

Irrigation Efficiency and Fish Habitat

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Overview

- Goal: Provide examples of irrigation practice changes and effects on fisheries
 - Bean Lake
 - Little Prickly Pear Creek
 - Poindexter Slough
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- Disclaimer** Some of these examples have long legal battles associated with them, that I am not going to cover today
 - No judgement implied on the examples I'm presenting today.



Bean Lake



Bean Lake

- Bean lake is located south of Augusta, MT
- The lake was augmented by a leaky irrigation ditch
- The lake was managed for trophy rainbow trout
- Changes to the irrigation system resulted in less leakage and reduced the depth of the lake by ~20 feet
- The lake was stocked by FWP from (at least) 1931 through 2005, when it was determined that water was too low and alkalinity was too high to support fish



Little Prickly Pear Creek

- Important spawning tributary to Missouri River
- Water diversion for flood irrigation caused seasonal dewatering of the lower creek, blocking migrations and impacting local fish population
- Irrigating 130 acres of hay



Cooperative project to convert flood to sprinkler

- FWP and other partners worked with the landowner to convert irrigation from flood to sprinkler.
- 5 mini pivots were installed in 2004.
- Diverted water decreased to 3.5 cfs creating opportunity for instream flows.



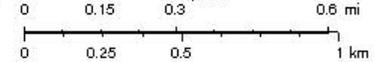
Success

- Seasonal dewatering was improved



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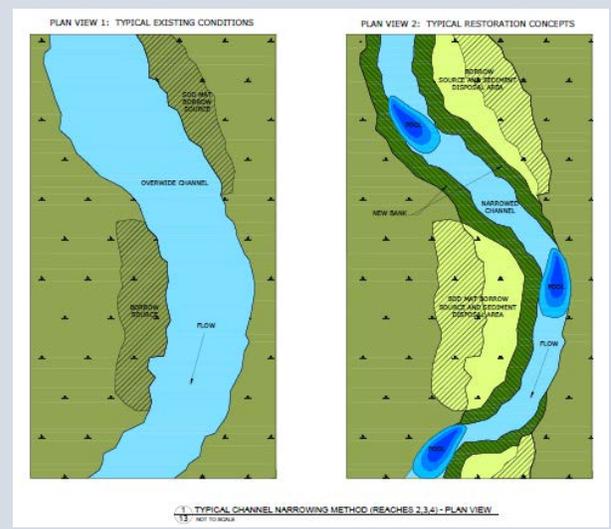
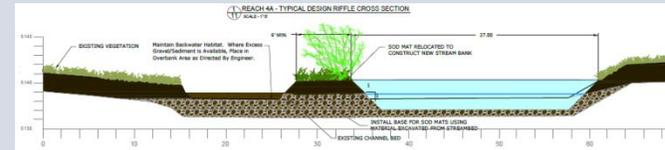
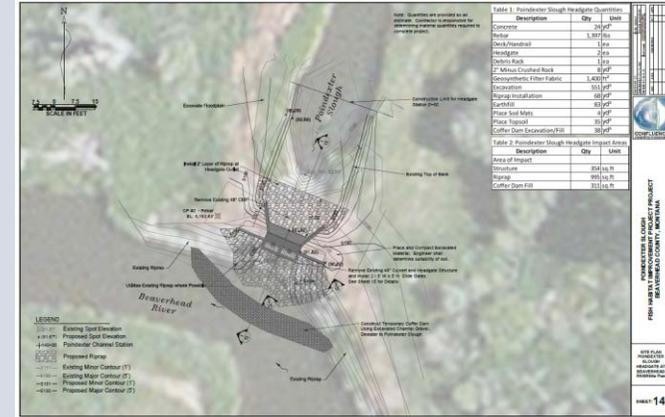


