

WATER QUALITY AQUATIC INVASIVE PLANT FUNDING

Organization: Snohomish County Conservation Natural Resources Department

WQAIP-2024-SnCoCN-00067

General Information

Project Title	Lake Roesiger IAVMP Implementation
Project Short Description	The project will support the implementation of the Lake Roesiger Integrated Aquatic Vegetation Management Plan (IAVMP). The plan priorities include eradication of Eurasian watermilfoil; significant reduction of fragrant waterlily, slender arrowhead, and shoreline invasives; and the prevention of new infestations. All work will be done in partnership with the highly vested lake community who has established a supplemental funding source to ensure the plan is fully implemented for five years.
Project Long Description	The Lake Roesiger IAVMP implementation project is a partnership with the local community to control and prevent the spread of aquatic invasive plants (AIPs). The plan addresses the 6 noxious weeds in the lake. Four are class B noxious weeds: Eurasian watermilfoil (EWM), slender arrowhead, invasive knotweed, and purple loosestrife. Two are class C: fragrant waterlily and yellow flag iris. Collectively, these plants threaten the recreational use and the ecological

WATER QUALITY AQUATIC INVASIVE PLANT FUNDING

Organization: Snohomish County Conservation Natural Resources Department

WQAIP-2024-SnCoCN-00067

General Information

health of Roesiger and present a high risk of spread to nearby lakes.

Roesiger is a significant local and regional resource for fishing, swimming, boating, water skiing and aesthetic enjoyment.

Located 7 miles east of Lake Stevens, it is the 3rd largest lake in Snohomish County at 348 acres. Two of the 3 lake basins are open to powerboat activities from

May-October. Roesiger is only one of 5 local lakes allowing motorized boats.

Roesiger has 2 public access points, the WA Dept of Fish & Wildlife (WDFW) boat launch and Lake Roesiger Park which offers one of the few public swim beaches in the county. Lake Roesiger also has around 590 residential lake parcels.

Roesiger supports a robust ecological community.

WDFW stocks the lake annually with kokanee and rainbow trout. It also has largemouth bass, black crappie, bluegill, and yellow perch. No threatened or endangered salmon species are found in the lake, but further downstream, Woods Creek supports salmonids. Volunteer lake monitoring records indicate the

WATER QUALITY AQUATIC INVASIVE PLANT FUNDING

Organization: Snohomish County Conservation Natural Resources Department

WQAIP-2024-SnCoCN-00067

General Information

presence of osprey,
herons, bald eagles,
hawks, geese, ducks,
otters, muskrats, beavers,
and several amphibians.

The lake's popularity means there is a high risk for spread of invasive aquatic plants to other lakes. Within 7 miles, there are 6 other waterbodies with public access. Nearby Flowing Lake is open to motorized watercraft and is the most threatened. Lake Bosworth and Lake Chaplain (drinking water reservoir) are also close by. Lake Stevens also allows powerboats. While Stevens already has milfoil, it is threatened by the spread of slender arrowhead.

Past efforts for invasive control have been limited and primarily focused on EWM. EWM work included several years of diver-survey and hand-pulling funded by Snohomish County and later the lake community. Small-scale efforts to control invasive lilies have also been attempted with limited success including hand-cutting, mowers and bottom barriers with limited success. Larger-scale efforts have previously failed due to lack of a consensus on the need for

WATER QUALITY AQUATIC INVASIVE PLANT FUNDING

Organization: Snohomish County Conservation Natural Resources Department

WQAIP-2024-SnCoCN-00067

General Information

control, the best and safe methods, as well as a lack of funding.

In 2020, several lake members advocated for the County to apply for and develop an Integrated Aquatic Vegetation Management Plan. Completed in 2021, the plan identified the best options to control and prevent the spread of the target plants using the best available science with input from the lake community. The County led the development of the IAVMP in partnership with the Lake Roesiger Community and Boat Club. The plan included extensive outreach to all area residents including multiple opportunities for residents to provide feedback and vote on the plan, including a steering committee, online surveys, a public meeting, and final online vote.

Since the plan passed, the Community Club established a committee to identify funding methods and engage the community on how to best fund the plan. Ultimately, the community opted to seek grants as well as work with their County Council to establish a Surface Water Management utility fee

WATER QUALITY AQUATIC INVASIVE PLANT FUNDING

Organization: Snohomish County Conservation Natural Resources Department

WQAIP-2024-SnCoCN-00067

General Information

surcharge for those that live on or near the lake. The surcharge passed on November 23, 2022, and is established for 2023-2028. If awarded, this grant, together with the self-imposed charge, would fully fund the implementation IAVMP for 5 years.

