

Community science to capture the leading edge of an invasion:

European green crab on Washington State's inland shorelines

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Crustacea non-grata

Carcinus maenas



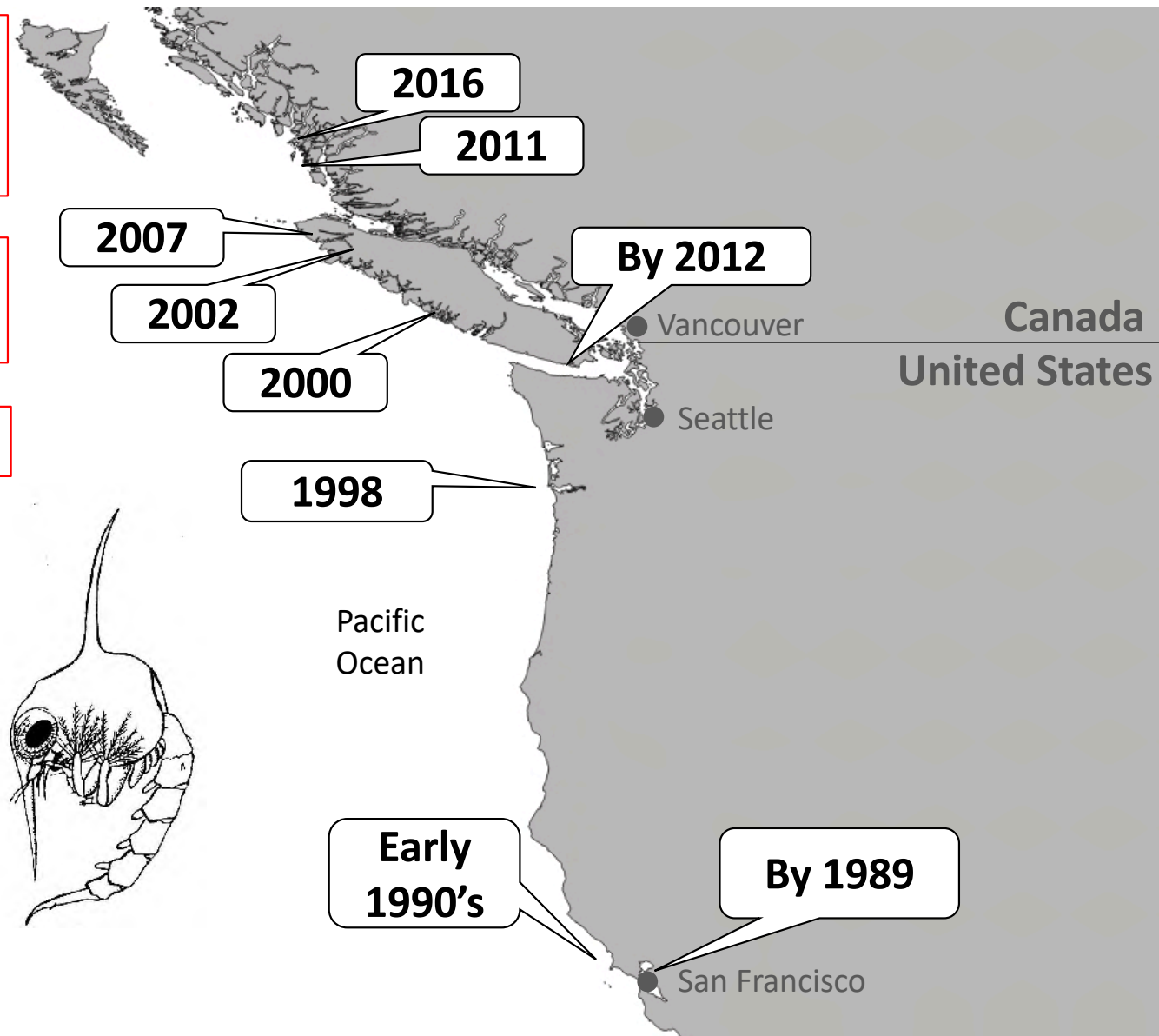
© Emily Grason

- Change native ecological communities
- Reduce shellfish harvests
- Damage eelgrass beds & marsh habitats

