



LAKE WASHINGTON AND THE SAMMAMISH RIVER

WITHIN THE CITY OF KENMORE, WASHINGTON

INTEGRATED AQUATIC VEGETATION MANAGEMENT PLAN 2020 UPDATE

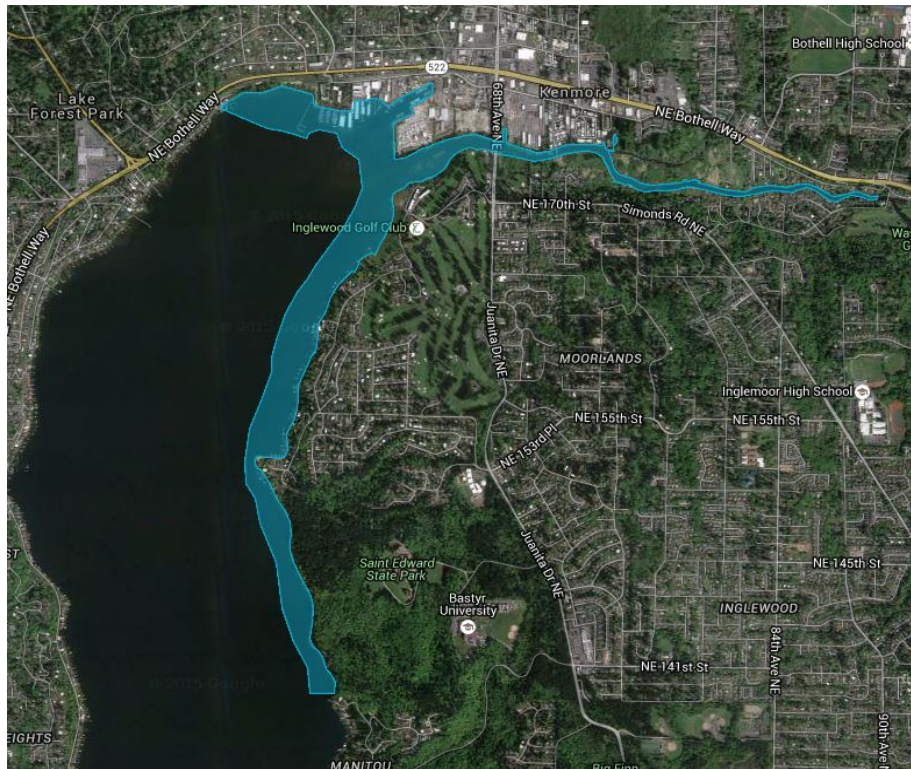


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Prepared by Herrera Environmental Consultants, Inc.

In Conjunction with the City of Kenmore

18120 68th Avenue Northeast, Kenmore, Washington 98028

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Note:

Some pages in this document have been purposely skipped or blank pages inserted so that this document will print correctly when duplexed.

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EXECUTIVE SUMMARY

The city of Kenmore lies on the northern edge of Lake Washington and encompasses the mouth of the Sammamish River, giving the city 7.8 miles of shoreline. Among City of Kenmore goals is a commitment to advance the public's access and connection to the waterfront. In the fall of 2016, Kenmore residents approved the City's first bond measure, which will, in part, increase public access to and make improvements in three of Kenmore's waterfront parks: Log Boom Park on the northern shore of Lake Washington, and Rhododendron Park and Squire's Landing Park on the Sammamish River.

Dense growth of aquatic plants during the summer interferes with recreational and commercial use of the Sammamish River and Lake Washington in the city of Kenmore, creating obstructions for multiple users and inhibiting use for swimmers, kayakers, boaters and others. Negative impacts on riparian habitat are also of concern.

Residents and business owners within the city of Kenmore, as well as aquatic plant biologists and plant management experts, came together to develop goals and a proposal for the City's Integrated Aquatic Vegetation Management Plan (IAVMP), which is funded by a Washington State Department of Ecology (Ecology) grant. In 2017, the City of Kenmore issued the *Lake Washington and the Sammamish River Within the City of Kenmore, Washington Integrated Aquatic Vegetation Management Plan* (2017 IAVMP) (Herrera 2017). This report serves as an update to the 2017 IAVMP and includes revisions to management goals and activities; summarizes maintenance efforts in 2018 and 2019; and updates the action strategy and implementation, and the monitoring and evaluation plans.

This 2020 update includes several updates to the 2017 IAVMP, which are summarized below:

- Control of nuisance native vegetation is now included in management goals for beneficial use areas as needed to allow for recreational and commercial uses.
- Information about a newly approved aquatic herbicide, ProcelleCOR™, which is a systemic, selective aquatic herbicide with low toxicity recommended for control of Eurasian watermilfoil.
- Further specified commitments by the City of Kenmore to communicate annual management efforts before and after treatments and require consistent reporting so that these efforts may be tracked reliably over time.

For more detailed documentation and analyses of invasive aquatic vegetation in Lake Washington and the Sammamish River in Kenmore, Washington, continue to refer to the 2017 IAVMP located on the IAVMP webpage: <<http://www.kenmorewa.gov/IAVMP>>.

INTRODUCTION

The City of Kenmore issued the 2017 Integrated Aquatic Vegetation Management Plant (IAVMP) to address aquatic noxious weeds, which are nonnative plants that are particularly invasive in shoreline areas or open water (Herrera 2017). The IAVMP was part of an effort to increase public access and make improvements throughout Kenmore shorelines and specifically in three of the City's waterfront parks: Log Boom Park on the northern shore of Lake Washington, and Rhododendron Park and Squire's Landing Park on the Sammamish River. This update is based on the experiences of stakeholders and results of aquatic weed control efforts since 2017, and includes the following summarized updates:

- Control of nuisance native vegetation is now included in management goals for beneficial use areas as needed to allow for recreational and commercial uses.
- Information about a newly approved aquatic herbicide, ProcelleCOR, which is a systemic, selective aquatic herbicide with low toxicity recommended for control of watermilfoil species.
- Further specified commitments by the City of Kenmore to communicate annual management efforts before and after treatments on a consistent basis that are tracked over time.
- For more detailed documentation and analyses of invasive aquatic vegetation in Lake Washington and the Sammamish River in Kenmore, Washington, continue to refer to the 2017 IAVMP.

Invasive aquatic vegetation negatively impacts ecological processes, recreation, and business activities. Dense native vegetation also negatively impacts recreation and business activities. With 7.8 miles of shoreline and multiple opportunities to enjoy the water, management of vegetation in the lake and river areas of Kenmore is critically important as more and more people gain access to the water. However, because Kenmore is on the receiving end of invasive weeds and other debris from downstream flow of the Sammamish River and downwind drift in Lake Washington, this issue cannot be addressed in isolation from upstream communities. Therefore, we have continued to include the component of upstream outreach as a part of our plan. Working with the City, Herrera Environmental Consultants, Inc. (Herrera) prepared this 2020 IAVMP update that provides additional information to the following sections in the 2017 IAVMP:

- Problem Statement

- Public Involvement
- Plant Management Goals
- Beneficial Uses and Identified Problems
- Past Management Efforts
- Selected Action Strategy and Implementation
- Monitoring and Evaluation Plan
- References

The following sections of the 2017 IAVMP have not been updated and should be referred to as needed:

- Waterbody Characteristics
- Aquatic Plant Community
- Aquatic Plant Control Alternatives
- Integrated Aquatic Plant Control Scenarios

PUBLIC INVOLVEMENT

Kenmore has a large waterfront community, both residential and commercial, and the City wanted to include representatives on the IAVMP steering committee with a broad spectrum of perspectives and geographic locations. Public involvement for the IAVMP update is described for interviews and meetings with community leaders, outreach to upstream jurisdictions, and the City's IAVMP webpage.

STAKEHOLDER INTERVIEWS

On behalf of the City for this update, Herrera reached out to stakeholders and aquatic plant management experts to solicit their input on conditions since publication of the IAVMP in 2017. Herrera prepared the following questions for each interview:

Briefly, what is your experience managing aquatic plants in Kenmore?

Where are aquatic plants primarily impacting which water uses?

Which exotic and native plant species are primarily impacting water uses at those locations?

Which aquatic plant management techniques used in 2018 and/or 2019 were most effective at reducing water use impacts, and why?

Which aquatic plant management techniques used in 2018 and/or 2019 were not effective at reducing water use impacts, and why?

How should aquatic plant management techniques be modified in the future to effectively reduce water use impacts, and why?

Do you have any other suggestions for improving the IAVMP?

These questions were sent by email to the following individuals:

- Todd Banks, President of Kenmore Air, the largest seaplane operator in the United States
- John Adamski, waterfront homeowner in the Arrowhead Point community of Lake Washington for multiple decades and avid stand-up paddle boarder
- Janet Ketcham, waterfront homeowner in the Inglewood Shores condominium complex and avid paddler
- Greg Matz, Superintendent of the Inglewood Golf Club

- Ben Peterson, Noxious Weed Specialist II with the King County Noxious Weed Program
- Dave Klutz, Managing Member of Lakeland Restoration Services, LLC
- Doug Dorling, President of Northwest Aquatic Eco-Systems
- Terry McNabb, President of AquaTechnex

Telephone interviews were successfully conducted with John Adamski, Janet Ketchum, and Ben Peterson. Todd Banks responded to interview questions by email. Several attempts to interview the remaining individuals failed. Information gathered from the interviews is incorporated into various sections of this IAVMP update.

UPSTREAM JURISDICTION OUTREACH

Outreach to upstream jurisdictions has been an ongoing process although no Coalition has been formed to date. Conversations with the cities of Bothell, Redmond, Woodinville and other upstream jurisdictions will continue as the City develops more specific ways of working together to address the Sammamish River system more holistically than could be achieved by one downstream city. Formation of a multi-jurisdictional coalition involving municipalities and non-profits and other interested organizations continues to be a City of Kenmore long-term vision. The City of Kenmore also plans to coordinate with Forterra to eradicate emergent invasive species, including Japanese knotweed, along the shoreline of the Samammish River.

WEBPAGE

In response to citizen requests, the City of Kenmore published a webpage that provides access to detailed information on permits and best management practices, as well as links to other aquatic weed-related topics. This page can be found at: <<http://www.kenmorewa.gov/IAVMP>>.

PLANT MANAGEMENT GOALS

The aquatic plant management goals are to maintain recreation and commercial usability and habitat integrity of the lake and river by managing nuisance plants in identified beneficial use areas.

Management priorities include:

- Control of regulated noxious weeds
- Control of dominant noxious weed species
- Control of native vegetation that inhibits recreational and business uses (New)
- Early detection of emerging noxious weed species

Priority management areas include:

- Public parks, main channels, other high public use areas
- Private waterfront residences and businesses

Management goals include:

- Reduce impact on boating (hand-powered watercraft and motorboats):
 - Provide clear, clean water
 - Reduce weeds and native vegetation catching on paddles, rudders, propellers
- Maintain healthy environment for fish:
 - Provide appropriate water temperatures
 - Provide appropriate dissolved oxygen levels

These priorities and goals are the same as those established by the 2017 IAVMP except that control of native vegetation was added to weed control based on input from select stakeholders. Private priority management areas are to be managed by their respective stakeholders.

BENEFICIAL USES AND IDENTIFIED PROBLEMS

The project area (identified on the cover page of this plan) provides numerous beneficial uses to humans and wildlife, including the following three types identified by the Steering Committee in 2017 and 2020 (Figure 1):

- Recreational Use: Boating, fishing, swimming, aesthetic and wildlife observation
- Commercial Use: Marinas, Kenmore Air, water supply
- Wildlife Use: Waterfowl, aquatic mammals, fish, and other aquatic organisms

Beneficial uses are impacted by excessive aquatic plant growth, including the following three types of problems identified by the Steering Committee:

- Environmental:
 - Negative impact of dense plants on fish habitat
 - Impact of invasive noxious weeds on native biodiversity
 - Excessive levels of algae from scum accumulation on dense plants and nutrient release by decaying plants that impair aquatic habitat
 - Water quality degradation (low dissolved oxygen and high temperature) in dense plant growth
- Recreational:
 - Inhibit swimming and paddle sports
 - Weeds and native vegetation wound around boat motors
 - Weeds and native vegetation tangled in fishing lines
 - Nonnative weeds promote habitat for nonnative fish species
 - Health risks of toxic blue-green algae and nuisance of excess filamentous green algae
 - Aesthetic impacts from plant accumulation and decay, foul aroma, and water clarity
 - Restricted shoreline access
- Economic:

- Reduction of navigable waterways by forcing lake traffic into narrow lanes in years with dense aquatic vegetation growth, and increased potential for conflict between boats and planes
- Reduction of water depth that impacts access to moorage slips
- Costly repairs to damaged boat propellers and plane rudders
- Irrigation impacts from clogged intake lines and damaged pumps
- Perceived quality of life
- Lower waterfront property values (Olden and Tamayo 2014)
- Cost to manage/control/eradicate

These beneficial uses and identified problems are the same as those established for the 2017 IAVMP except for the addition of native vegetation to recreational impacts of weeds on boat motors and fishing lines. It should also be noted that although some swimming occurs in Kenmore waters, there is no established swimming area with lifeguards.

To protect beneficial uses and address the identified problems, the project area was segregated into the following three types of areas by the Steering Committee:

- Public Use Areas:
 - Saint Edward
 - Inglewood Wetlands
 - East Open Water
 - West Open Water
 - Log Boom Park and Pier
 - WDFW Boat Launch
 - Lower Sammamish River
 - Rhododendron Park
 - Squire's Landing Park
- Commercial/Industrial Use Areas:
 - Kenmore Air
 - Marina

- Warehouse/Industrial
- Residential Use Areas:
 - South Arrowhead Point Residential
 - Arrowhead Point Residential
 - Inglewood Residential
 - Inglewood Golf Residential
 - Inglewood Shores Residential
 - Sammamish River Residential

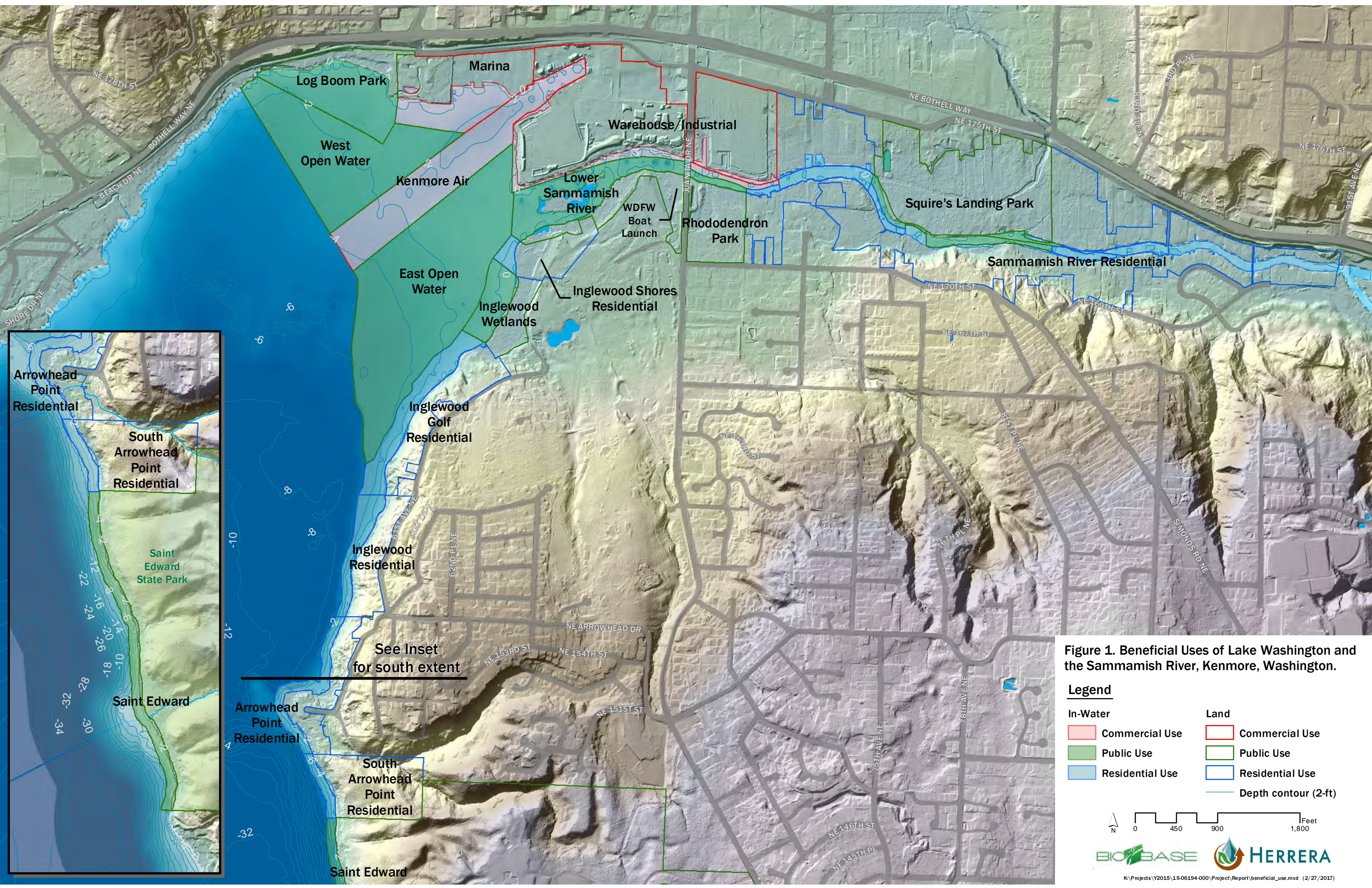


Figure 1. Beneficial Uses of Lake Washington and the Sammamish River, Kenmore, Washington.

