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Faunal succession of Norian (Late Triassic) level-bottom benthos in the Lombardian Basin: Implications for the timing, rate, and nature of the early Mesozoic marine revolution

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ABSTRACT

The recently expanded Norian stage now encompasses nearly half of the entire Triassic period, making it the longest single stage of the Phanerozoic. Very little is known about the paleoecological dynamics of shallow marine level-bottom benthos within the stage, however. Successive bulk samples from the Lombardian Alps, Italy, reveal gradual changes in dominant taxa throughout the Norian, and paleoecological transitions consistent with the Mesozoic Marine Revolution (MMR) hypothesis. At the expense of stationary epifauna, mobile infauna diversified and became dominant by the end of the Norian. In addition to increases in stationary semi-infauna, abundant mobile epifauna were perhaps early alternatives to increasing both mobility and infaunality during the middle Norian. The particular suite of trends observed suggests that an adaptive response to epifaunal and demersal predators was operating in this system, and is coincident with the known taxonomic radiations of shell-crushing predators from this interval (lobsters, fish). Thus, the MMR was gradually intensifying as early as 25 myr before the Triassic-Jurassic boundary.