401

ENSO DRIVES INTERANNUAL VARIABILITY OF THE ANTARCTIC PENINSULA PELAGIC MARINE ECOSYSTEM

V.J. Loeb[1], E.E. Hofmann[2], J.M. Klinck[2], O. Holm-Hansen[3], W.B. White[3]

[1]Moss Landing Marine Laboratories, Moss Landing, CA, United States, [2]Old Dominion University, Norfolk, VA, United States, [3]Scripps Institution of Oceanography, La Jolla, CA, United States

The Drake Passage region off the West Antarctic Peninsula is a major source of Antarctic krill (*Euphausia superba*) for the entire Southern Ocean. This also is the domain where El Niño-Southern Oscillation (ENSO) variability in the tropics imposes its signature on climate variability in the Southern Ocean via meridional atmospheric teleconnections. The present study utilizes data collected in the South Shetland-Elephant Island area for 25 years, 1980 through 2004, to describe ecological response to interannual climate variability over six-to-seven ENSO cycles. Here we find interannual variations of elevated chlorophyll-a (Chl-a) and copepod concentrations and early krill spawning seasonality with increased reproductive and recruitment success that fluctuate in phase with poleward displacement of the Southern ACC Front (SACCF) and Southern Boundary of the Antarctic Circumpolar Current (SBACC) and retracted sea ice extent during the previous winter, variables that fluctuate in phase with La Niña in the eastern equatorial Pacific Ocean. El Niño conditions, in contrast, produce reduced copepod numbers, increased abundance of the salps *Salpa thompsoni* and *Ihlea racovitzai* and low krill reproductive success and recruitment, all with subsequent impacts on the pelagic marine ecosystem. We explain this in terms of the importance of climate variability on the krill-based food web and its implications for krill fishery management.