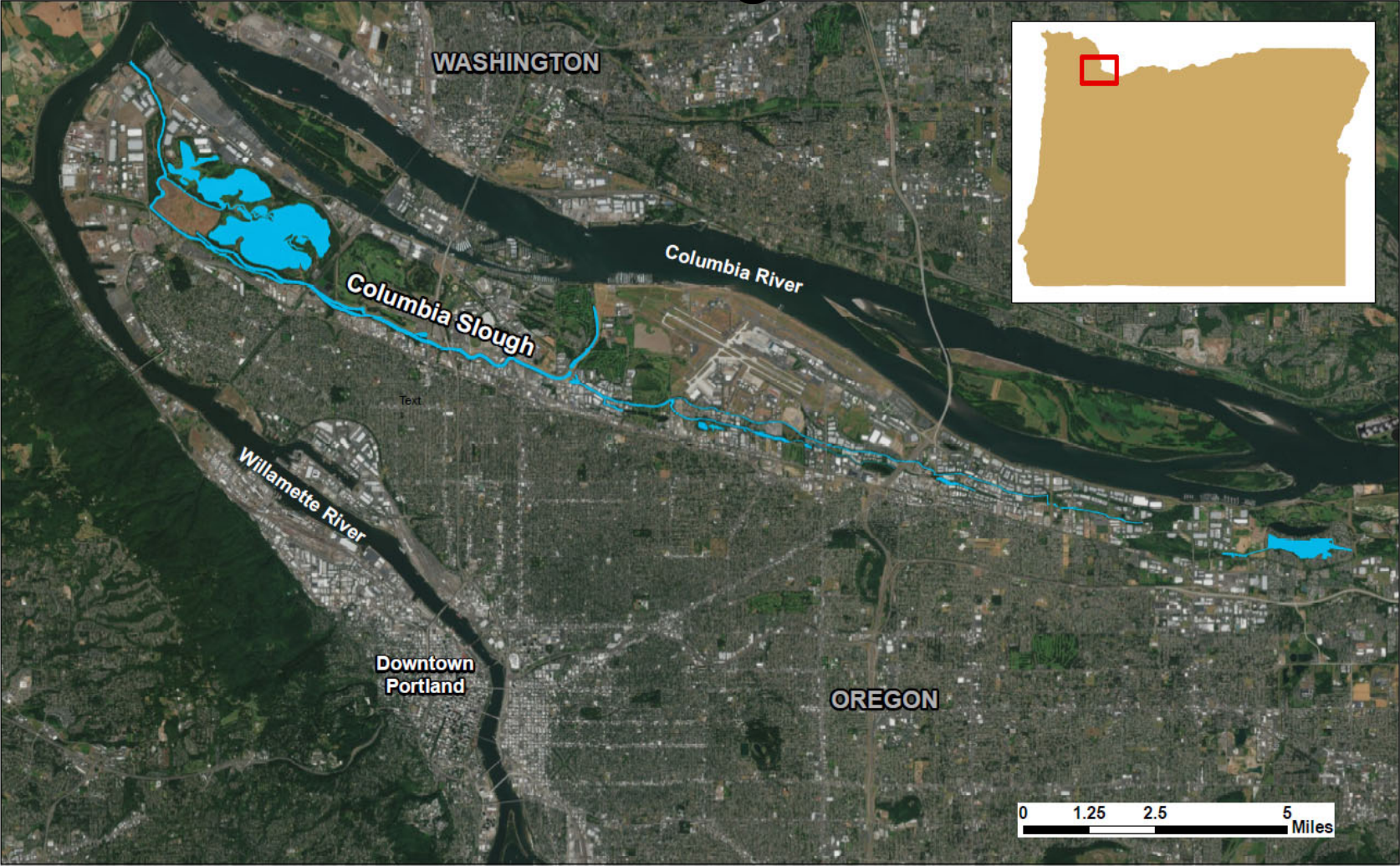


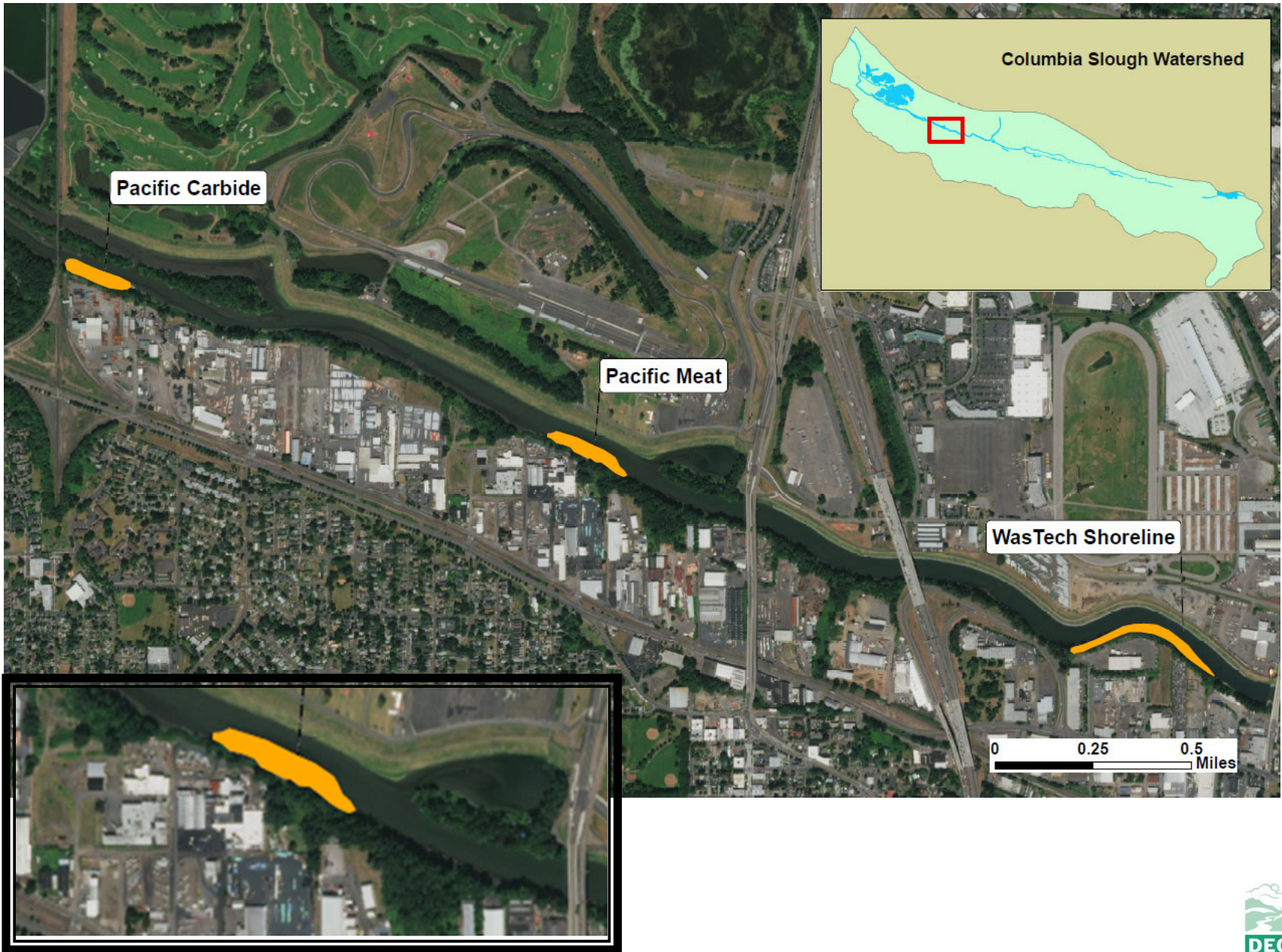
Battelle – Sediments Conference 2019

Pacific Meat Sediment Remedy Leads to Evaluation of Columbia Slough Cleanup by Presumptive Remedy

