



Action Effectiveness Monitoring and Research of Dredged Material Placement at Woodland Islands: 2019-2021

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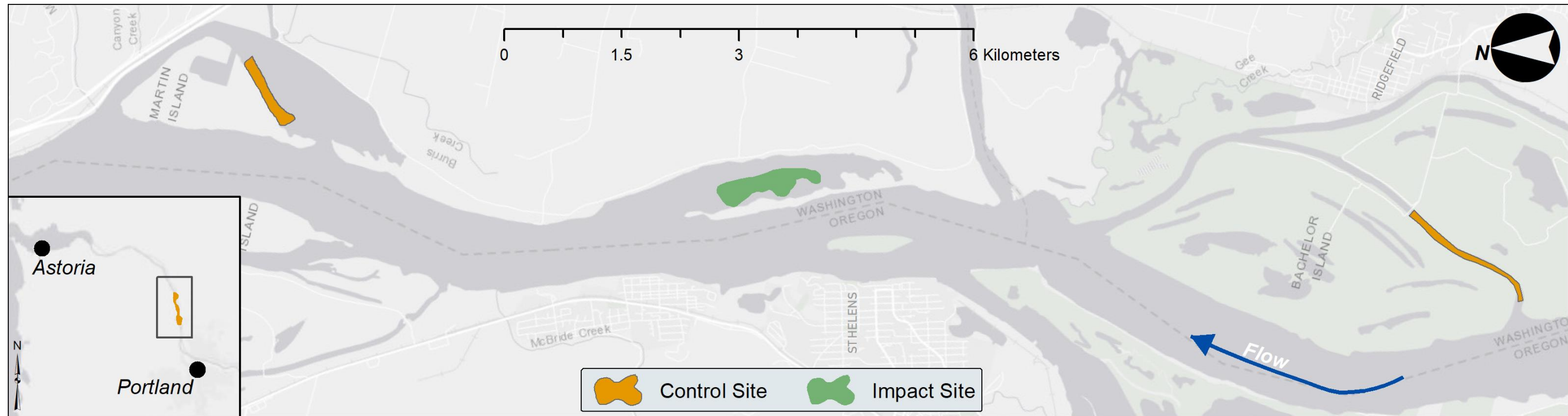


Outline

- Overview; study area, design, timeline
- Environmental conditions
- Benthic Invertebrates
- Relationships between environmental conditions and benthic assemblages
- Before-After comparison
- Summary and next steps

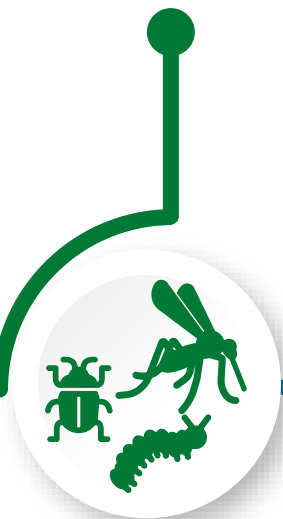


Woodland Islands Study Area



**Pre-construction
Research**

April - July



2019

2020



**Pre-construction
Research**

April - July

**Dredged Material
Placement**

Sept - Oct



2020

2021

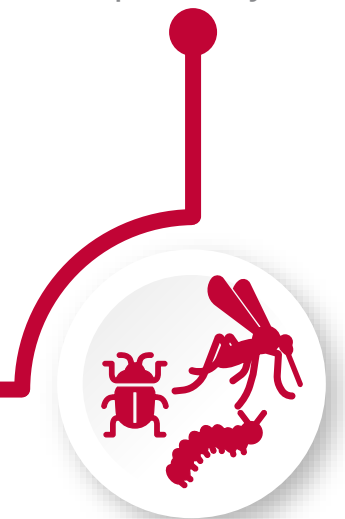


**Post-
construction
Research**

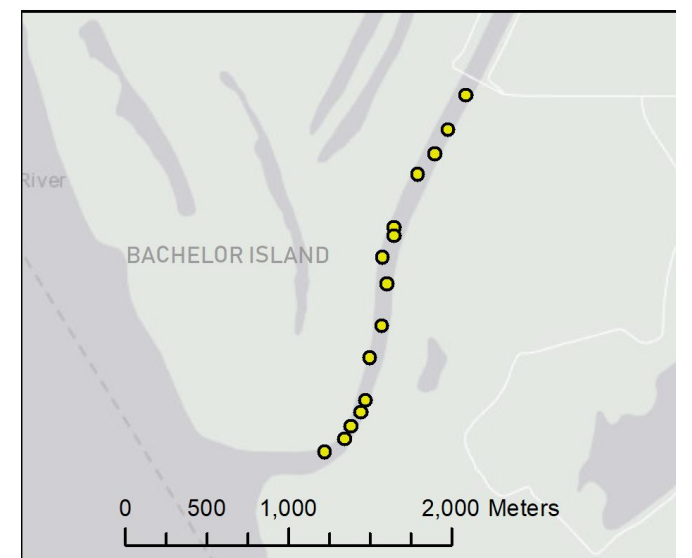
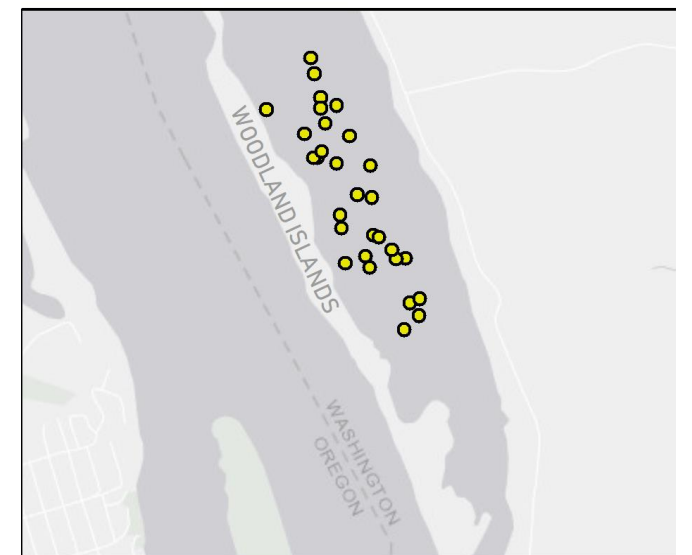
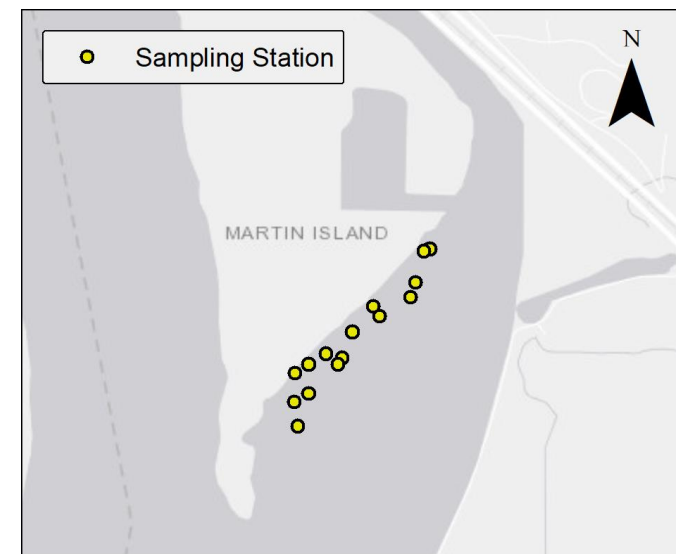
April - July