If funded, the project would accomplish three main objectives: 1) Implement the IAVMP priorities to reduce and prevent AIP's 2) Monitor the success of the implementation and 3) Effectively engage the Lake Roesiger community in the implementation.

All aspects of the IAVMP will be conducted with significant community engagement including the development and facilitation of an advisory committee, a project website and frequent communication via email/NextDoor on the plan and implementation. Having frequent and transparent communication will ensure project accountability to the community who will have a significant financial investment in the project.

Implementation would achieve the following outcomes for each of the 5

WATER QUALITY AQUATIC INVASIVE PLANT FUNDING

Organization: Snohomish County Conservation Natural Resources Department

WQAIP-2024-SnCoCN-00067

General Information

plan priorities:

Priority 1: Eurasian watermilfoil– EWM presents a high risk to Roesiger as it can significantly alter littoral ecosystems and impair recreation by creating large surface mats in up to 15ft of water. The lake had significantly higher densities of EWM in the past that have been significantly reduced through years of diver hand-pulling. However, these efforts did not occur on an annual basis. The 5-year plan goal is to build on these efforts and eradicate EWM through annual professional diver surveys and hand-pulling augmented by a community-volunteer diver hand-pulling effort.

Priority 2: Fragrant waterlilies– Concentrated in the middle basin, lilies have made navigation to and from homes nearly impossible and have caused rapid lake sedimentation, increased nutrient cycling, and formed mud islands. Left unchecked, the middle basin will evolve into a shallow wetland cutting off navigation between the north and south basins. The plan calls for chemical treatment of up to 20 acres

WATER QUALITY AQUATIC INVASIVE PLANT FUNDING

Organization: Snohomish County Conservation Natural Resources Department

WQAIP-2024-SnCoCN-00067

General Information

of fragrant waterlily per year in the middle basin, plus treatment of all lilies (B2 acres) in the north and south basins. The outcome will contribute to the 5-year goal of eradicating invasive lilies in the north and south basins and reducing the coverage by 40-50% in the middle basin.

Priority 3: AIP prevention— Lake Roesiger is highly susceptible to future invasion by invasive plants and animals as it is a popular recreational destination. In addition, lake residents can also be vectors when their boats are used at other lakes. The plan calls for a targeted outreach campaign to lake residents including mailers, email, and social media. Though not included as a grant activity, community volunteers will also use these materials to conduct outreach at the boat launch. These activities will help achieve the five-year goal of preventing the spread of new AIPs to the lake.

Priority 4: Shoreline invasive plants— Roesiger has 3 shoreline emergent AIPs: yellow-flag iris, purple loosestrife, and invasive knotweed. These are highly aggressive, crowd out native vegetation and

WATER QUALITY AQUATIC INVASIVE PLANT FUNDING

Organization: Snohomish County Conservation Natural Resources Department

WQAIP-2024-SnCoCN-00067

General Information

reduce habitat for wildlife. The plan calls for outreach and education including a workshop to enable individual landowners to take action on their property. These actions will support the five-year IAVMP goal to prevent further spread, reduce current coverage, and eradicate as possible. Invasive knotweed control will be conducted in conjunction with the Snohomish County Noxious Weed Control Board and will be conducted outside of this project.

Priority 5– Slender arrowhead dominates over 40 acres of the lake's shallow areas, creates large monocultures where no other native plants can survive, harms habitat and accelerates lake aging. While it has changed the lake ecosystem, the long-term impacts are largely unknown as Roesiger is one of only 5 lakes in WA with this largely unresearched plant. The IAVMP identifies preventing spread to other waterbodies and reducing current coverage using Diver Assisted Suction Harvest (DASH). The project will contribute to the 5-year target of a 20% reduction per year or an

WATER QUALITY AQUATIC INVASIVE PLANT FUNDING

Organization: Snohomish County Conservation Natural Resources Department

WQAIP-2024-SnCoCN-00067

General Information

estimated removal of 8-9 acres each year.

The grant project will monitor the success of the control efforts. Monitoring includes pre-and post-treatment surveys to assess the overall reduction in AIP coverage and transect surveys to identify treatment efficacy and re-emergence of native plants in fragrant waterlily and slender arrowhead control areas.

