

RECLAMATION

Managing Water in the West

Bighorn Lake Working Group Meeting

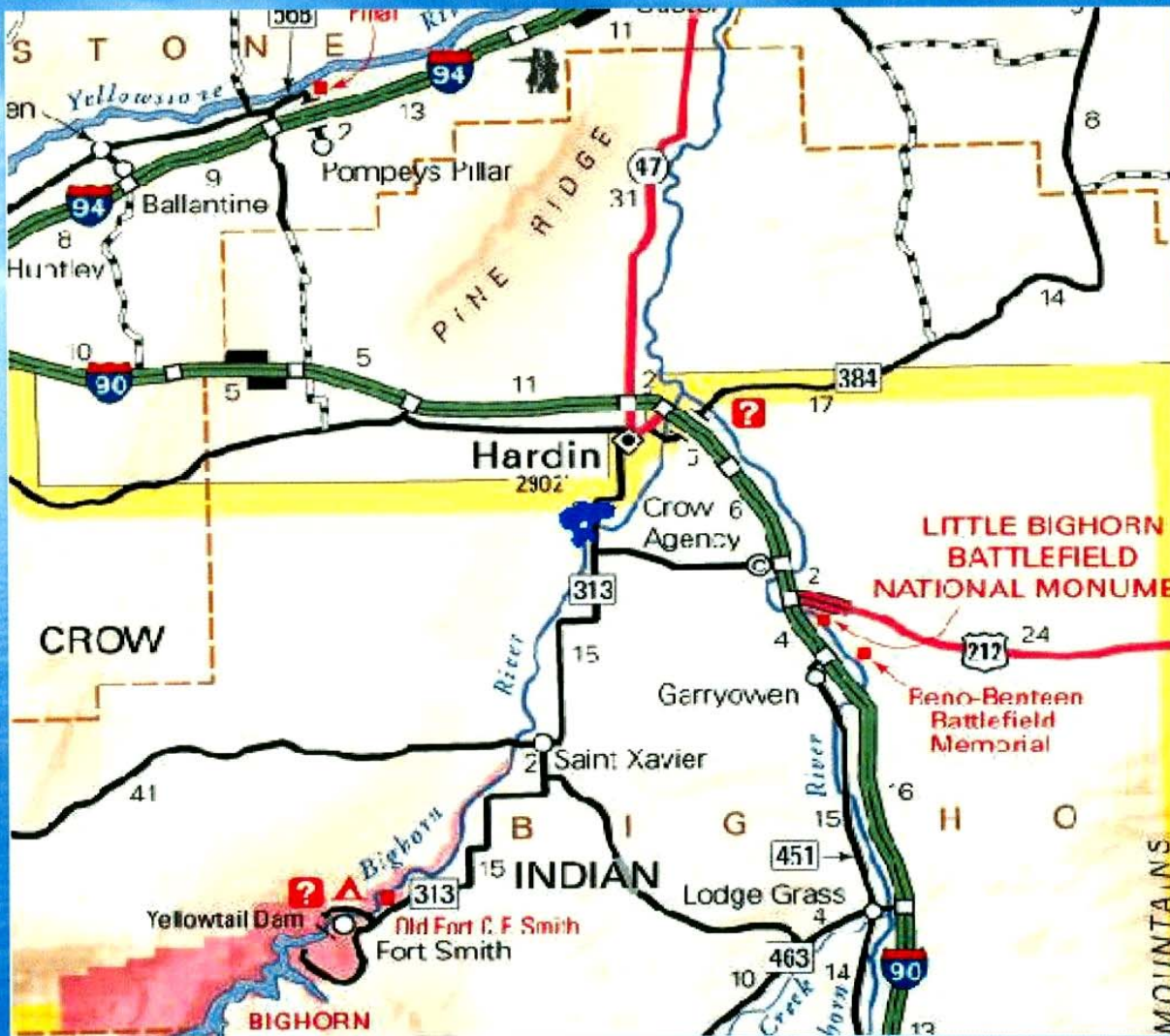
Lovell, Wyoming
June 8, 2007

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**



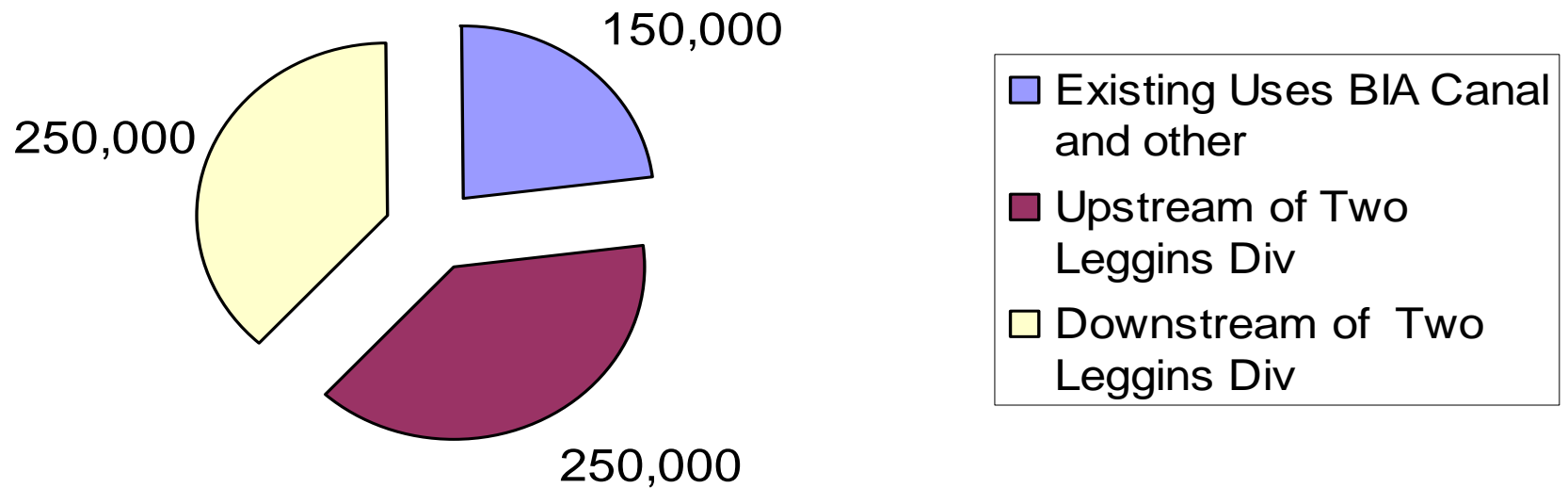
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Location of Use