**Post-
construction
Research**

April - July

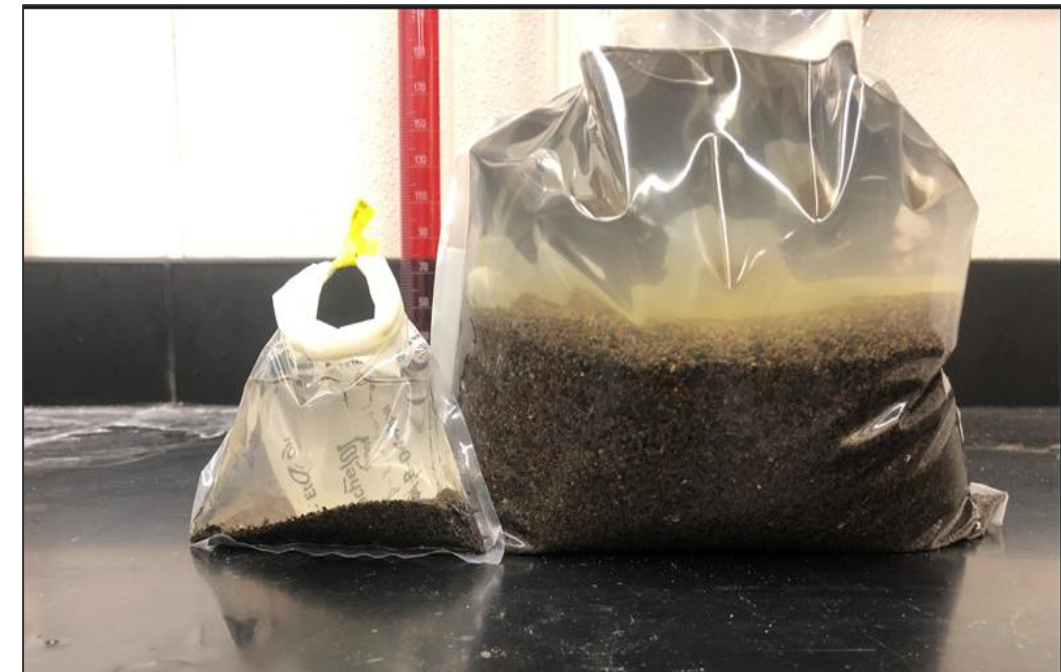


2022

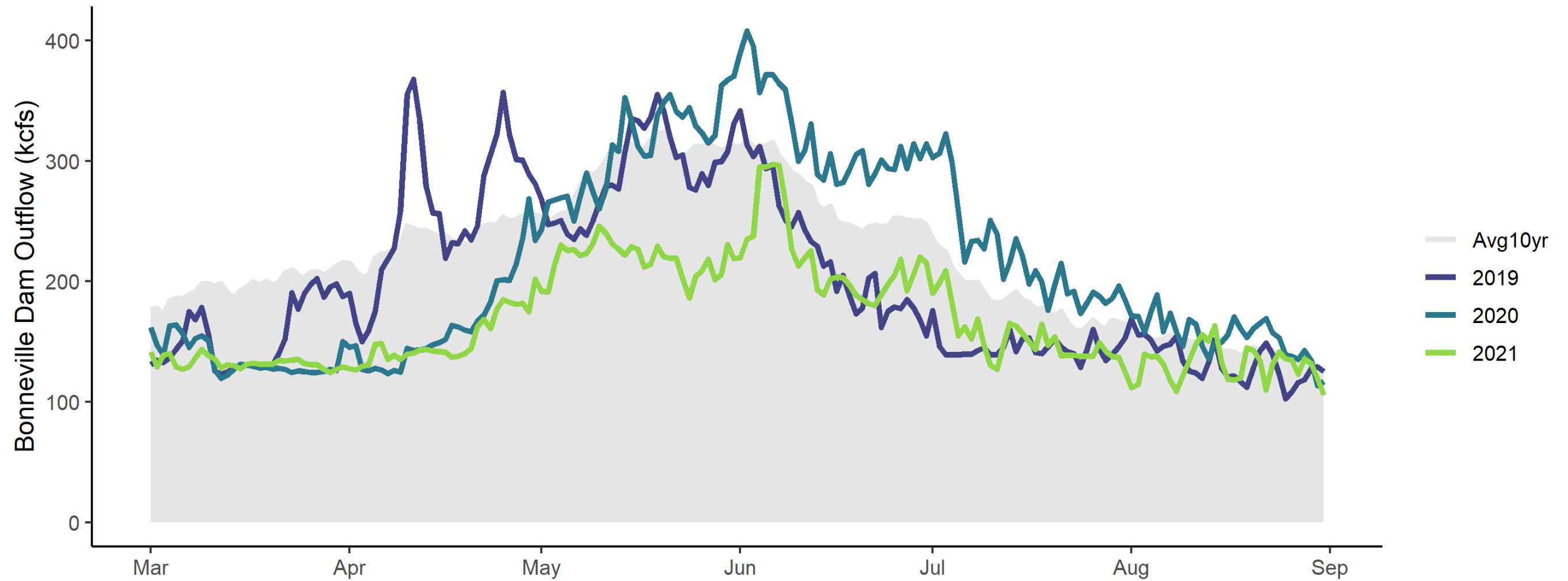


Lab Analyses

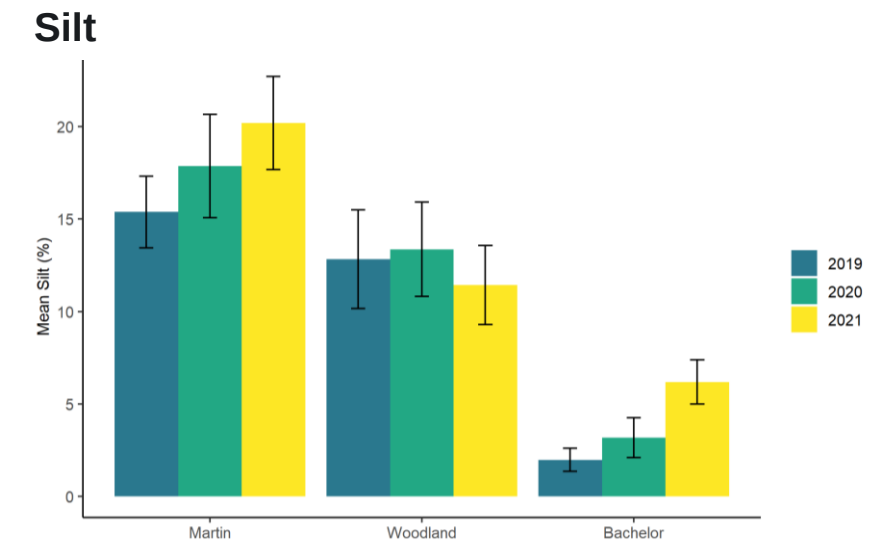
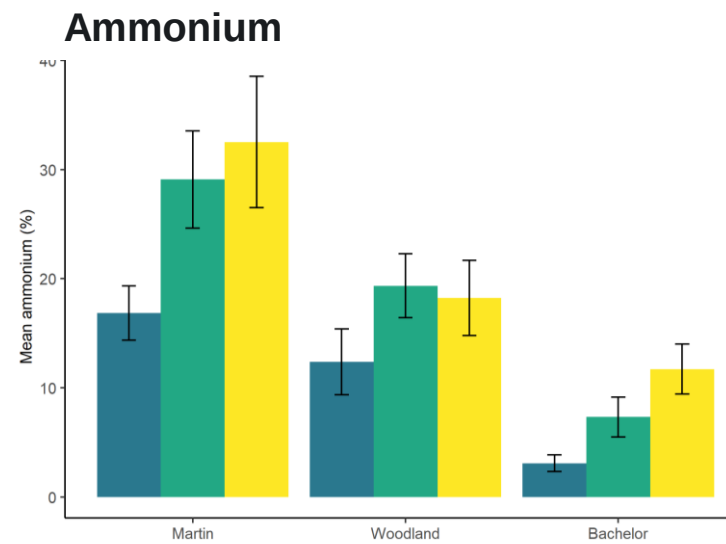
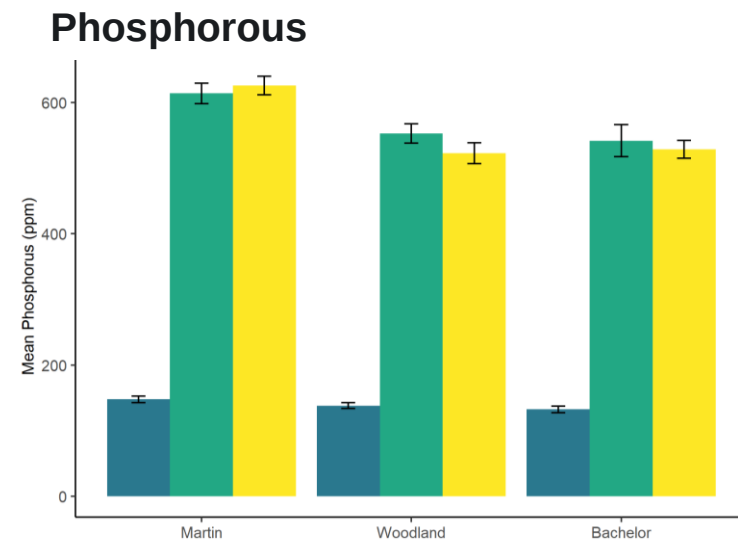
