

020494

APM Review Proposal
Minnesota Department of Natural Resources
October 15, 2002

Executive Summary

The 2002 Legislature mandated (Minnesota Session Laws 2002, Chap 351, Sec 31)¹ that the DNR provide, by Oct 15, 2002, a proposal for reviewing the Department's Aquatic Plant Management (APM) Program. This document is the Department's proposal and outlines four tasks that the DNR believes need to be accomplished as part of a comprehensive review effort.

The study proposed would employ the University of Minnesota to survey three key groups (lakeshore property owners, businesses involved with aquatic plant control or restoration, and the public) whose activities and perspectives need to be better understood. DNR staff would invest time to better quantify the abundance and distribution of aquatic plants in Minnesota lakes (principally emergent and floating-leaf plants) and describe how those communities have changed because of lakeshore development. DNR staff would also poll northern-tier states to examine other approaches that are currently being used to manage aquatic plants in public waters. The information from these three efforts would be shared with a group of DNR staff and key stakeholders who would be charged with the task of reviewing the current APM program and recommending changes that may be necessary.

Major elements of the review are summarized in Table 1. The Department anticipates that the review effort would take about fifteen months to complete (see Table 4) and cost \$185,000. Grant funding received from the USFWS is available to cover \$75,000 of the amount needed.

¹ Chapter 351, Sec 31. [AQUATIC PLANT CONTROL PERMIT PROGRAM REVIEW PROPOSAL.]

By October 15, 2002, the commissioner of natural resources must submit a proposal to the governor and members of the legislative fiscal and policy committees with jurisdiction over natural resources to review the aquatic plant control permit program, under Minnesota Statutes, section 103G.615.

Table 1. Major activities of Aquatic Plant Management Program review proposed by the DNR, including additional funds the DNR anticipates it would need to complete the work and the outside funding already available.

TASK	ACTIVITY	COST	FUNDS AVAILABLE
1	<p>Hire the University of Minnesota to survey:</p> <p>A) Lakeshore residents, resort owners, and local government units (LGUs) that remove aquatic plants to determine what level of aquatic plant removal they engage in and why.</p> <p>B) Commercial businesses that sell, harvest, and/or control aquatic plants to describe their current business practices and expected future growth.</p> <p>C) The public (riparian owners, anglers, non-riparian owners, etc.) to determine how much value they place on aquatic plants as habitat and their knowledge of DNR regulations.</p>	\$110,000	\$50,000 ²
2	<p>Use DNR field staff to:</p> <p>A) Survey representative lakes and evaluate the amount of aquatic plant removal that is occurring and compliance with existing regulations. This work would focus on emergent and floating-leaf plant communities.</p> <p>B) Reconstruct, using aerial photos, how aquatic vegetation patterns have changed in response to lakeshore development.</p>	\$65,000	\$25,000 ²
3	<p>Use DNR staff to:</p> <p>A) Review other states' Aquatic Plant Management (APM) Programs,</p> <p>B) Review information available from other states related to the effectiveness of their APM programs and public attitudes about shoreland vegetation.</p>		
4	<p>Work with key constituent groups to:</p> <p>A) Review current APM Program structure and, based on the results from Tasks #1 – 3, recommend changes in Program design, rules, statute, and/or fees.</p>	\$10,000	

² Grant funds received by the DNR from the USFWS to conduct Tasks 1A and 2B.

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Introduction

Are we “loving our lakes to death?” That is a question that is being asked from a variety of corners. Dennis Anderson voiced that question (Star Tribune, December 18, 2001) and pointed to the loss of aquatic vegetation as one of the most serious impacts associated with the development of lakeshore lots. The Minnesota Lakes Association on their webpage (www.mnlakes.org) also express this concern and point to lakeshore development as one of the significant contributing factors. Lakeshore development and redevelopment continues around Minnesota’s lakes, though the exact scale and rate of change on a statewide basis is unknown (Report of the Second Minnesota Lake Management Forum). What is clear is that there are only a limited number of lakeshore lots available and that as development continues, less of Minnesota’s lakeshore remains in its original state. In addition, once the most prized pieces of lakeshore are gone, attention becomes focused on less-desirable properties, where aquatic plants are often abundant.

These trends and concerns point to a real need to take a comprehensive look at the Aquatic Plant Management (APM) Program operated by the Department of Natural Resources. That program is charged with finding the appropriate balance between the protection of aquatic plant resources and the need to control aquatic plants to enhance access and recreation on lakes. The Program’s guidelines and rules have been modified seventeen times since the Department started regulating the destruction of aquatic plants in 1945. These changes were necessary as the amount of lakeshore development and aquatic plant control increased, and methods used to control aquatic plants changed. Senator Jane Krentz proposed additional changes to the APM program during the 2002 Legislative Session. Although her recommendations were not adopted, they led to the requirement for this review proposal. The DNR has recently modified its APM rules; that process was completed in 1997. The 1997 effort, however, was limited in scope and was designed to address new technologies that were being used and better protect floating-leaf vegetation. The public input received by the Department was extensive but it was not focused on the questions outlined below.

