

Eelgrass Declines in the South Slough Estuary, OR

Presented at the Eelgrass Recovery Workshop, March 26, 2019

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Slide 1 – Title

Slide 2 - For those of you that are not familiar with the National Estuarine Research Reserve System, this is a network of estuaries that are established for research, monitoring, education, and stewardship by the Coastal Zone Management Act. Reserves are managed by NOAA as the federal partner and a state partner. The South Slough's state partner is the Oregon Department of State Lands. South Slough was the 1st reserve designated in the system. The newest Reserve is in Hawaii. The Reserve system has a variety of programs that it implements on the national scale, including System-Wide Water Quality Monitoring Program, Sentinel Sites to understand the effects of sea-level on vegetation communities, the Graduate Research Fellowship (reinstated this year with new funding) and the NERRS Science Collaborative, which is dedicated funding program for research projects addressing Reserve needs.

Slide 3 - This map shows the the Coos estuary. It's the 6th largest estuary along the West Coast, and is classified a deep draft development estuary and drowned river mouth. South Slough estuary is the Southern arm of the Coos estuary and near the mouth of the Coos estuary. The orange outlines the Reserve boundaries and the yellow outlines other reserve managed lands.

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Slide 5 - The declines in eelgrass are happening at the other sites as well.

Slide 6 - This graph shows eelgrass shoot density at the 4 locations. There is seasonal variation with peak growth in Summer and interannual variation with a peak in 2014 followed by the sharp decline in 2016 at Valino and Collver. Hidden Creek and Danger had complete eelgrass loss after 2016 monitoring.

Slide 7 - Last summer, one of our REU interns was interested in comparing eelgrass abundance at our South Slough sites with other sites in Coos Bay to see if the decline was occurring elsewhere in the estuary. She used eelgrass datasets from three projects that were collecting eelgrass between 2015 – 2018. The OSU Seagrant project led by Fiona with sites shown in Orange, Caitlin's PhD work (OSU/OA) with sites shown in yellow, and ODFW SEACOR project led by Tony sampled sites in purple.

Slide 8 - Korrina found that the Coos Bay sites had more eelgrass than the South Slough sites.

Slide 9 - Korrina also looked at long term trends in water quality from the SWMP water quality stations. For water temperature at all sites, annual mean temperatures were higher beginning in 2014, stayed high in 2015 and 2016 and then decreased in 2017.

Slide 10 - These graphs show increasing or decreasing annual anomaly trends, which is the difference from annual mean and the overall mean. Water temperature and turbidity are increasing overall while Salinity, Dissolved oxygen, and pH are all decreasing.

Slide 11 - As I've been working on this project and talking about eelgrass, my daughter started asking when I came home from work if I had found the lost eelgrass? With the help of all of you in this Advisory Group, I am hopeful that we can find the eelgrass by developing a Recovery strategy so future generations will be able to benefit from the ecosystem services of this vital habitat.

Slide 12 – Acknowledgements

Slide 13