RESTORATION & MONITORING AT SEAHURST PARK

Simone Des Roches, PhD
School of Aquatic and Fisheries Sciences
University of Washington
RESTORATION is the practice of returning habitats that have been negatively modified by humans back to their more “natural” state.

RESTORATION of the Puget Sound shoreline often involves removing shoreline ARMORING.
WHAT IS SHORELINE ARMORING?

What is the purpose of armoring?

What does armoring look like?

What is the problem with armoring (why are we removing it)?
What is the purpose of armoring?
What is the purpose of armoring?

- prevents erosion
- enables construction right up to shoreline
- improves some types of beach access
What does armoring look like?
What does armoring look like?

- seawalls & bulkheads
- riprap
What is the problem with armoring (why are we removing it)
What is the problem with armoring (why are we removing it)?

- less beach wrack deposited
- fewer beached logs
- fewer animals (e.g. insects)
What is the problem with armoring (why are we removing it)?

- lower terrestrial-aquatic connectivity
- reduced beach nourishment
- less natural riparian vegetation
What is the problem with armoring (why are we removing it)?

1. wrack cannot be deposited on the beach
1. wrack is deposited on the beach
What is the problem with armoring (why are we removing it)?

2. logs also stay floating in the ocean
2. logs are left on the beach
3. there is no habitat for insects & other animals!

What is the problem with armoring (why are we removing it)?
3. There is more habitat for animals like insects!
once armor is removed, native trees, grasses, and shrubs are planted to stabilize the sediment, creating a LIVING SHORELINE.
REMOVING ARMOR is a huge undertaking that at first can look very destructive!

Current restoration project at Bowman Bay (Deception Pass)
Restoration and armor removal at Seahurst Park
we partner with organizations & community scientists to monitor shoreline restoration at over 50 sites in Puget Sound.
HOW ARE WE MONITORING RESTORATION EFFECTIVENESS?

There are 3 basic types of site:

- **natural**: has never been armored
- **armored**: with seawall, riprap...
- **restored**: armor removed (& often other efforts)

These photos from Seahurst Park!

e.g. planting
HOW ARE WE MONITORING RESTORATION EFFECTIVENESS?

we have many protocols for measuring different biological and physical responses
HOW ARE WE MONITORING RESTORATION EFFECTIVENESS?

how do we take these measurements?
HOW ARE WE MONITORING RESTORATION EFFECTIVENESS?

how do we take these measurements?

a 50 meter transect
HOW ARE WE MONITORING RESTORATION EFFECTIVENESS?

how do we take these measurements?
HOW ARE WE MONITORING RESTORATION EFFECTIVENESS?

how do we take these measurements?
HOW ARE WE MONITORING RESTORATION EFFECTIVENESS?

how do we take these measurements?
HOW ARE WE MONITORING RESTORATION EFFECTIVENESS?

let’s look at some data for a few of these responses!
DATA FROM ACROSS PUGET SOUND

~ 50 sites with restored areas
+ 50 more with just armored/natural

wrack is one of the first things to come back after restoration
DATA FROM ACROSS PUGET SOUND

~ 50 sites with restored areas
+ 50 more with just armored/natural

It takes a little longer for logs to settle on the beach.
DATA FROM ACROSS PUGET SOUND

~ 50 sites with restored areas
+ 50 more with just armored/natural

insects start to colonize, especially if vegetation has been planted
Seahurst Park has 2 main restoration sites:

One where armor was removed in 2014

One where armor was removed in 2005

There is also an unrestored, armored site

... and a natural (never armored) site
HOW DOES THIS COMPARE TO SEAHURST PARK RESTORATION?

before restoration | just after restoration | years after restoration

2004 | 2006 | 2019

restored in 2005

restored in 2014

2010 | 2015 | 2019
restoration at Seahurst Park is more than just armor removal...

...it has also involved:
  - beach nourishment
  - addition of logs
  - planting of native vegetation
again, armored sites have the least wrack, fewest logs, and lowest insect diversity...
DATA FROM SEAHURST PARK

...natural sites typically have more wrack, logs, and higher insect diversity...

Insects

logs

beach wrack
DATA FROM SEAHURST PARK

... the two restored sites usually have moderate levels of wrack, logs, and insect diversity...
...the site restored in 2005 has more wrack and logs, but the site restored in 2014 has the highest level of insect diversity!
Seahurst Park is a special site because we have 10 years of data!
Seahurst Park is a special site because we have 10 years of data!
WHAT IS SO SPECIAL ABOUT
THE SEAHURST PARK
RESTORATION PROJECT?

Seahurst Park has over ten years of data so we can track restoration effectiveness over time!

Seahurst Park has two locations that were restored at different times so we can track how long certain biological variables take to respond!

Seahurst Park is a public area where everyone can benefit from restoration efforts!
HOW CAN YOU GET INVOLVED?

WEBSITE:  www.shorelinemonitoring.com
EMAIL: simonedr@uw.edu (me)
   tofty@uw.edu (Jason Toft)
ACKNOWLEDGEMENTS:

Funded in part by EPA under grant #PC-01J22301
NEP Habitat Strategic Initiative

Collaborators:
Jason Toft
Megan Dethier
Jeff Cordell
Sarah Heerhartz
Kate Litle

Website Team:
Jennifer Scheuerell
Mike Knox
Kiera Paterson
Sky Christensen

The Field crew
Juhi La Fuente, Arielle Tonus
Ellis, Bob Oxborrow, Kerry
Accola, Mike Caputo, Dara Yiu