



## Live-dead mismatch in brachiopod assemblages on a tropical, upwelling-influenced shelf, Southeast Brazilian Bight, South Atlantic

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Recent data for live-dead (LD) comparisons in brachiopod-rich assemblages (*Bouchardia rosea* Mawe) from nearshore sites of the Southeast Brazilian Bight (SBB), indicate high levels of LD mismatch (low fidelity). This seems to be tied to the spatial/temporal mixing, and past and recent environmental changes. Therefore, those assemblages are cumulative records of past populations that have become locally scarce or extinct. However, brachiopod-rich assemblages are also found on the outer shelf, upwelling-influenced sites of the SBB (23°45'S-29°59'S). Hence, how is the LD agreement for species composition in that particular environment? To answer this, a total of 195 samples of surficial sediments were acquired from 101 sites (vast majority from 80 to 500m of depth), mostly by Van Veen grabs and box core samples. Brachiopod shells were recorded in 29 sites, and from these, *B. rosea* shells were found in samples from 20 collecting stations. A total of 2393 *B. rosea* shells were recovered, 2342 (97.9%) were dead and only 51 (2.1%) were found alive. The maximum number of specimens found alive (n=10) was recorded in stations located at 150 and ~240 meters of depth, all in mixed lithoclastic-bioclastic bottoms. Lithoclastic (sandy, silty, muddy) bottoms only yielded dead, closed articulated shells. Most intriguing is the fact that in some stations other brachiopods (*Platidia* sp., *Terebratulina* sp., *Argyrotheca* sp.) are found alive in association with dead shells of *B. rosea*. All studied specimens are small, indicating high rates of mortality in juvenile cohorts. Data above indicate low fidelity (high LD mismatch), the same pattern observed in nearshore environments of SBB, suggesting that *Bouchardia rosea* populations have become locally scarce or extinct, in recent years, probably due to changes in oceanic currents and primary productivity, as indicated by the scarce geochemistry data available.

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