

September 3, 1993
Al:MIll/pr/tv

INTRODUCED BY Barden
PROPOSED NO. 93-587

MOTION NO. 9118

1
2 A MOTION authorizing the King County Executive
3 to make a grant application for funds pursuant
4 to Chapter 43.21A RCW in the amount of \$15,000
to support a Lake Twelve project to reduce the
propagation of aquatic weeds.

5 WHEREAS, the Washington State legislature has created the Aquatic
6 Weeds Management Fund for the joint funding of plans and projects to
7 prevent, remove, reduce, or manage excessive freshwater aquatic weeds with
8 other public agencies in the state pursuant to Chapter 43.21A RCW, and

9 WHEREAS, the King County department of public works has conducted a
10 Phase I Diagnostic/Feasibility Lake Restoration Study of Lake Twelve, the
11 results of which concluded that the preferred restoration alternative was
12 the implementation of an integrated aquatic plant management plan, and

13 WHEREAS, the King County department of public works is in the process
14 of applying for an Aquatic Weed Management Fund grant from the Washington
15 State Department of Ecology to develop an Integrated Aquatic Plan
16 Management Plan for Lake Twelve, and

17 WHEREAS, state requirements include a twenty-five percent local match
18 for grant moneys received;

19 NOW, THEREFORE, BE IT MOVED by the Council of King County:

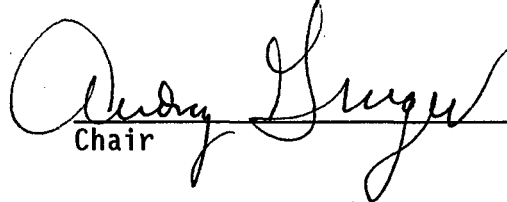
20 A. The county executive is hereby authorized to make application for
21 funds in the amount of \$15,000 to the Washington State Department of
22 Ecology for Aquatic Weed Management Funds to support a Lake Twelve
23 Integrated Aquatic Plant Management Project on behalf of King County in
24 substantially the form of Attachment A.

25 B. The county executive is hereby authorized to negotiate, enter into
26 and execute such agreements or contracts as are required by the Washington
27 State Department of Ecology in order to accept those offers of grant fund-
28 ing for King County's proposals identified by the Department of Ecology as
29 eligible for financial assistance in fiscal year 1994.

1 C. The King County executive is also authorized to enter into and
2 execute such subcontracts as are necessary for the implementation of the
3 project.

4 PASSED this 13th day of September, 19 73.

5 KING COUNTY COUNCIL
6 KING COUNTY, WASHINGTON

7 
8 Chair

9 ATTEST:

10 
11 Clerk of the Council

12 Attachments:

13 A. Grant Application
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

SUMMARY OF PROJECT DESCRIPTION
(EXECUTIVE SUMMARY)

Lake Twelve, a 43-acre lake in the Cedar River basin of southeastern King County, is located approximately one mile northeast of Black Diamond. Although lake water quality is good and classified as oligotrophic/mesotrophic, aquatic plants are severely impacting beneficial uses, especially boating and swimming in the lake. Eurasian watermilfoil and the White water lily are the two dominant species in Lake Twelve. A Phase I study concluded that the preferred restoration alternative (and the goal of this project) is to establish an Integrated Aquatic Plant Management Plan that balances water quality and recreational use. The following objectives are proposed: 1) develop an updated bathymetric map, aquatic plant location and density map, and a zonal use map for aquatic plant management; 2) document the process used and implement a regional public involvement and education program for other area lake associations, and initiate a "master milfoiler" program; and 3) seek a dedicated funding mechanism and long-term monitoring program for Lake Twelve.