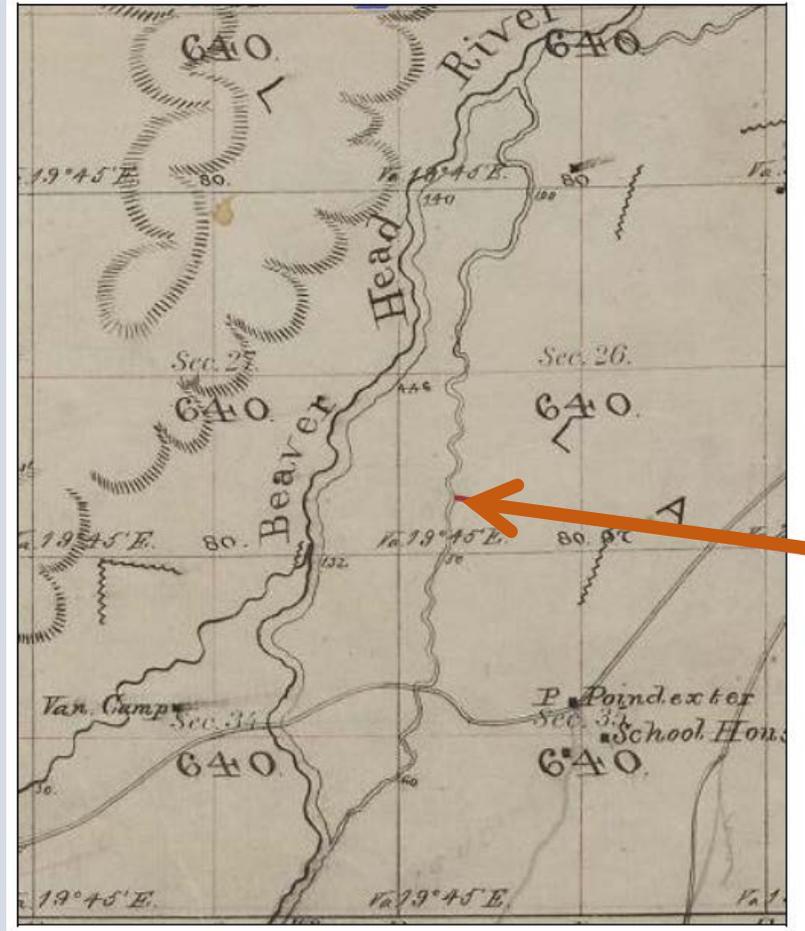
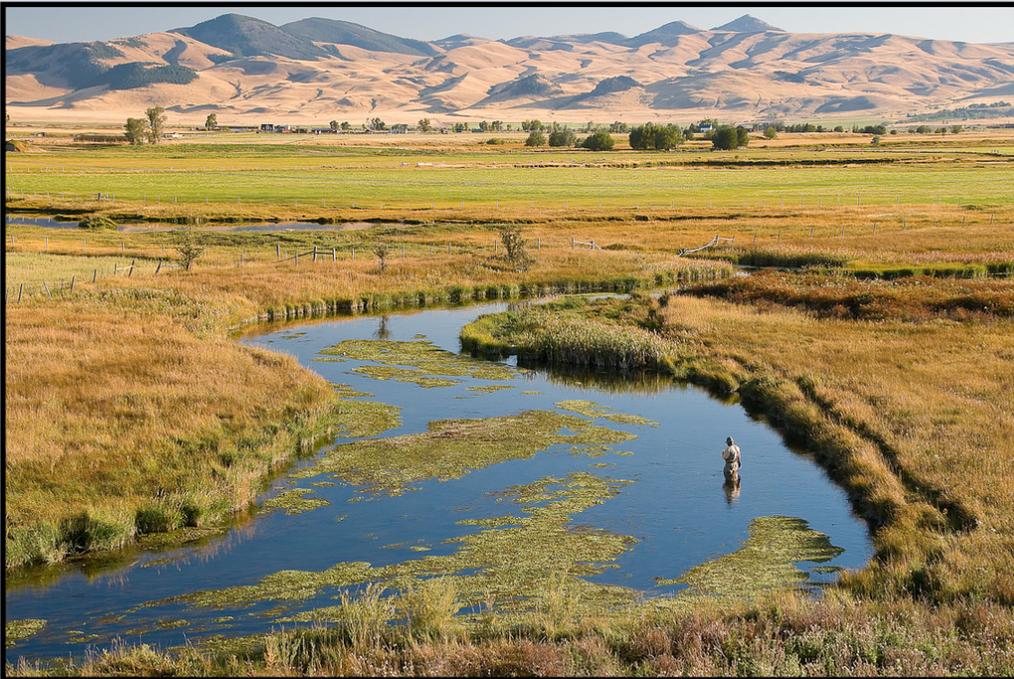
This map was generated from the Montana Fish, Wildlife & Parks (FWP) internal FWP Mapper online mapping system. Data layers on this map may depict sensitive species level information. This map is not intended for distribution or use beyond work associated with FWP.

