

Interim
**POLICIES REGARDING SEDIMENT REMOVAL, LOGJAM
REMOVAL, AND INVASIVE PLANT AND ANIMAL CONTROL**

**LAKE AND RIVER ENHANCEMENT (LARE) PROGRAM
IDNR DIVISION OF FISH AND WILDLIFE**

The Indiana Code ([IC 6-6-11-12.5](#)) outlines requirements for the use of the lake and river enhancement fee funds collected by the Bureau of Motor Vehicles. This fee is paid by boat owners in their annual registration of boats and is used to pay costs incurred by the Department of Natural Resources (DNR) in implementing the lake and river enhancement projects required by law (IC 14-32-7-12(b)(7)). This includes projects to:

- (A) remove sediment;
- (B) control exotic or invasive plants or animals; or
- (C) remove logjams or obstructions

These policies detail how the Department will perform these tasks.

For the purposes of the Lake and River Enhancement (LARE) program, the definition of Invasive species is adapted from US Executive Order 13112, signed by the President on February 8, 1999:

"Invasive species" means an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health.

"Alien species" means, with respect to a particular ecosystem, any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem.

**I. General Policies Applicable to Sediment Removal, Logjam Removal
and Invasive Species Control**

Philosophical Foundation

The legislative charge for the program is found in Indiana Code (IC 14-32-7-12-7 and IC 6-6-11-12.5).

The lake and river enhancement fund is administered by the Director of the Department of Natural Resources. The program is implemented by the staff of the Lake and River Enhancement (LARE) Program in the Division of Fish and Wildlife (DFW). These aspects are accomplished through LARE grants awarded by the Director of DNR to provide funding for rational, scientifically-based, broad-scale remedial actions whose cost would otherwise hinder them from being carried out. Program funds are not

intended for ongoing maintenance projects, such as periodic dredging of sediment traps or repeated treatment of low density infestations of invasive plants with herbicides. The ultimate goal is to improve the ecological health and aquatic habitat of public lakes and rivers, and enhancing their use for various purposes, including recreation.

Funding Considerations

Funds for sediment removal, logjam removal, and control of invasives are for projects on water accessible to the general public. The funds may not be used for projects relating to a manmade ditch or waterway. Lakes and rivers with free publicly operated access sites will be granted higher priority than those which can be accessed only by paying a fee or via commercially-operated sites or other privately-owned lands.

LARE funds are not intended to replace pre-existing sources of funding for sediment removal, logjam removal, or invasive species control. LARE funds should be used for purposes for which no other funding is available.

The range of requests for funding varies annually; therefore, no specific division of the funds between sediment removal, logjam removal, and invasive species control will be performed until all applications have been evaluated and prioritized.

Funds will be made available for projects in the form of grants. Payment to project sponsors will be made in arrears, either incrementally during the course of a project, or as a whole upon project completion. Project progress will be closely monitored by LARE staff to assure consistency with LARE policies and procedures.

Applications for funding will not be accepted from individuals, but only from entities exhibiting the capability to properly represent the interests of a lake's or river's residents and users, without any financial profit motive.

All grant awards will require a local matching contribution of at least 20%, depending upon circumstances and policies specific to the project type. "In-kind services" may be allowed as a portion of the local matching share, depending on the project type. LARE funds can be used to match funding from other sources, such as federal grants; however, the sponsoring entity is still responsible for their portion of the local match. It is important that the sponsor maintain a financial stake in the project's success.

General Procedures/Policies

Application forms to be used are posted on the [LARE website](http://www.in.gov/dnr/fishwild/3302.htm) (<http://www.in.gov/dnr/fishwild/3302.htm>) under the tab "applying to the LARE program". In most circumstances the application deadline for grants will be January 15th of the year in which the project is proposed to begin. Sponsors will have 24 months to complete sediment removal and logjam removal projects and 12 months to complete

invasive species control projects, once funds have been awarded and encumbered with a state Purchase Order (PO).

II. Policies Specific to Sediment Removal

The goal of LARE sediment removal projects is to enhance recreational usage of the lake where sediment deposition has impacted it, but in a manner that maintains or improves aquatic habitat. The source of the sediment and prevention of continued sedimentation should be addressed before dredging commences to help insure effective use of limited funds. LARE funds may not be used for the deepening of naturally shallow areas of lakes, or the excavation of ecologically beneficial wetland areas. The cost and engineering complexities of river dredging projects normally exceed the capacity of being addressed by LARE funding.

