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| **FRIENDSHIP LAKE MANAGEMENT PLAN AQUATIC PLANTS AND ANIMALS** | Page 26 |  |
|  |  |  |
| **GOALS AND ACTION ITEMS** | **WHO** | **WHEN** |
|  |  |  |
| **Goal A: Machine harvest aquatic plants to improve water quality, to provide safe** |   |   |
| **boating areas, and to improve aquatic habitat.** |  |  |
|   |  |  |
| 1. Develop harvesting map by end of December of each year and share with WDNR & LWCD. Map |  Lake District | ongoing |
|  will be followed by harvesting crew. Areas in the lake 3 feet deep or greater may be harvested |  |  |
|  as needed to a depth of 1 foot from lake bottom. Any areas out in the lake shallower than 3 feet |   |  |
|  deep can have a harvested path of 50 feet wide with a harvest depth of 1 foot from lake bottom. |  |  |
|  Harvesting may not occur any closer to the shorelines than dock ends. No machine harvesting  |  |
|  in areas between shoreline and ends of boat docks. Harvesters should use GPS units to |  |  |
|  accurately define harvesting areas. *Use only map approved by WDNR.* |  |  |
|  |  |  |
|  2. A 30-foot wide area may be hand-harvested in front of each property. | waterfront owners | ongoing |
|  |  |  |
| 3. Critical habitat area FR1 (east end) should be harvested regularly to keep navigational channel  |  Lake District | ongoing |
|  open. The access channel is the only part of FR1 that can be harvested. A map will be submitted |  |  |
|  to the WDNR water resources staff as needed. *Use only map approved by WDNR.* |  |  |
|  |  |  |
| 4. Develop a non-motorized method to skim near shore areas (less than 3 feet deep) that will |  Lake District | *2017-2018* |
|  move floating debris into deeper water for pickup by mechanical harvesters. Implement plan |  |  |
|  if approved by WDNR. Consider using boom or similar method to gather floating debris. |  |  |
|  |  |  |
| 5. Permission has been given by the WDNR Aquatic Plant Manager for the lake to skim, to a depth of |  Lake District | ongoing |
|  5 to 8 inches, in areas that would not normally be harvested due to the 3-foot minimum or because  |  |  |
|  area is designated as critical hbabitat. Maps have been submitted to the WDNR showing these |  |  |
|  skim areas. These areas are generally adjacent to piers, and skimming will help remove filamentous |  |  |
|  algae that currently often clogs acceses. On the main body of the lake, EWM is also usually |  |  |
|  present in these areas. At the east end, most skimming will involve filamentous algae removal. |  |  |
|  Skimming is likely to occur 2 to 3 times per season. Access will only occur when water levels of the |  |  |
|  lake permit operation of the equipment safely, with minimal disruption of substrate. |  |  |

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| **FRIENDSHIP LAKE MANAGEMENT PLAN AQUATIC PLANTS AND ANIMALS** | Page 27 |  |
|  |  |  |
| **GOALS AND ACTION ITEMS** | **WHO** | **WHEN** |
| 6. Harvesting may start in the spring when plant tops are less than 3 feet from the water surface. |  Lake District | ongoing |
|  |  |  |
| 7. Investigate installing sprayer arms on current harvesting equipment is not possible.. |  Lake District | *2017-2018* |
|  Apply for grant assistance to assist in acquiring new machinery with sprayer arms for gathering |  |  |
|  plant fragments. |  |  |
|  |  |  |
| 8. Prepare report for WDNR aquatic plant manager including schedule of harvesting, estimated tons | Lake District | annually |
|  of plants harvested, and estimated amount of phosphorus removed. Estimate will be made by |  |  |
|  recording pounds of plants removed by taking an average weight of trailer-full of plants and |  |  |
|  multiplying that number by the number of trailer loads, This will be condition of harvesting permit. |  |  |
|  |  |  |
| 9. Tissues samples will be randomly taken from harvested plants and sent to a certified lab to | Lake District | annually |
|  measure the phosphorus content to determine the amount of phosphorus being removed. These |  |  |
|  samples will be taken once per month of harvesting and sent in for testing. |  |  |
|  |  |  |
| 10. Continue to evaluate harvesting equipment to determine approximate expected life span. | *Lake District* | *2016* |
|  Develop a plan for regular inspection of harvesting equipment and replacement of worn parts. |  |  |
|  Plan to pursue state matching grant funding before equipment becomes obsolete or unusable |  |  |
