LMRWMO
LOWER MISSISSIPPI RIVER
WATERSHED MANAGEMENT ORGANIZATION

Board of Managers Meeting Agenda

Wednesday – December 11th, 2024 - 3:00 p.m.

The Wellstone Center – Room 212, Anna Heilmaier Mtg Room
179 Robie Street, Saint Paul, MN 55107

1.	Call Meeting to Order	
	1.1 Identification of Voting Board Members	
	1.2 Approval of Agenda* (Additions/Corrections/Deletions)	Action
	1.3 Opportunity for Public Comment (Limited to 2 minutes per person)	
2.	Approve November 13th, 2024 Meeting Minutes - Chair*	Action
3.	Approve December 11th, 2024 Financial Summary & Invoice Payment - Treasurer*	Action
4.	Presentation on Lake Augusta Cormorants - SWCD & UofM*	Information
5.	Review and Approve 2025 Meeting Schedule - SWCD*	Action
6.	Consider Request for funding for Winter Salt Week Education Effort - SWCD*	Action
7.	Member City Updates	Information
8.	Next Meeting: January 8, 2024 - Wellstone Center, Saint Paul – Room 212	
9.	Adjourn	

* Materials included in full packet
** Materials available separately on website
https://LMRWMO.org/about-us/meeting-information/

JOE BARTEN - LMRWMO ADMINISTRATOR
C/O DAKOTA COUNTY SOIL & WATER CONSERVATION DISTRICT
www.LMRWMO.org

4100 220TH ST. WEST SUITE 102
FARMINGTON, MN 55024

LMRWMO
LOWER MISSISSIPPI RIVER
WATERSHED MANAGEMENT ORGANIZATION

Board of Managers Meeting Minutes

Wednesday - November 13th, 2024 - 3:00 p.m.
Veterans Memorial Community Center, Inver Grove Heights

Managers and Alternates in Attendance:

Sharon Lencowski (Chair), Inver Grove Heights
Analiese Miller, West St. Paul
Steve Gebauer, Mendota Heights
Daniel Anderson, South St. Paul
Brian Jastram, Saint Paul
Dan Halvorsen, Sunfish Lake
Karen Reid (Vice-Chair), Saint Paul
Tom Sutton, Lilydale
Michael Randle, South St. Paul
Dawn Gaetke, Inver Grove Heights
Mary Kleinberg, Lilydale

Advisors and Others in Attendance:

Ryan Ruzek, Mendota Heights
Pat Murphy, Saint Paul
Paul Merchlewicz, Inver Grove Heights
Greg Wilson, Barr Engineering
Amy Anderson, WSB
Kenneth Dodge, Mendota Heights
Joe Barten, Dakota County SWCD
Lucas Richie, Mendota Heights
Conor Resnikoff, South St. Paul
Chris English, Inver Grove Heights
Greg Williams, Barr Engineering
Kitty Haight, Mendota Heights
Victoria Ranua, Dakota County SWCD

1. Call Meeting to Order

1.1 Public Comment / Introductions

Audience members may address the Board regarding items not on the agenda.

1.2 Approval of Agenda* (Additions/Corrections/Deletions)

Motion by Reid to approve the agenda, second by Sutton; motion passed.

2. Approve October 9th, 2024 Meeting Minutes

Motion by Halvorsen to approve the previous meeting minutes, second by Miller; motion passed.

3. Approve November 13th, 2024 Financial Summary & Invoices

Ruzek provided a summary of the finances.

Motion by Gebauer to approve the financial summary, second by Reid; motion passed.

4. **Presentation on Direct Drainage Study by WSB**

   Amy Anderson, Project Engineer with WSB, provided a presentation on the draft Mississippi River Direct Drainage study, process, identified projects and pollutant reductions, and requested any suggested edits be provided to the LMRWMO Administrator by November 22nd.

5. **Presentation on Lake Augusta Water Quality Improvement and Outlet Feasibility Study and FAQs**

   Greg Wilson, Sr. Water Resources Engineer from Barr Engineering, provided a presentation on the results of the Lake Augusta feasibility study. He summarized the frequently asked document that was created as an addendum to the study, in response to a number of resident concerns with the lake and future implementation efforts.

6. **Updates & Handouts**

   Seidls Lake Shoreline Restoration: Barten provided an update on the project noting that the native seeding is the primary restoration component remaining. The contractor is hoping to get into the site for restoration before the site freezes up. If not, restoration will occur in the spring.

   Interstate Valley Creek Stormwater BMPs: Barten provided an update on the Interstate Valley Creek stormwater BMP and streambank stabilization project. The final plans are included in the packet and the bid was awarded to Fitzgerald Excavating and Trucking, Inc. to install the projects. Construction will begin in December and is expected to occur primarily during the winter of 2024-2025, with follow-up restoration work in summer of 2025.

   Member City Updates: City Advisors and Members provided updates on relevant projects in their cities.

7. **Adjournment and Next Meeting**

   The meeting was adjourned at 5:00 with the next Board meeting scheduled for December 11th, 2024 at The Wellstone Center in Saint Paul.

LMR WMO
LOWER MISSISSIPPI RIVER
WATERSHED MANAGEMENT ORGANIZATION

FINANCIAL SUMMARY
November 14, 2024 to December 11, 2024

Beginning Balance - Gateway Bank Checking Account:				**$20,379.56**
Deposit			+	
Payments				
5020	*12/11/2024*	*Barr Engineering*	-	$1,616.30
			-	
			-	
			-	
		Checking Ending Balance		**$18,763.26**
Beginning Balance - Gateway Bank Savings Account:				
				$147,148.41
Dep	11/29/2024	November 2024 Interest	+	$341.40
			-	
		Savings Ending Balance		**$147,489.81**
Available Balance at Gateway Bank				**$166,253.07**

INVOICE

Barr Engineering Co.
4300 MarketPointe Drive, Suite 200
Minneapolis, MN 55435
Phone: 952-832-2600; Fax: 952-832-2601
FEIN #: 41-0905995 Inc: 1966

Remittance address:
Lockbox 446104
PO Box 64825
St. Paul, MN 55164-0825

Ms. Nancy Bauer
Lower Mississippi River Water Mgmt. Org.
City of Mendota Heights
1101 Victoria Curve
Mendota Heights, MN 55118

November 27, 2024
Invoice No: 23190078.00 - 270

Total this Invoice $1,616.30

Regarding: Watershed Management Organization

The following invoice is for professional services related to the above project, which include:

- Preparing for and attending the October 9, 2024 Board of Managers meeting
- Updating presentation regarding Lake Augusta Water Quality and Outlet Feasibility Study
- Coordinating with the LMRWMO Administrator to develop responses to resident comments regarding Lake Augusta next steps
- Communications with the LMRMWO Administrator

Professional Services from October 05, 2024 to November 01, 2024

Job 2024 2024 Engineering Services

Task 001 Board Meetings

Labor Charges

		Hours	Rate	Amount	
Engineer / Scientist / Specialist III					
Williams, Sterling		3.00	170.00	510.00	
		3.00		510.00	
Subtotal Labor					**510.00**

Expense Charges

Travel

10/9/2024	Wilson, Gregory	Mileage	26.80	
Subtotal Expenses				**26.80**
		Task Subtotal		**$536.80**

Task 002 Technical Assistance

Labor Charges

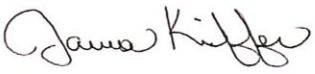
	Hours	Rate	Amount
Engineer / Scientist / Specialist IV			
Wilson, Gregory	5.10	195.00	994.50

Terms: Due upon receipt. 1 1/2% per month after 30 days. Please refer to the contract if other terms apply.

Engineer / Scientist / Specialist III				
Williams, Sterling	.50	170.00	85.00	
	5.60		1,079.50	
Subtotal Labor				**1,079.50**
			Task Subtotal	**$1,079.50**
			Job Subtotal	**$1,616.30**
			Total this Invoice	**$1,616.30**

Thank you in advance for your prompt processing of this invoice. If you have any questions, please contact your Barr Project Manager, Janna M. Kieffer Phone: 952-832-2785 or E-Mail: jkieffer@barr.com.

Barr declares under the penalties of law that this account, claim or demand is just and no part of it has been paid.

Authorized By: 

Janna Kieffer

LMRWMO 2024 Budget & Financial Summary

Revenue	Budget	2023 Carryover: Dec 14, 2023 - Jan 10 2024	2024 Monthly Revenue: Jan 11 - Feb 14 2024	Feb 15 - Mar 13 2024	Mar 14 - April 10 2024	April 11 - May 8 2024	May 9 - July 10 2024	July 11 - Aug 14 2024	Aug 15 - Oct 9 2024	Oct 10 - Nov 13 2024	Nov 14 - Dec 11 2024	2024 Total	Variance	Percent Received
Dues from Members	**$133,676.00**		$42,950.84	$90,723.74								$133,674.58	**$1.42**	**100%**
Interest	**$2,000.00**	$364.62	$1.02	$365.97	$189.01	$186.60	$192.36	$1,000.16	$969.03	$436.09	$341.40	$4,046.26	**($2,046.26)**	**202%**
LMCIT Rebate	**$250.00**											$0.00	**$250.00**	**0%**
Grant Revenue	**$117,200.00**		$30,000.00				$70,192.78					$100,192.78	**$17,007.22**	**85%**
Subtotal Operating Revenue	**$135,926.00**	**$364.62**	**$72,951.86**	**$91,089.71**	**$189.01**	**$186.60**	**$70,385.14**	**$1,000.16**	**$969.03**	**$436.09**	**$341.40**	**$237,913.62**		

Expenses	Budget	2023 Carryover: Dec 14, 2023 - Jan 10 2024	2024 Monthly Expenses: Jan 11 - Feb 14 2024	Feb 15 - Mar 13 2024	Mar 14 - April 10 2024	April 11 - May 8 2024	May 9 - July 10 2024	July 11 - Aug 14 2024	Aug 15 - Oct 9 2024	Oct 10 - Nov 13 2024	Nov 14 - Dec 11 2024	2024 Total	Remaining Budget	Percent Expended
Engineering/Technical Assistance														
Technical Assistance[4]	**$6,000.00**	$479.50		$4,046.50			$1,323.00	$1,408.00	$2,516.00	$1,440.00	$1,079.50	$11,813.00	**($5,813.00)**	**197%**
Meetings	**$6,500.00**	$1,155.00		$1,671.43			$1,632.00	$655.00	$595.00		$536.80	$5,090.23	**$1,409.77**	**78%**
Plan Implementation/Grant Applications	**$6,000.00**					$1,330.00		$617.50		$1,805.00		$3,752.50	**$2,247.50**	**63%**
Watershed Plan Amendment	**$0.00**	$1,369.50										$0.00	**$0.00**	
Project Study/Implementation														
Miss. River Direct Drainage - FY-21 WBIF Match	**$9,300.00**									$3,095.25		$3,095.25	**$6,204.75**	**33%**
Interstate Valley Creek Stabilization FY-24 CWF Match	**$10,000.00**											$0.00	**$10,000.00**	**0%**
Priority Watershed Modeling - $100,000 (FY-23 WBIF Match)	**$12,000.00**											$0.00	**$12,000.00**	**0%**
Seidls Lake Improvements - $356,000 (FY-22 CPL % Match)	**$2,500.00**											$0.00	**$2,500.00**	**0%**
Landscaping for Clean Water Projects	**$13,600.00**	$750.00								$6,110.00		$6,110.00	**$7,490.00**	**45%**
Monitoring														
Lake and Stream Water Monitoring (CAMP) and Reports	**$13,760.00**	$3,103.97				$4,240.94		$4,756.63		$3,086.73		$12,084.30	**$1,675.70**	**88%**
Education														
WMO Biannual E-Newsletter	**$3,800.00**					$1,615.00		$475.00				$2,090.00	**$1,710.00**	**55%**
Landscaping for Clean Water Classes	**$9,500.00**							$9,500.00				$9,500.00	**$0.00**	**100%**
MN Water Stewards Support	**$4,000.00**	$225.00				$285.00		$427.50				$712.50	**$3,287.50**	**18%**
Storm Drain Stenciling Program	**$3,000.00**	$180.00				$190.00		$2,434.96		$291.07		$2,916.03	**$83.97**	**97%**
Engage Residents at Public Events / WMO Tabling	**$500.00**							$570.00				$570.00	**($70.00)**	**114%**
General Education Requests	**$1,000.00**	$1,170.00				$807.50						$807.50	**$192.50**	**81%**
Metro Watershed Partners Membership	**$1,000.00**		$1,000.00	$231.00								$1,231.00	**($231.00)**	**123%**
Website Maintenance and Updates	**$2,900.00**					$2,277.50		$142.50		$665.00		$3,085.00	**($185.00)**	**106%**
Board Education	**$200.00**	$360.00										$0.00	**$200.00**	**0%**
Adopt A Drain Welcome Kits[2]	**$1,500.00**											$0.00	**$1,500.00**	**0%**
Administration														
General Administration	**$32,000.00**	$7,925.00				$10,595.00		$6,700.00		$4,467.50		$21,762.50	**$10,237.50**	**68%**
Hold Annual TAC Meeting	**$1,000.00**											$0.00	**$1,000.00**	**0%**
Insurance	**$2,500.00**							$2,772.00				$2,772.00	**($272.00)**	**111%**
Attorney and Audit	**$5,500.00**	$34.00			$897.72	$136.00	$4,300.00					$5,333.72	**$166.28**	**97%**
Subtotal Operating Expenses	**$148,060.00**	$16,751.97	$1,000.00	$5,948.93	$897.72	$21,476.94	$7,255.00	$30,459.09	$3,111.00	$20,960.55	$1,616.30	$92,725.53	**$55,334.47**	**63%**
Grant Expenses	**$175,000.00**	$0.00	$0.00	$0.00	$0.00	$12,442.50	$61,741.53	$27,487.00	$30,989.25	$14,328.00	$0.00	$146,988.28	**$28,011.72**	**84%**
Overall Fund Balance		**$168,417.88**	**$240,369.74**	**$325,510.52**	**$324,801.81**	**$291,068.97**	**$292,457.58**	**$235,511.65**	**$202,380.43**	**$167,527.97**	**$166,253.07**			
Total Grant Balance[3]		**$38,158.59**	**$68,158.59**	**$86,652.50**	**$86,652.50**	**$74,210.00**	**$82,661.25**	**$55,174.25**	**$51,672.00**	**$40,846.25**	**$40,846.25**			
Operating Fund Balance		**$130,259.29**	**$172,211.15**	**$238,858.02**	**$238,149.31**	**$216,858.97**	**$209,796.33**	**$180,337.40**	**$150,708.43**	**$126,681.72**	**$125,406.82**			
Unencumbered Operating Fund Balance[1]		**$115,259.29**	**$152,211.15**	**$218,858.02**	**$218,149.31**	**$196,858.97**	**$189,796.33**	**$160,337.40**	**$130,708.43**	**$106,681.72**	**$105,406.82**			