- **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.**

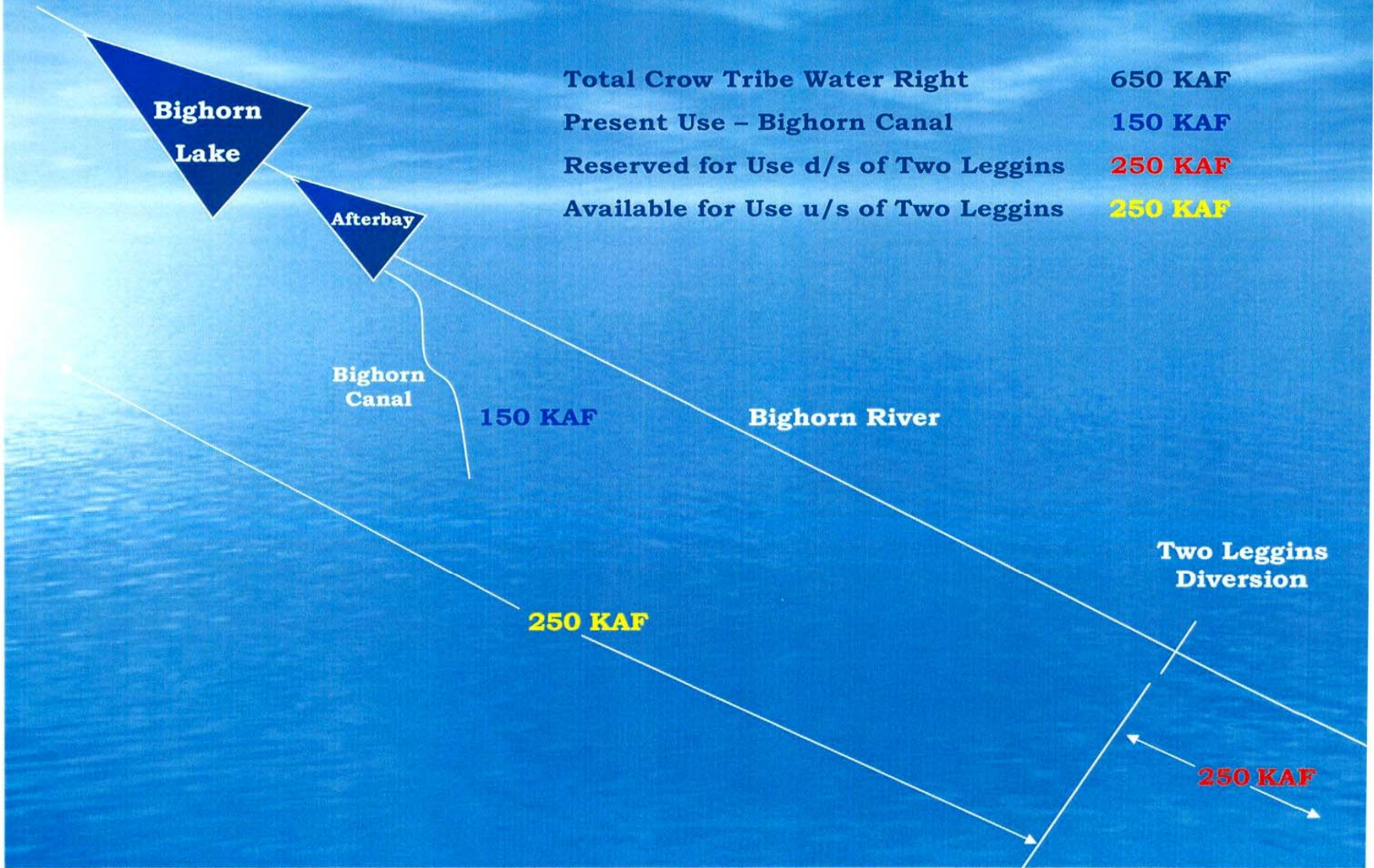
Crow Compact Water Supply

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



