Priest Lake Water Management Study

Stakeholder Meeting – 6/08/2017

IDAHO WATER RESOURCE BOARD

Working Document
Study Criteria

1. **Lake Level Management:**
   Maintain Lake Level at 3.0’ during Recreation Season in Dry Years, improve habitat & minimize shoreline impacts

2. **Minimum Outlet Structure Flows:**
   Maintain current minimum 60 cfs discharge flow requirements downstream of the dam

3. **Thorofare Sustainability:**
   Promote self-sustaining improvements to Thorofare access, navigability and water quality
Meeting Purpose & Agenda

1. Provide Update on Work Scope & Status of Study

2. Obtain input from Key Stakeholders

3. Help Facilitate Public Outreach

4. Next Steps
NEW DATA COLLECTION - THOROFARE

- Hydrographic Surveying
- Water Levels
- ADCP Thorofare Currents
- Sediment Grab Samples – sieve analysis

Example of real time display of current profile data across river transect.
HISTORICAL DATA - LAKE LEVEL (Pre/Post Dam)

- Historical Information provided by IDWR
- 1951 = Outlet Structure Construction
HISTORICAL DATA - LAKE LEVELS

- Chart based on data through 1993.
- Recreational Season = July 1 to October 8.
- Water Level at 3.0’ Gage Level for recreational season.
HISTORICAL DATA - PRIEST RIVER FLOWS

- Low discharge in mid summer to early fall
- Min, Median, & Max flows from data record shown
- Data for time period 1951 to 1992.
- 1951 = New Dam Construction

[Graph showing historical river flows]

= Low Flow Period, min 60 cfs outlet dam discharge

Figure 6. Average Daily Discharge for the Priest River at Dickensheet, 1951-1992 (USGS Station No: 12394000)
CLIMATE CHANGE CONSIDERATIONS

- More frequent low summer flow & drought conditions
- Develop considerations for climate change into alternative water management plan evaluation.
- Criteria to be developed for low water years
PRIOR WATER MANAGEMENT STUDY REVIEW

• Purpose: State Water Plan

• Author: U.S. Army Corps of Engineers

• Methodology: Reviewed 42 years of water year data; including 3 drought years and 2 average years

• Alternatives. Looked at 7 alternatives for alternative water management in Priest Lake (water levels and discharges)
BASIS OF ANALYSIS/CRITERIA

To be developed in coordination with IDWR/Bonner County

Considerations

- Standards – to be evaluated, dam safety, etc…
- Water Levels – range to be evaluated
- Historical Operations – develop current and historical protocols
- Future Operations – focus on low water year for any alternative water management
- Recreational Period – exact dates for start and end
- Navigation – what is acceptable, required – need to define
- Vessel Size & Thorofare Use – size, alignment, depth, buoy marking
- Species/Habitat Considerations – migration period, work window, spawning
- Climate Change Considerations – low water year definition, statistics
- Outlet Dam Operation Criteria – minimum, maximum discharge, timing
- Property Ownership – improvements on public land; Thorofare
- Water Quality – discharge (minimum during recreational period)
- Dam Safety – current standards or relative to original design condition
WAVE ANALYSIS – BATHYMETRY GRID

- Wave Analysis for wind waves within lake to aid in assessment work

- Source: 1995 Bathymetry survey by DEQ staff
THOROFARE HYDRODYNAMICS - BACKGROUND

- Previously Conducted Hydrodynamics (shown); 2008
- Updated hydrodynamic analysis to be conducted as part of the study to evaluate improvement concepts

Wave Analysis

Currents
LAKE MANAGEMENT OPTIONS

- Water Management Analysis
- Evaluation of Outlet Dam operations
- Input Data
- Simulations
Outlet Structure Stability

- Evaluate dam stability for a drought year pool raise scenario
- Review sliding & overturning stability in accordance with Idaho code
- Review needed improvements to meet revised operations and criteria.
- Review original design computations and current codes & standards
PUBLIC OUTREACH

- Stakeholder Group Outreach
- Open House – Late July
- Direct Electronic Mailers
- Community Postings
- Websites
- Social Media