Legend

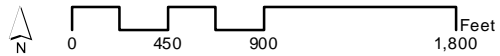
In-Water

- Commercial Use
- Public Use
- Residential Use

Land

- Commercial Use
- Public Use
- Residential Use

Depth contour (2-ft)



2018–2020 MANAGEMENT EFFORTS

In 2018 and 2019, Kenmore contracted with Lakeland Restoration Services and Northwest Aquatic Eco-Systems, respectively, to manage aquatic plants. Both companies are licensed aquatic herbicide applicators. The contracts were aimed to control noxious invasive and nuisance native aquatic macrophytes in multiple treatment areas in the Sammamish River and on the northern shorelines of Lake Washington to meet the goals outlined by the IAVMP. In addition, Arrowhead Point contracted with AquaTechnex in 2017 through 2019 for treatment of Eurasian watermilfoil in this area on the northeast shore of Lake Washington north of St. Edwards. Kenmore Air also contracted with AquaTechnex in 2020 for treatment of Eurasian watermilfoil and other nuisance aquatic vegetation in the Kenmore Air commercial use area.

2018 CITY TREATMENTS

Lakeland Restoration Services (LRS) applied herbicides to multiple treatment areas on two occasions in 2018 that included a Triclopyr treatment on June 4 and a Diquat/Hydrothol/Aquathol treatment on July 16. LRS provided a series of maps showing pretreatment and posttreatment survey results (LRS 2018), but did not provide a detailed, narrative report. Treatment areas are shown in Figure 2. Representative maps submitted by LRS are presented in Appendix A.

On June 4, LRS applied 180 gallons of Triclopyr to 30.8 acres for Eurasian watermilfoil and fragrant waterlily control, including:

- 13.3 acres at Log Boom Park in Lake Washington, targeting primarily Eurasian watermilfoil
- 7.7 acres at Inglewood Wetlands in Lake Washington, targeting fragrant waterlily near shore and Eurasian watermilfoil offshore
- 7.0 acres at the mouth of the Sammamish River downstream of the boat launch, targeting primarily fragrant waterlily

Comparison of submersed plant density maps for pretreatment (June 3) and 3-week post-treatment (June 25) shows that the June 4 treatment generally reduced plant density from high to low in most of the treatment areas. Also, the number of Eurasian watermilfoil and fragrant waterlily observations were substantially reduced at 3 weeks following the treatment (see Appendix A).

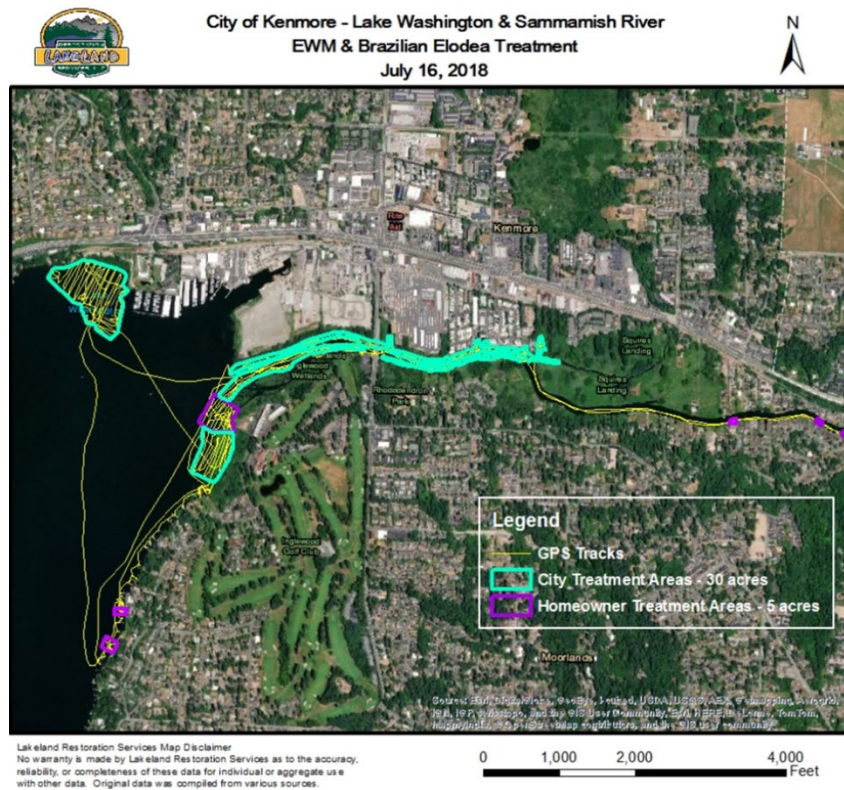
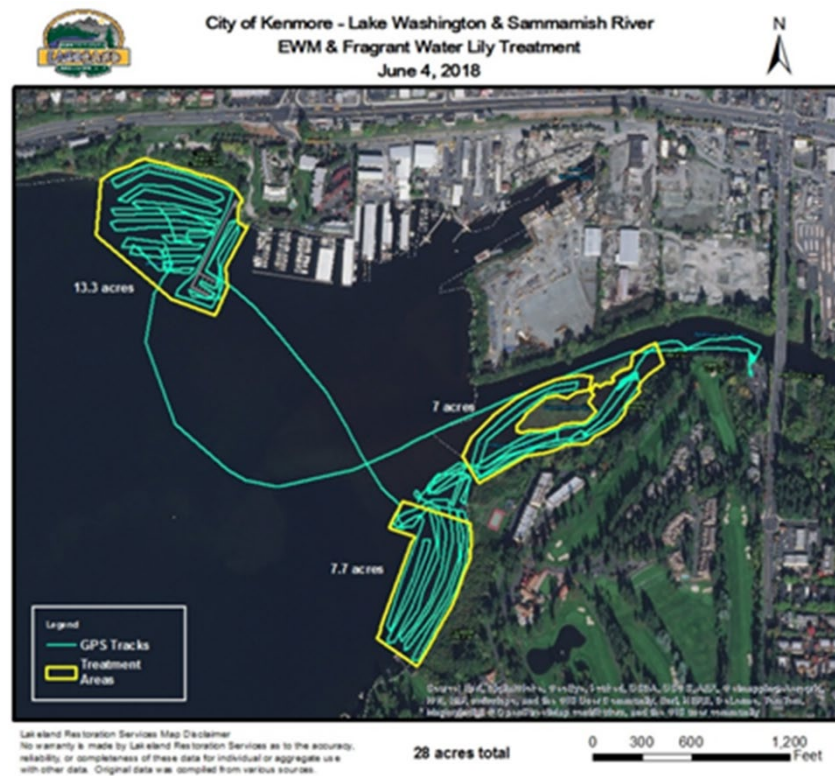


Figure 2. Kenmore 2018 Aquatic Plant Treatment Areas.

On July 16, LRS applied 35 gallons of Diquat, 35 gallons of Hydrothol, and 35 gallons of Aquathol to 40 acres for Eurasian watermilfoil and Brazilian Egeria control, including:

- 16.0 acres at Log Boom Park in Lake Washington
- 6.3 acres at Inglewood Wetlands in Lake Washington
- 5.0 acres at Inglewood Shores and Inglewood residential areas in Lake Washington
- 13.2 acres in the Sammamish River from Squires Landing Park downstream to the river mouth

Comparison of submersed plant density maps for pretreatment (July 15) and 2-week post-treatment (July 31) shows little reduction in plant density that generally ranged from a high density at Inglewood Wetlands in Lake Washington to a low density in the Sammamish River. Treatment effects on plant density could not be assessed in Log Boom Park because the post-treatment plant density map does not include that area. Plant species observations showed that Eurasian watermilfoil was not observed before or after treatment in any treatment area, and that Brazilian Egeria was not observed before treatment in any treatment area but was observed after treatment at one location in Log Boom Park and two locations in Inglewood Wetlands. Thus, the July 15 treatment did not appear to affect plant density or control target species at 2 weeks after treatment.

2019 CITY TREATMENTS

Northwest Aquatic Eco-Systems (NAE) applied herbicides to multiple treatment areas on two occasions in 2019 that included a Triclopyr treatment on May 28 and a Diquat/Hydrothol treatment on July 17 and 18. NAE provided a treatment report describing treatment methods and results, series of maps showing pretreatment and posttreatment survey results, list of species observed by location, pesticide application records, and recommendations for future work (NAE 2019). The treatment areas are shown in Figure 3 and the treatment report is presented in Appendix A.

On June 4, NAE applied 101.5 gallons of Triclopyr to 27.9 acres for Eurasian watermilfoil and fragrant waterlily control, including:

- 10 gallons to 5.69 acres at Log Boom Park in Lake Washington (Treatment Area 4), targeting primarily Eurasian watermilfoil
- 8.5 gallons to 4.07 acres at Inglewood Wetlands in Lake Washington (Treatment Area 3), targeting fragrant waterlily near shore and Eurasian watermilfoil offshore
- 78 gallons to 16.28 acres at the mouth of the Sammamish River downstream of 68th Avenue South (Treatment Area 2), targeting primarily Eurasian watermilfoil in the

river channel and fragrant waterlily in shallow waters along the south bank downstream of the boat launch

- 5 gallons to 0.85 acre in Squires Landing Park in the Sammamish River (Treatment Area 1), targeting primarily Eurasian watermilfoil

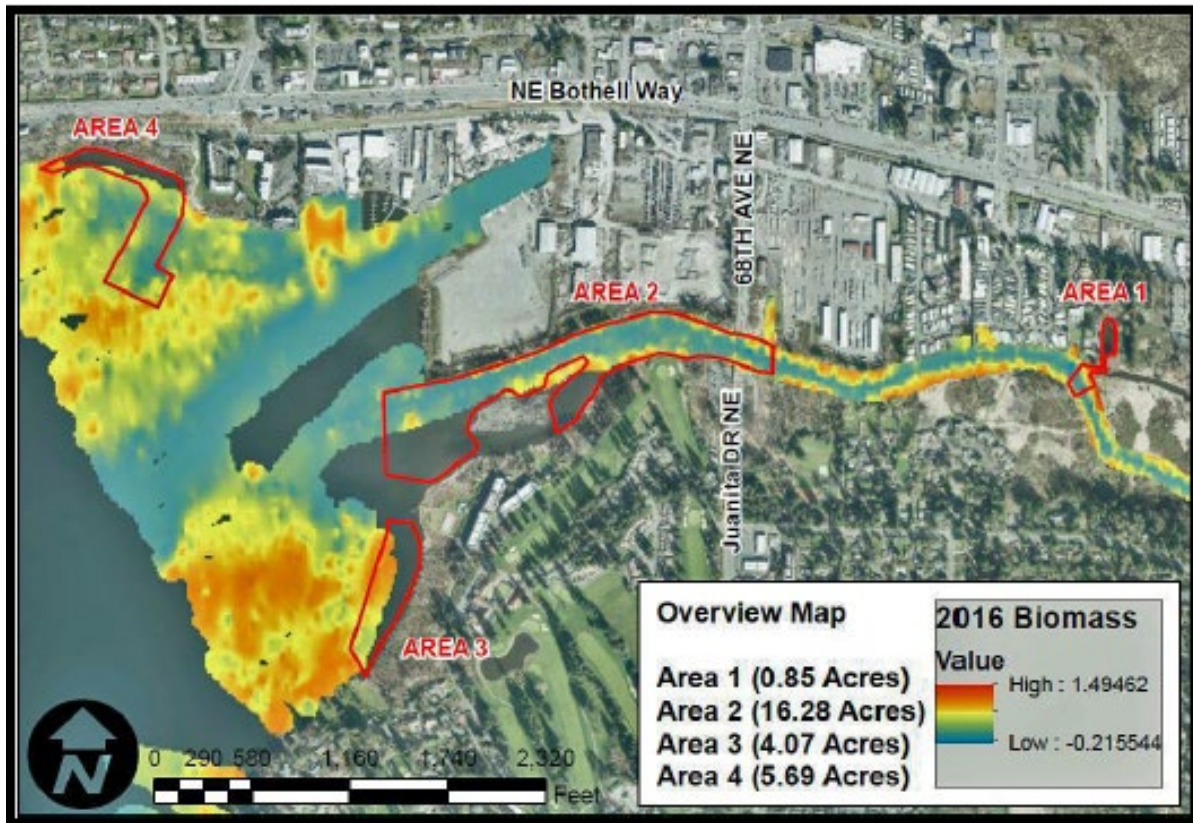


Figure 3. Kenmore 2019 Aquatic Plant Treatment Areas.

A post-treatment visual survey on June 15, 2019, indicated that Eurasian watermilfoil plants were responding to treatment, but fragrant waterlily plants were not. A post-treatment bathymetric survey was not performed in June 2019 (see Appendix A).

On July 17 and 18, NAE applied 43.5 gallons of Diquat, 1.5 gallons of Hydrothol, and 0.5 gallon of Triclopyr to 27.1 acres primarily targeting Brazilian Egeria and native plants (white stem pondweed [dominant], coontail, and common elodea), including:

- 10 gallons of Diquat to 5.69 acres at Log Boom Park in Lake Washington (Treatment Area 4), targeting primarily native plants
- 7 gallons of Diquat to 4.07 acres and 0.5 gallon of Triclopyr to 0.25 acre at Inglewood Wetlands in Lake Washington (Treatment Area 3), targeting primarily native plants and Brazilian Elodea with the Diquat and including a small test plot of Triclopyr on fragrant waterlily

- 25 gallons of Diquat to 16.28 acres at the mouth of the Sammamish River downstream of 68th Avenue South (Treatment Area 2), targeting primarily native plants and some Brazilian Elodea
- 1.5 gallons of Diquat and 1.5 gallons of Hydrothol to 0.85 acre in Squires Landing Park in the Sammamish River (Treatment Area 1), targeting primarily native plants with the Diquat and filamentous algae with the Hydrothol

A 4.5-week post-treatment survey of submersed plant biovolume on August 19, 2019, was negatively impacted by the 1-foot drop in water level interfering with sonar accuracy in shallow waters. In general, submersed plant density decreased in Squires Landing Park but did not change or slightly increased in the other treatment areas. NAE noted that no native plants or noxious weeds were inhibiting recreational use in treatment sites, aside from those vegetated by fragrant waterlily. Neither Eurasian watermilfoil nor Brazilian Egeria were present in any of the 20 rake samples collected. Little if any fragrant waterlily were controlled by the submerged applications of Triclopyr below the water surface.

NAE recommended taking a different approach than the area-wide treatment of Eurasian watermilfoil and Brazilian elodea because these noxious weeds are so sparsely populated. The early season (May through June) treatment with Triclopyr is very expensive and appears to be ineffective because it selectively targets Eurasian watermilfoil without impacting native plants and very few milfoil plants are present in most target areas, with the exception of Squires Landing Park and some other areas of the Sammamish River. It was suggested that isolated noxious weed populations be spot treated or that area-wide treatment be conducted less frequently. Because native plants are the primary source of recreational impairment, it was recommended to treat native plant species at the beginning of the 2-week treatment window followed by a post-treatment survey and second spot treatment where needed before the end of the window. NAE also recommended modifications to the request for proposals to improve the project (NAE 2019).

RESIDENTIAL AREA MANAGEMENT

Under separate contracts with lake residents in 2017, 2018, and 2019, the licensed aquatic herbicide applicator AquaTechnex treated a fifth area located offshore of Arrowhead Point with Triclopyr and Diquat (J. Adamski, personal communication, May 5, 2020). In 2018 and 2019, the licensed aquatic herbicide applicator Lakeland Restoration Services treated areas offshore of the Inglewood Condominiums (J. Ketcham, personal communication, May 6, 2020). Pretreatment survey data were not provided for comparison to post-treatment survey data for these treatments. Residents noted the general success of treatments but were dissatisfied with inconsistency of treatments in adjacent areas from year to year and communications from City contracted companies prior to and after treatments.

Residents from Arrowhead Point have also used a weed razor to control aquatic plant growth near docks and have noted its success in slowing plant growth, but that it is a large level of effort to remove the debris after it is cut (J. Adamski, personal communication, May 5, 2020).

COMMERCIAL AREA MANAGEMENT

The North Bay Marina did not report any treatments since issuance of the 2017 IAVMP. Under separate contracts with Kenmore Air in 2017, 2018, and 2019, a licensed aquatic herbicide applicator treated the areas surrounding the seaplane docks and marina primarily for Eurasian watermilfoil (T. Banks, personal communication, June 3, 2020). Pretreatment survey data were not provided for comparison to post-treatment survey data for these treatments. Kenmore Air noted that while these treatments were successful in the areas treated, the drift of plant material into the Kenmore Air navigation areas causes navigation issues for sea planes. This plant material likely comes from a variety of sources including the Sammamish River and other areas within Lake Washington.

2020 AQUATIC PLANT SURVEY

Herrera biologists conducted a qualitative aquatic plant survey on July 28, 2020 in targeted areas of high concern for impacts to recreational uses within City treatment areas. The survey methods and observations are briefly described below. Descriptions of target aquatic plant species are included in the IAVMP (Herrera 2017).

SURVEY METHODS

Herrera conducted an aquatic plant survey on July 28, 2020 of Lake Washington and the Sammamish River within areas previously managed by the City of Kenmore (study area) (Figure 4). The survey was conducted by two Herrera biologists (Eliza Spear and Nick Bartish) using a rowboat, underwater viewer, and aquatic plant sampling rake, and did not include underwater sonar measurements of plant biovolume.