Background

Aquatic plants perform important functions in many Minnesota lakes. They provide habitat for fish and wildlife, dampen wave action protecting shorelines from erosion, prevent the re-suspension of bottom sediments, tie up nutrients that might otherwise cause excessive algal growth, and add beauty and character to lakeshores. Many of the activities and attributes that we enjoy about lakes are directly or indirectly related to the presence of aquatic plants.

Aquatic plants growing below the ordinary high water level of public waters belong to the people of the state of Minnesota (M.S 84.091). M.S. 103G.615 authorizes the Commissioner of the DNR to issue permits to harvest or destroy aquatic plants, establish permit fees, and prescribe

standards to issue or deny permits for aquatic control. The standards for the issuance of permits to control aquatic vegetation and the permit fee structure are found in MR Chapter 6280.

In Minnesota, riparian property owners have the right to reasonable access and use of Minnesota lakes (Michaelson, 1951). This has been interpreted to allow the destruction of aquatic plants (that belong to the public) if they interfere with the homeowner's access, as long as that destruction does not reduce the value of the public resource. The purpose of the APM program is to protect aquatic vegetation for the benefits it provides to Minnesota lakes while allowing lakeshore homeowners to exercise their right to use the lake.

The APM Rules have evolved over time. The earliest Commissioner's Order regulating the destruction of aquatic vegetation is dated 1945. Since then, the Commissioner's Orders (which became Rules) have been revised many times, most recently in 1997. In general, each revision has broadened the scope of the rules and further limited the amount of control that can be done without a permit. The current rules outline a three-tiered approach for regulating the destruction of aquatic vegetation.

- 1) "Low-impact" mechanical methods to gain access in a small area do not require a permit. This category represents control methods that, even if used by all lakeshore residents, would cause minimal impact to the resource. For example, submerged and floating-leaf plants can be removed with a rake or a cutter, or pulled by hand without a permit as long as the size of the area is within certain limits (see Appendix 1 for additional examples).
- 2) "Moderate-impact" methods to gain access always require a permit. This category represents control methods where the size of the treatment area and/or the method of control that will be used increase the potential for impact to the resource. A site inspection is used to help determine the appropriate amount of control to allow adjacent to individual properties. Lake-wide limits also exist on the total amount of aquatic plant control that will be allowed. The use of any pesticide to control aquatic plants requires a permit, as does the use of a mechanical device that is capable of remote operation (for example, the Crary WeedRoller®).
- 3) "High-impact" methods to gain access are NOT allowed. This category represents control methods that are prohibited, either because they cause excessive habitat impact, are not consistent with the type of lake in which they would be used, and/or represent control methods where the appropriate level of regulation is not currently defined. Plastic mats or bottom barriers are examples of a control method that is not allowed.

A general overview of DNR's aquatic plant management regulations (MR Chapter 6280) is provided in Appendix 1.

Proposal Development

A group of DNR staff, including representatives from the Divisions of Fisheries, Ecological Services, and Wildlife, met twice (June 21 and September 4, 2002) to identify and refine topics for this review proposal. The initial list of topics (from the June 21, 2002, meeting) was

forwarded to a larger group of DNR staff and about 45 external stakeholders for comment and to identify additional areas to include in the study. A brief summary of the feedback received from that mailing is attached (Appendix 2), as is a list of the stakeholders who received information about this process (Appendix 3).

Proposal Components

- TASK 1A.** Survey lakeshore residents and other groups who remove aquatic vegetation to enhance understanding of their practices and perceptions.
- 1B.** Survey businesses that sell, harvest, and/or control aquatic plants to better describe their current business practices and expected future growth.
- 1C.** Survey the public (lakeshore residents, anglers, non-riparian owners, etc.) to determine how much value they place on aquatic plants as habitat and their knowledge of DNR regulations.

BACKGROUND: Aquatic plants are a valuable resource and a critical component of healthy lakeshore communities in many lakes. The DNR is the agency charged with management responsibility, and its Aquatic Plant Management Rules describe how aquatic plant communities can be altered. A large group of individuals and businesses undertake activities that control, remove, and/or transplant aquatic plants. For example, lakeshore owners are often interested in removing aquatic plants to gain access, various commercial firms provide aquatic plant removal services, and the restoration of natural shoreland vegetation is a growing business. The DNR believes it is important to better understand the current activities and perspectives of these various individuals/groups, both those interested in controlling/removing aquatic vegetation and those interested in its establishment. The DNR also believes it is important to assess the value Minnesotans place on aquatic plants as a component of a healthy lakeshore. Aquatic plants represent a public resource whose long-term sustainability has been entrusted to the DNR.

