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

McClatchie, Sam, Paul J. Rogers, Lachie McLeay

Limnol. Oceanogr., 52(4), 2007, 1570-1579 | DOI: 10.4319/lo.2007.52.4.1570

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.