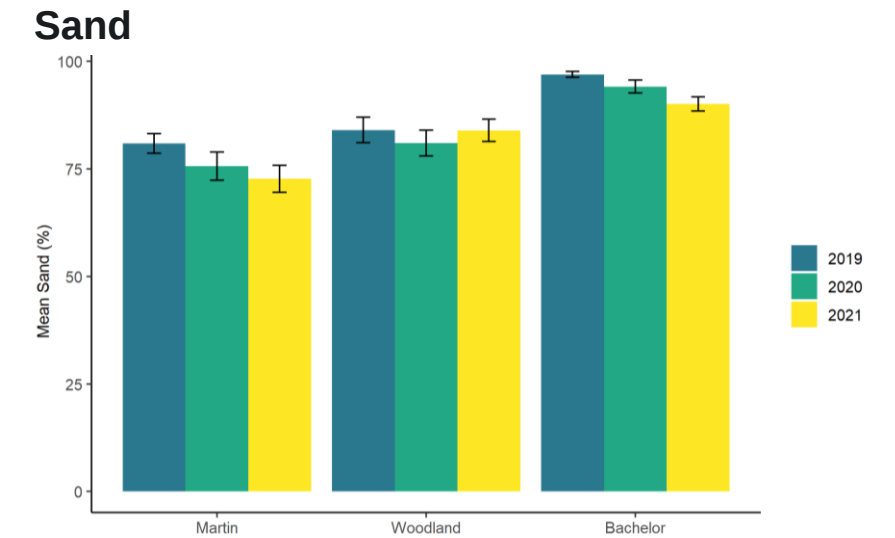
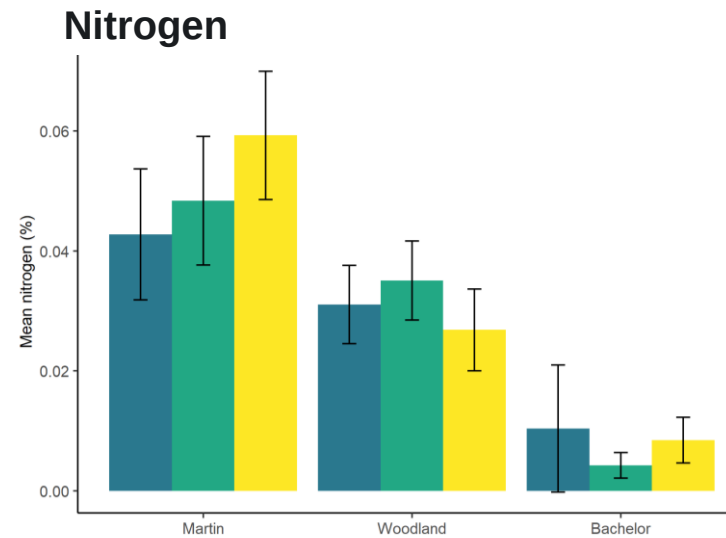
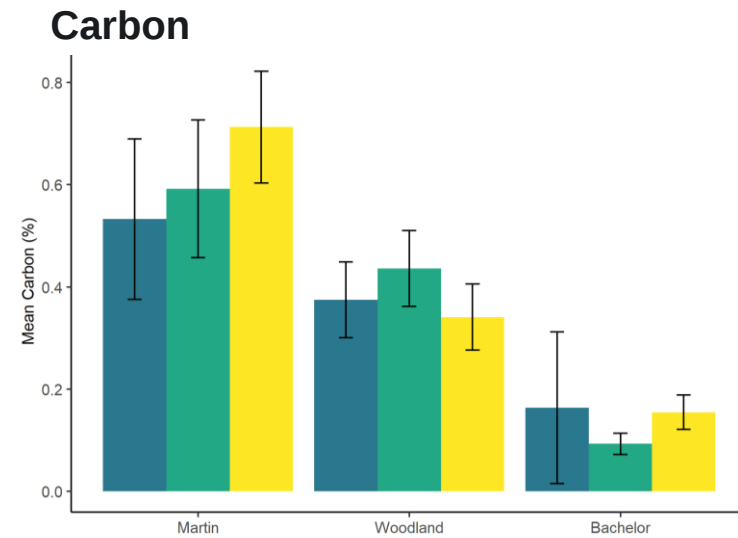
- Benthic Invertebrates
 - Abundance
 - Biomass
- Sediment
 - Grain size
 - Carbon
 - Nitrogen
 - Ammonium
 - Phosphorous



