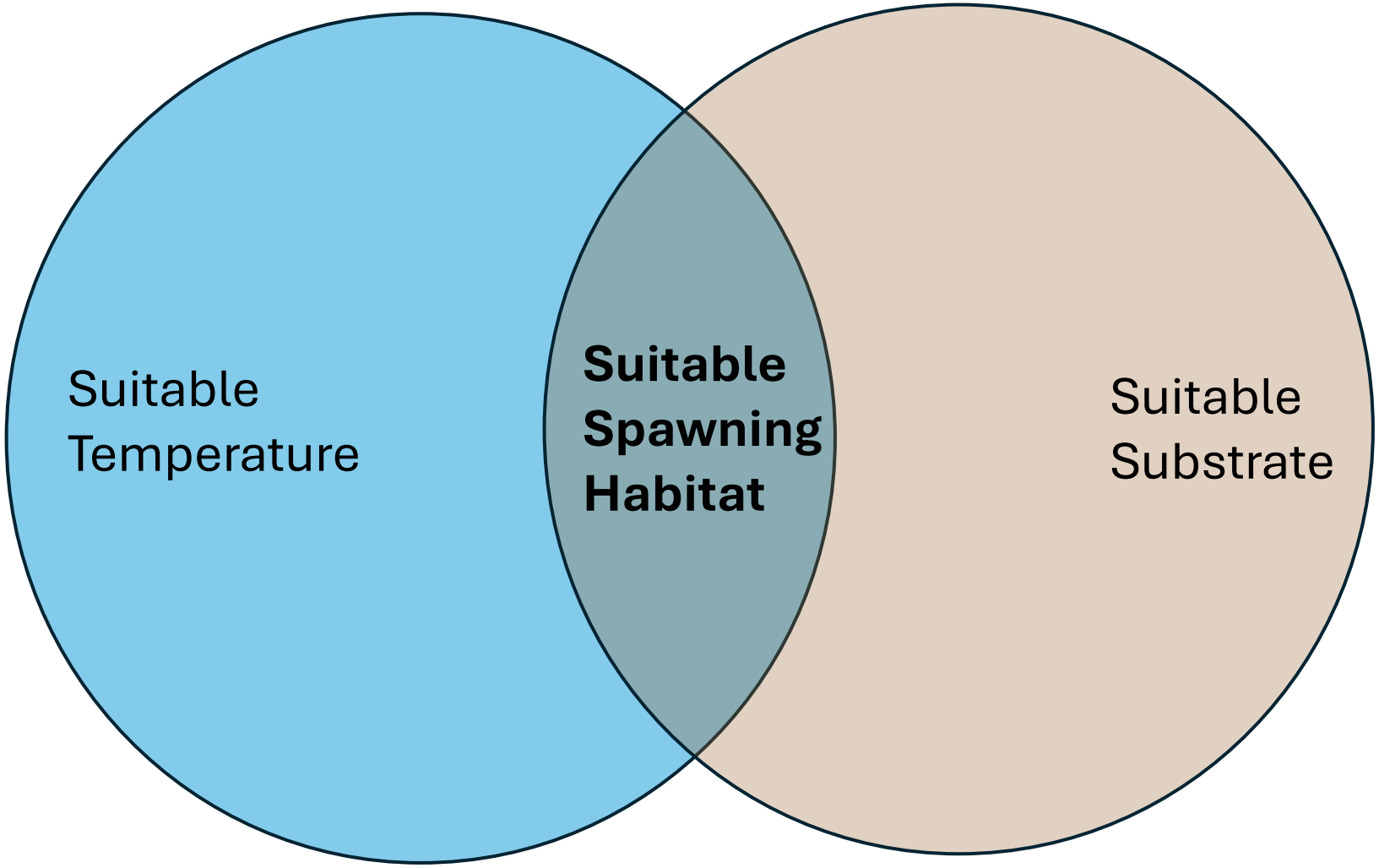
Climate Change Impacts on Spawning Suitability for Chinook in the Tucannon PA 5-15 Reach