TASK 1A: DNR's APM program currently interacts with roughly 10,000 lakeshore property owners through its regulatory efforts (see Table 2 below). The permit process involves an explicit description of areas where aquatic plant control is requested and the type of control proposed for use. An initial site inspection is used to help establish that a need exists and identify a level of plant removal that is consistent with DNR resource protection goals. Follow-up inspections may be conducted for certain sites but typically staff have time to inspect only new applications. However, these 10,000 properties represent only a small fraction of the 200,000+ lakeshore lots on Minnesota's lakes. The number of property owners who obtain information about aquatic plant management and follow its guidance (they may do work that does not require a permit – see Appendix 1) is unknown.

Likewise, the number of property owners who are unaware of or ignore the current rules is not known. DNR Conservation Officers are charged with enforcing APM rules. Violation of APM rules is a misdemeanor and a bail schedule has been established that stipulates the fine associated with certain violations. The effectiveness of current enforcement activity has not been evaluated.

TASK 1B: A number of businesses provide products or services covered by the APM rules. Some businesses sell APM control services or products to lakeshore residents, lake associations, or other groups who control aquatic plants. Other businesses harvest aquatic plants for sale to various groups (including the DNR), to restore shorelines or improve waterfowl habitat, or as nursery stock. Input from these business interests, including a current assessment of their activity, will aid a comprehensive program review.

Table 2. Summary of APM permits issued and fees collected to control aquatic plants in 2001.

Region	All Permits Issued in 2001	All Lakes*	Fees	Properties Permitted in 2001	Ave. Fee/Property	All Reporting**			
						Harvest Work	Chemical Treatment	Both	Other***
Reg 1	781	208	\$15,585.00	853	\$18.27	72	109	26	10
Reg 2	71	41	\$1,414.80	150	\$9.43	13	18	5	5
Reg 3	1177	271	\$40,155.92	3810	\$10.54	62	463	26	2
Reg 4	86	47	\$3,674.32	232	\$15.84	7	39	2	0
Reg 5	10	9	\$457.20	29	\$15.77	2	5	0	0
Reg 6	659	261	\$50,724.79	5126	\$9.90	23	488	12	0
Overall	2784	837	\$112,012.03	10200	\$10.98	179	1122	71	17

* Includes all lakes, ponds, ditches and streams issued an APM permit for 2001 and lakes with ongoing AUAPCD permits.

** Data tabulated from the 1389 surveys received from individuals who did their own work and reports from commercial applicators and operators from 2001 season.

*** Other Aquatic Plant Management work, i.e. restoration work requiring an APM permit.

TASK 1C: The wise management of the State's aquatic plant community and associated lakeshore zone is of interest to a wide variety of groups in addition to lakeshore residents. Maintenance of habitat is important to hunters and anglers, recreational access and use is important to a wide variety of boaters, and many groups value the opportunities to view various non-game species that inhabit or use the lakeshore zone. The views and perspectives of these groups also need to be assessed. The DNR is charged with the responsibility of allowing riparian owners to destroy aquatic plants to facilitate access and use of the waterbody adjacent to their property while protecting the value of the public resource. Aquatic plants are important for DNR's resource management responsibilities and DNR staff can articulate these values. However, aquatic plants are valuable to other members of the public (as described above) and it is important to measure these other public values.

Work: A large survey (2,000-3,000 individuals) using the mail will be conducted to gain information from lakeshore property owners and other entities (resorts, cities, park districts, etc.) that control aquatic plants (Task 1A). Topics covered in the survey will include: the amount of aquatic plant control typically conducted, method(s) used, how size of treatment area is selected, knowledge of current DNR rules/regulations, importance of enforcement actions, and

perceptions about the value of shoreland/aquatic plants. The University of Minnesota will be hired to implement the survey and summarize its results; the survey instrument will be cooperatively designed by University and DNR staff. The identity of survey participants will remain private unless the participant requests otherwise. Detailed knowledge about current aquatic plant management practices and public attitudes about the value of shoreland will help inform and focus efforts to regulate the destruction of aquatic plants, as well as inform efforts by many groups to encourage shoreland restoration efforts.

A separate but related survey (Task 1C) will be used to determine public knowledge of current DNR rules/regulations, and perceptions about the value of shoreland/aquatic plants. The methods used will be similar to those described above. The survey will collect information that will assess the attitudes of different groups (e.g. anglers, lakeshore residents, recreational boaters, urban residents) about the value of aquatic plants. Whether these values differ across Minnesota will also be examined.

A third survey (Task 1B) will be used to determine the current amount and types of business activity associated with aquatic plant management in Minnesota. Businesses which work under DNR's APM permit program already report annually on the scale and scope of their work activities. Other businesses, which sell products for aquatic plant control or grow aquatic plants for restoration efforts, do not have similar reporting requirements. This survey will seek information to better characterize the current scope of activities and identify future trends to address in the revision process.

Who: University of Minnesota

Product: A three-part report: 1) riparian owners' knowledge, practices, and attitudes about APM, including an evaluation of whether there are regional differences across Minnesota; 2) the amount and type of business activity related to aquatic plant management and expected future trends; and 3) public attitudes about aquatic plants and what factors make lakeshore valuable.

