

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

National Water Quality Monitoring Conference

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Umatilla Basin Watershed Council

Pendleton, Oregon

Increasing Project Impact Potential

**LOW RESPONSE STREAM
HIGH IMPACT PROJECT**

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

**HIGH RESPONSE STREAM
HIGH IMPACT PROJECT**

Deep Review -- with Technical Back-up

**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

Increasing Stream and Site Response Potential



Two miles downstream of Echo, Oregon
One quarter mile upstream of HWY 84 –
Umatilla River intersect
3N-29E-5 Dillon Dam

Problem Statement

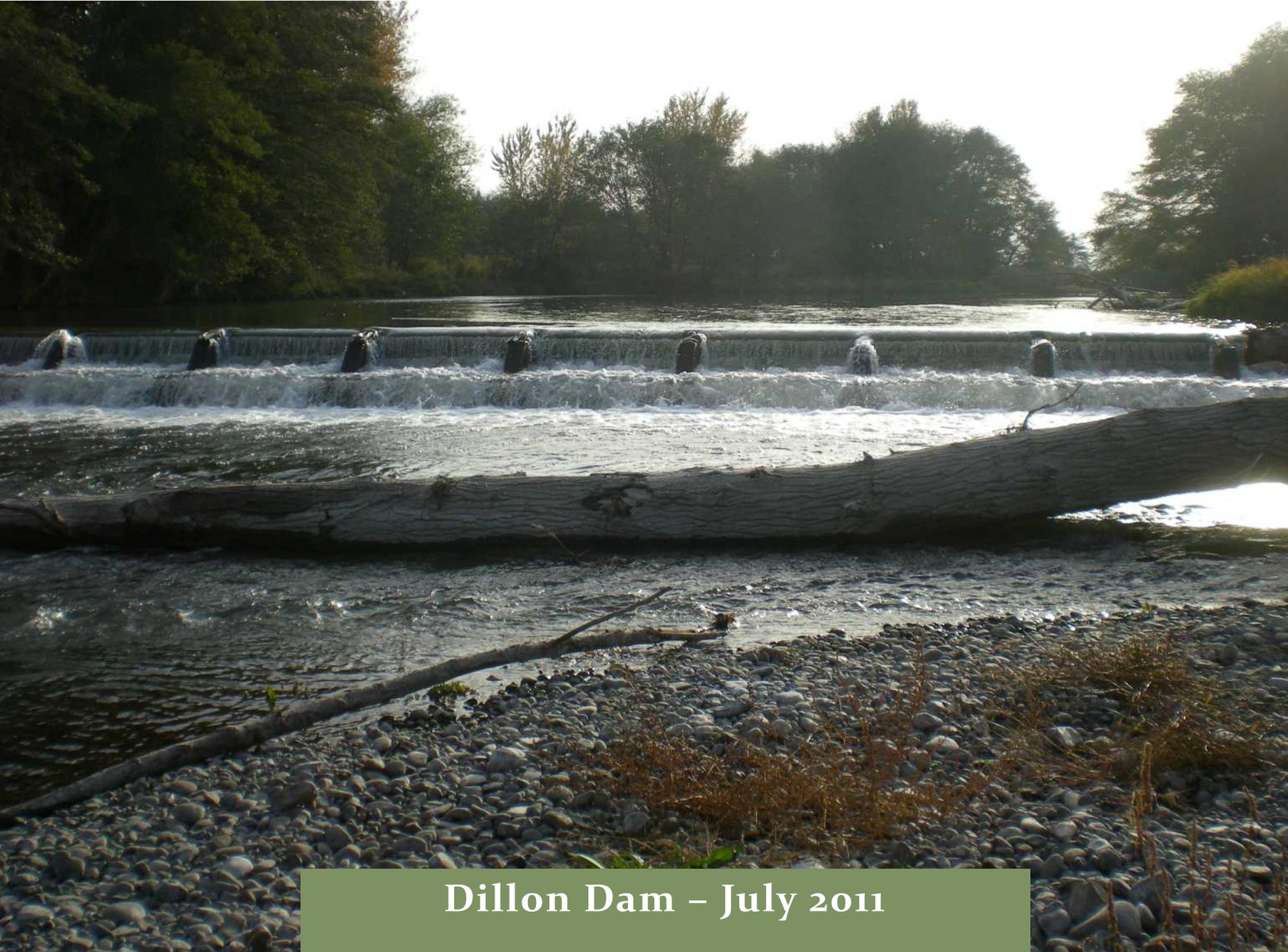
- “The opportunity to remove a diversion dam is rare on the mainstem Umatilla River. Significant concerns have been identified within this project area by multiple agencies in the watershed. These parameters include reduced water quality, water quantity and fish passage to endangered species. The Dam 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