9118

PROJECT TITLE: LAKE TWELVE INTEGRATED AQUATIC PLANT MANAG.**1. Project Description**

The goal of this project is to develop an Integrated Aquatic Plant Management Plan for Lake Twelve and use the process of developing this plan as a template for other King County small lakes. Lake Twelve is typical of small lakes within King County that have infestations of invasive, non-native macrophytes. It is clear that the level of infestation of macrophytes in Lake Twelve is increasing and is currently degrading lake recreational use and fish habitat. Eurasian watermilfoil (*Myriophyllum spicatum*) and the White water lily (*Nymphaea odorata*) are the two targeted macrophytes for control and management in the lake. Because the beneficial uses of this valuable resource are being degraded by macrophyte growth it is deemed of great importance to King County to study the lake in order to determine the extent of the macrophyte problem and ways the County and local residents can manage macrophyte growth in Lake Twelve. The Lake Twelve Association (LTA) and King County Surface Water Management (SWM) Division are committed to defining an Integrated Aquatic Plant Management Plan that is feasible and balanced between the need for a certain level of aquatic plants to maintain water quality/clarity and fish habitat, as well as the need for enough open water for good recreational use. The information developed during this process itself will be shared with other lake associations. To meet this goal the following objectives are proposed:

1. The Lake Twelve Association and King County will jointly develop an aquatic plant location and density map upon completion of an updated bathymetric map of the lake and a zonal public use map for aquatic plant management;
2. Establish an Integrated Aquatic Plant Management Plan with a balance between water quality and good recreational use;
3. Document the process used to develop this data/plan and through a regional public involvement and education program outreach to other area lake associations, and initiate a "master milfoiler" program; and finally
4. Seek a dedicated funding mechanism and long-term monitoring program for Lake Twelve.

Task 1: Aquatic Plant and Lake Inventory. First, an updated bathymetric map of the lake will be developed. Second, intensive surveys will map the diversity, distribution, and areal coverage of aquatic plants. Third, numerous transects will be sampled for aquatic plant density and biomass. Fourth, a zonal public use map that prioritizes lake areas for the various recreational and beneficial uses will be developed. The above-mentioned tasks will be performed in a cooperative effort by the LTA and the SWM Division at low cost while providing good quality control. These maps will be input into the King County Geographic Information System (GIS) to form a base map for Lake Twelve.

Task 2: Integrated Aquatic Plant Management Plan (IAPMP). An IAPMP will be developed that incorporates all the requirements listed in the Washington State Department of Ecology's (WSDOE) program guidelines. Most of the requirements have already been completed as part of the Phase I study on Lake Twelve. Therefore, emphasis will be placed upon developing an action plan for implementing and monitoring the IAPMP. Completion of this task will involve the production of a draft report that will be reviewed by all interested parties and affected agencies. The plan will identify goals for realistic long-term controls. Following this review, a final report incorporating review comments will be prepared and submitted to the WSDOE.

Task 3: Public Involvement and Education. This task will involve the development of a display that will highlight Lake Twelve's IAPMP. Public workshops will be held throughout the region in order to educate the numerous lake groups and recreationists about the process used and the data obtained for the IAPMP in Task 1. Educational signs warning boaters about transporting milfoil to other lakes could be installed at the public boat launch. Additionally, the feasibility of providing a nonpotable water source at the boat ramp for washing off boats and trailers will be explored. A volunteer program, set up in conjunction with the SWM Division's Lake Stewardship Program, will train local residents to identify aquatic plants and conduct surveys to locate invasive species. This outreach program, named "The Master Milfoilers," will be modeled after the highly

successful King County Extension's Master Gardener's Program.

Task 4: Project Management. This task encompasses all management elements of the project. This proposed project is expected to be performed over a two-year period with an estimated start date of January 1994. The SWM Division will serve as the sponsor of this grant and the lead agency. As such, the SWM Division will: a) perform consultant selection and management for selected tasks; b) supervise performance of all tasks to be completed by the County; c) prepare and submit quarterly progress and financial reports to the WSDOE; and d) conduct project startup with members of the Lake Twelve Association and other affected parties.

Lake Twelve is a 43-acre lake located in the Cedar River drainage basin of southeastern King County, approximately one mile northeast of the city of Black Diamond. The lake has an average depth of 10 feet, and a reported maximum depth of 28 feet. The majority of the 398-acre watershed is undeveloped and land use estimates are 83 percent forested, 3 percent residential, 3 percent coal mine noise berm, and the remaining 11 percent is lake surface. Extensive logging has occurred in the watershed, with approximately 45 percent of the forested land being harvested within the past 15 years. Increased development pressures in the area represent a potential threat to the water quality and beneficial uses of the lake. The Lake Twelve watershed is located within the Tahoma/Raven Heights Community Planning Area. This area is experiencing some of the fastest growth in King County.