Cost: \$110,000

Funds Available: \$50,000 - State Wildlife Grant from USFWS. The DNR recently received a grant from the US Fish & Wildlife Service. That grant provides \$50,000 to conduct the survey activities outlined in Task 1A.

TASK 2A. Conduct field surveys to estimate amount of removal of emergent and floating-leaf aquatic plants that is occurring and compliance with existing regulations.

2B. Reconstruct, using aerial photos, how aquatic vegetation patterns have changed in response to lakeshore development.

Background: The DNR believes that the second critical component for the APM Program review is to assess the current status of aquatic plant resources in Minnesota's lakes and determine how that resource has changed over time, particularly since 1945 when APM

regulations were first adopted. Given the number of lakes in Minnesota, this review will need to be limited in scope, and will probably need to focus on plant types that are easiest to assess. A significant amount of DNR staff time is spent regulating the destruction of aquatic plants in Minnesota lakes. That investment includes site inspections of properties where control work is planned and some monitoring of permit compliance is occurring. However, these efforts are focused primarily on individual properties, not the lake-wide assessments needed for this review. The DNR has initiated a number of projects to better quantify the current status of aquatic plants in Minnesota lakes and determine trends over time. Activities listed in Task 2 would allow existing efforts to be expanded.

Unfortunately, the aquatic plant community in lakes is not easy to quantify. Three main types of aquatic plants (emergent plants, floating-leaf plants, and submerged plants) are often present but variation is observed in the abundance of each type, the species present, the portion of the lake bottom colonized, and the stability of the populations from year-to-year. These variations not only occur on a broad geographic scale (plant communities in lakes in northeastern Minnesota are quite different from those in the southwest), but large differences can occur between adjacent lakes.

The DNR is concerned about the status and changes in abundance of all types of aquatic plants. While the majority (about 90%) of the APM permits issued by the DNR authorize the destruction of submerged aquatic plants, tracking change in submerged plant communities is particularly difficult. Collecting information on the types and abundance of submerged plants is time consuming and photos cannot currently be used to measure change. As a result, the DNR expects to focus its efforts on emergent (e.g. cattails, bulrush) and floating-leaf (e.g., water lilies) plants.

The DNR believes that focusing an assessment just on emergent and floating-leaf plants will be valuable because control efforts on these species result in more detectable, immediate, and permanent damage. These plant groups provide extremely important fish and wildlife habitat in many lakes. The locations where emergent and floating-leaf plants grow often do not change dramatically from year to year. Control of emergent and floating-leaf plants often persists for more than one year, leaving a mark that can be tracked with aerial photographs or with on-site inspections.

The DNR has recently collected data using both aerial photographs and on-site inspections that shows that lakeshore development in Minnesota has impacted the abundance of emergent and floating-leaf plants. Radomski and Goeman (2001) examined historical change in plant abundance from aerial photographs in a group of clear-water sunfish-walleye lakes. They found that vegetative cover in littoral areas adjacent to developed shores was less abundant than along undeveloped shorelines (on average a 66% reduction), and they estimated a 20-28% loss of emergent and floating-leaf coverage from human development for all of Minnesota's clear-water sunfish-walleye lakes. The DNR also recently conducted (fall 2001) a shoreline survey by boat of twelve lakes in the northwestern part of the State. DNR personnel who issue APM permits estimated the amount of aquatic plant removal that is occurring and compliance with existing regulations. Prior to this pilot study, it was assumed that it would be relatively easy to identify areas where any vegetation control had been performed, if a permit was required and if it had

been issued. The reality was that it was difficult. The personnel who conducted the surveys have recommended using this technique only to track removal of emergent and floating-leaf vegetation. This reconnaissance effort also suggested that emergent vegetation had been controlled in many areas where permits had not been issued.

TASK 2A: DNR staff (principally APM specialists and pesticide enforcement specialists) will conduct reconnaissance surveys by boat on about 100 – 120 lakes (about 20 lakes in each of the following lake regions: Spicer/New London, Detroit Lakes, Metro, Brainerd, Waterville, and Grand Rapids). Lakes will be selected in each area to include examples where there is substantial and/or recent lakeshore development, as well as lakes where less development has occurred. Selection would be based on input from Area Fisheries Offices and not a completely random selection process. (Our goal is to create a list of examples, not a statistically valid sample that could be used to make inferences on all lakes in MN). The surveys would be based on the pilot work in northwestern Minnesota that is described above.

The survey will be conducted from mid-August to early September as the plants will still be growing and any aquatic plant control performed in the summer will still be visible. The total shoreline of each selected lake will be assessed, and each location where there is evidence of human activity will be considered a site. For the pilot effort, sites ranged from year-round homes, to properties with only a canoe at the lakeshore, to camper trailers in the woods with no evidence of lakeshore activity. Resorts, campgrounds, and townhouse associations were considered one site. The survey will note the status of the aquatic plant community at each site, whether aquatic plants might restrict access, and the type of APM work that has occurred. Sites will be grouped by category. **The categories used in the pilot study are listed below but may require modification.** For example, it may be valuable to differentiate the “NN” category into each of its three components.