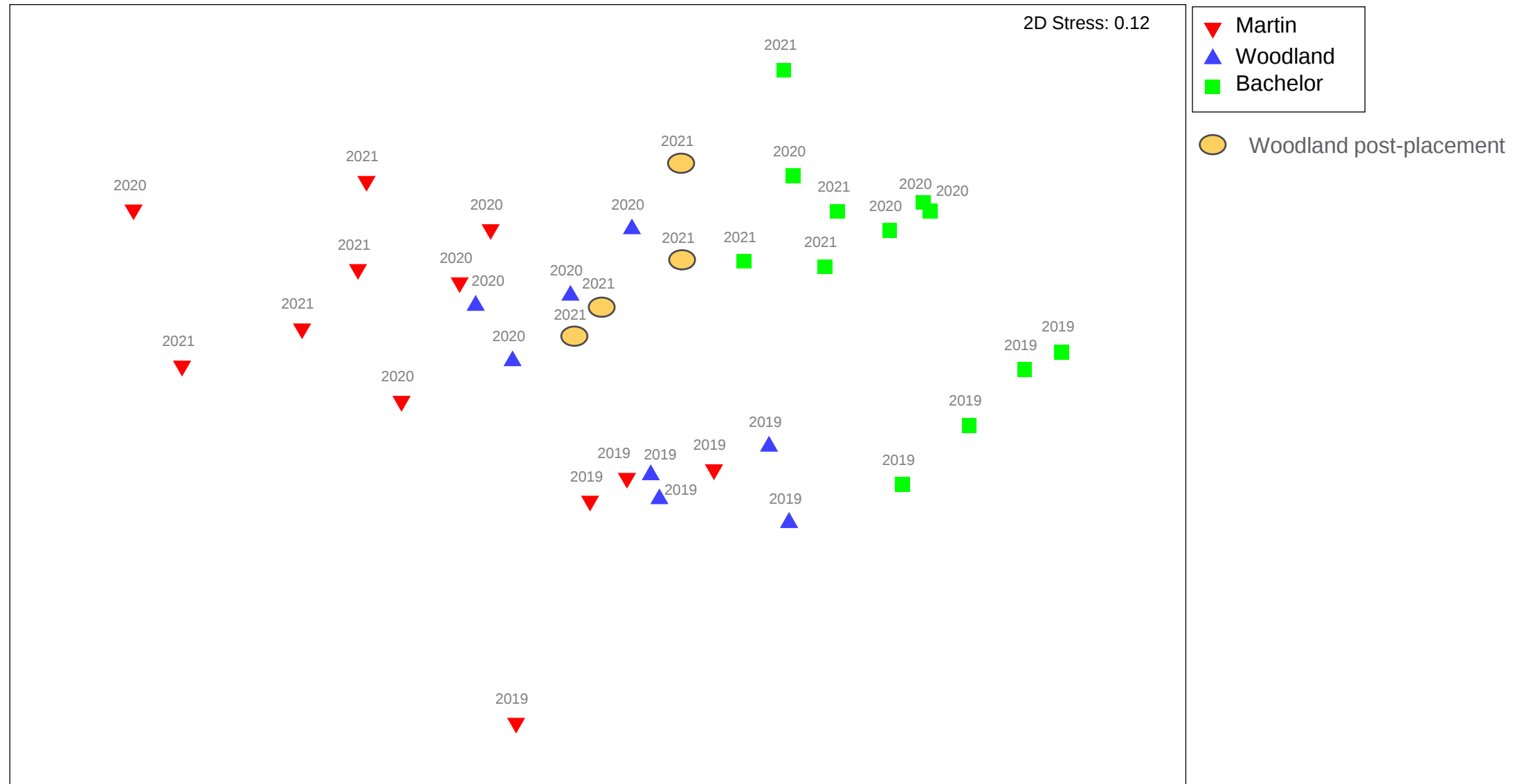
Bonneville Dam outflow



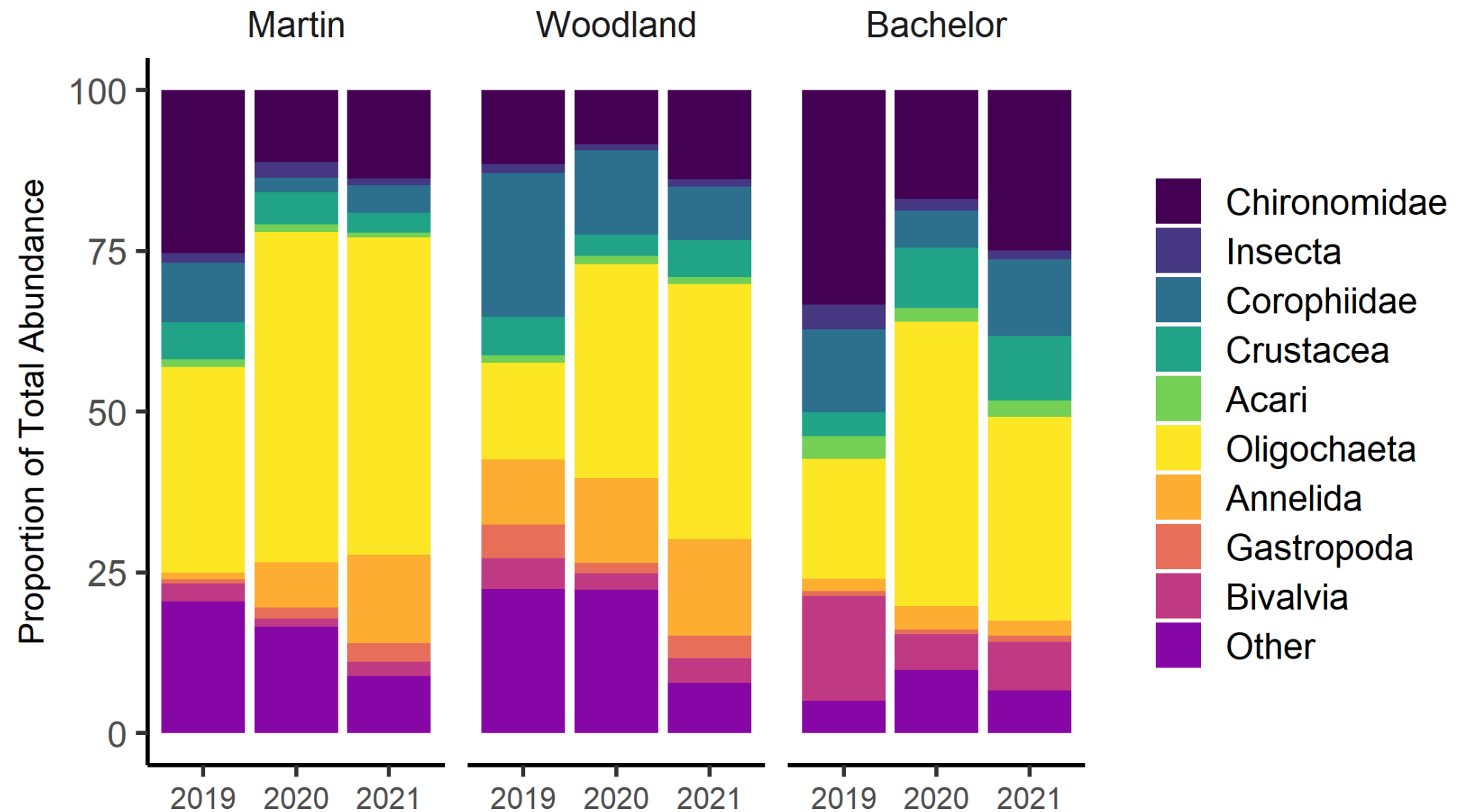
Sediment Characteristics



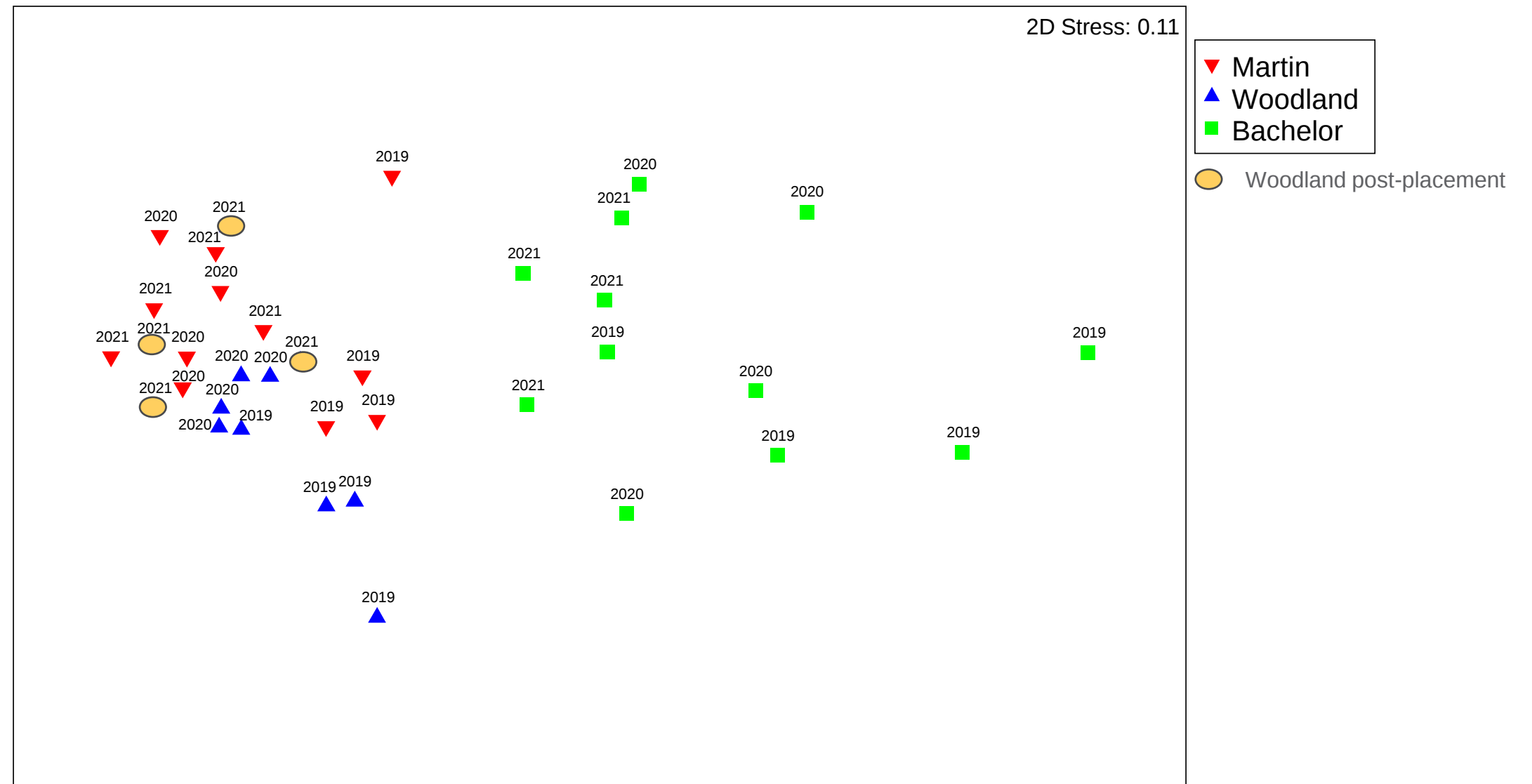
