

GSA 2020 Connects Online

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AN ENVIRONMENTAL BASELINE TO THE END-TRIASSIC CARBONATE CRISIS: LATE TRIASSIC FACIES OF THE GABBS FORMATION (NEVADA, USA)

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Mass extinction events are usually accompanied by major changes in seafloor depositional environments which inevitably impact the recovering ecosystems. For example, the end-Triassic mass extinction is associated with a global decline in carbonate environments. The initial timing and severity of the environmental perturbations cannot be accurately determined without an established environmental baseline of conditions prior to the extinction event. The Gabbs Formation (western Nevada) provides an uninterrupted record of Late Triassic shallow-marine facies transitions from the Norian Stage through to the extinction interval at the end of the Rhaetian Stage. The change from carbonate to noncarbonate sedimentation in the uppermost Gabbs Formation is likely to yield important geochemical information about the onset of a carbonate crisis, related to increased volcanism from the Central Atlantic Magmatic Province, immediately prior to the mass extinction interval. However, establishing baseline carbonate production and facies relationships under normal marine conditions is key to interpreting more dramatic geochemical changes.

Five stratigraphic sections of the Nun Mine and Mount Hyatt Members of the Gabbs Formation were measured in the New York Canyon area to

facilitate facies descriptions and relationships below the end-Triassic extinction interval. The lower Nun Mine Member contains interbedded calcareous shale and mudstone beds with common pelagic ammonite fossils and rare *Thalassinoides* burrows. These deposits are interpreted to represent a mid to outer carbonate ramp transition. The overlying Mount Hyatt Member contains grainy mudstone, skeletal wackestone, and skeletal packstone facies interpreted as shallowing into a mid to inner ramp setting, above which the carbonates disappear in the latest Triassic Muller Canyon Member.

The facies associations in the Gabbs Formation are readily attributed to shallowing on a carbonate ramp from changes in local sealevel. This provides a baseline system to which significant shifts in geochemistry and sedimentation patterns from the end-Triassic extinction and early Jurassic recovery intervals can be compared.

Session No. 78

T80. Biosediments: Tracking Biogenic Materials and Sedimentation Processes through Time

Tuesday, 27 October 2020: 1:30 PM-5:30 PM