Permitting Policies for the Management of Narrow-leaved and Hybrid Cattail in a Range of Basin Types Report to the 2015 Minnesota Legislature

Submitted December 15, 2014 by the Minnesota Department of Natural Resources

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Permitting Policies for the Management of Narrow-leaved and Hybrid Cattail Report

Executive Summary

1. Minnesota has three species of cattail. These are broad-leaved cattail (*Typha latifolia*), narrow-leaved cattail (*Typha angustifolia*) and hybrid cattail (*Typha* X *glauca*). *T. glauca* and *T. angustifolia* are usually considered together as narrow-leaved cattails. Broad-leaved cattail is native to Minnesota. Narrow-leaved cattail is believed to have migrated to the mid-west from the eastern United States over the last 80 to 100 years. The two narrow-leaved cattails and broad-leaved cattail are not easily distinguished from one another with plants often displaying a gradient of morphological characteristics.

2. The Department of Natural Resources (DNR) recognizes that cattails of any species can be beneficial in certain situations. On large wind swept fishing lakes, emergent vegetation plays an important role by protecting the lake shore from erosion. Where native vegetation has been completely lost, cattails can absorb nutrients and provide habitat benefits for fish and wildlife. Cattails may provide benefits in small urban ponds by sequestering sediment that would otherwise be transported downstream.

3. Narrow-leaved cattail exhibits a great degree of tolerance for degraded environmental conditions. Changes in land use within watersheds that increase sedimentation, nutrient loading, duration of flooding, and water depths, lead to environmental conditions that further facilitate the expansion of narrow-leaved cattail.

4. Along developed lakeshores, dense stands of narrow-leaved cattail may interfere with a property owner's ability to use watercraft, swim, or engage in other traditional recreational uses. Floating cattail mats can pose a navigational hazard and cause property damage when the floating mats collide with docks and water control structures. In Minnesota wetlands and shallow lakes, domination by narrow-leaved cattails can dramatically reduce the value of these aquatic habitats for fish and wildlife. The DNR recognizes a need to allow aggressive management of narrow-leaved cattails, particularly in wetlands and shallow lakes important for wildlife habitat. However, the DNR also recognizes that it is challenging and at times undesirable, to manage shallow lakes and wetlands or restore wetlands without cattails.

5. Most Aquatic Plant Management Permits (APMP) issued to control cattails are obtained by owners of properties along developed lakeshores. The purposes of the control are to provide riparian access and reduce interference with recreation.

6. APMP also are issued to allow removal of floating bogs containing cattails, as well as to control cattails to protect or improve habitat, manage water levels, or enhance recreational use.

7. The current regulations provide flexibility to allow narrow-leaved cattail control for a variety of purposes. The DNR will work to apply the flexibility in rule and statute appropriately and consistently.

A. Where cattails impair access the rules allow a permit of unlimited duration to maintain a channel 15 feet wide extending to open water.
B. Minnesota Rules provide criteria that will be employed to determine an appropriate amount of control when a larger area of control is desired.
C. The lake vegetation management plan (LVMP) or a general permit can be employed to develop a more comprehensive management strategy for management of narrow-leaved cattail on a lake-wide basis.
D. When narrow-leaved cattail control is desired beyond conditions addressed in Minnesota Rule there are criteria (MR 6280.1000, subpart 1 items A to C) that will be used to determine if a variance for the proposed control is justified.
E. A general permit will be developed to assist property owners and municipalities to manage cattails in small public water bodies receiving storm water inputs that increase sedimentation and nutrient loading.
F. The DNR will continue to work closely with public land and water management agencies to achieve management goals in basins under their jurisdiction.

To improve consistency on a statewide basis, staff will be provided core direction, guidance and training (Appendix B) on the application of criteria in Minnesota Rules. Staff will consider the abundance of cattail in the basin, the susceptibility of the control area to erosion, lake-bottom type, width of the cattail fringe, and other factors that could influence management decisions.

Permitting Policies for the Management of Narrow-leaved and Hybrid Cattail Report

LEGISLATIVE MANDATE

Laws of 2014, Chapter 312, Section 6
$3,000 in 2015 is from the heritage enhancement account in the game and fish fund for a report on aquatic plant management permitting policies for the management of narrow-leaved and hybrid cattail in a range of basin types across the state. The report shall be submitted to the chairs and ranking minority members of the house of representatives and senate committees with jurisdiction over environment and natural resources by December 15, 2014, and include recommendations for any necessary changes in statutes, rules, or permitting procedures.

FISCAL DISCLOSURE

Pursuant to Minnesota Statutes, Section 3.197, it is estimated that it cost approximately $14,000 in Minnesota Department of Natural Resources staff time to produce this report.

CATTAILS IN MINNESOTA

Minnesota has three species of cattail: broad-leaved cattail (*Typha latifolia*), narrow-leaved cattail (*Typha angustifolia*), and a hybrid between the two (*Typha* X *glauca*). Cattails can be difficult to identify because the differences among the three types, especially between narrow-leaved cattail and the hybrid, are small. Consequently, the narrow-leaved and hybrid cattails are usually considered together as narrow-leaved cattails.