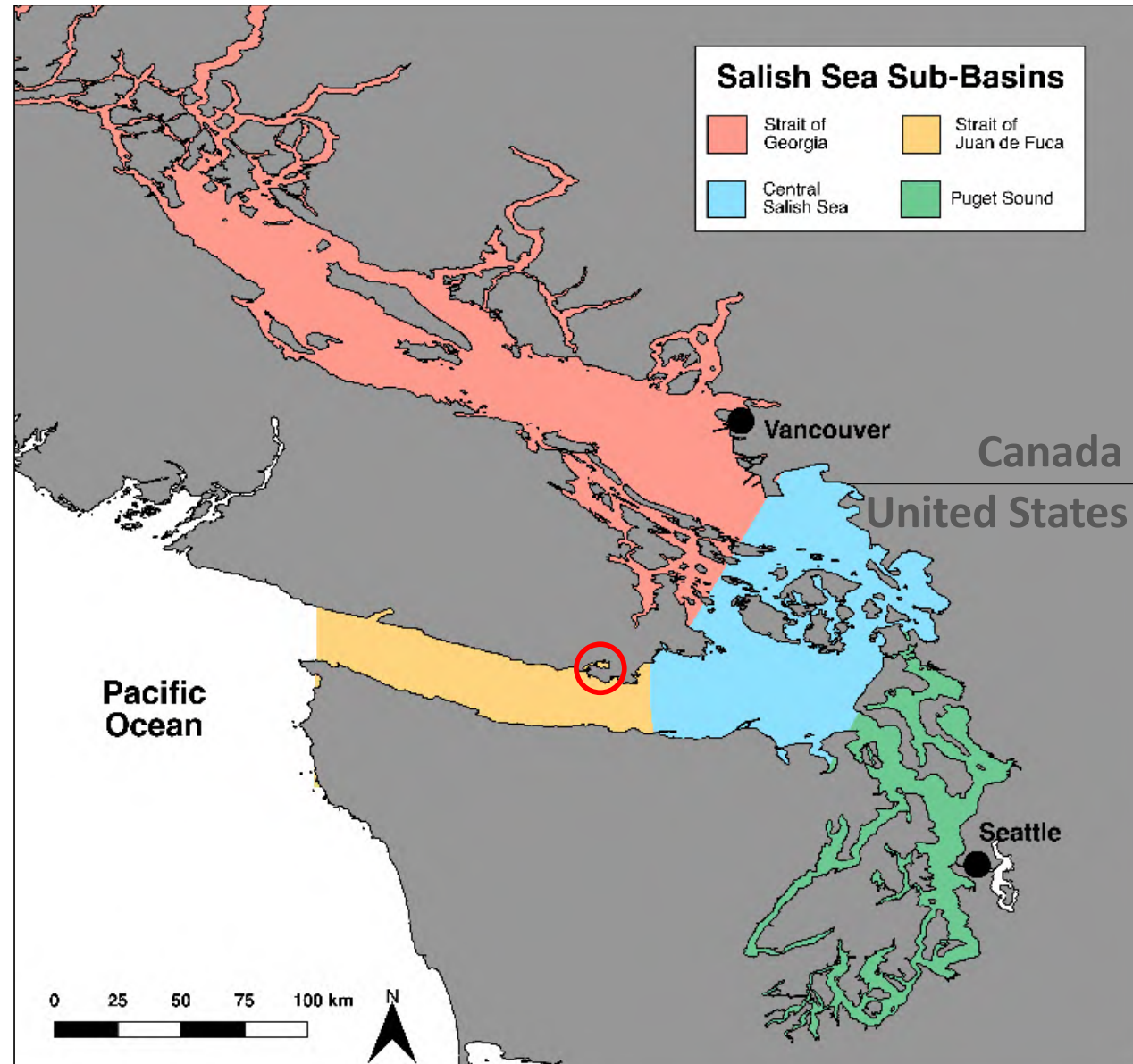
Coastal spread of European green crab did not initially include the Salish Sea

And initial introduction to the Salish Sea was human-mediated

Limited advection into Salish Sea



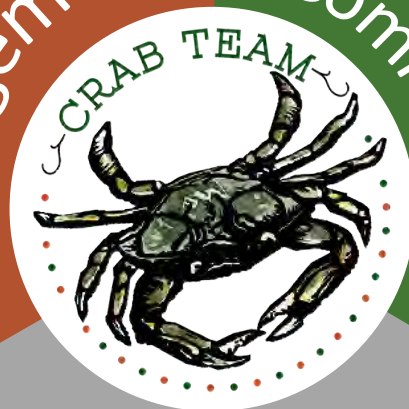
Salish Sea is viewed as an
ecologically-relevant distinct
management region