2024 Budget Notes:

1. $20,000 set aside for 2033 Watershed Plan Update, $5,000 additional annually encumbered.
2. $1,500 Added to Budget at 1-8-23 Meeting, carryover from 2023
3. Overage from FY-19 WBIF grant of $18,493.91 ($13,000 additional water monitoring Lake Augusta, $5,493.91 in staff time) officially shown as absorbed into WMO general fund, to zero out/close out grant, on March 13, 2024.
4. Additional time authorized to Barr to develop Accelerated Implementation Grant Application at 7-10-24 Board Meeting.

Balances Explained:

Overall Fund Balance	Balance of all bank accounts
Total Grant Balance	Grant funds in-hand
Operating Fund Balance	WMO funds without grants
Unencumbered Operating Fund Balance	WMO funds not already dedicated

LMRWMO 2024 Grant Budget & Financial Summary

	Budget	Aggregate Prior to Jan 12, 2022	Jan 13, 2022 - Jan 11, 2023	Jan 12 2023 - Jan 10 2024	Jan 11 - Feb 14 2024	Feb 15 - Mar 13 2024	Mar 14 - April 10 2024	April 11 - May 8 2024	May 9 - July 10 2024	July 11 - Aug 14 2024	Aug 15 - Oct 9 2024	Oct 10 - Nov 13 2024	Nov 14 - Dec 11 2024	Total	Variance	Percent Received/ Expended
BWSR - FY 2021 Watershed Based Implementation Funding (Miss. River Direct Drainage Study)																
Revenue																
BWSR FY-2021 WBIF Payment	**$93,042.00**	$46,521.00												$46,521.00	**$46,521.00**	**50%**
WBIF Matching Funds	**$9,304.00**													$0.00	**$9,304.00**	**0%**
Total Revenue	**$102,346.00**	**$46,521.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$46,521.00**	**$55,825.00**	**45%**
Expenses																
Grant Administration	**$10,042.00**			$156.00				$3,248.50		$176.00				$3,580.50	**$6,461.50**	**36%**
Erosion & Direct Drainage Study	**$71,000.00**								$6,666.75	$21,867.00	$30,989.25	$11,477.00		$71,000.00	**$0.00**	**100%**
Erosion & Direct Drainage Study Match (WMO)	**$9,304.00**													$0.00	**$9,304.00**	**0%**
Project Development	**$12,000.00**			$2,733.50				$4,539.00		$528.00		$957.00		$8,757.50	**$3,242.50**	**73%**
Total Expenses	**$102,346.00**	**$0.00**	**$0.00**	**$2,889.50**	**$0.00**	**$0.00**	**$0.00**	**$7,787.50**	**$6,666.75**	**$22,571.00**	**$30,989.25**	**$12,434.00**	**$0.00**	**$83,338.00**	**$19,008.00**	**81%**
FY-21 WBIF Balance		**$46,521.00**	**$46,521.00**	**$43,631.50**	**$43,631.50**	**$43,631.50**	**$43,631.50**	**$35,844.00**	**$29,177.25**	**$6,606.25**	**-$24,383.00**	**-$36,817.00**	**-$36,817.00**	**-$36,817.00**		
BWSR - FY 2023 Watershed Based Implementation Funding (Priority Watershed Project ID & Model - Thompson, Rogers, Seidls)																
Revenue																
BWSR FY-2021 WBIF Payment	**$118,385.00**			$59,193.00										$59,193.00	**$59,192.00**	**50%**
WBIF Matching Funds	**$12,000.00**													$0.00	**$12,000.00**	**0%**
Total Revenue	**$130,385.00**	**$0.00**	**$0.00**	**$59,193.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$59,193.00**	**$71,192.00**	**45%**
Expenses																
Grant Administration	**$8,000.00**							$769.50						$769.50	**$7,230.50**	**10%**
Priority Watershed Project ID & Model	**$100,385.00**													$0.00	**$100,385.00**	**0%**
Priority Watershed Project ID & Model Match (WMO)	**$10,000.00**													$0.00	**$10,000.00**	**0%**
Project Development	**$12,000.00**							$534.00						$534.00	**$11,466.00**	**4%**
Total Expenses	**$130,385.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$1,303.50**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$1,303.50**	**$129,081.50**	**1%**
FY-21 WBIF Balance		**$0.00**	**$0.00**	**$59,193.00**	**$59,193.00**	**$59,193.00**	**$59,193.00**	**$57,889.50**	**$57,889.50**	**$57,889.50**	**$57,889.50**	**$57,889.50**	**$57,889.50**	**$57,889.50**		
MN DNR - Conservation Partners Legacy Grant (Seidls Lake Shoreline Restoration)																
Revenue																
Grant Reimbursement Payments	**$382,000.00**								$70,192.78					$70,192.78	**$311,807.22**	**18%**
Matching funds	**$75,000.00**													$0.00	**$75,000.00**	**0%**
Total Revenue	**$457,000.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$70,192.78**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$70,192.78**	**$386,807.22**	**15%**
Expenses																
Grant Administration/Project Mgmt	**$26,000.00**			$15,118.00				$3,351.50		$926.00		$1,894.00		$21,289.50	**$4,710.50**	**82%**
Construction	**$356,000.00**								$23,496.03	$3,990.00				$27,486.03	**$328,513.97**	**8%**
Engineering - Construction Docs	**$37,500.00**								$31,578.75					$31,578.75	**$5,921.25**	**84%**
Engineering - Const. Mgmt, Permits, Bids	**$37,500.00**															
Total Expenses	**$457,000.00**	**$0.00**	**$0.00**	**$15,118.00**	**$0.00**	**$0.00**	**$0.00**	**$3,351.50**	**$55,074.78**	**$4,916.00**	**$0.00**	**$1,894.00**	**$0.00**	**$80,354.28**	**$339,145.72**	**18%**
Seidls Lake Shoreline Balance		**$0.00**	**$0.00**	**-$15,118.00**	**-$15,118.00**	**-$15,118.00**	**-$15,118.00**	**-$18,469.50**	**-$3,351.50**	**-$8,267.50**	**-$8,267.50**	**-$10,161.50**	**-$10,161.50**	**-$10,161.50**		

	Budget	Aggregate Prior to Jan 12, 2022	Jan 13, 2022 - Jan 11, 2023	Jan 12 2023 - Jan 10 2024	Jan 11 - Feb 14 2024	Feb 15 - Mar 13 2024	Mar 14 - April 10 2024	April 11 - May 8 2024	May 9 - July 10 2024	July 11 - Aug 14 2024	Aug 15 - Oct 9 2024	Oct 10 - Nov 13 2024	Nov 14 - Dec 11 2024	Total	Variance	Percent Received/ Expended
TOTAL GRANT FUNDS RECEIVED	**$763,656.00**	**$118,856.00**	**$0.00**	**$156,528.00**	**$30,000.00**	**$18,493.91**	**$0.00**	**$0.00**	**$70,192.78**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$394,070.69**	**$428,778.31**	**52%**
PASS THROUGH MATCH RECEIVED	**$130,000.00**	**$0.00**	**$0.00**	**$25,000.00**	**$30,000.00**	**$18,493.91**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$73,493.91**	**$70,450.09**	**57%**
LMRWMO MATCH PROVIDED	**$13,944.00**	**$0.00**	**$3,040.00**	**$546.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$3,586.00**	**$428,778.31**	**26%**
GRANT EXPENSES (MINUS WMO MATCH)	**$762,712.00**	**$5,985.63**	**$158,488.68**	**$72,751.10**	**$0.00**	**$0.00**	**$0.00**	**$12,442.50**	**$61,741.53**	**$27,487.00**	**$30,989.25**	**$14,328.00**	**$0.00**	**$387,799.69**	**$374,912.31**	**51%**
PASS THROUGH MATCH EXPENSES	**$130,000.00**	**$0.00**	**$58,040.00**	**$546.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$31,578.75**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$90,164.75**	**$39,835.25**	**69%**

NET FUND BALANCE (MINUS WMO MATCH)	**$112,870.37**	**-$45,618.31**	**$38,158.59**	**$68,158.59**	**$86,652.50**	**$86,652.50**	**$74,210.00**	**$82,661.25**	**$55,174.25**	**$51,672.00**	**$40,846.25**	**$40,846.25**	**$9,857.00**		

LMRWMO
LOWER MISSISSIPPI RIVER
WATERSHED MANAGEMENT ORGANIZATION

MEMORANDUM

To: LMRWMO Board of Managers

From: Joe Barten, Dakota County SWCD

Subject: Lake Augusta Cormorants & Correspondence

Date: December 6, 2024

SUMMARY & BACKGROUND

Lake Augusta is located within an urbanized watershed in Mendota Heights, is landlocked with no natural outlet, and has very poor water quality. The LMRWMO engaged Barr Engineering to complete a Lake Augusta Water Quality Improvement and Outlet Feasibility Study in 2022, and the attached final study was completed in late 2023. The report includes relevant background information on Lake Augusta water quality, including high water level issues, and large double-crested cormorant populations contributing feces and related phosphorus (potentially 40-70% of the total phosphorus load in any given year) to the lake. Barr staff presented on the results of the study and provided a FAQ document as an addendum at the Nov. 13th, 2024 LMRWMO Board meeting.

DOUBLE CRESTED CORMORANTS

The negative impact of cormorants on Lake Augusta water quality appears to be significant. To better understand the issue and the bird population, the LMRMWO Administrator has compiled information from cormorant research and conversations with experts on the issue. Attached is a summary of that information along with a cormorant factsheet. Additionally, Francie Cuthbert, a recently retired University of Minnesota professor in the Fisheries, Wildlife and Conservation Biology department, will be attending the December 11th, 2024 meeting to field questions. She focused her career work, in part, on the study of the biology and management of double-crested Cormorants in North America, especially in relation to the cormorant-fishery conflict.

RESIDENT CONCERNS

Residents of the Augusta Shores and Lemay Shores homeowner associations (which abut Lake Augusta) have provided correspondence regarding Lake Augusta to the LMRWMO Board and Administrator. Joe Nunez serves as the Augusta Shores HOA President. Tom Kovarik is a resident of Augusta Shores, lives on the lake, and collected the cormorant data used in the Lake Augusta Study. Kenneth Dodge is the LeMay Shores HOA president. This, in part, has been asked to be shared with the LMRWMO Board. It is included in the attachments for the Board.

DISCUSSION TIMELINE

Below is a tentative timeline for Board discussion of Lake Augusta.