The aquatic plant sampling rake was used to collect grab samples throughout the study area to identify submersed plant species and estimate the relative abundance of each species in the sample. Dominant species were identified based on the sample results and visual observations where one or two species were present in higher densities than all other species, and thus determined to be dominant or co-dominant. Locations of plant species were recorded on a map in the field.

SURVEY RESULTS

A total of 16 aquatic species were identified within the survey area (Table 1). Among those species, 10 are classified as noxious weed species in Washington State. A total of five plant species are common native species, and one species (*Vallisneria americana*) is a common nonnative plant that has naturalized in this area and is not considered a noxious weed. No rare native species were observed. The number and type of species observed represent a reasonably diverse aquatic plant community that is impacted by a relatively high number of invasive noxious weeds.

A total of eight dominant plant species were identified within five plant communities, as shown in Figure 4. The eight dominant submersed and floating-leaved species include:

- Four noxious weeds: Brazilian egeria (*Egeria densa*), curly-leaf pondweed (*Potamogeton crispus*), Eurasian watermilfoil (milfoil) (*Myriophyllum spicatum*), and fragrant waterlily (*Nymphaea odorata*)
- Four native plants: common waterweed (*Elodea canadensis*), coontail (*Ceratophyllum demersum*), ribbon-leaf pondweed (*Potamogeton epihydrus*), and white-stemmed pondweed (*Potamogeton praelongus*)

Other submersed species observed include flat-stemmed pondweed (*Potamogeton fresii*) and tapegrass (*Vallisneria americana*).

Table 1. Aquatic Plant List for the Kenmore Survey on July 28, 2020.			
Plant Type	Common Name	Scientific Name	Status
Emergent Plants	Nonnative cattail	<i>Typha</i> ssp.	Noxious Weed – Class C
	Bohemian knotweed	<i>Polygonum x bohemicum</i>	Noxious Weed – Class B
	Purple loosestrife	<i>Lythrum salicaria</i>	Noxious Weed – Class B
	Reed canarygrass	<i>Phalaris arundinacea</i>	Noxious Weed – Class C
	Spotted jewelweed	<i>Impatiens capensis</i>	Noxious Weed – Class C
	Yellow-flag iris	<i>Iris pseudacorus</i>	Noxious Weed – Class C
Floating Leaved Rooted Plants	Fragrant waterlily	<i>Nymphaea odorata</i>	Noxious Weed – Class C
	Ribbon-leaf pondweed	<i>Potamogeton epihydrus</i>	Native
Submersed Plants	Brazilian egeria	<i>Egeria densa</i>	Noxious Weed – Class B
	Common waterweed	<i>Elodea canadensis</i>	Native
	Coontail	<i>Ceratophyllum demersum</i>	Native
	Curly-leaf pondweed	<i>Potamogeton crispus</i>	Noxious Weed – Class C
	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>	Noxious Weed – Class B
	Flat-stemmed pondweed	<i>Potamogeton zosteriformis</i>	Native
	Tapegrass	<i>Vallisneria americana</i>	Nonnative
	White-stemmed pondweed	<i>Potamogeton praelongus</i>	Native

The Sammamish River was dominated by the noxious weeds Eurasian watermilfoil and curly-leaf pondweed, and the native plant common waterweed dominated a small area. Lake Washington was typically dominated by coontail and Eurasian watermilfoil in shallow areas and the native white-stemmed pondweed in deeper areas. In general, aquatic plants were the densest closest to the shoreline of the Sammamish River and Lake Washington within the survey area.

Five separate aquatic plant communities were identified in the survey area, proceeding from the Plant Community 1 in the Sammamish River to Plant Community 5 in Log Boom Park. The plant community locations are depicted in Figure 4 and briefly described below.



Figure 4. Dominant Species Observed in 2020 Aquatic Plant Survey.

Legend

- Plant Community 1
- Plant Community 2
- Plant Community 3
- Plant Community 4
- Plant Community 5

Native Plant:

- ▲ Common waterweed
- ★ Coontail
- ◆ Ribbon-leaf pondweed
- ▭ White-stemmed pondweed

Noxious Weed:

- ★ Brazilian Elodea
- ▲ Curly-leaf pondweed
- ▭ Eurasian watermilfoil
- Fragrant waterlily



0 350 700
Feet

King County (2019)

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Plant Community 1–Lower Sammamish River

In the Sammamish River survey area from 68th Avenue NE to the mouth of the river (Plant Community 1 in Figure 4), the plant community was densest within 20 feet of the shore on both sides of the river, with aquatic plants in this area reaching the water surface and thus having the potential to interfere with recreational activities. There was a sufficient open channel to allow for boat passage in the middle of the river, with no aquatic plants within several feet of the water surface. The lower Sammamish River was dominated by the noxious weeds Eurasian watermilfoil in the upper portion and curly-leaf pondweed in the lower portion, and the native plant common waterweed in part of the lower portion.

Plant Community 2–Mouth of Sammamish River

At the mouth of the Sammamish River (Plant Community 2 in Figure 4), curly-leaf pondweed and fragrant waterlily were densely vegetated and had a significant potential to interfere with recreational or commercial activities in this area. Shallow water depths in this area further impact motorboat navigation. Fragrant waterlily dominated the south portion, curly-leaf pondweed dominated the central channel portion, and Brazilian egeria dominated the north portion.

Plant Community 3–Lake Washington Marina Area

Offshore of North Lake Marina in Lake Washington (Plant Community 3 in Figure 4), the plant community was dominated by milfoil in the eastern portion and coontail in the western portion. Plant density was low and unlikely to cause interference with recreation.

Plant Community 4–East of Log Boom Park Dock

On the east side of the dock in Log Boom Park, the plant community was dominated by the native plants coontail and ribbon-leaf pondweed. The overall plant density was low and unlikely to cause interference with recreation.

Plant Community 5–West of Log Boom Park Dock

On the west side of the dock in Log Boom Park, the plant community was dominated by the native plants ribbon-leaf pondweed in the nearshore area and white-stemmed pondweed in the offshore area. The plant community was denser on the west side than the east side of the boat dock. Dense growth of white-stemmed pondweed grew within 1 foot of the water surface had the potential to interfere with recreational activities in this area.

AQUATIC PLANT CONTROL ALTERNATIVES UPDATE

The 2017 IAVMP provides a complete description of all Aquatic Plant Control Alternatives except the recently approved aquatic herbicide: ProcellaCOR™ with the common name florpyrauxifenbenzyl. In February 2018, the US Environmental Protection Agency (US EPA) certified registration of ProcellaCOR™ as a selective herbicide that can be used to treat hydrilla, watermilfoil, and crested floating heart. ProcellaCOR™ is approved for aquatic use and has been given a Reduced Risk status from the US EPA because of the reduced risk to human health and native plants in comparison to alternative herbicides.

Ecology issued a supplemental environmental impact statement in August 2017 that includes ProcellaCOR™ (TRC 2017) and Ecology approved its use in the modified Aquatic Noxious Weed Management General Permit effective on July 5, 2019 (Ecology 2019). If used, full precautions will be taken during applications in Kenmore to ensure that ProcellaCOR™ concentrations do not exceed the amounts at which hazards can arise by not exceeding amounts specified by US EPA on the product label. Permit applicants should take care to observe all permit conditions, including notifications and public notice. There are no timing restrictions for fish or other priority species for using ProcellaCOR™ in Lake Washington or the Sammamish River (Ecology 2019).

ProcellaCOR™ is a systemic, selective herbicide that is applied as a liquid directly into the water or sprayed onto emergent foliage of aquatic plants (TRC 2017). ProcellaCOR™ is quickly absorbed by aquatic vascular plants through shoots and leaves and should be applied during active growth periods of targeted plant species to be most effective. It is particularly effective for spot treatments in flowing waters and large water bodies because it has a short contact exposure time, which typically ranges from 12 to 24 hours and up to a maximum of 72 hours depending on application rate and target weed. There are no human exposure restrictions for recreational purposes, including swimming and fishing. Due to its low aquatic toxicity, high effectiveness on Eurasian watermilfoil, and high species-selectivity preventing harm to native plants, ProcellaCOR™ is recommended for spot treatment of Eurasian watermilfoil in Lake Washington and the Sammamish River within the city of Kenmore. ProcellaCOR™ is licensed to a limited number of applicators in the United States who have been trained in its use, and at this time is only available through one local treatment company, AquaTechnex.

Additional information on costs for submersed aquatic plant management were obtained for this update and are summarized in Table 2.

Table 2. Submersed Aquatic Plant Management 2020 Cost Estimate Update.						
Method	2016 IAVMP Unit Cost	2020 Areal Cost (\$/acre)	2020 Areal Rate (acres/day)	2020 Daily Rate (\$/day)	2020 Disposal Cost (\$/ton)	2020 Mobilization Cost (\$/day)
Manual Control						
Hand Harvesting ^a	NA	\$13,800	0.2 acres	\$2,760	\$160	\$75
Suction Dredging ^a	\$1,500-\$2,000/day	\$5,000-\$6,400	0.7 acres	\$3,500-\$4,500	\$160	\$350
Burlap Bottom Barrier ^a	\$0.75/sq. ft.	\$74,052 (\$1.70/sq. ft.)	0.15 acres	\$11,100	n/a	\$75
Mechanical Harvesting ^b	NA	\$3,780	1.0-1.5	\$5,670	\$160	\$2,700 (included)
Herbicide Treatment						
Triclopyr ^c	\$700/acre	\$	<40	NA	\$0	NA
Diquat ^c	\$500/acre	\$	<40	NA	\$0	NA
ProcellaCOR ^d	-	\$1,500	<40	NA	\$0	NA

^a 2020 costs based on estimates provided by Joe Markman, Lake Defense Force, personal communication , October 2020.

^b 2020 costs based on estimates provided by Kyle Steelhammer of Northwest Aquatic Management, personal communication, October 2020.

^c 2020 costs based on contractor bids to the City of Kenmore for 2018 and 2019 with 5 percent inflation rate.

^d 2020 costs based on estimates provided by Terry McNabb, Aquatechnex, personal communication, October 2020.

NA = Not applicable or available.

SELECTED ACTION STRATEGY AND IMPLEMENTATION

ACTION STRATEGY

After assessing the control scenarios, the Steering Committee prioritized a maintenance level of control for the target plants that meets IAVMP goals using an integrated approach. To achieve these goals, the following priority areas were determined by the 2017 IAVMP:

Lake Washington

- Log Boom Park Swimming and Boating
- Residential Area Swimming and Boating
- Marina Boating
- Kenmore Air Docking

Sammamish River

- Public and Residential Area Boating (including the WDFW boat launch and the river channel from the boat launch to the lake)
- Rhododendron Park
- Squire's Landing Park
- Class B Weed Control

The following plant management strategies were recommended to meet the goals of the IAVMP:

- Herbicide treatment of invasive nonnative submersed plants, nuisance native submersed plants, fragrant waterlily, and emergent loosestrife species in some or all areas.
- Bottom barriers in dock areas and in strategic navigation channels to create pathways for recreational vehicles to travel from docks to open water areas. Channels may be marked with buoys to identify the easiest route for travel from shoreline to open water.

- Hand-pulling and raking by residents. All fragments created by these efforts must be removed from the water to prevent the spread of plant species.
- No control of submersed plants or fragrant waterlily in Inglewood wetlands and other conservation areas unless there is further encroachment into navigation channels.

These IAVMP strategies have not changed for this update, besides the elimination of using harvesting for aquatic plant control in large public areas as described above. In addition, the City of Kenmore has added the following aquatic plant management strategies for this update to be implemented in 2021:

- Reduce the amount of herbicide application by focusing treatment on smaller, high use areas where aquatic plants grow close to the water surface and significantly impact motorboating by entanglement in boat propellers.
- Adaptively manage aquatic plants by adjusting herbicide application areas based on pre-treatment surveys of plant density and, if necessary, adjusting chemical formulations based on the changes in plant species composition.
- Use non-chemical methods of control where feasible and cost-effective.

IMPLEMENTATION

Permitting

The Development Services Department at the City of Kenmore is responsible for oversight of proposed development and permitting throughout the city of Kenmore. This includes regulating activities along the shoreline to ensure implementation of the Shoreline Management Act of 1971 (Washington State Legislature 2017), which recognizes that “the shorelines of the state are among the most valuable and fragile of its natural resources” and provides guidelines for permitted uses “designed and conducted in a manner to minimize, insofar as practical, any resultant damage to the ecology and environment of the shoreline area and any interference with the public’s use of the water” (RCW 90.58.020). See the 2017 IAVMP for a complete description of the permitting processes required for implementing aquatic plant control, with the following correction. Herbicide treatment does not fall under the Shoreline Management Act and a Shoreline Permit Exemption is not required. Herbicide treatment is covered by the Washington State Department of Ecology’s Aquatic Plant and Algae Management General Permit for management of native plants (Ecology 2019) or the Aquatic Invasive Species Management General Permit for treatment of noxious weeds (Ecology 2016). These permits establish notification, timing, application and reporting requirements for shoreline and in-water herbicide treatment of noxious weeds, native nuisance plants, and algae. The herbicide applicator obtains the appropriate General Permit.

Permitting requirements for manual control methods are specified by the Washington Department of Fish and Wildlife (WDFW) in the Aquatic Plants and Fish Pamphlet (WDFW 2015). All manual control methods implemented by a contractor in Lake Washington or the Sammamish River require an individual Hydraulic Project Approval (HPA) from the WDFW (WDFW 2020a). A permit application is completed through the online Aquatic Protection Permitting System (WDFW 2020b) and the application is issued or denied within 45 days. Manual control methods in Lake Washington and the Sammamish River are recommended to be implemented in the month of August (WDFW 2015).

City Projects

As described above, the City implemented the 2017 IAVMP in 2018 and 2019 by herbicide treatment of invasive nonnative submersed plants, nuisance native submersed plants, and fragrant waterlily in the following four of the eight priority areas: Log Boom Park, Rhododendron Park, Squires Landing Park, and the public boating area from the boat launch to the mouth of the Sammamish River. The City also treated these same plants in the Inglewood Wetlands in Lake Washington, which was designated as a conservation area by 2017 IAVMP and not targeted for treatment, however the area was treated because of the high prevalence of invasive plants. The City did not implement any of the physical control methods of harvesting, bottom barriers, or hand removal.

For future projects implemented by the City of Kenmore, the City will continue to regularly evaluate the management of aquatic weeds and the effectiveness of plant management strategies employed to date. The City will continue to hire contractors to do work in public areas, such as large herbicide treatments and manual control areas. The City will provide education and training to encourage residents to combine efforts in residential and commercial areas to manually remove aquatic plants or contract for herbicide treatment of noxious weeds.

The City plans to continue focusing future aquatic plant management efforts in the areas surrounding public parks for recreational and commercial uses. The City will focus most management efforts in areas around Log Boom Park and Squire's Landing Park because of the high public use and dense vegetation commonly present in these areas. The proposed management strategies for these and other public use areas are outlined below in order from east to west (see Figure 1), based on existing plant communities, feasible management methods, and results of recent herbicide treatments. Management strategies should be adjusted each year as needed based on current plant survey information and past performance.

Squire's Landing Park

The aquatic plant community at Squire's Landing Park is dominated by Eurasian watermilfoil that forms a dense surface canopy impacting active boating in the adjacent river. Chemical treatments are recommended in this area due to the dominance of invasive vegetation and the reduced level of effort in comparison to manual removal. The planned treatment area is shown in Figure 5.

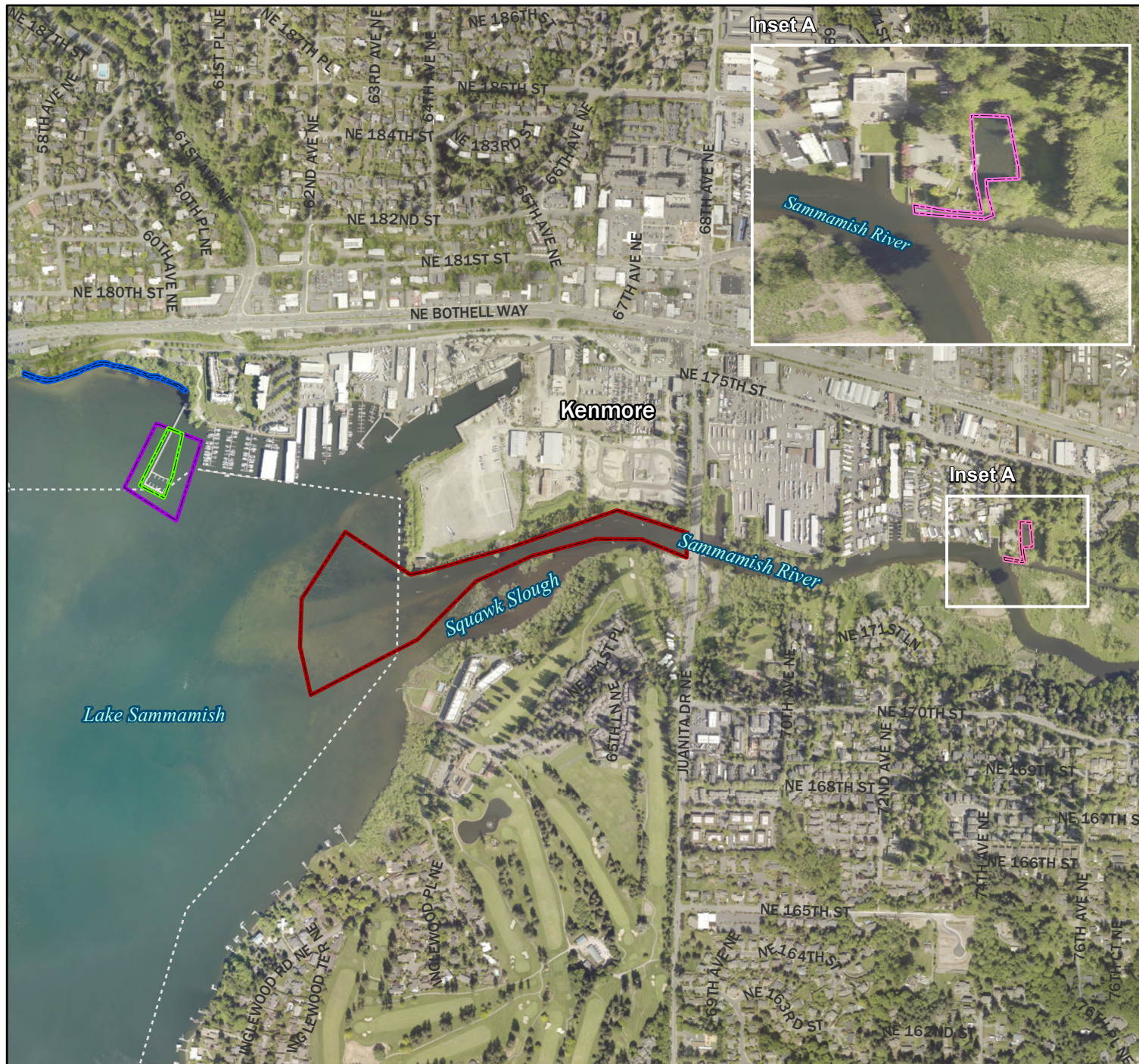


Figure 5. Future City of Kenmore Treatment Areas.