- Dillon Dam – November 2011



Dillon Dam – July 2011

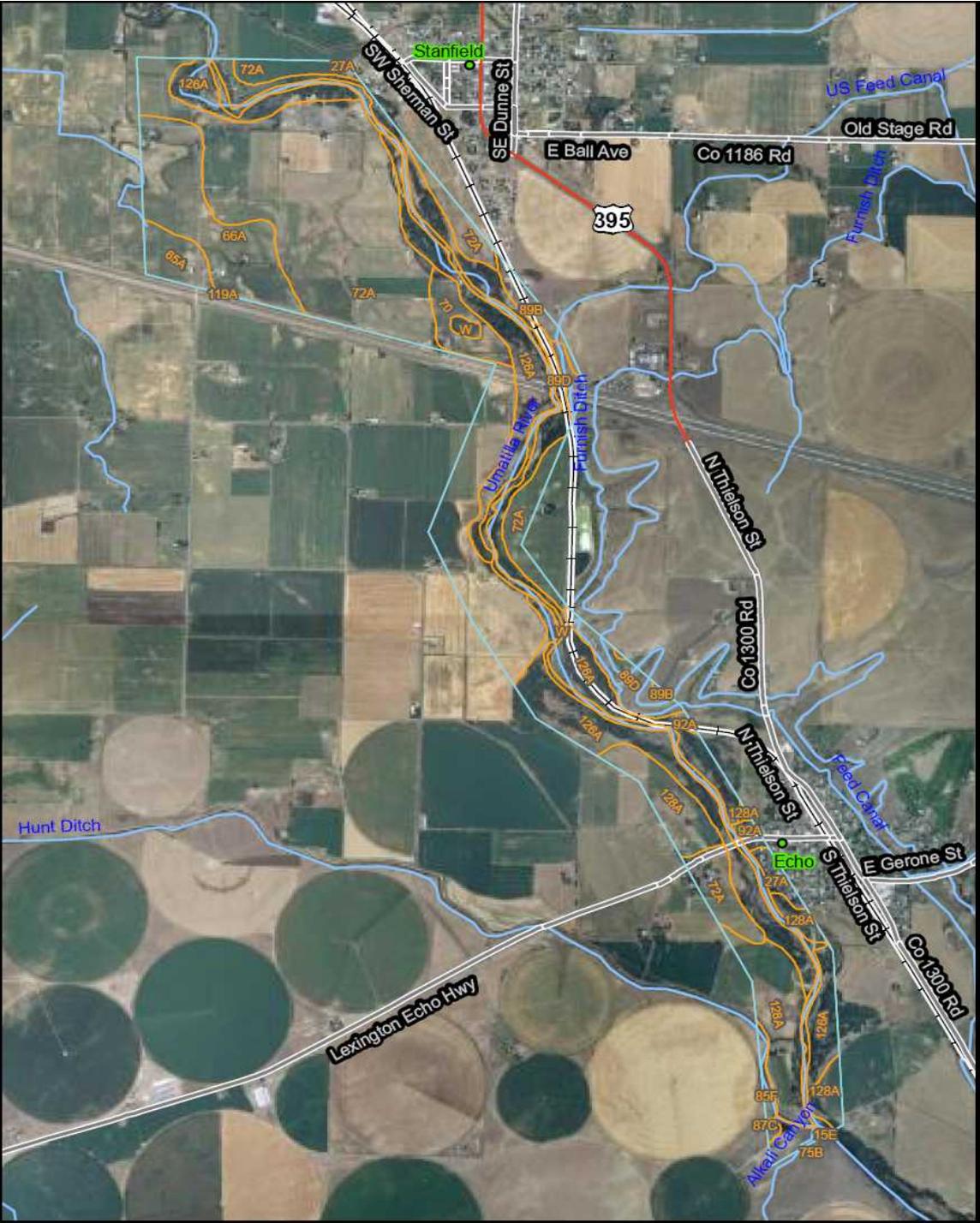
Goals

- 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

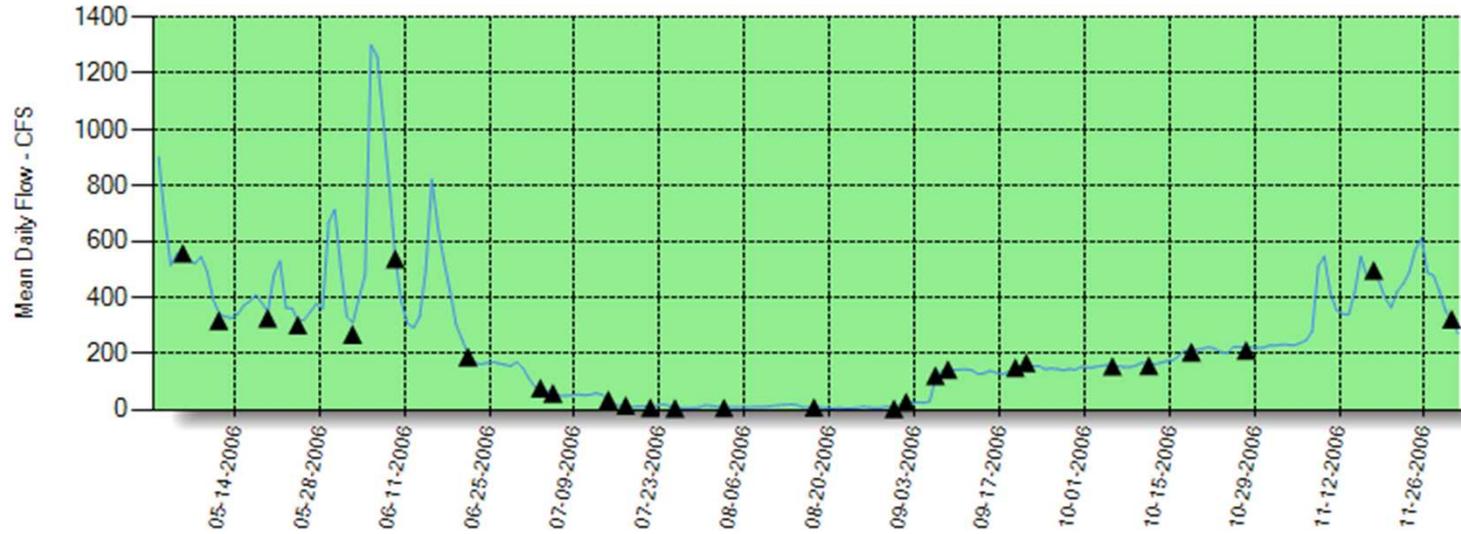
Water Quality



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