November 13th, 2024 LMRWMO Board meeting - Completed

- *Barr staff will present on the results of the study/report as well as the FAQ document. The intent is to clarify the report recommendations, FAQs, and clarify potential next steps.*

December 11th, 2024 LMRWMO Board meeting

- LMRWMO staff will present on cormorant research related to Lake Augusta and Francie Cuthbert (a recently retired UofM professor and cormorant expert) will be present to answer questions.

January 8th, 2025 LMRWMO Board meeting

- LMRWMO staff will present on the history of Lake Augusta, LMRWMO actions to date, and . The Board may discuss next steps, if any, for Lake Augusta study or implementation.

BOARD ACTION REQUESTED

None at this time. Lake Augusta will again be discussed at the January 8th, 2025 LMRWMO Board meeting.

ATTACHED

- Summary of research on Double Crested Cormorants
- MN DNR Factsheet on Double Crested Cormorants
- Correspondence with/from residents regarding Lake Augusta

Double Crested Cormorant Management Research Summary

The following is summarized from research as well as meetings, phone calls, and emails with the following cormorant experts:

Professor Francie Cuthbert, PH. D. – Retired UofM Professor: Extensive research on cormorants

Gary Noerenberg - MN State Director USDA, APHIS, Wildlife Services: Provides study and control of cormorant populations

Liz Harper - MN DNR Assistant Regional Manager, Region 3, Ecological and Water Resources: Handles DNR Role in Cormorants and Permits for control

Sue Hagberg - Wild Goose Chase: Private Bird Control company

General:

- Cormorants are migratory birds and the large fall population appears to peak during migratory timeframes.
- Cormorant management can include hazing, harassing, or killing of birds.
- MN DNR leads control of cormorants on a handful of MN lakes, but is not interested in assisting in this case and typically is involved in management when cormorants impact valuable fisheries (lake prized highly for fishing), such as Leach Lake.
- If further study was done, would want to know resident number of birds, nesting pairs. Want to know about other birds in area, contributing as well. Existing nests attract more birds. Surveys over time are best could train residents. Want multiple visits to assess population, April, summer, fall. Try to get maximum # of cormorants on lake, what are they doing?
- If further study was done, could be good idea to engage with consultant, have them train residents in on citizen scientist data collection.
- Knowing the numbers of the population is important, want to know seasonally, want to know if nesting. Using drones to get estimates of populations, could be very helpful. Could be done in tandem with an investigative study.
- Nesting indicates a commitment to stay, imprinting of the birds, longer chunk of time they are at the lake. Can look at other airport report examples. Can look at National Wildlife Research Center journal articles.
- Are also non-breeding birds, can be very many, and are young birds, may be non-breeding birds at Augusta. Roosting sites can turn into nesting sites.
- Francie: Is known that cormorants contribute nutrients to aquatic and terrestrial systems and it can be a large amount depending on their numbers and how long they stay. Given that Augusta Lake appears to be a closed system, cormorant fecal material may be very important.
- Gary N. focuses more on control, not on studies of birds. Expertise in hazing, harassing, killing birds. Not able to present to WMO Board.
- Francie: I am familiar with Barr's work in several places in the Twin Cities and am impressed with their insight and quality of work as related to environmental and social issues. Your plan for a larger scale report on the lake is important. The situation is clearly complex and I am guessing that it involves more than cormorants. In other words, if you could remove or exclude cormorants, I don't think the water quality issue would be eliminated.
- Cormorants are Federally protected, not state protected.

Double Crested Cormorant Management Research Summary

Hazing and Harassing

- Hazing and harassing can be used to deter cormorants from residing on a waterbody.
- This can include noise making, inflatables, wacky wavy inflatable, propane tank noise makers, predators, need to mix it up. Haven't used lasers on cormorants in past and may not be effective if not staying on bird. Permits may not be required for hazing or harassing from USFWS.
- Hazing and harassing methods are not proven to be effective as cormorant management is very challenging, is a dynamic species and no two situations are the same.
- Birds imprint on a location, have imprinted on Augusta, can imprint for 20 years.
- The nearby Airport is a concern and an unknown with its proximity to Lake Augusta. Permits from airport may be required for any activity with bird population and potential for bird strikes.
- Hazing or harassing may just shift them to other trees or other lakes nearby. Are adaptable, if we remove the trees, may move to ground nests.
- Any acts of interfering with population carries a high risk of pioneering, moving population to another lake nearby.
- One recommendation or action that has been taken to discourage cormorants from roosting in dead trees is to cut them down in the winter. This, however, can back-fire. For example, several locations where this has been done have left fallen trees along the shoreline and cormorants are just as happy perching there as well. Also, cutting trees sometimes opens up new habitat for other species to roost or nest (such as pelicans) and this can increase problems.

Killing/Culling

- Firearms and one day has big impact. Do pick up birds. Do at peak of nesting, shoot off nests, before eggs hatch. 1st or 2nd week of may.
- Culling is pointless to do once and requires indefinite management or population will rebound.
- Shooting may not be as effective if dealing with a migratory population.
- Shooting can scare birds to a nearby lake and they may take up residence there.
- Leech Lake, have removed 30k cormorants. S MN Lakes, some private landowners have hired the USDA. $5-8k to shoot and remove birds by USDA
- Culling is usually the nesting population, via shooting, most often. Can be $5-7k annually. Usually done in spring, can take 5-7 years to make population wane. Must continue to maintain population control.

Permits for Cormorant Management

- There are very specific criteria under which US Fish and Wildlife Services allows management of cormorants, since they are protected under the Migratory Bird Act.
- The DNR would not have a role in management or permits at Lake Augusta, as they have on other MN Lakes, because there is not a fisheries concern.
- DNR Fisheries has only undertaken cormorant control when they have been able to meet requirements set by US Fish and Wildlife Service that document population-level impacts on important recreational fisheries by cormorants. DNR staff not aware of how USFWS would view a proposal to control cormorants due to water quality concerns.
- US Fish and Wildlife Service would be starting point for management permits of cormorants.

U.S. Department of Agriculture
Animal & Plant Health Inspection Service
Wildlife Services
August 2016

Wildlife Damage Management
Technical Series

Double-crested Cormorants

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Figure 1. Double-crested cormorant *(Phalacrocorax auritus)*

Quick Links

Human-Wildlife Conflicts

Fisheries

The history of conflict between double-crested cormorants (Figure 1) and human interest in fisheries is long and convoluted. Following a low point in the 1970s, populations of cormorants expanded in North America, as did concerns about impacts on fisheries. By the late 1990s, natural resource agencies in 27 states reported losses of free-ranging fish stocks to cormorants. Agencies in 10 states, ranging from the Southwest to the Northeast, considered cormorant predation to be of moderate to major concern to fishery management.

Figure 2. Impacts of breeding double-crested cormorants on trees in Guntersville Lake, Alabama

Overall, double-crested cormorants are not major consumers of commercial and sportfish species. However, exceptions have been recorded at specific sites with documented impacts on local fisheries (see Damage to Fisheries section). Cormorants often congregate and can have significant local impacts where high concentrations of fish occur, such as stocking release sites, private fishing ponds, aquaculture ponds, reservoirs, spawning sites, and other areas.

Landscapes

Double-crested cormorants can have a significant impact on vegetation at breeding sites through normal nesting activities. Their guano is acidic and can change soil chemistry, killing ground vegetation and irreversibly damaging nest trees. Cormorants also destroy vegetation directly by stripping leaves and small branches from trees for nesting material. At times, the weight of the birds and their nests can even break branches. Loss of trees can lead to increased erosion, particularly on sand spits and barrier beaches.

In one example on Little Galloo Island in Lake Ontario, all of the trees died over time due to a combination of defoliation and guano. Damage to vegetation can occur relatively quickly after cormorants move into an area. For instance, in the St. Lawrence estuary, cormorants on several islands caused irreversible damage to trees in less than 3 years. After cormorants started nesting on Young Island at Lake Champlain in 1982, all but one nesting tree was killed by 1996.

In some cases, cormorant colonies have significantly affected rare plant communities. For example, the islands in western Lake Erie are home to rare Carolinian woodlands with stands of Kentucky coffeetree. Large cormorant colonies there could threaten the continued existence of these plants.

In the Green Bay area of Wisconsin, vegetation on several islands has been impacted by cormorants. Habitat changes have allowed other ground nesting species to occupy these islands, which can perpetuate damage even in the absence of cormorants. In the southeast on Lake Guntersville, Alabama, cormorant breeding colonies have also caused nearly complete loss of trees on once forested islands (Figure 2).

The interactions between colonial water-birds and vegetation are natural occurrences that have taken place throughout history. Succession of plant and avian communities caused by these changes may not be negative from a conservation or management perspective. However, in human-altered ecosystems where alternative habitat is limited or unavailable, cormorants can affect the persistence of plant communities and other wildlife species that rely on these habitats.

The strong odor of droppings near roosts and nesting areas, along with the loss of vegetation, may reduce nearby property values. Tourists attracted to the natural beauty of waterfront areas may view the areas as unattractive once cormorants take up residence. On a local scale, decreasing property values and reduced tourism and recreation may cause economic losses for area residents and businesses that rely on income from tourism.

Human Health and Safety

Humans should avoid direct contact with excrement from wildlife, including droppings from cormorants. Cormorants can present a bird-strike hazard when their populations and nesting or foraging habitats occur in or near the flight

paths of planes. Although only 4 to 5 incidents with cormorants are reported per year in the Federal Aviation Administration wildlife-aircraft strike database, damage can be severe due to the cormorant's large size and weight.

Newcastle disease, a viral disease that can affect all bird species, was first recognized in double-crested cormorants in the St. Lawrence River Estuary, Quebec, in 1975. In 1992, double-crested cormorants in 7 states died from the disease. This widespread epidemic affected cormorants from the interior population, causing juvenile mortality rates ranging from 10 to 90%. By the late 1990s, outbreaks had occurred in cormorant populations across North America. The frequency of outbreaks in cormorants seems to be increasing since 2003, although the cause is unknown. Symptoms include lethargy, twisting of the head and neck, lack of muscular coordination, tremors, incomplete paralysis, and weakness of the legs and wings.

Possible transmission of Newcastle disease from free-ranging, wild birds to poultry is a concern, although there have been only 2 or 3 reported incidents worldwide possibly linking double-crested cormorants and other related waterbird species to outbreaks in domestic poultry. No extensive mortality to Newcastle diseases has been reported in other wild birds that share habitat with infected double-crested cormorants. Infections identical to those found in cormorants, however, have been isolated from American white pelicans and ring-billed gulls.

People also can contract Newcastle disease. Symptoms, including conjunctivitis, fever, headache, and malaise usually are mild and last 3 to 4 days. Newcastle disease is transmitted through bird guano, or by humans who have been in contact with infected birds. Therefore, people working with double-crested cormorants should take measures to prevent infecting other birds, wild or domestic. After handling cormorants, disinfect hands, footwear, and equipment, and wash all clothing.

Nuisance Problems

Cormorants may foul docks and navigation devices with feces while roosting or drying their wings when foraging.

Damage Identification

Damage to Fisheries

Flocks of foraging cormorants are easy to identify and often are reported by local anglers. Damage typically is reported by anglers as reduced catch or by aquaculture producers as reduced harvest. In recreational fisheries, state agencies also may report declines in sport fish numbers during monitoring efforts.

Cormorant diet studies often have concluded that cormorants have little impact on recreational or commercial fishing because these fish make up a small percentage of cormorant diets. Diet studies by themselves, however, typically do not measure impacts to fish populations. Many diet studies are conducted during periods when sportfish are not normally consumed by cormorants and after sportfish populations have declined, which can contribute to low estimated consumption rates. Cormorants also are opportunistic predators whose diet varies considerably with local prey availability. For example, investigators found that the percent of sport and commercially significant species in the diet of double-crested cormorants feeding at a Wyoming river varied from less than 1% to 93%. On Lake Champlain in Vermont and New York, diet studies conducted before and after establishment of alewives showed a shift in diet from primarily yellow perch to alewife. At Rice Island in the Columbia River estuary, salmonids, some of which are federally-listed as threatened or endangered, were the most important prey of double-crested cormorants.

Cormorants typically prey on specific size and age classes of sportfish. When they consume a large percentage of specific age-class fish, they may limit recruitment, even when consumption of sportfish is a relatively small percentage of total diet. This is particularly important if sportfish populations are low. In addition to rigorous diet studies, it is important to have information on the number of cormorants foraging, fish abundance, and age-specific fish mortality to fully understand the impacts of cormorants and effects of management if implemented. For example, in the Eastern Basin of Lake Ontario,

researchers found a 36% reduction in 3- to 5-year old smallmouth bass resulted in an estimated 78% decline in recruitment to fishable stock from 1976 to 1998. In Brevoort Lake, Michigan, cormorant consumption of walleye, although less than 6% of the total diet, represented 55% of a year-1 walleye age class. Successive years of cormorant predation on a small number of age cohorts potentially can cause recruitment bottlenecks of harvestable fish age and size categories.

