

# 85-5 - 30 MILLION YEARS OF TAXONOMIC AND PALEOECOLOGIC DYNAMICS IN A HIGH-LATITUDE, LOW DIVERSITY SHALLOW MARINE SYSTEM: LATE TRIASSIC AOTEAROA (NEW ZEALAND)

Monday, 10 October 2022  
9:10 AM - 9:25 AM

• Mile High Ballroom 4A (Colorado Convention Center)

## Abstract

Marine sediments in the Southland Syncline of New Zealand record a Late Triassic (Norian—Rhaetian, ~227-201 Ma) succession of fossil assemblages which exhibit gradual taxonomic shifts between primarily endemic taxa in relatively consistent depositional environments. Common taxa include bivalves and brachiopods, with rare echinoderms, gastropods, bryozoans, and scaphopods. Four successive faunal assemblages occurred during the early, middle, and late Norian Stage (generally comparable with New Zealand stages: Oretian, Otamitan, and Warepan).

Paper clams (*Halobia*) that dominate the oldest (Oretian) deposits gradually decline relative to other bivalve genera, *Mantidula* and *Hokonua*. Two species of *Mantidula* and two species of *Hokonua* are observed in the assemblages, but *M. problematica* and *H. limaeformis* are most prevalent in nearly all sampled Otamitan deposits, with more inflated species *M. mirabilis* and *H. rotundata* appearing in younger Otamitan deposits. Specimens of *M. problematica* and *H. limaeformis* also tend to be larger in these younger deposits.

Brachiopods are present but rare in the Oretian and early Otamitan assemblages but are more diverse, abundant, and tending towards larger sizes in the later Otamitan. The Otamitan—Warepan faunal transition is very abrupt in this region, likely due to a substantial unconformity between the Otamitan and Warepan deposits, and Warepan assemblages are dominated by inflated, ribose specimens of the bivalve *Monotis* (in particular, subgenera *Inflatomonotis* and *Entomonotis*).

The observed faunal shifts reflect significant taxonomic and morphological changes in shallow marine environments of the region, without substantial behavioral differences (all dominant taxa are sessile epifauna) or environmental shifts. Potential forcing agents are explored and compared between regions in driving the observed changes, including latitudinal gradients of predation.

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