

TAPHONOMIC FEATURES OF BENTHIC FORAMINIFERA IN A TEMPERATE SETTING:  
EXPERIMENTAL AND FIELD OBSERVATIONS ON THE ROLE OF ABRASION, SOLUTION  
AND MICROBORING IN THE DESTRUCTION OF FORAMINIFERAL TESTS

SHROBA\*, Cynthia S., Department of Geological Sciences, University of Oregon, Eugene, OR, 97403-1272, U.S.A.

Benthic foraminifera recovered from sediments in the waters surrounding San Juan Island, Washington, were examined to assess taphonomic damage and to compare magnitude of the taphonomic agents of abrasion, solution and microboring to studies done in tropical environments. Abrasion experiments of 24, 72, 120 and 240 hour duration were run on Elphidiella and Islandiella, two benthic foraminifera common in the Puget Sound region. Results show that styles of taphonomic damage observed in field sediment samples, including impact pitting, scratching, caving and exfoliation, were produced on experimentally manipulated groups in as few as 24 hours. Elphidiella appears slightly more resistant to abrasive reduction compared to Islandiella, which produced a wide range of abrasive features within 3 days.

A control group of Elphidiella and Islandiella was placed in a mesh bag for 240 hours to assess taphonomic alteration by solution, boring and encrustation, removed from the effects of abrasion. These specimens showed no significant solution reduction, but within 3 days were covered with algal filaments and diatoms. Taphonomic damage observed in field specimens can be divided into destructive and constructive agents. Destructive features include breakage, pitting, boring, scratching, and exfoliation. Constructive features include pyritization and encrustation by diatoms and other algae. Although several naturally occurring abrasion features were produced in the experimental abrasion runs, the magnitude of taphonomic damage seen in field specimens was not achieved experimentally. Features of extreme taphonomic damage include complete removal of the outer chamber walls, as well as removal of all but the umbilical regions of planispiral forms. Solution and predation are largely responsible for such severely damaged tests.