



# Wild rice dynamics in the Upper Mississippi River

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# Wild rice is native to WI & MN

**Life cycle:** Annual

**Fruiting season:** July- October

**Family:** Poaceae (Grass)

**Genus:** *Zizania*

**Species:**

*Zizania palustris* (Northern wild rice)

- Found in inland lakes
- Plant height 3 to 9 ft

*Zizania aquatica* (Southern wild rice)\*

- Plant height up to ~15 ft, stalks extremely robust





**Floating leaf stage – June 2023**



**Emergent and flowering– August 2023**





# Flowering occurs late July - October

- Male and female flowers occur on the same stalk
- Wild rice must be cross-pollinated from adjacent plants by the wind
- Susceptible to fluctuating water levels, especially during floating leaf stage (~early – mid June)
- Seeds may remain viable for up to 5 years



# Ecological importance

- Nutrient-rich food source for migrating waterfowl
  - Mallard, blue-winged teal, ring-necked duck, wood duck
  - Deer
- Nesting material and refuge from predators
  - Canada geese and trumpeter swans
  - Muskrats
  - Herons, eagles
  - Turtles
- Stabilize soil and reduce erosion which can improve water quality
- Enhance biodiversity
  - Terrestrial and aquatic insects
  - Competition against invasive species





# Cultural significance

- Native American Tribes in Wisconsin have a long-standing connection to wild rice
- Wild rice is harvested by hand using wooden flails to bend the stalks over the canoes
- There are strict regulations in place. Harvesting is not permitted on the refuge
- Several historical accounts stating that wild rice was abundant in sloughs along the river in the 1800s



# Historical observations of wild rice in the UMR



1939 – Blue Lake, La Crecent MN

"Wild rice makes intermittent growth, depending on water conditions, and at the present time there are good stands of rice present in the upper pools....".

From Olson & Meyer: *Vegetation, Land, and Water surface changes in the upper navigable portion of the Mississippi River basin over the period of 1939-1973.*

TABLE 2.152  
THE MOST COMMON AQUATIC PLANTS  
THAT MAY OCCUR IN POOL 12

Common Name	Scientific Name
Cattail	<u>Typha latifolia</u>
Arrowhead (duck potato)	<u>Sagittaria latifolia</u>
Burreed	<u>Sparganium</u>
Horsetails	<u>Equisetum</u>
Sedges	<u>Carex</u>
Wild rice	<u>Zizania</u>
Bulrushes	<u>Scirpus</u>
Pondweeds	<u>Potamogeton</u>
Rice cutgrass	<u>Leersia oryzoides</u>
Mud plantain	<u>Heteranthera dubia</u>
Lesser duckweed	<u>Lemna minor</u>
Greater duckweed	<u>Spirodela polyrhiza</u>
Water meal	<u>Wolffia columbiana</u>
Yellow lotus	<u>Nelumbo lutea</u>
Coontail	<u>Ceratophyllum demersum</u>
Wild celery	<u>Vallisneria americana</u>
Marsh smartweed	<u>Polygonum coccineum</u>
Pickereel weed	<u>Pontederia cordata</u>
Water milfoil	<u>Myriophyllum</u>

Most common aquatic plants in Pool 12- William E. Green, 1947

## POOL6, Trempealeau National Wildlife Refuge

Almost a complete failure of wild rice compared to a very abundant year last year. Expansion of curly-leaved pondweed (*Potamogeton crispus*) in lower refuge pool. Expansion of emergent vegetation in bed in midpool.

