

# WATER LEVEL MANAGEMENT ON THE UPPER MISSISSIPPI RIVER

## -- NEW TOOLS FOR HABITAT RESTORATION

### WATER LEVEL MANAGEMENT LESSONS FROM DOWNSTREAM MAY BE APPLICABLE IN HEADWATERS

Water level management involving temporary seasonal increases or decreases in the water level for the benefit of fish and wildlife habitat has now been done on Mississippi River – **NOTE:** This operations management technique can involve lake level management and/or river flow release management.

#### STARTED WITH SMALL-SCALE DEMO DRAWDOWN PROJECTS

Small Bay West (Pool 5) in Summer 1996, Lizzy Pauls Pond (Pool 5) in Summer 1998, and with Peck Lake (Pool 9) in Summers of 1997-99



Small Bay West, MN



Peck Lake, WI

#### LEAD TO POOL 8 DRAWDOWN PROJECT

##### (A Major Mississippi River Success Story)

- 1.5 foot river drawdown at Lock and Dam 8
- Drawdown limit at La Crosse - 0.5 ft (2001)/0.25 ft (2002)
- 120,000 cy (\$680,000) additional dredging in 2001, no dredging in 2002
- 2001 - July 8 - Sept 24 drawdown
- 2002 - July 2 full drawdown attained



**PURPOSE:** to promote the growth of aquatic plants, and to dry exposed sediments.

- 1,954 acres of 23,721 acres were exposed or about 8% of the pool for the first time in over 60 years.

**PURPOSE:** to give perennial plants, such as arrowhead a better chance to become established.

- 2,954 acres were exposed or about 12% of the pool.
- Arrowhead tuber production increased 16-fold during the second year.



Near Stoddard, WI (in 2001)

The plant community on the exposed sites shifted from annuals, such as false pimpernel, teal love grass, nodding smartweed, and barnyard grass in 2001 to perennials, such as arrowhead, water stargrass, rice cutgrass and chufa flatsedge in 2002.

### RESULTS FROM POOL 8 MONITORING

#### Pool 8 Seedbank Study

Conducted to determine if a viable seedbank of desirable plants still existed on the sites that would be exposed by a drawdown.



#### Dominant Plants

- Common arrowhead
- False pimpernel
- Water stargrass
- Stiff arrowhead
- Teal lovegrass
- Rice cutgrass
- Chufa flatsedge

#### Submersed Aquatics

In general, submersed aquatic vegetation did not appear to be impacted by the drawdown.

#### Response of Aquatic Plants on the Exposed Mudflats

The drawdown contributed to an increase in aquatic vegetation.

- 50 species of aquatic plants grew on the exposed mudflats
- Vegetation density was greatest on the sites that were exposed the longest.

#### Shorebirds

Shorebirds quickly responded to the habitat offered by the exposed mudflats.

- In 2001, 1211 shorebirds of 22 different species were observed
- In 2002, 2230 shorebirds of 22 species were observed.



### WHAT ARE THE NEXT MAJOR STEPS ?

1. MINOR DRAWDOWNS IN POOLS 6 AND 9
2. INVESTIGATE POOL 5 FOR A POTENTIAL DRAWDOWN
3. INVESTIGATE POTENTIAL FOR APPLICATIONS IN HEADWATERS OF MISSISSIPPI RIVER IN 2005 - 2006



### LESSONS LEARNED

- Flexibility is the key to conducting a drawdown
- Two years of drawdown appears to be better than one year
- Drawdowns will not occur without some way to provide recreational access
- Public involvement is pivotal to project success
- Cultural resource issues must be addressed
- Water management findings may be applicable to other lake and river areas - such as the Mississippi Headwater Reservoirs

Thanks to the Water Level Management Task Force of the River Resources Forum for their water management study efforts and for the photographs in this photo poster...