

# EMP Habitat Monitoring 2017



*Sarah Kidd*

*LCEP, Research Scientist*

*October 2017 Science Work Group*



**Amy Borde and Shon Zimmerman**

**Collecting Biomass and Detritus at Cunningham Lake - July 2017**

# 2017 Habitat Sampling

- *Vegetation Survey, Water Surface Elevation, Sed-Bench Monitoring: All Sites*
- Ilwaco Slough
- Whites Island
- Welch Island
- Campbell Slough/Cunningham Lake
- Franz Lake Slough
  
- *Biomass and Macrodetritus Sampling: Whites, Welch, Campbell/Cunningham*



# Transitioning into 2018

- Working with new scientists: **Roger Fuller** and his assistant **Katrina Poppe** through the **Estuary Technical Group**

**Roger Fuller** is a Principal Scientist with the Estuary Technical Group at the Institute for Applied Ecology, and is Research Associate and Adjunct Faculty at Western Washington University. He is a member of the Skagit Climate Science Consortium, focused on floodplain and estuarine climate impacts and on stakeholder communication and engagement.



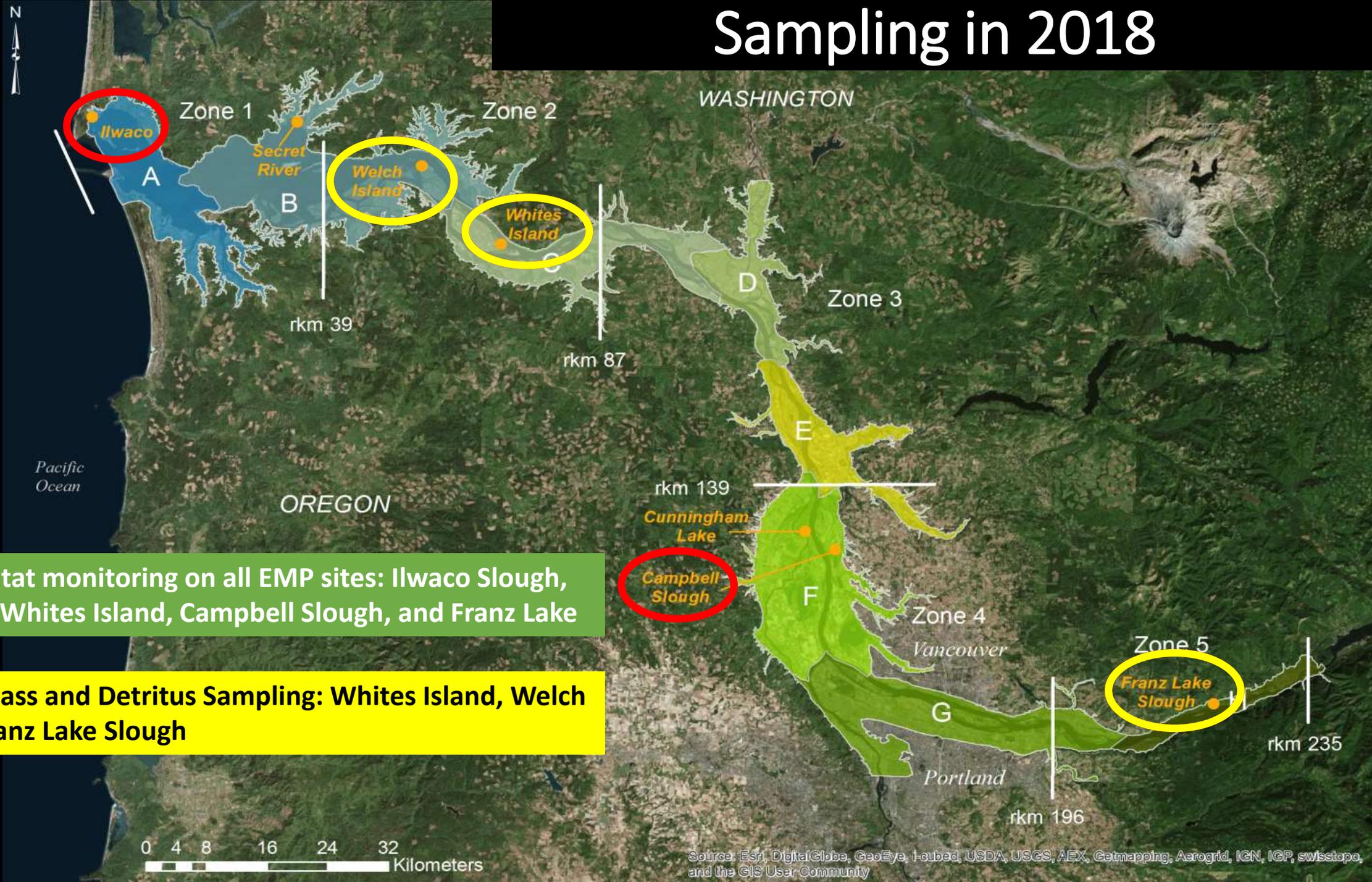
# Transitioning into 2018

- Working with new scientists: **Roger Fuller** and his assistant **Katrina Poppe** through the **Estuary Technical Group**