Of the 43 acres, about 30 acres are at a depth of 4 meters or less and can support Eurasian watermilfoil, Watershield (*Brasenia*), or lily growth with surface coverage. Of the remaining area, some area can support milfoil growth that does not reach the surface. At present, all of the feasible area is infested. During 1993, milfoil growth has reached nuisance levels and the resultant tangled mass is dense enough to be a hazard to young swimmers. Additionally, without the normal borders between clear water and aquatic plant areas, Lake Twelve provides very poor fish habitat. Lake Twelve is one of many small lakes in the region providing recreational opportunities to a growing population (Attachment 1). The lake has one public boat launch operated by the Washington State Department of Wildlife. The lake receives considerable use on opening day and supports a high trout-caught-per-angler ratio (Attachment 2). Although no designated swimming beach is present on the lake, there are twelve floating platforms for swimming in the lake. Because the major recreational uses of the lake are fishing and swimming, the presence of excessive growths of macrophytes degrades the overall beneficial uses of the lake.

Data has been gathered on Lake Twelve for a number of years by both local government action and through local residents' initiative. Lake Twelve has been extensively monitored through the Small Lakes Program of the Municipality of Metropolitan Seattle (Metro) during the past twenty years. Historical water quality data has shown the lake to consistently exhibit good water quality and the aquatic plant areal coverage to have varied from 50 to 75 percent. In response to potential water quality degradation to the lake by a coal mine, local residents had a limnological investigation (Smayda, 1988) performed which identified high chlorophyll *a* concentrations at the 6- and 7-meter depths during the summer. To attempt to resolve the issue of the possible reduced water quality, the SWM Division, in cooperation with the University of Washington (UW), Pacific Coast Coal Company, and the LTA, undertook a Centennial Clean Water Fund (CCWF) Phase I Restoration/Feasibility study. The LTA also worked with Metro under the Community Action Grant Program to study tools lake residents can use for individual aquatic plant control efforts. The lake trophic status is oligotrophic/mesotrophic (Attachment 3). Levels of phosphorous and chlorophyll *a* are consistently low, and water clarity is consistently high.

Aquatic plant surveys conducted between 1976 and 1980 documented the density, areal coverage, and species composition of the macrophyte community (Attachment 4). Metro results showed that macrophytes had colonized most of the potential growing area in the lake (depths less than 15 feet). Lake Twelve has a maximum potential plant coverage area of 31 acres or 72 percent of the lake area. Between 1976 and 1980, 25-32 acres (or 58-75 percent) of the lake were covered by macrophytes. During this period, the invasive species Eurasian watermilfoil dominated, covering between 17-27 acres (or 40-63 percent of the lake). In addition to milfoil, the White water lily was also dominant in the lake with significant areal coverage between 1976 and 1980.

The Phase I study project focused on determining the present lake water quality, determining the sources and sinks for nutrients to the lake, and evaluated potential effects of lake restoration methods. The water quality was determined to be good, with low phosphorous levels, high water transparency, and moderate levels of chlorophyll *a*. No nuisance algal blooms were detected during 1991, and nuisance algae that was detected in past years was not present during the study (Attachment 5).

Additionally, as part of the Phase I study, a macrophyte assessment was conducted. The White water lily, Eurasian watermilfoil, and Watershield were the most common macrophyte species detected in the lake at biomass levels as high as 197, 73, and 148 g/m², respectively (Attachment 6). In general, researchers found macrophyte biomass levels to be low to moderate, with an average area weighted mean of 63 g/m² (Welch et al., 1993). This average mean is somewhat low compared to other lakes in the Puget Sound area where macrophytes are considered a nuisance. LTA members, however, strongly believe the current macrophyte levels in and around their docks and extending out approximately 150 feet are severely interfering with all recreational uses in the lake. This can clearly be observed by the aerial photos in Figures 2 and 3, and Attachment 8.