Broad-leaved cattail is a native Minnesota plant, whereas narrow-leaved cattail spread into the upper Midwest from the eastern United States over the last 80 to 100 years (Kantrud 1992; Galatowitsch et al. 1999; Shih and Finkelstein 2008). The hybrid between narrow-leaved and broad-leaved cattail (*Typha* X *glauca*) is considered to be the most aggressive North American *Typha* species (Galatowitsch et al 1999 in Marburger and Travis 2013). Narrow-leaved cattail has become abundant in many wetlands and lakes, creating dense, monotypic stands through displacement of native plants like bulrush (*Scirpus spp.*), spikerush (*Eleocharis spp.*), sedge (*Carex spp.*) and broad-leaf cattail (*T. latifolia*).

Because these species are difficult to distinguish from one another the spread of narrow-leaved cattail into Minnesota lakes wetlands has been hard to recognize. DNR resource managers have perceived an increase in narrow-leaved cattail over the last several decades. In the 1970's, Robert Jessen, a waterfowl biologist with the MNDNR, expressed concern about the rapid increase in narrow-leaved cattail in western Minnesota wetlands formerly dominated by bulrushes (Kantrud, H.A. 1992). There also appears to be an increased intolerance of the narrow-leaved cattails by the general public as it becomes more noticeable on the landscape.

Since the mid-1990's, high water has allowed soil to stay saturated, allowing cattails to survive year after year. The narrow-leaved cattail can live in deeper water than the broad-leaved cattails, so eventually the narrow-leaved cattail has completely filled in many of the temporary and seasonal basins in the state. Most of the wetlands on Wildlife Management Areas (WMA) and shallow lakes now have water less than 4 feet deep completely filled with narrow-leaved cattail. The narrow-leaved cattail problems on WMA's and in shallow lakes continue to worsen with every high water year.

The aggressive growth and resulting monotypic stands are characteristic of invasive species (Galatowitsch et al. 1999). Narrow-leaved cattail exhibits a great degree of tolerance for degraded environmental conditions (Vaccaro 2009). Changes in land use within watersheds that increase sedimentation, nutrient loading, duration of flooding, and water depths, lead to environmental conditions that further facilitate this invasive behavior (Boers and Zedler 2008).

BENEFITS OF EMERGENT VEGETATION

The DNR recognizes that cattails of any species are beneficial in certain situations. On large lakes with windswept shorelines, emergent vegetation, including cattails, absorb wave energy preventing shoreline erosion and reduce runoff and nutrient inputs from developed lake shore. In lakes where emergent and other native vegetation have been lost due to shoreline development, increased nutrient inputs, and sedimentation, cattails may provide much needed

habitat for fish and wildlife. Cattails may provide benefits in small urban ponds by sequestering sediment that would otherwise be transported downstream.

Figure 1. Cattail can prevent shoreline erosion and absorb nutrients in runoff from developed property.

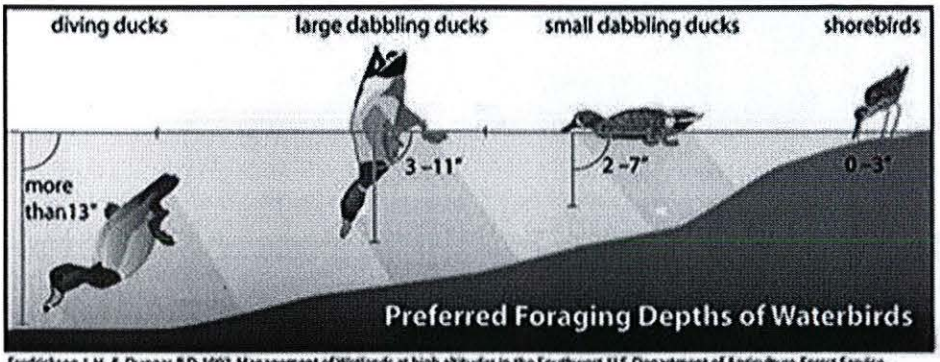
The Department conducts management activities to improve habitat. For example, managed drawdowns of shallow lakes and wetlands may be conducted to improve wildlife habitat by increasing the amount of submersed and emergent vegetation. In these cases the potential problems with an increase in narrow-leaved cattails is deemed as a reasonable tradeoff in order to increase wildlife use.

PROBLEMS CAUSED BY NARROW-LEAVED CATTAIL

Along developed lakeshores, dense stands of narrow-leaved cattail may interfere with a property owner's ability to use watercraft, swim, or engage in other traditional recreational uses. The value of the aquatic habitats for fish and wildlife in wetlands and shallow lakes can be dramatically reduced by the aggressive nature of established narrow-leaved cattails (Galatowitsch et al. 1999, Wilcox et al. 2008, Tuchman et al. 2009). Newly established stands of narrow-leaved cattail can provide benefits similar to those provided by native emergent plants including shoreline protection, brood habitat for waterfowl, nursery habitat for fish, nesting habitat for nongame birds, and feeding stations for muskrats. However, as these stands develop and increase, the stem density can become too great to provide quality habitat for fish or wildlife.