Sediment Characteristics



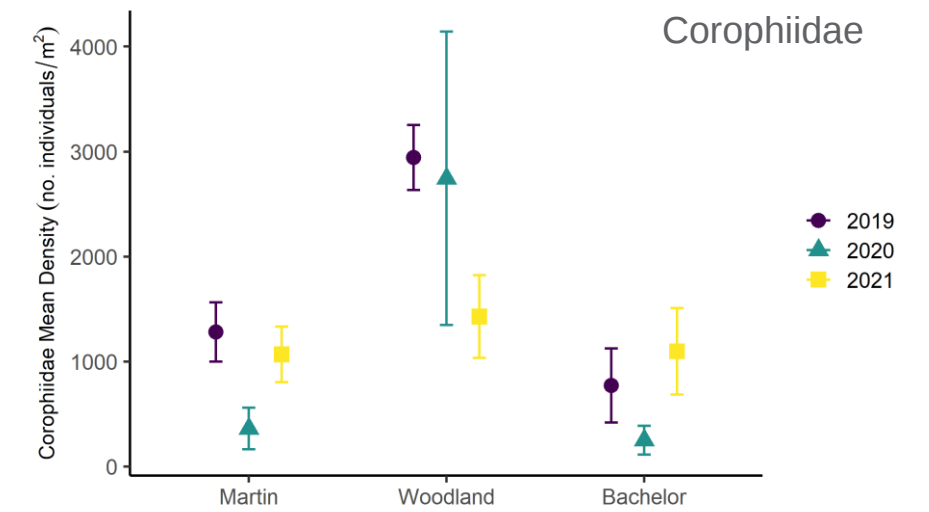
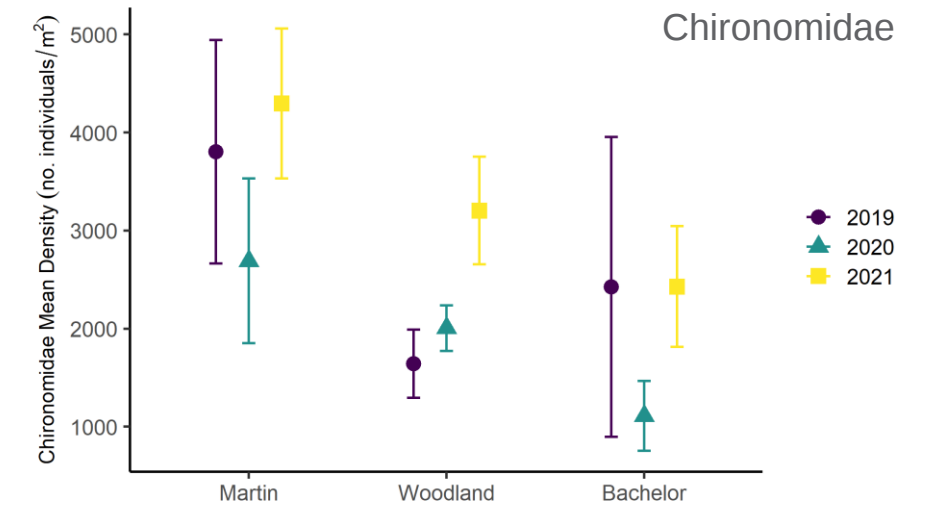
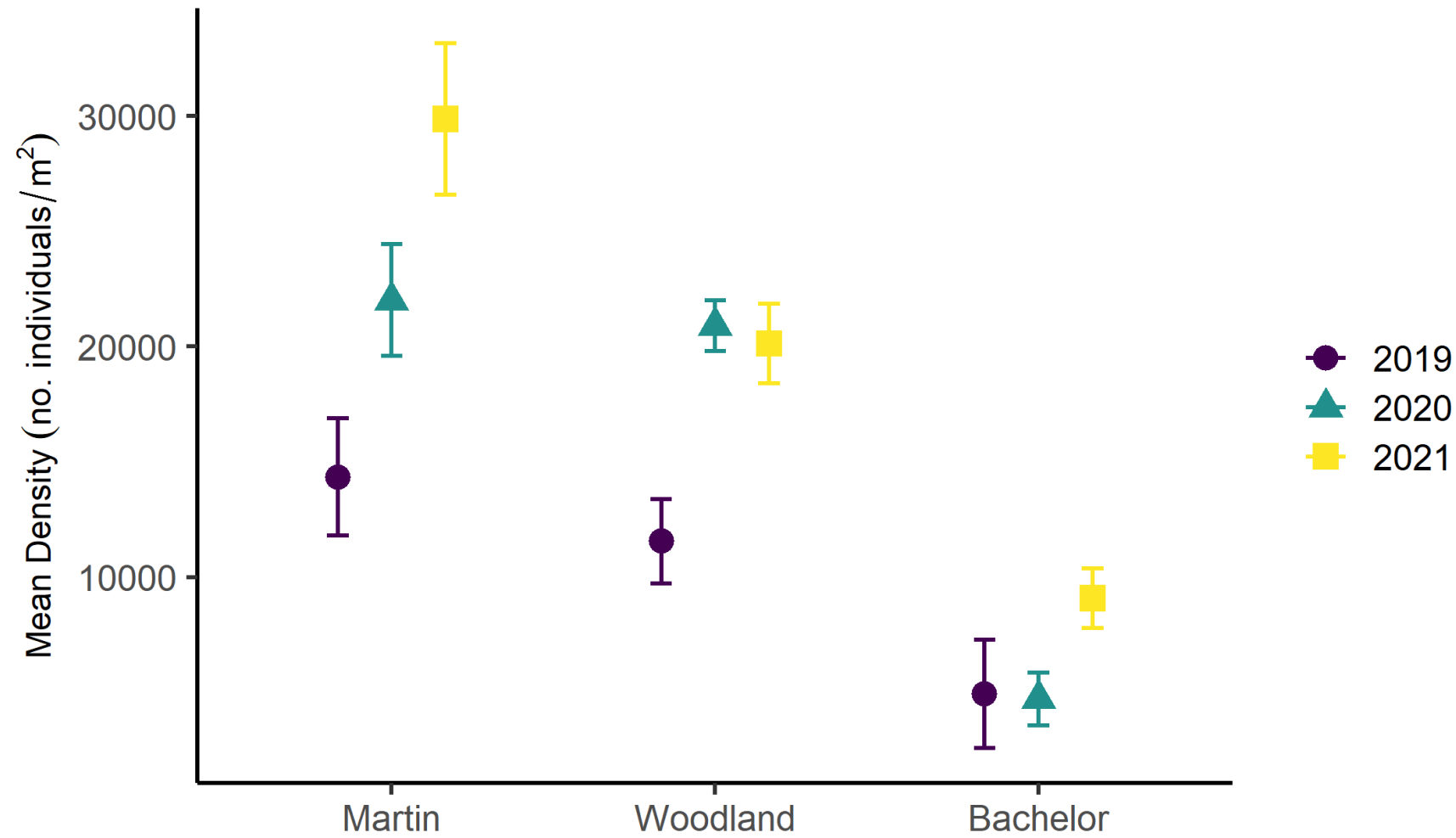
Benthic Assemblage



