaty Organization International Monitoring System (CTBTO IMS) was used to examine the rate and direction of low frequency change over the past decade in the Indian, South Atlantic, and Equatorial Pacific Oceans. Similar to observed increases in the NE Pacific, increases in the ambient sound floor were also observed in the Indian Ocean at Diego Garcia. Sound levels over the past 5-6 years in the Equatorial Pacific, however, decreased. Decreases were also observed for specific sound level parameters and frequency bands in the South Atlantic Ocean. Based on these observations, it does not appear that low frequency sound levels are increasing globally; however, great variability in the soundscape was observed over time scales ranging from hours to seasons. Follow-on work examined the impact of the dynamic soundscape and selected sound level parameters on estimates of signal detection range, which is a critical parameter for current work in estimating blue and fin whale density from CTBTO IMS data.

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