

# Swan Falls Measurement and Monitoring Protocols

## Agenda

Swan Falls Agreement and Reaffirmation

[20090325\\_Framework\\_SwanFallsSettlement.pdf](#)

Review Dreher/State Report [Swan Falls Snake River Flows Rev 5 0.pdf](#)

Swan Falls Measurement and Monitoring Study Plan

Water District 2 Formation



# **Swan Falls Minimum Flow Monitoring Study Plan**

## **Idaho Power Hydro Operations Impacts**

Jon Bowling, PE  
Water Management

# Swan Falls Agreement



**Average daily flow, as used herein, shall be based upon actual flow conditions; thus, any fluctuations resulting from the operation of Company facilities shall not be considered in the calculation of the minimum daily stream flows set forth herein. (7B)**

**Company's ability to purchase, lease, own, or otherwise acquire water from sources upstream of its power plants and convey it to and past its power plants below Milner Dam shall not be limited by this agreement. Such flows shall be considered fluctuations resulting from operation of Company facilities. (7E)** [Swan Falls Agreement.pdf](#)

# Issue

**Idaho Power hydro facility operations have the ability to influence “actual flow conditions” at the Snake River near Murphy gage.**

# Idaho Power Projects of Concern

**Lower Salmon Falls**

**Bliss**

**CJ Strike**

**Swan Falls**

**Milner??**

<b>Project</b>	<b>Lower Salmon</b>	<b>Bliss</b>	<b>CJ Strike</b>	<b>Swan Falls</b>
<b>Minimum Flow (cfs)</b>	3500	4500	3900	3900*
<b>Surface Acres</b>	748	255	7500	1525
<b>Usable Reservoir (ft)</b>	2	2	1.5	4
<b>Volume AF</b>	1496	510	11250	6100
<b>CFS per 24 Hour</b>	754	257	5672	3075

\* Proposed in license application

## Objective

**Develop a plan to measure and monitor Idaho Power hydro plant and reservoir operations to determine influence on the Swan Falls minimum flows at the Snake River near Murphy gage.**

**Most important when flows approach minimums, but procedure must work under all flow conditions.**

**Stakeholders need to have confidence in method and resulting calculations.**

## Study Components

**Survey reservoirs to determine significant measurable diversions and inflows.**

- **Review existing GIS database and other available information**
- **Perform physical reservoir perimeter surveys**
- **Develop inventory for each reservoir** [USalmon\\_MurphGage\\_CJStrikeArea.pdf](#)

Summer and fall 2011 (2 surveys)

## Reservoir storage analysis

- **Review existing reservoir stage/storage data**  
[Strike Volume.pdf](#)      [LOWER SALMON VOLUME.pdf](#)
- **Review reservoir bathymetry**      [ci\\_bath1.pdf](#)
- **Review methods and equipment used to calculate daily change in storage**

Summer 2011

# Study Components

## Existing river gage adequacy analysis

- Review existing pertinent Snake River gages
    - In consultation with USGS
  - Develop recommendations for improvements in methods and equipment [Doppler.JPG](#)
- Summer and fall 2011

## Additional river gage analysis

- Determine need and possible locations for new river gages
    - [USalmon MurphGage CJStrikeArea.pdf](#)
    - [USalmon MurphGage2.pdf](#)
  - Swan Falls inflow gage installation
- Summer and fall 2011

# Study Components

## Water travel time

- **Review existing information on water travel time for each hydro project, from Milner Dam to the Snake River near Murphy gage.**
- **Review hydrodynamic models**
- **Review existing transect stage/discharge data**
- **Refine as necessary**

[Travel Time Z.pdf](#)

Summer 2011

# Outcome

## 2011

- **Study Plan completion**
- **Budget for capital equipment for 2012**
- **Draft Implementation Plan**

## 2012

- **Implementation**
  - **Installation of necessary additional gages**
  - **Instrumentation**
  - **Programming**

# Partnerships

**Strong desire for transparency and inclusion**

**Develop technical partnerships with the Idaho Department of Water Resources, the US Geological Survey, other stakeholders and interested participants**

**Financial partnerships**

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Water District 2 Formation [SRBA Interim Administration Request\\_Basin 02.pdf](#)

# Outcome

**Development of Measurement and Monitoring Plan**

**Development of Protocols**

**Water Master Instructions** [S Elmore.JPG](#)