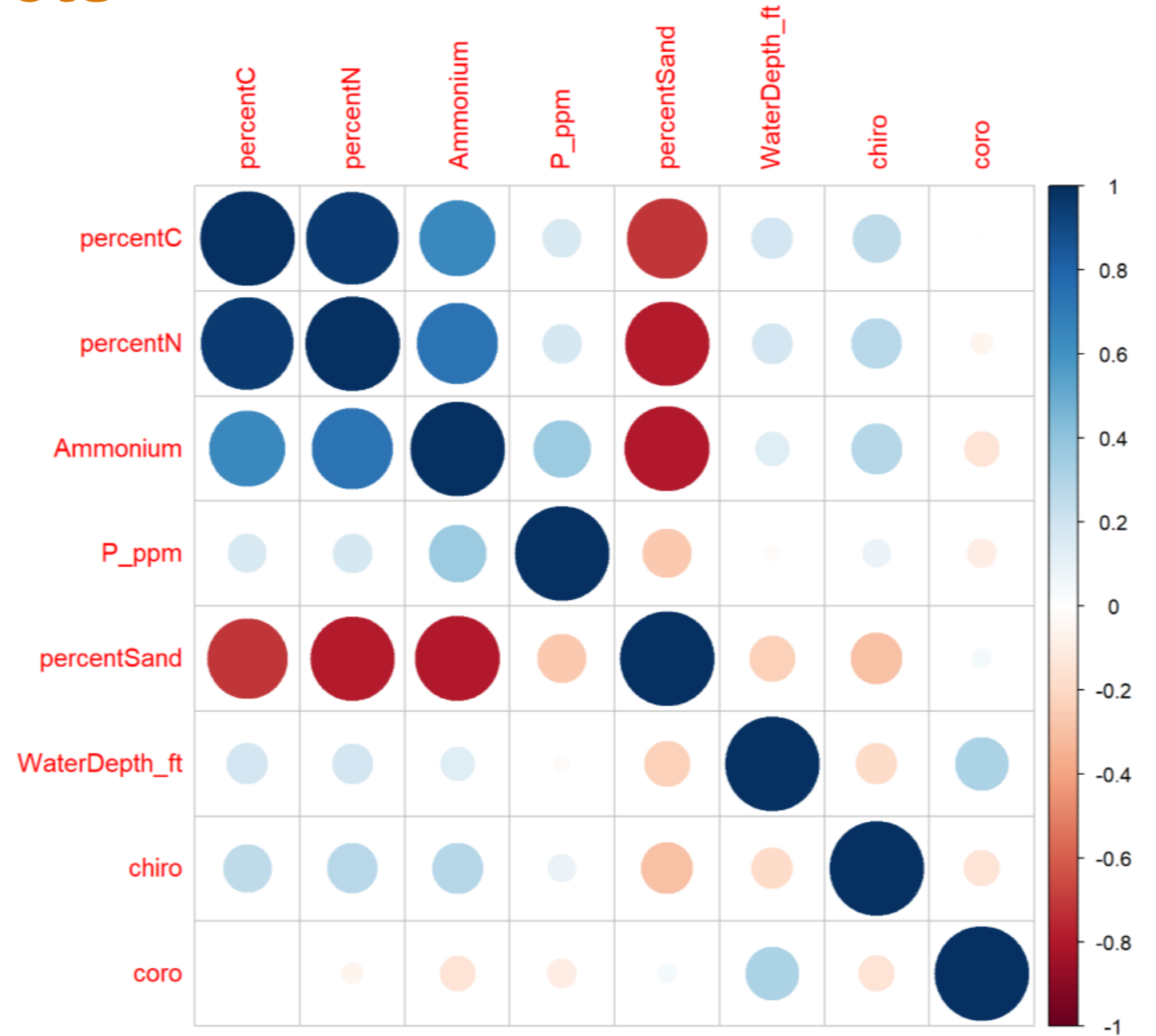
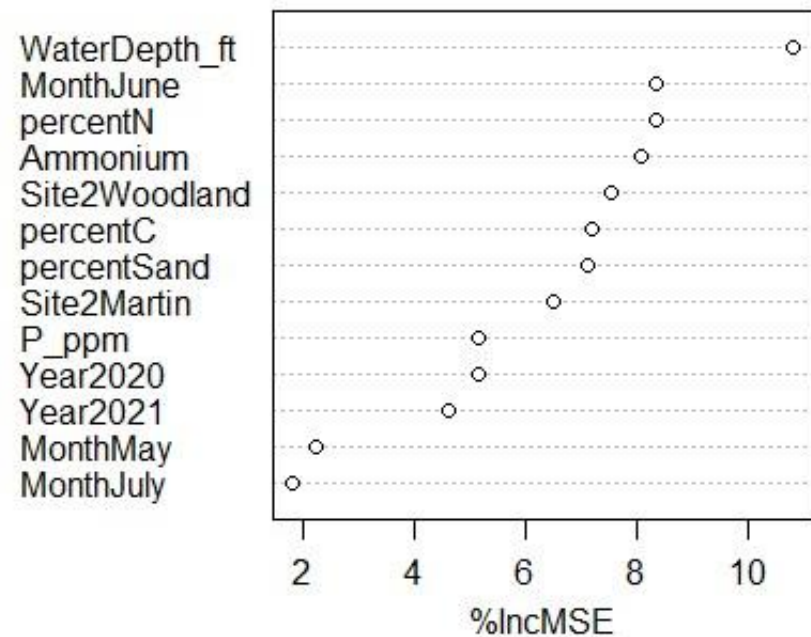
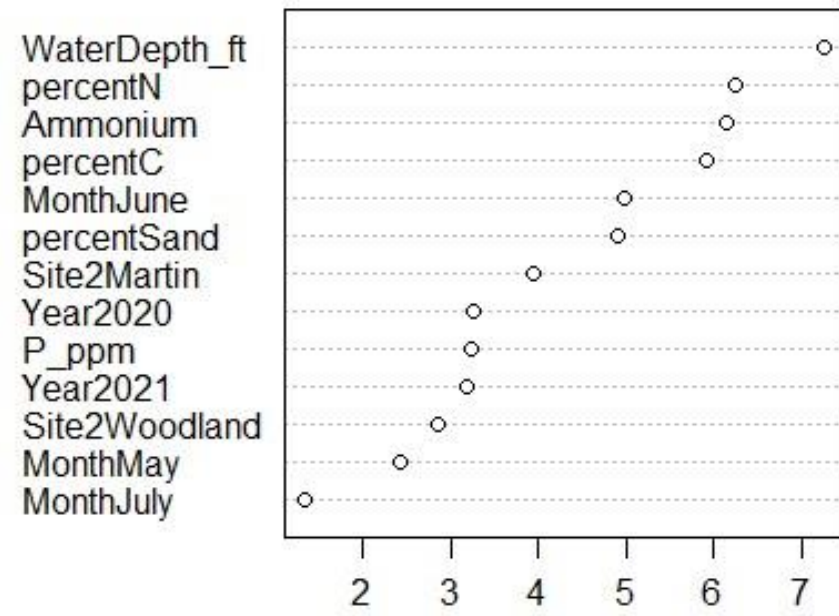
Benthic Assemblage



