

# RECLAMATION

*Managing Water in the West*

## Bighorn Lake Working Group Meeting

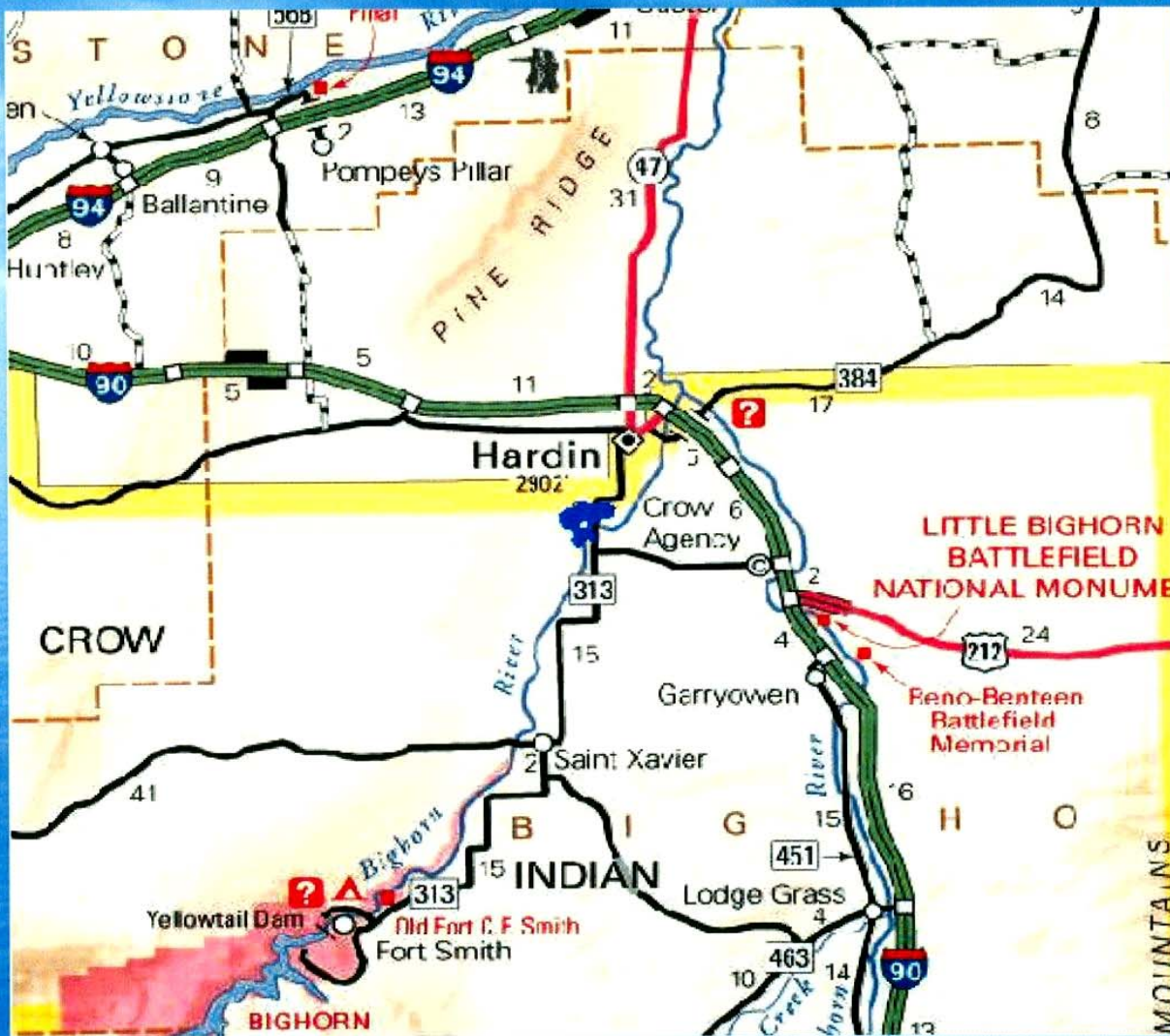
Lovell, Wyoming  
June 8, 2007

# Crow Compact Water Supply

- **500,000 acre-feet of Natural Flow**
- **300,000 acre-feet of Bighorn Lake Stored Water**
  - 150,000 acre-feet can be used in addition to Natural flow
  - 150,000 acre-feet to be used to supplement Natural flow in time of Shortage (May also be available in times of surplus)
- **650,000 acre-feet of Total Supply**