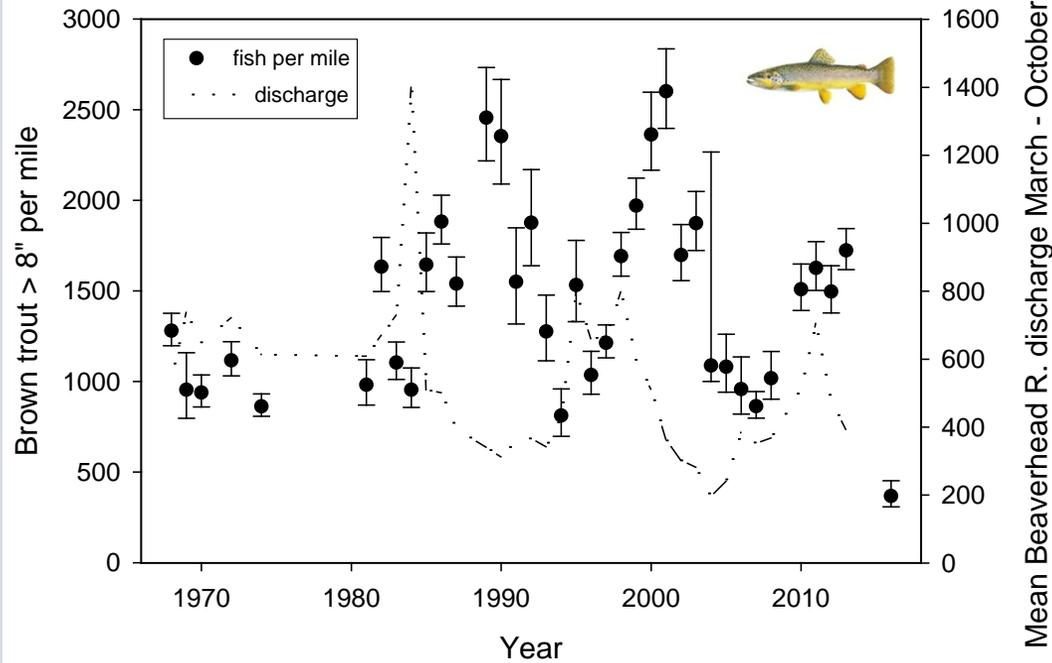
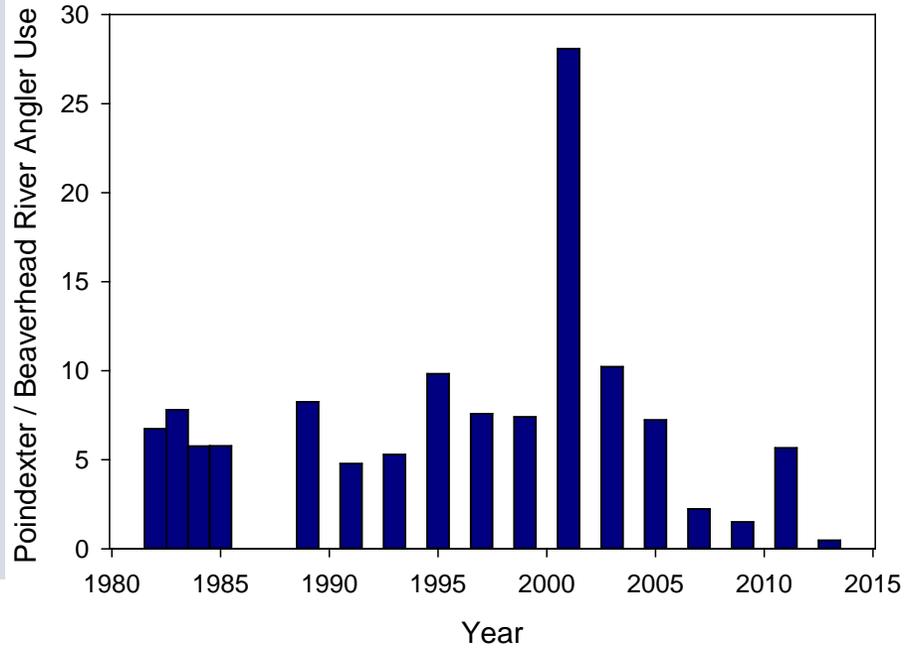
Some layers may not appear in the legend due to page size limitations.