Additionally, litter accumulation and root structure of monotypic stands of narrow-leaved cattail increases in mass and depth above and below the bottom soils (Larkin et al. 2011) achieving heights of 6 to 18 inches above the bottom. Once this vegetative mass develops, its buoyancy causes the mass to lift and float at the surface. This floating cattail mat can cover water depths

preferred by waterfowl, shorebirds, wading birds and amphibians for feeding (Figure 2). Management of narrow-leaved cattail becomes increasingly difficult once this vegetative mass develops. Herbicide treatments have been effective in some cases if applied before the root mass becomes too large. While the complete lowering of water levels combined with fire or mechanical removal has had some success, the investment of time and capital is substantial (Larkin et al. 2011).



Fredrickson, L.H., & Dugger, B.D. 1993. Management of Wetlands at high altitudes in the Southwest. U.S. Department of Agriculture, Forest Service, Southwest Region, Washington, D.C.

In some cases, an organization may have an interest in managing dense stands of narrow-leaved cattail to facilitate the reestablishment of native emergent aquatic plants. The information on successful techniques to achieve these conversions is limited. Additional research is necessary to make significant progress towards developing methods to restore native emergent aquatic plants. However, the return on these investments could be critical to the future of aquatic habitat for fish and wildlife in Minnesota because diverse stands of native emergent vegetation increases the habitat value of shallow lakes and wetlands.

The DNR has not classified narrow-leaved cattails as non-native, Prohibited, or Regulated Invasive Species. While recognizing the beneficial aspects of all cattail species, the DNR also understands the need to allow management of narrow-leaved cattails, particularly in wetlands and shallow lakes important for wildlife habitat. Overall, the DNR strives to provide a balanced approach that addresses both the benefits and damages caused by narrow-leaved cattails.

REGULATION OF CATTAIL MANAGEMENT IN PUBLIC WATERS

The aquatic plant management rules (MR Chapter 6280) only apply to aquatic plants growing below the ordinary high water level of public waters (MS 84.091).

The aquatic plant management (APM) program is implemented by APM specialists in the Division of Fish and Wildlife. A permit is always required when emergent aquatic plants are the target of control efforts in public waters since emergent vegetation can prevent shoreline erosion and provide habitat for fish and wildlife and emergent plants (e.g., bulrush) are difficult to re-establish once removed.

APM permits are issued by the Regional Fisheries Offices. Lake shore property owners apply for a permit to the Regional APM specialist. The APM specialist reviews applications for permits and conducts a site inspection for properties with no previous history of aquatic plant control or when there are changes to the application from previous years. During the inspection the specialist will determine the types of plants and habitat in the area requested and determines how much control to allow based on standards and criteria in rule. The specialist will ensure that the control method chosen is appropriate for the area and there is sufficient justification for aquatic plant control.

APM permits can be issued for the following reasons, explained in greater detail in the paragraphs below:

1. Provide riparian access
2. Enhance recreational use
3. Remove or relocate floating bog
4. Protect or improve habitat
5. Manage water levels
6. Control invasive aquatic plants

Provide riparian access and enhance recreation

On large wind swept lakes, emergent vegetation protects the lake shore from erosion. Where erosion is an important consideration APM specialists try to minimize near-shore aquatic plant disturbance. When emergent aquatic vegetation is the target of the control effort the rules allow a permit of unlimited duration for a channel 15 feet wide extending to open water, maintained mechanically after the first year. The unlimited duration permit is offered as an incentive for the property owner to do less control. The property owner makes one application, pays one $35 fee, and can maintain the channel for as long as they own the property. The channel permit protects emergent vegetation and can be efficiently issued by the APM specialist. A larger area of control in emergent vegetation requires an annual permit.

In 2014 there were approximately 170 permits (roughly 100 that allowed a channel 15 feet wide extending to open water) that allowed the control of cattails for riparian access and recreational use. There are an additional 1,164 active channel permits issued prior to 2014.

Remove or relocate floating bog

On lakes with extensive cattail fringe, pieces of the cattail bog can break loose and drift around the lake. This typically occurs during high water periods which causes the edge of the cattails to float making them more susceptible to breaking loose in high winds. These pieces of floating bog can become a hazard to navigation and cause property damage when they collide with docks and boats. Pieces of floating bog can also come to rest against culverts and other outlet structures that can result in flooding or undesirably high water levels. In these cases, permits for the removal or relocation of the bog are issued at no charge. The primary goal of the permit is to ensure that the bog is staked in an appropriate location or removed completely so that it does not remain a hazard or cause additional damage. There were 90 permits that allowed the removal or relocation of floating cattail bogs in 2014.

Protect or improve habitat

APM permits that allow much larger areas of cattail control are usually issued to resource agencies on shallow lakes and wetlands managed for waterfowl. The purpose of the control in these cases is to improve habitat for waterfowl by increasing open water habitat, restoring a more diverse emergent plant community, and encouraging submersed vegetation to grow in areas previously occupied by narrow-leaved cattails. A general permit was developed that allows the control of cattails to protect or improve habitat by the DNR Division of Fish and Wildlife and the USFWS.