**Katrina Poppe** is a Research Associate at Western Washington University and a Wetland Ecologist with Northwest Ecological Services in Bellingham, WA. She has recently been working on a handful of blue carbon projects in tidal marshes and seagrass meadows, but she also enjoys studying climate change effects on tidal wetlands, sediment accretion and elevation change, tidal restoration ecology, and teaching about wetland plants.



# Sampling in 2018



Continue habitat monitoring on all EMP sites: Ilwaco Slough, Welch Island, Whites Island, Campbell Slough, and Franz Lake

Focused Biomass and Detritus Sampling: Whites Island, Welch Island, and Franz Lake Slough

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

# 2018 Habitat Sampling

Long-term biomass and macrodetritus question:

- How does the **abundance and quality of wetland biomass and macrodetritus** (decaying wetland plant biomass) vary **seasonally, annually, and by dominant species** within these estuary wetlands?

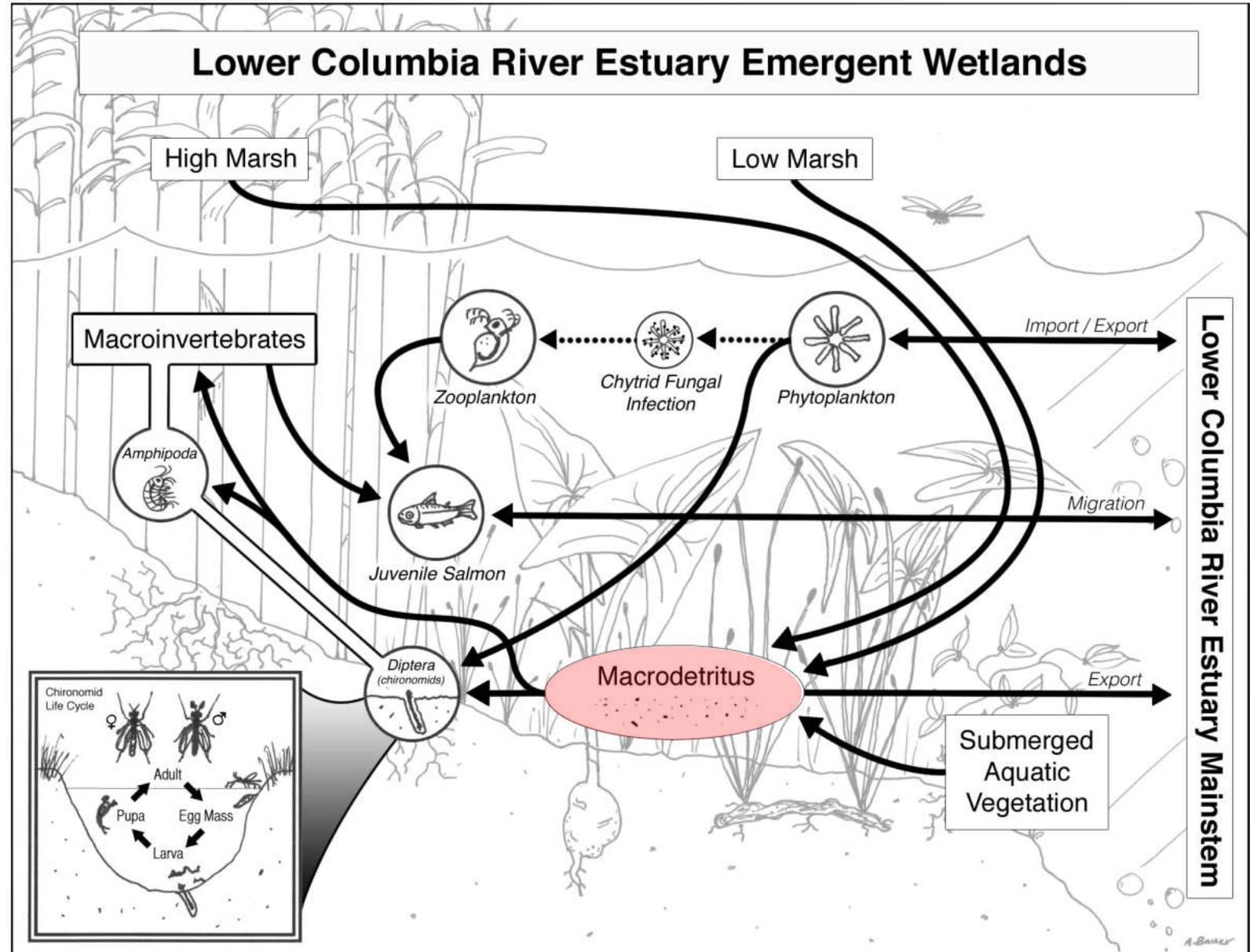
*Reed Canarygrass study (Hanson et al. 2016)*