Total Cost \$200,221.00* Total Eligible Cost \$200,221.00*

Effective Date 7/1/2023 Expiration Date 6/30/2025

Ecology Program Water Quality*

Project Category* Early Infestation

Integrated Aquatic Vegetation Management Plan
✓ Aquatic Invasive Plant Project
Research Project

Will Environmental Monitoring Data be collected? Yes

Overall Goal The Lake Roesiger IAVMP goals are to reduce aquatic invasive plants (AIPs) and prevent their spread. These actions will improve lake health, habitat for aquatic species, recreational safety, and navigability of the lake. Five-year targets were set for each of the five plan priorities in order of importance as follows: 1) Eurasian watermilfoil

WATER QUALITY AQUATIC INVASIVE PLANT FUNDING

Organization: Snohomish County Conservation Natural Resources Department

WQAIP-2024-SnCoCN-00067

General Information

eradication through annual diver surveys and hand pulling; 2) Fragrant waterlily eradication in north and south basins and 40-50% reduction in middle basin; 3) Landowner education and boat launch outreach to prevent future AIP spread; 4) Shoreline AIP reduction and prevention of spread by educating landowners on best control methods; and 5) Slender arrowhead reduction of 20% per year using DASH. The implementation grant project will help achieve the first two years of progress towards these targets.

WATER QUALITY AQUATIC INVASIVE PLANT FUNDING

Organization: Snohomish County Conservation Natural Resources Department

WQAIP-2024-SnCoCN-00067

Project Characterization

Project Themes

Select a primary and secondary theme that best describes the work to be achieved during this project.

Primary Theme: Aquatic Invasive Plant
Secondary Theme(s): Education & Outreach
Infestation Control
Monitoring and/or Maintenance

Project Website

If your project has a website, please enter the web address below. After entering a website and saving, another blank row will appear. Up to three websites may be provided.

Website Title/Name	Web Address
Lake Roesiger	https://www.snohomishcountywa.gov/5822/Roesiger-Invasive-Plant-Control-Project
Lake Roesiger Invasive Plant Proposed Funding Structure	https://snoco-gis.maps.arcgis.com/apps/webappviewer/index.html?id=694975958b624db8b36178b69385ae02

WATER QUALITY AQUATIC INVASIVE PLANT FUNDING

Organization: Snohomish County Conservation Natural Resources Department

WQAIP-2024-SnCoCN-00067

Recipient Contacts

Project Manager

Jennifer Oden

Contact Information

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Authorized Signatory

Gregg Farris

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Billing Contact

Darcey Hughes

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WATER QUALITY AQUATIC INVASIVE PLANT FUNDING

Organization: Snohomish County Conservation Natural Resources Department

WQAIP-2024-SnCoCN-00067

Recipient Contacts

darcey.hughes@snoco.org

Other recipient signatures on printed agreement

Name

Title

WATER QUALITY AQUATIC INVASIVE PLANT FUNDING

Scope of Work - Task 1 Project Admin: 1

Task Number	1
Task Title	Project Administration/Management Task Cost \$11,192.00
Task Description	<p>A. The RECIPIENT shall carry out all work necessary to meet ECOLOGY grant or loan administration requirements. Responsibilities include, but are not limited to: maintenance of project records; submittal of requests for reimbursement and corresponding backup documentation; progress reports; and a recipient closeout report (including photos).</p> <p>B. The RECIPIENT shall maintain documentation demonstrating compliance with applicable procurement, contracting, and interlocal agreement requirements; application for, receipt of, and compliance with all required permits, licenses, easements, or property rights necessary for the project; and submittal of required performance items.</p> <p>C. The RECIPIENT shall manage the project. Efforts include, but are not limited to: conducting, coordinating, and scheduling project activities and assuring quality control. Every effort will be made to maintain effective communication with the RECIPIENT's designees; ECOLOGY; all affected local, state, or federal jurisdictions; and any interested individuals or groups. The RECIPIENT shall carry out this project in accordance with any completion dates outlined in this agreement.</p>
Task Goal Statement	Properly managed and fully documented project that meets ECOLOGY's grant or loan administrative requirements.
Task Expected Outcomes	<ul style="list-style-type: none">* Timely and complete submittal of requests for reimbursement, quarterly progress reports, and RECIPIENT closeout report.* Properly maintained project documentation
Recipient Task Coordinator	Jen Oden

Deliverables

Deliverable #	Description	Due Date	Received?	EIM Study ID	Latitude	Longitude	Location Address
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WATER QUALITY AQUATIC INVASIVE PLANT FUNDING

