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Emerging Contaminants in Oregon Coastal Waters: Hotspots, Landscape Drivers and Synergistic Effects on Bivalves

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Emerging Contaminants in Oregon Coastal Waters: Hotspots, Landscape Drivers and Synergistic Effects on Bivalves



Elise Granek, Bill Fish, Angela Strecker
(in collaboration with Elena Nilsen, Kathy Conn, Lori
Pillsbury, Steve Rumrill)

Environmental Science and Management
Portland State University

Research questions

- ◆ Types and levels of contaminants of emerging concern (CECs) in Oregon's coastal ocean?
- ◆ Hotspots and sources?
- ◆ Levels of CECs in native and commercial oysters?
- ◆ Ecological effects (growth, reproductive output, etc.) of these contaminants in marine bivalves?



Methods: sample location selection

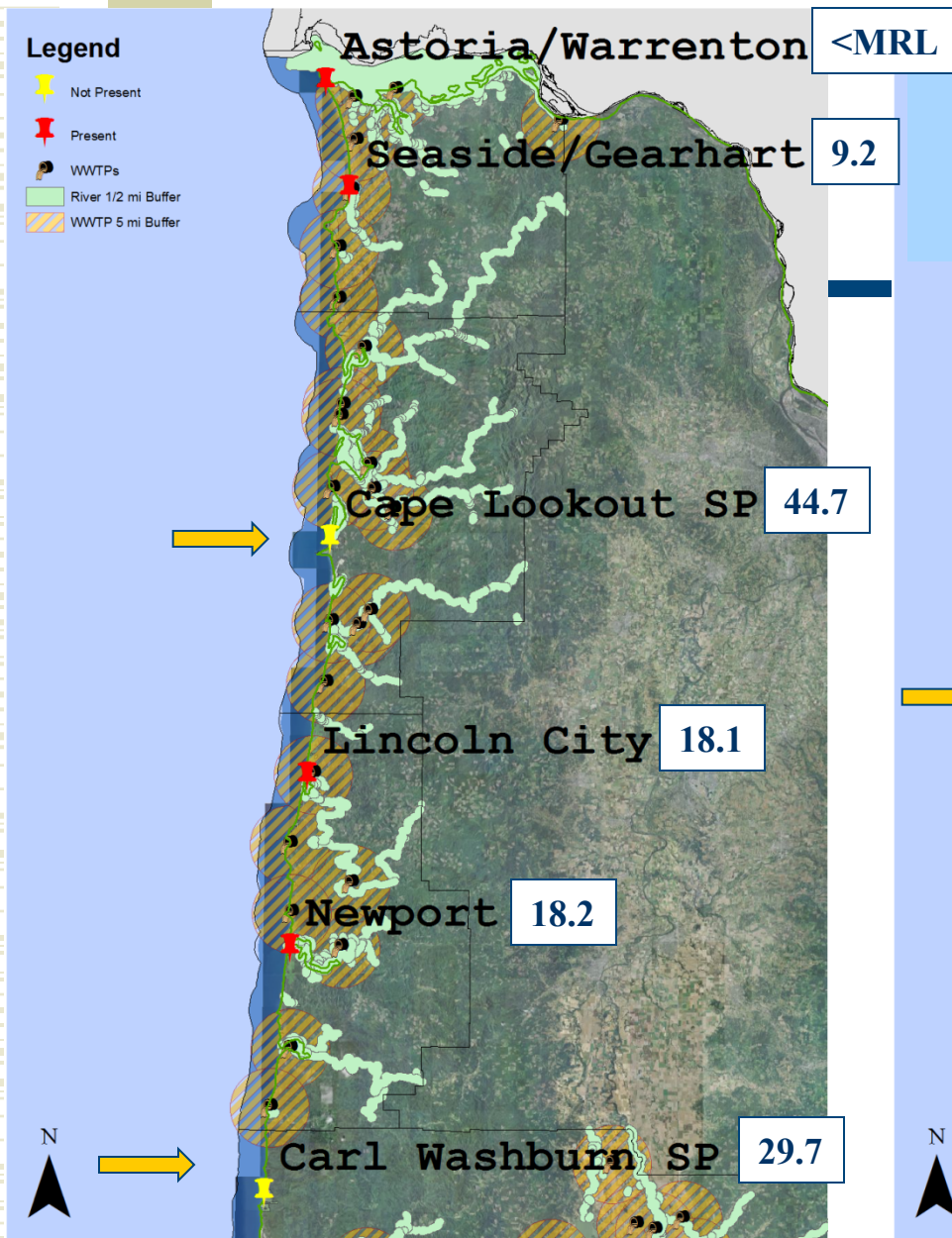
- ◆ Field sampling of water, bivalves
- ◆ Exposure experiments in tanks
- ◆ Transect sampling in groundwater and surface waters to identify sources and pathways
- ◆ GIS Analysis - distribution of contaminants and potential drivers

Previous findings

- ◆ Caffeine detected in Oregon's coastal ocean
- ◆ No correspondence with pollution threats
- ◆ High caffeine concentrations correlated with storm event on April 2, 2010
- ◆ Strong inverse relationship between caffeine concentrations in rivers and adjacent surf-zone sites



North Coast (4/3/10)



South Coast 4/10/10

