



# LIVING SHALLOW LAKE ENHANCEMENT & WETLAND RESTORATION PHASE VII

Ducks Unlimited proposes to strategically enhance 2,000 acres of shallow lakes and restore 200 acres of wetlands by engineering and installing water control structures and restoring drained basins for Minnesota DNR and U.S. Fish & Wildlife Service on state Wildlife Management Areas, federal Waterfowl Production Areas, and other easements.

- Phase 7 of DU's ongoing programmatic shallow lake enhancement and wetland restoration initiative
- Focus: Provide wetland engineering to improve prairie shallow lakes managed by Minnesota DNR and restore prairie wetlands on federal Waterfowl Production Areas

### Primary goals:

- ◆ Enhance degraded shallow lakes and large wetlands for migrating and brood-rearing waterfowl
- ◆ Restore small wetlands on federal WPAs and state WMAs for breeding waterfowl pairs in spring
- ◆ Restore and enhance wetland habitat for non-game wetland-dependent birds
- ◆ Enhance public water shallow lakes as public waterfowl hunting areas and birding areas for people too

Location: Prairie Pothole Region in the southwest half of Minnesota

Habitat Outputs: 2,200 acres of enhanced or restored wetland habitat for breeding ducks and other wetland-dependent wildlife.

Wildlife Outcomes: Based on DNR guidance and best available science, DU estimates this habitat will support 891 pairs of mallards and 15 or more pairs of trumpeter swans.

<b>BUDGET:</b>	<b>\$6,930,000 TOTAL REQUEST</b>
Contracts:	\$5,300,000 for shallow lake water control structure construction and wetland restorations
Professional services:	\$120,000 for soil investigations, county ditch petitions, county ditch reviews, etc
Personnel:	\$1,080,000 for DU biologists and engineers to plan, design, and implement projects
In-state travel:	\$120,000 for DU biologists and engineers over five years to deliver projects
Supplies and materials:	\$90,000 for native wetland plant seed to restore wetlands
Capital equipment:	\$30,000 for a tracked ATV with trailer for surveys
Other equipment/tools:	\$80,000 for engineering equipment to survey, design and manage construction projects
Direct support services:	\$110,000 for DU staff support costs, including administrative support, office, etc.

### **PRIOR DU OHF ACQUISITION APPROPRIATION SPENDING AND ACCOMPLISHMENTS:**

<b>Appropriation Year:</b>	<b>Appropriation:</b>	<b>Funds spent:</b>	<b>Funds remaining:</b>	<b>Accomplishments:</b>
2009 (Phase I)	\$2,528,000	\$2,528,000 (100%)	\$ 0	6,882 wetland acres
2010 (Phase II)	\$5,042,000	\$5,042,000 (100%)	\$ 0	7,251 wetland acres
2012 (Phase III)	\$4,490,000	\$4,490,000 (100%)	\$ 0	3,086 wetland acres
2014 (Phase IV)	\$4,910,000	\$4,888,300 (100%)	\$ 0	6,011 wetland acres
2017 (Phase V)	\$4,716,000	\$4,290,300 (91%)	\$ 425,700	Ongoing
2018 (Phase VI)	\$3,740,000	\$1,766,700 (47%)	\$1,973,300	Ongoing

**By end of 2020, DU will have spent or legally obligated most past OHF grant funds for shallow lake and wetland engineering enhancements and restorations**

# WRE 02 SHALLOW LAKE ENHANCEMENTS AND PRAIRIE WETLAND RESTORATIONS





### STAGE 1

Pre-enhancement turbid water state typical of many shallow lakes located in the prairie and transition zones of Minnesota and Iowa. Note the lack of rooted aquatic plants resulting from stagnant high water levels, as well as the presence of undesirable fish and lack of upland perennial cover creating both internal and external nutrient loading. This condition is exacerbated by above-average precipitation patterns, increased drainage and connectivity within the watershed. Lakes in this turbid water condition provide poor waterfowl and wildlife habitat and impaired water quality.



### STAGE 2

Once the physical and legal means are in place, a drawdown is a common management practice used to shift shallow lakes from a turbid water state to a clear water state. Note sediment consolidation and the re-growth of rooted aquatic plants from the natural seed bank. Drawdown also helps control undesirable fish populations. A DU designed and constructed water control structure such as the one illustrated above will allow agency managers to manipulate water levels to enhance water quality and wildlife habitat. Upland restoration also helps improve habitat and sustain water quality improvements.