Manage water levels

Extensive cattail bog can also reduce the discharge from lakes by blocking outlet streams causing lake levels to become undesirably high. In these cases, permits are issued to remove cattails from the lake outlet to restore flow and reduce high water levels.

Additional provisions in rule that can facilitate cattail management

The APM rules contain provisions that can allow aquatic plant control on a more comprehensive basis. For example, a lake vegetation management plan (LVMP) can be developed to help deal with the issues caused by the chronic occurrence of floating bogs. A lake vegetation management plan or a general permit can be issued to help manage aquatic plants on a more comprehensive basis. The rule also contains a variance provision that can be employed where restrictive language might interfere with a reasonable management strategy.

RECOMMENDATIONS

The current regulations provide flexibility to allow narrow-leaved cattail control for a variety of purposes. The DNR will work to apply the flexibility in rule and statute appropriately and consistently.

1) Where cattails impair access, the rules allow a permit of unlimited duration to maintain a channel 15 feet wide extending to open water.
2) When a larger area of control is desired, the rule provides criteria that will be employed to determine an appropriate amount of control.
3) The lake vegetation management plan (LVMP) or a general permit can be employed to develop a more comprehensive management strategy for management of narrow-leaved cattail on a lake-wide basis.
4) When narrow-leaved cattail control is desired beyond conditions addressed in rule, there are criteria (MR 6280.1000, subpart 1 items A to C) that will be used to determine if a variance for the proposed control is justified.
5) In small public water bodies receiving storm water inputs that increase sedimentation and nutrient loading, a general permit will be developed to assist property owners and municipalities to manage cattails.
6) The DNR will continue to work closely with public land and water management agencies to achieve management goals in basins under their jurisdiction.

To improve consistency on a statewide basis, staff will be provided core direction, guidance and training (Appendix B) on the application of criteria in rule. Staff will consider the abundance of cattail in the basin, the susceptibility of the control area to erosion, lake-bottom type, width of the cattail fringe, and other factors that could influence management decisions.

Additional research on the management of narrow-leaved cattail and other emergent vegetation is needed.

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APPENDIX A

STATUTES AND RULES

The following is a summary of the rules and statutes that pertain to the management of aquatic plants in public waters.

Aquatic plants growing in public waters are owned by the state (*Minnesota Statutes* 84.091). The DNR's authority to regulate aquatic plant control in public waters in rule is found in *Minnesota Statutes* 103G.615. In addition, *Minnesota Statutes* 103G.615 authorizes the DNR to issue a state general permit authorizing aquatic plant management activities in public waters. A general permit may authorize a project for more than one growing season.

Existing Rules

Aquatic plant management rules allow the commissioner to issue aquatic plant management permits to *(Minnesota Rules* part 6280.0250, subp. 3a.):

- Provide riparian access
- Enhance recreational use
- Control invasive species
- Manage water levels; and
- Protect or improve habitat

Minnesota Rules Chapter 6280 contains the standards for aquatic plant management in public waters.

MR 6280.0100,

Subp. 5a. **Emergent aquatic plants.** "Emergent aquatic plants" means aquatic plants with lower portions that are rooted in hydric soils and typically below the water's surface and leaves, stems, and reproductive parts that are typically above the water's surface, including species in the genera *Scirpus*, *Typha*, and *Zizania*. Submersed and floating-leaf aquatic plants that have emergent fruits, flowers, or leaves are not included in this definition.

MR 6280.0250,

Subp. 2. **Actions requiring an APM permit.** Except as provided in subpart 1, a person must have an APM permit for all aquatic plant management activities below the ordinary high water level in public waters, including:

A. mechanical and pesticide control of aquatic plants or nuisances;
B. transplanting aquatic plants in public waters;
C. relocating or removing a bog or portion thereof; and
D. installing or operating an automated aquatic plant control device.

Subp. 3. **Justification required for issuance of permits.** Permits for the control of emergent and floating-leaf aquatic plants will not be issued unless the commissioner determines sufficient justification exists. The commissioner will consider the relevant criteria in subpart 3a and balance the reasonable needs of riparian owners to gain access and

use public water against the need to protect emergent and floating-leaf aquatic plants so that the integrity and value of the aquatic plant community is maintained.

Subp. 4. **Prohibitions.** An APM or commercial harvest permit will not be issued:

E. for pesticide control of aquatic plants, except plankton and filamentous algae, in natural environment lakes established pursuant to part 6120.3000 or in waters adjacent to special protection lakes, bays, or districts established pursuant to part 6120.3200;

6280.0350 AQUATIC PLANT CONTROL.

Subp. 3. **Mechanical control restrictions.** Mechanical control of aquatic plants is subject to the following conditions:

A. a person who mechanically controls aquatic plants in a public water must immediately and permanently remove the vegetation from the water and dispose of it above the ordinary high water level;

B. permitted mechanical control may not exceed 50 percent of the total littoral area as determined by the commissioner, nor can the sum of permitted mechanical and pesticide control exceed 50 percent of the littoral area;

Subp. 4. **Pesticide control restrictions.**

A. Pesticide control of aquatic plants in public waters may not exceed 15 percent of the littoral area, except that on waters that are 20 acres or less, pesticide control may be permitted on up to five acres or one-half the surface area of the pond, whichever is less.

