

Validation of Pilot Protocol: Damage Scoring of Puget Sound Mollusk Shells

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The Marine Sediment Monitoring Team at the Washington State Department of Ecology observed damage to mollusk shells while studying the benthic communities of Puget Sound. A pilot protocol was written to allow researchers to quantify the damage. Two researchers independently followed the protocol, including reference photos, for a set of samples collected in 2019 from an urban bay, East Possession Sound. Two scores were given to each specimen: highest-level damage and extent of highest-level damage. An additional score was given to bivalve species: rust/stain. The sets of scores were compared to determine if the protocol yielded similar values between the two researchers. The mean for highest-level damage (0.750, P-Value <0.001) and extent of highest-level damage (0.637, P-Value <0.001) showed significant correlation. Stain scoring was not found to be repeatable (0.544, P-Value = 0.036). The protocol was validated and reproducible at the station level for highest-level damage and extent of highest-level damage. This confirmation will allow the Marine Sediment Monitoring Team to use this protocol to quantify the observed damage on mollusk species, providing the ability to track changes both spatially and over time. This will be important in the future as environmental stressors related to climate change, including increasing atmospheric CO₂ in marine waters, potentially interfere with the ability of mollusk species to build and repair their shells.