Tribal
co-managers

Management
Community
Science



W



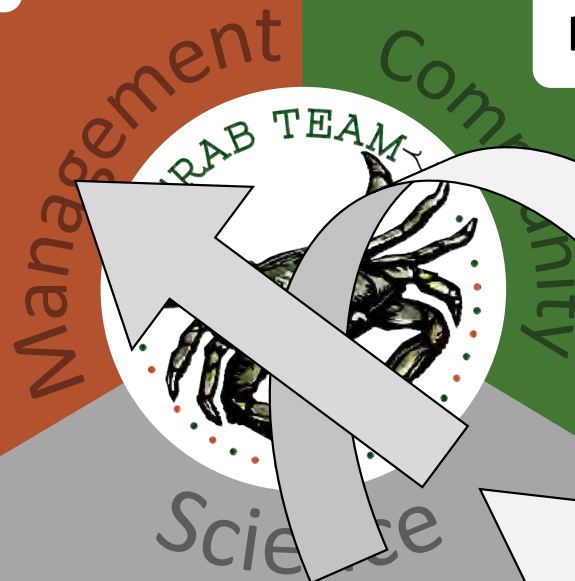
Input: Management mandate

Output: Early detection

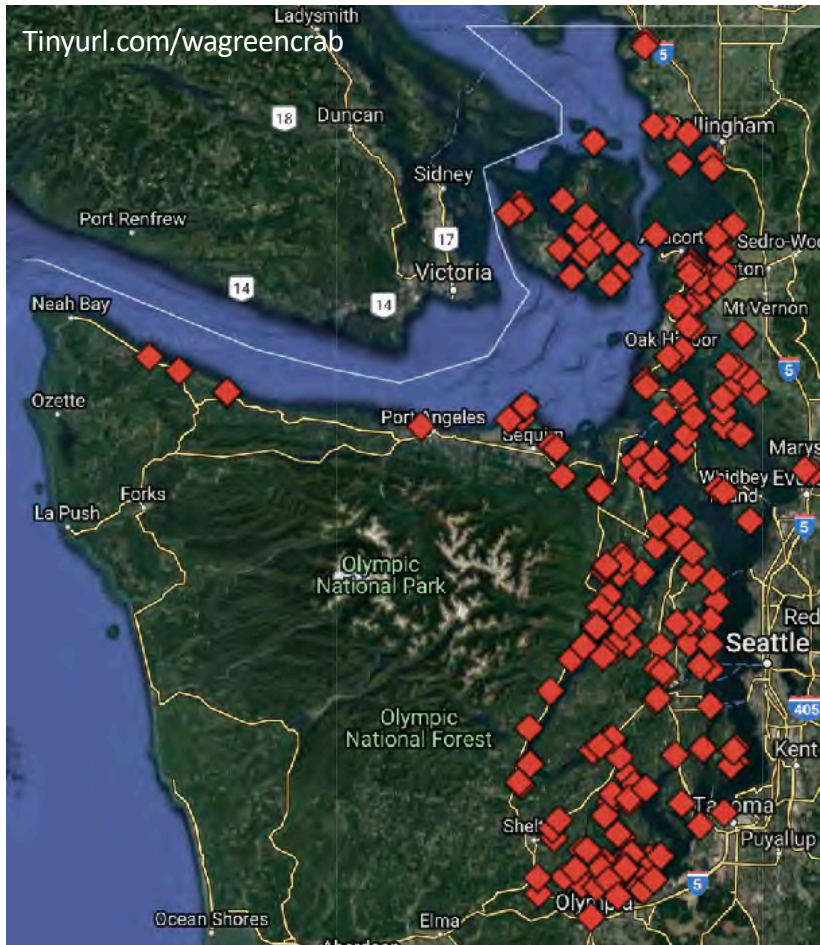
Input: Time, energy, data collection

Input: How to look for green crab?