Researchers have studied the walleye population, recreational fishery, and cormorant diet at Oneida Lake, New York, for decades. Based on over 40 years of fish population data, they concluded that cormorant predation likely was a significant source of sub-adult walleye mortality that negatively affected recruitment to the fishery.

In recent years, several large studies of fishery-cormorant interactions have been conducted. In the eastern basin of Lake Ontario, declines in 2 important recreational fish species, smallmouth bass and yellow perch, coincided with increases in cormorants. A program to manage cormorants was implemented in 1999 that included egg-oiling, nest destruction, culling of breeding adults, and prevention of new colonies. These efforts resulted in a 50% decline in nesting numbers and a large reduction in numbers of fish fed to chicks. Smallmouth bass and yellow perch populations have remained consistently above low levels observed during peak cormorant nesting years. Cormorant management likely contributed to increased smallmouth bass and yellow perch abundance, but fish populations also may have been influenced by other contributing factors such as a recent increase in invasive round goby in the cormorant diet. In the Les Cheneaux Islands area of Michigan, a similar cormorant management effort using egg-oiling to limit reproduction and lethal control of adults on breeding colonies was implemented to improve the yellow perch fishery. Monitoring indicated that the yellow perch population improved to historical levels, an improvement that has been sustained for more than 5 years. In Brevoort Lake, Michigan, a program of nonlethal harassment supplemented by limited lethal take of spring migrating cormorants to limit foraging on spawning walleye resulted in increased walleye survival and abundance. The above cases independently provide evidence that cormorants were impacting local fisheries and that management can improve fish stocks. The strength of evidence varies for each location, however, and in most cases results are confounded by other factors

The above management outcomes reflect situations in which long-term fishery data indicated cormorant predation was an issue; expertise and institutional commitment also supported multi-year management, research, and monitoring programs. Impacts of cormorants on fisheries typically are highly variable due to site-specific conditions. Aquatic systems are extremely complex, and the impacts of any single predator species are difficult to demonstrate with a high degree of certainty.

In addition, cormorants and other birds can serve as potential vectors of diseases in fish. For example, cormorants likely are involved in the transmission of whirling disease in trout, but their role in the spread of disease is not understood.

Management Methods

A key to damage prevention is the integration of multiple methods that are complementary; a single technique used in isolation seldom is successful. Habitat management is the foundation of integrated wildlife management because it provides long-term protection and enhances the effectiveness of other control techniques, such as frightening devices.

It is important to monitor the situation and apply control methods before or as soon as damage begins and only if damage is likely to be substantial. Money often is wasted when control techniques are implemented after substantial damage has been inflicted or the overall damage inflicted is minor and the cost of control exceeds the losses.

Habitat Modification

Nest trees can be removed or destroyed with the hope that adult birds will either leave the area or fail to rebuild and re-nest successfully that season. Removal of nest trees may

discourage cormorants from nesting in new areas, especially early in the nesting season. Removal of trees may not be a viable option where aesthetic or habitat impacts are a concern.

Fisheries Management

Hatchery-raised fish are particularly vulnerable when large numbers are released in a lake at once, or when spawning behavior or natural movements, such as runs of salmon smolts, concentrate fish in small areas. Release fish at night so they have time to disperse before cormorants begin feeding in the morning. In lakes, release fish in deep water, rather than from shore to reduce predation. In streams, stock fish early in the season before cormorants return from their wintering grounds. Fish also are vulnerable to cormorants when harvest methods congregate them in enclosed areas that cormorants can access. Use exclusion and frightening devices to reduce predation when stocking or harvesting fish.

Exclusion

Physical barriers such as netting or grid wire systems can prevent cormorants from preying on fish in hatcheries or aquaculture ponds (Figure 3). Nets are effective when their edges extend to the ground surrounding the pond to prevent cormorants from walking under the netting and into the water. While physical barriers can be effective, they can be impractical and cost may be prohibitive for large ponds. In some instances, space may be limited for net supporting structures, and netting may interfere with machinery needed for daily operations.

Overhead-wire systems make it difficult for cormorants to land on and take off from ponds. Although these systems are effective at preventing large flocks from landing, individual birds often learn to fly between the lines, or land on levies and walk into the pond despite the wires. Wire systems also can protect nesting colonies of other waterbirds. Along with gulls, cormorants can out-compete common terns for favored nesting islands.

Wires suspended above nesting colonies of terns can enhance success and productivity by discouraging larger

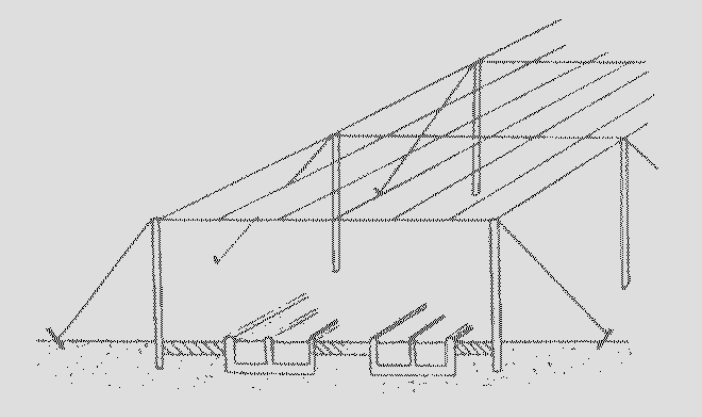

Figure 3. Overhead wires can be useful in protecting hatcheries from bird predation.

birds from nesting. This method effectively reserves nesting space for common terns until they are able to establish and defend a colony. Wires may reduce access to people and present hazards to non-target species such as swallows, osprey and bald eagles.

Ropes with plastic floats, sometimes called bird balls, are a less expensive and less labor-intensive alternative to wire systems. Floating ropes can be strung parallel to each other about 50 to 55 feet apart. The success of both wire systems and floating ropes depends on the availability of alternative foraging areas nearby. Birds that are able to find other food sources easily are more likely to be deterred.

Changes in aquaculture practices may reduce depredation by cormorants and other fish eating birds. For example, in split-pond production systems (Figure 4), production of fish occurs in a much smaller area of the pond, making harassment of birds more effective and the use of physical barriers feasible.

Frightening Devices

Harassment, or scare tactics, applied in an integrated and consistent fashion can discourage cormorants from using specific sites. Birds can be hazed at fish hatcheries and aquaculture facilities, as well as roosting and nesting sites on larger bodies of water. Harassment is most effective when the birds are not nesting or before birds have become habituated to a location. Cormorants learn quickly,

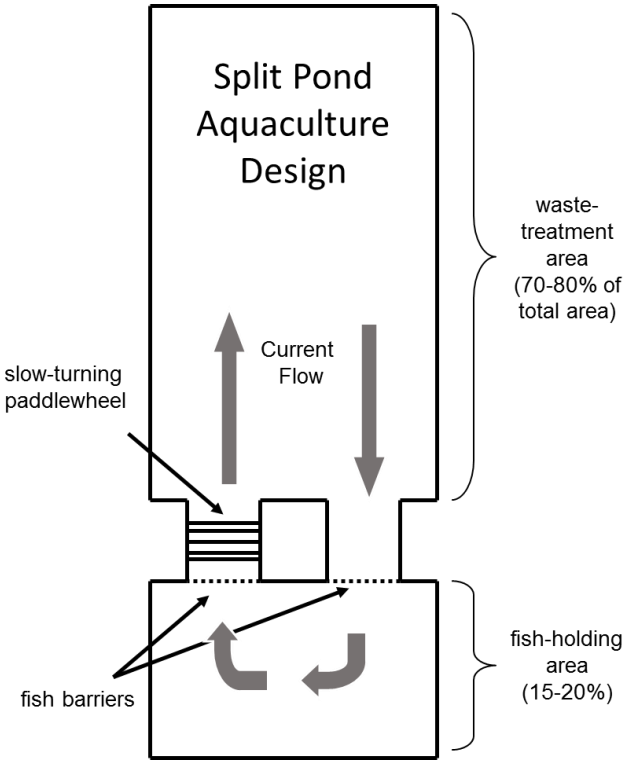

Figure 4. Aquaculture practices ,such as split pond catfish aquaculture designs, may reduce bird depredation on fish stocks.

so frightening devices often do not deter the birds for long. For best results, use a variety of techniques and change the location and combination of devices frequently.

Auditory

Devices that make noise, including pyrotechnics such as shell crackers, screamers, whistling or exploding projectiles, bird bangers, propane cannons, and live ammunition, have been used to disperse cormorants with varying success. Live ammunition, while technically not a pyrotechnic, often is the least expensive and most readily available form of frightening device. Other methods may be more effective, but take care to avoid injuring or killing cormorants and other protected species.

Hand-held lasers have been used successfully to disperse roosting cormorants and are most effective in low light conditions (twilight, nighttime, overcast skies). In addition, lasers are silent and can be used to move cormorants with minimal disturbance to non-target species. The regular presence of humans may frighten cormorants from smaller aquaculture or hatchery facilities, as well as from roosting sites and potential colonies. Encourage frequent human activity near valuable fish stocks to reduce depredation on fish.

Visual

Visual harassment techniques (e.g. scarecrows, human effigies, and balloons) also have been tried with varying degrees of success. Mylar® tape (Figure 5) suspended on stakes near roosting and loafing sites has been effective in reducing cormorant use of areas. In addition, boats can be used to chase cormorants and successfully disperse roosts and flocks from ponds and larger bodies of water.

Use of limited lethal control with harassment techniques may improve the effectiveness of harassment and is sometimes necessary to prevent acclimation to non-lethal methods.

Further effort in evaluation of novel non-lethal methods is being pursued. Researchers in Canada used a tethered raptor with some success to disperse nesting cormorants from a colony site. Drones are being investigated for their potential use in dispersing nesting cormorants from bridges, and to harass birds on ponds.

Figure 5. Irri-Tape™ is Mylar-style tape used to frighten cormorants.

Repellents

None are registered.

Nest Removal and Treatment

Nests can be removed or destroyed to limit reproduction and disperse nesting birds. Nest destruction is relatively labor-intensive, although it can be practical on smaller colony sites. It requires more effort in colonies that are already established. High-pressure water sprays have been used to destroy cormorant nests in trees. Nest removal may be useful for discouraging cormorants from nesting in new areas, especially if nests are destroyed early in the nesting season. To be effective, control must be repeated throughout the nesting season, and likely on an annual basis. Nest removal may shift cormorants to other locations where they may cause continued conflicts.

Egg addling can be used to prevent or reduce population growth, and may be useful for eliminating colonies at specific locations, especially if combined with other harassment or population reduction methods. Eggs can be oiled (Figure 6) by spraying with food-grade corn oil to prevent the exchange of gases through the shell, causing asphyxiation of the embryo. Eggs also can be addled by vigorously shaking or puncturing them with a sharp small rod. The benefit of egg addling over destroying eggs is that cormorants will continue to incubate the eggs and are less likely to attempt to re-nest. Management strategies that include egg-oiling are best suited to situations where the presence of cormorants can be tolerated, and rapid population reduction is not the goal. Cormorants often re-nest, so some reproduction may still occur if persistent effort is not applied. In some states, a pesticide applicators license may be required for oiling eggs.

Any technique that involves egg or nest destruction, or removal of cormorants likely will require federal and state permits or come under the authority of federal Aquaculture or Public Resource Depredation Orders.

Figure 6. Spraying oil on eggs in double-crested cormorant nests. The typical 3-person team has a backpack sprayer for food grade corn-oil, a person marking each nest with paint, and a data recorder.

Fertility Control

Currently no methods of surgical or chemical sterilization or immuno-contraception are available or practical for controlling cormorants.

Toxicants

None are registered.

Trapping

Net Traps

Spring-loaded net traps (clap net traps) can be used to capture nesting colonial waterbirds. Place dummy eggs in a nest and set the trap so that it closes over a bird that comes to the nest. Monitor the nest from a nearby blind so the trapped bird can be removed from the trap quickly to prevent injury. After the bird is caught and euthanized or released, put the actual eggs back in the nest. Other less-used capture techniques for cormorants at their nests include swim-in traps, rocket and cannon nets, and net launchers.

Foot-hold Traps

Place modified foot-hold traps at nests to capture adult birds during the breeding season in April and early May.