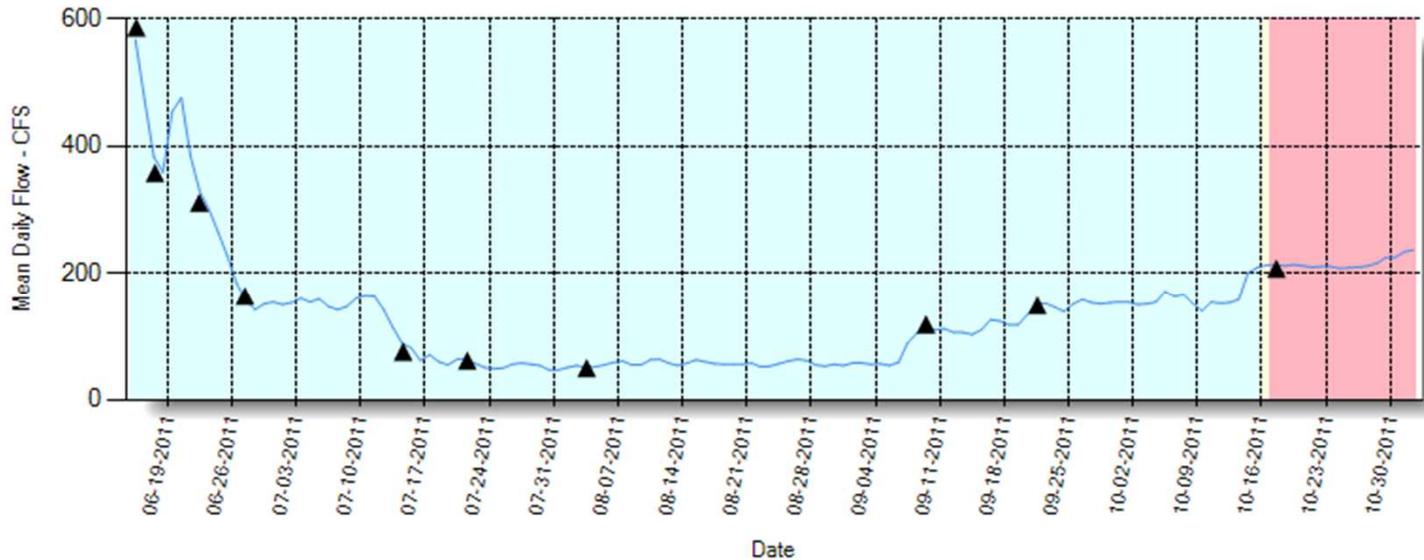
2
0
0
6

Mean Daily Flow



2
0
1
1

Mean Daily Flow

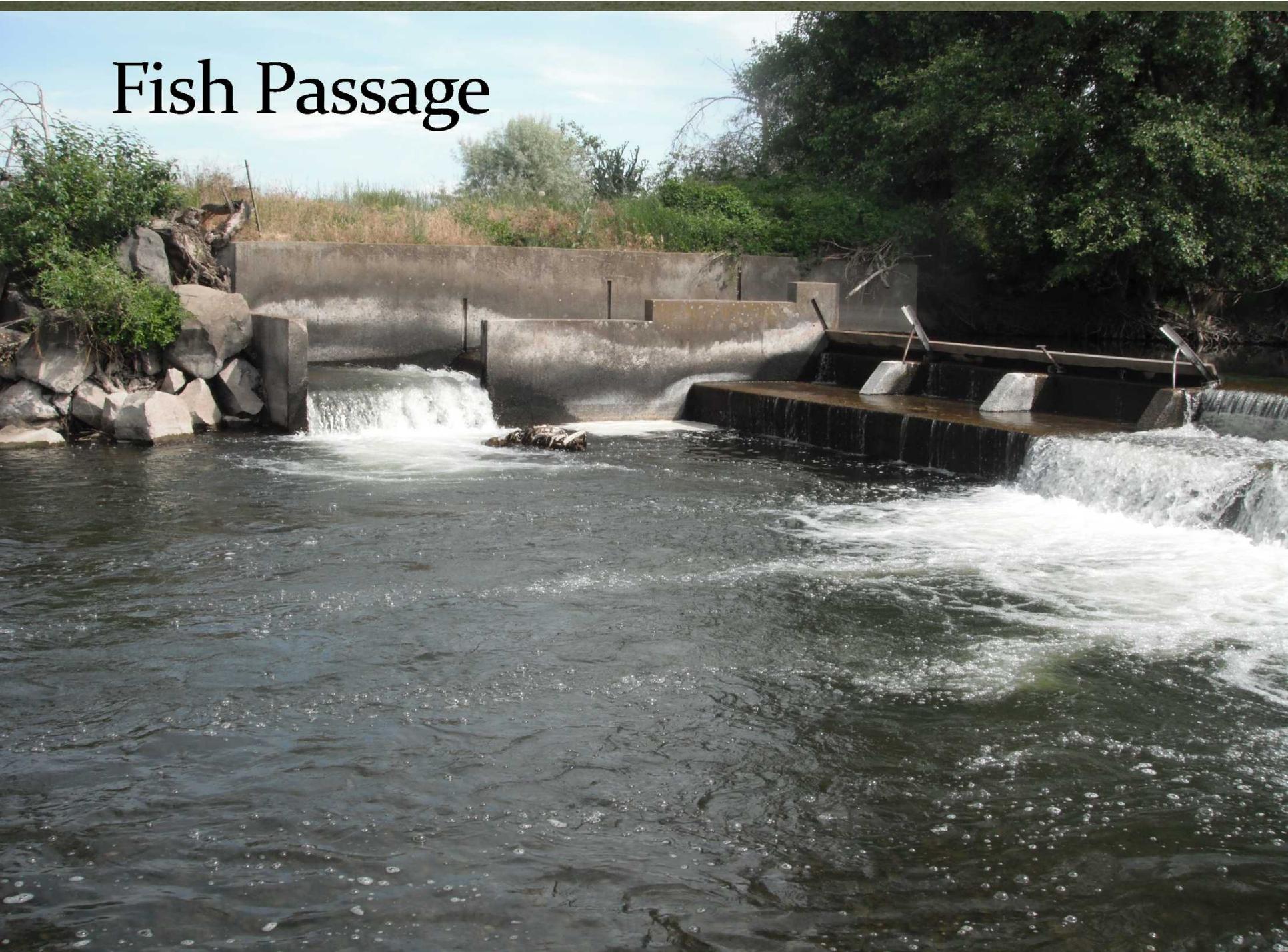




Irrigation Efficiency

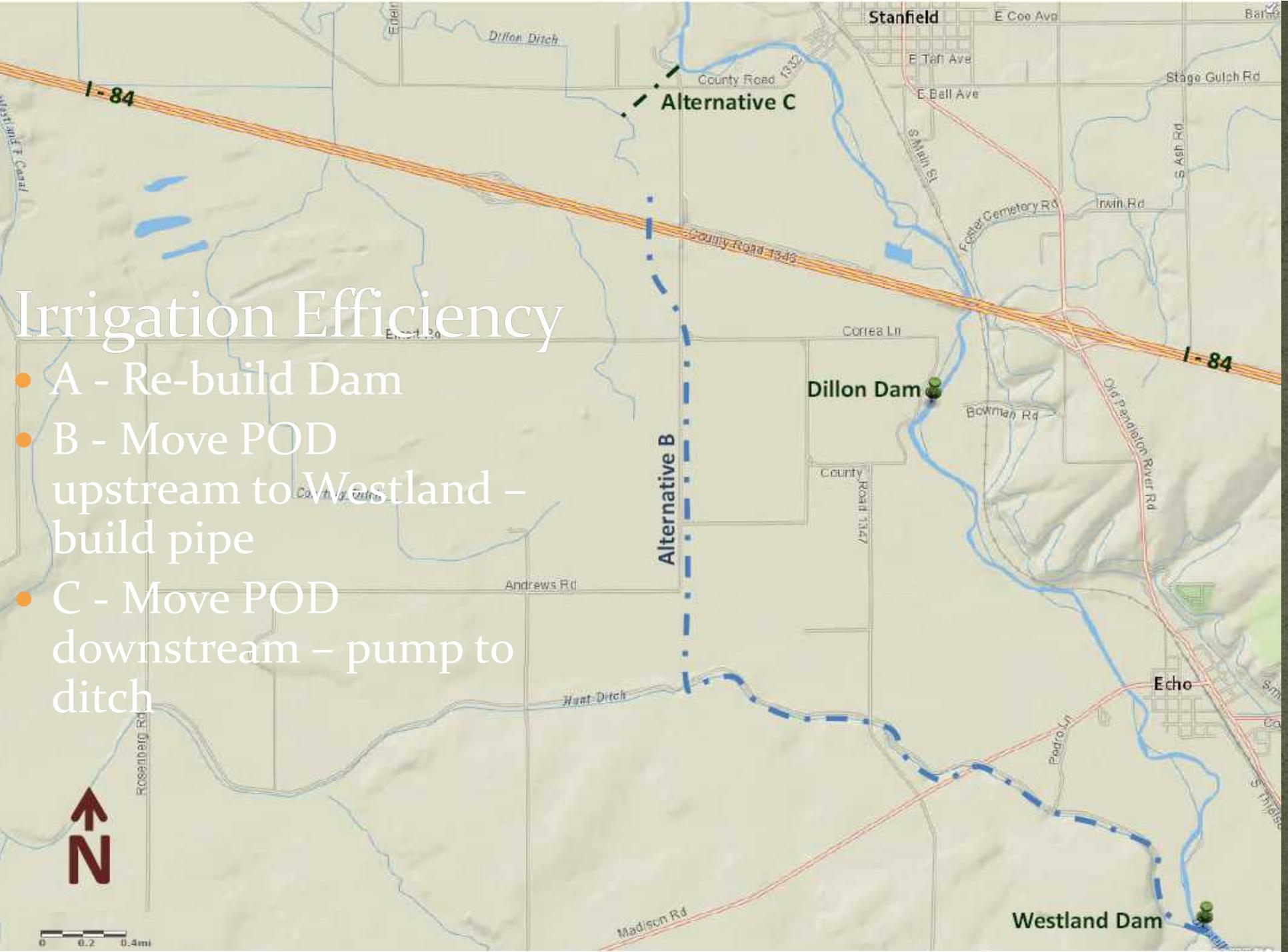
- Dam has exceeded useful life – 36 years
- Costly to maintain annually
- Significant maintenance
- Open ditch runs approx 1.75 miles before entering Dillon irrigation ground

Fish Passage



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.

27" ϕ Ribbed PVC
33⁰⁰
4100'
\$135,300

24" ϕ PIP PVC
32⁰⁰
6250'
\$209,000

TOTAL \$335,300



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
- East Oregonian Editorial – tip of the hat 12/3/2011
- RRNW Case Study 1/30/2012
- National Water Quality Monitoring Conference –
4/2012

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

Special Thank You –

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