Legend

- City boundary
- Channel Survey Area
- City Treatment Areas
 - Beach Raking Area
 - Log Boom Park Pier - Inner
 - Log Boom Park Pier - Outer
- Squire's Landing
 - Chemical Treatment Area



King County 2019

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ProcellaCOR™ is recommended as the primary treatment method for this area due to its low aquatic toxicity, high effectiveness on Eurasian watermilfoil, rapid uptake by milfoil in flowing waters, and high species-selectivity preventing harm to native vegetation. ProcellaCOR™ does not require repeated applications, so one spring application per year in the chemical treatment area is anticipated to be sufficient for spot treatment of Eurasian watermilfoil (see Figure 5). Triclopyr may also be used in place of ProcellaCOR™ to control Eurasian watermilfoil in this area but is expected to be less effective. Figure 5 shows the planned treatment area, which will be adapted as needed each year based on the observed plant growth.

After the population of Eurasian watermilfoil is controlled in the chemical treatment area, the area will be monitored to determine whether follow up algae control is necessary. If excess algae growth develops (e.g., surface scum covering over 50 percent of the treatment area), short-term algae control may be achieved by applying a state-approved algicide. If algae control is needed beyond 2021, then long-term algae control techniques using non-chemical methods should be evaluated (e.g., mixing, shading, or nutrient inactivation).

Alternative manual management methods considered most feasible for this area include hand harvesting or suction dredging, which would be considerably more expensive than ProcellaCOR™ treatment.

Middle Sammamish River

This area of Sammamish River connects Squire's Landing Park with Lower Sammamish River (as shown in Figure 1) and provides the public access to and from these public areas. Treatment is not targeted for this area in 2021 and 2022 because the aquatic plant community, which is dominated by Eurasian watermilfoil, is dense along the river banks but not in the central portion of the river, providing unobstructed boat access to Lake Washington from Squire's Landing.

Lower Sammamish River (Including Rhododendron Park and WDFW Boat Launch)

Aquatic plant management in the Sammamish River at Rhododendron Park and the public boat launch is not targeted for treatment in 2021 and 2022 because the aquatic plant community, which is dominated by Eurasian watermilfoil, is dense along the river banks but not in the central portion of the river, providing unobstructed boat access to Lake Washington from the WDFW boat launch. However, navigation past the mouth of the Sammamish River was identified as a potential concern due to dense growth of curly-leaf pondweed and shallower water depths. Therefore, it is recommended that the lower river and adjacent lake area depicted as the Channel Survey Area in Figure 5 be surveyed each year to assess the potential need for treatment within all or some of this area. Sonar equipment should be used to measure plant biovolume and delineate areas where plants grow within 1 foot of the water surface and impact motorboat navigation. Depending on the plant communities observed during each survey, appropriate herbicides should be used for treatment targeting those specific communities. Herbicides are recommended rather than manual control methods because of the size of the

potential treatment area, which would render bottom barriers or mechanical harvesting cost-prohibitive due to excessive level of effort associated with these methods.

Inglewood Wetlands

The recommendation remains the same as it was presented in the 2017 IAVMP and the Inglewood Wetlands, identified as a conservation area, will not be targeted for treatment unless the fragrant water lilies further encroach upon the navigation channel and obstruct boat access from the river to the lake.

East and West Open Water

Moderate to dense growth of both native and invasive aquatic plant species are typically present in the East and West Open Areas of Lake Washington (see Figure 1). Management is not targeted for this area in 2021 and 2022 due to the large size of these areas and associated high management cost. If boat navigation in these areas is severely obstructed in the future, then the City should consider providing boating access lanes through the East Open Water Area from the Sammamish River to the deep portion of the lake and through the West Open Water Area from the dock in Log Boom Park to the deep portion of the lake.

Log Boom Park

The strategy for Log Boom Park in 2021 is to focus management of aquatic plants in the vicinity of the dock where motorboating is most impacted and to improve access by hand carried boats launched from shore on the east side of the dock.

Aquatic plant growth in the shallow waters near shore does not require management at this time. The aquatic plant community surrounding the public dock at Log Boom Park is dominated by the native plants coontail, white-stemmed pondweed, and ribbon-leaf pondweed, and include an abundance of the nonnative plant tapegrass. Noxious weed abundance was low in 2020 in the immediate vicinity of the dock, but an abundance of Eurasian watermilfoil has been observed and treated in this area in previous years.

Large amounts of aquatic plant fragments accumulate on the lake shore in Log Boom Park. The source of these fragments extends very far from shore and aquatic plant management in the vicinity of the shore would not significantly affect fragment accumulation on shore. Management of fragment accumulation on shore is best performed by raking and disposal (in compost) of the plant fragments to reduce aesthetic and recreational impacts of large accumulations on shore. Regular shoreline cleanup of aquatic vegetation and detritus is recommended to maintain safe access to the lake in Log Boom Park.

Costs, advantages, and disadvantages of manual management methods were for Log Boom Park are compared in Table 3 for the inner and outer pier areas shown in Figure 5.

Table 3. Comparison of Aquatic Plant Strategies for 2021 in Log Boom Park.

Method	Description	Annual Cost	Advantages	Disadvantages	Recommendation
Herbicide	Herbicide may be used to control both the native and invasive vegetation around the pier but would be adjusted based on pre-treatment survey results. Based on the current plant communities observed in this area, Diquat is the recommended herbicide to be applied once each year. Diquat is a broad-spectrum, short-term contact herbicide that does not kill plant roots.	\$900 for the 1.8-acre inner pier area \$2,600 for the entire 5.3-acre area	Cost is considerably lower than non-herbicide options. Application can cover large area quickly and often be completed in less than one day with contact advisories lasting less than 24 hours.	Requires permit from Ecology. Diquat can only be applied during fish timing window of July 16 through July 31, general negative perception of pesticides/herbicides due to potential impacts if not applied properly.	Yes, if full control of target weeds is desired using one strategy and budget is of concern. If used in conjunction with other strategies, less herbicide treatment would be needed.
Bottom Barrier	A bottom barrier would provide control of all target weeds observed in this area for at least one year and is expected to last two years on average, so the annual cost is based on two years of effectiveness.	\$67,000 for 1.8-acre the inner pier area Not applicable to entire 5.3-acre area	Effective for treatment of all aquatic weeds without use of herbicides or water quality impacts. Treatment can remain effective for more than one growing season. Biodegradable barriers do not require physical removal after use.	Requires individual HPA permit from WDFW. This strategy is a very expensive alternative compared to other treatment strategies and with a comparatively slow installation process that may potentially impact use of the pier.. Non-biodegradable barriers require removal after 2 years of use biodegradable barriers may lessen effectiveness over time. There is a risk of barriers becoming dislodged from anchors and impacting boating.	No, too expensive for large areas.
Shore Raking	Large amounts of aquatic plant fragments accumulate on the lake shore in Log Boom Park. Management of fragment accumulation on shore is best performed by raking and disposal (in compost) of the plant fragments to reduce aesthetic and recreational impacts of large accumulations on shore. Regular shoreline cleanup of aquatic vegetation and detritus (debris) is recommended to maintain safe access to the lake in Log Boom Park. This work would most likely be conducted by City staff.	\$10,000	This strategy does not require use of herbicides or other intrusive weed control methods. Provides aesthetically pleasing shoreline in park area.	This is primarily a 'cosmetic' strategy and does not prevent or control the growth or spread of weeds.	Yes
Hand Removal by Divers	A team of divers, with 2-person surface support team, hand remove weeds from the target area. Weeds are collected and disposed of appropriately. Divers can cover approximately 0.2 acres per day. Expected to last two years with root removal.	\$13,000 for 1.8-acre inner pier area \$38,000 for the 5.3-acre entire area	This strategy does not require use of herbicides. All target weeds can be managed using this strategy. Can include removal of all invasive plant parts but selective removal of native plant shoots without roots to favor native plant growth.	Requires individual HPA permit from WDFW. This strategy is a very expensive alternative compared to other treatment strategies. This process is also much slower than other options and may take up to 25 working days to complete treatment of the complete area (9 days directly adjacent to pier), which may potentially impact use of the pier. In addition, some of the dominant species observed in this area have extensive root systems that would slow and limit long-term effectiveness of removal.	No, suction dredging is a less costly and more effective alternative strategy for this large area covered by native and invasive plants.
Suction Dredging by Divers	One diver, with 2-person surface support team, conduct suction dredging along the bottom of the target area. Weeds are collected and disposed of appropriately. Divers can cover approximately 0.7 acres per day. Expected to last two years with root removal.	\$6,000 for 1.8-acre inner pier area \$16,500 for the entire 5.3-acre area	This strategy does not require use of herbicides. All target weeds can be managed using this strategy. Expected to last two years with root removal.	Requires individual HPA permit from WDFW. This strategy is an expensive alternative compared to other treatment strategies. This process is slower than other options and may take up to 8 working days to complete treatment of the complete area (2.5 days directly adjacent to pier), which may potentially impact use of the pier.	Yes, this appears to be a financially viable non-chemical strategy if greater control than harvesting is desired. Implementation does take several days so consideration of pier use impacts, similar to hand harvesting and bottom barriers, should be considered.
Mechanical Harvesting	An aquatic plant harvester consists of a pontoon boat with paddle wheels and is equipped with a 5-foot deep (or 8-foot deep on some models) cutting head that conveys the cut plants onto the boat. The collected weeds are conveyed to a trailer for disposal, preferably at a compost facility. Harvesting rates range from 1 to 4 acres per day depending on transport distance, wind, underwater obstructions, and plant biomass. Expected to require two cuts per season (e.g., late June and early August) due to plant regrowth of about 0.5 feet per week.	\$13,700 for 1.8-acre inner pier area \$40,000 for the entire 5.3-acre area	This strategy does not require use of herbicides. All target weeds can be managed using this strategy. Faster rate than other non-chemical methods. Less fish habitat impact than other non-chemical strategies because not all plants are removed.	Requires individual HPA permit from WDFW. Strong onshore winds may delay or reduce effectiveness of weed removal due to navigation and visibility issues. May increase accumulation of plant fragments on shore.	No, suction dredging is a less costly and more effective alternative strategy for this large area covered by native and invasive plants.

Diver suction dredging is recommended for non-chemical, manual control of aquatic plants in Log Boom Park because it is the least expensive of the manual methods. Diver suction dredging is less expensive than hand removal and both of these methods have the advantage of allowing differential control of invasive and native species. Divers adjust the suction dredge to deter regrowth of invasive plants by removing all of their roots while encouraging regrowth of native plants by not removing their roots. Bottom barriers cover all plants and allow faster colonization by invasive plants on the barrier, and harvesting leaves lower portions of invasive plants to outgrow the native plants.

Suction dredging should be initiated in early summer before plant growth reaches the water surface. It is anticipated that suction dredging will provide adequate control of plant growth for two years because invasive plant roots will be removed. Suction dredging intensity and rate should vary depending on the plant species and observed density. Suction dredging requires an individual HPA permit and use of proper equipment to control fragment escapement and turbidity impacts.

Herbicide application would be less expensive and may be used as a contingency to suction dredging if greater coverage is needed or adequate funding is not available. Diquat may be used to control both the native and invasive vegetation around the dock as an alternative to bottom barriers. Diquat application would be a lower level of effort and cost for the City to control vegetation in this area. The actual treatment area may vary based on the pre-treatment survey results. Diquat can only be applied within the approved fish window for Lake Washington that extends from July 16 through July 31 for protection of sockeye salmon spawning (WDFW 2016). It is anticipated that only one treatment in the last two weeks of July would be needed each year.

Commercial and Residential Projects

No commercial management efforts were reported since the 2017 IAVMP at the North Lake Marina. Kenmore Air reported annual treatments that were successful; however, ongoing navigation issues were caused by plant drift resulting from inconsistent treatment in adjacent areas. The US Army Corps of Engineers will be conducting maintenance dredging of the Kenmore Federal Navigation Channel in the winter of 2020 to 2021 (Figure 5). This maintenance dredging is intended to enable continued access to the Kenmore Industrial Park but will also disturb the Eurasian watermilfoil and coontail in this area, inhibiting plant growth. Commercial treatment is determined by individual businesses independently from the City.

The only residential project using herbicides was for Arrowhead Point where Triclopyr was used for Eurasian watermilfoil control and Diquat was used for Brazilian Egeria and nuisance native submersed plant control. Treatment undertaken in residential areas is determined by individual sponsors (homeowners associations, etc.) independently from the City.

Residents have also used a weed razor to control aquatic plant growth near docks.

The City recommended in the 2017 IAVMP that waterfront residents consider the formation of a Plant Management Association. This type of volunteer organization, formed by, run by, and for the benefit of, waterfront residents could provide an opportunity for residents to pool their resources and/or work in tandem with one another to employ approved management strategies such as jointly contracting with an herbicide-application company or harvester, manual removal of plants, installation of bottom barriers, and other management strategies outlined in this plan. A residential community organization has not been formed and is not planned for the near future.

Communication

Successful implementation of this plan revolves around a collective sharing of information. The City of Kenmore will continue to work to solicit public input after publication of this IAVMP update, and keep residents and businesses informed of current and future plant management strategies planned for public areas. The City will make plans for aquatic plant management activities publicly available at the beginning of each treatment season so that residents may coordinate with City efforts to promote efficiency and thorough treatment of aquatic plants in targeted areas. The City will also publish survey results after the summer season so that stakeholders may be informed of completed maintenance activities.

The City will make reporting requirements consistent and clear in Requests for Proposals from year to year to create a usable record of past treatments. The requirements for monitoring and evaluation are further detailed in the Monitoring and Evaluation Plan section of this update. The treatment plans and reports will be made available on the City's IAVMP webpage <<http://www.kenmorewa.gov/IAVMP>>, which already has useful links for permits and other information.

The City will encourage residents to report their aquatic plant management activities and the relative effectiveness of those activities to the City. The City will share this information with other stakeholders to improve effectiveness of City, commercial, and residential aquatic plant management projects.

In addition, the City of Kenmore will continue to reach out to upstream jurisdictions to orchestrate joint plant management strategies. Conversations with upstream jurisdictions to date have garnered interest in continuing to stay in communication about the management of aquatic weeds in north Lake Washington and the Sammamish River as a whole.

MONITORING AND EVALUATION PLAN

Several different aquatic plant control-related monitoring and evaluation needs are identified for the City of Kenmore, including aquatic plant surveys and evaluation of aquatic plant management activities. These survey and evaluation activities are described below.

AQUATIC PLANT SURVEYS

Ongoing surveys and mapping will be necessary to evaluate the effectiveness of treatment strategies, to inform future treatments, and to detect new infestations of invasive plants. In response to the planned treatments, the aquatic plant community in the city of Kenmore may be in flux. It is critical that frequent and thorough surveys continue to document these changes and to detect new problems.

Subject to funding availability, a GPS/GIS survey and mapping effort is recommended to be performed by a contractor as a regular component of the long-term surveillance and management program. This survey effort will identify all plant species present in public areas of the lake and river and their relative abundance at each location. The survey map will include past management areas for comparison to plant densities observed in previous surveys and assessment of management effectiveness. These plant surveys will also help provide guidance for aquatic plant management in future years.

EVALUATION

Also subject to funding and staffing resources, a complete evaluation, including a plant management report, should be completed annually. This report would describe which elements of the management plan have been implemented and how (i.e., which mechanisms for control or removal and where), relate the existing plant community to established goals based on pre- and post-treatment surveys, and make recommendations for the next year's activities based on success or failure of management efforts and identified needs.

This evaluation should begin with a description of which elements of the plan have been fully implemented, those that have not, and why. It should also include a summary of the plant survey results, both those obtained by volunteers and those by professionals. The evaluations should also provide a map of all management areas for each year. The survey results should be used to determine whether goals have been met. The community should also be asked for input on their satisfaction with aquatic plant and water body conditions. It is possible that the IAVMP goals will be met but that some people will remain dissatisfied. The evaluation should be posted publicly after each maintenance season to provide a resource for the public to stay updated on City management efforts.