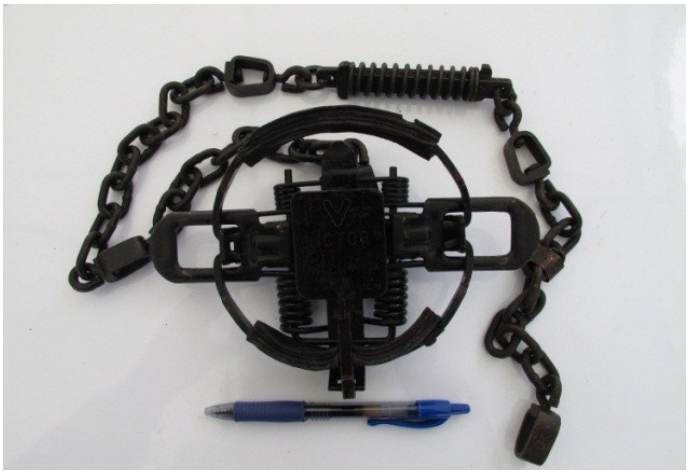

Figure 7. No. 3 padded-jaw foothold trap. All 4 springs should be removed and replaced with 2 springs suitable for a No. 1.5 paddle-jaw foothold.

Figure 8. No. 1.5 foothold trap in place over dummy eggs in a cormorant nest.

Use a No. 3, padded-jaw, foot-hold traps that has been modified by replacing factory coil springs with weaker No. 1.5 trap springs (Figure 7). Replace the trap chain with aircraft cable and a shock cord to minimize injury to trapped birds. Place dummy eggs in the nest during trapping (Figure 8). After the bird is caught and euthanized or released, put the actual eggs put back in the nest.

Spotlights and Long-handled Nets

At night, cormorants can be disoriented by shining a spotlight on them and captured with a long-handled net on foot or by boat. This method works best on dark nights with low ambient light.

Shooting

Shooting allows for relatively rapid reduction in cormorant numbers. Shooting can be most effective on breeding colonies, where large numbers of birds congregate each day. Open-water shooting and removal at night roosts also can be used to protect specific sites. Cormorants respond well to both floating and silhouette decoys, which can make shooting more effective and reduce non-target take (Figure 9).

Use a 12-gauge shotgun with No. 4 or 6 non-toxic shot size. Qualified agency personnel may also use suppressed 0.22- or 0.177-caliber rifles on nesting colonies. Shooters should be knowledgeable in waterbird identification to prevent killing non-target species. Shooting adult cormorants not only removes birds, but also harasses the remaining birds. Shooting can be combined with pyrotechnics to enhance the effectiveness of non-lethal control options. Remove carcasses by hand and dispose of them using approved methods.

Handling

Relocation

Capture and relocation is not practical or effective, and thus is not recommended.

Translocation

Capture and translocation usually is not practical for cormorant management. Cormorants often move to different roost or nesting locations due to management activities such as hazing. While translocation from, for example, a hazed site is desirable, translocation to other sites can have an unpredictable outcome (i.e. positive, negative, or neutral).

Euthanasia

Shooting is the most common method of euthanasia for double-crested cormorants. If a bird requires euthanasia while in hand, cervical dislocation is the most practical technique.

Disposal

Check your local and state regulations regarding carcass disposal. Recovered banded cormorants should be reported by calling 1-800-327-BAND.

Economics

Cormorants may be managed whenever their damage justifies the granting of the permits necessary to control them. Adult cormorants eat approximately 19 ounces of food per day, so local impacts of large flocks on fisheries can be substantial. Although cormorants frequently are blamed for reductions in fish harvests, this is not always substantiated. Sometimes other factors, such as pollution, invasive species, and habitat loss may be the primary factor or contributing factors in the decline of fisheries.

Species Overview

Identification

Cormorants are slender birds with webbed feet and a long sturdy beak with a hook at the end. Six species reside in North America, namely the double-crested cormorant (*Phalacrocorax auritus;* Figure 1), great cormorant (*Phalacrocorax carbo*), neotropic cormorant (*Phalacrocorax brasilianus*), red-faced cormorant (*Phalacrocorax urile*), pelagic cormorant (*Phalacrocorax pelagicus*), and Brandt's cormorant (*Phalacrocorax penicillatus*). This chapter will focus on the double-crested cormorant, which is the most numerous and widely dispersed of the species.

Physical Description

The double-crested cormorant (Figure 1) is a long-lived, colonial-nesting waterbird native to North America. It usually is found in flocks, and sometimes confused with geese or loons when on the water.

Double-crested cormorants have black plumage tinted with a greenish gloss on the head, neck, and underside. In breeding plumage, tufts or crests of feathers appear for a short time on either side of the head of adult birds, giving them their name. Their black bills are slender and cylindrical with a hooked tip and sharp edges. They have black, webbed feet set well back on their body, a long curving neck, orange facial skin, and an orange throat pouch like their pelican relatives. Some 1- to 2-year-old juvenile cormorants have grey or tan plumage on their neck and breast.

Double-crested cormorants are 29 to 36 inches long with a wingspan of 45 to 52 inches. They and weigh about 4 to 6 pounds. On average, double-crested cormorants live about 6 years, but a few over 22 years have been reported.

Range

The double-crested cormorant is found in association with water bodies across the continental U.S. and along the southern coast of Alaska (Figure 10).

Figure 9. Floating and silhouette decoys used in double-crested cormorant control.

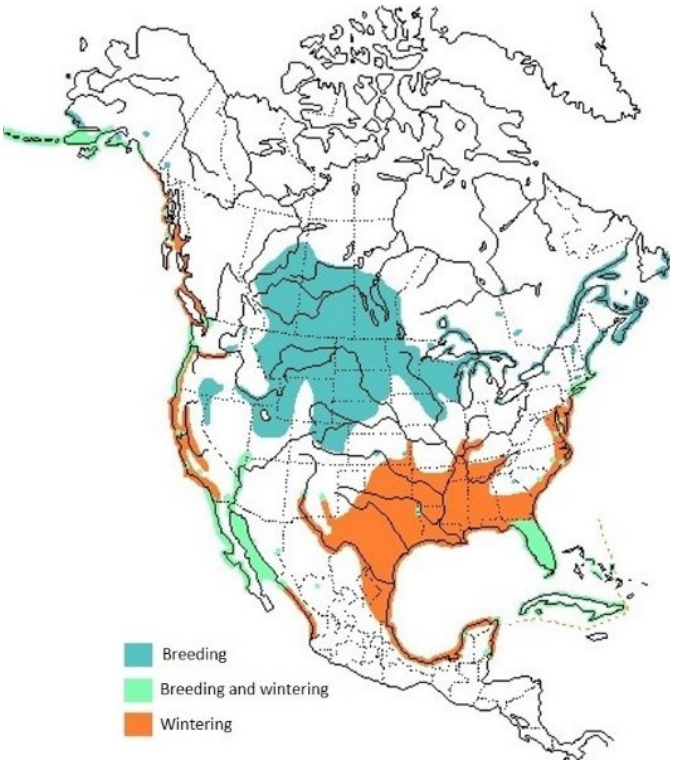

Figure 10. Range of double-crested cormorant.

The breeding range of the cormorant is divided into 5 geographic areas: Alaska, the Pacific coast, southern U.S., interior U.S. and Canada, and northeast Atlantic coast. A small number of double-crested cormorants breed in the southeastern U.S. Populations in the interior U.S. and Canada, northeast Atlantic coast, and southern U.S. have been increasing and expanding their range since 1980.

Tracks and Sign

Cormorants have webbed feet, but rarely leave tracks on the rocky substrate used for nesting. The most obvious signs are visual observations of flocks of birds feeding or resting, guano deposits, and their coarsely constructed stick nests in trees or on the ground.

Voice and Sounds

Cormorants usually are silent, but make hoarse, grunting, and guttural calls at breeding colonies and roost sites.

Reproduction

Cormorants are monogamous and breed in colonies ranging from several to over 10,000 pairs (Figure 11). Most double-crested cormorants return to the same location to breed year after year. Young cormorants often return to the colony where they hatched or to nearby areas to breed. Most cormorants are sexually mature by their third year, but a small number breed a year sooner.

Normally cormorants have only 1 clutch per year, although they readily re-lay if eggs are taken by predators or destroyed. Clutch sizes range from 1 to7, with 4 eggs being most common. Both sexes incubate the eggs and incubation lasts 25 to 28 days. Embryos are tolerant of cold but not of heat. Hatchlings are altricial and weak, but growth is rapid, with chicks reaching about 90% of fledgling mass in 24 days. Young birds can walk by 3 weeks and begin to fly at 6 to 8 weeks. Fledglings are completely independent about 10 weeks after hatching.

Nesting Cover

Males typically show up first, unpaired, on the breeding grounds and establish territories. Pairs form and begin constructing elevated platform nests composed of twigs, branches, and other plant materials in April to May. These nests often reach a height of 12 to 20 inches and may be re-used in subsequent years.

Figure 11. After a dramatic decline from the 1950s to 1970s, numbers of double-crested cormorants and breeding colonies have increased.

Cormorants typically use islands from 1 to 15 acres, with larger colonies often at more remote locations. Cormorants nest in trees, on cliffs, or on the ground (Figure 12). After years of repeated nesting in the same location, their guano often kills trees and other vegetation.

Cormorants are attracted to nesting sites of other colonial waterbirds and may compete with gulls, terns, egrets, herons, and some waterfowl (Figure 13). Cormorant guano deposited under nest trees can kill understory vegetation important for nesting black-crowned night herons and other tree-nesting species. At West Sister Island National Wildlife Refuge in Lake Erie, which supports one of the largest great blue heron colonies in the Great Lakes, heron numbers have declined annually since the double-crested cormorant arrived in 1992, presumably due to a combination of nest site competition, loss of nesting sites, and increased in human activity.

Figure 12. Double-crested cormorants nesting on a cliff.

Mortality

Double-crested cormorants commonly live more than 8 years and occasionally 22 years or more in the wild. Estimated first-year mortality is over 50%, but survival greatly increases to over 80% annually for older birds. Eggs and chicks are taken by a variety of predators, particularly gulls and crows. Disturbance to colonies can cause extensive chick mortality due to predation and exposure. Adults have few predators, with the exception of eagles. Humans also affect cormorants and a substantial number are killed by entanglement in fishing gear.

Figure 13. Double-crested cormorants competing with a herring gull for its nest site.

Population Status

In 2005, the continental population of cormorants was estimated between 1,080,800 and 2,163,600, which is similar to the estimates of 1 to 2 million individuals in the 1990s. A dramatic population decline occurred between the 1950s and 1970s, caused by human persecution and chemical contamination from DDT. Cormorant numbers began to rebound in the mid-70s after DDT was banned. Pollution control lowered the concentrations of toxic contaminants in the bird's food. Food became more abundant throughout their winter and summer ranges (e.g. alewife in the Great Lakes, stocked lakes, and catfish aquaculture in

the Southeast), and cormorants were given protection by both federal and state laws.

The interior meta-population generally is considered the largest, with close to half a million individuals. In the Great Lakes region, the number of cormorants increased an average of 29% per year from 1970 to 1991, after which population growth slowed. The Great Lakes meta-population currently is stable or declining and may have reached carrying capacity in the North Channel of Lake Huron and other areas. The U.S. Fish and Wildlife Service (USFWS) reported that this decline was more pronounced in the US Great Lakes, where more management occurs, relative to the Canadian Great Lakes.

Habitat

During the breeding season, double-crested cormorants inhabit lakes, ponds, slow-moving rivers, lagoons, estuaries, and open coastlines. They need suitable nesting sites with feeding areas nearby. Cormorants may nest on the ground, on steep cliffs, or on rocky or sandy islands, but they prefer to nest in trees. Nesting trees and structures usually are located near water, on islands, in swamps, or along tree-lined lakes. Cormorants typically choose live trees for nesting, although the trees often die within 3 to 10 years because of the significant accumulation of guano deposited on and beneath them.

Outside of the breeding season, cormorants use a variety of habitats including marine islands and coastal bays. Cormorants establish nighttime roosts and daytime resting or loafing areas on sandbars, rocky shoals, cliffs, offshore rocks, utility poles, fishing piers, wires, channel markers, pilings, and trees near their fishing grounds.

Behavior

Cormorants are expert divers, with webbed feet, streamlined bodies, and feathers that hold water and reduce buoyancy. They typically dive 8 to 25 feet, although depths of up to 85 feet have been recorded. After feeding, cormorants characteristically dry their feathers by perching with their wings outstretched (Figure 14).

Double-crested cormorants of the Atlantic coast and interior populations are seasonal migrants. They leave the Northeast in September and migrate south along coastlines and river valleys. The 2 primary migration routes are down the Atlantic coast and through the Mississippi and Missouri River Valleys to the Gulf Coast. Cormorants return to their northern breeding grounds in late March or April.

Home ranges of cormorants are highly variable and can be very large. Breeding season home ranges of cormorants marked with satellite transmitters ranged from 7 to over 11,583 square miles. Winter home ranges show similarly large variation in size, ranging from 31 to 6,753 square miles.