LARE sediment removal projects are not intended to deal with sediments contaminated by pollutants to the extent that special measures would be required for their removal and disposal. Any potential project involving such contaminated sediments will require special consideration by the Department.

Sponsors of sediment removal projects are expected to comply with applicable laws, rules and permits in conducting the work, and must take steps to insure that ecological and environmental damage is minimized during the course of the project. While there is a general assumption that hydraulic dredging is superior to mechanical excavation in that regard, there may be cases in which different methods might work well at removing sediment and might be preferred due to the location or access to dewatering basins.

The extents to which public benefits and/or the ecological health and aquatic habitat of a lake have been impacted by sediment deposition are a part of the funding prioritization process. Projects having greater overall public benefit will have higher priority than those which benefit only a few lake residents. Therefore, removal of sediment deposits from the mouth of an inlet stream, for example, will receive greater consideration than a project on a channel into which no stream inlets, and in which the deposits consist largely of decomposing organic matter or have resulted from channel sloughing or subsidence.

Consideration of funding for removal of sediment introduced to a lake by an inlet stream will be contingent upon demonstrated efforts to apply upstream erosion control measures and assurance of long-term erosion control in the watershed and in the stream channel itself.

Higher priority will be afforded to projects having the greatest prospect for long-term viability, based on local knowledge of, and activity in, the affected lake's watershed and an attendant commitment to control future watershed erosion.

If a project plan anticipates the need for a sediment trap on an inlet stream, there must be an enforceable commitment for long-term maintenance of the trap. Any long-term

maintenance of this sort, or for similar maintenance of storm drain inlets, will be a very low priority for LARE funding.

A lake watershed diagnostic study will not be an absolute prerequisite for site-specific sediment removal project applications, but the extent to which a problem site and its greater environs have been scientifically analyzed will bear on its ranking in the application review process. Further, the extent to which a study's recommendations are implemented will also bear on an application's priority ranking. While whole-lake sediment removal projects will not be precluded from consideration for funding, their great cost generally renders them infeasible for the LARE program.

There may be cases in which LARE funding is approved for sediment removal from a particular site(s) on a lake, but not for removing sediment from the lake's manmade channels. In such cases, residents willing to use private funds for removal of the sediment from the channels may coordinate their efforts with the LARE project sponsors and the contractor to have the channel work performed at the time the contractor is conducting the LARE-funded work, thereby eliminating duplication of costs such as those for mobilization/demobilization of equipment. The residents will be responsible for acquiring all necessary governmental permits and other approvals for the channel work that they fund.

Similarly, lakes proximal to one another that are conducting independent sediment removal projects – whether or not they are LARE-funded – may consider taking advantage of economic benefits to be derived by hiring the same contractor and/or utilizing common dewatering and/or disposal sites in order to avoid duplication of costs.

A meaningful plan describing all aspects of a sediment removal project will be required for an entity to be eligible to apply for funds for the project itself. Guidance has been developed by the LARE staff for such plans. LARE funds are available for the development of a sediment removal plan. This will help to insure that sites planned for dredging will be permitted and that the disposal areas will meet approval

The efforts of local residents to map and quantify sediment deposits, develop bathymetric maps, acquire dewatering and disposal sites, obtain necessary governmental permits and other approvals, and provide services necessary to the conduct of a sediment removal project may count towards the required local match contribution for the grant.

The sediment deposits should be evaluated to determine their origin, i.e., whether they are decomposing aquatic plants that originated on the site or if they consist of eroded soil transported to the lake by an inlet stream.

A grant of \$7,500 will generally be the maximum available for development of a sediment removal plan. Applications for larger sums may be considered, depending on the lake's particular circumstances and the availability of funds. A minimum of 20% of the total cost of the plan must be contributed by the project sponsor. Sponsor's

involvement in the development of the plan will help affected residents to become aware of the issues associated with the sedimentation problem.

A maximum of \$100,000 will be available for the removal of sediment from a particular site on a lake. A cumulative maximum of \$300,000 will be available for all sediment removal project sites on any single lake. (The \$300,000 maximum will be independent of the \$300,000 maximum for other types of LARE-funded construction projects.) For each project, a minimum of 20% of the total project cost must be contributed by the project sponsor. A portion of the local match (up to half) may be in the form of “in-kind” services, including the value of efforts to develop the required sediment removal plan. Such contributions will be set forth before the project begins in consultation with LARE staff and the contractor. Sediment removal projects should also include post-dredging mapping of the project site to document the lake bottom contours at that point in time.