Although it is unlikely that the needs of all stakeholders will be met (and it is possible that the IAVMP goals will be met but that some people will remain dissatisfied), a continued effort should be made to track concerns, especially if they are widespread. This information should be used to decide on the following:

- Has there been a quantifiable increase or decrease in the amount of nuisance plants in the lake?
- Have any other noxious aquatic plants been identified?
- Has there been a change in the occurrence and frequency of algae?
- What control methods work best and should other control methods (newly approved herbicides, for example) be considered?
- Is it necessary to revise the plan?
- Is funding adequate for the control measures in place?

Over the long term, adequate evaluations can make the difference between project success and failure, and the City of Kenmore will continue to regularly monitor and evaluate the effectiveness of the various management strategies that have been employed. In addition, as noted earlier, potential new herbicides, management strategies, and tools will be considered as they become available.

REFERENCES

- Ecology. 2016. Aquatic Invasive Species Management General Permit, National Pollutant Discharge Elimination System and State Waste Discharge General Permit. Washington Department of Ecology, Olympia, Washington. Effective September 16, 2016. Expires September 15, 2021. <<https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Aquatic-pesticide-permits/Aquatic-invasive-species-management>>.
- Ecology. 2019. Aquatic Plant and Algae Management General Permit, National Pollutant Discharge Elimination System and State Waste Discharge General Permit. Washington Department of Ecology, Olympia, Washington. Modified June 5, 2019. Effective July 5, 2019. Expires February 2, 2022. <<https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Aquatic-pesticide-permits/Aquatic-plant-algae-management>>.
- Herrera. 2017. Lake Washington and the Sammamish River Within the City of Kenmore, Washington, Integrated Aquatic Vegetation Management Plan. Prepared for the City of Kenmore by Herrera Environmental Consultants, Inc., Seattle, Washington. June.
- Lakeland Restoration Services. 2018. EWM & Brazilian Elodea Treatment Map. City of Kenmore – Lake Washington and Sammamish River. Prepared for the City of Kenmore. July.
- NAE. 2019. City of Kenmore 2019 Aquatic Macrophyte Control Program. Prepared for the City of Kenmore by Northwest Aquatic Ecosystems.
- Olden and Tamayo. 2014. Incentivizing the Public to Support Invasive Species Management: Eurasian Milfoil Reduces Lakefront Property Values. PLoS ONE 9(10): e110458. doi:10.1371/journal.pone.0110458. <<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0110458>>.
- TRC. 2017. FINAL Supplemental Environmental Impact Statement for State of Washington Aquatic Plant and Algae Management. Prepared for the Washington Department of Ecology by TRC Environmental, Seattle, Washington. Publication 17-10-020. SEPA No. 201704291. August 14. <<https://fortress.wa.gov/ecy/publications/documents/1710020.pdf>>.
- Washington State Legislature. 2017. Chapter 90.58 RCW, Shoreline Management Act of 1971. Washington State Legislature, Olympia, Washington. <<http://app.leg.wa.gov/RCW/default.aspx?cite=90.58>>.
- WDFW. 2015. Aquatic Plants and Fish: Rules for Aquatic Plant Removal and Control (2015). Washington State Department of Fish and Wildlife, Olympia, Washington. Second Edition. July 2015. <<https://wdfw.wa.gov/sites/default/files/publications/01728/wdfw01728.pdf>>.

WDFW. 2016. Recommended Fish and Wildlife Treatment Windows for Aquatic Plant and Algae Management. Washington State Department of Fish and Wildlife, Olympia, Washington. February. <<https://ecology.wa.gov/DOE/files/fa/fa8057b6-6ffb-4191-9170-e5cb31f05331.pdf>>.

WDFW. 2020b. Aquatic Protection Permitting System. Washington State Department of Fish and Wildlife, Olympia, Washington. Website accessed in October 2020.
<https://www.govonlineaas.com/WA/WDFW/Public/Client/WA_WDFW/Shared/Pages/Main/Login.aspx>.

APPENDIX A

2018 Treatment Report



Lakeland Restoration Services, LLC
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Phone: (877) 273-6674
www.lakelandrs.com

City of Kenmore Lake Washington & Sammamish River Herbicide Treatment 2018

Lakeland Restoration Services, LLC (LRS) performed two aquatic herbicide treatments on Lake Washington and the Sammamish River Channel for the City of Kenmore in 2018. The first application was completed on June 4th to control Eurasian watermilfoil and fragrant water lily. The second treatment, targeting Eurasian watermilfoil and Brazilian Elodea, occurred on July 16th. Additionally, 2.8 acres were treated for Inglewood Condos on June 4th and a total 5 acres were treated for homeowners, including Inglewood Condos, on July 16th.

Pre-treatment and post-treatment surveys were completed for both applications. BioBase analysis was also conducted before and after each treatment. *(Survey and BioBase maps attached, please see Appendix A.)* Survey maps indicating individual plants were created and sent to Richard Sawyer and Janet Quinn.

One herbicide, Triclopyr, was used during the first treatment on June 4th. One-hundred and eighty (180) gallons of Triclopyr were applied to 30.8 acres of EWM and fragrant water lily. The second application incorporated a combination of three herbicides: Diquat, Hydrothol and Aquathol. Thirty-five (35) gallons of each herbicide was applied to 35 acres. *(Treatment maps attached, please see Appendix A.)*

Business and Residential Notices were provided to Richard Sawyer and Janet Quinn for approval and were mailed on May 21st, 2018 for the first treatment and July 3rd, 2018 for the second treatment. *(Attached please see Appendix B.)*

Shoreline notifications were provided to Richard Sawyer and Janet Quinn for approval and were posted in and near treatment areas. Notifications were left in place for 48 hours. *(Attached please see Appendix C.)*

Pre and post treatment notifications were sent to Washington State Department of Ecology. *(Attached please see Appendix D.)*

The following personnel were present for this project:
David L. Kluttz – License #66448 – Applicator/Airboat Pilot

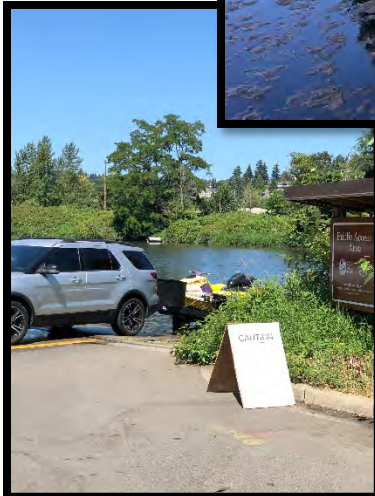
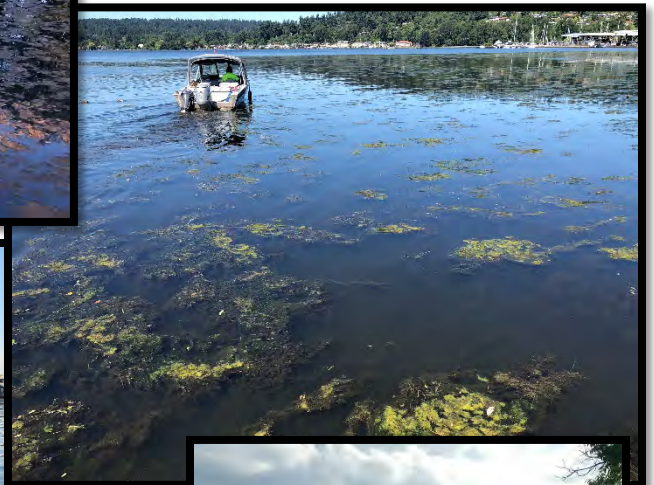
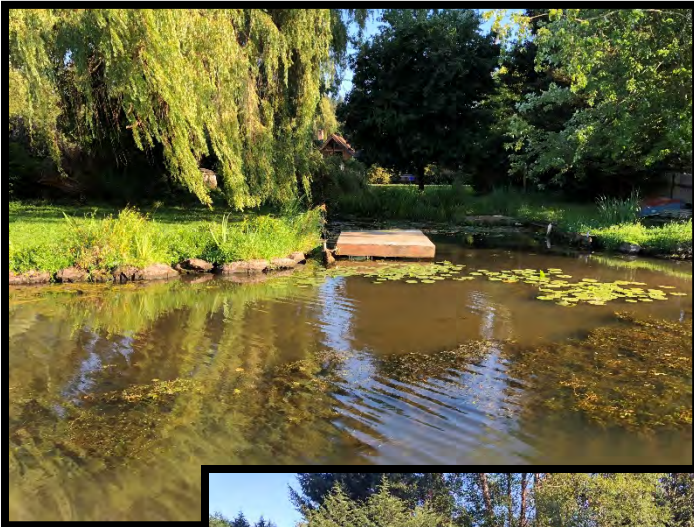
Jim Pogue –License #90277 – Applicator
Roy Moore – Mixer/Loader Cert. – Mixer/Loader

Site specific safety plans used during each treatment are included in Appendix E. A WSDA Pesticide Application Record was completed for each treatment and will be kept on file for seven years as required by the WSDA. *(Copies included please see Appendix F.)*

June 4, 2018



July 16, 2018

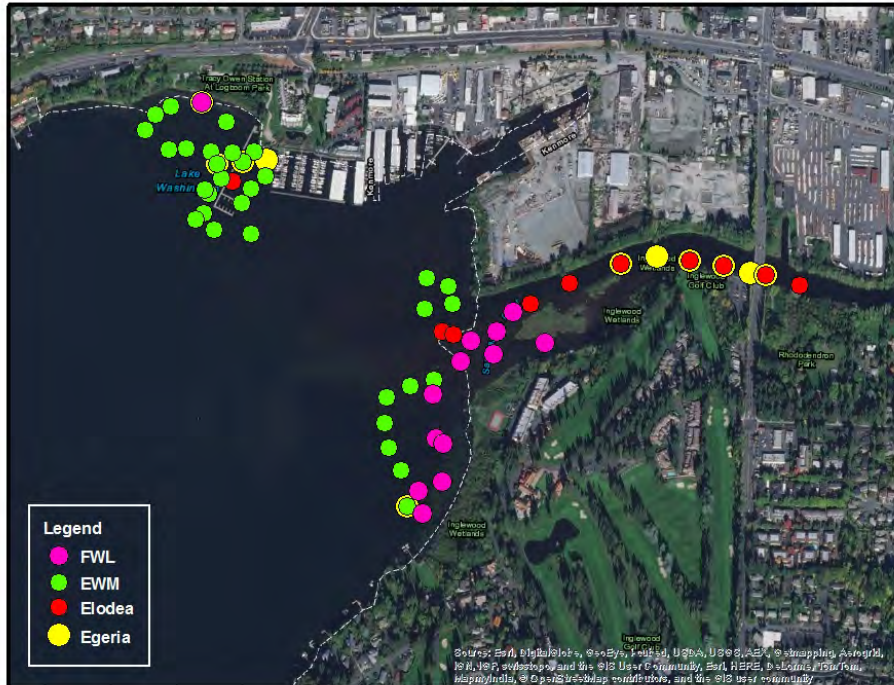


Appendix A

Maps



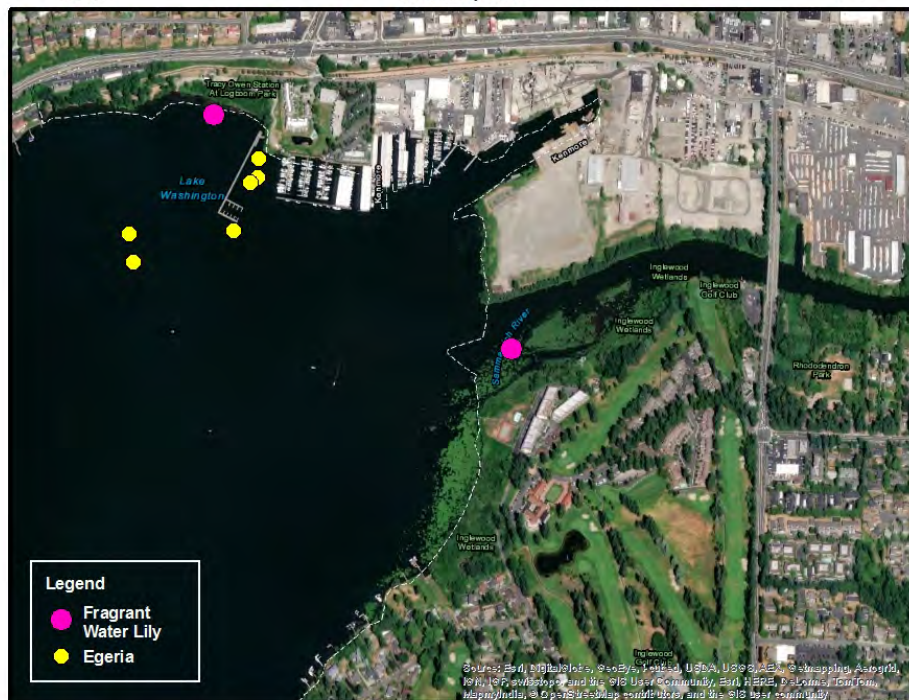
City of Kenmore - Lake Washington & Sammamish River
Aquatic Plant Survey
June 3, 2018



Lakeland Restoration Services Map Disclaimer
No warranty is made by Lakeland Restoration Services as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data was compiled from various sources.



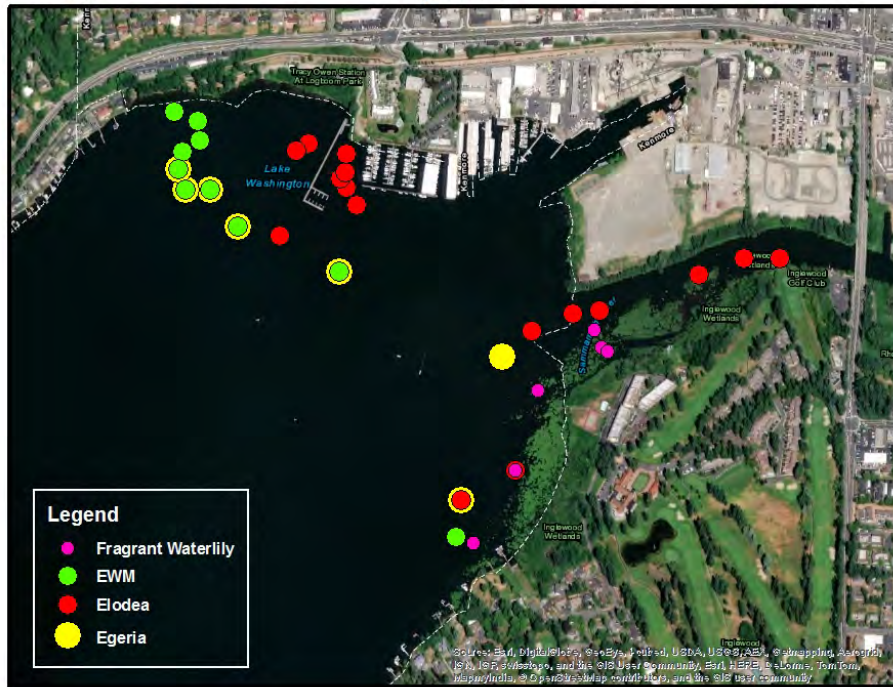
City of Kenmore - Lake Washington & Sammamish River
Aquatic Plant Survey
June 26, 2018



Lakeland Restoration Services Map Disclaimer
No warranty is made by Lakeland Restoration Services as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data was compiled from various sources.



City of Kenmore - Lake Washington & Sammamish River
Aquatic Plant Survey
July 15, 2018

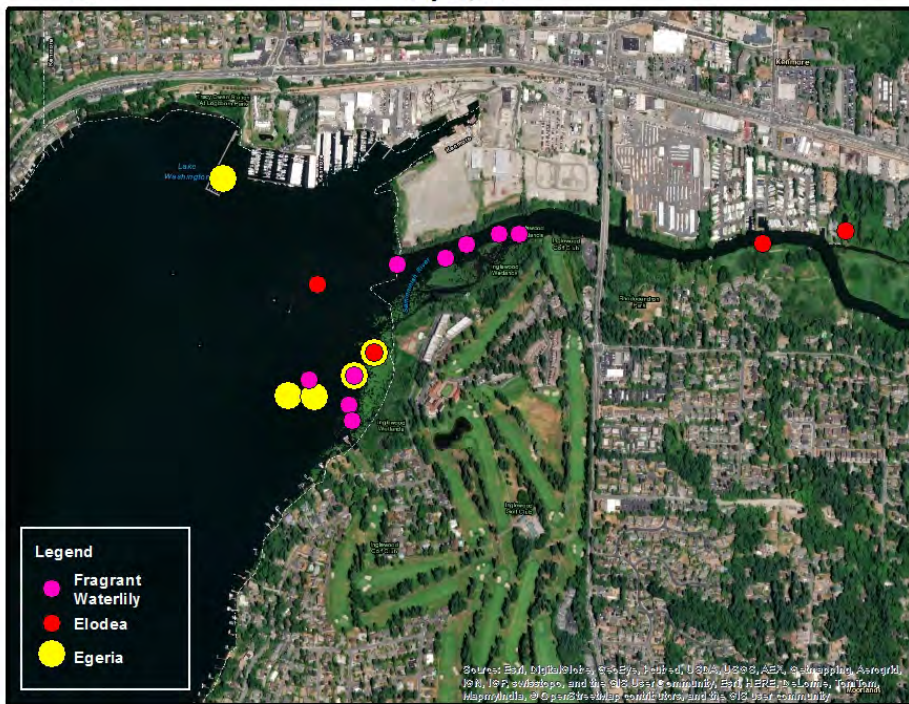


Lakeland Restoration Services Map Disclaimer
No warranty is made by Lakeland Restoration Services as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data was compiled from various sources.