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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

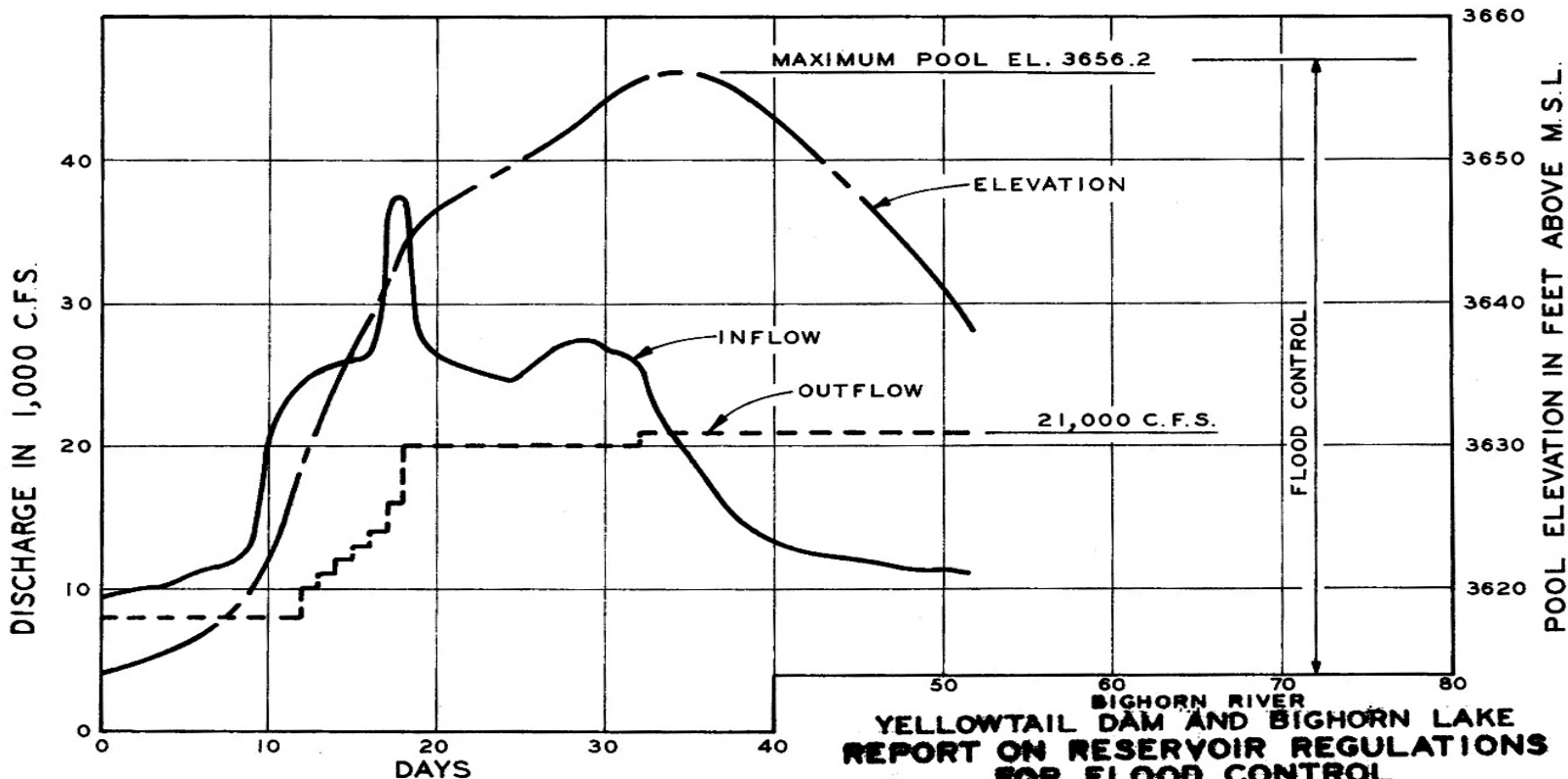
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Flood Control Storage Space Allocation