Organization: Snohomish County Conservation Natural Resources Department

WQAIP-2024-SnCoCN-00067

Scope of Work - Task 1 Project Admin: 1

- 1.1 Quarterly Progress Reports
- 1.2 Recipient Closeout Report
- 1.3 Project Outcome Summary Report

WATER QUALITY AQUATIC INVASIVE PLANT FUNDING

Scope of Work - Additional Tasks: 2 - Invasive Plant Management

Task Number	2		
Task Title	Invasive Plant Management	Task Cost	\$134,013.00*
Task Description	<p>The County will implement the primary plant management control efforts laid out in the IAVMP . Actions will be taken as available funding allows in the following order of priority:</p> <p>1) Eurasian watermilfoil – the County will contract with certified divers to conduct a whole-lake survey of Lake Roesiger on an annual basis. If invasive milfoil is found, divers will map and then hand-pull any identified plants. Divers will also look for any new invasive plants that may have entered the lake. Alternatively, the Roesiger community invasive plant advisory committee may choose to use the volunteer dive team to implement this aspect of the plan. If this occurs, the work will be conducted outside the scope of this project and will not have County involvement beyond the volunteers’ providing data to the County for plan tracking purposes .</p> <p>2) Fragrant waterlily control – The County will contract with a licensed aquatic herbicide applicator to carry out the treatment of fragrant waterlily as laid out in the IAVMP. The treatment area will initially include all lilies in the north and south basin (approximately 2 acres). Approximately 15-20 acres will also be treated in the middle basin annually. Some of these areas will need to be re-treated in the second year. Each year the County will work with the invasive plant advisory committee to determine the desired location of the treatment based on the plan’s priorities. The County will also gain coverage for Lake Roesiger under the Department of Ecology Aquatic Plant and Algae Permit and ensure all permit requirements are met.</p> <p>3) Slender arrowhead – The County will contract with a certified diver contract to perform Diver Assisted Suction Harvesting (DASH) of slender arrowhead as laid out in the IAVMP. The annual treatment goal for this plan is 20% of the infestation or 8-9 acres. However, the actual size will depend upon the final cost of the contractor. The County will work with the Roesiger community invasive plant advisory committee annually to identify the target treatment areas with an initial focus on preventing spread to other lakes.</p> <p>Note that the control of shoreline invasives is not included in this task as this will be largely achieved through Task 4 by educating landowners on control methods for yellow flag iris and purple loosestrife. Invasive knotweed control is being achieved outside the scope of this grant project through individual landowners who have the option to partner with the Snohomish County Noxious Weed Control Board .</p>		

WATER QUALITY AQUATIC INVASIVE PLANT FUNDING

Scope of Work - Additional Tasks: 2 - Invasive Plant Management

Task Goal Statement The goal of this task is to implement the management actions identified in the Lake Roesiger IAVMP in the order of priority outlined in the plan: Priority 1) Eurasian watermilfoil – eradication; Priority 2) Fragrant waterlily – eradicate in the north and south basin, reduce by 40-50% in the middle basin; and Priority 3) Slender arrowhead – prevent further spread and reduce coverage with an initial target of 20% per year that would be scaled based on funding. This task will achieve the first two years of action towards meeting three of the five plan goals.

Task Expected Outcomes The control efforts will be the primary actions taken to reduce invasive aquatic plants that will yield the following outcomes:

- Identification and pulling of any Eurasian watermilfoil plants in Lake Roesiger leading to eradication of the plant from the lake
- Control of 15-20 acres of fragrant waterlily
- Control of 14-16 acres of slender arrowhead

Recipient Task Coordinator Jen Oden

Deliverables

Deliverable #	Description	Due Date	Received? (ECY Use Only)	EIM Study ID	EIM System Link	Latitude	Longitude	Location Address
2.1	Map of 2023 & 2024 Eurasian watermilfoil locations and plants pulled	6/30/2024						
2.2	Map of 2023 & 2024 Fragrant Water Lily Treatment Areas	6/30/2024						
2.3	Map of 2023 &	6/30/2024						