6280.0450 APM PERMIT REQUIREMENTS

Subp. 3. **Duration of permits.** An APM permit is valid for one growing season and expires on December 31 of the year it is issued, unless the commissioner stipulates a different expiration date in the permit or except as provided in this subpart:

A. an APM permit that is valid until September 1 of the third year after it is issued may be authorized for an automated aquatic plant control device if the site to be controlled does not exceed 2,500 square feet in area;

B. a continuous APM permit may be issued to control emergent vegetation to create a channel extending to open water if the following criteria are met:

(1) the channel is no more than 15 feet wide and takes the most direct route to open water;

(2) the channel remains in the same location from year to year; and

(3) only mechanical control is used after the first year; and

C. a permit to transplant aquatic plants may be issued for three years.

6280.1000 VARIANCE AND LAKE VEGETATION MANAGEMENT PLAN.

Subpart 1. **Variance.**

A. The commissioner may issue APM permits with a variance from one or more of the provisions of parts 6280.0250, subpart 4, and 6280.0350, except that no variance may be issued for part 6280.0250, subpart 4, items B and C. Variances may be issued to control

invasive aquatic plants, protect or improve aquatic resources, provide riparian access, or enhance recreational use on public waters. The commissioner shall make a determination that there are exceptional circumstances or special or unique conditions based on the criteria in items B and C before granting a variance to control native aquatic plants to provide riparian access or enhance recreational use.

B. The following criteria shall be considered to determine if a variance is justified to control invasive aquatic plants or protect or improve aquatic resources in public waters:

(1) whether the variance has the potential to increase or protect native aquatic plants, improve water quality, or provide other ecological benefits;

(2) whether the variance has the potential to prevent the spread of invasive aquatic plants;

(3) whether the variance would further research or evaluation of invasive aquatic plant control; and

(4) whether there is a feasible alternative to control invasive aquatic plants or improve aquatic resources.

C. The following criteria shall be considered to determine if a variance is justified to provide riparian access or enhance recreational opportunities on public waters:

(1) the habitat, water quality, and erosion control value of the aquatic plants in the proposed permit area and the amount of aquatic habitat reduction that would occur under the proposed control;

(2) the abundance of invasive aquatic plants in the proposed permit area;

(3) the selectivity of the proposed control for invasive aquatic plants;

(4) whether shoreline development is limited on the water subject to the proposed variance such that exceeding the individual property limits in part 6280.0350, subpart 1a, would not have potential to combine with other aquatic plant control to substantially reduce aquatic habitat or result in other undesirable ecological impacts;

(5) the presence of extensive mats of aquatic plants at the surface that substantially interfere with recreation in the proposed permit area, but only if this is not a natural condition of a shallow lake, shallow bay, or wetland;

(6) the compatibility of the proposed variance with the regulatory or management classification of the water and adjacent lands, including natural environment lakes, special protection districts, scientific and natural areas, wildlife management areas, aquatic management areas, designated wildlife lakes, and wild and scenic rivers;

(7) whether the variance, if granted, would alter the essential character of the public water; and

(8) whether there is a feasible alternative to provide riparian access or enhance recreational access.

D. The commissioner may require monitoring of aquatic plants, water quality, or other parameters as a condition of an APM permit that includes a variance.

E. The commissioner may require practical and feasible measures to mitigate the adverse effects on aquatic habitat as a condition of an APM permit that includes a variance. Mitigation measures may include reduction in the number or size of docks and other water-oriented structures, removal of shoreline riprap and retaining walls, restoration of natural riparian vegetation, and restoration of emergent and floating-leaf aquatic plants.

Subp. 2. **Lake vegetation management plan (LVMP).**

A. A lake vegetation management plan (LVMP) approved by the commissioner may authorize a variance from the provisions of this chapter, if permitted under subpart 1, item A, to control invasive species, protect or improve aquatic resources, provide riparian access, and enhance recreational use on public waters. The commissioner shall require an APM permit applicant to develop an LVMP before granting a variance if the proposed control proposes methods or actions that need to be evaluated to determine if the goals of the variance are met. If a public water has an LVMP approved by the commissioner, all APM permits within that public water shall be issued in accordance with the plan and APM permit applications that are inconsistent with the plan may be denied.

B. The commissioner shall provide the format for an LVMP. An LVMP must contain the following information before being approved by the commissioner:

(1) a description of the lake and its water quality including location, size, and clarity;

(2) a description of the aquatic plant community;

(3) a description of the public participation process used in developing the plan;

(4) a description of the problems addressed in the plan;

(5) a statement of the goal for management of aquatic plants;

(6) a description of the proposed actions to achieve the plan's goal and a map showing the location of proposed actions; and

(7) conditions of APM permits that would be issued as part of the plan, including identification of variances requested under subpart 1.