Macrophyte growth is generally limited either by available light or sediment nutrients. Welch et al. (1993) performed several bioassays to determine the potential growth rate of Eurasian milfoil in Lake Twelve compared to other lakes where milfoil growth is excessive. Milfoil growth in sediments collected from Lake Twelve, Green Lake, and Union Bay-Lake Washington were similar suggesting that there is no nutritional reason for low milfoil biomass in the lake (Attachment 7). Because of the documented high water clarity in the lake, these data suggest that milfoil growth may become excessive in the future. Indeed, milfoil densities in Green Lake were only 2 g/m² in 1981 but had increased to 483 g/m² by 1991 (KCM, 1991). Actually, this excessive growth may have already begun. During 1993, milfoil growth has exploded and is the worst LTA members have ever seen (Esko Cate, personal communication). In a reconnaissance level attempt to confirm this explosive growth, Dr. Eugene Welch (University of Washington) and a graduate student toured the lake on July 23, 1993. A "visual estimate" was made and the milfoil areal coverage of Lake Twelve appeared to be approximately one-half of the 1991 areal coverage measured in Green Lake. If this current areal coverage estimate were accurate, Lake Twelve milfoil biomass levels could be greater than 240g/m².

In addition to Eurasian watermilfoil, Lake Twelve has considerable amounts of White water lily growth as well as Yellow water lily and watershield. Watershield is a relatively new plant to the lake (during the past 2-3 years), but is spreading very fast (Esko Cate, personal communication). The White water lily was detected in the lake in densities as high as 197 g/m² during 1991 (Welch et al., 1993). Aerial photos, field visits, and discussions with members of the LTA suggest that densities of White water lilies have been increasing in the lake, and are having a significant negative impact on the beneficial uses of the lake. In particular, lilies are severely interfering with boating activity by growing in such high densities around the boat launch that it is extremely difficult to get a boat in or out of the water (Attachment 8). Moreover, lily growth is blocking many residents' access to the open water from their docks.

Methods used to evaluate and document the success of this project will include personal use surveys, attendance at public meetings and workshops, and an evaluation of the WSDOE handbook by LTA members. In addition, members of the LTA will actively participate in the data collection, field mapping exercises, and prioritizing zonal use areas.

The Lake Twelve project will be managed by SWM Division employees. Several King County staff members have expertise in aquatic plant sampling and identification, lake restoration, grant management, consultant management, and public involvement and education. The SWM Division is currently managing four Phase I and one Phase II lake restoration programs. In addition, staff members are very active in the Washington State Lake Protection Association and the North American Lake Management Society, as well as serving on external advisory committees for the development of program guidelines for the AWMF. Included in the grant application are resumes of prospective project managers for this project (Attachment 9).

2. Potential For Invasion and Future Reinfestation

Two species of aquatic plants (Eurasian watermilfoil and White water lily) are adversely impacting the beneficial uses and recreational potential of Lake Twelve. Both species are of concern, as they are both invasive and non-native.

Twenty-eight lakes are located within a 10 mile radius of Lake Twelve, with eight having public access (See Attachment 1). Seven of these lakes (Lake Sawyer, Lake Meridian, Lake Desire, Shadow Lake, Shady Lake, Spring Lake, and Bass Lake) had Eurasian watermilfoil present in the late 1970s and early 1980s. Because few aquatic plant surveys have been conducted on other lakes in the region since 1980 the extent of the Eurasian watermilfoil infestation is unknown.

Lake Twelve is located within both the Upper Cedar River and Middle Green River Basins. At present, the outflow of Lake Twelve splits and flows to both the Cedar River via Rock Creek, and an unnamed tributary to the Green River. An extensive wetland system (King County Labeled LCR-91 and 92) borders the eastern shore of the lake and extends for several miles along Rock Creek. These wetlands have been classified by the county as being class 1 wetlands of local significance due to their large size, diverse plant structure, and numerous animal habitats (Attachment 10).

One public boat launch, operated by the Washington State Department of Wildlife, provides seasonal public access to the lake. Approximately 24 private docks and 12 floating platforms provide private boating and swimming opportunities to the local residents. Boating activities generally coincide with the aquatic plant growing season, occurring between April through September. Internal combustion engines are allowed in Lake Twelve. The lake receives significant boating pressure during the opening day for fishing. On opening day in 1992, over 100 boats were present on the lake with an average of 2.5 people per boat. During a three-hour period on opening day, 76 people were polled at the public fishing ramp when leaving the lake. The average catch of those polled was 2.96 rainbow trout per person.