From UMRCC annual meeting proceedings- 1999

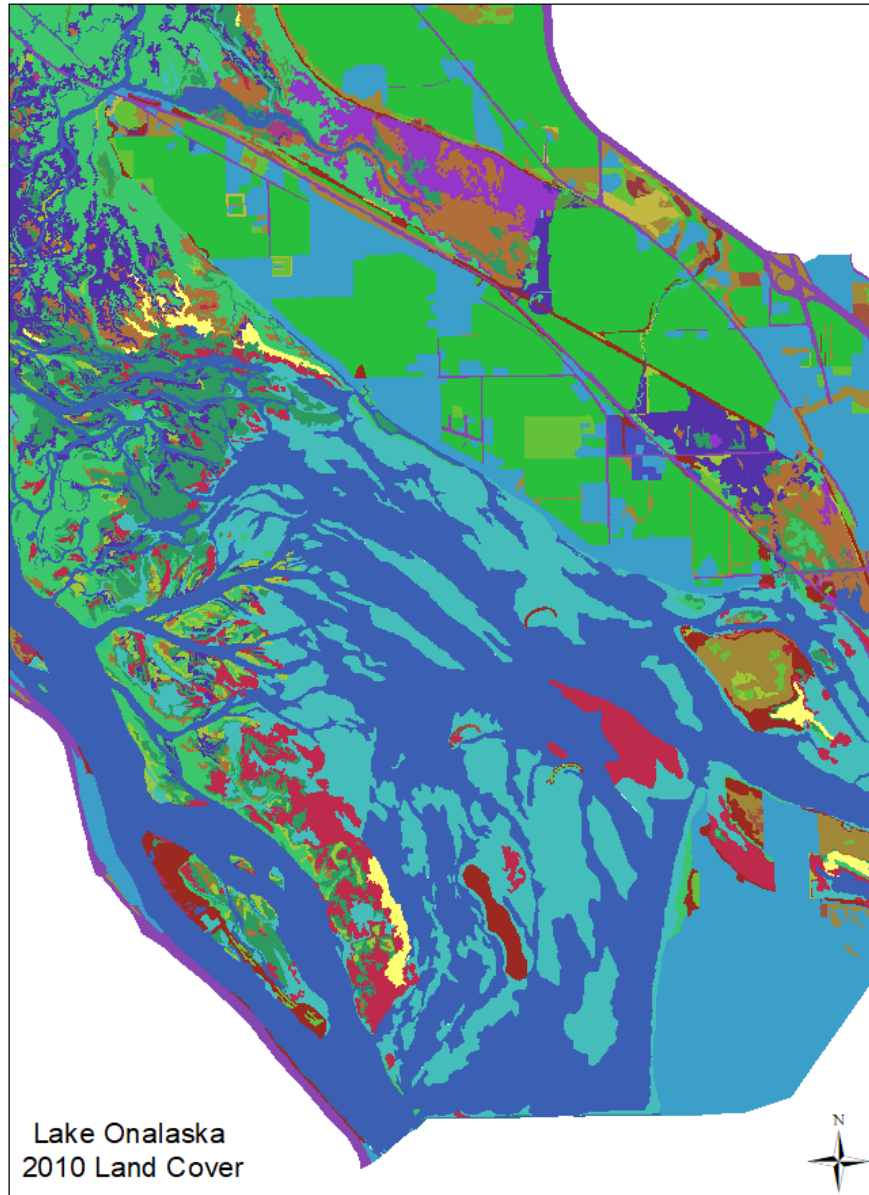


Lake Onalaska formerly referred to as  
“Rice Lake” in **1897** map