Reed Canarygrass on Whites Island  
July 2017

## Why do we care?

Understanding **wetland biomass and macrodetritus** dynamics will help us determine how these wetlands and their plant communities contribute to the **seasonal detrital pool** which forms the base of the **salmonid food web**.

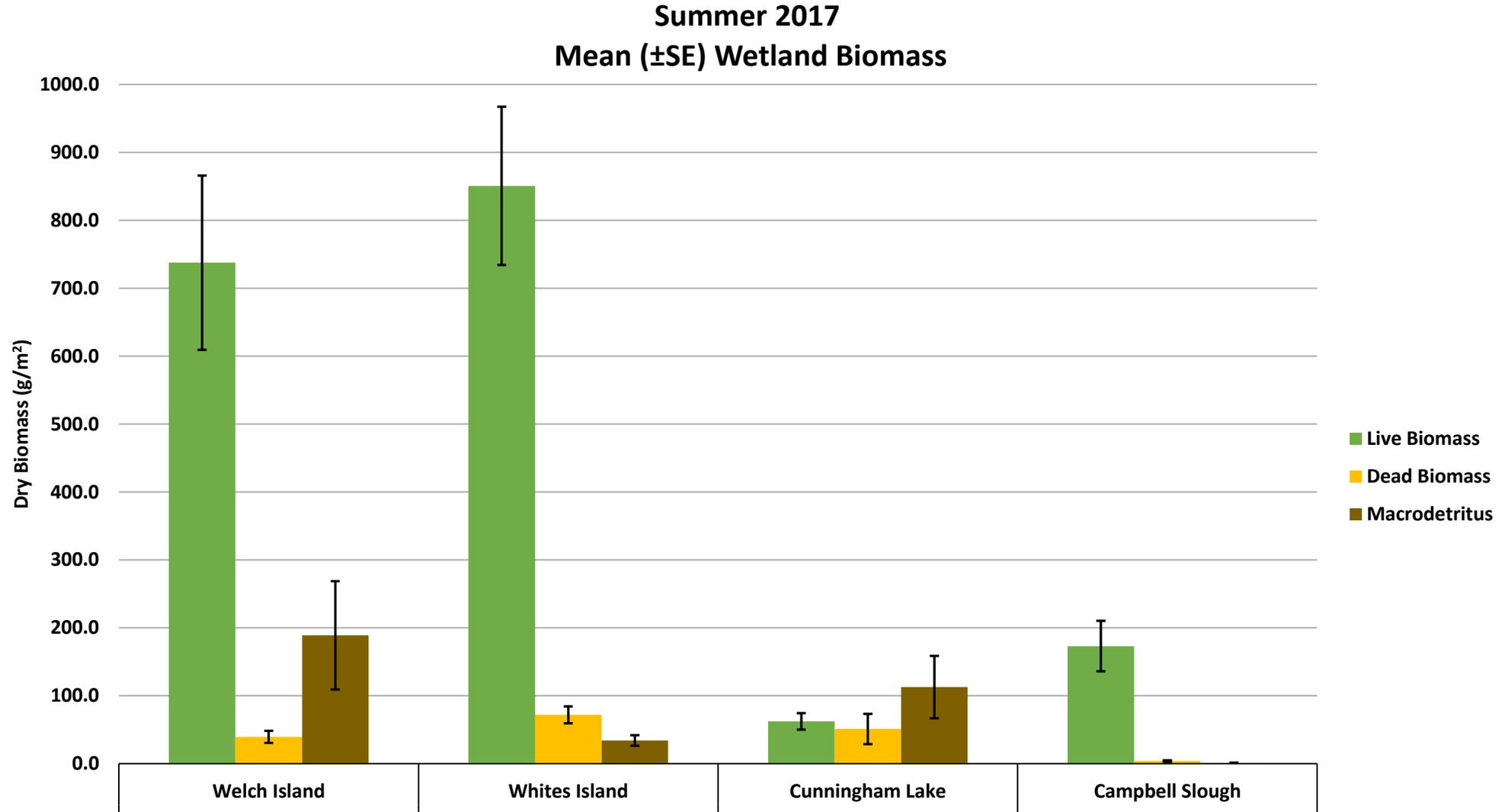


# 2017 Preliminary Results –Biomass and