February 13, 2019

Columbia River Slough Overview

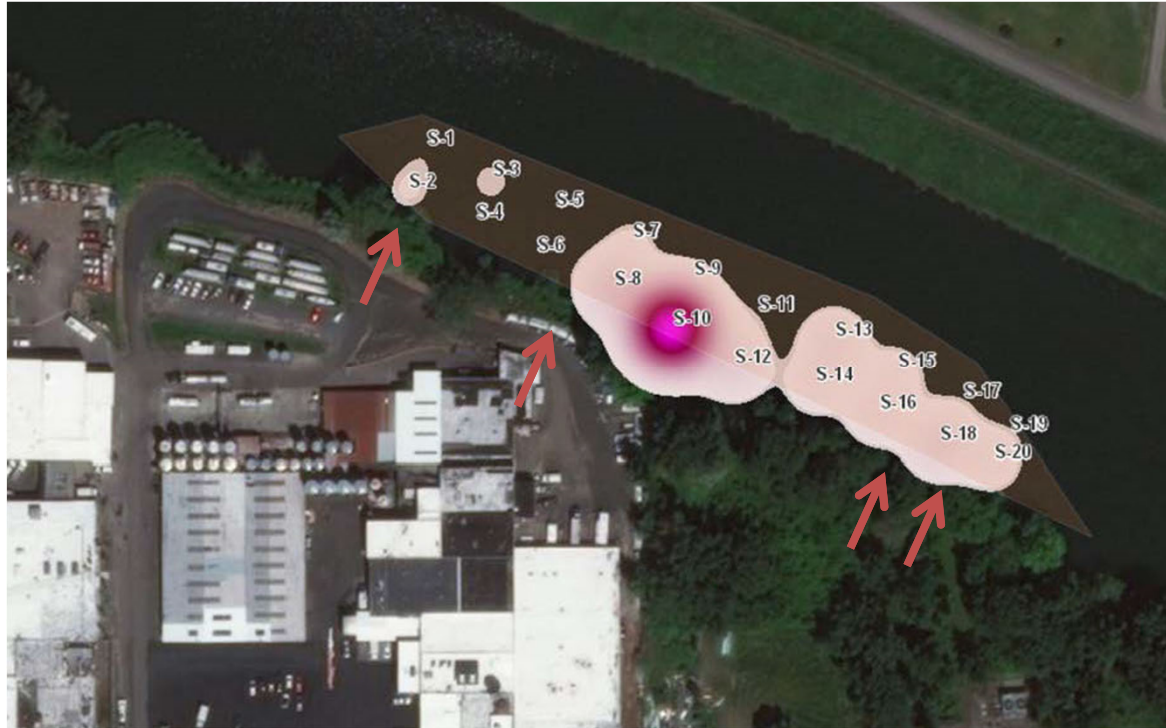




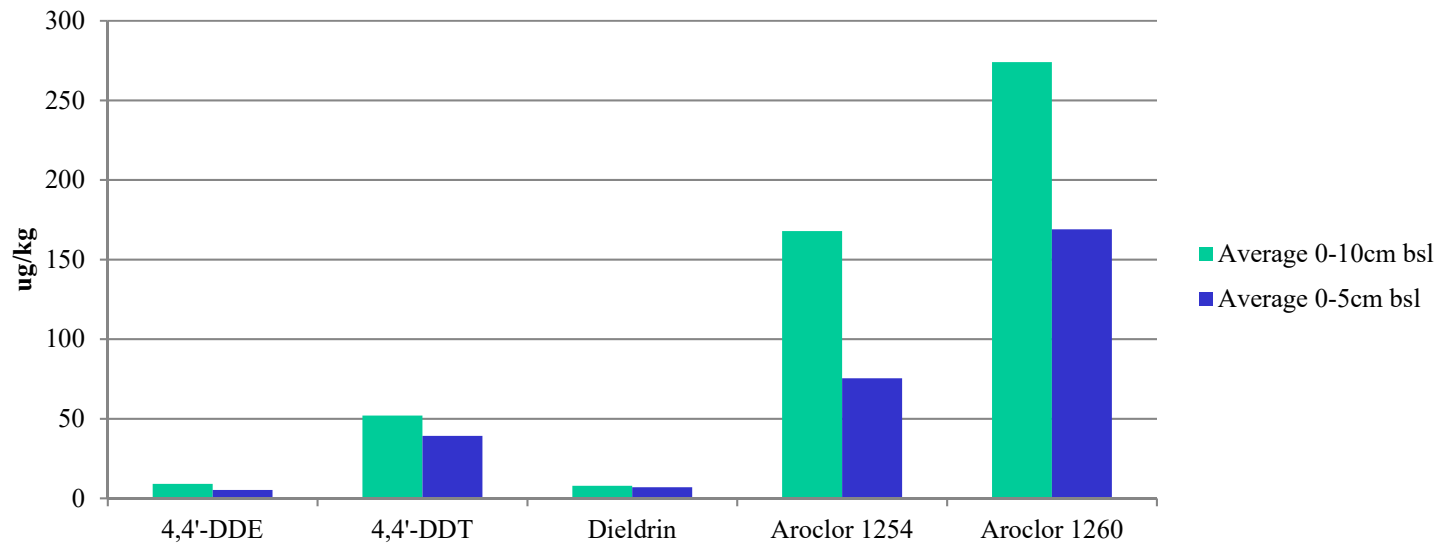
Summary of Baseline Sampling

Bulk Sediment:
Total
PCBs > 2,000
ppb

Porewater:
~3 ng/L



Pacific Meat average sediment values for legacy contaminants



PCBs increase with depth

Conclusions of Baseline Sampling

PCBs are bioavailable in porewater and present in bulk sediment above risk levels.

Bioavailable PCBs pose an unacceptable risk to human health and the wildlife at the site, predominately through fish consumption