Input: Data processing, validation



Efficient Early Detection

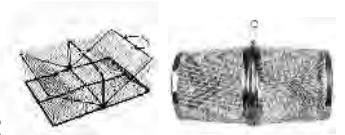


Before-After Control-Impact Sampling Network



Trained
Monitors

Baited
trapping



High risk
sites

Molt
Hunt



April -
September

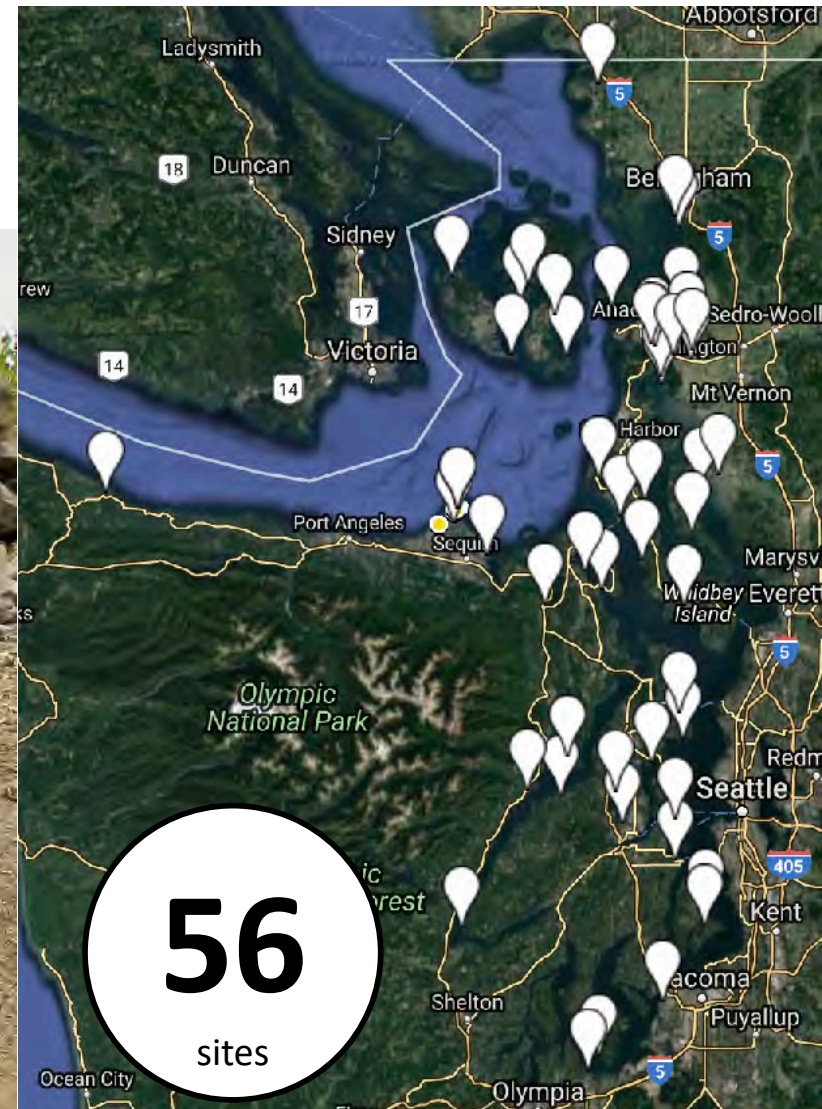
Shoreline
Features



Crab Team

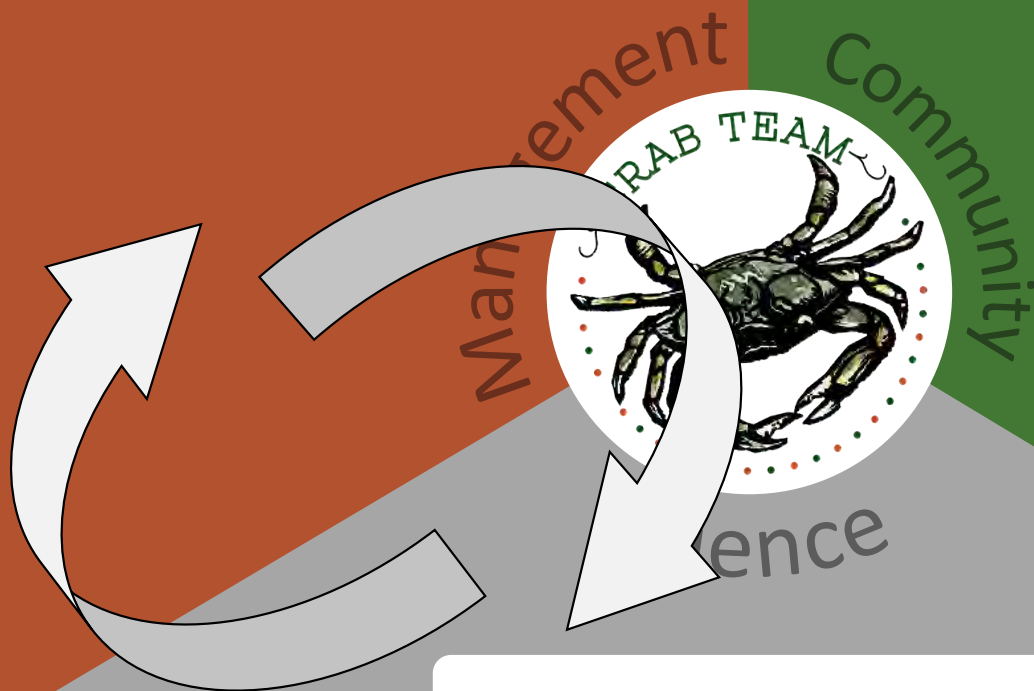


225
volunteers



56
sites

Output: More efficient management



Input: Expertise, experience

Science <—> Management

Transboundary Management in the Salish Sea:

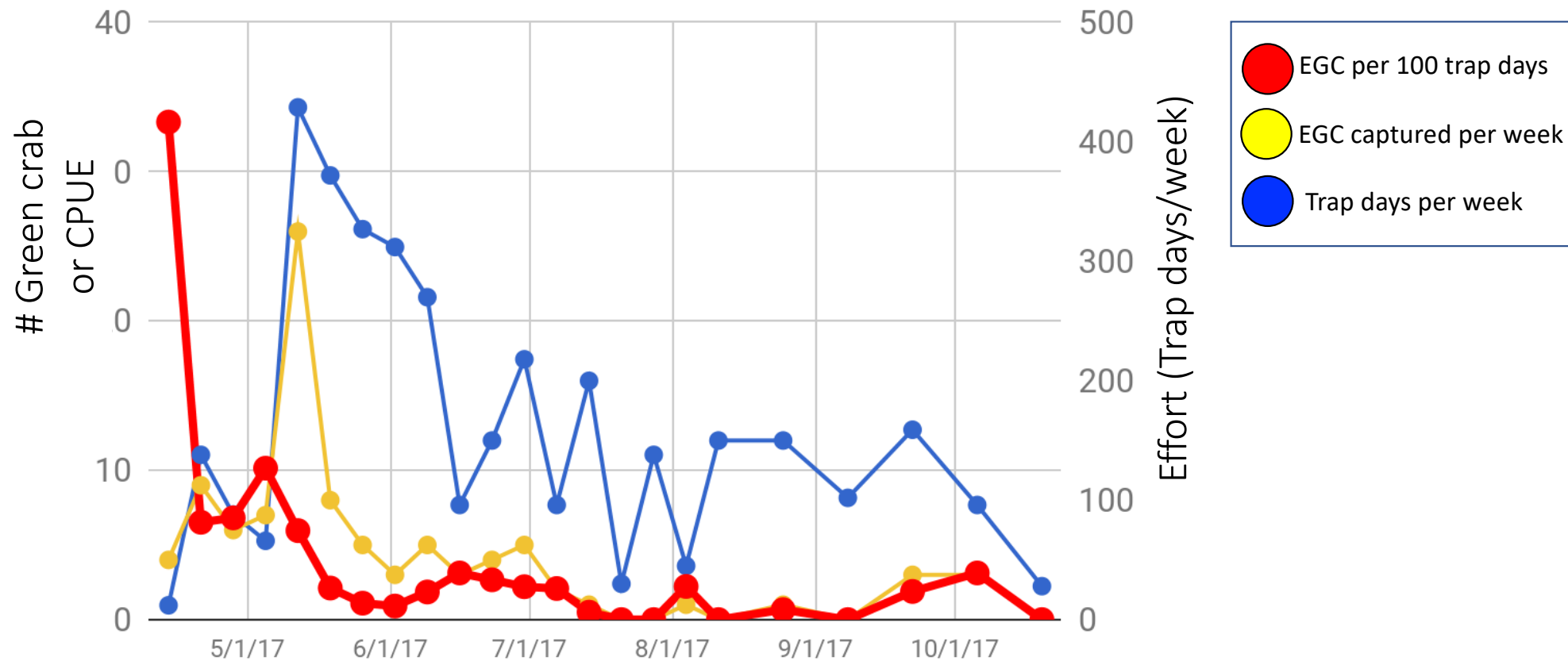
Tom Therriault Weds 11am G2



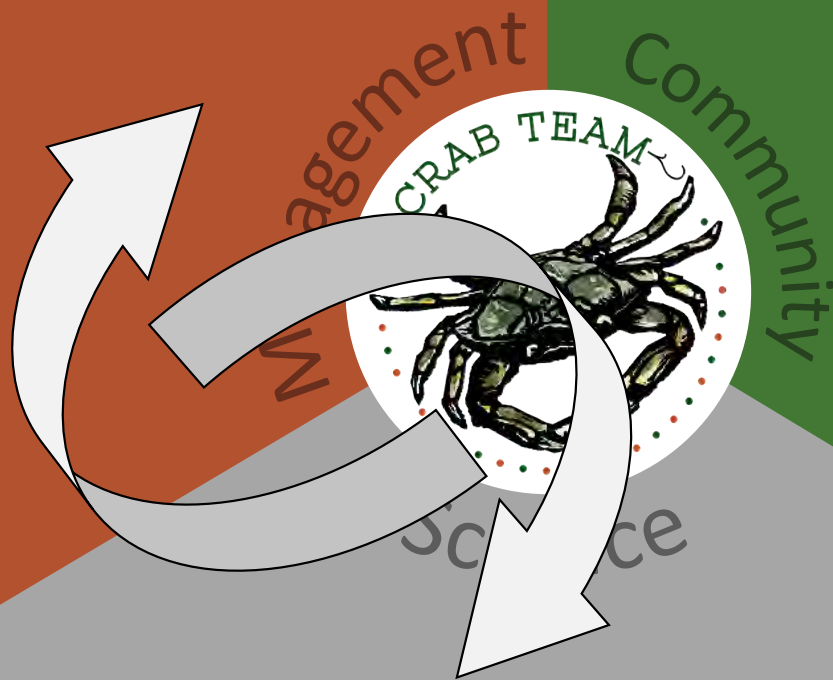
Science \leftrightarrow Management



Dungeness NWR, WA



Output: More efficient management

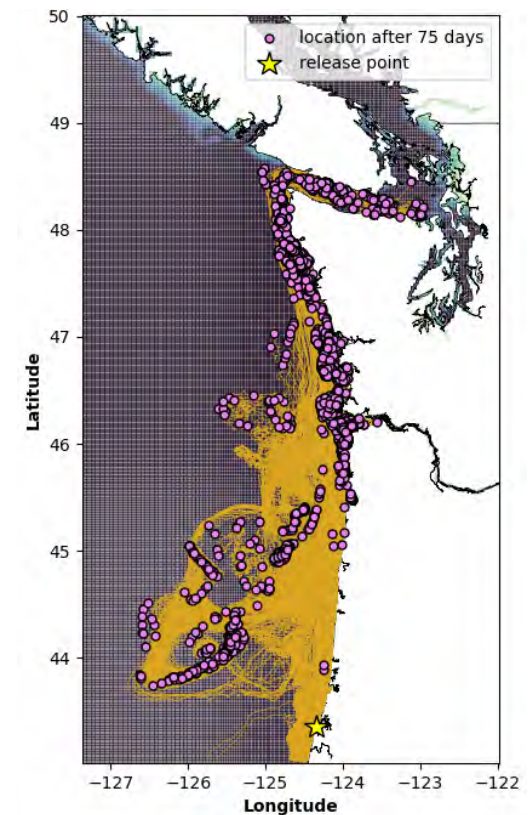


Input: Research collaborations

Science-Informed Management

Transcriptome sequencing
w/ Carolyn Tepolt (WHOI)