Considering temperature projections and sediment sizes

Nick Legg (Lichen) using analysis of Mount Hood Environmental, July 2024

Simple Conceptual Model

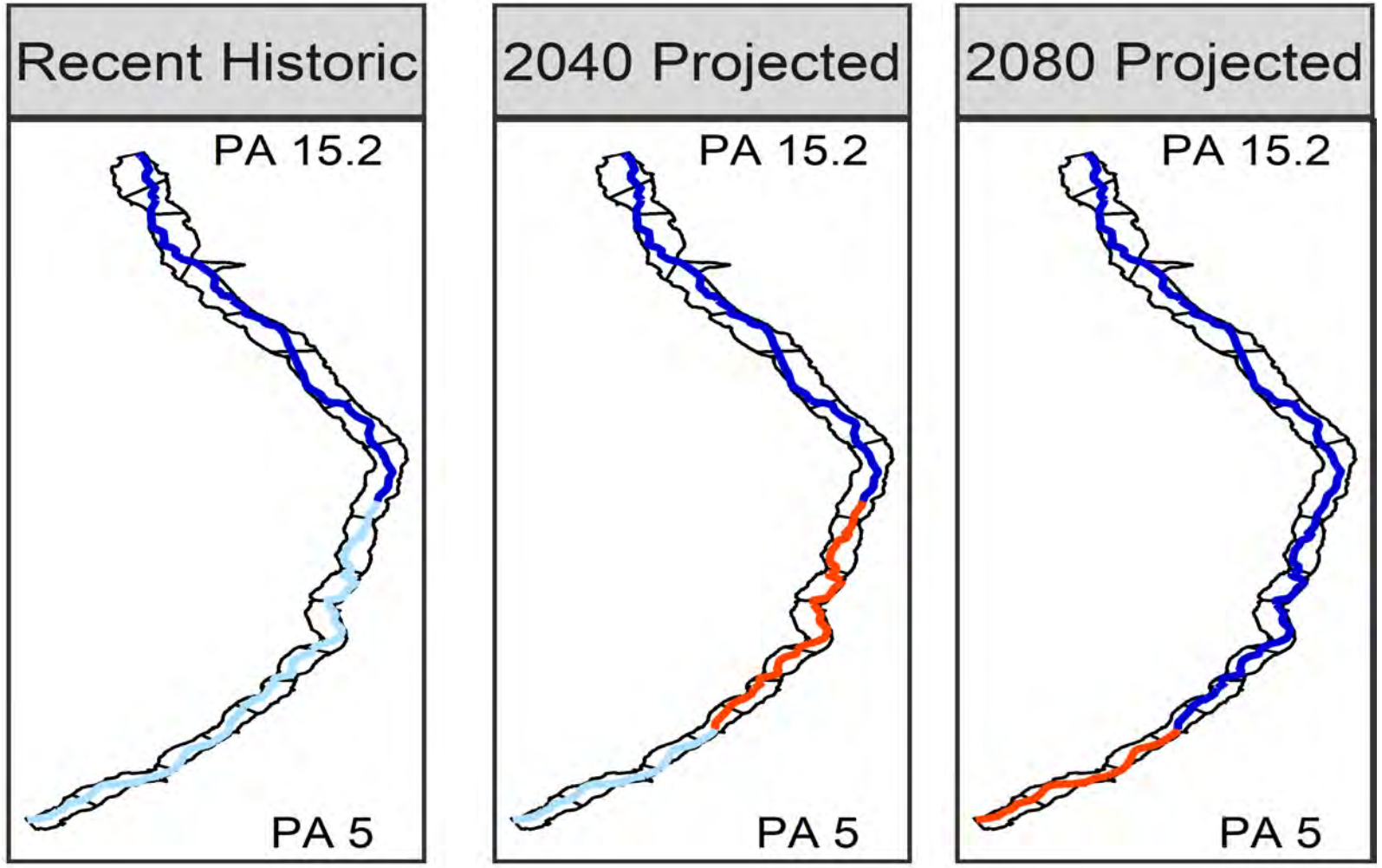


Climate Change Progressively Reduces the River Mileage with Optimal Temperatures for Spawning

Optimum Temperature for Chinook spawning:
7.2-14.5 ºC

Is the stream within optimal range?