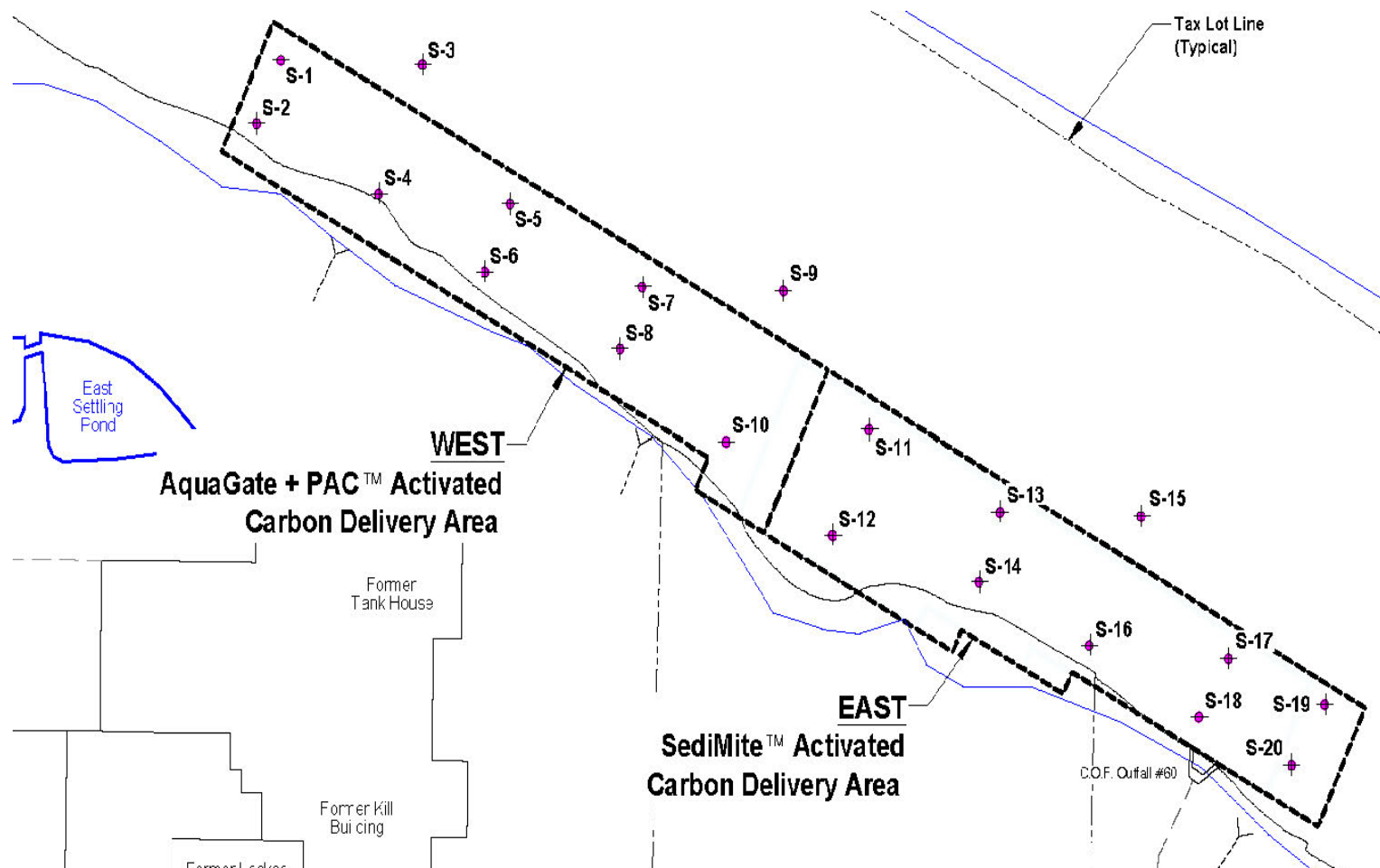
Pacific Meats Pilot Study

DEQ lead study
with:

APEX and Dr.
Danny Reible and
his students at
Texas Tech



Pilot Study Design



Post-Pilot Sampling

Sediment:

1-year post application, mixing evident in top 8-inches



