Reecer Creek Restoration

Reviewing Floodplain Development 2010 - 2018

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Mid-Columbia FISHERIES ENHANCEMENT GROUP

Reecer Creek, March 2019 by R. DeKnikker.

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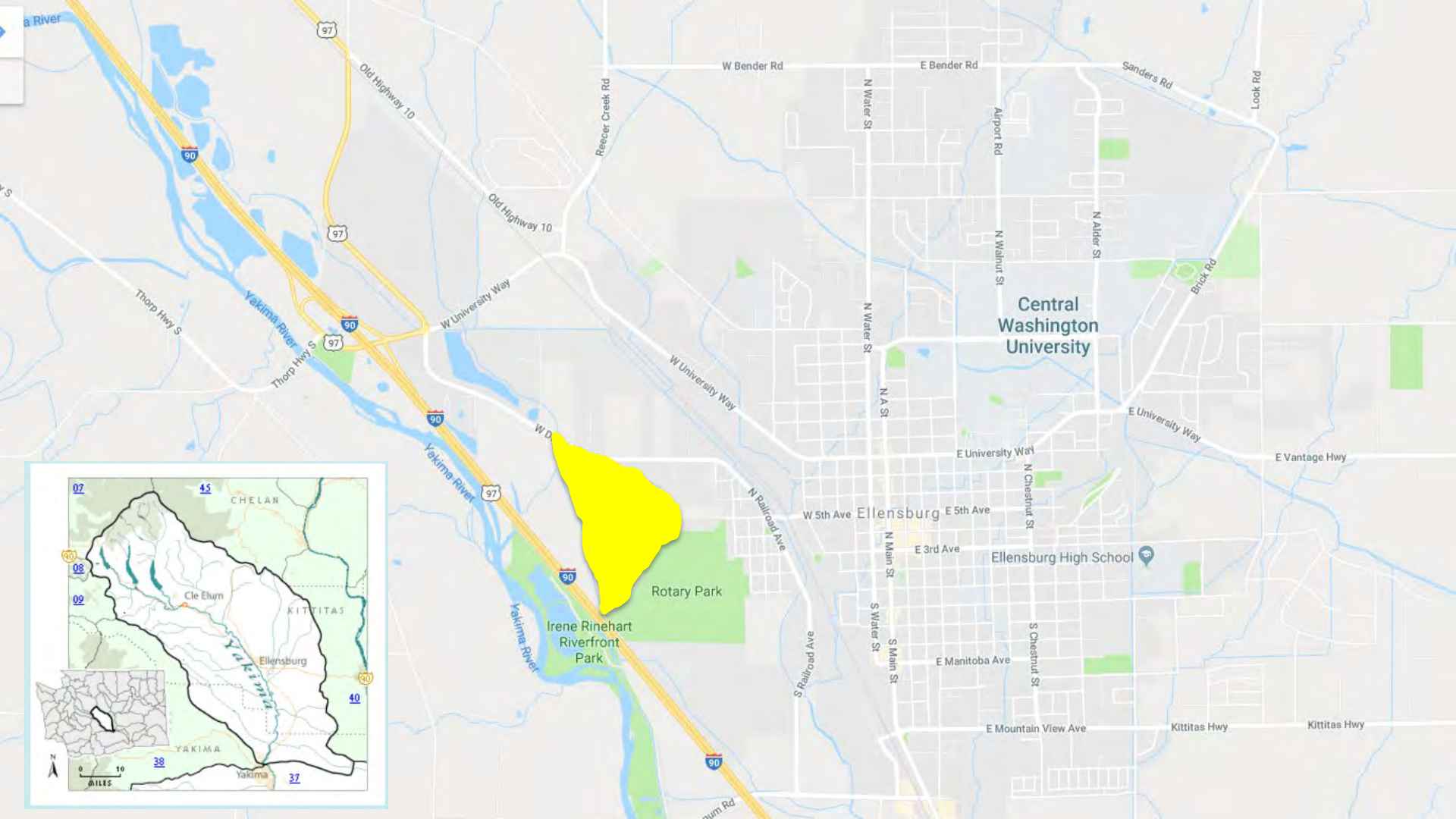