- **No**
- **Yes**
- **Lost**



Data: NorWEST Temperature Layer (USFS) Map: Mt. Hood Environmental

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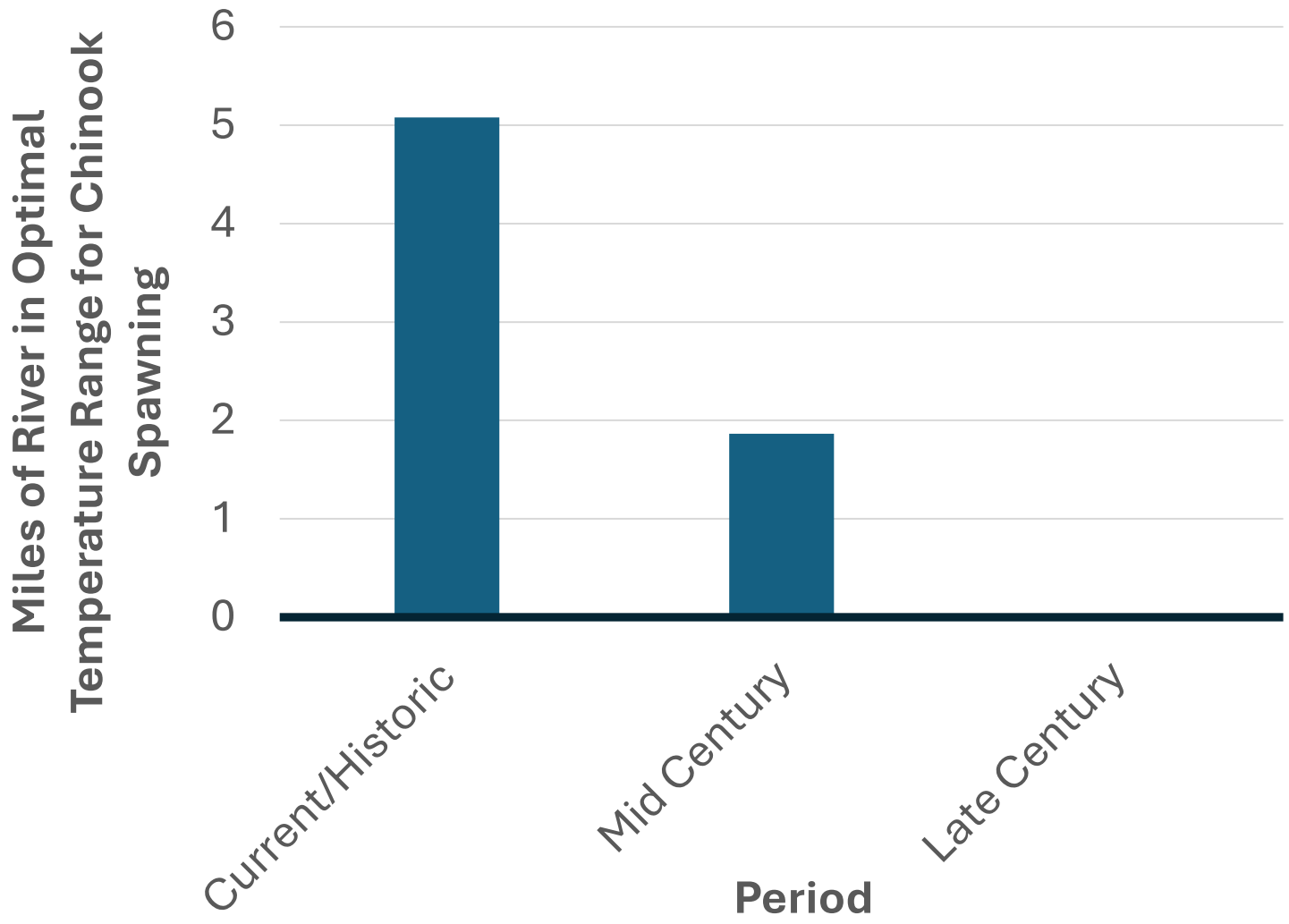
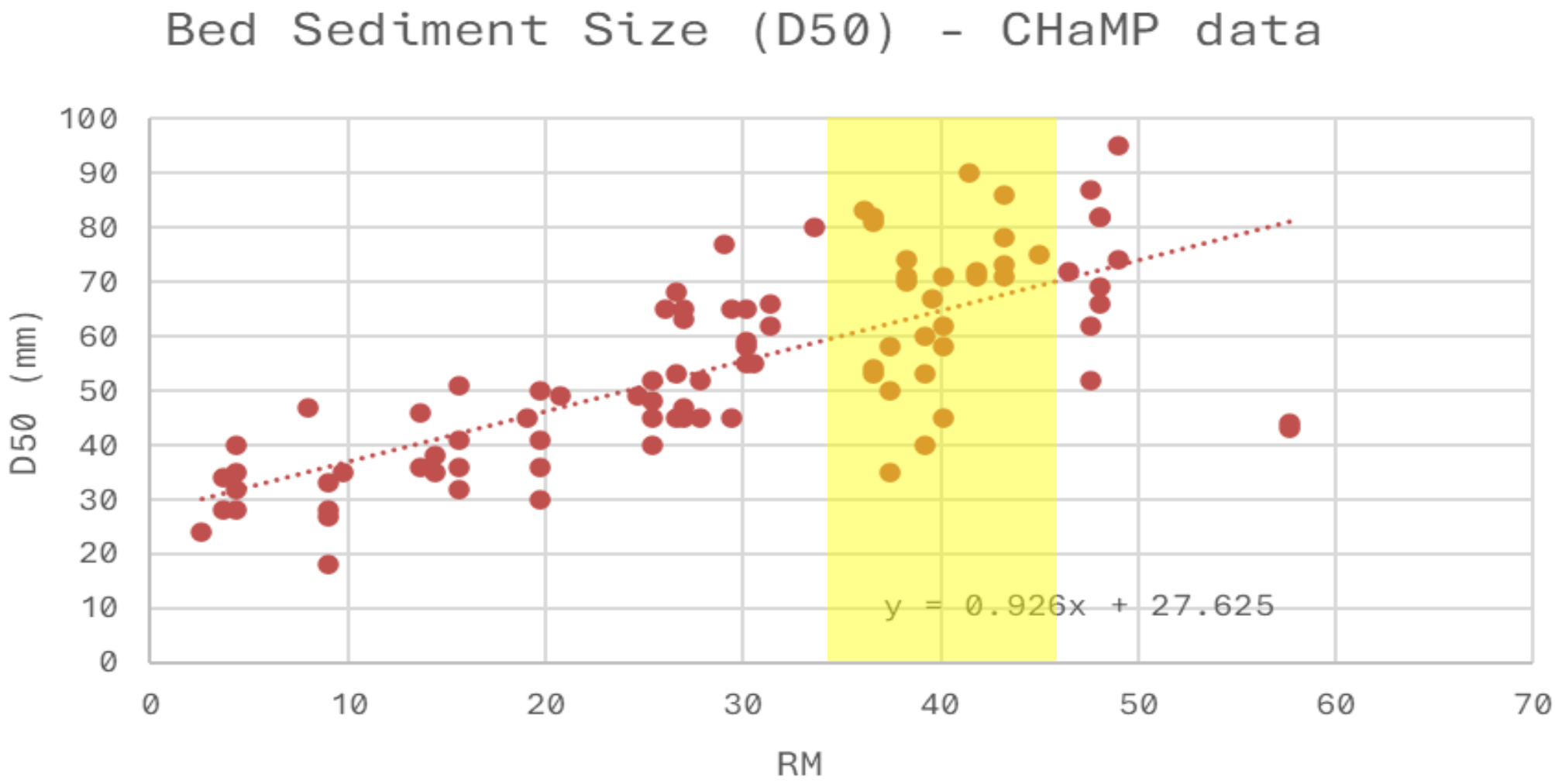
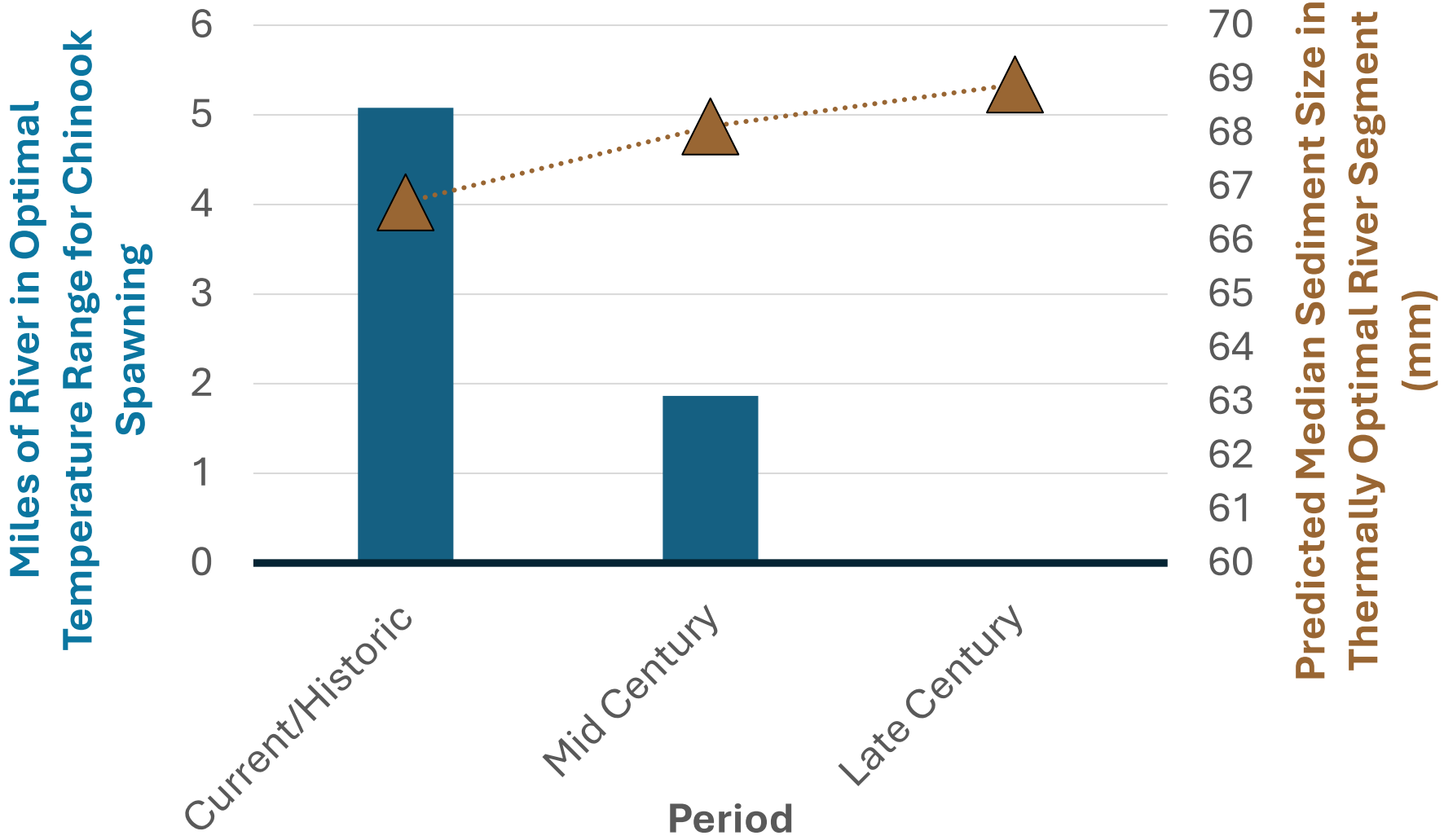


