Bone Lake APM
Options for Management

Curly Leaf Pondweed (CLP)

Goal

Reduce the non-native, invasive curly leaf pondweed to minimize navigation problems, prevent its spread, and protect native plant populations.

Information

- CLP grows early in the season, growth peaks in May, and the plant declines after Memorial Day
- CLP spreads by the formation of turions that form quite early
- Early season treatment with the herbicide endothall shows promising results
- Early season treatment occurred on 14 acres in 2006 and 2007
- Some residents support spraying only invasives and not native aquatic plants
- Significance of release of phosphorus from CLP in Bone Lake is uncertain – CLP die-off might not lead to algae blooms in Bone Lake
- CLP treatment would be about $400 to $500 per acre

Committee results reported are from the Aquatic Plant Advisory Committee meeting 1/12/08. Options selected for further development are underlined.

Limitations/Requirements

- Pre and post monitoring will be required where there is an herbicide treatment for invasive plants. (DNR Protocol). Volunteers could be involved in this monitoring. Requires knowledge of GPS navigation and ability to identify 10-20 common aquatic plant species and invasive plants (CLP and EWM).
- Fisheries: do not treat in water less than 3 feet deep
- Fisheries: do not treat in sensitive areas except to improve habitat

Option CLP1

Objective: Monitor CLP growth and spread.

No Action

Map CLP growth annually/every five years to see if it is spreading.
Consider action in subsequent plan if it is.

Advantages	Disadvantages
Low cost	Won't reduce CLP growth
No herbicide used	
No permit required	

With ten out of sixteen committee members present, ***20 percent*** *chose this option.*

Option CLP2

Objective: Test effectiveness of current CLP management on Bone Lake

Continue Pilot Testing

Treat 14 acres in 4 beds in 2008 and 2009
Monitor effectiveness with follow-up monitoring in 2008 and 2009
Reassess further treatment in winter 08-09.

Advantages	Disadvantages
Test before full expense	Waiting
Conditionally accepted by DNR	
Will find out if current treatment is working	

With ten out of sixteen committee members present, ***80 percent*** *chose this option. An absentee ballot would add another vote, raising the percentage to 82 percent.*

Option CLP3

Objective: Alleviate spring navigation concerns

Spray Beds that Prevent Navigation

Identify CLP beds likely to be spring navigation concern (see survey results)
Use nuisance measures from DNR NOR Aquatic Plant Strategy and ID density measures that warrant treatment
Treat with early season endothall as needed annually
Avoid depths < 3 feet

Advantages	Disadvantages
Treatment is only as needed (lower cost)	Turion production will continue from remaining CLP beds

With ten out of sixteen committee members present, ***70 percent*** *chose this option.*

Option CLP4

Objective: Improve early season swimming and boat access

Treat individual corridors where CLP present up to 30 feet wide with early season endothall

Subject to DNR permit approval
Use nuisance measures from DNR NOR Aquatic Plant Strategy and ID density measures that warrant treatment

Advantages	Disadvantages
Residents pay for their own treatment	Not prime swimming time before July (?)
Could be permitted	May have little practical benefit (timing)
Herbicides used – residents can hand pull	

NOTE: any resident can remove invasives by hand pulling or raking across entire frontage.

With ten out of sixteen committee members present, ***80 percent*** *chose this option.*

Option CLP5

Objective: Decrease P release in early summer

Treat all high density CLP beds

Avoid water depths less than 3 feet

Advantages	Disadvantages
Most likely to significantly reduce turions	P release from CLP uncertain
Would also address other objectives	Expensive to treat (90 acres @ $400- $500 per acre)
	Expensive to monitor
	May be difficult to permit
	CLP not likely to be eliminated
	Long-term expense
	Not all beds may be appropriate for treatment (too narrow)

With ten out of sixteen committee members present, ***20 percent*** *chose this option.*

Option CLP5a

Study the release of phosphorus from CLP in Bone Lake

Reassess full scale treatment following results of P-release study and examining results of current CLP spraying efforts in 2010.

Advantages	Disadvantages
Test P release before undergoing expense	Delay for study
More likely to get DNR permit w/better info	Expenses of monitoring

With ten out of sixteen committee members present, ***30 percent*** *chose this option. An absentee ballot raises that percentage to 36 percent.*

Option CLP6

Objective: Improve native plant population in sensitive area K

Treat sensitive area K with early season endothall

Avoid any areas with wild rice
Avoid water depths less than 3 feet
GLWFC involvement required because of wild rice present

Advantages	Disadvantages
May help recover native plants	May be difficult to permit
	Would require extensive mapping of wild rice beds and monitoring of results from current treatment
	Wild rice is sensitive to endothall and grows early

With ten out of sixteen committee members present, ***10 percent*** *chose this option.*

Option CLP6a

Objective: Improve native plant population in sensitive area K

Study the treatment of sensitive area K with early season endothall by beginning discussions with GLIFWC, mapping wild rice beds, and examining results of current CLP spraying efforts.

Consider sensitive area treatment in 2010.

