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Managing Water in the West

Sedimentation Study Update

November 16, 2017

U.S. Department of the Interior
Bureau of Reclamation

Research and Development Office

Science and Technology Program

Pilot Studies of Reservoir Sustainability Options – Large Reservoirs

1) Further develops and evaluates reservoir sediment management options
   - FY 2018 evaluates options for controlling sediment at Horseshoe Bend

2) Investigate long term sustainability of the reservoir
   - Continued operation of Yellowtail dam for the purpose of delivering water and power into the future

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Pilot Studies of Reservoir Sustainability Options – Large Reservoirs

Fiscal Year 2017	➔	Review data, plan options, collect data
Fiscal Year 2018	➔	2D sediment transport modeling to evaluate sediment management alternatives in Horseshoe Bend area
Fiscal Year 2018	➔	Develop Report and Guideline of options

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Data Collection

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Horseshoe Bend

- Data collection during early July 2017 and August 2017
- Sediment Samples – Test for physical properties and erodibility

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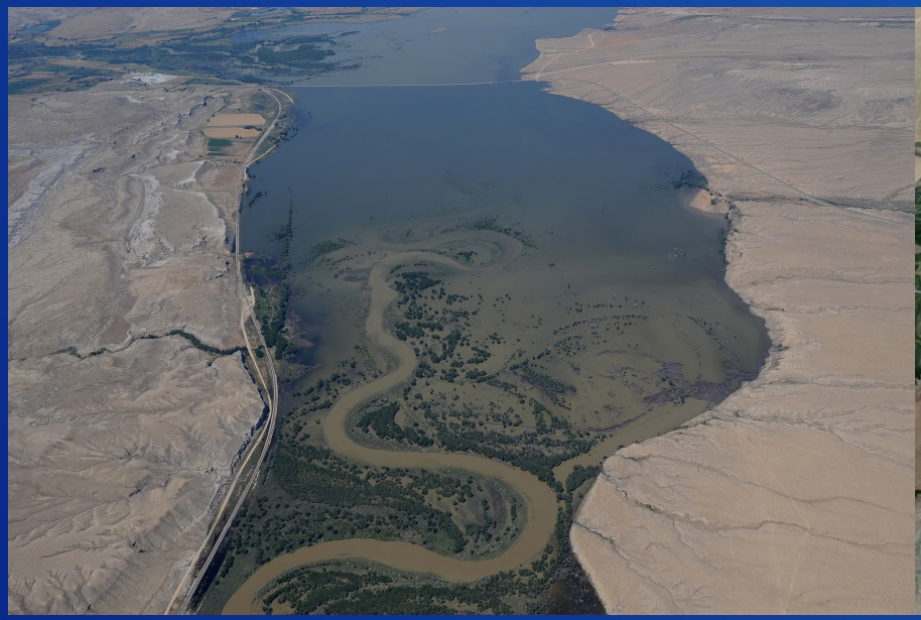
Upstream of the Causeway (Bighorn River) and Shoshone River



- Surveyed 5-7 miles upstream Bighorn River
- Surveyed 4-6 miles upstream Shoshone River

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Black Canyon

Landslide Area

(near Big Bull Elk Canyon)

- Water depths at landslide and several miles upstream were 200 feet consistently during the 2017 survey.
- Within 1,000 feet downstream of landslide, depths dropped to more than 300 feet.
- Landslide may be acting as a dam

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Yellowtail Dam

Yellowtail Dam

- Depths immediately upstream of Yellowtail dam approximately 430 feet.

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Observations from 2017 Bathymetric Survey

- Main channel immediately downstream of causeway may have shifted since previous survey (2007). May indicate recent sediment deposition in this area.
- Clear difference between main channel (low flow channel) and overbank sediment in Horseshoe Bend area. Main channel (primarily sand) coarser than overbanks.
- Landslide area may be preventing transport of sediment further downstream towards dam (as hypothesized by Ferrari 2007).

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Pilot Studies of Reservoir Sustainability Options – Large Reservoirs

Fiscal Year 2016 ➔	Review data, plan options, collect data
Fiscal Year 2018 ➔	2D sediment modeling of passage to increase sediment transport capacity; work with stakeholder to plan potential long-term options
Fiscal Year 2018 ➔	Develop Report and Guideline of options

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Next Steps & Questions?

- Reclamation – TSC will process and analyze the data collected and provide a survey report.
- Presentation on results at the Spring 2018 Meeting
- 2-D sediment transport modeling to evaluate sediment management alternatives in Horseshoe Bend area
- Presentation of Final 2-D numerical modeling results at November 2018 Meeting.

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