# **Streamflow and Lake Level Management Plan Bighorn River and Bighorn Lake**

- **Limit Place of Use to Protect Fishery Reach**
- **Set Limits on Quantity of use in Reach above Fishery Reach (Two Leggins Diversion)**
- **Decisions Made on Releases to meet Instream Flow needs and Provide Desired Lake Level in Bighorn Lake based on:**
  - **Instream Flow Targets**
  - **Fishery and Recreation needs for Bighorn Lake**
  - **Management directives from Tribe for Tribe's Water**
  - **Flood Control Needs**
  - **Water Supply & Demand Forecasts**



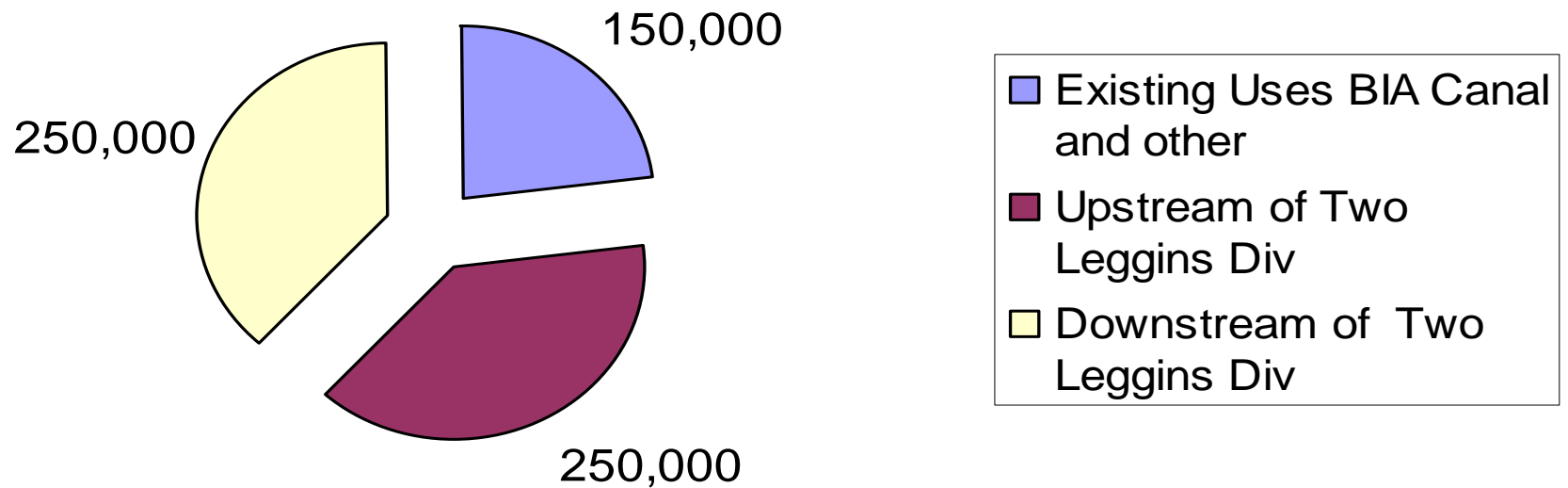
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# Location of Use

- **650,000 acre-feet Total Supply**
  - 150,000 acre-feet of estimated Existing Use above Fishery Reach
  - 250,000 acre-feet dedicated to In-stream flow. Use of this water limited to below Fishery Reach
  - 250,000 acre-feet available for use upstream of Fishery Reach
- **250,000 acre-feet of Potential new use available up-stream of Fishery Reach is the only new use that could impact the river fishery flows and Bighorn Lake levels.**