Food Habits

Double-crested cormorants feed almost exclusively on fish (Figure 15). They typically prey on small (less than 6 to 8 inches), bottom-dwelling, or schooling “forage” fish, especially those that are most abundant and easiest to catch. This includes fish such as alewife, gizzard shad, yellow perch, sculpins, and sticklebacks.

Diets of cormorants vary considerably from site to site and throughout the year. Their ability to catch fish depends on several factors, such as distribution, relative abundance, behavior, and habitat. Their diet often reflects the number and type of fish present in a given area at a given time.

Figure 14. Double-crested cormorants perch on trees, rocks, buoys, and other objects that overhang or project from water.

Typically, cormorants feed during the day in water less than 25 feet, within a few miles of the shore and their breeding colony. To capture fish, cormorants dive below the surface and pursue prey underwater. Dives may last from 17 to 34 seconds or more. The birds sometimes swim with their heads submerged, searching for prey. They grasp prey in their bills and sometimes swallow fish underwater. Cormorants swallow large fish or those that are difficult to handle (e.g., eels or spiny fish), at the surface. At times, they throw their prey into the air, catch it, and swallow it head first. Cormorants typically forage individually, but may gather into feeding flocks of hundreds of birds, especially when preying on small schooling fish.

Adult cormorants feed regurgitated food to their nestlings. To feed very young chicks, an adult will arch its neck, take the head of the chick into its mouth, and regurgitate a semi-liquid food. Older nestlings will thrust their heads into the adult's throat and remove whole fish regurgitated into the neck pouch.

Legal Status

The U.S. Fish and Wildlife Service (USFWS) has the primary responsibility and authority for managing migratory bird populations in the U.S. This authority was established by the Migratory Bird Treaty Act (MBTA) of 1918, a treaty between the U.S. and Great Britain (on behalf of Canada) to:

- ensure the conservation and management of migratory birds internationally,
- sustain healthy migratory bird populations for consumptive and non-consumptive uses, and
- restore declining populations of migratory birds.

In 1972, the U.S. Convention with Mexico was amended, and the double-crested cormorant was added to the list of migratory birds and given protection in the U.S .under the MBTA. Under this protection, cormorants cannot be captured or shot, and their nests and eggs cannot be disturbed unless a permit is obtained from the USFWS.

Depredation permits to take cormorants have been issued by USFWS since 1986, primarily to federal, state, and tribal agencies and aquaculture producers, and may allow for the taking of adults, eggs, young, or active nests.

In March 1998, the USFWS issued an Aquaculture Depredation Order (AQDO), allowing people engaged in commercial aquaculture to shoot cormorants without a federal permit at freshwater aquaculture facilities, or state-operated hatcheries in Minnesota and 12 southeastern states. The AQDO allowed shooting of cormorants during daylight hours when necessary to protect aquaculture and hatchery stock if these actions were taken in conjunction with a non-lethal harassment program reviewed by the USDA-APHIS-Wildlife Services (WS).

USDA-APHIS Wildlife Services

Although the USFWS has primary responsibility for managing cormorants, the USDA-APHIS-WS is the primary federal agency involved with on-the-ground management activities when cormorants cause damage. Wildlife Services helps states, organizations, and individuals resolve conflicts between people and wildlife on public and private lands by collecting information, documenting damage, and recommending or implementing options for wildlife damage management. In addition, the USDA-APHIS-WS-National Wildlife Research Center is the primary federal program

Figure 15. Double-crested cormorants feed on a variety of fish species.

involved with research on assessment and tools and techniques associated with reducing conflicts.

State Wildlife Management Agencies

State wildlife agencies also are involved in management of double-crested cormorants. Double-crested cormorants are protected by migratory bird legislation in many states in addition to the MBTA. Cormorant control programs are being implemented in states, however, where birds are negatively affecting fish populations, vegetation, and other colonial water-birds. In New York and Vermont, programs are underway to prevent the spread of cormorants to other nesting islands in Lake Ontario, Oneida Lake, and Lake Champlain.

In 2003, the USFWS, in cooperation with WS, finalized an Environmental Impact Statement (EIS) on double-crested cormorant management to address growing concerns from the public and natural resource management professionals about the population and range expansion of the double-crested cormorant in the U.S. and their effects on local fish populations, other bird populations (including threatened and endangered species), vegetation and habitat, private property, and economic opportunities.

Increased Local Control

The USFWS issued new regulations in August 2003 that enhanced the flexibility of management agencies to deal with problems on a more local level, while ensuring the long-term sustainability of cormorant populations. The regulations included a new Public Resource Depredation Order (PRDO) that allows state fish and wildlife agencies, federally-recognized tribes, and WS to use lethal control measures to manage double-crested cormorants to address conflicts in 24 states, including: Alabama, Arkansas, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Michigan, Minnesota, Mississippi, Missouri, New York, North Carolina, Ohio, Oklahoma, South Carolina, Tennessee, Texas, Vermont, West Virginia, and Wisconsin.

According to the PRDO, lethal control, including shooting, egg-oiling or destruction, and nest destruction, can be carried out to protect public resources including fish, wildlife, plants, and other wild species on public lands and waters. With appropriate landowner permission, control activities also can take place on private lands where double-crested cormorants are causing harm to public resources.

Acknowledgements

Figure 1. Photo by USFWS
Figure 2. Photo by Jerry Feist, USDA-APHIS-WS
Figure 3. Image by Prevention and Control of Wildlife Damage (PCWD)
Figure 4. Image courtesy of Craig Tucker, USDA, Agriculture Research Service, Warmwater Aquaculture Research Unit, Stoneville, MS
Figure 5. Photo by Bird-X, Inc.
Figure 6. Photo courtesy of the New York Department of Environmental Conservation
Figure 7. Photo by Stephen M. Vantassel
Figure 8. Photo by Elizabeth Craig
Figure 9. Photo by Tony Aderman, USDA-APHIS-WS
Figure 10. Map from The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology
Figure 11. Photo by Charles D. Lovell, USDA-APHIS-WS
Figure 12. Photo by Donna A. Dewhurst, USFWS
Figure 13. Photo by Brian S. Dorr, USDA-APHIS-WS
Figure 14. Photo by Stan Tekiela
Figure 15 Photo by Brian S. Dorr, USDA-APHIS-WS

We thank Katie C. Hanson-Dorr and Fred C. Cunningham for their helpful comments and suggestions on an earlier version of this publication.

Glossary

Recruitment: In the fish industry, reaching a certain size or reproductive stage.

Salmonids: Fish in the family salmonidae, including salmon, trout, chars, graylings, and freshwater whitefishes.

Split-pond system: A hybrid of recirculating and pond aquaculture production

Key Words

Aquaculture, Co-nesting species, Cormorant, Double-crested cormorant, Egg-oiling, Fisheries, Hatcheries, Nest destruction, *Phalacrocorax auritus,* Sportfish, Vegetation damage, Wildlife damage.

Disclaimer

Wildlife can threaten the health and safety of you and others in the area. Use of damage prevention and control methods also may pose risks to humans, pets, livestock, other non-target animals, and the environment. Be aware of the risks and take steps to reduce or eliminate those risks.

Some methods mentioned in this document may not be legal, permitted, or appropriate in your area. Read and follow all pesticide label recommendations and local requirements. Check with personnel from your state wildlife agency and local officials to determine if methods are acceptable and allowed.

Mention of any products, trademarks, or brand names does not constitute endorsement, nor does omission constitute criticism.

Resources

Cornell University Cooperative Extension Wildlife Control Information Website. http://wildlifecontrol.info/ Accessed October 27, 2014.

Dorr, Brian S., J. J. Hatch and D. V. Weseloh. 2014. Double-crested cormorant (Phalacrocorax auritus), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology. http://bna.birds.cornell.edu/bna/species/441/articles/introduction Accessed October 27, 2014.

USDA-APHIS, Wildlife Services, National Wildlife Research Center. http://www.aphis.usda.gov/wps/portal/aphis/ourfocus/wildlifedamage?1dmy&urile=wcm%3apath%3a%2FAPHIS_Content_Library%2FSA_Our_Focus%2FSA_Wildlife_Damage%2FSA_Programs%2FSA_NWRC Accessed October 27, 2014.

US National Cooperative Extension website (eXtension). http://extension.org Accessed October 27, 2014.

The Internet Center for Wildlife Damage Management. http://ICWDM.org Accessed October 27, 2014.

National Wildlife Control Training Program. http://nwctp.com Accessed July 27, 2015.

Appendix

Damage Management Methods for Double-crested Cormorants

Type of Control	Available Management Options
Exclusion	• Monofilament or wire lines • Netting
Fertility Control	None available
Frightening Devices	• Propane cannons • Pyrotechnics • Mylar® tape at nest sites • Lasers • Boats • Effigies
Habitat Modification	• Remove nest trees on islands • Release fish at night or offshore • Split-pond aquaculture systems
Nest Removal and Treatment	• Nest destruction • High-pressure water spray to destroy nests • Oiling or puncturing to destroy eggs
Repellents	None registered
Shooting	• 12-gauge shotgun with No. 4 or 6 non-toxic shot • Qualified agency personnel may use suppressed .22– or .177-caliber rifles on nesting colonies
Toxicants	None registered
Trapping	• Modified No. 3, padded-jaw foothold traps • Clap net traps, swim-in traps • Spotlight and net by hand at night from ground or boat • Rocket and cannon nets, net guns, and net launchers

4.0 Attachment - Lake Augusta Correspondence, Letter to LMRWMO from Tom Kovarik

TO: Date: October 27, 2024

Joe Barten, Administrator of LMRWMO

Dakota County SWCD
4100 220th St. West, Suite 102
Farmington, MN 55024

Phone: (651) 480-7784
E-mail: joe.barten@co.dakota.mn.us

FROM:

Thomas Edward Kovarik

2114 Lake Augusta Drive

Mendota Heights, MN, 55120

Mobile: 651.468.5941

Email: ThomasEdwardKovarik@Gmail.com

Dear Joe,

I am writing to you both as my County Administrator, and also as my LMRWMO Representative.

Please take this letter to and share it with the LRMWMO upcoming meeting in November or when you next meet.

First, thank you for all your years of help and expertise in our cleanup of Lake Augusta.

Two items:

1.**Speaking for myself,** Lake Augusta is a private lake, with only a few luxury townhouses owning shoreline in two Townhouse Associations. Lakes should be available to all the public, not only to the wealthy who can afford expensive townhomes. I recommend that before more public money is spent on Lake Augusta (and a lot has already been spent!), a handicapped accessible public access should be built so all Minnesotans regardless of wealth or handicap can visit and recreate on Lake Augusta (north shoreline is a good site).

Currently, it is criminal trespass for the public to access this lake. Hence, I recommend a moratorium on continued spending of public money on this private lake for the wealthy.

2.**Speaking for most of the Lakeshore owners of both Associations,** we are not convinced that an artificial permanent lowering of the lake (by perhaps up to 30% to 35%) would have either short term or long-term benefits in cleaning the lake. We therefore recommend that no engineering work should begin, or public money spent until Barr Engineering and the lakeshore owners come to agreement on lake level.

As you and I have discussed in the past (and thank you for visiting my shoreline for cormorant bird counts above 3000 in Autumn a few years ago, Joe), we all want Lake Augusta cleaned for the next and all future generations, but I and many shoreline owners feel it is ill advised for more public money to be spent on Lake Augusta at this time, or for engineering work to begin.

The community and shoreline owners are also divided and are not in accord over Lake Augusta issues: Public money should not be spent until the community supports the plan.

Sincerely,

Tom Kovarik

4.0 Attachment - Lake Augusta Correspondence, Letter to Dakota County from Tom Kovarik

TO: Date: November 21, 2024

The Honorable District 3 Commissioner Laurie Halverson, Dakota County

FROM:

Thomas Edward Kovarik

2114 Lake Augusta Drive

Mendota Heights, MN, 55120

Mobile: 651.468.5941

Email: ThomasEdwardKovarik@Gmail.com

Dear Honorable Commissioner Laurie Halverson,

I am writing to you as my County Commissioner. We live on and are shoreline owners on Lake Augusta in Mendota Heights. Our lake is on the imperilled waters list of the State of MN, as you know, and we continue to search for a way to clean it that is economical, and complies with Federal laws.

First, thank you for all your years of help and expertise in our cleanup of Lake Augusta Pollution in Mendota Heights. We continue working with Mayor Levine and your employee Joe Barton, and we have for several years, and we are making progress on cleaning our lake.

