Raimondi, P., K. Coc, C. DaCosta, R. Gaddam, D. Lohse, C. Bell, M. George, M. Miner, and S. Worden. 2007. Reserves in reverse. In: *PISCO Coastal Connections* Vol 6. Partnership for Interdisciplinary Studies of Coastal Oceans.

If a historically protected part of the coast is opened to harvesting for even one year, red abalone could take 20 years to recover, according to research by PISCO/UCSC scientists and collaborators. They conducted the study at Stornetta Ranch, which occupies two and a half miles of coastline in northern California. Until recently, there was virtually no public access to the shoreline, making it a de facto marine reserve. In 2004, a consortium of The Nature Conservancy, Coastal Conservancy, U.S. Fish and Wildlife, and State Wildlife Conservation Board purchased the land for \$7.7 million. Researchers from PISCO/UCSC and California Fish and Game conducted a survey of the Stornetta Ranch shoreline that year and found huge numbers of large red abalone. In addition, PISCO researchers carried out biodiversity studies at the site as part of a long-term, large-scale program administered by PISCO (http://cbsurveys.ucsc.edu/). Soon afterward, California Fish and Game opened the site to harvest of marine species. PISCO/UCSC scientists and colleagues returned in 2005 and 2006 to determine the impacts on abalone. They found that the number of abalone at sites closest to access points had plummeted by fifty percent in one year, and fecundity had dropped ninety percent—because few large abalone survived (see figure above). By 2006, abalone at even the least accessible parts of the shore had decreased by half, and virtually all of the large abalone had been taken. Some harvesters noticed the dramatic effects and said they believed that within a year or two there would be no abalone left. PISCO scientists calculated that it would take 20 years for the abalone population to recover, if the site had been closed after one year of harvesting. The ongoing study will provide insight for sustainable management practices.