Tucannon R. Bed Coarsens Upstream



: CHaMP

Reductions in Thermally-Suitable Habitat Also Push Chinook into Coarser and Less Suitable Spawning Substrates



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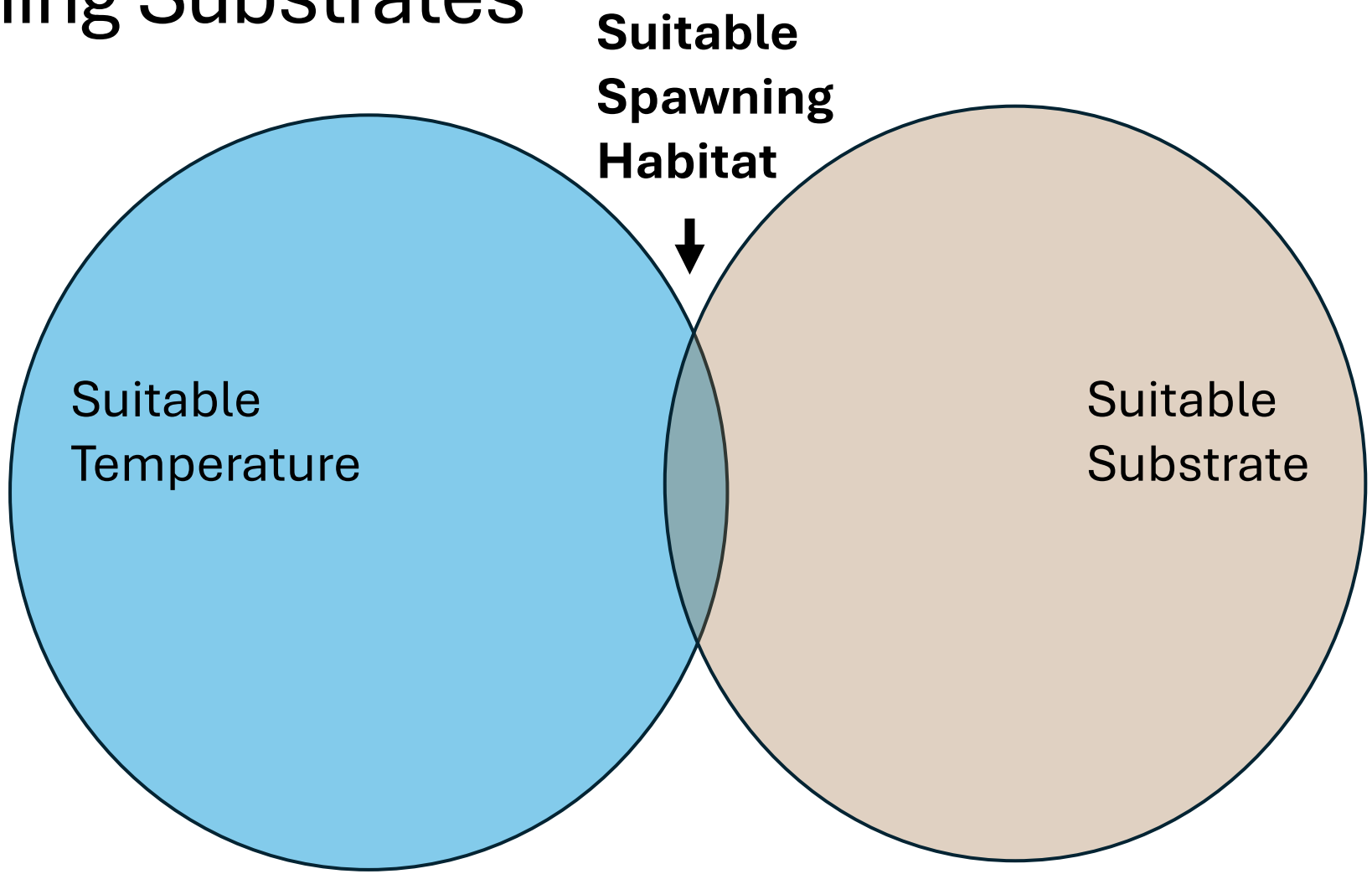
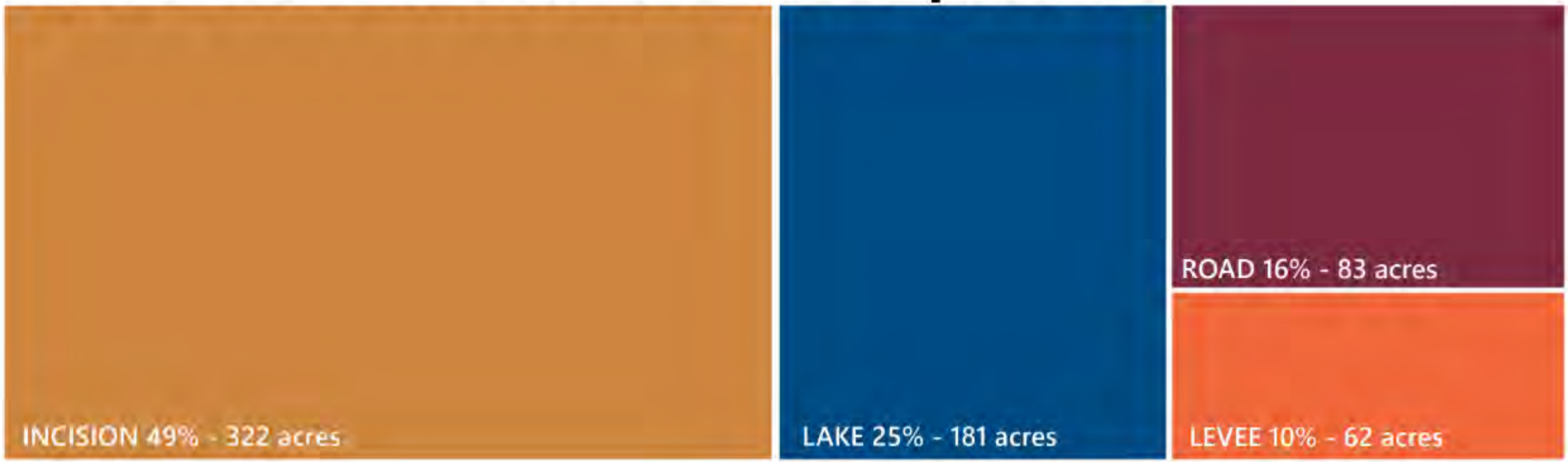
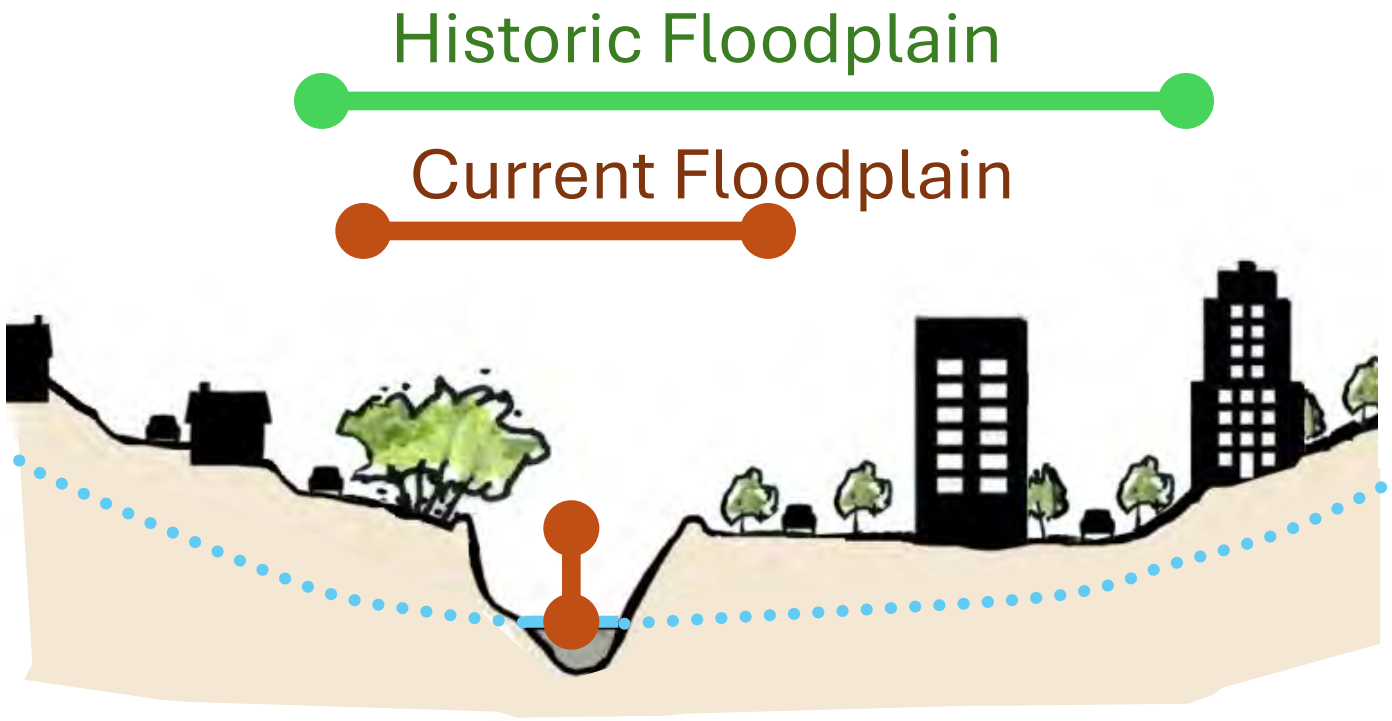