Two items:

1.**Speaking for myself,** Lake Augusta is a private lake, with only a few luxury townhouses owning shoreline in two Townhouse Associations. Lakes should be available to all the public, not only to the wealthy who can afford expensive townhomes. I recommend that before more public money is spent on Lake Augusta cleanup (and a lot has already been spent and wasted!), that a handicapped accessible public access should be built so all Minnesotans regardless of wealth or handicap can visit and recreate on Lake Augusta (north shoreline is a good site). Currently, it is criminal trespass for the public to access this

lake. Hence, I recommend a moratorium on continued spending of public money for cleanup of this private lake for the wealthy until it is accessible to the public.

2.**Speaking for most, if not all of the Lakeshore owners of both Associations on Lake Augusta,** we are not convinced that the current plan by Barr Engineering, to clean the lake by an artificial permanent lowering of the lake by perhaps up to 30% to 40%, would have either short term or long-term benefits in cleaning the lake. We shoreline owners do not want to lose about 1/3 of our lake in vain! We therefore recommend that no engineering work should begin, nor that public money should be spent, until Barr Engineering and the lakeshore owners come to agreement on lake level and cleaning methodology, and research if this water level lowering is in vain.

We all want Lake Augusta cleaned for the next and all future generations, but I and many shoreline owners feel it is ill advised for more public money to be spent on Lake Augusta cleanup at this time, or for engineering work to begin. We as a community are not united and in accord, and are not ready to spend more public money on this private lake. We have many questions and unanswered concerns about the cleaning of the lake, and the legality under Federal Law (Migratory Birds Federal Protection Act) of dispelling the very large birds (3000+ migrating black double breasted cormorants rest on the lake every autumn for about 6 weeks, dropping 2 to 3 tons of wet feces into our lake and our lake has no water outlet), and whether by dispelling the birds which cause the pollution, if we are in fact just sending our problem to a neighboring lake in Dakota County or elsewhere in the Twin Cities Metropolitan Region. We have other moral and Federal legal questions about this involuted lake pollution problem, and we need more time to work with County, City, State and Federal officials: We are not yet ready to spend more money and we are not in agreement as a neighborhood at this time. Please do not allocate money for cleanup at this time: It would be premature and fiscally unwise.

We are working with State and Federal Officials to solve these problems and find the right, legal, and moral way to clean the pollution of Lake Augusta. It would be “throwing good money after bad money” (the $85k Alum Treatment of our lake was an abysmal failure) to spend more money at this time. We need a year or two to come together and agree with all the State and Federal officials, and Barr Engineering Inc., on how to properly clean our lake and not just pass our problems on to the next neighboring lake.

The community and shoreline owners are also divided and are not in accord over other Lake Augusta issues: Public money should not be spent until the community researches with State and Federal officials and resolves the problems and comes together in one accord to support a workable successful plan.

Sincerely,

Thomas Edward Kovarik

(Dakota County Shoreline owner on Lake Augusta)

2114 Lake Augusta Drive

Mendota Heights, MN, 55120

Email: ThomasEdwardKovarik@gmail.com

Mobile: 651.468.5941

4.0 Attachment - Lake Augusta Correspondence,
Letter to LMRWMO from Augusta Shores HOA

AUGUSTA SHORES TOWNHOME ASSOCIATION

c/o Joe Nuñez, President
2058 Acacia Drive
Mendota Heights, Minnesota 55120-1185

November 1, 2024

To the Honorable Mayor Levine and the Honorable Mendota Heights Councilmembers,

We write to you on behalf of the Augusta Shores Townhome Association Board of Directors and the current committee members of the Augusta Shores Lake Augusta Task Force. The Augusta Shores Townhome community is comprised of 46 owners. The Task Force was established pursuant to our Association's annual meeting in 2023, and tasked with representing the collective interests of the owners within the Augusta Shores Townhome community. The Task Force regularly reports to the Augusta Shores Association Board and all of the owners through a monthly Newsletter, open discussion at Board meetings, and published minutes of Board meetings.

We have been in regular contact with Joe Barten, the Administrator of the Lower Mississippi River Watershed Management Organization over the past several years, and our President appeared before you at the August 13th Mendota Hights City Council meeting. We are aware of the unique challenges that Lake Augusta has, and we appreciate the immense time, effort, and resources that have gone into the research and planning to remedy the water quality issues of Lake Augusta.

While we encourage homeowners to voice their individual concerns, the Task Force confirmed at our annual meeting in May 2024 that the homeowners support the Task Force's efforts to work with the LMRWMO, the City of Mendota Heights and all appropriate governmental entities, in collaboration with Barr Engineering, to constructively move forward to help restore the water quality of Lake Augusta and the surrounding environment.

We know that everyone has the best interest of Lake Augusta and the surrounding environment at the heart of this effort. The Lake Augusta Shores Board and the Lake Augusta Task Force, on behalf of the Augusta Shores Townhome community, look forward to continuing to work collaboratively with you and the LMRWMO to remedy the lake water quality issues.

Sincerely,

Augusta Shores Board of Directors
Augusta Shores - Lake Augusta Task Force

Cc: Joe Barten, LMRWMO
Ryan Ruzek, City of Mendota Heights
Senator Jim Carlson
Representative Bianca Virnig
Representative Rick Hansen
Dakota County Commissioner Laurie Halverson
Kenneth Dodge, Lemay Shores Homeowners Association

4.0 Attachment - Lake Augusta Correspondence, Emails on Lake Augusta to State, County, City, and WMO Representatives (NOTE EMAILS IN REVERSE ORDER)

From: Joe Nuñez
To: Kenneth Dodge
Cc: Barten, Joe; Halverson, Laurie; Ryan Ruzek; Kathryn Haight; Barbara Kaufmann; Jan Martland; TOM HANSCHEN; Thomas Edward Kovarik; Dick & Lynn Bisanz; Brian Murphy; kayejankowski@gmail.com; Doina Larkin; slevine@mendotaheightsmn.gov; slorberbaum@mendotaheightsmn.gov; jmazzitella@mendotaheightsmn.gov; jmiller@mendotaheightsmn.gov; jpaper@mendotaheightsmn.gov; rep.bianca.virnig@house.mn.gov; rep.rick.hansen@house.mn; jimc@senate.mn; Laura Zanmiller - Dakota County SWCD (ldevriendt@comcast.net); Sharon Lencowski
Subject: Re: LMRWMO October 9th Board Meeting
Date: Tuesday, October 8, 2024 10:03:02 PM

Thanks, Ken. And Joe, I am also not angry but extremely disappointed. And I am sorry if you feel put off, but I do believe it is, indeed, shameful that despite years of knowing the deleterious condition of Lake Augusta, remediation strategies remain on the back burner. Another summer has come and gone, thousands more cormorants are roosting, and we have no heavy push toward solutions. I know the wheels of government move slowly, but we are apparently now a good decade into the knowledge of the problem.

Respectfully,

Joe
Joe Nuñez
Sent from my iPad - pardon the brevity, typos!

On Oct 8, 2024, at 4:47 PM, Kenneth Dodge <kdodge50@gmail.com> wrote:

Hi Joe!

No anger here…just mounting frustration.

I wasn't aware that anyone wanted to postpone discussion of Lake Augusta from tomorrow's schedule. This is particularly true if the total action item is a declaration that we need to learn more about cormorant migration patterns. In the past year we have not taken a forward step towards cleaning Lake Augusta in my lifetime. Apparently none will be taken in November either.

One of my take-aways from the July meeting was that no matter what else is done, long term solution of the lake pollution will require both an inlet from and an outlet to the lake. If this is a given, what steps can we or any other organization take to accomplish this?? Shouldn't this be our goal?? We really don't need further study of what further study is necessary. Let's just proceed towards SOME attempted remedy of the problem. Any forward movement would earn strong support. Thank you.

Kenneth Dodge
2304 Lemay Shores Drive
Mendota Heights, Mn 55120
Home Phone: 651-340-1477
Cell Phone: 612-310-9622

On Oct 8, 2024, at 3:11 PM, Barten, Joe <Joe.Barten@co.dakota.mn.us> wrote:

Hi Joe,

I had been in contact with Kenneth Dodge from the LeMay Shores HOA about the September LMRWMO meeting, which was cancelled. I had let him know we had tentatively planned to discuss Lake Augusta in Sept., notified him of the meeting cancellation, and then let him know the LMRWMO would next meet on Oct. 9th. I mistakenly believed the two HOAs were in contact with one another, my apologies on that oversight. Going forward, like any resident of the LMRWMO, per open meeting law, you are welcome to attend the regularly scheduled LMRWMO meetings. The meeting agenda and packets will be posted on the LMRWMO website along with the monthly meeting schedule. Residents and/or non-Board members are given a few minutes of time at the beginning of the meeting for comments.

At the August LMRWMO meeting, the Board did not discuss Lake Augusta in depth. The mention of the lake in the August meeting minutes was a brief discussion and summary of the task force meeting that was held in July with no action taken.

The LMRWMO does not get involved in tax assessments for individual properties. Relatedly, the mission and goals of the organization does not relate to improving the tax value of property on any waterbody in the LMRWMO, including on private lakes.

I met with Barr staff and discussed the topic of lowering lake levels and the need for additional study. Given the uncertain nature of the cormorant issue, there appears to be to many variables to pinpoint an exact lake level that is ideal for improving water quality. The engineer's opinion was that any lowering of lake level that reduces the amount feces being deposited directly into the lake from trees on the shore along with the lake outlet that provides a flushing effect of Lake Augusta water is a combined net benefit for water quality. However, quantifying that exact improvement via further study did not seem realistic in the opinion of the engineer and therefore not worthwhile. Also, the cost of such an addendum would be above the amount already budgeted and spent on both the original study and then additional revisions from HOA resident comments.

To categorize the actions of the LMRWMO as shameful is inaccurate at the very least and most certainly unfair. A careful review of the

engineering study which was completed to identify ways to improve water quality (with very helpful information collected by one resident, Tom Kovarik) would show that double crested cormorants are a primary driver of the poor water quality at Lake Augusta. Certainly, the LMRWMO, City, or County are not responsible for decades of bird populations taking residence at Lake Augusta. Additionally, decades of degraded water quality cannot be fixed in any short amount of time. Moreover, this most recent study, which was funded by the LMRWMO, a State grant, and the City, is part of hundreds of thousands of dollars spent already by local and State agencies on Lake Augusts in water monitoring, studies, projects, and staff time over recent years. Due to this, a conversation on the role of the LMRWMO in prioritizing further investment in Lake Augusta vs. other waterbodies in the watershed is certainly merited. In my opinion, for the LMRWMO to not carefully discuss how much more public funds should be spent on a private lake would be unwise.

The materials in the Board packet for the October 9th LMRWMO meeting were intended to facilitate a conversation for the LMRWMO Board on its role in controlling, killing, or otherwise disturbing large migratory bird populations and in implementing future projects at Lake Augusta. The question of the cormorants is key to the overall water quality issues and also unique compared to most other lakes. A clear message received from multiple cormorant and migratory bird experts I talked to is that the possibility of negative unintended consequences from any interference with the cormorant population is very high. Unintended consequences could include the birds taking residence in another nearby lake, Therefore, taking time to re-evaluate the LMRWMO's role in further efforts (cormorant or otherwise) as a public water resources organization is warranted.

I have spoken with the LMRWMO Board Chair, and she is willing to address resident concerns of not receiving enough notice and we will defer this agenda item and discussion on Lake Augusta to the November LMRWMO Board meeting.

Thank you,

Joe Barten
Senior Resource Conservationist, CPSWQ | Dakota County SWCD Administrator via Dakota County SWCD | Lower Mississippi River WMO
Office: (651) 480-7784 | joe.barten@co.dakota.mn.us

From: Joe Nuñez <NUNEZBENDEL@msn.com>
Sent: Monday, October 7, 2024 3:29 PM
To: Barten, Joe <Joe.Barten@CO.DAKOTA.MN.US>; Halverson, Laurie <Laurie.Halverson@CO.DAKOTA.MN.US>
Cc: Ryan Ruzek <RRuzek@mendotaheightsmn.gov>; Kathryn Haight <kittyhaight@icloud.com>; Barbara Kaufmann <barbarawkaufmann@gmail.com>; Jan Martland <mrfy1219@comcast.net>; TOM HANSCHEN <tickfarm@gmail.com>; Thomas Edward Kovarik <thomasedwardkovarik@gmail.com>; Dick & Lynn Bisanz <rblb440@hotmail.com>; Brian Murphy <mrfy1219@gmail.com>; kayejankowski@gmail.com; Doina Larkin <doinalarkin11@gmail.com>; slevine@mendotaheightsmn.gov; slorberbaum@mendotaheightsmn.gov; jmazzitella@mendotaheightsmn.gov; jmiller@mendotaheightsmn.gov; jpaper@mendotaheightsmn.gov; Kenneth Dodge <kdodge50@gmail.com>; rep.bianca.virnig@house.mn.gov; rep.rick.hansen@house.mn; jimc@senate.mn
Subject: RE: LMRWMO October 9th Board Meeting
Importance: High

Thanks, Joe, for sending this meeting notice and materials to us. While I am thankful for the alert to the meeting, a two-day notice is disappointing. I am also disappointed that we were not alerted to the August meeting during which the Barr Report was discussed by the LMWRMO. (If you sent a notice of the August meeting and it landed on my junk mail folder (I didn't see anything like that), I apologize.)