0 500 1,000 2,000
Feet



City of Kenmore - Lake Washington & Sammamish River
Post Treatment Survey
July 31, 2018

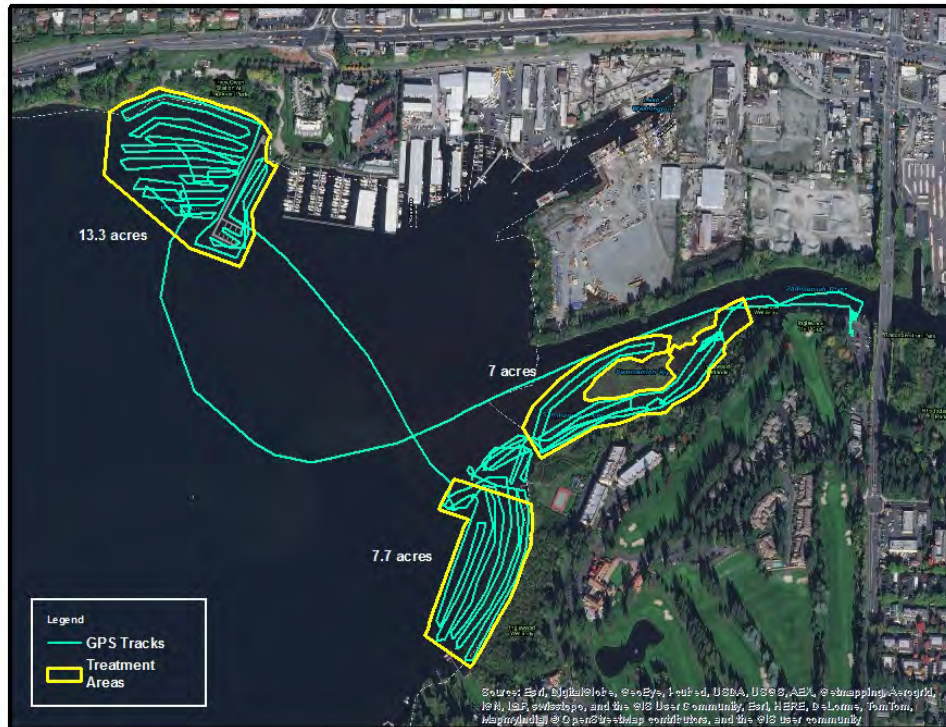


Lakeland Restoration Services Map Disclaimer
No warranty is made by Lakeland Restoration Services as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data was compiled from various sources.

0 750 1,500 3,000
Feet



City of Kenmore - Lake Washington & Sammamish River
EWM & Fragrant Water Lily Treatment
June 4, 2018



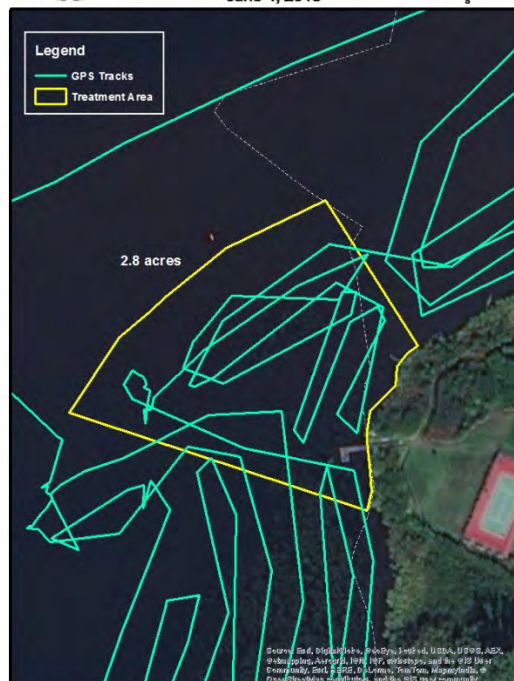
Lakeland Restoration Services Map Disclaimer
No warranty is made by Lakeland Restoration Services as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data was compiled from various sources.

28 acres total

0 300 600 1,200 Feet

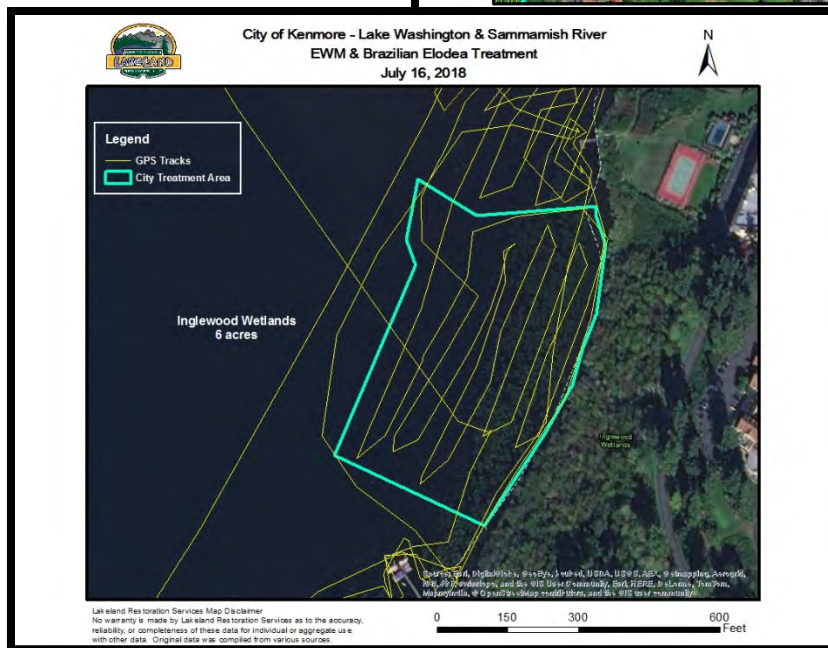
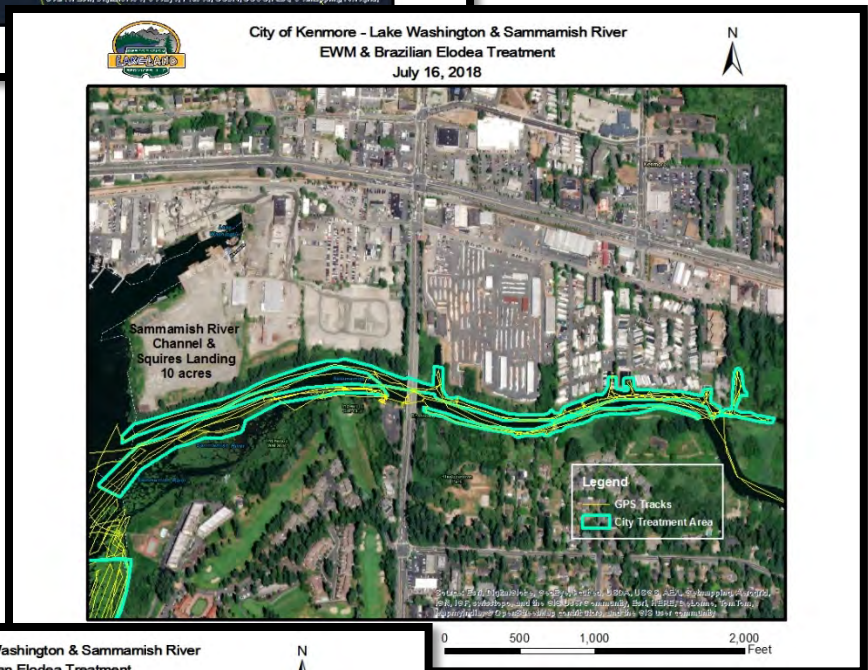
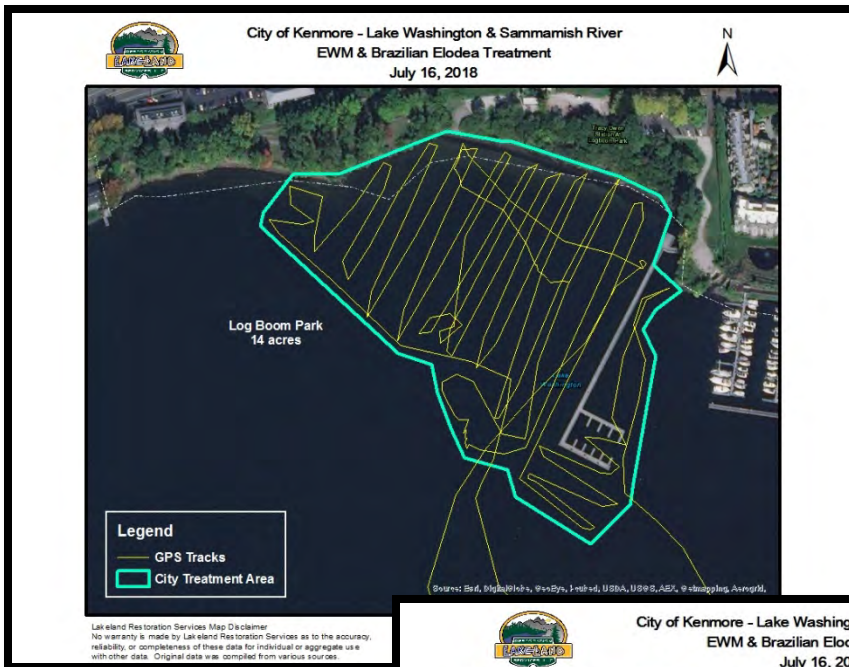


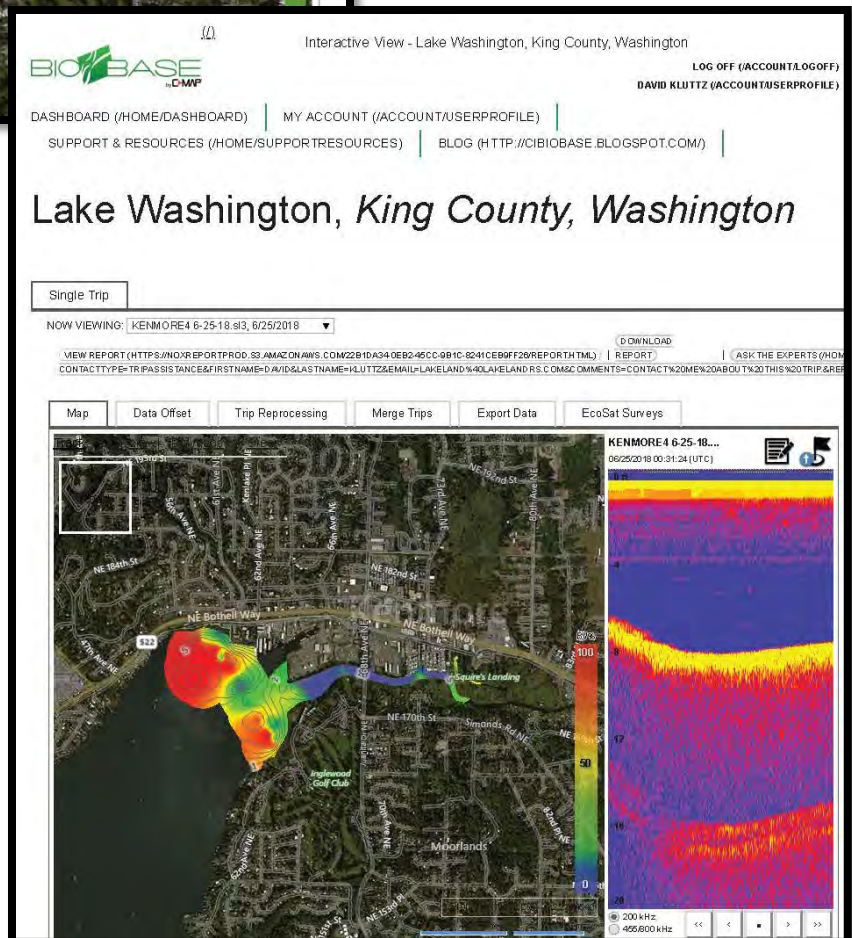
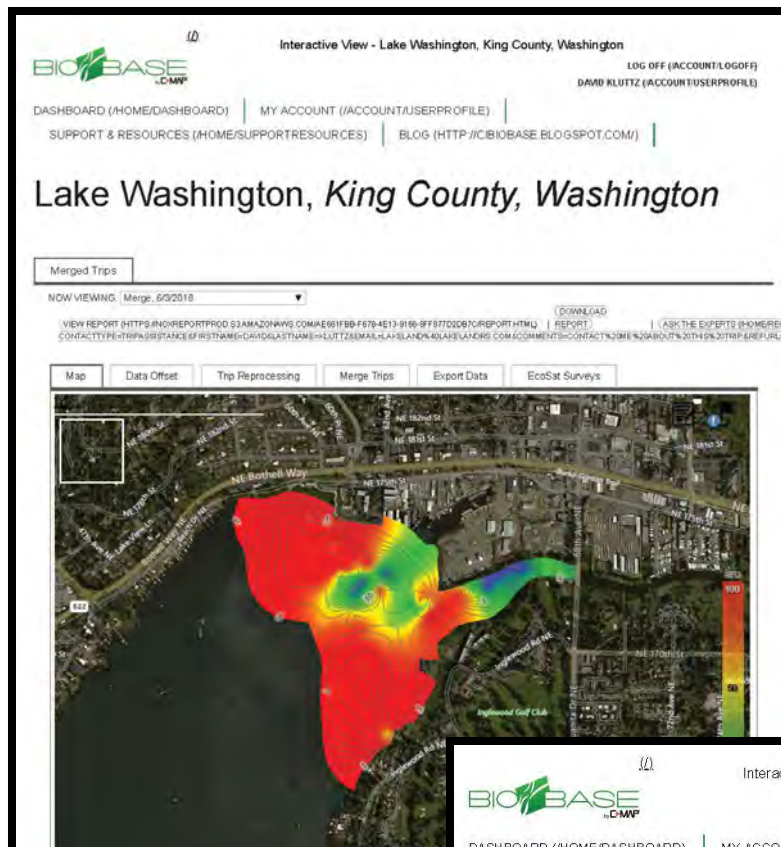
Inglewood Shores HOA
Lake Washington
June 4, 2018



Lakeland Restoration Services Map Disclaimer
No warranty is made by Lakeland Restoration Services as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data was compiled from various sources.

0 50 100 200 Feet





Appendix B

Business and Residential Notifications



Like us on Facebook
www.facebook.com/lakelandrs

Lakeland Restoration Services, LLC
78 E River Spur Rd, Priest River, ID 83856
Phone: (877) 273-6674
www.lakelandrs.com

May 21, 2018

To: Property Owners/Residents/Business Owners

The City of Kenmore has contracted Lakeland Restoration Services to treat the north-shore of Lake Washington in Kenmore and certain parts of the Sammamish River with herbicides to control Eurasian watermilfoil, Brazilian Elodea and other aquatic nuisance plants. Treatment will occur on June 4th and 5th, 2018. Certain areas are being treated for the City of Kenmore. These areas include: Log Boom Park, Rhododendron Park, Squires Landing Park, Inglewood Wetlands, and the Sammamish River Channel. Lakeland is also offering aquatic plant treatment to homeowners who are in the permitted area. A sign up form will be enclosed with this application if you are in the permitted area. If you would like to sign up for treatment, please fill it out and mail it back to us with payment before May 28th. The permitting process and notification system of the State of Washington is being followed with the enclosed notification.

In order to help prevent fragmentation, please DO NOT cut, rake or hand-pull plants prior to treatment.

Products planned for aquatic use: Diquat, Hydrothol® 191, and Triclopyr

The following precautions are to be followed, especially for those that may be sensitive to herbicides: (if water restrictions apply to you, your dock/shoreline will be posted with a sign listing restrictions no more than 48 hours prior to treatment)

Swimming Restrictions: It has been advised that no swimming occur within the treated areas during or for 24 hours following treatment.

Drinking Water Restrictions: Do not use water from treatment area until Triclopyr is non detectable.

Irrigation Restrictions Turf and Landscape Ornamentals: Do not use water from treatment area for 3 days.

Irrigation Restrictions Food Crops and Production Ornamentals: Do not use water from treatment area until Triclopyr is non detectable.

Stock Water Restrictions: Do not use water from treatment area for 1 day.

There is NO restriction for fishing or other recreational activities.

Details of treatment time and the end of use restrictions will be announced at (877) 273-6674 or www.lakelandrs.com. To access information from the website on this project, go to the bulletin board, click projects, then click City of Kenmore. This application will involve the use of airboats. Please remove items from docks such as lawn chairs, flower pots, personal/recreational flotation devices, etc.