Detritus Sampling

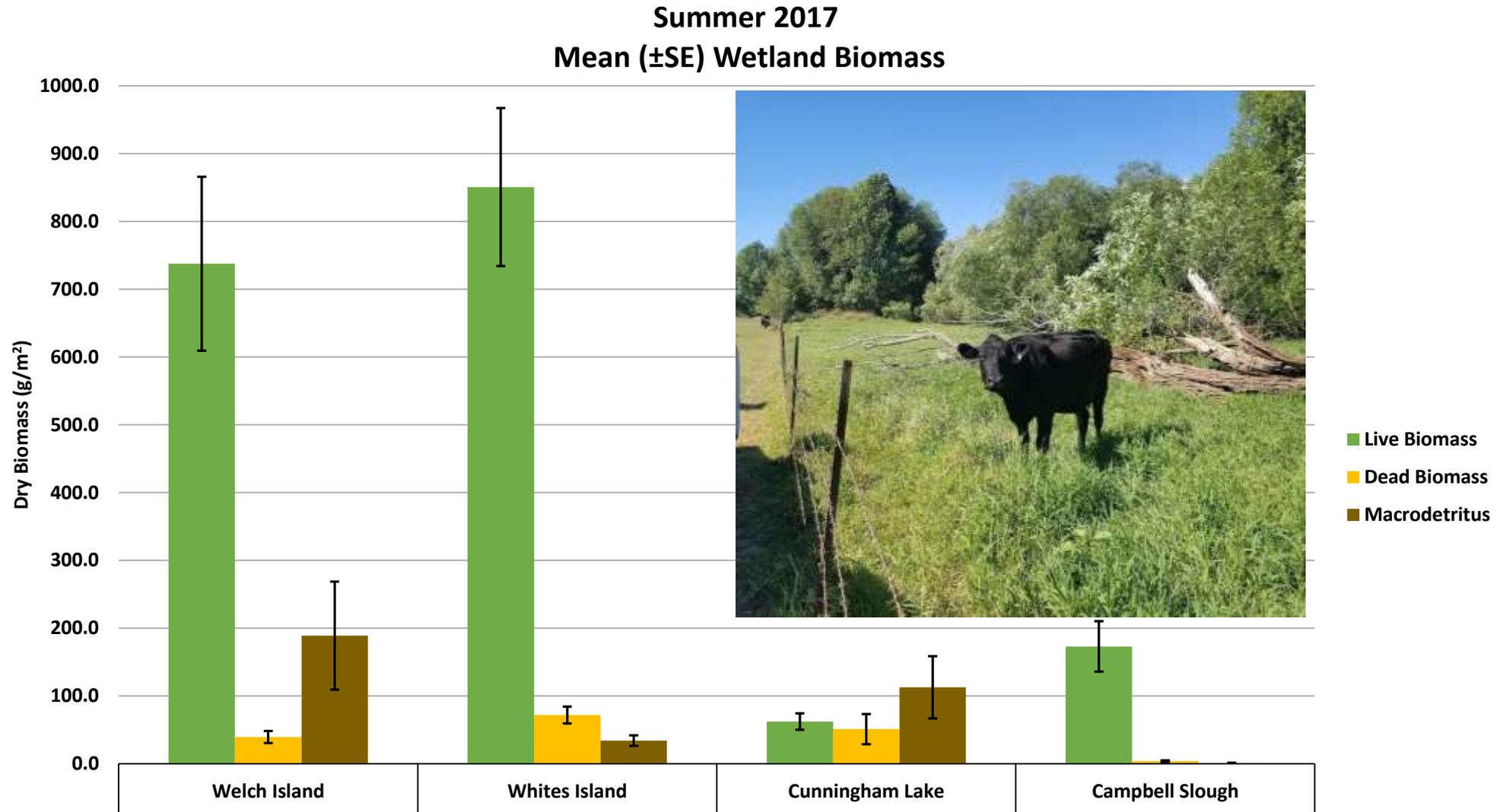


Wapato on Whites Island  
July 2017

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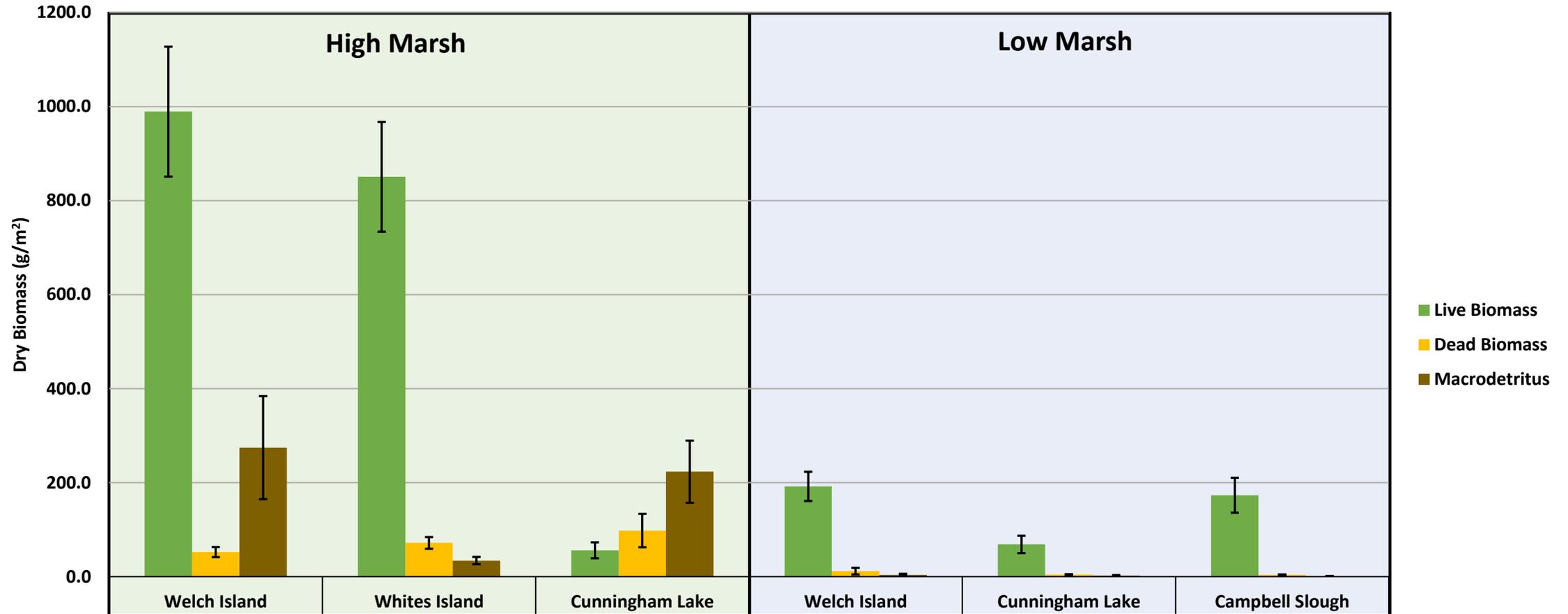