Lake Twelve is a significant potential "seed" source for both downstream waterbodies and the other 28 lakes within a 10-mile radius. This is a potential problem not only for those lakes that do not presently have milfoil, but for those lakes that do have this invasive species and are planning near-term control strategies. The Master Milfoiler Program will aid in bringing out a greater awareness of this problem and in educating other lake groups (see #4 Local Interest and #5 Public Benefit).

3. Waterbody Impacts/Beneficial and Economic Use

The major beneficial uses of Lake Twelve include: boating, fishing, swimming, aesthetics, fish/wildlife habitat, and domestic water supply.

Lake Twelve has a moderate quality fish population and the Washington Department of Wildlife rates the lake as a moderately important fishery lake (Tom Cropp, Personal Communication). Currently, the condition of the fish are rated as only fair to good because it is believed that the aquatic plant growth is so thick and pervasive that it has disrupted the natural predator-prey balance, thereby leading to an overpopulation of smaller, stunted fish (Tom Cropp, Personal Communication). Fish species known to inhabit Lake Twelve are Rainbow Trout, Large Mouth Bass, Yellow Perch, Pumpkinseed, Sunfish, and Brown Bullhead. As part of the final EIS (1984) for the mining operation, a baseline fishery assessment was conducted by the University of Washington School of Fisheries. The 1983 study used gill nets, trap nets, and a beach seine. The gillnets collected 27 Rainbow Trout, 2 Cutthroat trout and 2 Yellow Perch. The trap nets captured 69 Brown Bullhead, 38 Pumpkinseed, 7 Yellow Perch, 4 Cutthroat Trout and 2 Rainbow Trout. The beach seine collected 65 Pumpkinseed, 2 Brown Bullhead, 2 Cutthroat Trout and 1 Rainbow Trout.

The number of fishing days per year coincides with the seasonally operated public boat launch. Opening day creel surveys conducted by the State of Washington Department of Wildlife suggest that the fishery in the lake is good, and that lake use by people fishing is moderate (See Attachment 2). Although no data exists for yearly use, the Department of Wildlife estimates that approximately 10 percent of the total annual fishing effort occurs on opening day (Tom Cropp, Personal Communication).

Boating access at the public boat launch has become nearly impossible due to increased growth levels of both lilies and milfoil at the shallower east end of the lake adjacent to the wetland. An aerial photo of Lake Twelve showing floating vegetation from east to west is shown in Attachment 8. During the summer months, only a thin lane is visible from the boat ramp out towards the middle of the lake. Access from private docks to the middle of the open water portion of the lake is completely inaccessible during the "height" of the growing season. Lakeside residents, in fact, have trouble launching watercraft from their docks. This is especially true if they have not maintained and controlled both of these aquatic plant species along side their docks.

Waterfowl are present on Lake Twelve. Lake Twelve is important in terms of providing a food base for piscivorous and herbivorous waterfowl in the winter. Waterfowl known to inhabit the lake are Western Grebes, Mergansers, Cormorants, Coots, and Canada Geese. Heavy predation of both planted and wild fish by waterfowl occurs on Lake Twelve from November through March.

The Lake Twelve Association (LTA) includes 74 lots on the lake. There are about 30 full-time residences on the lake shore and several summer cottages. The LTA produces a quarterly newsletter and organizes three community events per year including: potluck dinners, aquatic plant clean-ups, and holiday community celebrations. Prior to about 1980, the lake water was used by many for drinking water. Since about 1986, several significant algal blooms have occurred and there is often a general pallor and odor to the lake during summer months. The quality (smell) of the water has noticeably degraded over the past seven years and at present, lake water is only used for nonconsumption purposes.

In 1980, the lake was a pleasure to use for swimming and fishing. The weed growth has greatly increased in the past 10 years. At present, there is no significant area that does not have milfoil, lilies, watershield, or other common aquatic vegetation. Human use of the lake has been severely reduced. The view of most residents and users of Lake Twelve is that the lake is in a sad state. As an example, a recent homeowner who bought during the winter stated that if they had seen the lake condition in summer, they would not have bought the property. King County SWM Division staff also received several inquiries (during 1991-1992) from potential lake-front property purchasers with regards to the quality condition of the lake.