**Ocean modeling w/
Elizabeth Brasseale (UW)**



Brasseale et al. 2019 *Estuaries & Coasts*

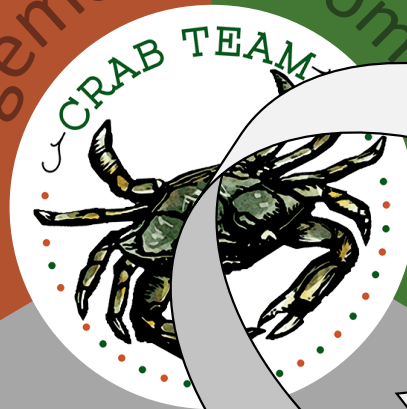
Input: Interest, Data

Output: Engagement, knowledge

Management

Community

Science

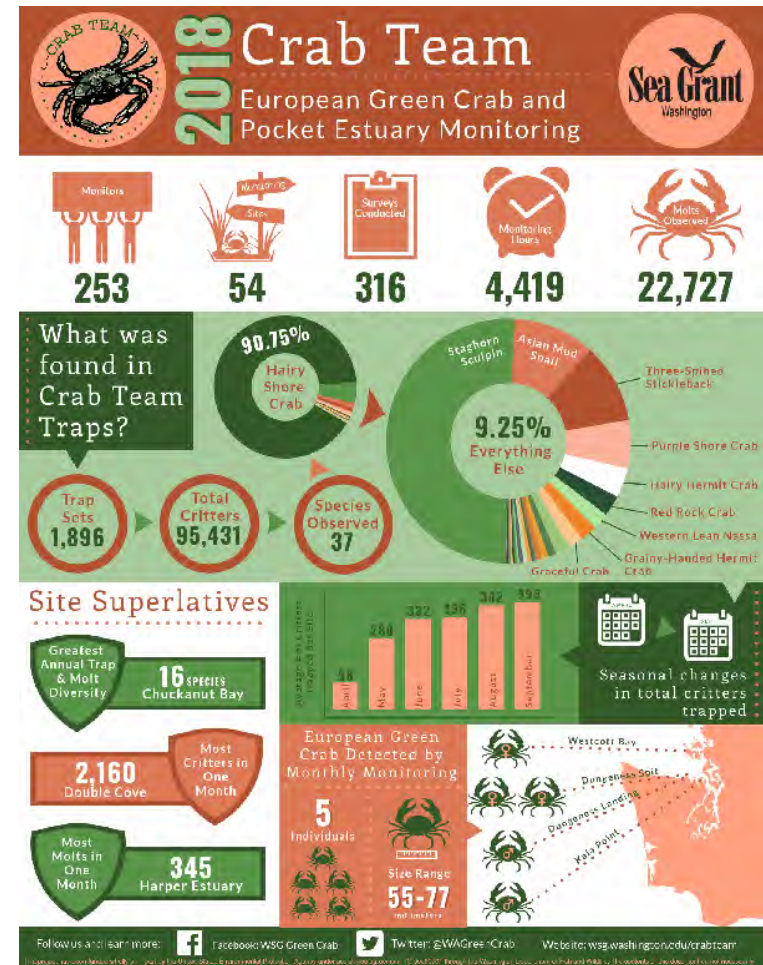


Input: Education, training

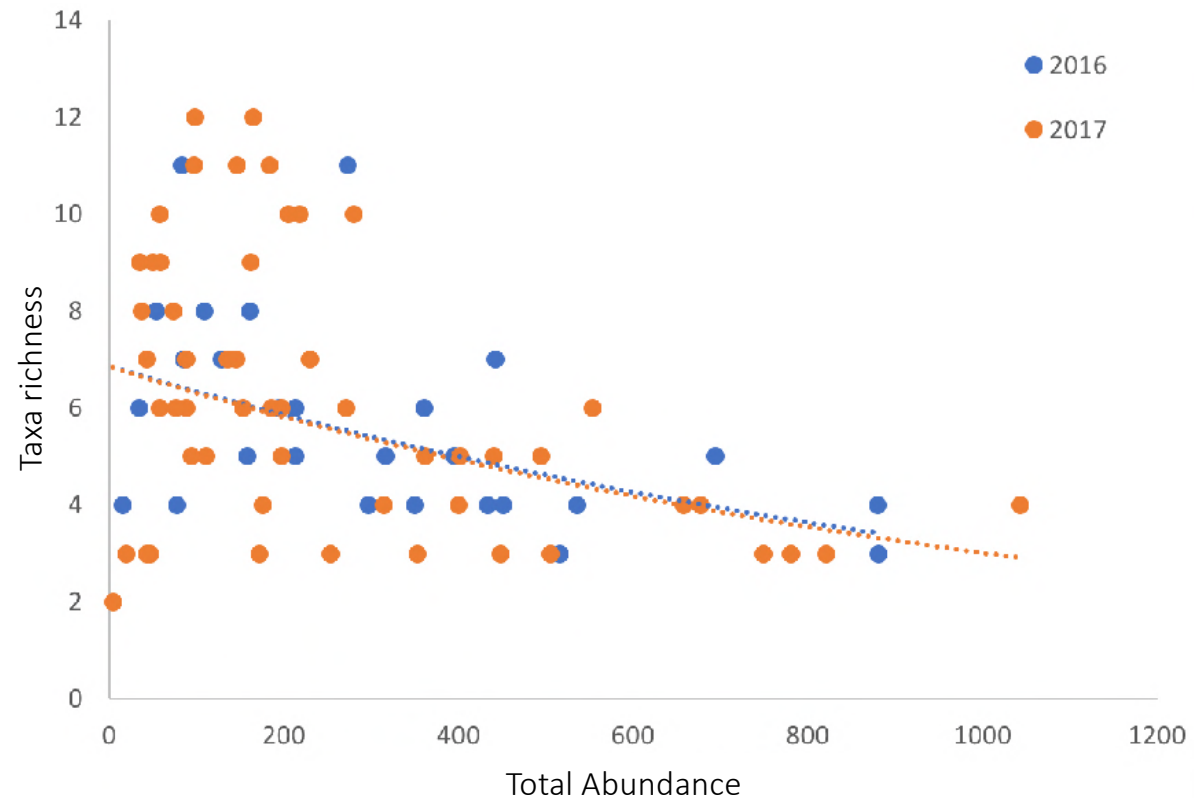
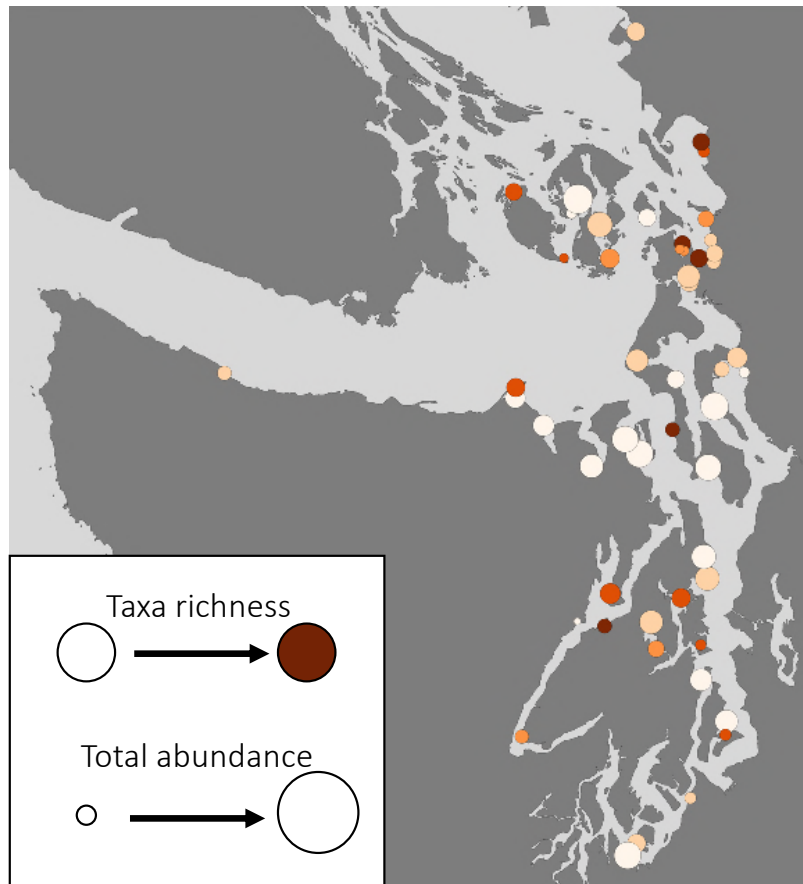
Input: Interpretation