WATER QUALITY AQUATIC INVASIVE PLANT FUNDING

Organization: Snohomish County Conservation Natural Resources Department

WQAIP-2024-SnCoCN-00067

Scope of Work - Additional Tasks: 2 - Invasive Plant Management

2024 Slender
Arrowhead
Treatment Areas

WATER QUALITY AQUATIC INVASIVE PLANT FUNDING

Scope of Work - Additional Tasks: 3 - Monitoring for Adaptive Management

Task Number	3		
Task Title	Monitoring for Adaptive Management	Task Cost	\$13,199.00*
Task Description	Monitoring will focus on effectiveness of IAVMP implementation and includes two survey efforts as follows : 1. Treatment Area Surveys: The goal is to track the annual progress being made from plant management efforts and to identify the priority control areas for the next season’s treatment . These surveys will be conducted annually in the growing season. The survey will be targeted for June when plants are visible but before control activities begin. For the grant project, a survey will be conducted in 2024. Surveys will continue annually outside the scope of this grant. The survey effort by plant type is as follows: a) Eurasian watermilfoil – annual diver surveys will provide the locations of any milfoil plants identified that were hand-pulled and removed from the lake. b) Fragrant waterlily – a visual survey will be conducted to assess each area targeted in the north and south basin to determine if lilies are present/absent. The middle basin lilies will be surveyed by boat using GPS. Alternatively, SWM is embarking on a pilot project using drones for several monitoring applications. If possible, the fragrant waterlily survey in the middle basin will be completed by taking a pre-and post-aerial image by drone and analyzing it for lily coverage to identify changes. The drone survey is not included as part of the grant project as it is not clear if this technology will be available in time for the grant implementation. c) Shoreline plants – a shoreline visual survey will be conducted to track changes in purple loosestrife and other invasive plant locations. All previously marked patches will be marked as present or absent and any new patches will be mapped. The annual survey will not include yellow flag iris. Its distribution is widespread and more difficult to track and so will not be assessed until year five with the whole -lake plant survey. d) Slender arrowhead – a visual survey will be conducted by boat and data will be tracked with GPS. The survey will be compared against the previous year’s data (or the baseline IAVMP survey for the first year). 2. Targeted Transect Surveys: The goal of the targeted transect surveys is to assess the efficacy of chemical control of fragrant waterlily and DASH control of slender arrowhead. The surveys will also track the post-treatment establishment of native species. A representative survey area will be selected for each		

Scope of Work - Additional Tasks: 3 - Monitoring for Adaptive Management

treatment type. In each survey area, multiple linear transects will be established from shoreline to shoreline (number of transects dependent upon treatment size). Boat surveys along each transect length will be conducted using a visual assessment of plant assemblages along the entire length of the transect. Intermittent rake tows will also be used in areas of poor visibility or dense plant coverage. The data will be collected using GPS. The transect survey will be completed prior to the initial treatment work and repeated in 2024 during the next growing season following the treatment. A comparative analysis will be completed to determine the percent changes in plant community assemblages along the transect.

The IAVMP does include repeating a whole lake vegetation survey to track long-term effectiveness. However, this survey will not be conducted until year 5 of the plan implementation and will be outside the scope of this grant project.

Task Goal Statement

The goal of this task is to monitor the effectiveness of the aquatic plant management actions being taken each year to implement the IAVMP. The results will be used for three main objectives: 1) assess the efficacy of each treatment strategy; 2) learn from outcomes to adapt strategies as needed; and 3) track the progress of implementation actions towards reaching the IAVMP plans goals. Each of the survey outcomes will be shared with the advisory committee to make informed management decisions for the following control season. It will also be shared with the broader Lake Roesiger community to provide an update on plan progress and ensure accountability for plan implementation.

Task Expected Outcomes

The survey findings will provide several outcomes essential to the completion and implementation of the IAVMP. The expected outcomes by survey include:

- Maps showing updated locations of target plants to see progress towards plan goals and data on which to base the next season’s control efforts.
- Assessment of the efficacy of control methods so control methods can be adjusted as needed and adaptively managed.
- Understanding of long-term impacts on lake ecology with respect to the re-establishment of native plants in control areas.
- Data that can inform progress towards meeting plan goals to share with the advisory committee, Roesiger community and others interested in implementing invasive plant projects.

