A Rising Tide: Conserving Shorebirds and Shorebird Habitat within the Columbia River Estuary

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Outline of Talk

- STATUS
- SIGNIFICANCE
- CLIMATE CHANGE
- RESTORATION OPPORTUNITIES
- CURRENT SURVEYS
- RECAP NEEDS
What are shorebirds?

• 57 North American species of:
  • Sandpipers
  • Plovers
  • Oystercatchers
  • Avocets
  • Stilts
Western Sandpiper  
Sanderling  
Black-bellied Plover  
Dunlin  
Whimbrel  
Black Oystercatcher  
Least Sandpiper  
Semi-palmated Plover  
Short-billed Dowitcher  
Ruddy Turnstone  
Red Knot  
Marbled Godwit
First Challenge
Shorebirds are among the most migratory animals on the planet
The Second Challenge
Many concentrate in very high densities at key stopover sites (such as the CRE) while on migration
The Third Challenge “Declines”

- 28 of North America’s 57 shorebirds had populations classified as **highly imperiled or of high concern**.

- 48% of shorebirds in the world are **in decline**, and only 16% increasing.

- Maritimes Shorebird Survey & ISS data show 9 sp declining in e NA & none increasing

- 33% of pacific flyway shorebirds species have unknown population trends

Significance of the Columbia River Estuary for shorebirds

Western Hemisphere Shorebird Reserve Network

Columbia River Estuary
Designated in 2008
Site of Regional Importance:

≥ 20,000 shorebirds annually, or
Western Hemisphere Shorebird Reserve Network

“Voluntary Program – Non Regulatory”

CRE landowners committed to:

- Make shorebirds a conservation priority
- Protect & manage habitat for shorebirds
- Keep WHSRN apprised of any changes in site status
Shallow Coastal Flooding Areas with the Columbia River Estuary

Note: SLR predictions from NOAA SLR Mapper
Sea Level Rise

Adaptation

• Protecting shorebird habitat requires adaptation
• Measures to reduce vulnerability to impacts of a changing climate.
  – Will we abandon vulnerable areas to rising sea?
  – Enhance existing flood protection infrastructure?
  – Enhance flood protection afforded by enhancing natural ecosystems?
Sea Level Rise

What can we do now?

• Document shorebird use
• look at possibilities for creating new areas for foraging (mudflat) = Restoration

Planners Need Tools

• Need a way to visualize how potential changes will impact entire ecosystems.
Restoration – Mudflat and Shallow Water Management
Miller Sands Island in the CRE is important habitat protected by dredge material placement.
Management of Migrating Shorebirds

• During migration shorebirds need a specific combination of habitat elements that include:
  • A wetland in partial drawdown,
  • Invertebrate abundance of at least 100 individuals per square meter,
  • A combination of mudflat and shallow water (3-5 cm), and
  • Very little vegetation.
Shorebird Foraging Depths

Typical foraging depths of various shorebirds (from Helmers 1992).

- Plovers
- Curlews
- Turnstones
- Small Sandpipers
- Medium Sandpipers
- Avocets & Stilts
- Yellowlegs
- Phalaropes
- Godwits

[Bar chart showing the typical foraging depths of various shorebirds]
Using dredge material for shorebird habitat - Case Study

Sonoma Baylands Tidal Marsh Project – SF Bay

- The Sonoma Baylands project recreated tidal wetlands using 2.0 million cubic m of dredged material (336 ha)

- Created for clapper rail, salt marsh harvest mouse and migratory shorebirds.

- Good compromise for reusing dredged material and providing shorebird habitat

- Productive partnership between the California State Coastal Conservancy and the U.S. Army Corps of Engineers.
Other Projects and Publications

PROJECTS

• **SF Bay Hamilton Wetland Restoration Project** – USACE and State Coastal Conservancy - 998 acre project (waterfowl fish and shorebirds)

• **SF Bay Cullinan Ranch North Bay Area** – Partnership USFWS San Pablo Bay Refuge Ducks Unlimited proposed action to restore tidal marsh.

• **Florida** - In partnership with State of Maryland, the USACE used dredge material to create 180 acres for wetlands and mudflats for shorebird habitat (USACE Jacksonville Harbor, FL)

PUBLICATIONS

• Benthic Community Response to Use of Dredged Sediment Augmentation of Mudflats and Marshes in San Francisco Bay

• Can we recreate or restore Intertidal habitat for shorebirds? Atkinson, P.W. 2003


Sandpipers enjoy eating insects in the dredged material that make up the Sonoma Baylands wetland project. Chronicle Photo by Brant Ward
May fit in with restoration goals for fish, streaked-horned lark and waterfowl
Pacific Flyway Shorebird Survey

Project Lead: Point Blue Conservation Science
Increasing capacity in Oregon and Washington
- Winter Survey
- Snapshot
- Coordinated Effort Volunteers
- November 15th - December 15
International Shorebird Survey

Migration Survey in Fall and/or Spring

If you are interested in becoming an ISS volunteer, contact Brad Winn at bwinn@manomet.org.
RECAPE OF NEEDS

Shorebird Gaps in the CRE

- Identify threats
- Identify key sites in CRE
- Map key site (make available)
- ID new sites for SLR (less impacted)
- Explore restoration opportunities with USACE and other partners
- Continue to execute winter and migration surveys to document use patterns
The Take Home

- Shorebird declines warrant action
- Establish a working group to guide actions in the Pacific Flyway
- Funders = Implementation to preserve sites, restore and expand foraging and roosting habitat in estuary.
- Increase productivity of stopover habitat within the Pacific Flyway.