# 2010

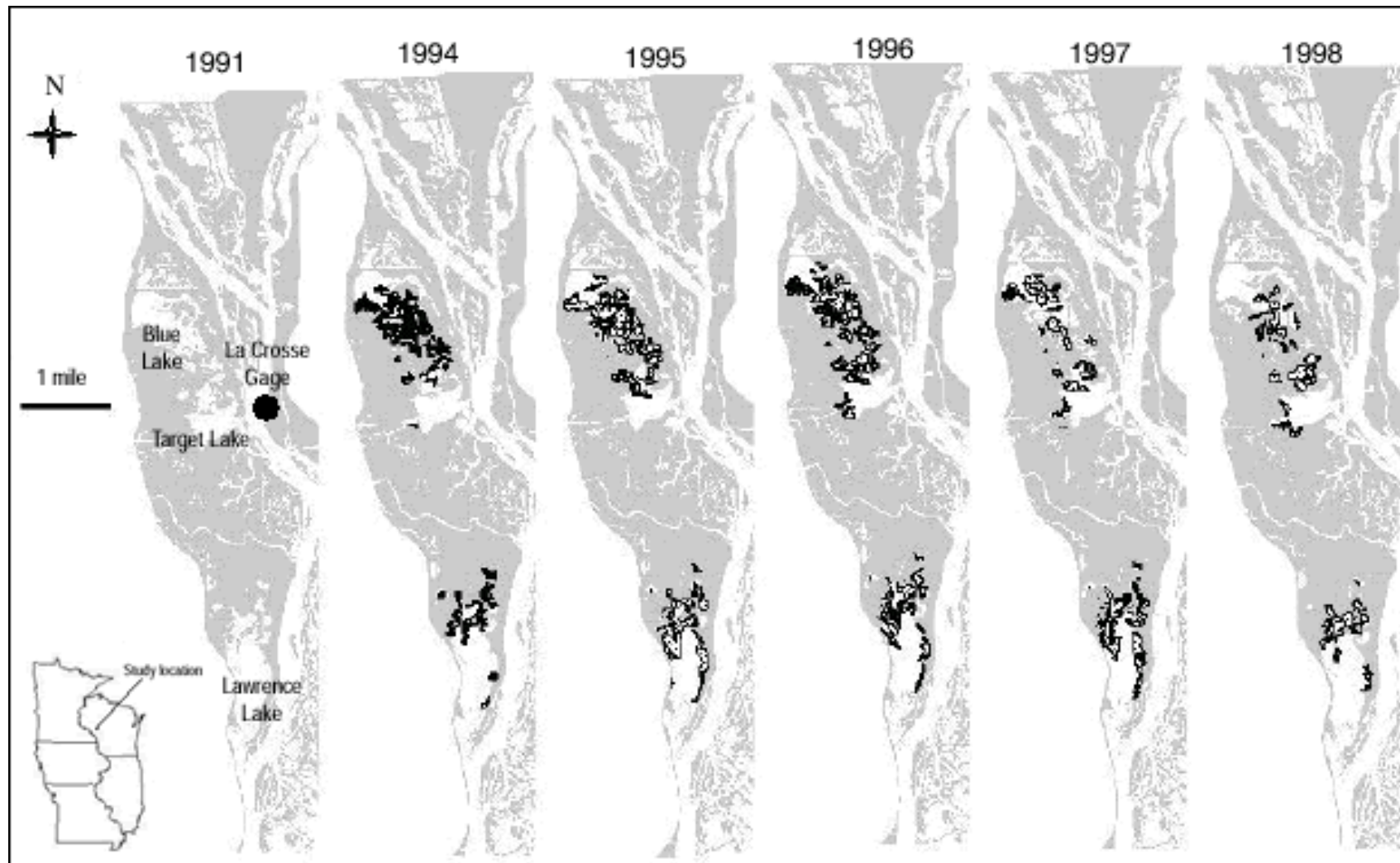


- Wild rice
- Submersed
- Open water
- Rooted floating

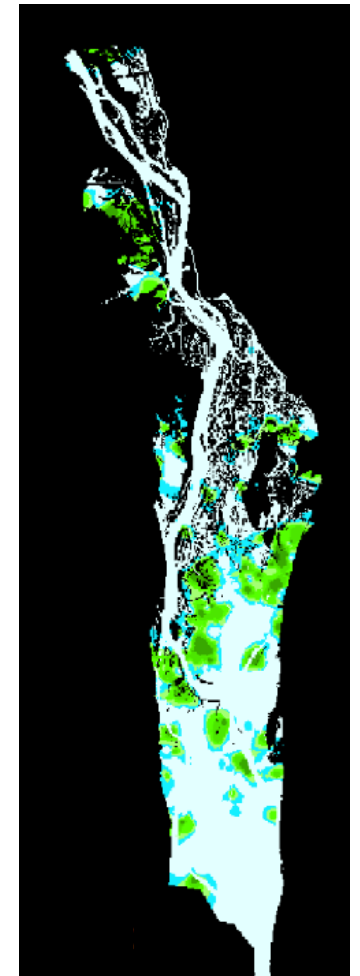
# 2020

Coming soon...