Recipient Task Coordinator

Jen Oden

WATER QUALITY AQUATIC INVASIVE PLANT FUNDING

Organization: Snohomish County Conservation Natural Resources Department

WQAIP-2024-SnCoCN-00067

Scope of Work - Additional Tasks: 3 - Monitoring for Adaptive Management

Deliverables

Deliverable #	Description	Due Date	Received? (ECY Use Only)	EIM Study ID	EIM System Link	Latitude	Longitude	Location Address
3.1	Treatment Area Survey Map	6/30/2024						
3.2	Targeted Transect Survey Summary	6/30/2024						

WATER QUALITY AQUATIC INVASIVE PLANT FUNDING

Scope of Work - Additional Tasks: 4 - Community Engagement

Task Number	4		
Task Title	Community Engagement	Task Cost	\$41,817.00*
Task Description	<p>Community engagement tasks will include the coordination of a resident advisory committee, the general outreach to the lake community on the project and progress towards the plan goals, and targeted outreach campaigns on the prevention of invasive species and the control of shoreline invasives.</p> <p>Roesiger Invasive Plant Advisory Committee – The County will assemble a committee of Lake Roesiger area residents that equally represent the three basins of the lake. The committee will be established in the winter of 2023 and will meet up to three times between January and July to establish priorities and develop the treatment plan for the control season. The committee will then meet each year in the fall/winter for a post-season debrief and again in the late winter/early spring to provide recommendations for the next year’s management plan.</p> <p>General Project Outreach – The County will provide regular communication to ensure that the community is aware of the project and is kept up to date on project progress. The County will share annual project goals and progress reports through a project kick-off mailer and pre- and post- season progress emails/NextDoor postings. The County will also maintain a project website which will include project background, plant-specific outreach materials, aquatic plant survey maps, proposed aquatic plant control priorities and associated maps, and advisory committee meeting announcements and materials.</p> <p>Targeted outreach campaign – The County will develop a targeted outreach campaign for lake area residents on two main topics: 1) recognition and control options for purple loosestrife and yellow flag iris and 2) prevention of AIPs to the lake (i.e., Clean, Drain Dry). The messaging will include a mailer, targeted emails and NextDoor posts. While not within the scope of the grant project, the prevention messaging materials will also be used by the lake community in a community volunteer effort to educate boat ramp users on AIP prevention .</p> <p>Resident Plant Control Workshop – A workshop will be held to provide landowners with the best management practices for controlling yellow flag iris and purple loosestrife on their property. Workshop topics would include an introduction to each target plant, tips for identification, control methods that they can conduct on their own, and control methods that are effective but require professional assistance or permits .</p>		

WATER QUALITY AQUATIC INVASIVE PLANT FUNDING

Organization: Snohomish County Conservation Natural Resources Department

WQAIP-2024-SnCoCN-00067

Scope of Work - Additional Tasks: 4 - Community Engagement

Task Goal Statement The primary goal is to engage the Lake Roesiger community in all stages of implementation as well as educate Lake Roesiger residents on shoreline invasive plant identification, prevention, and control methods.

Task Expected Outcomes The outcomes of community engagement tasks will include:??

- Community-wide awareness of the project and its progress?
- Steering committee meetings with broad representation that can provide recommendations for implementation reflective of the entire lake community
- Educate residents in identification, prevention and control of invasive shoreline plants
- Educate residents and lake users on clean, drain and dry preventions methods

Recipient Task Coordinator Jen Oden

Deliverables

Deliverable #	Description	Due Date	Received? (ECY Use Only)	EIM Study ID	EIM System Link	Latitude	Longitude	Location Address
4.1	Project website	7/30/2023						
4.2	Advisory Committee attendance sheets	6/30/2025						
4.3	Advisory Committee meeting minutes or meeting recordings	6/30/2025						
4.4	Electronic copies of project mailers	6/30/2025						
4.5	Electronic copies of pre- and post-season emails	6/30/2025						
4.6	Electronic copies of educational materials	6/30/2025						
4.7	Workshop	6/30/2025						

WATER QUALITY AQUATIC INVASIVE PLANT FUNDING

Organization: Snohomish County Conservation Natural Resources Department

WQAIP-2024-SnCoCN-00067

Scope of Work - Additional Tasks: 4 - Community Engagement

attendance sheet

WATER QUALITY AQUATIC INVASIVE PLANT FUNDING

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WQAIP-2024-SnCoCN-00067

Scope of Work Summary

Task Title	Task Cost
Project Administration/Management	\$11,192.00
Invasive Plant Management	\$134,013.00
Monitoring for Adaptive Management	\$13,199.00
Community Engagement	\$41,817.00
Total	\$200,221.00

Total Eligible Costs

(from the General Information Form)

\$200,221.00

WATER QUALITY AQUATIC INVASIVE PLANT FUNDING

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WQAIP-2024-SnCoCN-00067

Task Budget By Fiscal Year

Estimate your proposal's total budget needs by task for each Fiscal Year.