Welch and Whites Islands biomass levels were similar to 2017 but Cunningham and Campbell very low <1/2 biomass as 2016

# 2017 Preliminary Results –Biomass and Detritus Sampling

Summer 2017

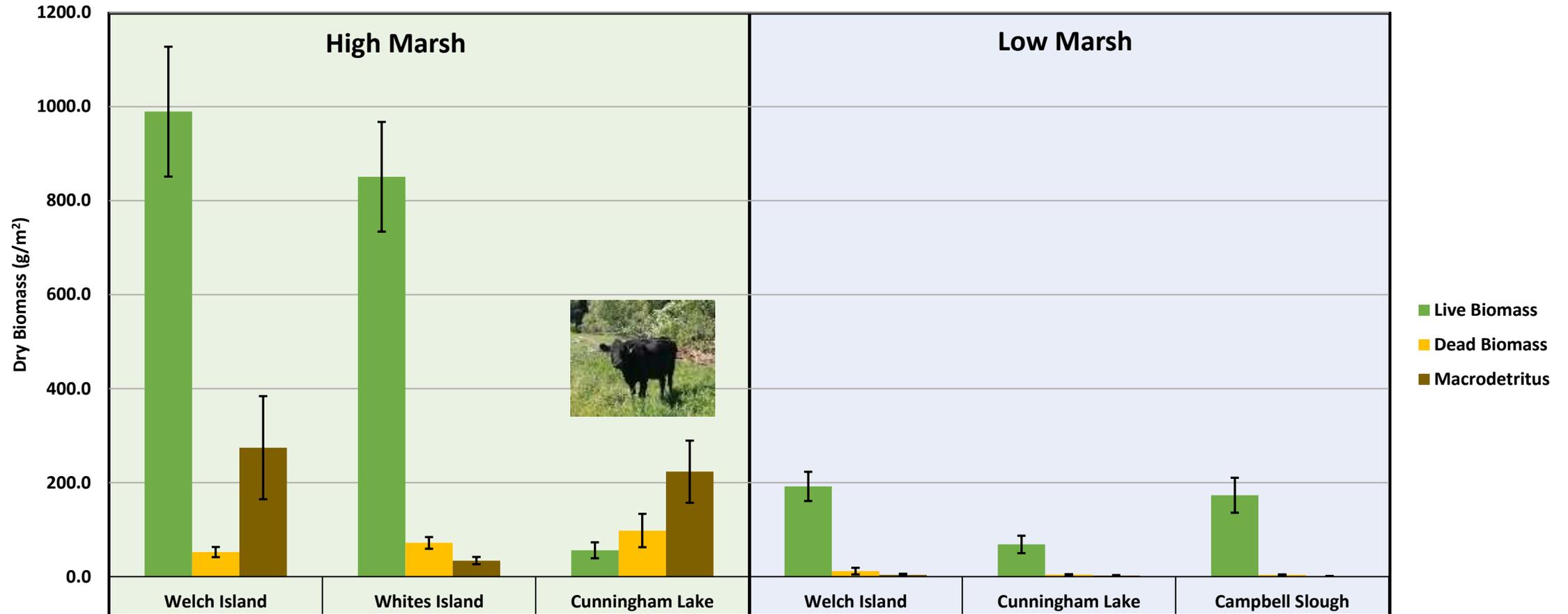
Wetland High and Low Marsh Mean ( $\pm$ SE) Biomass