|  and to purchase new equipment if necessary. |  |  |
|  |  |  |
| 11. Purchase land for loading dock for harvester. | Lake District | completed 2013 |
|  |  |  |
| 12. Repeat aquatic plant survey every 3 to 5 years to monitor changes in aquatic plant community. | Lake District | 2015-2017 |
|  | Adams LWCD |  |
|  |  |  |
| 13. Investigate additional methods of controlling aquatic plants, algae and/or phosphorus levels | Lake District | ongoing |
|  and implement feasible alternatives. | Adams LWCD |  |
|  |  |  |
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| **FRIENDSHIP LAKE MANAGEMENT PLAN AQUATIC PLANTS AND ANIMALS** | Page 28 |  |
|  **GOALS AND ACTION ITEMS** | **WHO** | **WHEN** |
|  |  |  |
| **Goal B: Develop and implement plan to control current aquatic invasives and to prevent**  |  |  |
|  **introduction of additional invasives.** |  |  |
|  |  |  |
| 1. Use volunteers to monitor aquatic plant growth at least monthly during growing season to identify | Lake District | ongoing |
|  any areas of especially dense growth that will interfere with recreational activities or habitat. This | Adams LWCD |  |
|  will include monitoring for invasives. Volunteers will be trained by Adams County LWCD. |  |  |
|  |  |  |
| 2. Annually conduct mapping of Eurasian Watermilfoil plants. Conduct hand-pulling events at least | Lake District |  |
|  two times between May and August of isolated colonies or plants. Keep EWM at less than 3 acres. |  Adams LWCD, WDNR | ongoing |
|  Compare results annually to determine progress being made in control of EWM. This mapping |  |  |
|  will be done with Adams County LWCD assistance using Point Intercept protocol. |  |  |
|  |  |  |
| 3. Send in samples of Eurasian Watermilfoil plants for DNA testing for possible hybrid as needed. | Lake District, WDNR | starting 201*6* |
|  |  |  |
| 4. Participate in Clean Boats, Clean Waters program boat inspection and education program to | Lake District | ongoing |
|  reduce likelihood of spread of addition invasives. Investigate getting grant to assist AIS efforts. |  |  |
|   |  |  |
| 5. *Develop contingency plan and funds to deal with new invasives or reinvasions of AIS.* | *FLD, Adams LWCD* | *2017* |
|  |  |  |
| 6. Pursue financial assistance for implementation of prevention/control plan,. | Lake District |  |
|  |  Adams LWCD, WDNR | ongoing |
|  |  |  |
| 7. Discuss with Adams LWCD and WDNR whether a winter drawdown would help reduce EWM | Lake District |  |
|  population. If it is determined it would be appropriate, apply for grant to assist with costs. |  Adams LWCD, WDNR | ongoing |
|  Part of this consideration will be to determine if some aquatic plants present may be |  |  |
|  encouraged to grow to nuisance levels in event of a drawdown. |  |  |
|  |  |  |
| 8. Explore installation of boat washing station at main boat launch with the Village of Friendship. | Lake District | *2016-2017* |
|  | Village of Friendship |  |

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| **FRIENDSHIP LAKE MANAGEMENT PLAN WATER QUALITY** | Page 29 |  |
|  |  |  |
|  **GOALS AND ACTION ITEMS** | **WHO** | **WHEN** |
|  |  |  |
| **Goal A: Maintain or improve present water quality & prevent algal blooms.** |  |  |
|  |  |  |
| 1. Establish and identify in-lake water quality goals with measureable targets for determining progress in | Lake District | ongoing |
|  protecting the lake, using the information presented in the Adams County Lake Classification Report released in | Adams LWCD |  |
|  2008. Specific goal is to maintain in-lake growing season total phosphorus under 25 micrograms/liter, which is |  |  |
|  below the phosphorus index of 40 micrograms/liter that is state-mandated. |  |  |
|  |  |  |
| 2. Use volunteers for monitoring lake water quality with participation in the WDNR Citizen Lake Monitoring | Lake District | ongoing |
|  Program, with monitoring results being compared annually. Water quality samples must be taken at least 3 | Adams LWCD |  |
|  times each growing season at Sites 1 (deep hole) and 2 (east end) per year. | WDNR |  |
|  |  |  |
| 3. Protect water quality, undeveloped property, and critical habitat areas by investigating purchase of | Lake District | ongoing |
|  permanent conservation easements and applying for WDNR funding to assist in such purchases. If funds are | Adams LWCD |  |