Poindexter Slough restoration project

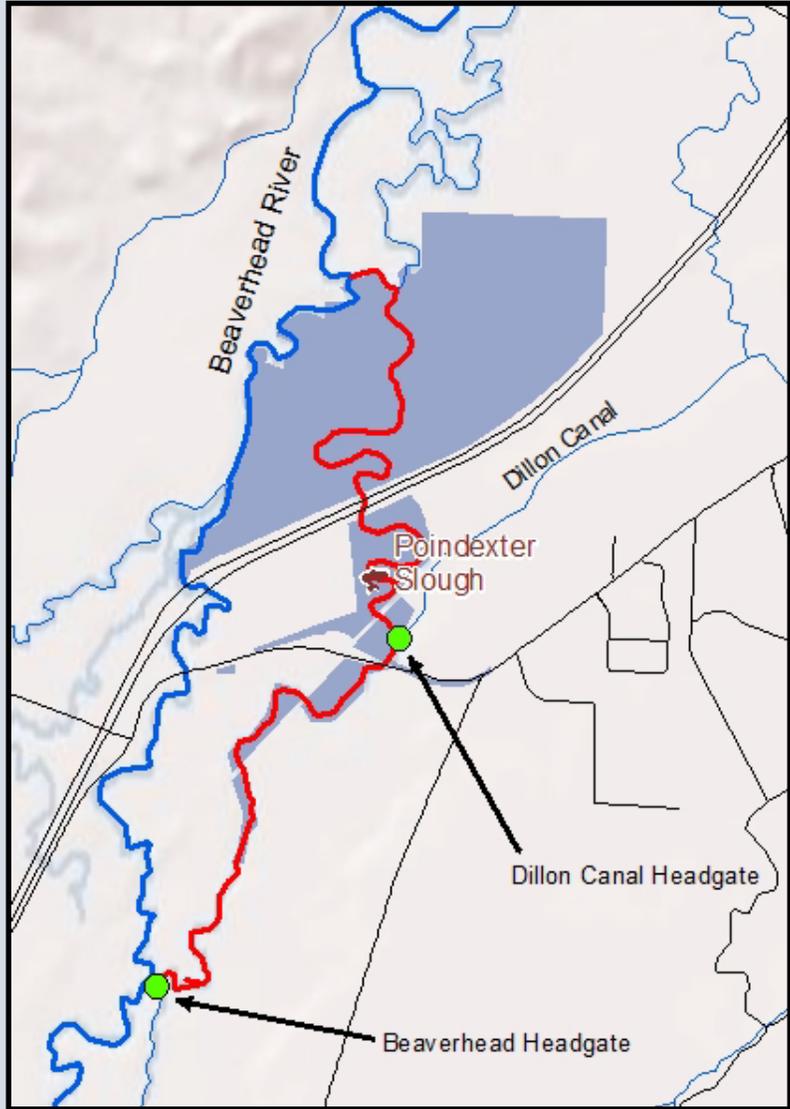


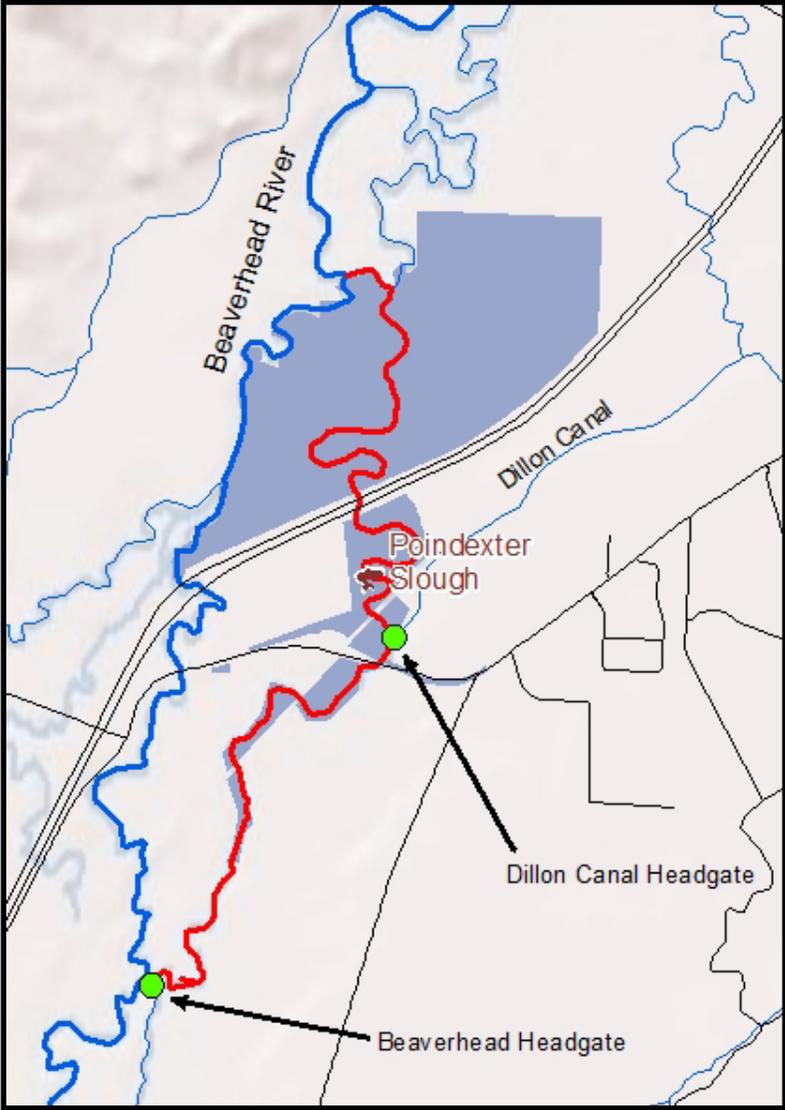


