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Holistic approaches for invasive species management: Exploring biotic resistance of European green crab (Carcinus maenas) via river otter (Lontra canadensis) diet

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Exploring biotic resistance of an invasive species via river otter diet: Is European green crab a preferred fare?

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INTRODUCTION

- European green crab (EGC) are an invasive marine shore crab on the U.S. west and east coasts. EGC destroy nearshore habitats, rapidly adapt, and compete with native intertidal species[1].
- The Wa'atch and Tsoo-Yess river estuaries on the Makah Indian Reservation (WA) are a current hot spot for EGC (Fig. 1).
- River otters are suspected to eat EGC on the west coast, but to know if they offer biotic resistance (i.e., a natural buffer), we need to first understand their diet[2].

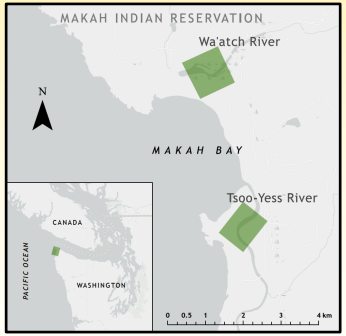


FIGURE 1. River otter latrine sites for scat collections on the lower Wa'atch and Tsoo-Yess river estuaries on the Makah Indian Reservation.

QUESTION

- Are river otters consuming EGC on the Wa'atch and Tsoo-Yess rivers on the Makah Indian Reservation? If no, why not?

METHODS

- Diet analysis using scats[3] collected at 4 latrine sites from August through September 2018 and April through September 2019.
  Wa'atch = **453 scats**; Tsoo-Yess = **269 scats**
- Identified prey from recovered hard remains, compared with fish and crustacean references.

RESULTS and DISCUSSION

- No occurrences of EGC on the Tsoo-Yess, and only 2.6 % of scats on the Wa'atch (0.5 % overall) contained EGC, most likely due to lower abundance of EGC compared to other species (Fig. 2).
- If EGC increase in abundance, I expect river otters will consume more EGC in the future.
- Need to monitor EGC population growth and support predator communities and their habitats.

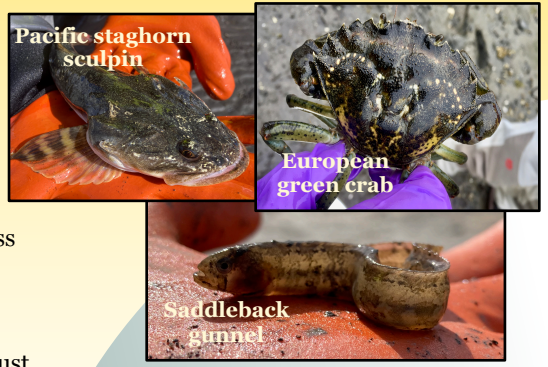
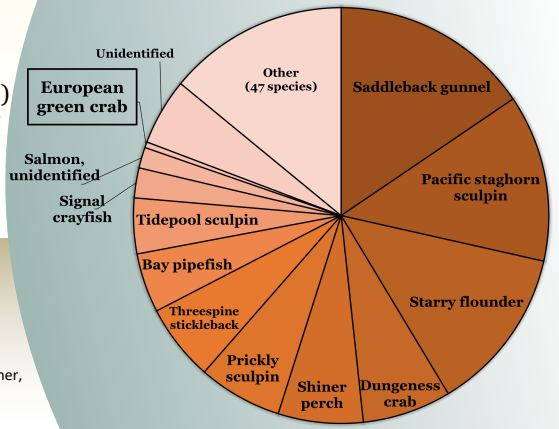


FIGURE 2. Prey items identified in river otter scats (n=722) from the lower Wa'atch and Tsoo-Yess rivers on the Makah Indian Reservation; shown as proportion of all prey occurrences (n=2661).



References
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3. Lance, M. M., A. J. Orr, S. D. Riemer, M. J. Weise, and J. L. Laake. 2001. Pinniped food habits and prey identification techniques protocol. Alaska Fisheries Science Center Processed Report 04:1–35.
River otter sketch by profnsmd from PNGHUT

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