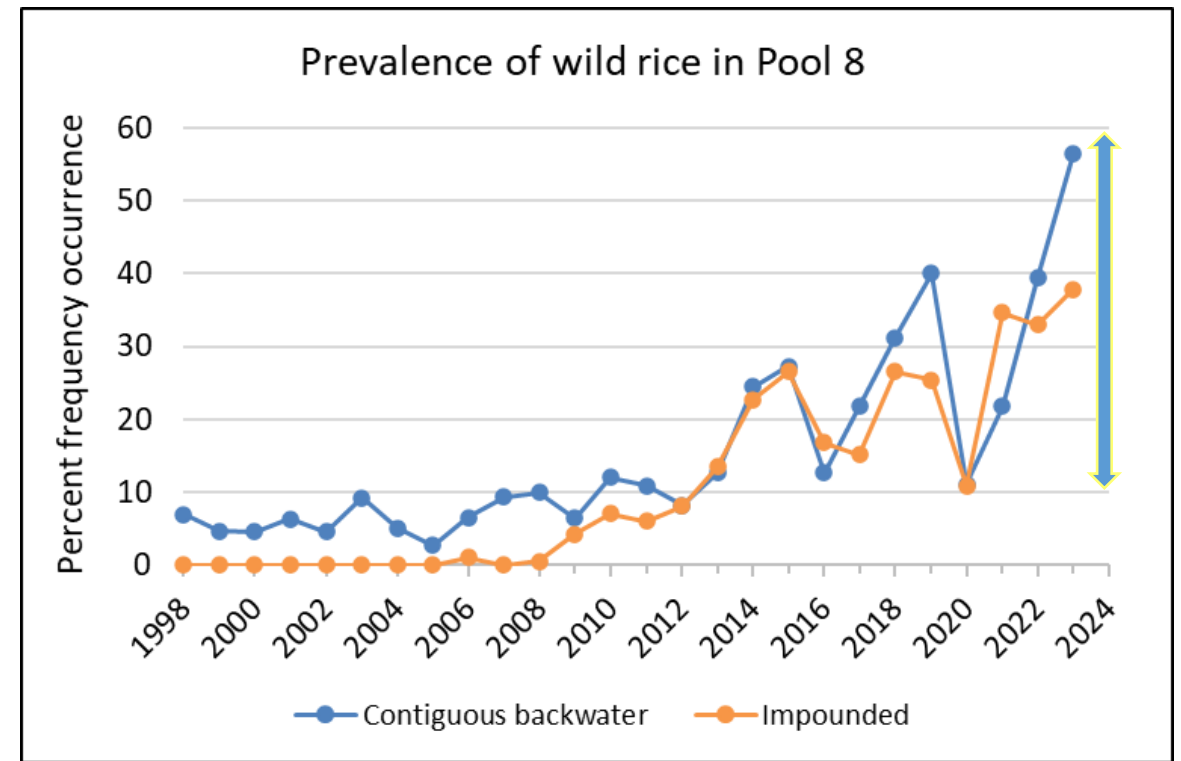
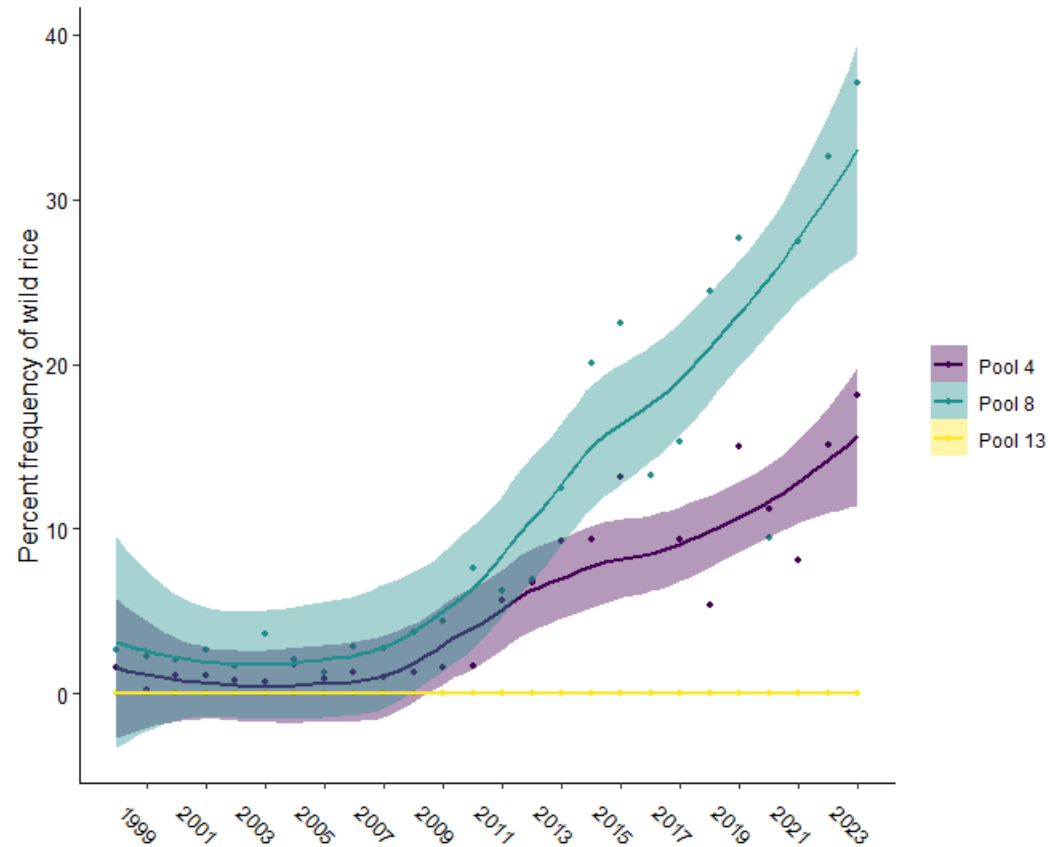
2022



USGS report by Dukerschein and Langrehr, 2000



# Long term data show increasing trends and oscillations





Questions?

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