W Bender Rd
E Bender Rd
Sanders Rd
Look Rd
Reecer Creek Rd
Old Highway 10
Old Highway 10
N Water St
Airport Rd
N Walnut St
N Alder St
Brick Rd
Central Washington University
Thorp Hwy S
Thorp Hwy S
Yakima River
W University Way
W University Way
N A St
E University Way
E University Way
E Vantage Hwy
N Railroad Ave
W 5th Ave
Ellensburg
E 5th Ave
N Chestnut St
E 3rd Ave
Ellensburg High School
N Main St
Rotary Park
Irene Rinehart Riverfront Park
S Railroad Ave
S Water St
S Main St
E Manitoba Ave
S Chestnut St
E Mountain View Ave
Kittitas Hwy
Kittitas Hwy
CHELAN
KITTITAS
Cle Elum
Ellensburg
YAKIMA
Yakima
MILES

Flooding in January 2009.

Looking south from the old levee, 2008

Project Goals

- Slow stream velocities
- Increase sinuosity
- Encourage sediment deposition
- Restore floodplain recharge
- Increase floodplain and riparian habitat
- Reduce flood damage

Floodplain excavation began October 2010.

Channel excavation completed in summer of 2011.

“As built”, as photographed in October, 2011.

Revegetation

Goals:

- Reintroduce native species to banks and floodplain
- Create riparian zone 50 ft wide each bank
- Develop canopy-forming vegetation

Revegetation

Planting completed 2011-2013:

- >12 species planted as container plants (wetland to upland species)
- Banks planted with willow stakes
- Floodplain seeded mechanically with native floodplain bunchgrass

Stewardship

- Irrigation of 6,000 plants for 2 years
- Hand and chemical weed control annually to reduce competition
- 10% of grass seeding area required reseeding due to soils or weeds

Developing riparian zone in 2012 (above) and 2013 (below).

How is the floodplain developing?

Channel after construction in 2011.

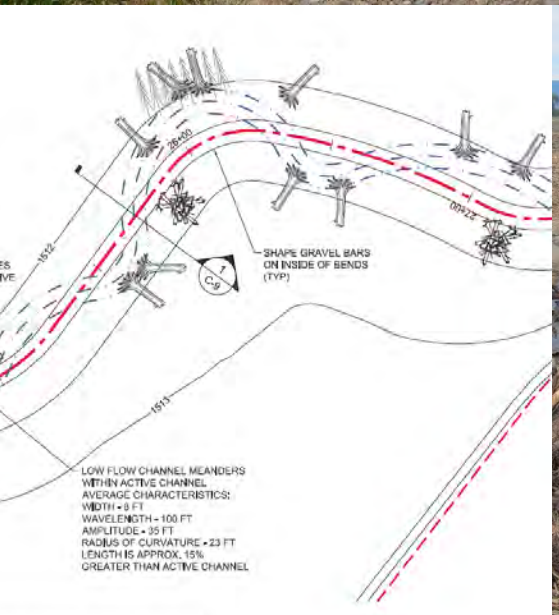
Channel in July 2018.