4. Local Interest/Long-Term Commitment

The LTA was formed in 1989 to provide a forum to work on lake issues. The LTA has been very active in public involvement and education and lake management efforts. Initial activities primarily focused on sending out newsletters and information sheets to lake residents on what they could do to help maintain the lake quality. There was growing concern among lake residents that the lake was being seriously harmed by human impact. The LTA began discussing potential impacts to the lake from mine drainage runoff and failing onsite septic systems and other activities. The LTA was created to look for ways to counteract those impacts. The purpose for which the lake association was formed are stated in seven bylaws (see Attachment 11).

LTA members have been instrumental in focusing public attention on the lakes problems, obtaining grant funds and providing part of the local match for several water quality studies of the lake. In early 1990, a Centennial Clean Water Fund (CCWF) Phase I study was applied for with the King County SWM Division. A Metro Community Action Grant was also applied for. Volunteer monitors have been collecting water quality samples in Lake Twelve as part of Metro's Small Lakes Program since 1985. Additionally, through the Metro Community Action Grant program, the LTA has networked with and provided information to several other area lake groups, including Lake Desire, Lake Geneva, Lake Sawyer, and Lake Ballinger. Several LTA members are exploring the feasibility of forming a Lake Management District (LMD) for the purpose of obtaining dedicated funding for aquatic plant control and long-term monitoring. The LTA has collected annual dues of its members and in addition to providing local match for water quality studies, has purchased several hand-held aquatic plant cutters for use by LTA members. The LTA also publishes a quarterly newsletter and highlights articles specifically targeting water quality, lake management, and aquatic plant control issues of interest for LTA members.

The Lake Twelve Association/Metro Community Action Grant originated in the spring of 1990 and carried through 1991. In part, the purpose for this grant was to provide residents with immediate results, knowing that the CCWF Phase I process was two years to a report and additional years to any observable implementation results. The objective of the Metro grant was originally to evaluate the usefulness of the Waterside Products Harvester for controlling aquatic plants (primarily lilies) at residences on Lake Twelve. Two other tools (Aqua Weed Cutter from Handy Marketing Company and the Swordfish from Redwing Products Limited) were also evaluated. While using the weed cutting tools in 1990, it became obvious that some method of gathering and disposing of the cut weeds was required. The 1991 application for the grant continuation included funds for a net for gathering cut weeds. It was determined that the water weeds composted quite easily.

Of the three weed cutting tools used during the time of the project, the Aqua Weed Cutter gave the best results and was the most trouble free. LTA members also created a 50-foot net to gather cut weeds for about \$60 and made a second from material left over. LTA members believe the newsletters and the weed cutting tools have heightened the residents awareness of the ways humans affect the lake. The weed cutting tools have given the residents the idea that they can have an observable, beneficial effect. About six lake residents have bought their own Aqua Weed cutters.

A series of public meetings/workshops has already been conducted in connection with the Lake Twelve Phase I study. King County SWM Division staff, in cooperation with the LTA, conducted these workshops to inform watershed and other locally interested residents about the study. Topics covered included: study results; lake management goals; restoration alternatives; environmental impacts; funding options; and costs/benefits. More than 3,000 public notices announcing the meetings were sent to area residents surrounding Lake Twelve. Additionally, press releases and several newspaper articles were published in local newspapers. Documentation of LTA activities, along with public notices, press releases, and newspaper articles are listed in Attachment 11.

5. Public Benefit

The public benefits associated with this project include: 1) development of an integrated plan for aquatic plant management by members of the LTA; 2) increased awareness of both the advantages and disadvantages of aquatic plants and the need for a balanced approach; 3) documentation of the process by summarizing local lakeside residents' experience in utilizing WSDOE's "how-to" handbook and evaluation of its merits; 4) involving and educating other local small lake groups on the requirements of an IAPMP and empowering citizens to become actively involved in aquatic plant management issues in their own lake watershed.

As stated earlier, there is one seasonal public boat launching facility on the southeastern shore of Lake Twelve. There are no public parks, campgrounds or other facilities located on the lake at the present time. There are however, 4 state parks and 10 King County parks located within a 10-mile radius of Lake Twelve (see Attachment 12).