What Disconnects the Floodplain?

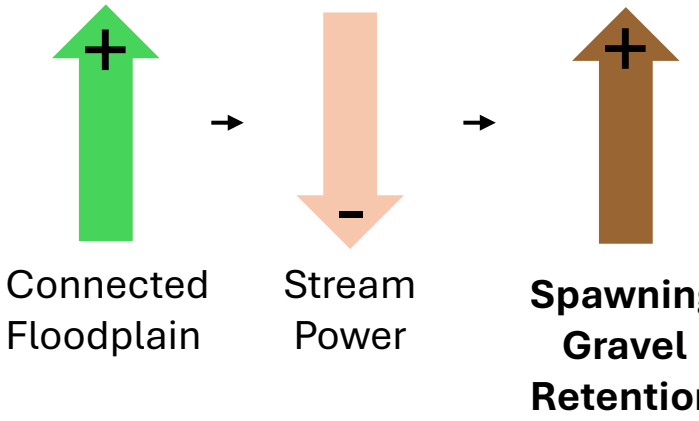


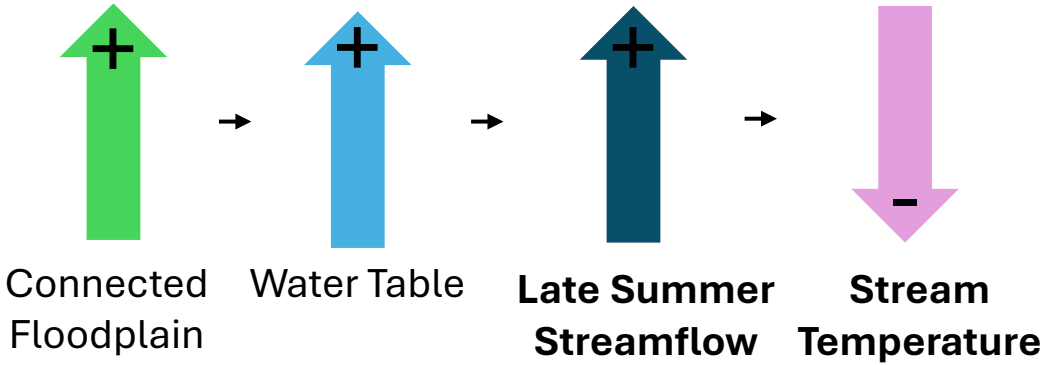
How Reconnecting Floodplains Addresses Both Needs