Grant funds may be utilized by a qualified entity to assist in the purchase or lease of dredging equipment, if it can be demonstrated that such purchase or lease would be economically justified and more cost-effective than contracting to have the work performed. Generally, no more than \$100,000 will be awarded for such a purpose. Any proposal for this type of purchase must include stipulations regarding specific usage of the equipment solely for public benefit, as well as commitments regarding the equipment’s ultimate ownership and disposition. Any entity wishing to lease equipment must accept full liability for such a proposal and provide compelling evidence that it will be operated in a safe, professional manner only by trained, qualified personnel. Any purchase or lease will require a minimum local matching contribution of 20% of the total cost of the purchase or lease.

III. Policies Specific to Removal of Logjams from Rivers

The goal of logjam removal projects is to reduce erosion and sedimentation in rivers and streams due to logjams. Logjams that redirect water energy towards streambanks, potentially undercutting roads and other features can cause great concern, as well as those that markedly affect stream channel patterns. In some streams logjams also have the potential to reduce recreation and stream use. There is a perception that all logjams cause flooding, but if the logjam does not create an increase in hydraulic head then actual impact is not defined as flood-causing.

Woody debris provides valuable habitat for fish, wildlife, and other aquatic organisms, so removal of logjams must be weighed against the impacts on fish and wildlife habitat. Expertise within DNR will be utilized to help determine these potential impacts. If approved, the removal of such logjams must be conducted in a manner that minimizes impact on both the aquatic habitat and the land used to access the stream for logjam removal.

Legislation guiding the LARE program does not allow for funding for projects addressing issues on manmade ditches. Logjams on regulated drains are also not eligible for LARE funding as those projects must be addressed by the local or county drainage boards.

Planned activities for logjam removal must comply with all local, state, and federal laws, rules and or regulations.

Logjams associated with roadway or railroad bridges or other manmade structures are not eligible for LARE funded projects. Those projects must be addressed by the federal, state, county or local authorities over the roadway or other manmade structures, or the company responsible for the railroad bridge.

Waterways on the [list of navigable rivers maintained by the Natural Resources Commission \(http://www.in.gov/nrc/2390.htm\)](http://www.in.gov/nrc/2390.htm) will receive the greatest consideration for LARE-funded logjam removal projects. The availability of public access sites and costs associated with using those sites in the vicinity of a proposed logjam will weigh heavily on the selection of projects.

Logjam removal projects in waterways that are included in the Natural Resources Commission's listing of Indiana's natural, scenic, and recreational river systems in [312 IAC 7-2](#) must comply with DNR permit requirements to be eligible for LARE funding.

Proposed logjam removal projects on salmonid streams in [327 IAC 2-1.5-5](#) must comply with rules of the Natural Resources Commission. Work cannot commence without the prior written approval of the DNR Division of Fish and Wildlife. Work in a salmonid stream must comply with the requirements and timeline as specified by [312 IAC 10-5-6](#).

Logjam project applications must include the classification of the logjam according to the [Indiana Drainage Handbook](#). Higher priority will be given to projects which address condition 3 and 4 logjams.

Condition 1 logjams consist of one tree down with minor water flow impedance.

Condition 2 logjams are evidenced by small, isolated logjams that may consist of two to three trees that are inter-locked and occasionally span the entire width of the river.

Condition 3 logjams contain large accumulations of lodged trees, root wads, and/or other debris that are inter-locked and frequently span the entire width of the stream. Large amounts of fine sediments have not yet covered or become lodged within the obstruction.

Condition 4 logjams contain major blockages that have caused severe and unacceptable flow conditions. Bank erosion and upstream ponding are evident.

Condition 5 logjams occur in waterways that possess unique, sensitive, or valuable ecological resources including rare plants and animals, and rare habitat. These include scenic or recreational rivers. The extent of obstructions may be similar to one of the four conditions described above.