C. The commissioner shall require a monitoring plan for an LVMP if the plan proposes methods or actions that need to be evaluated to determine whether the plan's goals will be met.

APPENDIX B

Permitting Guidelines for the Management of Narrow-leaved and Hybrid Cattail

Background
Aquatic plants growing in public waters are owned by the state. The Aquatic Plant Management (APM) Program protects aquatic vegetation from unnecessary harm while allowing lakeshore homeowners to control aquatic vegetation for water access. In addition to allowing aquatic vegetation control for riparian access, the rules may authorize aquatic plant control for the following purposes:

a) enhance recreational use,
b) control invasive aquatic plants,
c) manage water levels, and
d) protect or improve habitat (MR 6280.0250, subp. 3a).

The APM Program, operated under Minnesota Rules, requires permits for controlling, planting, or destroying aquatic plants and other organisms in public waters and public waters wetlands. Approximately 4,000 permits are issued by Regional Fisheries Managers annually.

The DNR does not encourage the destruction of native aquatic vegetation. However, the DNR recognizes that aquatic plants may interfere with a homeowner's right to reasonable access to open water and recreation. The DNR also recognizes that aquatic plants may cause problems with water levels and reduce the quality of habitat for wildlife. Because plants provide many benefits to the water environment, requests to control emergent aquatic vegetation are limited to areas where plants interfere with recreation and other beneficial uses.

The control of emergent aquatic vegetation in public water requires a permit. Because some species of emergent vegetation are difficult to re-establish, permits for emergent vegetation control are generally more restrictive than permits issued for submersed aquatic plants. No standards are in place for the amount of emergent vegetation control that can be authorized by an APM permit, with the exception that a permit of unlimited duration can be issued to a homeowner to maintain a channel 15 feet wide extending to open water for as long as they own their property. The aquatic plant management rule treats all emergent vegetation, including cattail, equally.

Minnesota has three species of cattail. These are broad-leaved (*Typha latifolia*), narrow-leaved (*Typha angustifolia*), and hybrid (*Typha* X *glauca*) cattail. The last two cattail types are considered together as narrow-leaved cattails. Broad-leaved cattail is native to Minnesota. Narrow-leaved cattail appears to have spread into the upper Midwest over the last 80 to 100 years. The two narrow-leaved cattails and broadleaf cattail are not easily distinguished from one another with plants often displaying a gradient of morphological characteristics.

Control of cattail to provide access or enhance recreational use:
Along developed lakeshores, narrow-leaved cattail and other emergent plants protect shorelines from erosion. One option for lake shore property owners requiring cattail control for access to open water or recreational use is a permit that allows a channel 15 feet wide extending to open water. This permit is of unlimited duration; allowing the property owner to mechanically maintain the channel for as long as they own the property.

If greater control is desired by the lake shore property owner, the APM specialist will use the criteria found in MR 6280.0250, subp. 3a, to determine how much control is warranted. This provision provides for a balancing of reasonable needs of riparian owners and maintaining the value and integrity of the plant community. In addition, the rules have a variance provision and allow for lake vegetation management plans for control of aquatic vegetation for recreational access beyond the limits in rule.

Control of cattail to protect or improve habitat:
In wetlands and shallow lakes, dense stands of narrow-leaved cattail may reduce use by wildlife. Management of narrow-leaved cattail to set back plant succession, create openings, increase plant diversity, and increase shallow water habitat is carried out by the DNR Section of Wildlife, various partners, and other agencies under permits issued by the DNR Section of Fisheries. The maximum area of aquatic vegetation control that can be permitted for herbicide control in lakes greater than 20 acres in size is 15% of the littoral zone (MR 6280.0350 subp. 4 A). The rules also contain a variance provision if the proposer wishes to exceed the 15% littoral zone limit. The variance provision in rule contains criteria that will be used to determine if a variance is justified (MR 6280.1000, subpart 1).

In small wetland basins in metropolitan areas, there may be concerns among property owners that sediment and nutrients coming into a lake basin through storm drains will result in an increase in the area occupied by narrow-leaved cattails, which in turn interferes with their use/enjoyment of the basin. In these cases a general permit will be developed to guide aquatic plant management activities. The general permit will describe how cattails will be managed to ensure that water quality services are preserved while preventing narrow-leaved cattail from overcoming the entire open water area of the basin. The municipality and property owners may elect to participate in the control described in the general permit.

Floating cattail bog control:
Narrow-leaved cattail can form mats of floating vegetation. During periods of high water and strong wind pieces of the floating cattail mat can break loose and drift into shallow water areas to create new infestations or drift into culverts, dams or private property. In many cases, this leads to efforts to remove or re-locate the bog. There is no fee for a permit to remove or relocate floating bog. On lakes where floating bogs are a recurring issue, a Lake Vegetation Management Plan (LVMP) can be developed to allow the removal or relocation of floating bogs according to the terms of the LVMP.