### STAGE 3

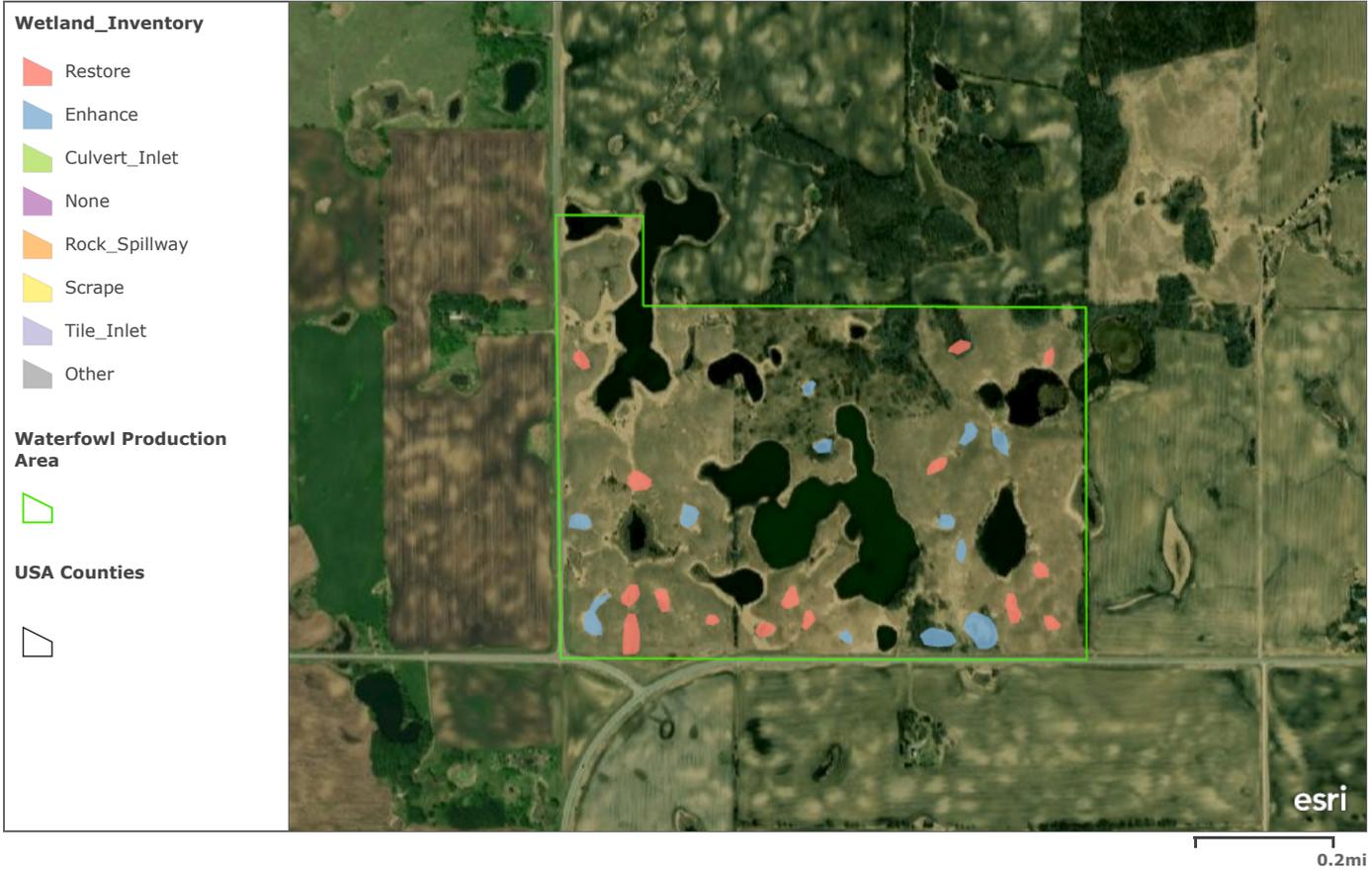
Post management drawdown clear water state typical of a healthy shallow lake system. Note the restored water levels and water quality, abundance of rooted aquatic plants, invertebrate response, and overall wildlife habitat improvement. When conditions in a managed shallow lake deteriorate over time the water control structure such as the one illustrated above can be managed in accordance with a lake specific comprehensive management plan to help maintain and improve habitat conditions and water quality.

**SPECIAL NOTE:** A managed drawdown mimics natural water level fluctuation such as temporary drought conditions, which are necessary for a healthy shallow lake much like fire is to native prairie.

# SMITH LAKE (WRIGHT COUNTY) STAGES OF ENHANCEMENT



Potential Wetland Restoration and Enhancement - Duenow WPA



USDA FSA, GeoEye, Maxar | Airbus,USGS,NGA,NASA,CGIAR,NCEAS,NLS,OS,NMA,Geodatastyrelsen,GSA,GSI and the GIS User Community | Compiled by the Bureau of Land Management (BLM), National Operations Center (NOC), OC-530 | U.S. Fish and Wildlife Service, National Standards and Support Team, wetlands\_team@fws.gov | National Wildlife Refuge System