|  obtained, purchase easements/development rights to prevent degradation of shore & water quality after | WDNR |  |
|  finding organization that can adequately hold and maintain easement(s). |  |  |
|  |  |  |
| 4. Educate lake users on harmful blue-green algae issues, including signs of exposure and how to report | Lake District | ongoing |
|  suspected negative impacts of such exposure. | Adams LWCD |  |
|  |  |  |
| **Goal B: Restore natural shore conditions in riparian areas & incorporate stormwater runoff practices** |  |  |
|  **to reduce erosion in and around Friendship Lake.** |  |  |
|  |  |  |
| 1. Conduct shore habitat assessments & Identify areas on the lake & along watershed streams that have  | Lake District | *2017-2018* |
|  habitat, erosion and/or stormwater runoff ssues. Use WDNR protocol. | Adams LWCD |  |
|  |  |  |
| 2. Require waterfront property owners to comply with NR 115, state administrative code. | Adams LWCD | ongoing |
|  | FLD |  |

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| **FRIENDSHIP LAKE MANAGEMENT PLAN**  | Page 30 |  |
|  |  |  |
|  **GOALS AND ACTION ITEMS** | **WHO** | **WHEN** |
|  |  |  |
| 3. Provide funding to landowners to assist in installation of shore protection, erosion control, & stormwater runoff | WDNR | *2017-2018* |
|  management, targeting those identified in #1 first.  | Adams LWCD |  |
|   |  |  |
| **EDUCATION** |  |  |
|  |  |  |
| **Goal A: Educate community and public about lake management concerns.** |  |  |
|  |  |  |
| 1. Update and maintain website for posting lake association/district information and educational information. | Lake District | ongoing |
|  Paper copies will be provided for those with no internet access. |  |  |
|  |  |  |
| 2. Add to informational kiosks at all public access sites about actions citizens can take to improve/maintain water | Lake District | *ongoing* |
|  quality and other lake issues; maintain invasive species signs at all public access points. | Adams LWCD |  |
|  |  |  |
| 3. Work with the Village of Friendship to maintain and update current kiosk by park boat launch . | Lake District | ongoing |
|  | Village |  |
|  |  |  |
| 4. Continue to conduct education of lake users, lakefront owners and watershed community on identification/ | Lake District | ongoing |
|  control of invasive species by publication and website information and participation in Clean Boats, Clean Waters and | Adams LWCD |  |
|  citizen monitoring programs. | WDNR |  |
|  |  |  |
| 5. Develop & distribute an informational packet regarding lake issues, water quality, and best management  | Adams LWCD | completed |
|  practices to watershed citizens & businesses. | Lake District | 2013 |
|  |  |  |
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| **FRIENDSHIP LAKE MANAGEMENT PLAN FISHERY, WILDLIFE & RECREATION MANAGEMENT** | Page 31 |  |
|  |  |  |
|  **GOALS AND ACTION ITEMS** | **WHO** | **WHEN** |
|  |  |  |
| **Goal A: Improve fishery habitat and population in Friendship Lake.** |  |  |
|  |  |  |
| 1. Work with WDNR to conduct evaluation of existing fish population to determine if habitat improvement  | Lake District | *2017-2018* |
|  is necessary for healthy sport fishery. Coordinate habitat information with critical habitat sites. | Adams LWCD |  |
|  | WDNR |  |
|  |  |  |
| 2. Identify areas where underwater obstructions such as stumps & fallen trees are located that may be | Lake District | *2017-2018* |
|  causing a safety issue and develop a plan for their removal or shortening. This will not involve wholesale | WDNR |  |
|  woody debris removal. Only at those sites identified as potentially dangerous can removal occur. Fish |  |  |
|  cribs may replace any removed items if appropriate. |  |  |
|   |  |  |
| **Goal A: Maintain recreational opportunities while maintaining peace and solitude and** |  |  |
| **preserving safety of lake users.** |  |  |
|  |  |  |
| 1. Request compliance with slow no-wake ordinance and map (on kiosk)and watercraft distance rules by  | Lake District | ongoing |
|  signs, publications, and community events. Post information of Lake District website. Work with WDNR | residents |  |
|  Warden if buoys or other markers are required. |  |  |
|  |  |  |
| 2. Work with the Village of Friendship and private launch owner to install erosion controls in boat ramp | Lake District | *2017-2018* |
|  areas & post no-parking signs in some areas at ramps to allow for turn-around and safe entry/exit. | Village of |  |