Cattail management for water level control:
In some situations narrow-leaved cattails become so abundant in an outlet stream or creek that the plants reduce flow, and water levels in the upstream lake become undesirably high. An aquatic plant management permit can be issued to help manage cattails in these situations.

Summary
The aquatic plant management rule contains adequate flexibility allowing APM specialists to address each of the scenarios outlined above. As an incentive to do less emergent aquatic plant control, a lake shore property owner may obtain a permit of unlimited duration to maintain a channel 15 feet wide extending to open water. When conditions are suitable for other traditional recreational uses a larger area of cattail control may be permitted. In addition, in lakes where there is a desire to manage cattails on a more comprehensive basis the aquatic plant management specialist may assist the applicant with the development of a Lake Vegetation Management Plan (LVMP) or general permit.

Aquatic Plant Management Rules

Minnesota Rules chapter 6280 contains the standards for aquatic plant management in public waters.

MR 6280.0100, Subp. 5a. **Emergent aquatic plants.** "Emergent aquatic plants" means aquatic plants with lower portions that are rooted in hydric soils and typically below the water's surface and leaves, stems, and reproductive parts that are typically above the water's surface, including species in the genera *Scirpus*, *Typha*, and *Zizania*. Submersed and floating-leaf aquatic plants that have emergent fruits, flowers, or leaves are not included in this definition.

MR 6280.0250, Subp. 2. **Actions requiring an APM permit.** Except as provided in subpart 1, a person must have an APM permit for all aquatic plant management activities below the ordinary high water level in public waters, including:

A. mechanical and pesticide control of aquatic plants or nuisances;
B. transplanting aquatic plants in public waters;
C. relocating or removing a bog or portion thereof; and
D. installing or operating an automated aquatic plant control device.

Subp. 3. **Justification required for issuance of permits.** Permits for the control of emergent and floating-leaf aquatic plants will not be issued unless the commissioner determines sufficient justification exists. The commissioner will consider the relevant criteria in subpart 3a and balance the reasonable needs of riparian owners to gain access and use public water against the need to protect emergent and floating-leaf aquatic plants so that the integrity and value of the aquatic plant community is maintained.

Subp. 3a. **Criteria for issuing APM permits.** The commissioner may issue APM permits for public waters to provide riparian access, enhance recreational use, control invasive aquatic plants, manage water levels, and protect or improve habitat. The following criteria shall be considered to determine if an APM permit should be approved or denied and how much control or harvest to allow under an APM permit:

A. the presence of aquatic plants or nuisances that are interfering with a permit applicant's ability to use watercraft, swim, or engage in other traditional recreational uses;

B. the habitat, water quality, and erosion control value of the aquatic plants subject to the proposed permit;

C. the extent of shoreline development on the water body subject to the proposed permit and potential for aquatic plant control to result in cumulative impacts to habitat and water quality;

D. the presence of invasive aquatic plants in the proposed permit area;

E. whether the water body subject to the proposed permit is a wetland or a shallow lake or bay that naturally supports abundant aquatic plants;

F. the prevalence of soft bottom types that could result in turbidity or changes to the cross-section of the bottom if aquatic plants are disturbed or removed;

G. whether the proposed permit is consistent with a lake vegetation management plan under part 6280.1000, subpart 2, and shore land conservation ordinances, lake management plans and programs, wild and scenic river plans, and other pertinent ordinances and regulations;

H. whether the proposed permit is consistent with a variance issued to control invasive aquatic plants or protect or improve aquatic resources under part 6280.1000, subpart 1;

I. the presence of species designated as of special concern, threatened, or endangered under chapter 6134;

J. the presence of public land adjacent to the public water and the compatibility of the proposed permit with the management of the public land;

K. the presence of an excessive algae bloom; and

L. the presence of wild rice.

Subp. 4. **Prohibitions.** An APM or commercial harvest permit will not be issued:

E. for pesticide control of aquatic plants, except plankton and filamentous algae, in natural environment lakes established pursuant to part 6120.3000 or in waters adjacent to special protection lakes, bays, or districts established pursuant to part 6120.3200;

6280.0350 AQUATIC PLANT CONTROL.

Subp. 3. **Mechanical control restrictions.** Mechanical control of aquatic plants is subject to the following conditions:

A. a person who mechanically controls aquatic plants in a public water must immediately and permanently remove the vegetation from the water and dispose of it above the ordinary high water level;

B. permitted mechanical control may not exceed 50 percent of the total littoral area as determined by the commissioner, nor can the sum of permitted mechanical and pesticide control exceed 50 percent of the littoral area;

Subp. 4. **Pesticide control restrictions.**

A. Pesticide control of aquatic plants in public waters may not exceed 15 percent of the littoral area, except that on waters that are 20 acres or less, pesticide control may be permitted on up to five acres or one-half the surface area of the pond, whichever is less.