Fiscal Years run from July 1 to June 30.

Total Eligible Costs (from General Information form)
\$200,221.00

By Task

Task Title	Total Task Cost
Project Administration/Management	\$11,192.00
Invasive Plant Management	\$134,013.00
Monitoring for Adaptive Management	\$13,199.00
Community Engagement	\$41,817.00
Totals	\$200,221.00

*1st Fiscal Year Cost	*2nd Fiscal Year Cost	Total of All FYs
\$5,596.00	\$5,596.00	\$11,192.00
\$67,007.00	\$67,006.00	\$134,013.00
\$6,600.00	\$6,599.00	\$13,199.00
\$21,185.00	\$20,632.00	\$41,817.00
\$100,388.00	\$99,833.00	\$200,221.00

WATER QUALITY AQUATIC INVASIVE PLANT FUNDING

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WQAIP-2024-SnCoCN-00067

Project Information

*1 - Project Area (Lake, Waterbody)

Lake Roesiger

To add another species of concern (up to 5);

Enter the scientific and common name then click Save.

After Save, a new row will appear.

To delete a row

Delete the text in scientific and common name then click Save.

After Save, the row will be deleted.

*2 - Species of Concern:

Scientific name

Common name

Myriophyllum spicatum

Eurasian watermilfoil

Nymphaea odorata

Fragrant waterlily

Iris pseudacorus

Yellow-flag iris

Lythrum salicaria

Purple loosestrife

Sagittaria graminea

Slender arrowhead

*3 - State Classified Noxious Weed

Class B

*4 - County Noxious Weed list

Class B

*5 - List the key people who will make this project a success.

The effort will be led by Marisa Burghdoff (Program Lead) and Jen Oden (Water Quality Specialist). The team has a combined experience of 30 years with a strong track record of grant implementation (toxic algae grants) and milfoil eradication (Serene), milfoil control (Goodwin/Shoecraft) and lily control (Sunday Lake). Our limnological consultant, Tetra Tech (Toni Pennington, Shannon Brattebo, and Harry Gibbons), are highly experienced and recently completed IAVMPs for Ballinger and Roesiger.

*6 - What type of decontamination measures will you put in place for your equipment (boats, trailers, waders, etc.) while working on this project?

SWM and its contractors implement the "Clean, Drain and Dry" approach when

WATER QUALITY AQUATIC INVASIVE PLANT FUNDING

Organization: Snohomish County Conservation Natural Resources Department

WQAIP-2024-SnCoCN-00067

Project Information

working in lakes with known infestations of invasive aquatic plants. SWM routinely cleans all monitoring equipment, PPE, waders, shoes, boats, and boat trailers by removing all visible native and non-native plants, algae or mud and drain any water before leaving the boat ramp. All removed materials are placed into a garbage bag for disposal. SWM also plans lake monitoring activities to go from low to high-risk lakes.

WATER QUALITY AQUATIC INVASIVE PLANT FUNDING

Organization: Snohomish County Conservation Natural Resources Department

WQAIP-2024-SnCoCN-00067

Aquatic Invasive Plant Project

1 - Is there an Ecology approved Integrated Vegetation Management Plan for this project area ?

Yes

If yes, provide the name of the IAVMP and the date submitted:

Lake Roesiger Integrated Aquatic Vegetation Management Plan

1/28/2022

2 - Is there a qualifying boat ramp for this waterbody? Yes

3 - What is the level of infestation? (species #1)

Heavy (dense growth in most areas along shoreline)

4 - Is the project in a waterbody with an ESA listed species or critical or depressed salmon stocks ? No

If yes, how will the aquatic invasive plant treatment be taken care of?

5 - Please list all known aquatic and emergent invasive plants known in the project area.

Eurasian watermilfoil

Fragrant waterlily

Yellow-flag iris

Purple loosestrife

Slender arrowhead

6 - Does this invasive plant(s) pose a threat to other nearby waterbodies? Yes

If yes, explain:

The lake's popularity means there is a high risk for spread of invasive aquatic plants to other lakes . Within 7 miles, there are 6 other waterbodies with public access. Nearby Flowing Lake is open to motorized watercraft and is the most threatened. Lake Bosworth and Lake Chaplain (drinking water reservoir) are also close by. Lake Stevens also allows powerboats. While Stevens already has milfoil, it is threatened by the spread of slender arrowhead.