|   | Friendship |  |
|  |  |  |
| 3. Develop educational information for land owners about liability for not keeping docks and steps in  | Lake District | *2017-2018* |
|  safe conditions. | Adams LWCD |  |
|  |  |  |
| 4. Publish information about specific lake laws and regulations in newspapers and post at main boat launch | Lake District | ongoing |
|  and on Lake District website, including information on boater safety. |  |  |
|  |  |  |
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| **FRIENDSHIP LAKE MANAGEMENT PLAN OUTSIDE SHORELAND AREA** | Page 32 |  |
|  |  |  |
|  **GOALS AND ACTION ITEMS** | **WHO** | **WHEN** |
|  |  |  |
| **Goal A:** **Reduce nutrients entering lake from watershed.** |  |  |
|  |  |  |
| 1. Sample and test water as it enters the lake, other places upstream, & one place downstream to determine  | Lake District | *ongoing* |
|  Flow, total phosphorus, nitrogen & total suspended solids to determine what is entering & leaving the lake. |  |  |
|  Establish a baseline from samples taken for a period of three years. Look for funding to complete testing | Adams LWCD |  |
|  and result evaluations. |  |  |
|  |  |  |
| 2. Encourage upstream monitoring and recruit volunteers to conduct it by participating in the WDNR Stream | Lake District | ongoing |
|  Monitoring Program. | Adams LWCD |  |
|  |  |  |
| 3. Implement State Agricultural Performance Standards by inventorying watershed and documenting runoff | Adams LWCD,  | *2017-2018* |
|  from livestock confinement operations entering surface waters; livestock direct access sites, uncontained | DNR, Agric.  |  |
|  livestock manure storage facilities; soil erosion sites; sloughing banks; roducers not implementing nutrient | producers  |  |
|  management plans and irrigation water management plans, etc. Work with owners of any non-compliant | DATCP |  |
|  properties to insure that best management practices are installed that comply with state Agricultural | NRCS |  |
|  Performance Standards. Cooperate with Adams County LWCD in applying for funding for inventory work |  |  |
|  and/or installations of practices. |  |  |
|  |  |  |
| 4. Perform specific shore habitat, stormwater & buffer assessments on waterfront residential properties and | Lake District | *2017-2018* |
|  business properties. If possible, assist in gaining funding to correct problems. | Adams LWCD |  |
|   | Adams P & Z |  |
|   |  |  |
| 5. Conduct a tour of cranberry and other agricultural production operations to demonstrate best management | USDA; NRCS;  | *2018* |
|  practices. | LWCD; WVGA |  |
|  | Ag Producers |  |
|  |  |  |
| 6. Develop a plan for exchange of information between agricultural producers and lake district members, | Lake District | *2018* |
|  Including consideration of a watershed-wide advisory group. | Adams LWCD |  |

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| **FRIENDSHIP LAKE MANAGEMENT PLAN**  | Page 33 |  |
|  |  |  |
|  **GOALS AND ACTION ITEMS** | **WHO** | **WHEN** |
|  |  |  |
| **OVERALL LAKE MANAGEMENT** |  |  |
|  |  |  |
| **Goal A: Take action to ensure that lake management plan is a dynamic document.** |  |  |
|  |  |  |
| 1. Review entire lake management plan at least annually to evaluate achievement (or lack thereof) | Lake District | Each winter |
|  t make any necessary changes. | Adams LWCD |  |
|  |  |  |
| 2. Use ongoing Friendship Lake Advisory group to research and otherwise assist the Lake District | Lake District | ongoing |
|  Board of Directors in making needed plan changes. | Lake Advisory Group |  |
|  |  |  |
| 3. Recruit people to attend the Wisconsin Lake Leaders training that is conducted every 2 years. | Lake District | every 2 years |
|  Seek grant funding if necessary to achieve this goal. |  |  |
|  |  |  |
| 4. Require at least one district board member to attend the Wisconsin Lakes Conference annually, | Lake District | annually |
|  Including Commissioner training seminars. Apply for grant to cover costs if necessary. |  |  |
|  |  |  |
| 5. Continue to participate in the Adams County Lake Alliance. | Lake District | annually |
|  |  |  |
| *6. Consider having at least one member participate in Lake Leaders program every two years.* | *Lake District* | *Every two years* |
|  |  |  |
| **Goal B: Incorporate opinions of lake users into lake management plan.** |  |  |
|  |  |  |