Herbicide Treatment Business and Residential Notice

In Treatment Area ☐ In ¼ Mile Notification Area ☒

Distribution Date: May 21, 2018

Specific sites on Lake Washington and the Sammamish River will be treated with aquatic herbicides on **June 4th and 5th, 2018.**

Products planned for aquatic use: Diquat, Hydrothol, and Triclopyr

Active ingredient(s): (Diquat dibromide [6,7-dihydrodipyrido (1,2-a:2'1'-c) pyrazinediium dibromide]), (Hydrothol [Mono(N,N-dimethylalkylamine) salt of endothall]), (Triclopyr[3,5,6-trichloro-2-pyridinyloxyacetic acid, triethylamine salt])

Plants/Algae targeted: Eurasian watermilfoil, Brazilian Elodea and other aquatic nuisance plants to improve water quality in Lake Washington and the Sammamish River

Location of Treatments: Log Boom Park, Rhododendron Park, Squires Landing Park, Inglewood Wetlands, and the Sammamish River Channel

The applicator will post signs in the treated and potentially affected areas no more than 48 hours prior to treatment. The signs will describe any water use restrictions or advisories.

If you are withdrawing water for potable or domestic water use, livestock watering, or irrigation, and have no alternate water source, please contact Lakeland Restoration Services at **877-273-6674** or **lakeland@lakelandrs.com** to arrange an alternate water supply.

If you want additional notification prior to treatment, or have further questions, please contact me using the information above.

This herbicide treatment is regulated under a permit issued by the Washington State Department of Ecology; Permit No. WAG994293.

Scan with QR reader to go to permit web page





Like us on Facebook
www.facebook.com/lakelandrs



Lakeland Restoration Services, LLC

78 E River Spur, Priest River, ID 83856

Phone: (877) 273-6674

www.lakelandrs.com

July 3, 2018

To: Property Owners/Residents/Business Owners

The City of Kenmore has contracted Lakeland Restoration Services to treat the north-shore of Lake Washington in Kenmore and certain parts of the Sammamish River with herbicides to control Eurasian watermilfoil, Brazilian Elodea and other aquatic nuisance plants. **Treatment will occur on July 16th, 2018. Certain areas are being treated for the City of Kenmore.** Additionally, Lakeland is offering aquatic plant control to residents in the permitted area. The permitting process and notification system of the State of Washington is being followed with the enclosed notification.

In order to help prevent fragmentation, please DO NOT cut, rake or hand-pull plants prior to treatment.

Products planned for aquatic use: Diquat, Hydrothol® 191, Aquathol and Glyphosate

The following precautions are to be followed, especially for those that may be sensitive to herbicides: (if water restrictions apply to you, your dock/shoreline will be posted with a sign listing restrictions no more than 48 hours prior to treatment)

Swimming Restrictions: It has been advised that no swimming occur within the treated areas during or for 24 hours following treatment.

Drinking Water Restrictions: Do not use water from treatment area until an approved assay result is below 0.1ppm of Hydrothol and Aquathol.

Irrigation Restrictions Turf and Landscape Ornamentals: Do not use water from treatment area for 3 days.

Irrigation Restrictions Food Crops and Production Ornamentals: Do not use water from treatment area for 5 days.

Stock Water Restrictions: Do not use water from treatment area for 1 day.

There is NO restriction for fishing or other recreational activities.

Details of treatment time and the end of use restrictions will be announced at (877) 273-6674 or www.lakelandrs.com. To access information from the website on this project, go to the home page, hover over projects, 2018, then click City of Kenmore. **This application will involve the use of airboats. Please remove items from docks such as lawn chairs, flower pots, personal/recreational flotation devices, etc.**

Sincerely,

Dave Kluttz, Managing Member

Herbicide Treatment Business and Residential Notice

In Treatment Area ☐

In ¼ Mile Notification Area ☒

Distribution Date: July 3, 2018

Specific sites on Lake Washington and the Sammamish River will be treated with aquatic herbicides on **July 16th, 2018.**

Products planned for aquatic use: Diquat, Hydrothol® 191, Aquathol and Glyphosate

Active ingredients: (Diquat dibromide [6,7-dihydrodipyrido (1,2-a:2'1'-c) pyrazinediium dibromide]), (Hydrothol [Mono(N,N-dimethylalkylamine) salt of endothall]), (Aquathol [Dipotassium salt of endothall]), (Glyphosate, N-(phosphonomethyl)glycine, in the form of its isopropylamine salt)

Plants/Algae targeted: Eurasian watermilfoil, Brazilian Elodea and other aquatic nuisance plants to improve water quality in Lake Washington and the Sammamish River

Location of Treatments: Specific sites on the north part of Lake Washington and the Sammamish River in Kenmore, WA

The applicator will post signs in the treated and potentially affected areas no more than 48 hours prior to treatment. The signs will describe any water use restrictions or advisories.

If you are withdrawing water for potable or domestic water use, livestock watering, or irrigation, and have no alternate water source, please contact Lakeland Restoration Services at **877-273-6674** or **lakeland@lakelandrs.com** to arrange an alternate water supply.

If you want additional notification prior to treatment, or have further questions, please contact me using the information above.

This herbicide treatment is regulated under a permit issued by the Washington State Department of Ecology; Permit No. WAG994293.

Scan with QR reader to go to permit web page



Appendix C

Shoreline Posting Notifications

CAUTION

Herbicide application to water will occur on June 4-5, 2018.

Triclopyr will be applied under permit to these waters to control ☒ aquatic or ☐ shoreline vegetation.

Ecology recommends no swimming in the sign-posted area for 24 hours following treatment due to possible eye irritation.

Drinking Water Restrictions: Do not use water from treatment area until the level of Triclopyr is determined to be less than or equal to 0.4 ppm.

Irrigation Restrictions Turf: No restrictions

Irrigation Restrictions Food Crops, Landscape Ornamentals and Production Ornamentals: Do not use water from treatment area until Triclopyr is non-detectable.

Stock Water Restrictions: No restrictions

Fishing Restrictions: No restrictions

For more information contact the applicator: Lakeland Restoration Services

Phone number: (877) 273-6674

Or the Department of Ecology at (360) 407-6600

THIS SIGN MUST REMAIN IN PLACE UNTIL 2 DAYS AFTER APPLICATION.

Scan with QR reader to go to permit web page



CAUTION

Herbicide application to water will occur on July 16 or 17, 2018.

Diquat, Aquathol, Hydrothol and Glyphosate will be applied under permit to these waters to control ☒ aquatic or ☐ shoreline vegetation.

Swimming Restrictions: It has been advised that no swimming occur within the treated area(s) during or for 24 hours following treatment.

Drinking Water Restrictions: Do not use water from treatment area until an approved assay result is below 0.1ppm of Hydrothol and Aquathol.

Irrigation Restrictions Turf and Landscape Ornamentals: Do not use water from treatment area for 3 days.

Irrigation Restrictions Food Crops and Production Ornamentals: Do not use water from treatment area for 5 days.

Livestock/Domestic Animal Consumption Restrictions: Do not use water from treatment area for 1 day.

There is NO restriction for fishing or other recreational activities.

For more information contact the applicator: Lakeland Restoration Services

Phone number: (877) 273-6674

This application is regulated by Department of Ecology: Phone (360) 407-6600

THIS SIGN MUST REMAIN IN PLACE UNTIL 2 DAYS AFTER APPLICATION.

This herbicide treatment is regulated under a permit issued by the Washington State Department of Ecology; Permit No WAG994293.

Appendix D

Pre/Post Treatment Notifications to Ecology

APPENDIX B – ECOLOGY NOTIFICATION TEMPLATE

See Special Condition S5.A for instructions on providing notification to Ecology.

Email Form

Email to: apamprepostreat@ecy.wa.gov

From: **Permittee or Applicator: (name)** Lakeland Restoration Services, LLC

Cell Phone No: (contact number for the applicator) 208-597-6601

Pre-Treatment Notification

Week of Treatment: June 4, 2018

Water body name & permit no.	County	Location where treatment will begin	Chemicals/products proposed for use	Targeted plants & algae	Proposed date & treatment start time
WAG994293	King	tbd	Triclopyr	ewm	8 am
				egeria densa	06/04/2018
				nuisance aquatic plants	

Additional Information: _____

Post-Treatment Notification

Week of Treatment: June 4, 2018

Water body name & permit no.	County	Chemicals or products used	Targeted plants/ algae	Acres treated	Amount of active ingredient applied (lbs.)	Treatment date
WAG994293	King					
Lake Washington		Triclopyr	Eurasian Watermilfoil	30.8 acres	180 gals	6/4/18
			Fragrant Waterlily			

Additional Information: _____

Knowingly submitting false information will result in permit termination.

Permittee may add additional rows if needed

APPENDIX B – ECOLOGY NOTIFICATION TEMPLATE

See Special Condition S5.A for instructions on providing notification to Ecology.

Email Form

Email to: apampreposttreat@ecy.wa.gov

From: Permittee or Applicator: (name) Lakeland Restoration Services, LLC

Cell Phone No: (contact number for the applicator) 208-597-6601

Pre-Treatment Notification

Week of Treatment: 07/16/2018

Water body name & permit no.	County	Location where treatment will begin	Chemicals/products proposed for use	Targeted plants & algae	Proposed date & treatment start time
WAG994293	King	tbd	diquat	Eurasian watermilfoil	8 am
Lake Washington			hydrothol		07/16/2018
Sammamish River			aquathol	Brazilian Elodea	
			glyphosate	aquatic nuisance	
				plants	

Additional Information: _____

Post-Treatment Notification

Week of Treatment: July 16, 2018

Water body name & permit no.	County	Chemicals or products used	Targeted plants/ algae	Acres treated	Amount of active ingredient applied (lbs.)	Treatment date
WAG994293	King					
Lake		Diquat	Eurasian	35 acres	35 gals	7/16/18
Washington		Hydrothol	Watermilfoil		35 gals	
		Aquathol	Brazilian Elodea		35 gals	
Sammamish						
River Channel						

Additional Information: _____

Knowingly submitting false information will result in permit termination.

Permittee may add additional rows if needed

Appendix E

Safety Plans



Lakeland Restoration Services, LLC

78 E River Spur Rd, Priest River, ID 83856

Phone: 877-273-6674

www.lakelandrs.com

**CITY OF KENMORE, LAKE WASHINGTON/SAMMAMISH RIVER
EURASIAN WATERMILFOIL, EGERIA & AQUATIC
NUISANCE PLANT TREATMENT
SITE SPECIFIC SAFETY PLAN
JUNE 4 -5, 2018**

Table of Contents

Chapter 1
Organizational Structure 2 Pages

Chapter 2
Job Hazard Analysis 4 Pages
Triclopyr 3 MSDS 5 Pages

Chapter 3
Emergency Response Plan 3 Pages

Chapter 4
Training Program 1 Page

Chapter 5
Spill Containment Program 3 Pages

Chapter 6
Personal Protection Equipment 2 Pages

1.0 ORGANIZATIONAL STRUCTURE

(in compliance with 29 CFR 1910.120(b)(2))

This chapter of the Health and Safety Plan describes lines of authority, responsibility, and communication as they pertain to health and safety functions at this site. The purpose of this chapter is to identify the personnel who impact the development and implementation of the site health and safety plan and to describe their roles and responsibilities. This chapter also identifies other contractors and subcontractors involved in work operations, and establishes the lines of communication among them for safety and health matters.

The organizational structure of this site's safety and health program is consistent with OSHA requirements in 29 CFR 1910.120(b)(2) and provides the following site-specific information:

the general supervisor who has the responsibility and authority to direct all hazardous waste operations
the site safety and health officer who has the responsibility and authority to develop and implement this HASP and verify compliance
other personnel needed for hazardous waste operations and emergency response and their general functions and responsibilities
the lines of authority, responsibility, and communication for safety and health functions

This section is reviewed and updated as necessary to reflect the current organizational structure at this site.

1.1 Roles and Responsibilities

All personnel and visitors on this site must comply with the requirements of this HASP. The specific responsibilities and authority of management, safety and health, and other personnel on this site are detailed in the following paragraphs. A site organizational chart illustrating the hierarchy of personnel and lines of communication within this company and with additional contractors on site is found in Figure 1-1.

Project Manager (PM)

The Project Manager (PM) for this site is Dave Kluttz. The PM has responsibility and authority to direct all work operations. The PM coordinates safety and health functions with the Site Safety and Health Officer (SSHO), has the authority to oversee and monitor the performance of the SSHO, and bears ultimate responsibility for the proper implementation of this HASP. The specific duties of the PM are:

Preparing and coordinating the site work plan; providing site supervisor(s) with work assignments and overseeing their performance; coordinating safety and health efforts with the SSHO; ensuring effective emergency response through coordination with the Emergency Response Coordinator (ERC); serving as primary site liaison with public agencies and officials and site contractors.

The qualified alternate Project Manager (PM) for this site is Jim Pogue.

Site Safety and Health Officer (SSHO)

The Site Safety and Health Officer (SSHO) for this site is Dave Kluttz. The SSHO has full responsibility and authority to develop and implement this HASP and to verify compliance. The SSHO reports to the Project Manager. The SSHO is on site or readily accessible to the site during all work operations and has the authority to halt site work if unsafe conditions are detected. The specific responsibilities of the SSHO are:

Managing the safety and health functions on this site; serving as the site's point of contact for safety and health matters; ensuring site monitoring, worker training, and effective selection and use of PPE; assessing site conditions for unsafe acts and conditions and providing corrective action; assisting the preparation and review of this HASP; maintaining effective safety and health records as described in this HASP; coordinating with the Emergency Response Coordinator (ERC), Site Supervisor(s), and others as necessary for safety and health efforts.

The qualified alternate Site Safety and Health Officer (SSHO) for this site is Jim Pogue.

Emergency Response Coordinator (ERC)

The Emergency Response Coordinator (ERC) for this site is Dave Kluttz. The ERC is responsible for assessing site conditions and directing and controlling emergency response activities in accordance with the Site Emergency Response Plan. The ERC reports to the Project Manager (PM). The ERC will ensure the evacuation, emergency transport, and treatment of site personnel and will notify the appropriate emergency response units and management staff in accordance with the emergency response plan of this HASP. Specific duties of the ERC include:

Developing and reviewing the emergency response plan; conducting emergency response rehearsals; ensuring effective emergency response to and evacuation of the site; coordinating emergency response functions with the Site Safety and Health Officer (SSHO), and integrating site emergency response plans with the disaster, fire, and/or emergency response plans of local, state, and federal organizations and agencies.

The qualified alternate Emergency Response Coordinator (ERC) for this site is Jim Pogue.

The qualified second alternate Emergency Response Coordinator (ERC) for this site is Roy Moore.

Site Workers

Site workers are responsible for complying with this HASP, using the proper PPE, reporting unsafe acts and conditions, and following the work and safety and health instructions of the Project Manager (PM), Site Safety and Health Officer (SSHO), and Site Supervisor.

1.2 Identification of Other Site Contractors

There are no other contractors or subcontractors on this site.

2.0 JOB HAZARD ANALYSIS

(in compliance with 29 CFR 1910.120(b)(4)(ii)(A), and 1910.120(i))

This chapter of the HASP describes the safety and health hazards associated with site work and the control measures selected to protect workers. The purpose of a job hazard analysis (JHA) is to identify and quantify the health and safety hazards associated with each site task and operation, and to evaluate the risks to workers. Using this information, appropriate control methods are selected to eliminate the identified risks if possible, or to effectively control them. The control methods are documented in each task-specific JHA. The information contained in this chapter is essential to effective preparation of all other chapters of the HASP. This section of the HASP includes:

- job hazard analysis
- hazardous substance information
- employee notification of hazards

The person responsible for ongoing job hazard analysis at this site Dave KLuttz.

2.1 Job Hazard Analysis

Each site-specific JHA appears on a separate copy of Table 2-1. Each JHA lists a task or operation required during site operations and the location(s) where that task or operation is performed. A single JHA may be used for a task/operation performed in multiple locations if the hazards, potential exposures, and controls are the same in each location.

Each JHA lists the chemical hazards associated with that task and their known or anticipated concentrations during performance of the task. Each JHA also identifies anticipated physical and biological hazards and potential exposure levels or the likelihood of exposure. The final section of each JHA lists the control measures implemented to protect employees from exposure to the identified hazards. The information provided here is designed to satisfy the job hazard analysis requirements of 1910.120(b)(4)(ii)(A) and the workplace hazard assessment requirements of 1910.132(d). Health hazard information for all chemical substance identified in site JHAs appears in hazard data sheets attached to this chapter.

Dave Kluttz modifies site-specific JHAs and the accompanying data sheets when:

- the scope of work is changed by adding, eliminating, or modifying tasks
- new methods of performing site tasks are selected
- observation of the performance of site tasks results in a revised characterization of the hazards
- new chemical, biological, or physical hazards are identified
- exposure data indicate changes in the concentration and/or likelihood of exposure
- new/different control measures are selected

When JHAs are modified, related provisions in other chapters of this HASP are modified as needed.

Table 2-1: Site-Specific Job Hazard Analysis

Operational Phase	Phase No	Task/Operation	Location Where Task/Operation Performed
JH 01	1	On shore loading and handling	Lake Washington & Sammamish

Conducted	Print Name	Signature
June 2, 2018	Dave Kluttz	

Chemical Hazards

Chemical Name	Source	Concentration	Exposure Potential During Operations
Triclopyr	Containers	100	Unlikely

Physical Hazards

Name of Physical Hazard	Source	Exposure Potential During Operations
Falling Down Bank	Steep Banks	Unlikely

Biological Hazards

Name of Biological Hazard	Source	Exposure Potential During Operations
No Biological Hazards		

Control Measures Used

Engineering Controls: Locate pump, tank and hoses to reduce tripping hazards.
Work Practices: Exercise care when loading and handling, exercise care when moving and transporting equipment and use proper Personal Protection Equipment to reduce exposure hazard. Follow Aquatic Herbicide Label instructions.