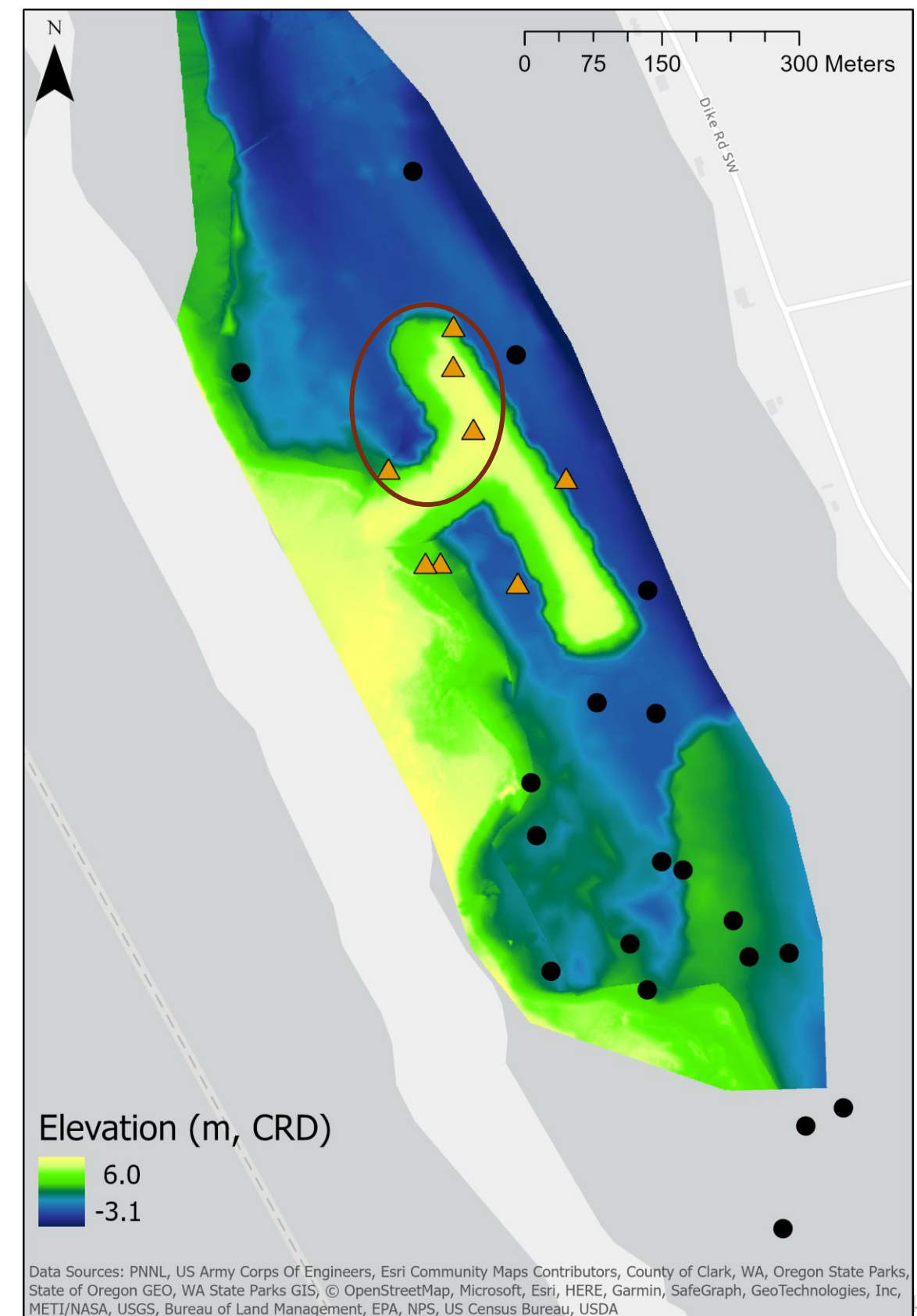
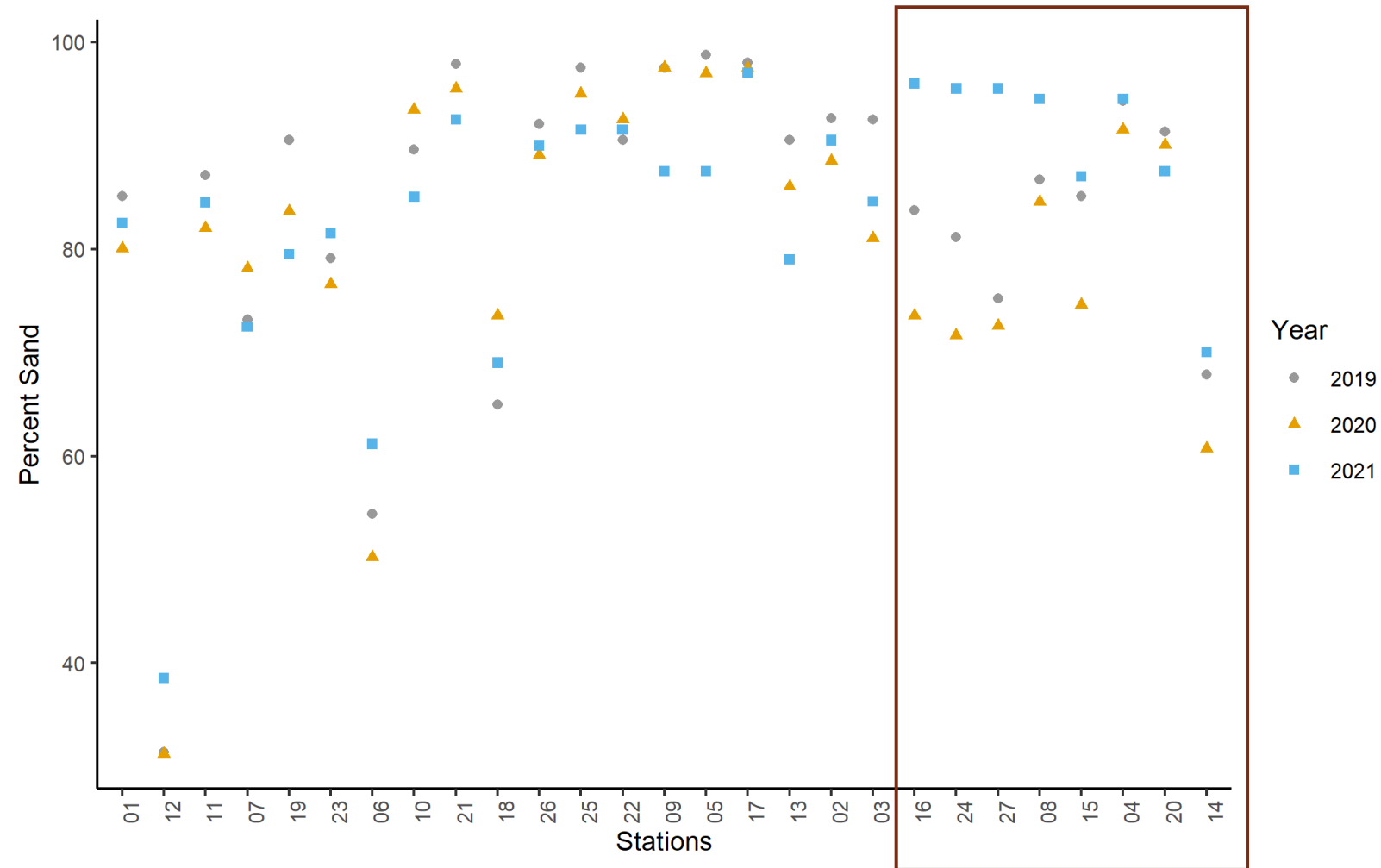
Invertebrate abundance