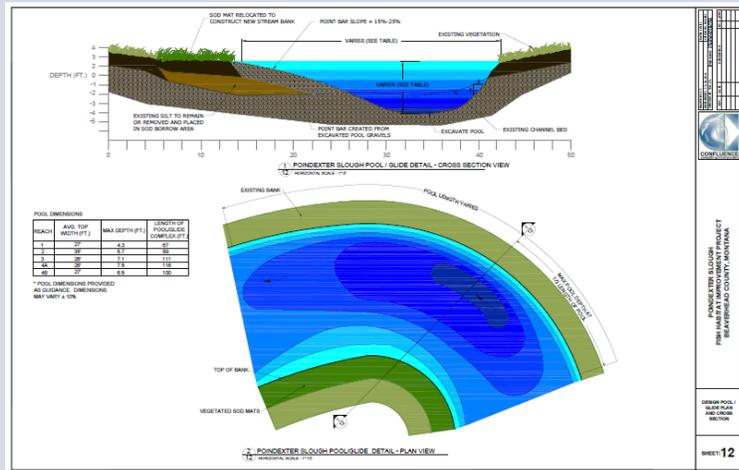
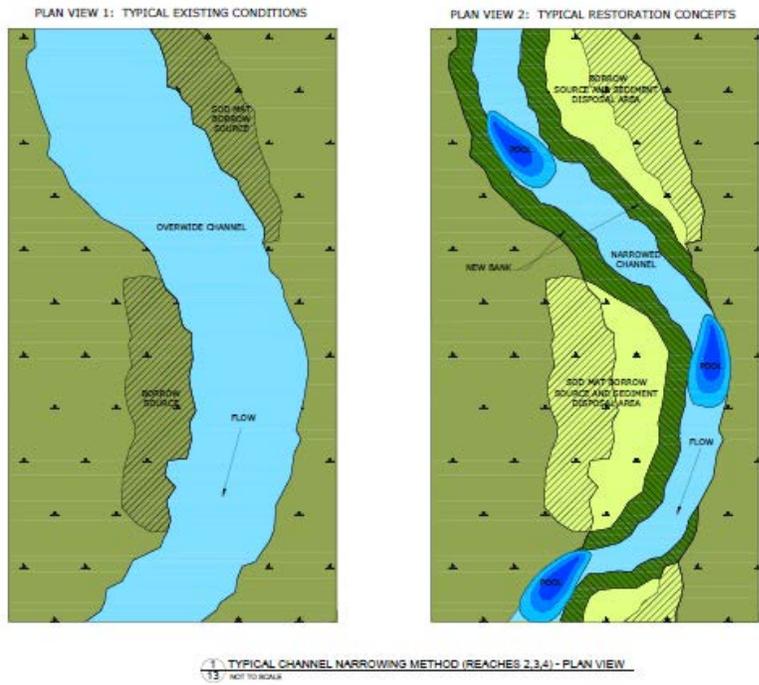
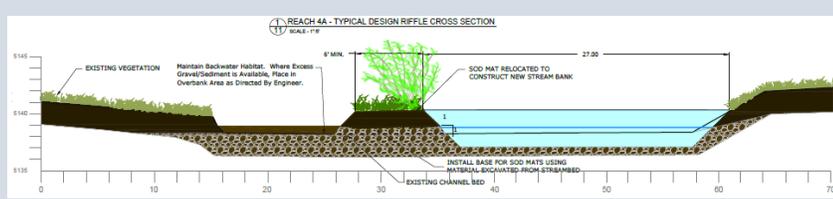


Mean Beaverhead R. discharge March - October (cfs)