Channel and Floodplain Change

Sinuosity • Flow • Substrate • Temperature • Riparian Community

Creating a New Channel: Width and Sinuosity

Left bank, June 2006

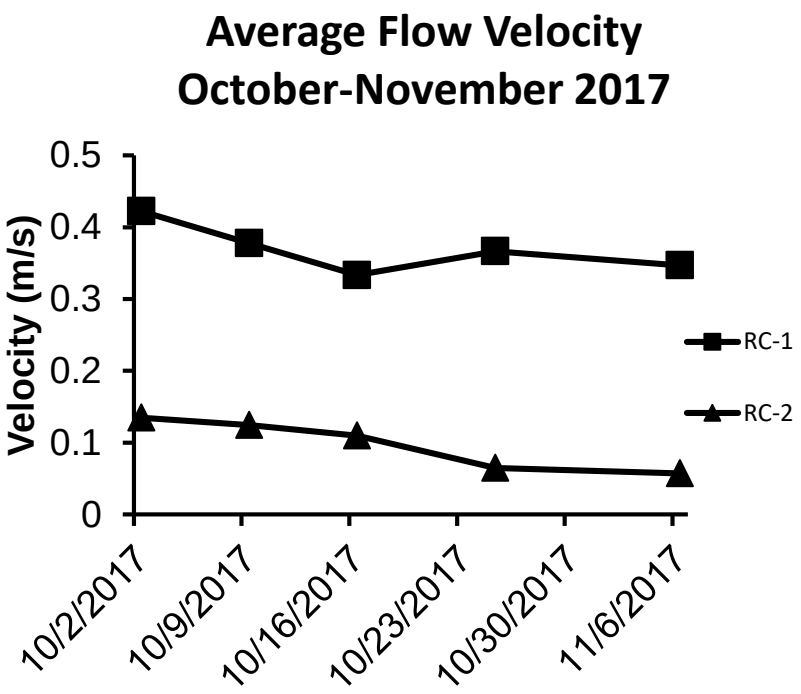


- Bankfull channel width designed as 35 ft (low-flow channel 8 ft)
- Current bankfull width is 43 ft
- Sinuosity increased from 1.0 to 1.22.

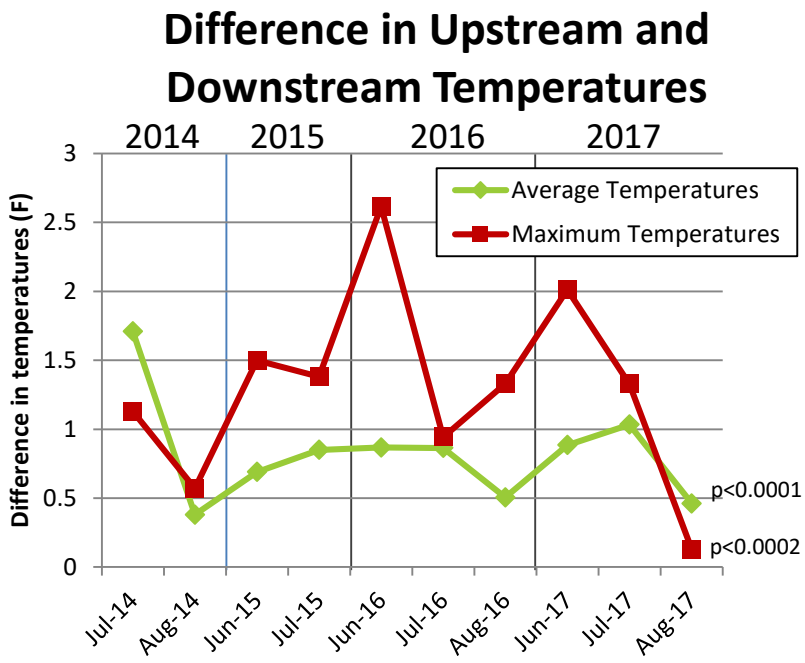
July 2011 following construction

Creating a New Channel: Velocity

- Velocities decrease through the project reach
- Sediment deposition in the lower half of the project



Creating a New Channel: Temperature



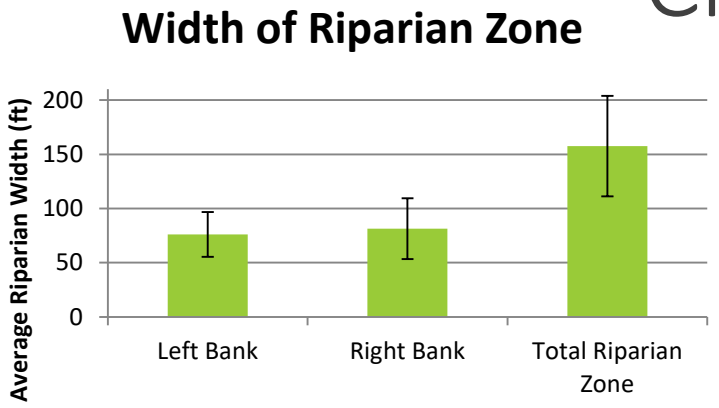
Temperatures in summer months 2014-2017:

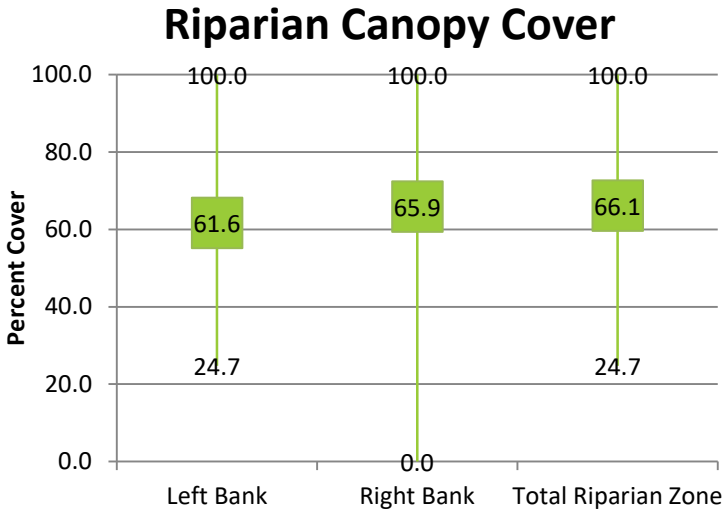
- Average temps nearly 1 ˚ F higher downstream
- Max temps nearly 1.3˚ F higher downstream
- Avg summer upstream: 61.4˚ F
  Avg summer downstream: 62.2˚ F

2011

2018

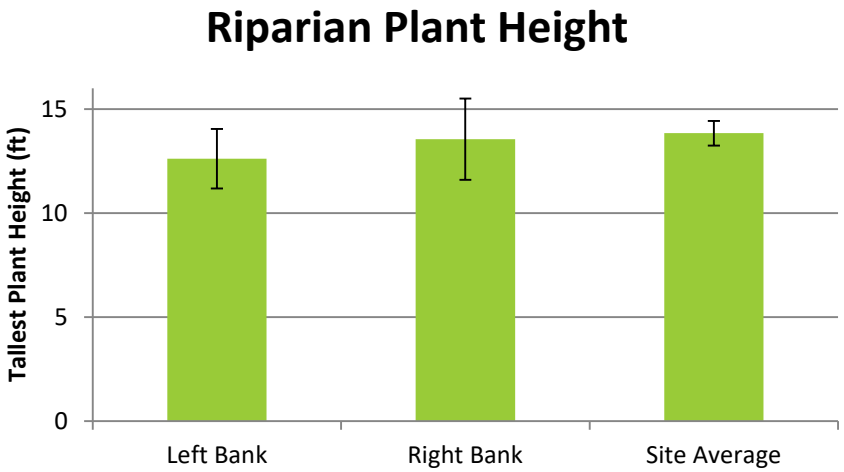
Creating Floodplain Habitat: Extent and Cover





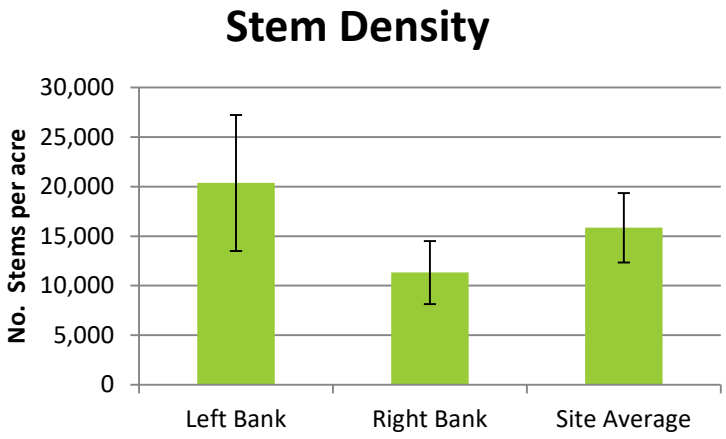
- Woody riparian zone width:
  - Ranges from 0-300 ft
  - Average for each bank = 78 ft
- 66% canopy cover in woody riparian zone

Creating Floodplain Habitat: Plant Height



Aug 2013 (above)
and Aug 2018 (below).

Creating Floodplain Habitat: Stem Density



Riparian vegetation in July 2013 (above) and Aug 2018 (below).

Key Points

Right bank Reecer Creek floodplain, July 2017.

- Physical instream habitat objectives are costly but achieved quickly.
- Terrestrial riparian habitat requires time and planned investment.
- High visibility site = ↑ public involvement and ↑ scrutiny during nascent stages.

Thank you to the many partners who together restored this stream reach.