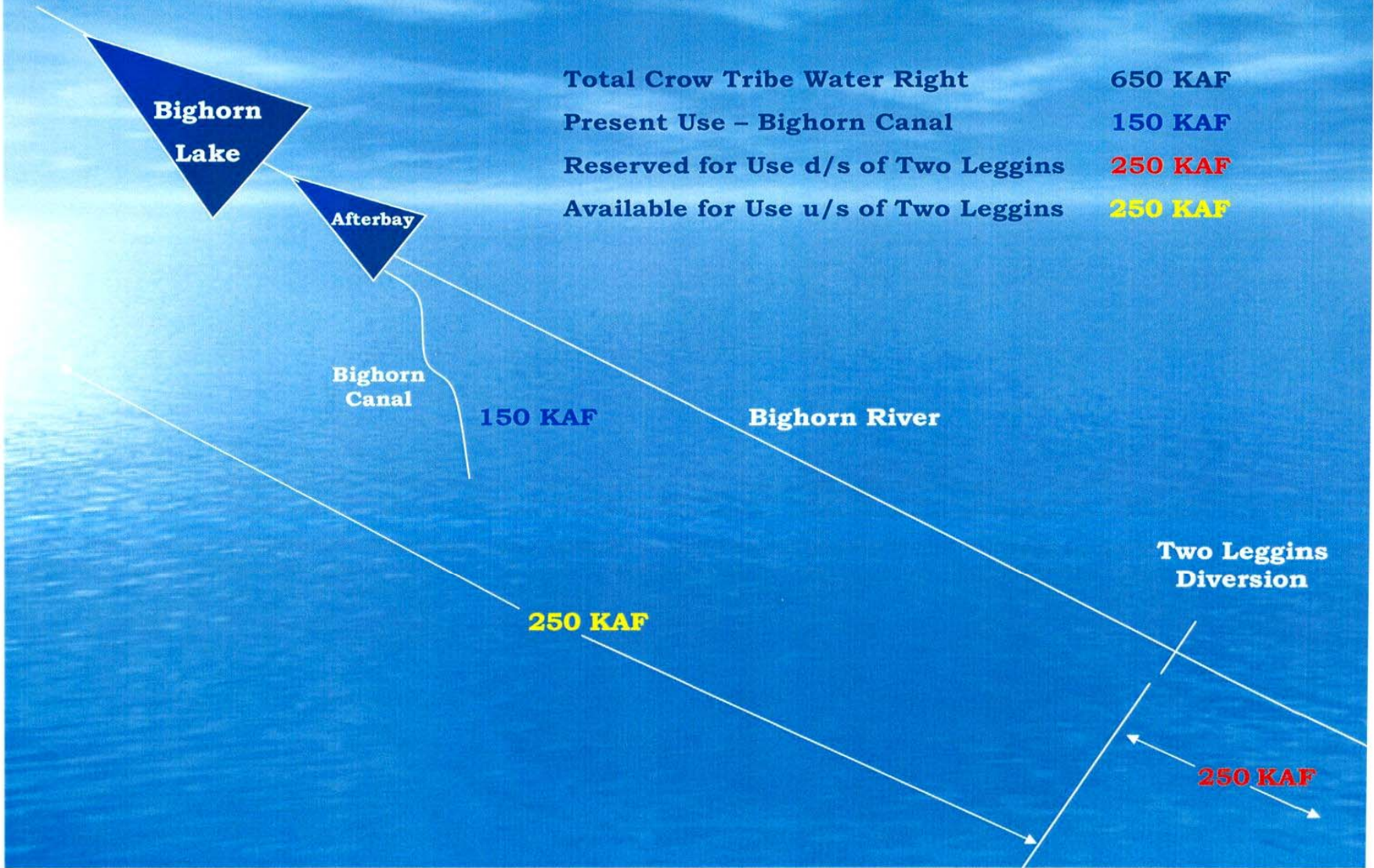
# Crow Compact Water Supply

## Crow Tribe's Compact Water Supply Bighorn Lake and Streamflow Management Plan 650,000 acre-feet



# STREAM FLOW & LAKE LEVEL MANAGEMENT PLAN

Total Crow Tribe Water Right	650 KAF
Present Use – Bighorn Canal	150 KAF
Reserved for Use d/s of Two Leggins	250 KAF
Available for Use u/s of Two Leggins	250 KAF



# RECLAMATION

# Potential Impact of Developing 250,000 acre-feet of new Water Up-stream of Fishery Reach

- 345 cfs - Average Daily Flow
- 27 feet in Reservoir elevation  
(3640-3613) if full amount drawn from  
storage