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Summer 2017

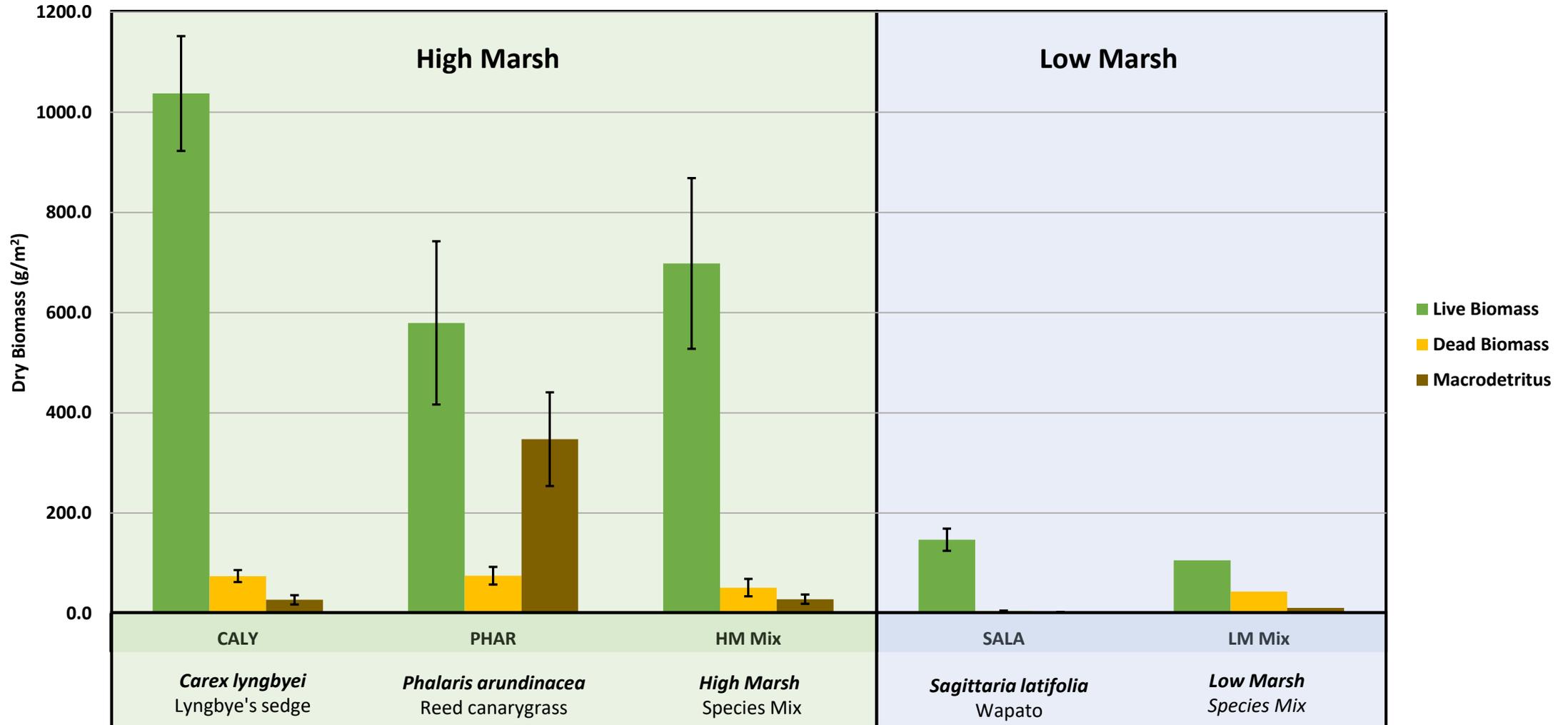
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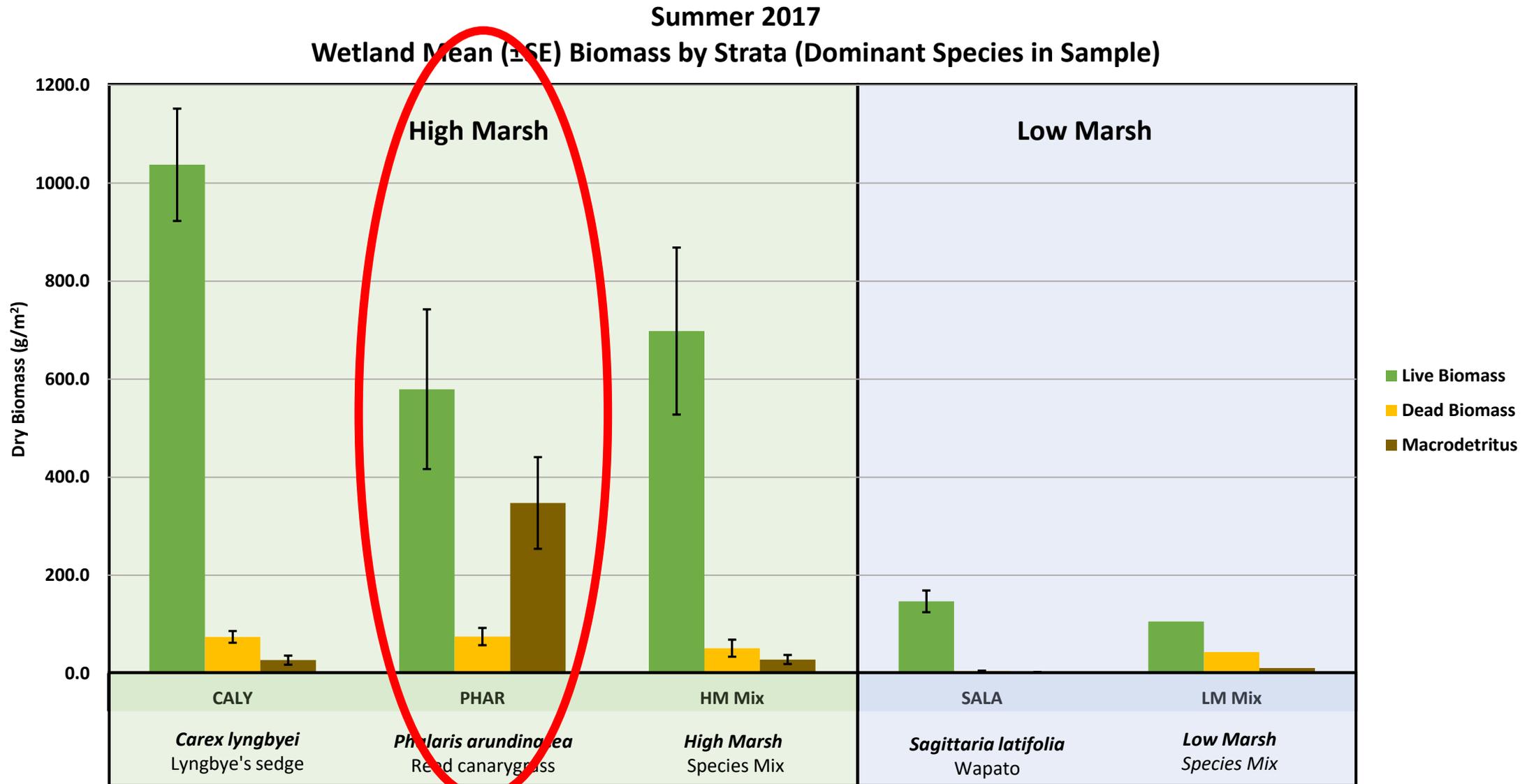
# 2017 Preliminary Results –Biomass and Detritus Sampling

Summer 2017

Wetland Mean ( $\pm$ SE) Biomass by Strata (Dominant Species in Sample)



# 2017 Preliminary Results –Biomass and Detritus Sampling



# Digging Deeper into Detritus

- Seasonal Biomass and Macrodetritus Sampling:
  - Starting in 2018 sampling will occur in the Winter, Spring, Summer, and Fall
- Sampling will occur at: Whites Island, Welch Island, and Franz Lake
- Closer look at decomposition dynamics and detrital quality of dominant plant communities:
  - Evaluation of Lignin, Nitrogen, and Carbon content of Living, Dead, and Macrodetrital plant materials
  - Soil conditions: ORP, pH, Salinity



Wapato in Cunningham Lake  
July 2017

Questions?



**Many thanks to Amy Borde for her many years of research development, data collection, and dedication to the EMP program!**