We have tried our best to be good partners in the LMRWMO efforts to study Lake Augusta and its environmental remediation. We have provided information and bird counts.

We appreciated your meeting at my home in July with our Task Force, Ryan Ruzek, our State elected officials (Senator Carlson and Representative Virnig), and Ken Dodge from the Lemay Shores community. As we have requested, the Augusta Shores and Lemay Shores communities need to be included in *all* of this discussions. We again request to be included in these discussions and receive notice of LMWRMO meetings in which Lake Augusta issues will be discussed.

It was also our understanding that something more than a mere assumption by the Barr engineer as to how the new outlet pumps would reduce Lake Augusta's lake level – during our meeting at my home, I understood you to suggest that Barr may need to provide a more official addendum to the report, which may have required further study.

The failure by the LMWRMO to take assertive action to clean Lake Augusta continues to be frustrating and a blight within the greater Mendota Heights community. Continued failure to promptly address this heavily polluted lake is shameful. As a commercial real estate attorney, I would be well within logic to suggest that each and every one of the residents of Augusta Shores and Lemay Shores challenge their tax assessments based on the failure of the applicable governmental bodies to take action to remediate this polluted lake, which gets worse and worse with each passing month and year.

I am hopeful that one or more of the members of our communities can attend this October meeting to make our concerns clearly known to the LMWRMO. Unfortunately, I have a professional conflict and cannot attend. I made a request that the city move forthrightly to address the funding of the Barr Report strategies at a Mendota Heights Council meeting in August. Our Task Force will continue to respectfully pressure our elected officials, Dakota County Commissioners, the Minnesota DNR and MPCA, and the LMWRMO to immediately pivot to actually funding and implementing the remediation strategies included in the Barr Report, and further remediation if those strategies are ineffective.

Thak you for your efforts to keep us informed, and to promptly remediate the environmental issues of Lake Augusta.

Respectfully,

Joe

Joe Nuñez
612-743-7313
nunezbendel@msn.com

From: Barten, Joe <Joe.Barten@CO.DAKOTA.MN.US> **Sent:** Monday, October 7, 2024 12:05 PM
To: Kenneth Dodge <kdodge50@gmail.com>; Joe Nuñez <nunezbendel@msn.com>
Cc: Ryan Ruzek <RRuzek@mendotaheightsmn.gov>

Subject: FW: LMRWMO October 9th Board Meeting

Hi Joe and Ken,

FYI, that the LMRWMO will be discussing Lake Augusta at their Oct. 9th meeting.

Thanks,

Joe Barten

Senior Resource Conservationist, CPSWQ | Dakota County SWCD
Administrator via Dakota County SWCD | Lower Mississippi River WMO
Office: (651) 480-7784 | Cell: (952) 212-2266 | joe.barten@co.dakota.mn.us

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From: Barten, Joe
Sent: Friday, October 4, 2024 4:29 PM
Cc: Ranua, Victoria <Victoria.Ranua@CO.DAKOTA.MN.US>; Gallagher, Ashley <Ashley.Gallagher@CO.DAKOTA.MN.US>; Houston, Chris <Chris.Houston@CO.DAKOTA.MN.US>
Subject: LMRWMO October 9th Board Meeting

LMRWMO Board Members, Alternates, & Advisors,

The next meeting of the Lower Mississippi River WMO Board of Managers is on **Wednesday, October 9th at 3:00 pm,** in Community Room 1 at the Veterans Memorial Community Center in Inver Grove Heights. Address is: 8055 Barbara Ave, Inver Grove Heights, MN 55077. (link to google maps)

The meeting packet is attached and is also posted on the LMRWMO Website. Please feel free to reach out to discuss any agenda items in advance of the meeting.

Thank you and have a great weekend!

Joe Barten

Senior Resource Conservationist, CPSWQ | Dakota County SWCD Administrator via Dakota County SWCD | Lower Mississippi River WMO
Office: (651) 480-7784 | joe.barten@co.dakota.mn.us

LMRWMO
LOWER MISSISSIPPI RIVER
WATERSHED MANAGEMENT ORGANIZATION

2025 Board Meeting Schedule

The regular Lower Mississippi River Watershed Management Organization (LMRWMO) Board of Manager meetings are held the second Wednesday of each month at 3:00 p.m. The Board Chair may cancel meetings if deemed unnecessary.

Meeting locations typically rotate among select member communities with the following rotating order, Mendota Heights, Inver Grove Heights, Saint Paul, West St. Paul, South St. Paul Lilydale, and Sunfish Lake with each hosting two consecutive meetings.

Listed below are the host Cities and locations for the scheduled 2025 meetings.

January 8, 2025	Saint Paul - Wellstone Center - Room 212
February 12, 2025	West St. Paul – Location TBD
March 12, 2025	West St. Paul – Location TBD
April 9, 2025	South St. Paul – Location TBD
May 14, 2025	South St. Paul – Location TBD
June 11, 2025	Lilydale City Hall – Location TBD
July 9, 2025	Lilydale City Hall – Location TBD
August 13, 2025	Sunfish Lake – Location TBD
September 10, 2025	Sunfish Lake – Location TBD
October 8, 2025	Mendota Heights – Location TBD
November 12, 2025	Mendota Heights – Location TBD
December 10, 2025	Inver Grove Heights – Location TBD
January 14, 2026	*Inver Grove Heights – Location TBD*

C/O DAKOTA COUNTY SOIL AND WATER CONSERVATION DISTRICT
4100 220TH ST. WEST SUITE 102
FARMINGTON, MN 55024
WWW.LMRWMO.ORG

Dakota County Winter Salt Week Volunteer Chloride Monitoring and Outreach Campaign

Winter Salt Week is January 27-31, 2025. This event is a collaboration of governmental and non-governmental organizations across the United States and Canada. Winter salt use damages infrastructure and threatens the health of lakes, streams, and drinking water. The goal of the event is to engage with Minnesotans on chloride pollution in your community and continue 'working to keep freshwater fresh'. Visit www.wintersaltweek.org for more information and to learn about the daily webinars including Minnesota speakers providing public works perspectives and presenting on the policy solutions panel.

Dakota County, the Dakota County SWCD, and the Vermillion River Watershed Joint Powers Organization are partnering on a local salt reduction campaign, inspired by work done in Wisconsin by WI Salt Wise and the Low Salt, No Salt campaign led by the Hennepin County Chloride Initiative. Both organizations provide excellent resources for Local Government Units (LGUs) to help build salt awareness oriented to their respective communities. An informed public can support the adoption of best practices in snow and ice control and advocate for the protection of freshwater resources.

These three partners are seeking financial support from other Dakota County Watershed Management Organizations (Lower Mississippi River WMO, Eagan-Inver Grove Heights WMO, Lower MN River WD, and Black Dog WMO) to provide displays surrounding chloride and salt reduction in Dakota County Libraries.

Campaign Objectives

- To raise awareness of chloride levels and the negative impacts of de-icing salt on Dakota County watersheds.
- To build agency in individual community members to take action accessible to them.
- To obtain commitments to reduce salt use through the Salty Dawg pledge form.

Campaign Logistics

The Dakota County campaign aims to marry public education efforts with an opportunity to monitor chloride in local water bodies to help raise awareness and engage the public. With this goal in mind, the campaign will partner with several organizations to help spread the word and increase program accessibility.

Monitoring program outline:

- The chloride monitoring effort will be supported by Salt Watch, a national community science program hosted by the Izaak Walton League of America that provides organizations and volunteers with free kits to track levels of chloride in their local streams throughout the year.
- The monitoring kits include four test strips, a chart for result interpretation, and a postcard with instructions for completing a Salt Watch test and reporting findings in the Clean Water Hub.
- A Dakota County liability form will be provided to the volunteers.

- Volunteers can monitor chloride at the stream location of their choosing, though a list of recommended locations based on access, safety, open water, and other parameters will also be provided to the volunteers.
- Monitoring data will be submitted to the Clean Water Hub and data will be reported to the public and provided to Dakota County, WMOs, and cities when available.

To increase program reach, we have partnered with Dakota County Library locations to serve as the main contact points for both the monitoring program and outreach materials. Library locations are located throughout the county, and we are working with Library staff to ensure that the campaign will be featured at a minimum of one library within each of the contributing Watershed Management Organizations. Branding for participating Watershed Management Organizations will also be incorporated into outreach materials.

Monitoring program support:

- Pick-up location for chloride monitoring kits (provided by the Izaak Walton League Salt Watch Program)
- Volunteers will register through the Dakota County volunteer portal and indicate which library they will pick up the kit.
    - Written materials and contact information for program staff will be provided to the volunteers. Library staff are not being asked to answer questions about the program.
- Kits are one time use so there will be nothing for the volunteers to return.
    - Potential for more elaborate monitoring kits to check out from the library in the future.

Outreach effort:

- Display at/near the entrance of the library
    - Book topics include winter, snow, fun snow activities, snowplows, etc.
- Giveaways: Salty Dawg temporary tattoos, buttons, bookmarks, salt measuring cups
- Winter/snow maintenance related scavenger hunt (find a picture or letter search)
    - Salty Dawg sticker prize
- Story Trail at Dakota County Park
    - Water or winter themed book

Additional programming beyond Library and Parks activities:

- Lowe's Kids Workshop (West St Paul), Saturday January 18th

We envision this being the first of a multi year effort and we hope to expand engagement offerings to a larger audience in future years. Such offerings could include a Touch-a-Truck event, a "paint the plow" event, or attending a local event hosted by a city partner like a winter gear swap, December/holiday events, or a New Year's Eve event.

Watershed Organization Support Request

We are seeking support from Dakota County Watershed Management Orgs (Lower Mississippi River WMO, Eagan-Inver Grove Heights WMO, Lower MN River WD, and Black Dog WMO) to acquire outreach materials for Winter Salt Week 2025. Total expenses for this year's campaign (see next page for breakdown) are estimated to be $701.10 per library location. At this time, we are asking that each contributing LGU provide a not to exceed financial contribution of $300. In-kind contributions are also welcome and appreciated.

Proposed expenditures for Winter Salt Week:

Task	Item	Company	Quantity	Cost
Printing	Bookmark	Canva	200	$ 40
	Postcards	Canva	200	$ 50
	Coloring Books	Mixam	200	$ 160
Outreach Swag	Temporary Tattoo	4Imprint	500	$ 305
			1000	*$ 330*
			1500	*$ 440*
	Button making supplies	Amazon		$ 60
	Smart Salting cups	In-kind contribution - Dakota County Groundwater Department and Eagan-IGH WMO		
	Story Trail signs	In-kind contribution - Dakota County Library		
	Additional outreach material creation	In-kind contribution - Dakota County SWCD		
Monitoring kits	Chloride test strips	Hach	40	$ 86.10
		Salt Watch	30	*Free*
			Total:	***$ 701.10***

Any assistance you can provide in promoting Winter Salt Week through your available channels (e.g., websites, social media, newsletters) is also valuable. Please contact us if you need sample posts or graphics.

Program Contacts

- Lindsey Albright, Dakota County SWCD – lindsey.albright@co.dakota.mn.us
- Paula Liepold, Dakota County Environmental Resources Department, paula.liepold@co.dakota.mn.us
- Brita Moore-Kutz, Vermillion River Watershed Joint Powers Organization, brita.moore-kutz@co.dakota.mn.us
- Carter Anderson, MN GreenCorps via Dakota County carter.anderson@co.dakota.mn.us

Attachments

Salty Dawg graphic and pledge

Don't be a Salty Dawg! Be a smart salter.

Use of some salt during winter is necessary for safe roads, driveways and sidewalks. However, salt gets into our local lakes and rivers when snow melts, affecting fish and plants. One teaspoon of salt can permanently pollute five gallons of water.

You can help prevent salt pollution.

Choose at least 2 of the following...

☐ 

Shovel first. The more snow and ice you remove, the less salt you will have to use, and the more effective it will be.

☐ 

Use less salt. One 12-ounce cup of salt is enough to cover 10 sidewalk squares. Leave about three inches between salt granules.

☐ 

Check the tempurature. 15 degrees is too cold for salt to work.

☐ 

Sweep up extra salt and reuse it.

Did you know?

Just **one teaspoon** of salt will permanently pollute **five gallons of water**

Dakota COUNTY

I pledge to carry out the checked items from the above list.

Signature _____

email (optional) _____

Sign up for more information and e-news.