Nothing Noticeable (NN) - The shoreline lacked emergent vegetation and there was no noticeable submerged vegetation control OR there was emergent vegetation present but none of it had been destroyed OR emergent vegetation was present but it appeared to be a natural opening in the stand.

Something at Some Time (SAST) - The emergent vegetation had been destroyed at some point in time to create a boat channel or swim area. The time frame could be from one day to fifty years ago. The area cleared would have been allowed under permit.

Major - An area had been created in emergent vegetation that was beyond what would have been allowed under permit.

In addition, sites on each lake where there are active APM permits will be checked to see if the permittee appears to have complied with the permit limits on “area of control.”

Who: DNR field staff with extensive expertise in the identification/assessment of aquatic plants

Product: An assessment of the current scope and scale of APM work in different parts of Minnesota. For example, the following table uses information collected by the pilot reconnaissance surveys. (Categories used in Table 3 are outlined above.)

Table 3. Summary of Fall 2001 survey of twelve lakes in NW Minnesota.

Area/Lake	Sites	NN	SAST	MAJOR
Gull	110	35	43	32
Plantagenet	117	55	38	24
L. Cormorant	184	127	43	10
Leaf	160	131	25	3
East Battle	314	244	54	7
Bass	21	5		1
Lobster	225	128	87	4
Mina	35	14	21	
Eagle	55	5	34	1
Potato	250	119	117	7
Birch	241	60	131	50
Child	44	7	27	10
TOTAL (%)	1756	930 (53%)	620 (35%)	145 (9%)

Cost: \$25,000 (Would allow DNR to hire additional summer staff, complete regular duties more quickly, and create time to devote to special APM reconnaissance surveys)

TASK 2B: DNR Fisheries research staff are currently conducting a study to test the hypothesis that lakeshore development has influenced emergent and floating-leaf vegetation abundance at the whole-lake scale, and provide information to managers on how central Minnesota shorelines appeared earlier. As discussed above, Radomski and Goeman (2001) examined photos to determine how the distribution of aquatic plants changed in a series of clear-water sunfish-walleye lakes. They found that there is now less vegetative cover adjacent to developed shorelines when compared to undeveloped shorelines. Additional historical evidence of whole-lake vegetative loss with development is needed to substantiate this work. By compiling historical data on emergent and floating-leaf plant coverage from lakes through time with varying human lakeshore development, the effects of development on littoral habitat, a potential stress gradient, can be explored.

The Fisheries research project will use historical aerial photographs and other data to estimate plant coverage. Historical aerial photographs from the National Resource Conservation Service were examined and found to be inadequate due to low resolution—it was not possible to detect low- to moderate-density emergent vegetation stands from this extensive collection of historical photographs. DNR-Forestry photographs were determined to be adequate to detect emergent and floating-leaf vegetation stands, and analysis will only use those images. Lakes used for this study will be randomly selected from recently surveyed lakes in the Brainerd to Park Rapids area and grouped by alkalinity, lake morphometry, and shoreland zoning classification. Vegetation

coverage will be estimated using computer algorithms on digitized images. Indices of human lakeshore development will be created from the same photographs and from existing fisheries surveys. Examples of indices include number of dwellings and docks. Methods will follow Radomski and Goeman (2001), but be extended to whole-lake analyses.

The DNR is proposing to expand the geographical scope of the existing Fisheries research project, to include the Bemidji and Grand Rapids areas, and to increase the number of lakes examined in each group. Increasing the number of lakes investigated will allow the exploration of predictive models of emergent and floating-leaf plant coverage. To expand both the number lakes and geographical area covered, additional funding is requested for a temporary staff position.

Who: DNR Fisheries research staff currently investigating how lakeshore development has impacted emergent and floating-leaf plant communities.

Product: An expanded assessment (that would include the area bounded by Brainerd, Park Rapids, Bemidji, and Grand Rapids) of how shoreland development has influenced aquatic plants visible in aerial photographs. This assessment would examine different lake types to determine if lake-type specific patterns exist that could be used for predicting past conditions and/or setting management goals.

Cost: \$40,000 (Would allow DNR to hire temporary staff to expand the current project)

Funds Available: \$25,000 - State Wildlife Grant from USFWS. The DNR recently received a grant from the US Fish & Wildlife Service. That grant provides \$25,000 to conduct activities similar to Task 2B.

TASK 3A: Review APM Programs in other states to examine alternative design options.

3B: Compile information available from other states related to the effectiveness of their APM programs and public attitudes about shoreland vegetation.

BACKGROUND: The DNR believes that a review of the management programs of other states with aquatic plant resources similar to Minnesota would be productive. These states face challenges not unlike those in Minnesota but may use different management approaches. Efforts to evaluate the success of these various approaches should also be examined.