| 1. Conduct sociological surveys to identify important management issues. Surveys may be mailed in | Lake District | as needed |
|  hard copy form, emailed or posted on Lake District website. | Adams LWCD |  |
|  |  |  |
| 2. Incorporate results into the lake management plan. | Lake District | ongoing |
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| **FRIENDSHIP LAKE MANAGEMENT PLAN**  | Page 34 |  |
|  |  |  |
| **Goal C: Work with WDNR and other entities to reduce algae blooms.** |  |  |
|  |  |  |
| 1. Investigate installation of solar panels and/or other renewable energy sources if | Lake District | ongoing |
|  permitted by WDNR and approved by the Village of Friendship. |  |  |
|  |  |  |
| **DAM** |  |  |
|  |  |  |
| **Goal A: Work with WDNR and dam owner to maintain and operate** |  |  |
| **Friendship Dam to: insure public safety, proper dam function, hydroelectric** |  |  |
| **production, and a stable lake level.** |  |  |
|  |  |  |
| 1. Conduct annual inspections and record findings as specified in WDNR standards. | professional engineer | annually |
|  | dam owner |  |
|  |  |  |
| 2. Operate, inspect and repar dam to meet Wisconsin laws in Chap 31 & NR 330. | dam owner | daily |
|  |  |  |
| 3. Review and update the Emergency Action Plan. | dam owner | annually |
|  |  |  |
| 4. Implement Emergency Action Plan in times of emergencies. | County Board Chair | as needed |
|  | dam owner |  |
|  |  |  |
| 5. Ask Adams County to take over ownership of dam once dam ownership has been legally | Lake District | ownership |
|  determined. |  | determined |
|  |  |  |
| 6. Ask that dam be maintained in proactive manner so that large quantities of water are not released | Lake District | ownership |
|  In a way that would cause downstream flooding and/or streambank erosion. |  | determined |
|  |  |  |

**OPTIONS FOR CONTROLS OF INVASIVE AQUATIC PLANTS**

|  |  |
| --- | --- |
| **BIOCONTROLS** |  |
| Grass Carp | not permitted in Wisconsin |
| *Euhrychiopsis lectontei* rearing | may be appropriate, depending on results of |
| (weevils attack Eurasian Watermilfoil) | updated weevil survey and labor availability |
| *Mycoleptodiscus terrestris* | still under research |
|  (fungus that attacks EWM) |  |
|  |  |
| Native Plant Community Restoration | this will be worked on as part of shoreland protection |
|  | and restoration—enhancing/establishing native plant  |
|  |  population will help suppress growth of EWM |
|  |  |
| **CHEMICAL CONTROLS** |  |
| Copper chemical | generally not permitted--remains in sediment |
|  | doesn't biodegrade |
| 2-4, D & other chemicals | not currently using, and probably not appropriate |
|  | with amount of water flowing through Friendship |
|  | Lake system |
|  | results not long-lasting, have to reapply |
| installation of alum | Only useful for internal phosphorus loading--no |
|  | data available suggests such is occurring in |
|  | Friendship Lake |
|  | variable and questionable long-term results |
| **MECHANICAL CONTROLS** |  |
| handpulling invasive species | is part of management plan--map to be developed |
|  | requires disposal of removed plants or run risk |
|  | of dead plants increasing nutrient load |
| cutting & removal | creates risk of fragmentation for spread of EWM |
|  | appropriate to clear navigational channels where |
|  |  there is heavy plant growth that blocks access |
|  | heavy water/pond lily growth that blocks access |
| mechanical harvesting | see enclosed machine harvesting map |
|  | appropriate to clear navigational channels where |
|  |  there is heavy plant growth that blocks access |
|  | heavy water/pond lily growth that blocks access |
|  | creates risk of fragmentation for spread of EWM |
| suction harvesting | slow and cost-intensive |
|  | creates risk of fragmentation for spread of EWM |
|  | may resuspend sediments & release nutrients |
|  | from sediments such as PCB and mercury |
| dredging/sediment removal | very expensive |
|  | not cost-effective for this lake |
|  | requires disposal of removed material |
| drawdown | possible future activity for control of EWM, but since |
|  | ownership of dam is still up the air, can't be pursued |
|  | at this time--need also to consider effect on some  |
|  | plants that may be encouraged by drawdown |
| benthic barrier | dead plants may add to nutrient loading |
|  | affects all plants, not just invasive ones, so |
|  | would harm significant native population |