7 - What impacts will this invasive plant have on water quality and habitat?

Slender arrowhead (over 40 acres) and fragrant waterlily (30 acres) dominate over the lake's shallow areas, create large

Aquatic Invasive Plant Project

monocultures where no other native plants can survive, harm habitat, accelerate lake aging, and decrease dissolved oxygen.

Roesiger has three shoreline emergent AIPs: yellow-flag iris, purple loosestrife, and invasive knotweed. These are highly aggressive, crowd out native vegetation and reduce habitat for wildlife.

8 - What impacts will this invasive plant have on public use and recreation?

Invasive milfoil presents can significantly alter littoral ecosystems and impair recreation by creating large surface mats in up to 15ft of water. Fragrant waterlilies have made navigation to and from homes nearly impossible. Lilies and slender arrowhead have caused rapid lake sedimentation, increased nutrient cycling, and the formation of mud islands mud islands. Left unchecked, the middle basin will evolve into a shallow wetland cutting off navigation between the north and south basins .

9 - What decontamination measures will you implement to keep from spreading invasive species?

SWM and its contractors implement the “Clean, Drain and Dry” approach when working in lakes with known infestations of invasive aquatic plants. SWM routinely cleans all monitoring equipment, PPE, waders, shoes, boats, and boat trailers by removing all visible native and non-native plants, algae or mud and drain any water before leaving the boat ramp. All removed materials are placed into a garbage bag for disposal. SWM also plans lake monitoring activities to go from low to high-risk lakes.

10 - What environmental and/or economic damage may be caused by not eradicating/containing the invasive plant?

Recreation and access/navigation would be significantly limited, the lake ecosystem would evolve into a shallow wetland, and become a monoculture of invasive plants.

11 - How committed are you to continue working on the control/eradication portion of this project after the completion of this IAVMP?

All work will be done in partnership with the highly vested lake community who has established a supplemental funding source to ensure the plan is fully implemented for five years, and that can be renewed for continued implementation. The County is committed to managing the implementation of work paid for by the supplemental funding under the guidance of the Roesiger community invasive plant advisory committee.

12 - Do you have local citizen support for this project?

Roesiger has a highly vested lake community. The Lake Roesiger Community and Boat Club submitted a letter of support. Moreover, the community has a large financial stake in the progress as they have worked with Snohomish County Council to establish a supplemental funding source to ensure the plan is fully implemented for five years.

13 - What control methods were proposed in the IAVMP? And have these changed?

The control methods are unchanged from the IAVMP and include: Eurasian watermilfoil – annual diver surveying and hand-pulling;

Aquatic Invasive Plant Project

Procellacor if infestation worsens. Fragrant waterlily – chemical treatment of fragrant waterlily with imazpyr and or imazamox; could be supplemented with mechanical harvesting in deeper areas. Slender arrowhead – Diver Assisted Suction Harvesting (DASH). Prevention – education and outreach; Shoreline invasives – workshops on individual control by property owners.

14 - Is Public Education a part of this project? Yes

If yes, what means will you use to educate the public on the invasive plant issue that this waterbody is facing?
Coordination of a resident advisory committee, general outreach to the lake community on the project and progress towards the plan goals, and targeted outreach campaigns on the prevention of invasive species and the control of shoreline invasives.

15 - What are the overall goals for the waterbody?

The Lake Roesiger IAVMP goals are to reduce aquatic invasive plants (AIPs) and prevent their spread. These actions will improve lake health, habitat for aquatic species, recreational safety, and navigability of the lake.

16 - How does this project meet those goals?

Five-year targets were set for each of the five plan priorities: 1) Eurasian watermilfoil eradication through annual diver surveys and hand pulling; 2) Fragrant waterlily eradication in north and south basins and 40-50% reduction in middle basin; 3) Landowner education and boat launch outreach to prevent future AIP spread; 4) Shoreline AIP reduction and prevention of spread by educating landowners on best control methods; and 5) Slender arrowhead reduction of 20% per year using DASH.

17 - Please list the decontamination measures you would implement to keep from spreading invasive species to other areas from your site and additional species into your site.

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18 - Please include a map of the project area along with documentation of the infestation size.

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Uploads

Description

Lake Roesiger IAVMP

Lake Roesiger Letter of Support

Upload

https://ecyeagl/IntelliGrants_BASE/_Upload/222577_884773-LakeRoesiger_IAVMP-FINAL-with-AppendiciesCDE.pdf

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