Output: Knowledge, application, buy-in

Community Science -> Community Engagement



Community Science -> Community Ecology

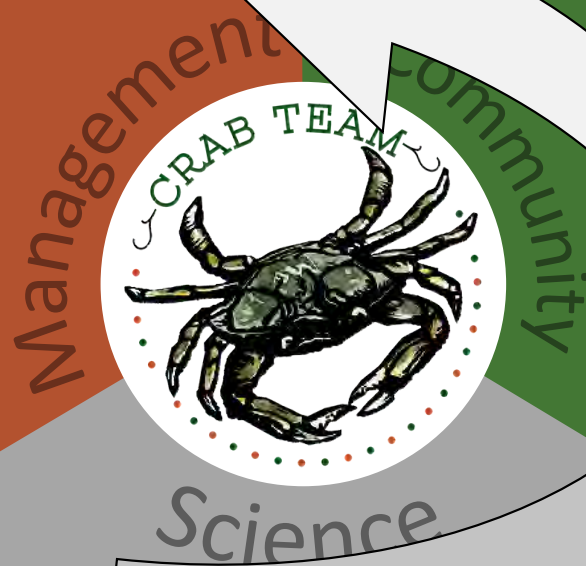


Output: Access, funding

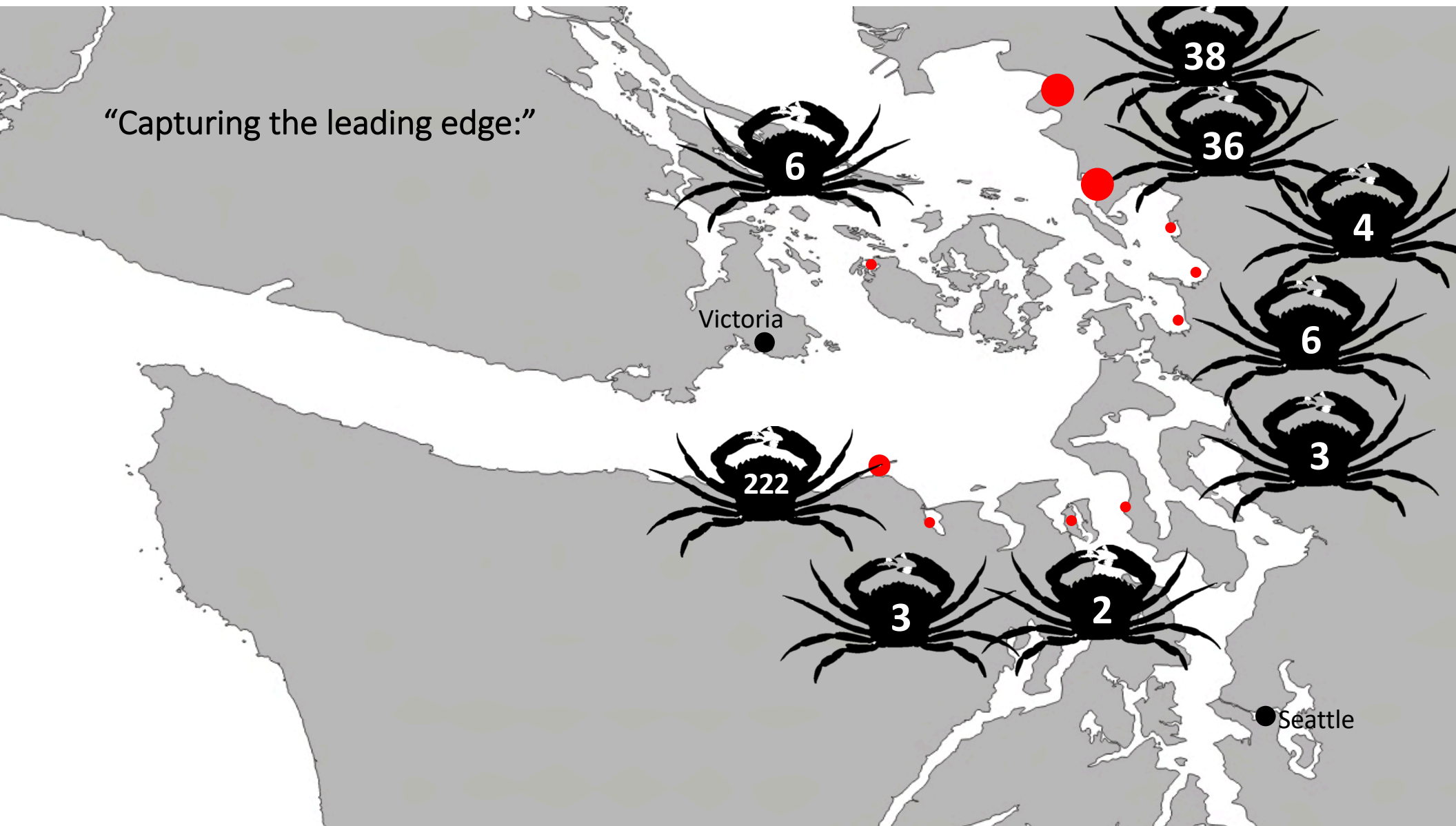
Output: Early Detection

Input: Interest, Time

Input: Education, training



“Capturing the leading edge:”



Thank you!

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egrason@uw.edu



@WAGreenCrab

225 Volunteers

**WDFW Puget Sound Marine and Nearshore
Monitoring Program/US EPA**

Fisheries and Oceans Canada

Jamestown S'Klallam Tribe

Lower Elwha Klallam Tribe

Makah Tribe

Samish Indian Nation

Stillaguamish Tribe

Stillwaters Environmental Center

Suquamish Tribe

Swinomish Indian Tribal Community

U.S. Fish and Wildlife Service

WA Ecology – Padilla Bay NERR

WDFW

WA DNR – Aquatic Reserves Program

