

Lake Kampeska Aquatic Vegetation Action Plan

A practical 30 day plan for preparing a 2027 research and management pilot

Prepared for the Lake Kampeska Water Project District

September 2026

Purpose and recommended direction

The district should use the next month to organize a 2027 Lake Kampeska aquatic vegetation pilot, not rush into purchasing a harvester or promise lakewide control. The immediate goal is to assemble the science, partners, permits and cost information needed for a defensible pilot in two or three priority areas next summer.

Zebra mussels have changed Lake Kampeska's ecology. They cannot be eliminated with currently available lakewide methods, and the district should not attempt to eliminate native vegetation that remains important to fish and water quality. The practical objective is to restore reasonable boating, swimming and fishing access in selected areas, measure how much vegetation and nutrient mass can be removed, protect critical habitat and build a long term plan using Kampeska data.

Suggested decisions from the board

1. Establish a small Lake Kampeska vegetation working group. On Sept. 22, 2026 the LKPWD:
 - A. Approved by district board: 2 lake district representatives, one city representative, one county commissioner representative, one lake resident at large, one South Dakota Lakes and Streams Association representative and one East Dakota Water Development District representative.
2. Invite South Dakota State University to prepare a scoped research and monitoring proposal.
3. Conduct structured calls with experienced Minnesota and Wisconsin lake programs.
4. Convene the working group and contact South Dakota Game, Fish and Parks and the Department of Agriculture and Natural Resources within 30 days.
5. Develop a limited 2027 pilot program.

Minnesota and Wisconsin programs to consult

Use video calls. Send the same questions in advance and ask each program for its management plan, annual operating report, equipment list, staffing model and cost information.

Program	Why it matters	Questions to ask
Casey Lake and Ramsey Washington Metro Watershed District, Minnesota	Best research example for measuring nutrient removal from harvested plants. A 2014 project removed 3,600 kilograms of dry vegetation and 16.4 kilograms of phosphorus, approximately 53 percent of that small lake's annual external phosphorus load.	How were biomass, phosphorus, regrowth and costs measured? What would they change?
Lake Minnetonka Conservation District, Minnesota	Best large scale harvesting logistics example. The program has harvested approximately 400 to 1,000 acres annually and removed roughly 200 truckloads in a typical year.	Fleet size, staffing, cutting depth, shore stations, disposal, permitting and cost per acre.

Program	Why it matters	Questions to ask
Detroit, Sallie and Melissa lakes and Pelican River Watershed District, Minnesota	Important contrary experience. The district concluded that harvesting solely for nutrient removal was not effective or feasible in its circumstances.	Why did nutrient removal disappoint? When did harvesting still make sense? Why did the district change methods?
Mendota, Monona, Waubesa and Kegonsa lakes and Dane County, Wisconsin	Mature public fleet serving large recreational lakes. Dane County removed 8,229 tons of aquatic plants in 2024 and tracks its operations.	Equipment use, training, maintenance, route selection, habitat protection and public requests.
Nepco Lake District, Wisconsin	Small local government model with zebra mussels and an operating harvesting program. It removed 515,450 pounds in 186 loads during 2024.	How did a small district organize, finance and staff the operation? Where is material taken?
Lake Winnebago and Lake Mendota research teams, Wisconsin	Research comparisons rather than harvesting models. University teams are examining zebra mussel effects, growth, spread and water quality.	What ecological changes should Kameska measure over five years? Which indicators provide early warning?

Information to assemble before designing the pilot

Lake Kameska records

- Perform aquatic plant surveys, including species, density and depth of growth.
- Total and soluble phosphorus, nitrogen, chlorophyll a, dissolved oxygen and temperature records.
- Game, Fish and Parks fisheries surveys and zebra mussel sampling results.
- Mapped complaints and observations from property owners, anglers and other lake users.

The first technical question is not simply how many weeds are present. It is what species are growing, where, at what depths, how the plant community has changed and which areas create genuine recreational problems.

Priority outside studies

- Casey Lake: Aquatic Plant Harvesting An Economical Phosphorus Removal Tool in an Urban Shallow Lake.
- Lake Minnetonka: Phosphorus Removal by Plant Harvesting.
- Lake Sallie and Pelican River: Weed Harvest and Lake Nutrient Dynamics and the later harvesting program evaluation.
- Hansen and colleagues 2020 research on first year walleye growth following zebra mussel invasion.
- Current Dane County aquatic plant management plans and annual operating reports.
- University of Wisconsin Oshkosh Lake Winnebago and University of Wisconsin Madison Lake Mendota zebra mussel research.
- Minnesota and Wisconsin guidance on mechanical harvesting, native plant protection and fish habitat.

The Casey Lake and Lake Minnetonka studies show that harvesting can export nutrients. The Pelican River experience shows that the nutrient benefit may be too small or expensive at lake

scale. Kampeska should measure its own biomass, nutrient content and external nutrient load before claiming a whole lake water quality benefit.