# QUESTIONS & COMMENTS

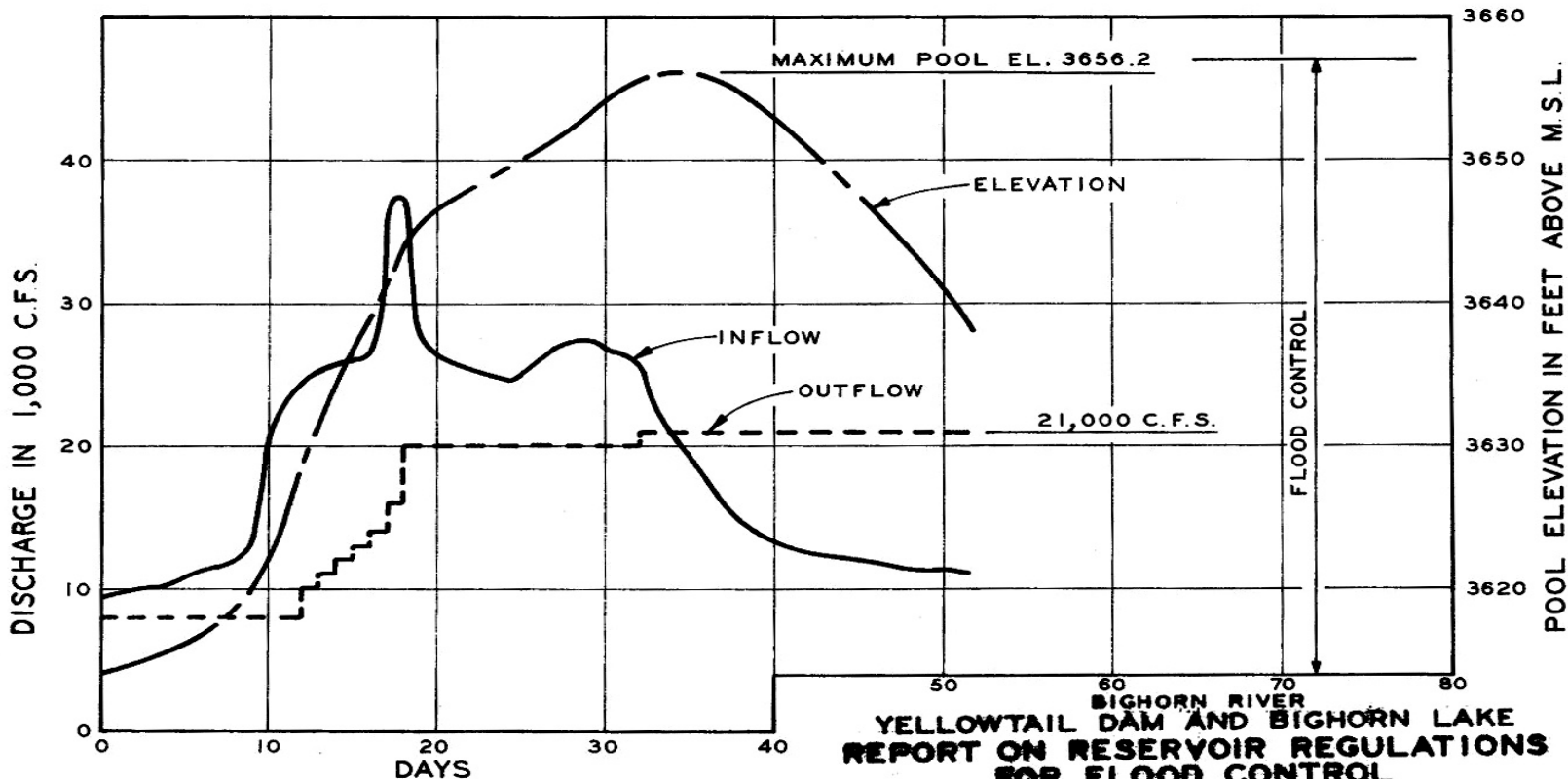
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# Flood Control Storage Space Allocation

- **Total Flood Space, 498,673 af - Elev 3614-3640**
  - **Joint Use Space, 240,342 af - Elev 3614-3640**
  - **Exclusive Flood Space, 258,331 af – Elev 3640-3657**

