Washington farmers produce over 300 different commodities.
Agriculture in Washington

- Over $50 billion
- 160,000 jobs
- 3\textsuperscript{rd} in US exports
- 12\% of economy

Agriculture uses a lot of water.
Problem: Reduced Instream Flows

No flows = no fish

Part of the solution is irrigation conveyance modernization.
Irrigation Conveyance Infrastructure

100+ years old
Irrigation Conveyance Infrastructure

Open canals and flumes
Irrigation Conveyance Infrastructure

Ditch-reliant vegetation
Conveyance Infrastructure Efficiency

- Evaporation from canal surface
- Uptake from vegetation
- Seepage from sides/bottom
- About 50% efficient
- Up to 2x water required by users
- Difficult/expensive to maintain
- Modernization = Conservation
Pioneer Project
Pioneer Project

- Convert to pressure pipeline with pump station at Wenatchee-Columbia confluence
- Install wells to serve southside users
- 38 cfs legally protected instream
- 70% reduction in annual acre-feet diverted
- Eliminate diversion dam
Chewuch Project

- Installed 9000 feet of pipe
- Fill Pearrygin Lake during spring runoff
- Gravity pressure
- Increased Chewuch base flows by about 10%
- Large reduction in annual diversion quantity
KRD Improvements

- KRD delivers Yakima Basin Project water
- 2015 drought – tributary supplementation
- Lining 6 miles of canal
- 16 cfs initial
- Water allocated to new “customers” – instream flow to upper basin tributaries
Challenges

• Canal return flows
• Vegetation growing along canal
• Western romanticism and heritage with open conveyance systems
• Fish response
Take-Aways

• 5%-10% base flow enhancement larger tributaries

• Re-hydration of smaller tributaries

• Water quality as well as quantity benefits

• Additional restoration opportunities -- complementary to physical habitat work

• Climate change resiliency
Take-Aways

• 100% voluntary, socially-sensitive projects
• No changes to on-farm management (mostly)
• Years of planning/outreach
• Multiple funders
• Local $$$ investment
• Place-based, committed