
7-17 - AN ANALYSIS OF STRATIGRAPHIC AND PALEOECOLOGIC VARIABILITY IN THE “SQUAW BAY FORMATION,” MICHIGAN BASIN



Sunday, 21 April 2024



1:30 PM - 5:30 PM



Grand Ballroom, Oasis CC (Oasis Hotel & CC)

Booth No. 22

Abstract

The “Squaw Bay Formation,” a middle Devonian mixed carbonate-clastic unit located in the Michigan basin, was named almost 100 years ago by Warthin and Cooper (1935) for a single, poorly exposed outcropping of condensed strata. Since then the stratigraphic term has been used inconsistently in the subsurface where the unit is stratigraphically expanded, but should also be revised because it is a derogatory term for Native American Women. The goal of this study is to aid in the renaming process for this formation by determining its variability and defining boundaries. To accomplish this, the current research combines lithostratigraphy, paleoecology, and geochemical analyses of the Krock 1-17, State Chester Welch 18, and Paxton Quarry cores to provide the background information needed to revise the formation.

The “Squaw Bay Formation” in core is composed of predominantly argillaceous limestone and calcareous shale and is characterized by a crinoid and brachiopod fauna. Further lithologic analysis found that there are three main facies common in the studied cores; black shale with frequent pyrite nodules and silt laminae, calcareous fossiliferous shale, and a highly bioturbated calcareous shale with few fossils and pyrite nodules. The lower “Squaw Bay Formation” also contains zones of concentrated fossil debris, especially near the contact with the Traverse Limestone which is primarily a pyritized hardground. The studied formation also has an increasing black shale content up-section and a transitional contact with the overlying Antrim Shale.

Future analysis of magnetic susceptibility, pXRF, and total organic carbon data will further illuminate the variability within the formation and characteristics of its boundaries with other stratigraphic units. Ultimately, the combination of lithostratigraphic, paleoecologic, and geochemical analysis of the Krock 1-17, State Chester Welch 18, and Paxton Quarry cores will not only facilitate a better understanding of the “Squaw Bay Formation,” but also contribute to the process of revising and renaming the unit.

Geological Society of America Abstracts with Programs. Vol. 56, No. 3, 2024
doi: 10.1130/abs/2024NC-398913

© Copyright 2024 The Geological Society of America (GSA), all rights reserved.

Author



Ainsley Wiesner
The College of Wooster

Authors



Shelley Judge
The College of Wooster



Peter Voice
Western Michigan University



James Zambito
Beloit College

View Related