King County SWM staff and LTA members are committed to conducting at least two public meetings for area residents regarding the Lake Twelve IAPMP and will hold at least one workshop for area lakeside residents and others who are interested in becoming volunteer monitors and Master Milfoilers. This training will be provided by King County lake specialists, aquatic plant experts, and Lake Twelve Association Volunteers.

The Master Milfoiler program is already being developed by King County SWM's Lake Stewardship Program. The proposed IAPMP project for Lake Twelve will support the Master Milfoiler program by providing a forum for participation by other lake associations. The hands-on experience gained by LTA members who have participated in the development of the IAPMP will be provided to other small lake user groups who are experiencing milfoil infestations.

The Master Milfoiler program will be modeled after the very popular and highly successful Washington State University/King County Extension's Master Gardeners Program. The goal of the Master Milfoiler program is to reach out to other small lake groups in the region and inform residents on surveillance for and awareness of this invasive species. Most small lakes organizations in the region do not have a plan to comprehensively manage aquatic plants in their lake. Once this aquatic plant has reached nuisance levels there are very few available ways a small lake community group can effectively control this non-native plant. The Master Milfoiler program will educate residents on how to develop an integrated plan for their individual lake. The Master Milfoiler program will inform local residents about the requirements for an integrated aquatic vegetation management plan.

Hands-on topics for the Master Milfoiler Program may include: 1) the advantages and disadvantages of aquatic plants; 2) identification of common aquatic plants and invasive, non-native species; 3) control techniques; 4) how to conduct an aquatic plant mapping exercise in a local lake; 5) disposal options and composting techniques; 6) grant funding and additional resource information; 7) state and local regulations including King County's Sensitive Area Ordinance; 8) annual milfoil patrol surveys; and 9) requirements of an Integrated Aquatic Plant Management Plan.

LTA and King County would also disseminate handbooks or other information that WSDOE has completed regarding its grant program, focus sheets, or the IAPMP process to other local lake groups. LTA is committed to writing articles regarding this grant study for publication in its quarterly newsletter. At least two other articles will be produced for local newspapers. Additionally, LTA will develop a poster and display regarding their lake and the proposed IAPMP for presentation at the seventh annual Washington State Lake Protection Association's (WALPA) conference to be held in Seattle on December 4, 1993. WALPA's conference will be held in conjunction with the 13th annual international symposium of the North American Lake Management Society (NALMS). Although this conference will take place prior to the start-up of this project, other lake associations would be exposed to the process and become aware of the program.

9118

6. Statewide/Regional Significance

The process used (with training and oversight by lake experts) and data mostly collected (by lakeside residents) can be used as a model for other small lakes with infestation problems similar to Lake Twelve. There is a tremendous need statewide by small lake associations and lakeside residents for this "how-to" information. Lake Twelve Association members will utilize WSDOE's forthcoming handbook for citizens on "how-to" develop an IAPMP. LTA members will document their experience in using this handbook and evaluate its merits. This "local hands-on experience" will be critical in determining improvements that are needed in the handbook. Additionally, this evaluation will give an early reading to WSDOE officials on how well the handbook will be received by other local lake groups. This project could be referenced as a case study and included with future updates to the handbook.

The training workshop for the Master Milfoiler Program will be video-taped. Copies will be distributed to other local lake groups, and possibly aired on public television through the Washington State Lake Protection Association. Other copies would be distributed to local libraries, universities, and state agencies.

The King County Lake Stewardship program will also serve to promote and develop master milfoil programs in lake watersheds throughout King County. The Master Milfoiler Program could be expanded into Washington State University/King County Extension Program and become a model project statewide with training offered throughout local extension offices. An Adopt-A-Lake Program could also be a "spin-off" of this project, with trained volunteers utilizing surveillance techniques on milfoil and invasive/non-native species patrols.

A volunteer lake monitoring program will actually start-up during 1993 as part of the King County SWM Division's lake stewardship program. This new lake stewardship program offers technical assistance and public outreach to King County Lake Associations and organizations.

A schedule of the proposed project is listed in Attachment 13 and a cost estimate (by task) is provided in Attachment 14.