Proposed discussion with South Dakota State University

The district should ask SDSU for a defined applied research assignment rather than an open ended study of the weed problem:

Help the district design a two or three year research and management pilot that determines where selective harvesting is appropriate, how much plant and nutrient mass can be removed, what regrowth occurs, how fish habitat is affected and whether harvested biomass has a safe and economical use.

Suggested SDSU team

- South Dakota Water Resources Institute for coordination, water quality and applied technology.

Requested SDSU response

Ask SDSU to return a short concept paper identifying the research questions, sampling design, personnel, preliminary budget, graduate student opportunities, a schedule beginning with baseline sampling in spring 2027. The district should approach this as a funded applied research partnership.

Testing harvested material

Livestock feed should be treated as a research question, not an initial promise. Representative material should be tested for the following before any feeding trial:

- Moisture, dry matter, crude protein, fiber and digestibility.
- Phosphorus, nitrogen, potassium and ash.
- Microcystins and other cyanobacterial toxins.
- Mercury, arsenic, lead, cadmium and other accumulated contaminants.
- Pathogens, foreign material and attached zebra mussels.
- Palatability and safe inclusion rates.

Composting, soil amendment, municipal yard waste blending and controlled land application may prove simpler and less risky. The pilot should compare all four uses.

Partner roles and specific requests

Partner	Requested role
Lake Kampeska Water Project District	Lead the working group; compile data; contract for technical work; coordinate permits and public communication; maintain the project record.
City of Watertown	Name a senior liaison; involve parks, public works, engineering and water treatment; identify priority public areas; evaluate staging, unloading, storage and processing sites; consider

Partner	Requested role
	equipment and funding support.
Codington County	Name a commissioner liaison; involve the conservation district, highway department and emergency management; identify composting or land application options; connect producers; consider a matching appropriation.
South Dakota Game Fish and Parks	Provide a current point intercept plant survey, fisheries and zebra mussel information, habitat guardrails, permit requirements and allowable cutting windows.
South Dakota Department of Agriculture and Natural Resources	Provide nutrient data, biomass disposal and land application guidance, grant information and assistance measuring nutrient removal.
South Dakota Lakes and Streams Association	Arrange peer contacts, share statewide information and help explain why Kampeska is part of a statewide zebra mussel management issue.

Thirty day work plan

Timing	Work to complete
Days 1 through 7	Approve the five board actions; name the working group and project coordinator; invite SDSU, city, county, GFP and DANR; request Kampeska records; schedule peer calls.
Days 8 through 14	Conduct calls with Casey Lake, Lake Minnetonka, Dane County and Nepco Lake; map nuisance areas, boating corridors, beaches and habitat; prepare a one page known and unknown summary.
Days 15 through 21	Hold a technical session with SDSU, GFP and DANR; identify preliminary pilot and control zones; identify unloading and disposal sites; obtain rough contract, lease and ownership costs.
Days 22 through 30	Hold a joint working meeting; agree on pilot objectives, lead roles, scope and budget deadlines, preliminary funding, permits, sampling and a public presentation date.

Required outcomes from the joint meeting

- Agreement on the objectives and boundaries of the 2027 pilot.
- A lead entity and named representative from every partner.
- A firm deadline for the SDSU scope and preliminary budget.
- A preliminary local, state and grant funding strategy.
- A permitting and baseline sampling schedule.

- A date and format for public presentation.

Measures of success for a 2027 pilot

Measure	What to record
Vegetation	Acres, species, cutting depth, wet and dry weight removed, and regrowth after two, six and twelve weeks.
Nutrients	Pounds of phosphorus and nitrogen removed and relationship to estimated external and internal loads.
Cost	Cost per acre, wet ton, dry ton and pound of phosphorus; labor, fuel, maintenance, transport and disposal.
Lake response	Water clarity, dissolved oxygen, temperature, turbidity and evidence of sediment disturbance.
Fish and habitat	Effects on spawning, nursery habitat, fishing access and fish location.
Operations	Operating days, breakdowns, travel time, unloading time, disposal capacity and public access restored.
Public response	Structured feedback from lake residents, anglers, boaters, swimmers and park users.

Recommended conclusion for the meeting

The most important accomplishment during the next month is not removing a single plant. It is getting every responsible entity around one table, agreeing on the questions and assigning responsibility for answering them. If the district completes that work this fall, Lake Kampeska can begin the 2027 season with a targeted pilot, defensible monitoring and realistic expectations.

Selected sources

- [Casey Lake aquatic plant harvesting study](#)
- [Lake Minnetonka phosphorus removal study](#)
- [Pelican River Watershed District research studies](#)
- [Dane County aquatic plant harvesting overview](#)
- [Nepco Lake District harvesting program](#)
- [Wisconsin DNR aquatic invasive species research](#)
- [SDSU South Dakota Water Resources Institute](#)
- [SDSU aquatic ecology research](#)
- [Lake Kampeska Water Project District](#)