A maximum of \$35,000 will be available for a logjam removal project on an eligible site and waterway. A cumulative maximum of \$100,000 will be available for all logjam

removal projects on any single waterway. For each project, a minimum of 20% of the total project cost must be contributed by the project sponsor. A portion of the local match (up to half) may be in the form of “in-kind” services, including the value of efforts to develop a plan outlining all aspects of the logjam removal, erosion control, and site restoration. Such contributions will be set forth before the project begins in consultation with LARE staff and the contractor. All LARE payments are made in arrears. LARE grant awards are not made to individual land owners; a sponsoring entity must be the recipient.

A LARE project manager will work with the sponsoring entity to help develop the requirements for the project and plan.

Logjam removal projects must include provisions for site restoration to insure that logs and debris removed does not remain unsecured in the floodplain. Following the removal, suitable erosion control measures must be used to stabilize the surface including seeding to appropriate vegetation. Final payment on projects will not be issued until the site is restored to the condition specified in the project plan.

Projects approved for LARE funded logjam removal are to be completed within 24 months after a signed Purchase Order is issued by the State Auditor.

IV. Policies Specific to Control of Invasive Plants or Animals

The goal of invasive species control projects is to reverse or repair ecological damage, reduce adverse recreational impacts, and prevent the establishment of invasive species in new areas. LARE-funded projects will be in accord with the goals of the State of Indiana’s Aquatic Nuisance Species (ANS) Management Plan.

The goals of the LARE aquatic vegetation management program are to:

- 1) Develop or maintain a stable, diverse aquatic plant community that supports a good balance of predator and prey fish and wildlife species, good water quality, and is resistant to minor habitat disturbances and invasive species.
- 2) Direct efforts to preventing and/or controlling the negative impacts of aquatic invasive species.
- 3) Provide reasonable public recreational access while minimizing the negative impacts on plant and fish and wildlife resources.

There may be situations in which it would be unwise to eradicate a population of an invasive plant species if there is no likelihood of its replacement by more desirable species, thereby worsening the water quality situation if the site becomes devoid of all vegetation (Valley et al 2004). Such concerns will be taken into account during the application review process.

LARE funds will not be available to control common, ecologically desirable native species, even though some lake or river users may consider them to be a nuisance. New

high risk invasive species will receive priority for funding, followed by species that pose the greatest risk to both ecological function and recreation.

New high risk invasives that are discovered will have high priority for using funds to control. It is vitally important to take steps to prevent the establishment of new invaders; even if that means that some of the more common, long time invasives receive fewer resources to control. An example of this strategy was the program to prevent the spread of hydrilla to other lakes in Indiana when it was discovered in Lake Manitou in 2007.

LARE funds will not be available for efforts to control blue-green algae, although efforts to reduce sedimentation and nutrient input into public waters may tend to help reduce algae problems by removing the source of nourishment for the algae.

LARE funds should not be used in ways that would detrimentally affect ecologically desirable native plant and animal species, particularly those that are rare, threatened or endangered. For that reason, the expertise of the IDNR Divisions of Fish and Wildlife and Nature Preserves are utilized in the implementation of the program.

The existence and progress toward implementation of a watershed plan to address the control of nutrients flowing into a targeted lake will increase the possibility of grant funding for invasive plant control.

The program recognizes that prevention strategies are the most cost-effective means of invasive species control, but that control of established populations of invasive species is also necessary and appropriate. The state program uses a strategic landscape-level approach to prioritize control where:

- 1) Users comply with strategies to prevent introduction of invasive species;
- 2) Implementation of controls is likely to reduce negative impacts to recreation and improve ecological health or will contain further spread of invasive species; and
- 3) The characteristics of the waterbody are conducive to cost-effective plant control methods.

Preparation of a long term and comprehensive Aquatic Vegetation Management Plan (AVMP) will be a prerequisite to eligibility for funding to control invasive plant species. Grant funds may be used to conduct an aquatic plant survey and develop an aquatic vegetation management plan (AVMP). (The LARE program allows for funding of the development of watershed diagnostic studies, which may incorporate development of an AVMP as an integrated component.) A grant of \$7,500 will be the maximum for a 5-year AVMP, and a maximum of \$4,000 will generally be the maximum available for development of subsequent updates. Applications for larger sums may be considered, depending on the lake's particular circumstances and the availability of funds in the particular year in which the application is received. A minimum local match of 20% of the total cost is required. Standard sampling protocols and scopes of services are available for such surveys and plans.