- **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

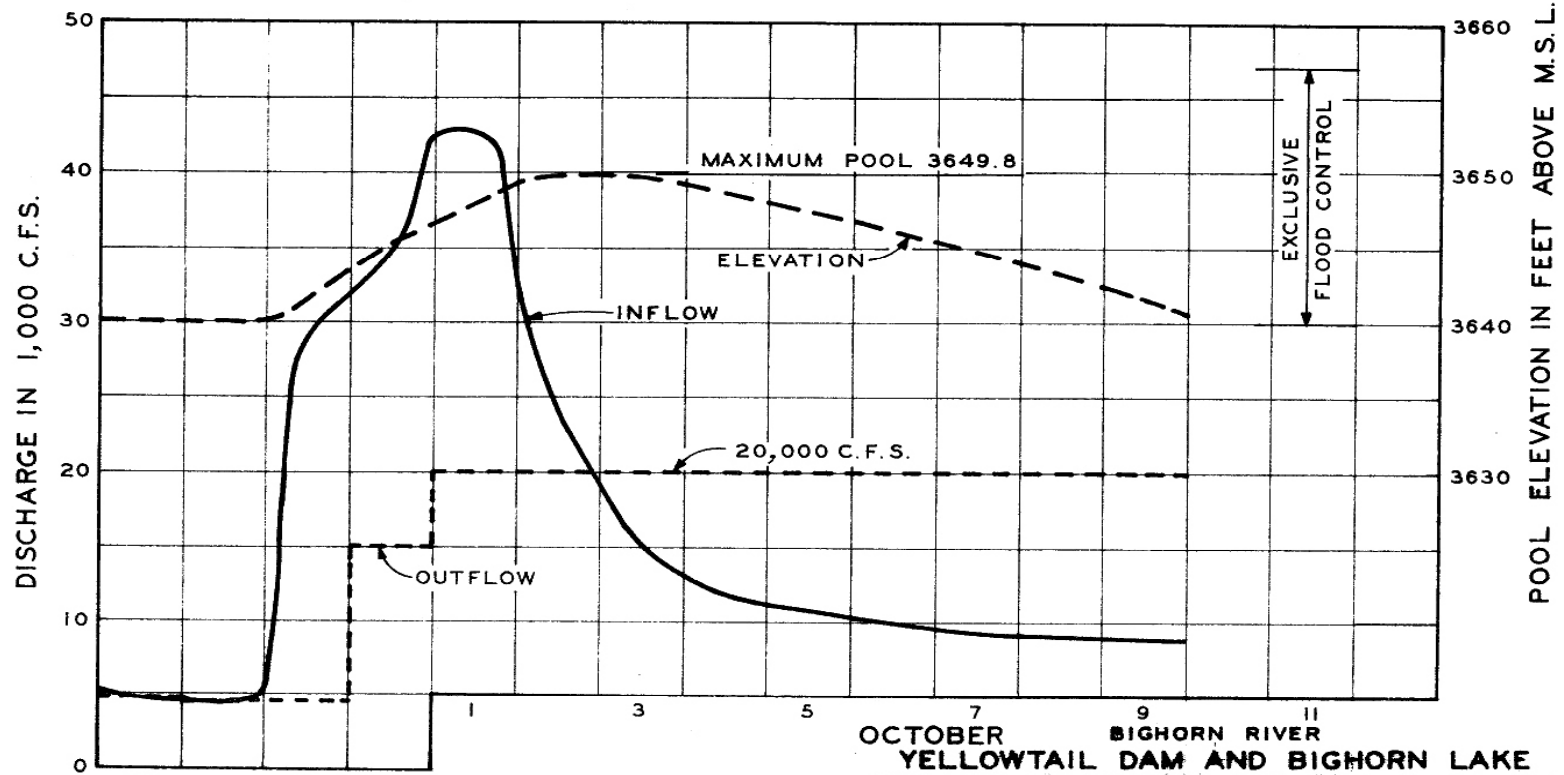
- **Reallocate Portion of total Flood Space to Conservation Storage**
 - Overall Reduction in flood Space
 - Significant impact to overall Flood Control Benefits
- **Reallocate Portion of Exclusive Flood Space to Joint Use Space**
 - Total Flood Space remains unchanged
 - No Impact to controlling Spring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

PLATE 38

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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