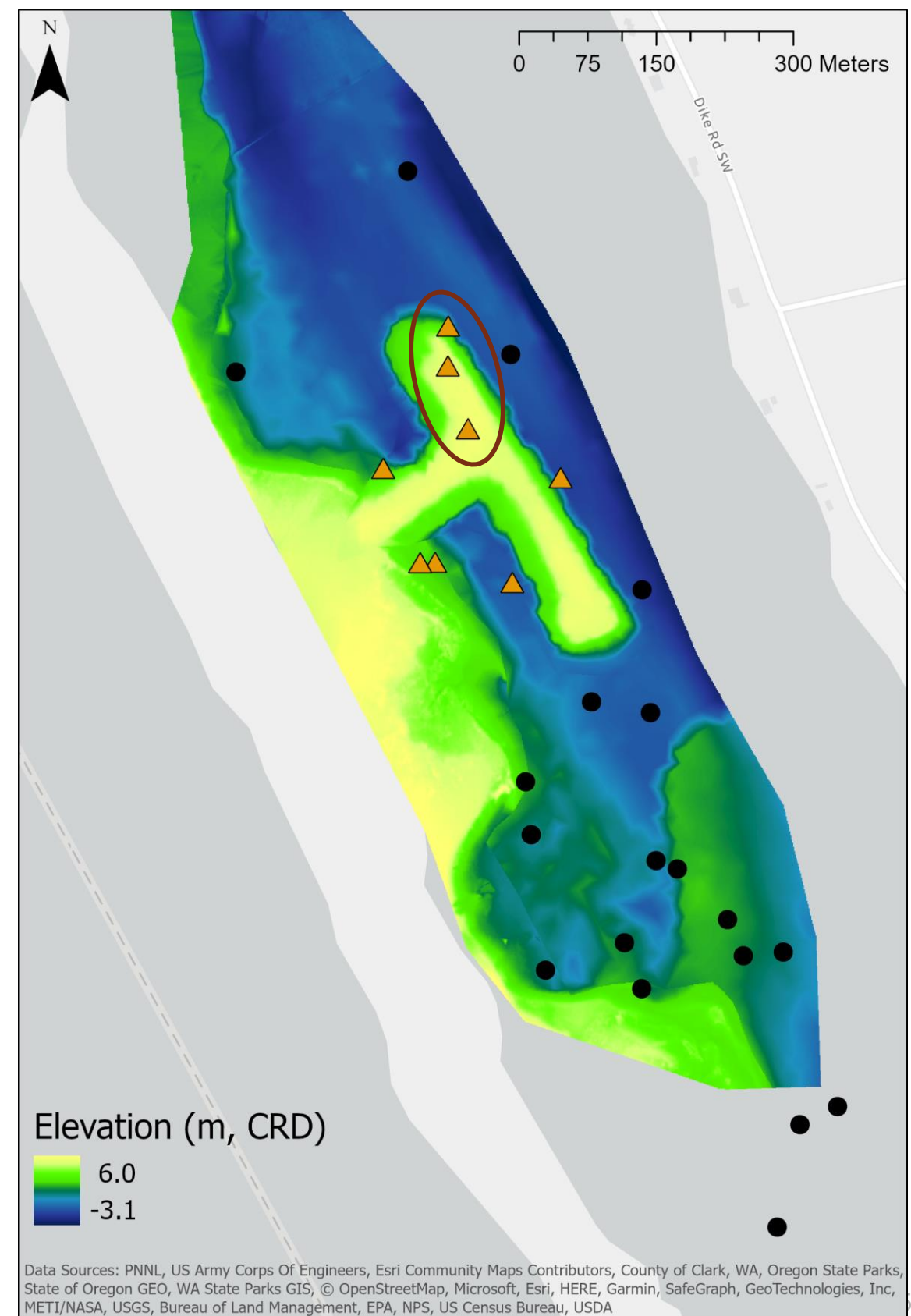
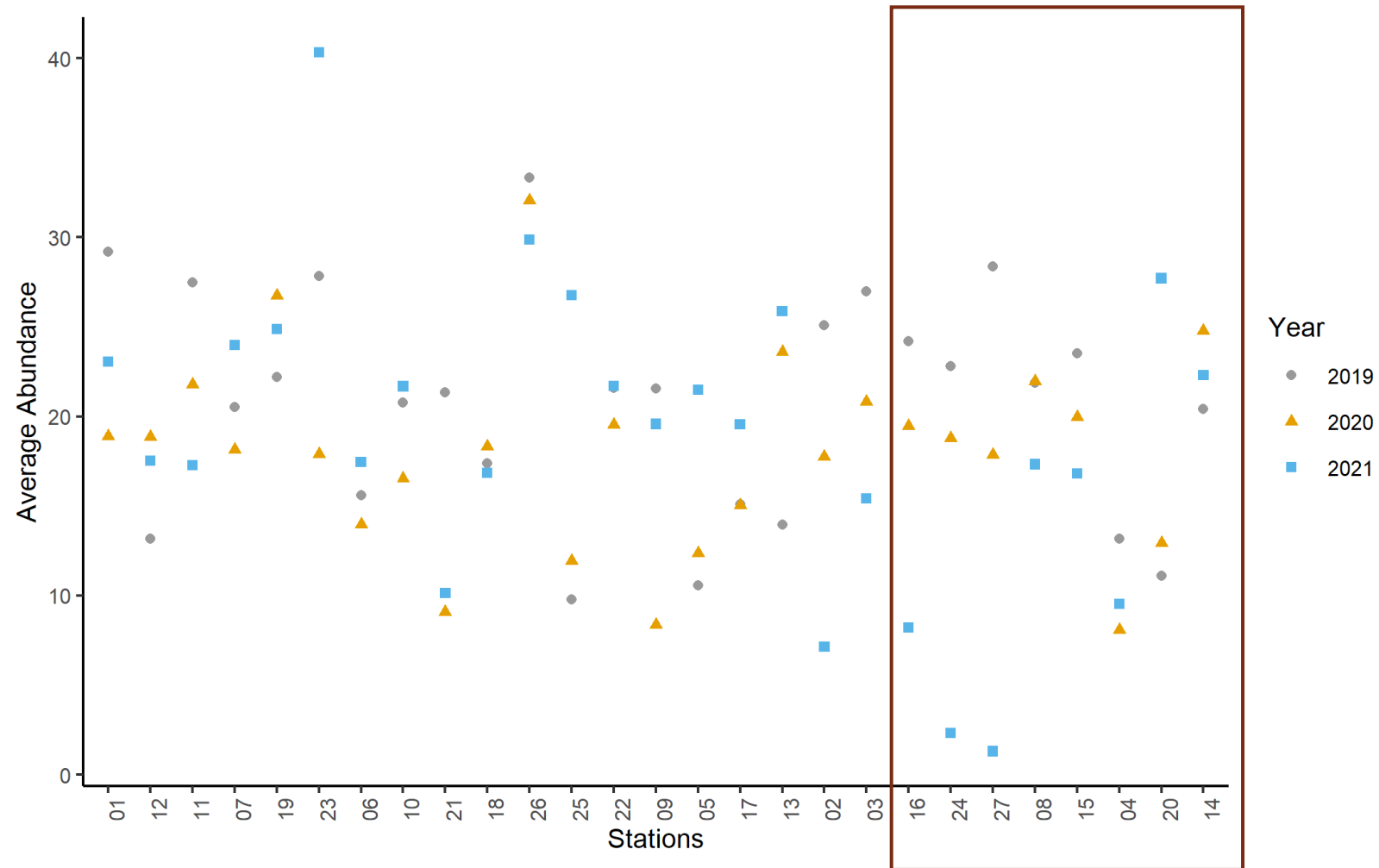
Environmental effects



Woodland Island: Percent Sand



Woodland Island: Invertebrate abundance



Summary and Next Steps

- Spatial and temporal variation
- Post-placement
- Lab processing
- Analysis and reporting



Acknowledgements

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