Dillon Dam – To Pipe or not to Pipe? An Evaluation of a Umatilla River Diversion Structure

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LOW RESPONSE STREAM
HIGH IMPACT PROJECT

Full Review -- focus on adequacy of Project Objectives, Design Criteria, Prior Project Success, and Implementation

MEDIUM RESPONSE STREAM
MEDIUM IMPACT PROJECT

Full Review

LOW RESPONSE STREAM
LOW IMPACT PROJECT

Light Touch Review

HIGH RESPONSE STREAM
LOW IMPACT PROJECT

Full Review -- focus on adequacy of Watershed and Stream Investigations, and Design Criteria

HIGH RESPONSE STREAM
HIGH IMPACT PROJECT

Deep Review -- with Technical Back-up

Increasing Stream and Site Response Potential

Source: River Rat Screening Matrix
Two miles downstream of Echo, Oregon
One quarter mile upstream of HWY 84 – Umatilla River intersect
3N-29E-5 Dillon Dam
Problem Statement

“The opportunity to remove a diversion dam is rare on the mainstem Umatilla River. Significant concerns have been identified within this project area by multiple agencies in the watershed. These parameters include reduced water quality, water quantity and fish passage to endangered species. The Dam has extended beyond its useful life, lacks efficiency and is costly to maintain annually. These resource concerns will be improved with successful implementation of this project.”
• Dillon Dam – March 2011
Goals

- Improve water quality - Required by TMDL
- Maintain water delivery to irrigators - Required
- Protect infrastructure – Required
- Increase Steelhead population in the Umatilla Basin
- Minimize project cost
Objectives

- Maintain or decrease stream temperature through Dillon Dam reach
- Maintain water delivery to irrigators
- Protect or prevent Westland Dam, rail system and HWY 84 Bridge from undermining
- Improve passage of Dillon Dam reach for Mid Columbia Steelhead (and others).
- Minimize construction/operational costs
Area of Potential Effect
Resource Concerns

- Water Quality
- Water Quantity
- Irrigation
- Fish passage
Water Quality

- Decreased flow
- Lack of riparian area
- Promotes growth of invasive aquatic species
- Sewer line from Echo distributed below dam
- Turbidity and excessive temperature
Water Quantity

Source: Oregon Water Resource Department
Irrigation Efficiency

- Dam has exceeded useful life – 36 years
- Costly to maintain annually
- Significant maintenance
- Open ditch runs approx 1.75 miles before entering Dillon irrigation ground
Irrigation Efficiency

- A - Re-build Dam
- B - Move POD upstream to Westland – build pipe
- C - Move POD downstream – pump to ditch
SERVICE TO: DILLON I.D.

2½" Ribbed PVC
3300'
H100'
$135,700

2½" PIP PVC
3200'
6250'
$209,000

TOTAL $335,700
Financial update

- Oregon Watershed Enhancement Board
- Oregon Water Resources Department
- DEQ 1/17/2012 – Currently under review
Funding acquired to date

- Topographic Survey
- Sediment/Geomorphic Evaluation
- Stakeholder meetings
- Point of diversion evaluation
- Ground water – unintended consequences
- Evaluations of 1998 designs
Currently Pursuing

- Pre-Project Monitoring
- Detailed Dam Removal Construction Costs
- Thermal imaging (TIR)
- Project Manager
- Cultural Resource Specialist
Marketing

- East Oregonian Article 11/17/2011
- OPB Article – 11/17/2011
- RRNW Case Study 1/30/2012
Technical Assistance

- Natural Resource Conservation Service
- Oregon Department of Fish and Wildlife
- NOAA - Fisheries
- Army Corps of Engineers
- Oregon Department of State Lands
- Oregon State Historical Preservation Office
- Landowners

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- Oregon Watershed Enhancement Board
- Oregon Water Resources Department
- Confederated Tribes of the Umatilla Indian Reservation