



Importance of scale to the relationship between abundance of sardine larvae, stability, and food

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ABSTRACT: We used a spatially explicit regression model to relate sardine (*Sardinops sagax*) larval abundance to water column stability, phytoplankton, and zooplankton off South Australia. The distribution of sardine larvae was significantly associated with stability ($p < 0.05$) and phytoplankton fluorescence or zooplankton displacement volume ($p < 0.001$) at broad scales. In contrast there was no relationship between sardine larvae, stability, phytoplankton, or zooplankton at medium or fine scales. The relationships are shown to be scale-dependent. Although the results generally support Lasker's (1978) "stable ocean" hypothesis, mid-range rather than high stability appears to be favored, in accord with theoretical expectations at both large and small scales.

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