All applicable permits for herbicide treatments must be on file with the DNR prior to control activities. The AVMP includes a permit application form, filled out with the required information, for the local sponsor to submit. DNR Fisheries Biologists play an important role in the evaluation of the vegetation treatments and review all permits.

Once an approved plant management plan is in place, a maximum of \$100,000 may be available, per lake, for a one-time lakewide treatment with an herbicide such as fluridone to control aggressive, invasive macrophytes, e.g., Eurasian watermilfoil, provided this is determined to be the best course of treatment. A minimum local match of 20% of the total project cost will be required. Approval of such an effort will be contingent upon the sponsor's commitment to a total of at least three (3) years of professional control of the target species and restoration of the native plant community. Beyond the investment for an initial lakewide herbicide treatment, up to \$20,000 per year may be provided for periodic spot treatments of the target species over a period not to exceed two (2) years following the initial treatment year. A local match of no less than 20% of the total cost will be required for the follow-up treatments.

Once an approved plant management plan is in place, a maximum of \$35,000 per year will be available, per lake, for control of invasive species infestations not requiring a whole-lake treatment. A maximum of \$35,000 per year will be available for the control of invasive species infestations in a river. A local match of no less than 20% of the total cost will be required. After such grants have been awarded for a particular waterbody for three (3) years, additional applications for such grants for that waterbody will receive a lower priority for funding.

Projects utilizing proven plant control methods will be eligible for grants, while reasonable consideration will also be given to new, potentially cost-effective techniques, such as biological controls, that could ultimately have broad economic public benefits – particularly if they have the potential to supplant the use of chemical treatments, without causing impacts on water bodies lower in the watershed.

Funding requests will be considered for both plant and animal control projects that would have a regional or statewide application, such as funding the management of a cost-effective, innovative biological control effort for a particular invasive species. Requests might also be considered for monitoring methodologies that would allow for evaluation of program performance and sampling or treatment protocols.

Funding requests for the control of invasive animals in individual waterbodies will be considered on a case-by-case basis.

LARE funds may not be used to contract the use, purchase or lease of aquatic plant harvesters. While harvesters may be useful in removing vegetation in some circumstances, this removal is temporary and can be detrimental to the ecology of the body of water. Although it varies among species, the effectiveness of harvesting generally only lasts four to six weeks and requires multiple cuts throughout the summer

to achieve desired control (Engel 1990). Many species, most notably Eurasian watermilfoil, have the ability to reproduce and spread by fragmentation. Fragmentation is the process of smaller pieces of a plant breaking off and establishing new plants. This form of vegetative reproduction has shown to be effective at spreading and establishing new plants, and is likely responsible for the dispersal of some plants over great distances (Nichols and Shaw 1986, Smith and Barko 1990, Madsen and Smith 1997). While harvesters are designed to collect plants, they have been shown to leave behind fragments which can become established and form new plants. A study completed on a river system in Texas confirmed a significant increase in the amount of invasive species fragments observed downstream of a dam following upstream harvesting (Owens et al. 2001). Additionally, a study completed by the Arizona Game and Fish Department concluded that harvesting activities likely spread Eurasian watermilfoil throughout Arizona reservoirs (Robinson et al 2007). Invasive species in Indiana that can spread by fragmentation include Brazilian elodea, Eurasian watermilfoil, Hydrilla, parrot feather, and starry stonewort.

In addition to spreading invasive species through fragmentation, aquatic plant harvesters are not selective and will harvest native beneficial plants as well as invasive species. Most invasive species are more tolerant of this type of disturbance giving them a competitive advantage and increasing the likelihood that they will become more abundant and cause a long-term shift in the plant community toward undesirable species. In addition to removing native vegetation, harvesters can remove large numbers of fish, turtles, frogs and other amphibians as well as macroinvertebrates (Engel 1990, Booms 1999, Robinson et al 2007). Although many of the larger fish are able to escape, it has been estimated that 25% of all fry within a harvested area are removed (Engel 1990), while a separate study estimated that 8 lbs of fish ranging from ½ to 7 ½ inches were removed per acre harvested, over half of which were yellow perch (Wile 1978).

Although a goal of the LARE program is to reduce adverse recreational impacts caused by invasive species, this needs to be accomplished without causing negative impacts to fish, wildlife, and botanical resources. Although some short-term improvement in recreation may be accomplished, the harvesters do nothing to improve or repair ecological damage caused by invasive species, and have the potential to do more harm than good.

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