The DNR's current APM Program relies on a mix of educational and regulatory actions to allow access to public waters while protecting the natural resource value of lakes. Permits are required for certain types of control activities, but many lakeshore residents can legally remove aquatic plants without a permit. The Department is aware that other states use different APM Program designs. Acquiring information about other program designs, particularly from states in the northern tier that have aquatic plant management concerns similar to Minnesota, would be valuable. We are aware of one review of APM Programs in the Northeastern and North Central US (Trudeau 1982), though obtaining a more recent compilation may be desirable. The assistance of professional groups, such as the National Aquatic Plant Management Society and

the Midwest Aquatic Plant Management Society, will be sought to determine if other, more recent, summaries exist.

TASK 3A & 3B: Poll other states in the northern tier to determine how they regulate aquatic plant control, what they are trying to achieve, how they define “reasonable access,” whether they differentiate between mechanical and chemical methods, what percentage of program costs are paid by permittee, and other related questions. Also, inquire whether they reviewed the effectiveness of their program and/or surveyed the public related to aquatic plant management issues.

Who: DNR’s APM Program Coordinator with assistance from other central office staff

Product: A written/tabular summary of different design options, fee structures, and review efforts

Cost: No additional funds are needed.

TASK 4A: Work with key constituent groups to review the current APM Program structure and, based on the results from Tasks #1 – 3, recommend changes in Program design, rules, statute, and/or fee structure.

BACKGROUND: The DNR believes it is important to engage key stakeholders with the results of this study and seek their input on how the APM program could be made more effective.

The DNR’s current APM Program relies on a mix of educational and regulatory actions to allow access to public waters while protecting the natural resource value of lakes. Permits are required for some activities, but control can be done in front of many properties without a permit. The DNR has some evidence that important aquatic plant communities have been impacted, in spite of its regulatory effort, and that a significant amount of un-permitted control work has occurred.

This review effort is designed to provide information about how lakeshore residents are currently controlling aquatic plants to obtain access, whether those practices are consistent with and being influenced by DNR’s current APM program, whether the current APM program is meeting DNR’s goals, and how other states address this issue. Once the information is collected, the “What next” question needs to be addressed. DNR proposes to include key stakeholders in the group charged with developing and recommending alternatives. The stakeholders need to reflect a diverse group of interested parties, including: lakeshore residents, fishing and hunting interests, lake associations, resorts, local government units, commercial applicators, and Native American bands.

There is a fee associated with APM permits (see Appendix 1). However, these fees cover roughly 25% of the costs associated with the operation of APM Program (issuing permits, conducting site inspections, providing APM information, enforcing rules, and verifying that pesticides are being used safely). Revenues from the Game & Fish Fund and General Fund are also used. Many groups benefit from the wise management of the State’s aquatic plant resources, however, it is important for program participants to pay their fair share. The

stakeholder group described above will also be asked to evaluate and recommend changes to the current fee structure.

TASK 4A: Evaluate results from Tasks 1 – 3 and recommend necessary changes in APM Program design and fee structure.

Who: A team representing DNR divisions of Fisheries, Wildlife, Enforcement, and Ecological Services, plus 7 or 8 key stakeholder groups.

Product: A package of recommended changes

Cost: \$10,000 to cover travel, meals, facilitator’s fees, and other expenses

Table 4. Timeline

Principal Tasks	2003									2004					
	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J
Task 1A				X	X	X	X	X	X	X					
1B				X	X	X	X	X	X	X					
1C				X	X	X	X	X	X	X					
Task 2A					X	X	X	X	X						
2B	X	X	X	X	X	X	X	X	X	X	X	X			
Task 3A				X	X	X	X	X	X						
3B				X	X	X	X	X	X						
Task 4										X	X	X	X	X	X

References

Michaelson, V.J. 1951. Legal Aspect of Public and Private Waters in Minnesota. Minnesota Department of Natural Resource, Division of Waters Bulletin #4.

Radomski, P. and T.J. Goeman. 2001. Consequences of Human Lakeshore Development on Emergent and Floating-Leaf Vegetation Abundance. North American Journal of Fisheries Management 21:46-61.

Trudeau, P.N. 1982. Nuisance Aquatic Plants and Aquatic Plant Management Programs in the United States. The MITRE Corporation. U.S.EPA MTR-82W47-03.

Appendix 1: Overview of Minnesota's Aquatic Plant Management Rules

The current rules governing aquatic plant management in public waters are found in Minnesota Rules Chapter 6280. Briefly, the rules prescribe the standards for permit issuance. The following is a synopsis of the APM Rules:

Activities that require a permit:

- Use of pesticides to control aquatic plants, algae or swimmer's itch in public waters
- Destruction of emergent vegetation (such as bulrush, cattails or wild rice) in public waters
- Removal of floating bog
- Destruction of water lilies
- Use of an automated untended aquatic plant control device, such as the Crary WeedRoller®

Activities that *do not* require a permit:

- The mechanical control (cutting or pulling) of submerged vegetation in an area not to exceed 2,500 square feet does not require a permit, provided that the area extends no more than 50 feet along shore, or half the owners frontage which ever is less. This can include a channel 15 feet wide extending to open water.
- A channel no more than 15 feet wide extending to open water may be maintained mechanically (cutting or pulling) through floating leaf vegetation, provided the channel remains in the same location from year to year.
- All vegetation cut or pulled must be immediately removed from the lake.