Advantages	Disadvantages
Help recover native plants	Would require extensive mapping of wild rice beds and monitoring of results from current treatment
More likely to get DNR and GLWFC support	

With ten out of sixteen committee members present, ***70 percent*** *chose this option.*

Selected objectives for curly leaf pondweed management

Objective: Test effectiveness of current CLP management on Bone Lake

Objective: Alleviate spring navigation concerns

Objective: Improve early season swimming and boat access

Objective: Improve native plant population in sensitive area K

Goal: *Maintain recreational uses important to lake residents and users including swimming, fishing, and boating while balancing the need to preserve important native aquatic plant functions and their values.*

Navigation Corridors (Choose 1 option)

Option NC1

Objective: Protect native plant populations

Eliminate the program of spraying of native plants to create navigation corridors.

Advantages	Disadvantages
No impact to native plants	Navigation limited some years
No impact to habitat	
No impact to fisheries	

No committee members present chose this option. One committee member chose this option by absentee ballot (9 percent).

Option NC2

Objective: Maintain open navigational corridors

Re-examine navigational corridors reducing the acreage only to those areas identified in the survey (and by the committee) i.e. decrease the acreage under consideration from previous planning efforts.

Use the standards for documenting navigation impairment in the DNR northern region strategy for native aquatic plants.

Documenting Impaired Navigation or Nuisance Conditions

Impairment of navigation

- Locate navigation routes with GPS coordinates
- Provide dimensions (length, width, and depth)
- Indicate when plants cause problems and how long problems persist
- List adaptations or alternatives considered to lessen problem
- List the species of plants causing the nuisance

Nuisance conditions

- Indicate when plants cause problems and how long problems persist
- Include photos of nuisance conditions
- Provide examples of specific activities that are limited because of presence of nuisance aquatic plants

Develop a system to document impaired navigation

DNR would offer training for volunteers to document when treatment allowed

Advantages	Disadvantages
Fewer impacts to plants, habitat, and fisheries than larger acreage	Need to document navigation impairment Herbicide use and expense

No committee members chose this option.

Option NC3

Objective: Maintain open navigational corridors

Continue existing program of treating 7.4 acres of navigational corridors

Use standards for documenting navigation impairment as described above for Option NC2

Advantages	Disadvantages
Corridors already established	Need to document navigation impairment Herbicide use and expense

With ten out of sixteen committee members present, ***10 percent*** *chose this option.*

Option NC4

Objective: Maintain open navigational corridors

Increase the navigational corridors under consideration for treatment each year.

Use standards for documenting navigation impairment as described above for Option NC2

Advantages	Disadvantages
More choices for navigation	Need to document navigation impairment Herbicide use and expense Greater impacts on native plants, fisheries, habitat

With ten out of sixteen committee members present, ***90 percent*** *chose this option.*

Selected objectives for navigation corridors

Objective: Maintain summer navigational corridors

Objective: Protect native plant populations

Note: Although the program of herbicide treatment will continue, native plant populations will only be treated only with navigation impairment appropriately documented.

Swimming/Individual Access Corridors (Choose up to 3 Options)

Option AC1

Objective: Protect native plants in front of residences

Discontinue allowance of permits to maintain individual access and swimming corridors.

Allow residents to hand pull or rake (or contract for services) to maintain a corridor in front of their property.

Advantages	Disadvantages
Protection of native plants	Residents limited
	Potential illegal herbicide use
	May be difficult to find contractor

No committee members chose this option.

Option AC1a

Objective: Protect native plants in front of residences

Discontinue allowance of permits to maintain individual access and swimming corridors.

Lake District arranges a contract for services for hand pulling or raking individual corridors (with residents paying bill) each year.

Advantages	Disadvantages
Protection of native plants	Residents limited
Lake district assists residents	Potential illegal herbicide use

No committee members present chose this option. One committee member chose this option by absentee ballot.

Option AC2

Objective: Improve summer swimming and boat access

Continue individual permits to maintain access and swimming corridors up to 30 feet wide.

Develop a system to document impaired navigation

- DNR would offer training to document when treatment allowed
- Residents who wish to apply chemicals could register with the lake district
- Volunteers could review whether treatment is warranted
- Dispute resolution by 3rd party – Polk County? Consultant?

Advantages	Disadvantages
Flexibility for residents	Heavy reliance on volunteers

With ten out of sixteen committee members present, ***100 percent*** *chose this option. However, upon further review, committee members decided the management district shouldn't get involved to this level and should just offer information to residents regarding the DNR permitting process.*

Option AC3[1]

Objective: Improve early season swimming and boat access

Treat individual corridors where CLP present up to 30 feet wide with early season endothall

Subject to DNR permit approval

Use nuisance measures from DNR NOR Aquatic Plant Strategy and ID density measures that warrant treatment

Advantages	Disadvantages
Residents pay for their own treatment	Not prime swimming time before July (?)
Could be permitted	May have little practical benefit (timing)
Herbicides used – residents can hand pull	

With ten out of sixteen committee members present, ***90 percent*** *chose this option.*

Option AC4

Objective: Provide an opportunity to swim in Bone Lake

Create a public swimming area on Bone Lake

Choose an area with a sandy substrate and little plant growth

Allow some spraying to maintain an open area for swimming (DNR would likely allow spraying for a single designated public swimming area)

Advantages	Disadvantages
Swimming area maintained	Swimming area not at each residence
Swimming area open to the public	Need to find suitable location

With ten out of sixteen committee members present, ***10 percent*** *chose this option. One committee member chose this option by absentee ballot, raising the percentage to 18 percent.*

Swimming/Individual Access Corridor Objectives

Objective: Improve individual corridor summer swimming and boat access

Objective: Improve individual corridor early season swimming and boat access

[1] This option is the same as CLP4.