Montana Water Summit



Montana Water Summit

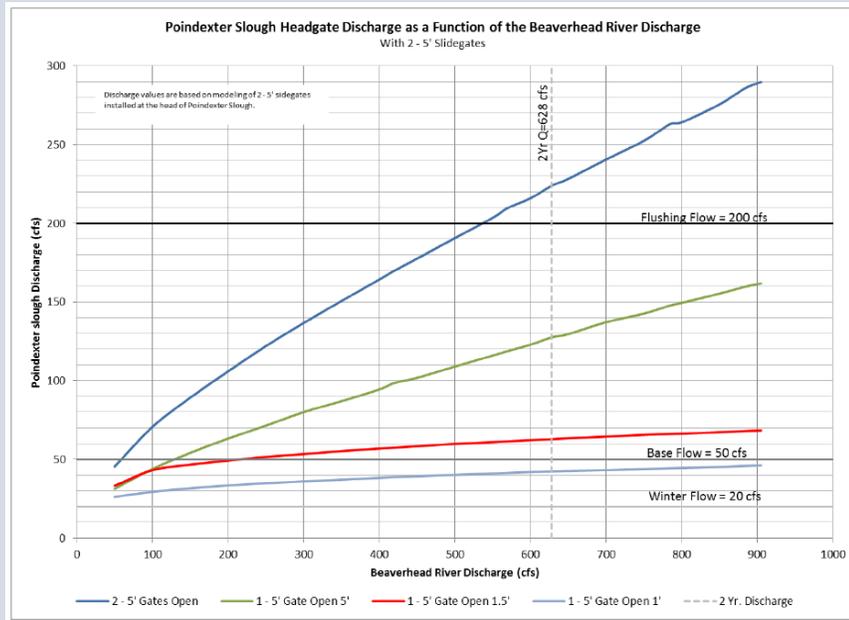


Montana Water
Summit



Montana Water
Summit

Habitat management flows



150 to 200 cfs target

Can only occur when 1) about 530 cfs in the Beaverhead River and 2) Dillon Canal headgate is closed

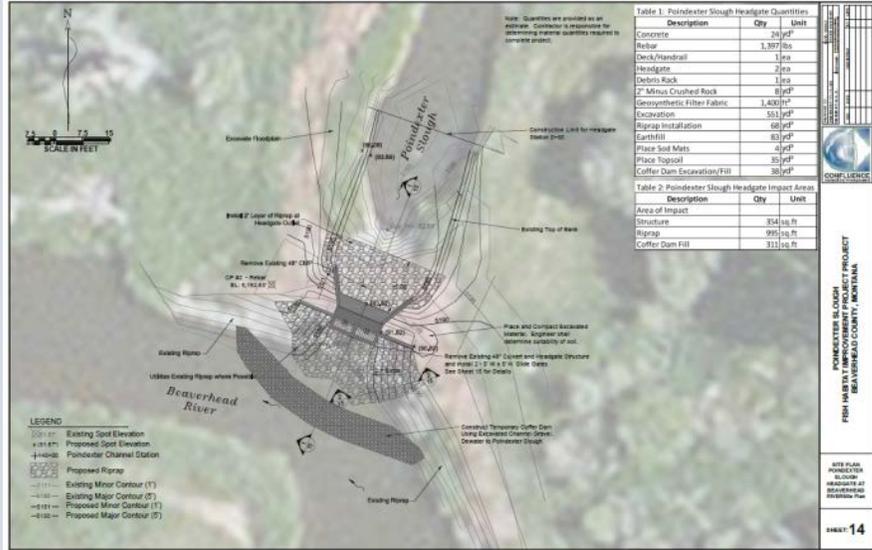
7 to 10 days long (3-4 @200 cfs, 4-5 ramping up from and down to 50 cfs)

About once every 5 years

Flows in Poindexter Slough will otherwise be no different than present condition (~ 20 to 50 cfs at headgate)

Clark Canyon Dam Release (cfs)	East Bench Irrigation Withdraw (cfs)	Estimated Groundwater Inputs between Clark Canyon and Poindexter Slough (cfs)	Estimated Discharge of Beaverhead River at Poindexter Slough
490	0	40	530
600	Up to 110	40	530
700	Up to 210	40	530
800	Up to 310	40	530
900	Up to 410	40	530





Summary

- There is no one-size fits all with water conservation
 - Each operation is unique, as well as the environmental variables
 - Many options exist to improve irrigation and habitat simultaneously
- The main solution to these issues is working together
 - Alienating user groups by placing blame gets us nowhere
- Creative solutions will get us a long way

