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RECONSTRUCTING THE ECOLOGICAL HISTORY AND PAST ENVIRONMENTS OF NATIVE OLYMPIA OYSTERS TO INFORM THEIR CONSERVATION AND RESTORATION IN THE SALISH SEA

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RECONSTRUCTING THE ECOLOGICAL HISTORY OF NATIVE OLYMPIA OYSTERS TO INFORM THEIR CONSERVATION AND RESTORATION IN THE SALISH SEA

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BACKGROUND & GOALS

Our team recently documented shell-boring polychaetes infecting Pacific and Olympia oysters in the US West Coast. What remains unknown is whether these polychaetes are new to the Salish Sea ecosystem. Our project will generate a timeline for the history of shell-boring polychaetes in the Salish Sea, allowing us to determine whether these pests are a long-standing problem or a new, emerging threat.

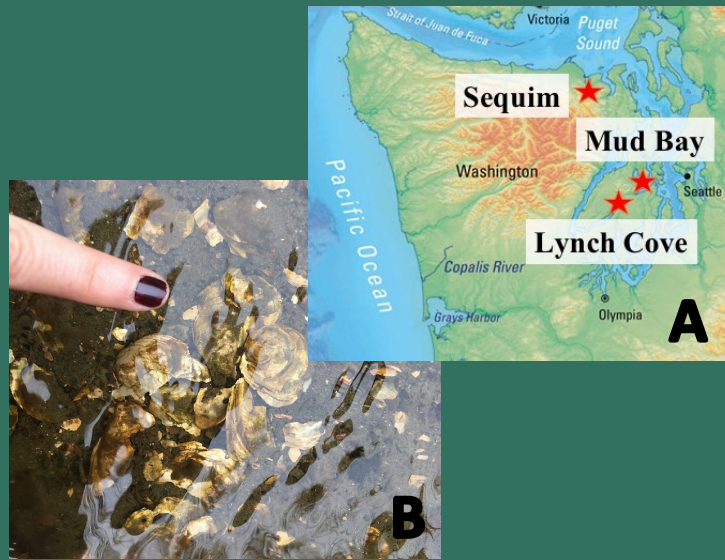


Fig 1. (A) Locations where archeological (Sequim), modern (Mud Bay), and historical (Lynch Cove) shells were collected. (B) Historical oyster shells collected at Lynch Cove during a low tide.

TRACES OF SHELL-BORING WORMS

We found traces of burrows and blisters on historical and archeological shells from Puget Sound, WA (Fig. 2 A-C). While we cannot identify the species responsible for the traces, we can compare these marks to the ones from modern Olympia oysters.

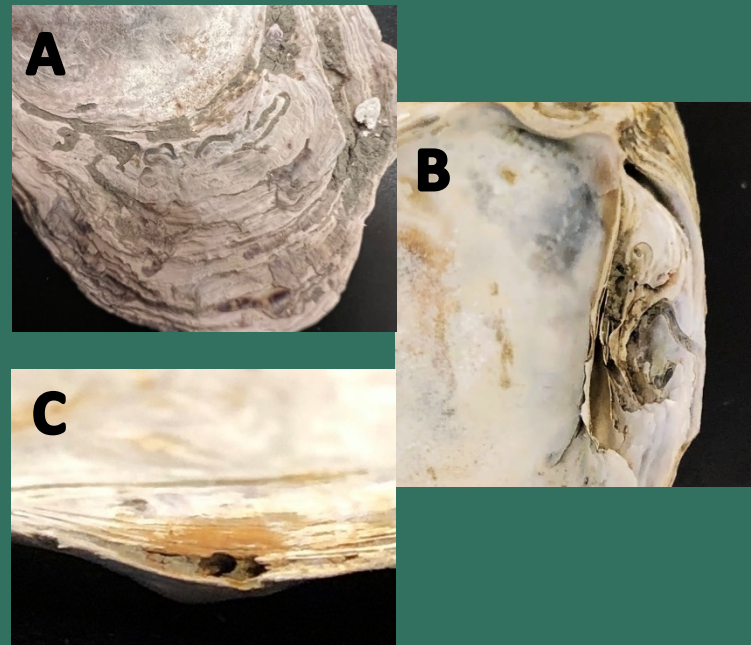


Fig 2. Traces of shell-boring worms in historical Olympia oysters (A) Burrows, (B) Possibly a blister on the shell margin, (C) Two holes on the shell margin that may be part of a U-shaped burrow.

PREVALENCE OF INFESTATION

We calculated infestation prevalence in historical oysters from Lynch Cove and we found that it ranges from 24 to 58%. We found no difference in prevalence between right and left valves. More samples are being processed to confirm these numbers.

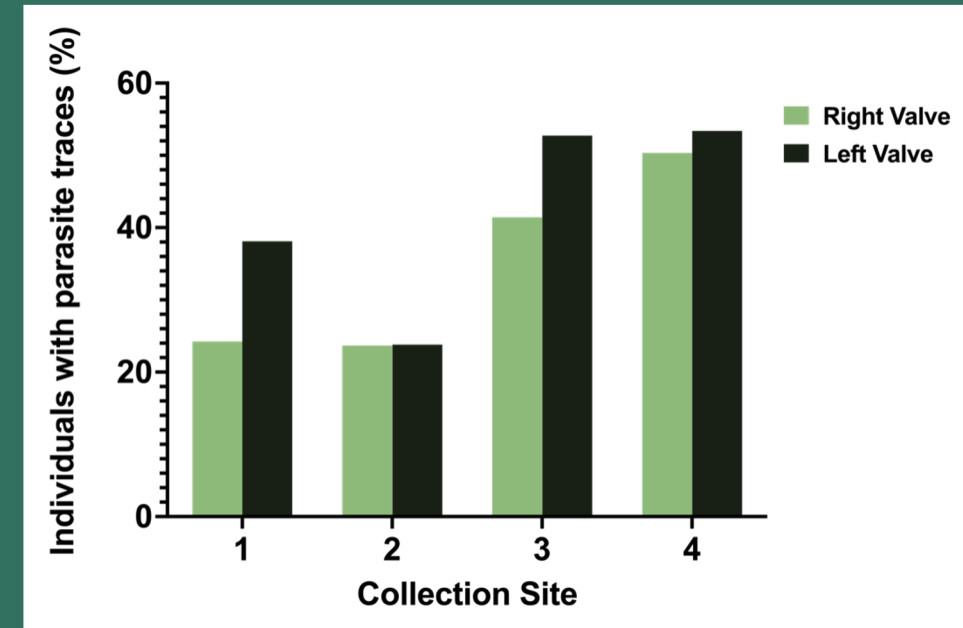


Fig 3. Bar plot showing the percentage of right and left oyster valves with traces of shell-boring parasites from 4 sites in Lynch Cove, Washington.

NEXT STEPS...

Radiocarbon dating and CT scans of historical oyster shells to unveil the 3D structure of the burrows inside the shells.