SPME:

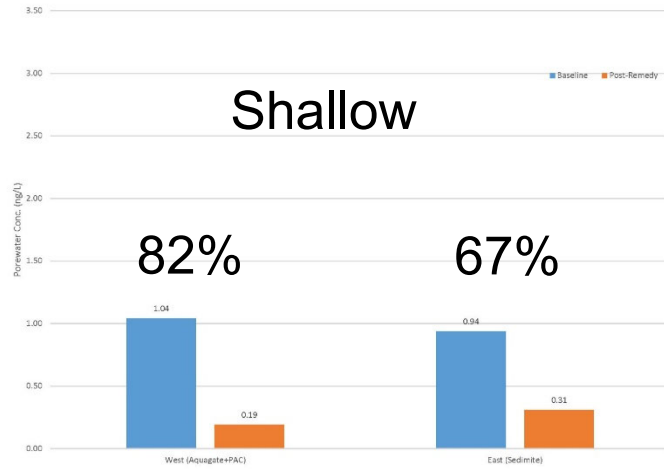
20 locations

3 replicates

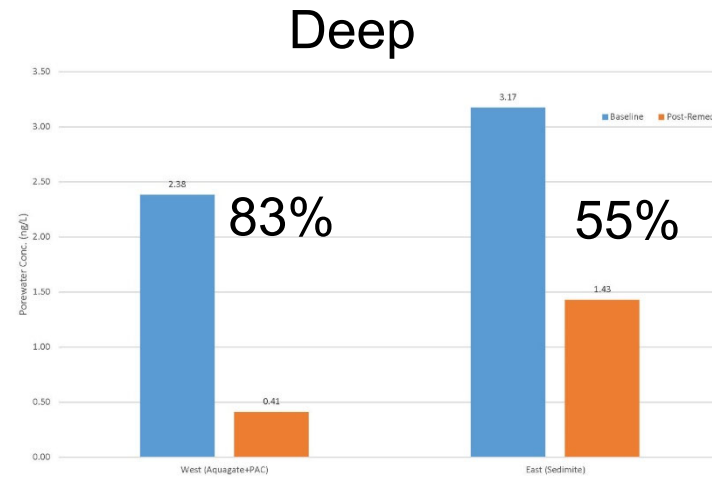
2 intervals

30 days

Pilot Study Results



Good Overall Reduction observed from Pilot Study



Other Sites:

Columbia Steel -
2018

McBride Slough –
2018/2019

Metro Metals –
2019

Pacific Carbide –
2019/2020



Benefits

Streamline remedial action selection and permitting

Limit the data collection requirements

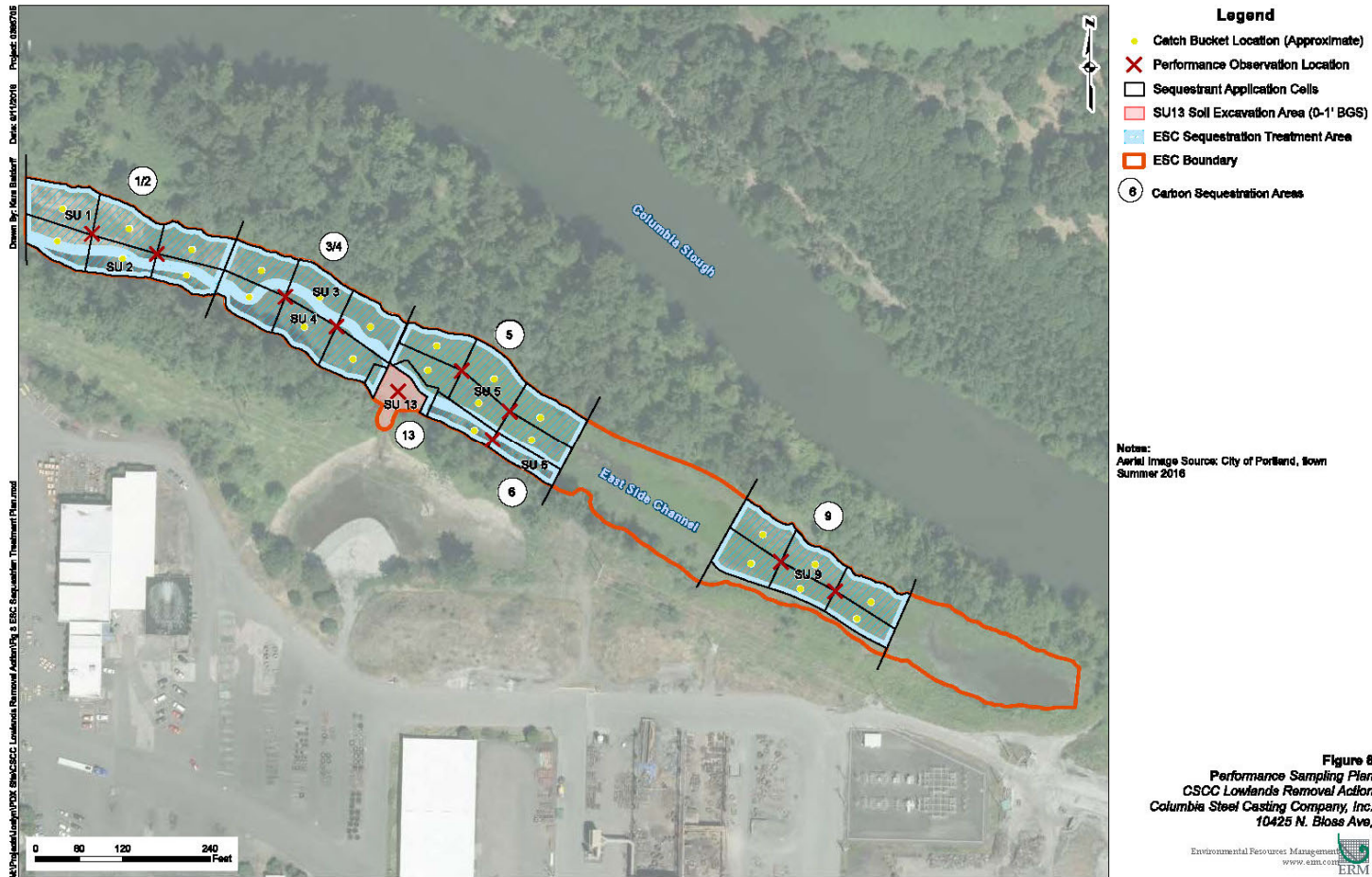
Cost effective and easy to implement

Cut/fill requirements

Take advantage of lessons learned from implementation



Columbia Steel



Remedy Goals

To prevent further transport of D/F

To minimize or eliminate bioavailability of contaminants that might otherwise bioaccumulate in the food chain



Implementation

Hydrated activated carbon was sprayed onto the surface of the wetland as a slurry.



McBride Slough – 2018/2019



Reduce contaminant concentration in surface sediment to protect:

Aquatic receptors

Fish consumption by wildlife

McBride Slough – 2018/2019



A boom truck was used for application.

In all cases, the conditions within the slough make activated carbon simple to implement with good results.

Next Steps for the Slough



Gain additional knowledge from ongoing long term monitoring from the sites where AC has been implemented.

Consider application of AC at the future remedial sites.

Questions?



Documents can be provided upon request in an alternate format for individuals with disabilities or in a language other than English for people with limited English skills. To request a document in another format or language, call DEQ in Portland at 503-229-5696, or toll-free in Oregon at 1-800-452-4011, ext. 5696; or email deqinfo@deq.state.or.us.