6280.0450 APM PERMIT REQUIREMENTS

Subp. 3. **Duration of permits.** An APM permit is valid for one growing season and expires on December 31 of the year it is issued, unless the commissioner stipulates a different expiration date in the permit or except as provided in this subpart:

A. an APM permit that is valid until September 1 of the third year after it is issued may be authorized for an automated aquatic plant control device if the site to be controlled does not exceed 2,500 square feet in area;

B. a continuous APM permit may be issued to control emergent vegetation to create a channel extending to open water if the following criteria are met:

(1) the channel is no more than 15 feet wide and takes the most direct route to open water;

(2) the channel remains in the same location from year to year; and

(3) only mechanical control is used after the first year; and

C. a permit to transplant aquatic plants may be issued for three years.

6280.1000 VARIANCE AND LAKE VEGETATION MANAGEMENT PLAN.

Subpart 1. **Variance.**

A. The commissioner may issue APM permits with a variance from one or more of the provisions of parts 6280.0250, subpart 4, and 6280.0350, except that no variance may be issued for part 6280.0250, subpart 4, items B and C. Variances may be issued to control invasive aquatic plants, protect or improve aquatic resources, provide riparian access, or enhance recreational use on public waters. The commissioner shall make a determination that there are exceptional circumstances or special or unique conditions based on the criteria in items B and C before granting a variance to control native aquatic plants to provide riparian access or enhance recreational use.

B. The following criteria shall be considered to determine if a variance is justified to control invasive aquatic plants or protect or improve aquatic resources in public waters:

(1) whether the variance has the potential to increase or protect native aquatic plants, improve water quality, or provide other ecological benefits;

(2) whether the variance has the potential to prevent the spread of invasive aquatic plants;

(3) whether the variance would further research or evaluation of invasive aquatic plant control; and

(4) whether there is a feasible alternative to control invasive aquatic plants or improve aquatic resources.

C. The following criteria shall be considered to determine if a variance is justified to provide riparian access or enhance recreational opportunities on public waters:

(1) the habitat, water quality, and erosion control value of the aquatic plants in the proposed permit area and the amount of aquatic habitat reduction that would occur under the proposed control;

(2) the abundance of invasive aquatic plants in the proposed permit area;

(3) the selectivity of the proposed control for invasive aquatic plants;

(4) whether shoreline development is limited on the water subject to the proposed variance such that exceeding the individual property limits in part 6280.0350, subpart 1a, would not have potential to combine with other aquatic plant control to substantially reduce aquatic habitat or result in other undesirable ecological impacts;

(5) the presence of extensive mats of aquatic plants at the surface that substantially interfere with recreation in the proposed permit area, but only if this is not a natural condition of a shallow lake, shallow bay, or wetland;

(6) the compatibility of the proposed variance with the regulatory or management classification of the water and adjacent lands, including natural environment lakes, special protection districts, scientific and natural areas, wildlife management areas, aquatic management areas, designated wildlife lakes, and wild and scenic rivers;

(7) whether the variance, if granted, would alter the essential character of the public water; and

(8) whether there is a feasible alternative to provide riparian access or enhance recreational access.

D. The commissioner may require monitoring of aquatic plants, water quality, or other parameters as a condition of an APM permit that includes a variance.

E. The commissioner may require practical and feasible measures to mitigate the adverse effects on aquatic habitat as a condition of an APM permit that includes a variance. Mitigation measures may include reduction in the number or size of docks and other water-oriented structures, removal of shoreline riprap and retaining walls, restoration of natural riparian vegetation, and restoration of emergent and floating-leaf aquatic plants.

Subp. 2. **Lake vegetation management plan (LVMP).**

A. A lake vegetation management plan (LVMP) approved by the commissioner may authorize a variance from the provisions of this chapter, if permitted under subpart 1, item A, to control invasive species, protect or improve aquatic resources, provide riparian access, and enhance recreational use on public waters. The commissioner shall require an APM permit applicant to develop an LVMP before granting a variance if the proposed control proposes methods or actions that need to be evaluated to determine if the goals of the variance are met. If a public water has an LVMP approved by the commissioner, all APM permits within that public water shall be issued in accordance with the plan and APM permit applications that are inconsistent with the plan may be denied.

B. The commissioner shall provide the format for an LVMP. An LVMP must contain the following information before being approved by the commissioner:

(1) a description of the lake and its water quality including location, size, and clarity;

(2) a description of the aquatic plant community;

(3) a description of the public participation process used in developing the plan;

(4) a description of the problems addressed in the plan;

(5) a statement of the goal for management of aquatic plants;

(6) a description of the proposed actions to achieve the plan's goal and a map showing the location of proposed actions; and

(7) conditions of APM permits that would be issued as part of the plan, including identification of variances requested under subpart 1.

C. The commissioner shall require a monitoring plan for an LVMP if the plan proposes methods or actions that need to be evaluated to determine whether the plan's goals will be met.

Existing Statutes

M.S. 84.091 aquatic plants growing below the OHWL of public waters are property of the state.

M.S. 103G.615, Subd. 1. Authorizes the DNR to issue general permits or standard permit to gather, transplant, or control aquatic vegetation in public waters. General permits may

authorize a project for more than one growing season; the fee for processing an authorization under a general permit is $30.