# Options to Consider

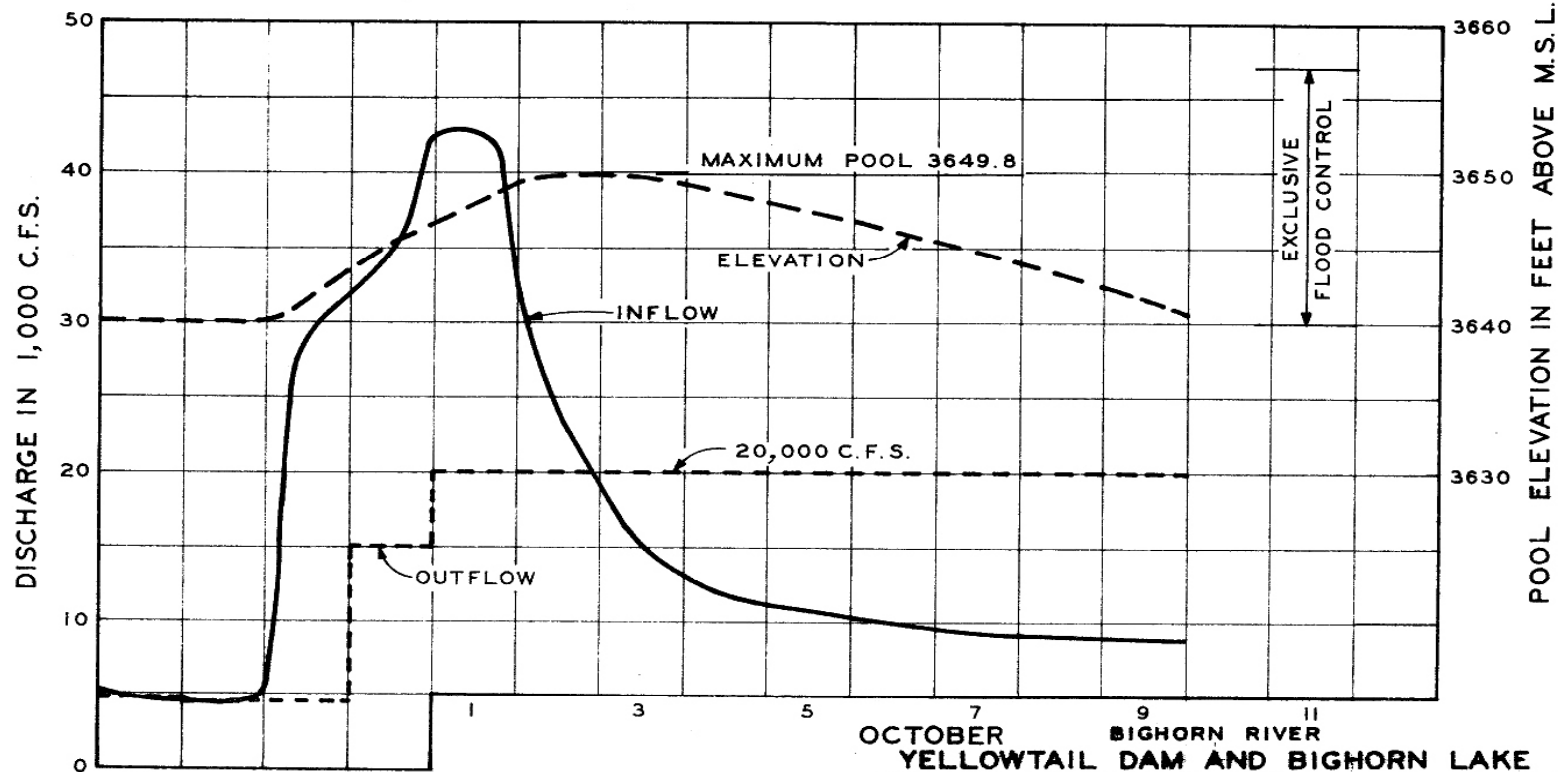
- **Reallocate Portion of total Flood Space to Conservation Storage**
  - Overall Reduction in flood Space
  - Significant impact to overall Flood Control Benefits
- **Reallocate Portion of Exclusive Flood Space to Joint Use Space**
  - Total Flood Space remains unchanged
  - No Impact to controlling Spring Flood Events
  - Potential Impact on Control of Summer and Fall Rain Events



**YELLOWTAIL DAM AND BIGHORN LAKE  
REPORT ON RESERVOIR REGULATIONS  
FOR FLOOD CONTROL**

**ROUTING PROJECT FLOOD HYDROGRAPH  
WITH 50% OF FLOW ENTERING BOYSEN  
USING PLATE 34**

U. S. ARMY ENGINEER DISTRICT, OMAHA  
CORPS OF ENGINEERS OMAHA, NEBRASKA  
JAN. 1974



**BIGHORN RIVER**  
**YELLOWTAIL DAM AND BIGHORN LAKE**  
**REPORT ON RESERVOIR REGULATIONS**  
**FOR FLOOD CONTROL**  
**RAINFALL FLOOD**  
**ROUTING OCTOBER 1923 FLOOD**  
**USING PLATE 34**

U. S. ARMY ENGINEER DISTRICT, OMAHA  
 CORPS OF ENGINEERS OMAHA, NEBRASKA  
 JAN. 1974

# Concerns

- **Sediments Inflow Has Reduced Flood Pool**
  - Total Flood Space in 1965 – 509,000 af
  - Total Flood Space 1982 - 498,700 af
  - Total Flood Space 2007 est 484,000 af
  - Total Estimated Loss 25,000 af or 5%
- **High Lake Levels in the Fall can contribute to Ice-Jam Flooding in the lower Shoshone River**
- **Increased Downstream Flood Damage**

# Questions & Comments

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