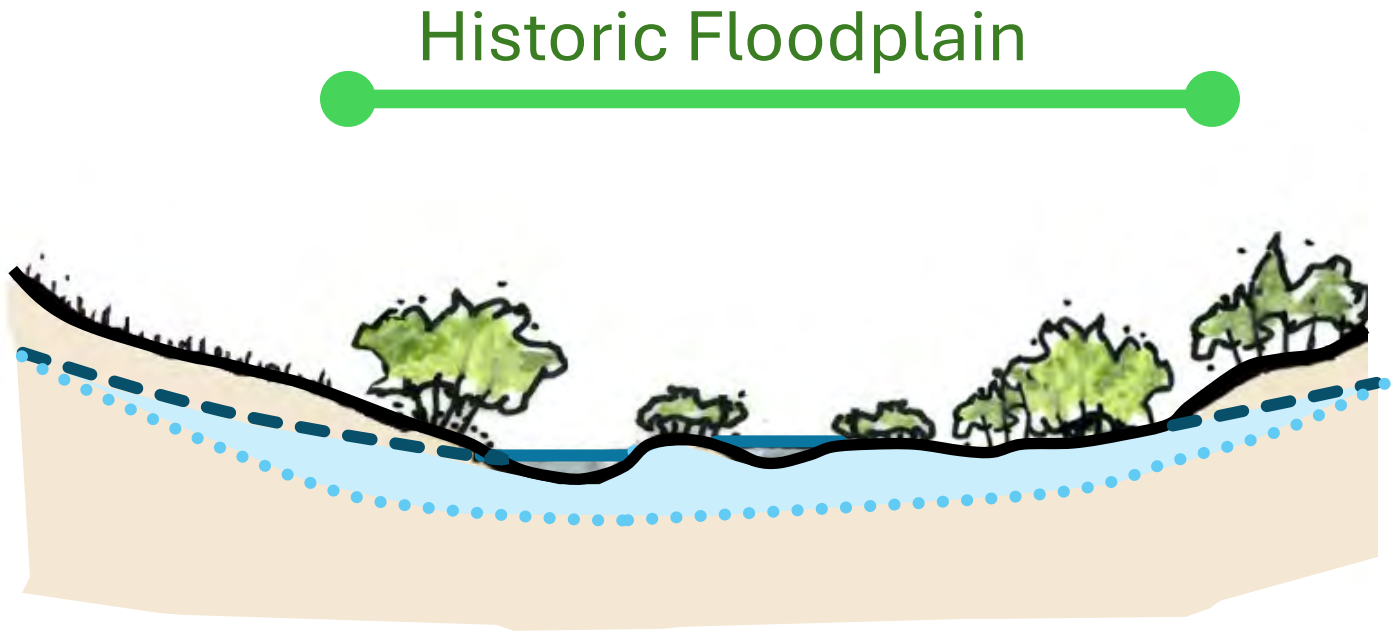


Constrained and Incised Floodplain

How Reconnecting Floodplains Addresses Both Needs







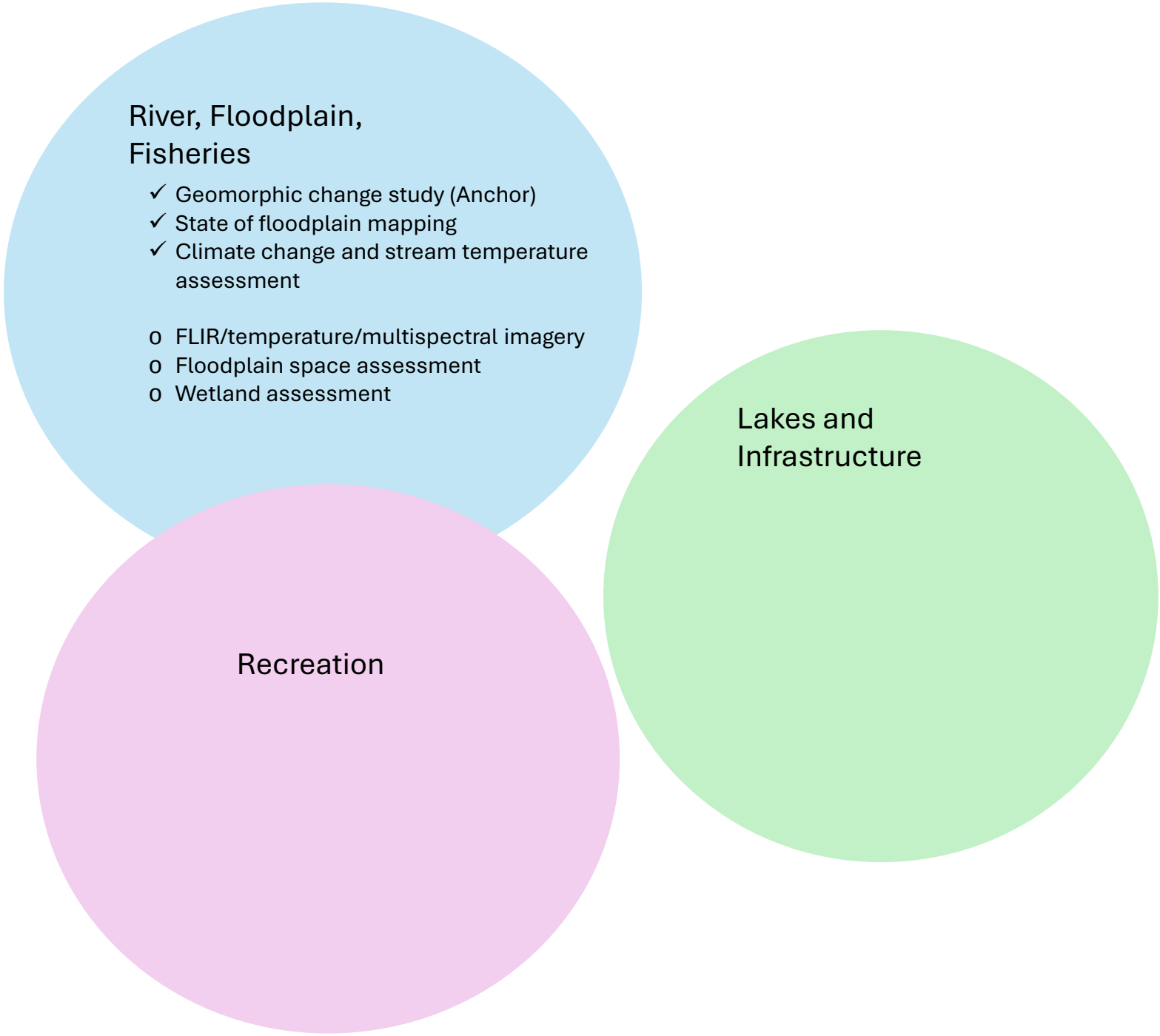
Reconnected Floodplain

Implications for Floodplain Restoration Strategy

High priorities in **upstream portions of reach**, for two reasons:

1. Spawning gravel retention in thermally suitable reaches has high potential
2. Storing streamflow upstream can ameliorate the upward creep of warming waters

High priorities **throughout the reach** (including transitional temperature zones) to provide thermal diversity as water warms


River, Floodplain,
Fisheries
✓ Geomorphic change study (Anchor)
✓ State of floodplain mapping
✓ Climate change and stream temperature assessment
o FLIR/temperature/multispectral imagery
o Floodplain space assessment
o Wetland assessment
Lakes and
Infrastructure
Recreation