Prohibited activities: Permits are *not* issued for the following purposes:

- Using plastic mats to prevent the growth of aquatic plants
- Improving the appearance of undeveloped shoreline
- Removing aquatic plants for esthetic purposes alone on developed shoreline
- Controlling aquatic plants in SNA's or for control of yellow lotus
- Controlling aquatic plants with herbicides in natural environment lakes
- Destroying aquatic plants in posted fish spawning areas
- Destroying aquatic plants or invertebrate life by means not authorized in these rules

Aquatic Plant Management Permits – General Requirements:

- Permits for aquatic plant control may only be obtained by persons or municipalities holding interest in the lake shore.
- Applications are submitted to and permits are issued by the Regional Fisheries Offices
- A site inspection is required for all new aquatic plant control sites
- Permits are usually issued for a single growing season and expire on September 1st.

Aquatic Plant Management Permit Fees. The fee for an aquatic plant management permit to use herbicides, or an AUAPCD, or to control emergent or floating leaf vegetation is: \$20.00 for each property up to a maximum fee of \$200.00. For the mechanical control of aquatic plants the permit fee is \$20.00 for the first acre and \$2.00 for each additional acre up to a maximum fee of \$200.00.

Appendix 2: Responses to APM Program Review Survey

Question	Responses		Blank	Total Number of Responses
	Yes	No		
1) Does the APM Program need review?	29	3	1	33 (7 DNR staff)
2) Have we identified the right topics and strategies?	26	3	4	33
4) Are you the right person?	28	3	5	

3) Alternative Topics/Suggestions/Comments

Topic 1. What are riparian owners doing?

Enlist associations and resource agencies to monitor lakes
 Review effective new technologies
 Deal with plant communities, submerged, emergent, floating leafed
 Explore human perceptions and attitudes
 Lake shore residents may not answer honestly
 Include survey of general public
 Include interest in restoring shorelines

Topic 2. How well does current program protect aquatic plants?

Need long-term studies of a few lakes
 Regulations too liberal
 Current regulations have the right elements enforcement is too big a problem/task
 Too liberal with emergent vegetation
 Public education lacking on the issue of wild rice removal
 State and tribes work together to protect shared waters and aquatic resources
 Education does not work, too expensive
 Need to reduce restrictions let lake shore homeowners protect their investment
 Be more strict especially with emergent plant removal

Topic 3. What program design will most effectively and cost efficiently achieve program purpose?

Neighbors should share access reduce destruction
 Effective education program work closely with watershed districts/citizen participation
 Make it harder to get herbicide permits/emphasize hazards and risks of pesticides
 Be open to a new model
 More aggressive – involve realtors/strengthen rules
 Expand plant control authority above OHW
 *Maximize time spent with people, minimize paper work
 Review partnership, education opportunities, research connections
 Use biological and water quality data to prioritize waters and plant communities
 increase public education effort
 Deregulate AUAPCD's [automated untended aquatic plant control devices]
 Educate lakeshore owners of natural processes, encourage natural lakeshore as preferable

Encourage lake vegetation management plans
Implement recommendations of U of Florida review 1991

Topic 4. What portion of costs should be paid by permit holder?

Fees too low/don't make so high to drive folks underground

Resident 50%, State 25%, County 25%

Use focus groups to determine appropriate level of cost that would be tolerated.

Other

Impact of exotic plant species and effectiveness of management strategies i.e. fluridone.

The potential differences in littoral plant management between shallow and deep lakes.

Strongly encourage tribal participation

Need to differentiate between exotic and native plant control

Here are a few additional issues that MLA feels should be considered, perhaps in the context of the topics and strategies already outlined.

- What is the role of herbicides in aquatic plant management? To what extent should their use be allowed?
- Is a 15-foot clearance area for reasonable access to the lake appropriate in all cases or is it so restrictive as to encourage excess clearing by property owners betting on the fact that the DNR is limited in staff for inspections.
- Should the use of mechanical devices such as the Crary Weedroller be allowed? Are the current guidelines for use appropriate?
- How should the Minnesota boating regulations be changed to protect aquatic plants? One example might be restricted motoring through bull rushes and/or adoption of a slow-no-wake zone from shore and within a particular distance of emergent plants.
- Is the current definition of "low impact" methods of control protective enough?
- How to effectively utilize state and local organizations, such as MLA and individual lakes, rivers and homeowners associations to promote education on aquatic plant management and control of exotic plants. This includes training of associations and providing a source of grant funding.
- Exotic aquatic plant control falls within the auspices of aquatic plant management. The Exotics Species Program needs to be revised whether the overall APM program is or not.
- MLA would like to see the DNR consider the use of SONAR, where appropriate; review its ceiling of 15 percent of the littoral zone where exotic plant control is necessary; and a definition of curlyleaf pondweed as an exotic species with the same type of management controls as milfoil. The Exotics Program is definitely under-funded. MLA may be willing to assist in the process of finding new funding sources and management resources.

