Brief History of Planning Effort

Current Reclamation Efforts
Bighorn Lake Sedimentation Study

PROJECT IDEA

IMPLEMENTATION OF PLAN

APPRAISAL STUDY

PLAN OF STUDY (FEASIBILITY STUDY)

FEASIBILITY/NEPA STUDY

CONCLUDING REPORT

RECLAMATION
Alternatives Considered

Bighorn Lake Sediment Management Study

USACE 2010

Reconnaissance Level

Developed Alternatives and Estimated Costs
Alternatives Considered

1. **Force channel to the west side of HSB using a dike**
   Cost estimate - $24 Million and up + maintenance

2. **Force all flow to the east side of HSB using a dike**
   Cost estimate - $24 Million and up + maintenance

3. **Sediment removal with Flow barrier dikes**
   Cost estimate - $34 Million and up + maintenance

4. **Sediment removal without flow barrier dikes**
   Cost estimate - $145 Million and up + maintenance

5. **Sustainable Reservoir Sediment Management**
   Cost estimate – Unknown at this time
Reclamation Planning Process

Formulation and evaluation of alternatives follow Reclamation policy and procedures for implementing NEPA and other applicable Federal rules and regulations.

Federal objective for planning is to contribute to national economic development consistent with protecting the Nation’s environment.
Alternatives Considered

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3. Sediment removal with Flow barrier dikes
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5. Sustainable Reservoir Sediment Management
   Cost estimate – Unknown at this time
Magnitude of Problem

Large incoming sediment load

Est 2,500 acre-ft/year of sedimentation (Ferrari 2010)
- 70% from the Bighorn River
- 30% from the Shoshone River and other tributaries
Sustainable Reservoir Sediment Management Plans

- Currently developed on a reactive basis
- Reservoirs already experiencing impacts

Full Sediment Balance is ultimate goal in formulating a sediment management plan for a reservoir
Sustainable Reservoir Sediment Management Plans

Investigate alternatives to deal with reservoir sedimentation and the options to reach a sediment balance

• Passing inflowing sediments through the reservoir
• Sediment dredging
re-entrained
passed through
stored mechanically removed

Initial Reservoir Sediment Management Options

Retention Time (years) = Capacity/Mean Annual Runoff

Reservoir Life (years) = Storage/Mean Sediment Yield

Bighorn Lake

Dredging / Venting
Sluicing
Flushing

Reclamation Reservoirs
Sluicing Line
Flushing Line
Dealing With the Inevitable: Sediment in Reservoirs

Developing effective guidelines for managing sediment in Reclamation’s reservoirs

2013 & 2014
Dealing With the Inevitable: Sediment in Reservoirs

Developing effective guidelines for managing sediment in Reclamation’s reservoirs

Coordinate and perform pilot studies at Reclamation facilities to test the competency of the preliminary reservoir sustainability guidelines
Bureau of Reclamation
Research and Development Office
Science and Technology Program

Pilot Studies of Reservoir Sustainability Options – Large Reservoirs

Fiscal Year 2016 ➔ Review data, plan options, collect data

Fiscal Year 2017 ➔ 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
Bureau of Reclamation
Research and Development Office
Science and Technology Program

Pilot Studies of Reservoir Sustainability Options – Large Reservoirs

Fiscal Year 2016 ➔ $70,000
Fiscal Year 2017 ➔ $105,000
Fiscal Year 2018 ➔ $35,000
Next Steps & Questions?

• Reclamation -- continue to look for ways to fund research and evaluate alternatives

• Sedimentation Committee – public education and continue effort to identify funding sources

Future
(if nothing is done)

short and long-term loss of project benefits and potential expensive retirement options
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