Utilize state and local organizations

Continue to encourage control of exotics

Keep three year signature authorization, making volunteer work difficult helps no one.

Plans do not address cumulative impacts

Require lake plans before permit issuance

Ban toxics

Treat all lake water as drinking water

Appendix 3: External stakeholders who received information about DNR's proposed review of the aquatic plant management program.

Lake Minnetonka Conservation District Greg Nybeck 18338 Minnetonka Blvd Deephaven MN 55391-3232	Jacques Chapter-Izaak Walton League Rick Vanzwol – Resolution Committee 9750 Jamaca Avenue North St. Paul MN 55155-1362	Blue Water Science Steven McComas 550 Snelling Avenue South St. Paul MN 55116
Ecosystem Strategies Dick Osgood 22035 Stratford Place Shorewood MN 55331	Water Resources Center University of Minnesota 173 McNeal Hall 1985 Buford Avenue St. Paul MN 55108	Minneapolis Park & Rec Board Jeff Lee 400 South Fourth Street – Suite 200 Minneapolis MN 55415
Ramsey County Public Works Terry Noonan 3377 Rice Street St. Paul MN 55126	Hennepin Conservation District Carolyn Dinndorf 10801 Wayzata Blvd, Suite 240 Minnetonka MN 55305	White Bear Lake Conservation District Lake Quality Committee 4701 Highway 61 White Bear Lake MN 55110
Three River Parks John Barten 3800 County Road 24 Maple Plain MN 55359	Minnesota Aquatic Management Society Don Pennings Lake Management 10400 185th Street North Marine on St. Croix MN 55047	Minnesota Lake Association Paula West PO Box 321 Brainerd MN 56401
Ducks Unlimited John A. Tomke One Waterfowl Way Memphis TN 38120-2351	Ducks Unlimited Mike Dvorak, Regional Director 5898 Olinda Avenue Stillwater MN 55082-6317	U.S. Army Corps of Engineers Robert L. Ball 190 Fifth Street East St. Paul MN 55101-1638
Aquatic Plant Management Society Dr. John D. Madsen Minnesota State University S242 Trafton Science Center Mankato MN 56001	Sauk River Watershed District James Loecken 524 South 4 th Street Sauk Centre MN 56378	MN Association of Watershed Districts Region II – Dean Oleson 133132 Co Rd 7 Hutchinson MN 55350
MN Assn of Watershed Districts Ray Bohn 3848 Westbury Drive St. Paul MN 55123	John Schneider 2865 Matilda Street Roseville MN 55113	Minnesota Native Plant Society 220 Biological Science Center 1445 Gortner Avenue St. Paul MN 55108
Minnesota Sport Fishing Congress Dave Overland 19757 Polk Street NE Cedar MN 55011	Bass Federation Vern Wagner 11109 Edgewood Circle Champlin MN 55316	MN Association of Watershed Districts Region I – Vern Johnson Route 1, Box 133 Clearbrook MN 56634
MN Association of Watershed Districts Region II – Loren Harste R.R. 2, Box 53 Appleton MN 56208	MN Association of Watershed Districts Region II – Larry Eike Route 1, Box 32 Heron Lake MN 56137	MN Association of Watershed Districts Region III – Susan Scribner 5826 Oakview Circle Minnetonka MN 55345
MN Association of Watershed Districts Region III – Pam Blixt 4811 38 th Avenue South Minneapolis MN 55417	Sierra Club North Star Chapter 1313 5 th Street SE #323 Minneapolis MN 55414	Minnesota Herbicide Coalition Mary E. Kent 4075 West 51 st Street #107 Edina MN 55424-1408
Minnesota Waterfowl Association Mike McGinty 3750 Annapolis Lane, Suite 135 Plymouth MN 55447	American Fisheries Soc-Fond du Lac Resource Mgt Brian Borkholder 1720 Big Lake Road Cloquet MN 55720	American Fisheries Society – National Office 5410 Grosvenor Lane, Suite 110 Bethesda MD 20814-2199

Izaak Walton League
Phillip Hinderaker
555 Park Street, Suite 140
St. Paul MN 55103-2110

Nancy Costa
1720 Big Lake Road
Cloquet MN 55720

Tom Gertz
Midwest AquaCare, Inc.
10001 Great Plains Blvd
Chaska MN 55318

Minnesota Center for Environmental
Advocacy
Peter Bachman, Director
26 E. Exchange Street, Suite 206
St. Paul MN 55101-2264

Kevin Kretsch
Lake Restoration, Inc.
12425 Ironwood Circle
Rogers MN 55374

Capitol Collections
Gary Botzek
26 E. Exchange Street, Suite 414
St. Paul MN 55101

Curtis Buttrey
Lake Weed Harvesting
4228 Dupont Ave. North
Minneapolis MN 55412