Level of PPE: Long Sleeve Shirt or Coveralls
Shoes with socks Eye Protection Gloves

PPE Upgrade: No PPE

Downgrade: No

Table 2-1: Site-Specific Job Hazard Analysis

Operational Phase	Phase No	Task/Operation	Location Where Task/Operation Performed
JH 02	1	On boat application to targeted vegetation	Lake Washington Sammamish

Conducted	Print Name	Signature
06/02/2018	Dave KLuttz	

Chemical Hazards

Chemical Name	Source	Concentration	Exposure Potential During Operations
Triclopyr	Containers, Hoses, and Pumps	100	Unlikely

Physical Hazards

Name of Physical Hazard	Source	Exposure Potential During Operations
Tripping over hoses	Hoses	Unlikely
Falling Overboard	Water	Unlikely

Biological Hazards

Name of Biological Hazard	Source	Exposure Potential During Operations
No Biological Hazards		

Control Measures Used

Engineering Controls: Locate pump, tank and hoses to reduce tripping hazards.
Work Practices: Exercise care when loading and handling, exercise care when moving and transporting equipment and use proper Personal Protection Equipment to reduce exposure hazard. Follow Aquatic Herbicide Label instructions.

Level of PPE: Eye Protection
Long Sleeve Shirt or Coveralls Shoes with socks
Gloves

PPE Upgrade: No PPE

Downgrade: No

2.3 Employee Notification of Hazards and Overall Site Information Program

The information in the JHAs and the attached data sheets is made available to all employees who could be affected by it prior to the time they begin their work activities. Modifications to JHAs and the accompanying data sheets are communicated during routine briefings.

The person responsible for providing site information, this HASP, and any modifications to the HASP to other contractors and subcontractors working on this site is: Dave Kluttz.

3.0 EMERGENCY RESPONSE PLAN

(in compliance with 29 CFR 1910.120(l) and 1910.120(b)(4)(ii)(H)

This is the site-specific emergency response plan. This chapter of the Health and Safety Plan describes potential emergencies at this site, procedures for responding to those emergencies, roles and responsibilities during emergency response, and training that workers must receive in order to follow emergency procedures.

This emergency response plan is consistent with the requirements of 29 CFR 1910.120(l) and provides the following site-specific information:

- pre-emergency planning
- personnel roles, lines of authority, and communication
- emergency recognition and prevention
- emergency medical treatment and first aid
- PPE and emergency equipment

3.1 Pre-emergency Planning

This site has been evaluated for potential emergency occurrences, based on site hazards, the tasks within the work plan.

Table 3-1 Potential Site Emergencies		
Type of Emergency	Source of Emergency	Location of Source
Chemical Spill	Containers	All Loading and Handling Areas
Physical Injury	Lifting, Falling, Tripping, Drowning	All Loading, Handling and Application Sites

3.2 On-Site Emergency Response Equipment

Emergency procedures may require specialized equipment to facilitate worker rescue, contamination control and reduction, or post-emergency clean-up. Emergency response equipment stocked on this site is listed in Table 11-2. The equipment inventory and storage locations are based on the potential emergencies described in Table 11-1. This equipment inventory is designed to meet on-site emergency response needs and any specialized equipment needs that off-site responders might require because of the hazards at this site but not ordinarily stocked.

Any additional PPE required and stocked for emergency response is also listed in Table 3-2 below. During an emergency, the Emergency Response Coordinator is responsible for specifying the level of PPE required for emergency response.

Emergency response equipment is inspected at regular intervals and maintained in good working order. The equipment inventory is replenished as necessary to maintain response capabilities.

Table 3-2 Emergency Equipment and Emergency PPE			
Emergency	Specific Type	Quantity Stocked	Location Stored
Fire extinguisher		5	Boats and Trucks
First Aid and Eye Wash Kits		2	Boats
Spill Kits		2	Loading Area
Emergency PPE	Specific Type	Quantity Stocked	Location Stored
Rubber gloves		24	Boats and Trucks
Eye protection		12	Boats and Trucks

Figure 3-3a provides a map to the nearest emergency medical assistance.

Figure 3-3 Map to Nearest Emergency Medical Assistance

Oz Hospital Care 425-286-6494
24230 18th PL W, Bothell, WA 98021



Lake Washington

Washington

- 1. Head west on NE 175th St toward 61st Ave NE 0.2 mi
 - 2. Turn right onto 61st Ave NE 1.4 mi
 - 3. Continue onto Locust Way 0.2 mi
 - 4. Turn right onto 18th Pl W 469 ft
- Destination will be on the right

Oz Hospital Care

24230 18th Pl W, Bothell, WA 98021

3.3 Roles and Responsibilities for On-Site and Off-Site Personnel

Dave KLuttz is responsible for implementing the emergency response plan and coordinates emergency response activities on this site. He/she provides specific direction for emergency action based upon information available regarding the incident and response capabilities and initiates emergency procedures, including protection of the public and notification of appropriate authorities.

In the event of an emergency, site personnel are evacuated and do not participate in emergency response activities, except as indicated below.

Limited On-Site Emergency Response Activities

For spills

Turn off all pumps Close all valves
Surround spill with containment dike Use Absorbent mats to clean up spill Place in plastic containment bags

For Injuries

Assess extent of injury Administer First Aid if appropriate
Contact Emergency Medical Personnel
Transport to **Oz Hospital Care 24230 18th PL W, Bothell, WA 98021**

Emergency Medical Treatment and First Aid

Personnel who require medical care and/or who are transferred to a medical facility are accompanied by MSDSs and other applicable hazard data to apprise caregivers of the chemicals and hazards to which the victim has been potentially exposed. The emergency medical care facility for this site is **24230 18th PL W, Bothell, WA 98021**. The route to the facility is shown in Figure 3-3 a & b.

Table 3.6 Emergency Contact Information

The list of telephone numbers below are the emergency contact numbers for this site. These emergency numbers are verified to be accurate, working numbers. Site personnel are trained and rehearsed in site-specific emergency calling procedures. A copy of this contact information is posted at the following locations:

Trucks and Boats

SITE PERSONNEL

Title	Contact	Telephone
Project Manager (PM)	Dave Kluttz	208-597-6601
Site Safety and Health Officer (SSHO)	Dave Kluttz	208-597-6601
Emergency Response Coordinator (ERC)	Dave Kluttz	208-597-6601
Emergency Response Coordinator 1st Alternate	Jim Pogue	208-290-4953
Emergency Response Coordinator 2nd Alternate	Roy Moore	509-671-7596

Agency Telephone	Contact	Address/Location
Ambulance/EMS		911
Police		911
Fire		911
Primary Medical Facility	Oz Hospital Care 24230 18th PL W, Bothell, WA 98021	425-286-6494
State Police		911
Local Emergency Response		911
Emergency Medical Assistance		911
Poison Control Center		800-424-9300

4.0 TRAINING PROGRAM

(in compliance with 29 CFR 1910.120(e))

This training program is consistent with the requirements of 29 CFR 1910.120(e) and addresses the following site- specific information:

training for site workers
site briefings for visitors and workers
management and supervisor training

a Training Elements to be Covered for Site Workers:

names of personnel and alternates responsible for site safety and health
safety, health and other hazards present on the site
use of PPE
work practices by which the employee can minimize risks from hazards
safe use of engineering controls and equipment on the site
the emergency response plan detailed in Chapter 3 of this HASP
the spill containment program detailed in Chapter 5 of this HASP

4.1b Site-Specific Briefings for Visitors

A site-specific briefing is provided to all site visitors who enter this site. For visitors, the site-specific briefing provides information about site hazards, the site lay-out including work zones and places of refuge, the emergency alarm system and emergency evacuation procedures, and other pertinent safety and health requirements as appropriate.

c HASP Information and Site-Specific Briefings for Workers

Site personnel review this HASP and are provided a site-specific briefing prior to the commencement of work to ensure that employees are familiar with this HASP and the information and requirements it contains. Additional briefings are provided as necessary to notify employees of any changes to this HASP as a result of information gathered during ongoing site characterization and analysis. Conditions for which we schedule additional briefings include, but are not limited to: changes in site conditions, changes in the work schedule/plan, newly discovered hazards, and incidents occurring during site work.

Initial Training

Initial training requirements are based on a worker's potential for exposure.

Management and Supervisor Training

On-site managers and supervisors who are directly responsible for or who supervise workers engaged in hazardous operations are licensed herbicide applicators in the State of Washington. Mixer/Loaders who work with the applicators are trained and supervised by licensed applicators.

5.0 SPILL CONTAINMENT PROGRAM

(in compliance with 29 CFR 1910.120(b)(4)(ii)(J) and (j)(1)(viii))

This chapter of the Health and Safety Plan describes the potential for hazardous substance spills at this site and procedures for controlling and containing such spills. The purpose of this chapter of the Plan is to ensure that spill containment planning is conducted and appropriate control measures are established.

The spill containment program is consistent with OSHA requirements in 29 CFR 1910.120(b)(4)(ii)(J) and (j)(1)(viii) and addresses the following site-specific information:

potential hazardous substance spills and available controls
initial notification and response
spill evaluation and response
post-spill evaluation

Potential Spills and Available Controls

Table 5-1 below lists the location and type of potential hazardous substance spills at this site. This table also describes the activities or situations in which an accidental spill could occur and the type of release--either an incidental or an emergency release -- likely to result.

Wherever spills, leaks, or ruptures can occur, this site keeps suitable spill kits available. Their location is noted in Table 5-1. In addition, all areas subject to potential spills are diked or a means to adequately dike these areas in the event of a spill is available so that the entire volume of the hazardous substance being spilled can be contained and isolated. The type and location of spill containment equipment is also listed in Table 5-1.

Table 5-1 Potential Spills and Controls

Hazardous Substance	Location	Source of spill	Potential maximum qty of spill	Classification of spill	Available Spill Containment Equipment	Equipment Location
Herbicide	Lake shoreline loading herbicide into boats	Equipment failure	Unknown	Emergency	Spill Kit	Trucks & Boats
Herbicide	Lake shoreline loading herbicide into boats	Hose/line rupture	Unknown	Emergency	Spill Kit	Trucks & Boats
Herbicide	Spill in boat	Containers, Hoses, Hoppers, Tanks	Unknown	Emergency	Dispose of spillage in treatment zone not to exceed Aquatic Herbicide Label Concentrations	

5.2 Initial Spill Notification and Response

Any worker who discovers a hazardous substance spill will immediately notify Dave Kluttz, Project Manager. The worker will, to his/her best ability, report the hazardous substance involved, the location of the spill, the estimated quantity of material spilled, the direction/flow of the spill material, related fire/explosion incidents, and any associated injuries. The site Emergency Response Plan, found in Chapter 3 of this HASP, will immediately be implemented if an emergency release has occurred.

5.3 Spill Evaluation and Response

Dave Kluttz, Project Manager is responsible for evaluating spills and determining the appropriate response. When this evaluation is being made, the spill area will be isolated and demarcated.

The procedures of the Emergency Response Chapter of this HASP are implemented when the spill is determined to require emergency precautions and action. If necessary to protect nearby community members, notification of the appropriate authorities is made. Table 5-3 below lists the spill conditions that trigger notification of Federal, state, and local agencies.

Table 5-3 Off-site Notification Requirements
Spill Volume/

Hazardous Substance	Location	Conditions	Required Notification
Herbicide	Lake Shoreline, loading herbicide into boats	TBD By PM	Richard Sawyer 425-398-8900 x 6153

When an incidental release occurs, cleanup personnel receive instructions in a pre-cleanup meeting as to spill conditions, PPE, response activities, decontamination, and waste handling. The following are general measures that response/ cleanup personnel take when responding to a spill:

To minimize the potential for a hazardous spill, hazardous substance and contaminated soils, control/absorbent media, drums and containers, and other contaminated materials are properly stored and labeled.

When a spill occurs, only those persons involved in overseeing or performing spill containment operations will be allowed within the designated hazard areas. If necessary, the area will be roped, ribboned or otherwise blocked off. Unauthorized personnel are kept clear of the spill area.

Appropriate PPE, as specified during the pre-cleanup meeting, is donned before entering the spill area.

Appropriate spill control measures are specified in the pre-cleanup meeting and applied during spill response.

Whenever possible without endangerment of personnel, the spill is stopped at the source or as close to the source as possible.

Ignition points are removed if fire or explosion hazards exist.

Surrounding reactive materials are removed.

Drains or drainage in the spill area will be blocked or surrounded by berms to exclude the spilled waste and any materials applied to it.

Provisions are made to contain and recover a neutralizing solution, if used.

Small spills or leaks from a drum, tank, or pipe will require immediate cleanup to prevent or limit employee exposure. For small spills, sorbent materials such as sand, sawdust, or commercial sorbents from the spill kit are placed directly on the waste to prevent further spreading and aid in recovery.

If any spill is large and/or continuing, an initial isolation area is created. Large spills are diked at the leading edge of the spill. Berms of earthen or sorbent material are constructed downstream of the leading edge of the spill to contain it. Where feasible, pumps are utilized to transfer the liquid to appropriate containers.

Spill area is sprayed with appropriate foam where the possibility of volatile emissions exist.

If the spill results in the formation of a toxic vapor cloud, from vaporization, or reaction with surrounding materials or by the outbreak of fire, further evacuation may be required.

To dispose of spill waste, all contaminated sorbents, liquid waste, or earthen material will be cleaned up and placed in small quantities (50 pounds) in approved drums for proper storage or disposal as hazardous waste.

5.4 Post-Spill Evaluation

A written spill response report is prepared at the conclusion of clean-up operations. The report includes, at a minimum, the following information:

- date of spill incident
- cause of incident
- spill response actions
- any outside agencies involved, including their incident reports
- lessons learned or suggested improvements

The spill area is inspected to ensure the area has been satisfactorily cleaned. The use of soil, water, and air sampling is utilized in this determination as necessary. The root cause of the spill is examined and corrective steps taken to ensure the engineering and control measures in place have performed as required. If alternative precautions or measures are needed, they are made available and implemented.

6.0 PERSONAL PROTECTIVE EQUIPMENT

(in compliance with 29 CFR 1910.120(b)(4)(ii)(C) and 29 CFR 1910.120(g))

This chapter of the HASP describes how personal protective equipment (PPE) is used to protect against employee exposures to hazardous substances and hazardous conditions on this site.

PPE selection criteria

Site-specific PPE ensembles

Criteria for PPE upgrades and downgrades

Procedures for determining work duration

Training in use of PPE

Respiratory protection

Hearing conservation

PPE maintenance && storage

Evaluation of this program

The person with the overall responsibility for the PPE program is Dave Kluttz.

PPE Selection Criteria

Site safety and health hazards are eliminated or reduced to the greatest extent possible through engineering controls and work practices. Where hazards are still present, a combination of engineering controls, work practices, and PPE are used to protect employees.

An initial level of PPE is assigned to each task to provide an adequate barrier to exposure hazards. Initial PPE ensembles are selected based on the anticipated route(s) of entry of the hazardous substances on site and their concentration.

Ensemble materials are selected using permeation data supplied by individual manufacturers.

Materials providing the greatest duration of protection have been chosen. Tear and seam strength of the PPE are also considered to ensure ensemble durability while work is performed. When necessary, multiple layers of protection are used to accommodate the range of hazards that may be encountered. Where possible, employees are provided with a range of component sizes to ensure properly fitted PPE.

The following criteria are used in selecting PPE levels at this site. Use of

Level D Protection

Employees use Level D protection during tasks that have the following characteristics:

The atmosphere contains no known or suspected hazardous substances at concentrations that meet or exceed the published exposure limit.

Contact with hazardous levels of any chemicals through splashes, immersion, or by other means will not occur.

There is no potential for unexpected inhalation or contact with hazardous levels of any chemical.

Use of PPE

Site-specific PPE ensembles and materials are identified below in Table 6-2a. These ensembles are consistent with Appendix B of 29 CFR 1910.120. PPE is used in accordance with manufacturers' recommendations.

Table 6-2a Site-Specific PPE Ensembles				
Equipment	Model Purchased	Material	Employee	
<u>Level D</u>				
Coveralls/Standard Work Clothes	Coveralls or long sleeve shirts and long pants, hats	Cotton or poly cotton	No	
Boots/shoes	Shoes with socks		Yes	
Gloves	Chemical Resistant		No	
Other: Eye protection	Glasses		No	
Other: Ear Muffs	Ear Muffs on boats		No	

Criteria for PPE Upgrades and Downgrades

Dave Kluttz has the authority to upgrade or downgrade PPE in a timely manner to respond to changing site conditions and to protect employee health and safety. Routine evaluation of the effectiveness of the PPE program is conducted as identified in Section 6.7 below.

Procedures for Determining Work Duration

Dave Kluttz identifies task-specific work duration based on the following:

Physiological requirements of the task

PPE level for the task

Ambient temperature and humidity

Acclimatization of the work force

Employees are informed about task-specific work duration by the SSHO, during initial training and whenever a change is necessary

Training

Employees receive general training regarding proper selection, use and inspection of PPE during initial training and subsequent refresher training. Site-specific PPE requirements, including task-specific PPE, ensemble components, and inspection and maintenance procedures are communicated as identified in Chapter 4, Training.

Respiratory Protection

Respiratory protection is not used on this site in accord with the label of the products being applied.

Hearing Conservation

Employees must use hearing protection when traveling on airboats at speeds which require engine revolutions above 2000 rpm.

PPE Maintenance & Storage

Table 6-6 describes the PPE maintenance schedule for this site. The person responsible for overseeing PPE maintenance & storage procedures and for maintaining the inspection record is Dave Kluttz.

Table 6-6 PPE Maintenance					
Type of PPE	Model	Inspection Frequency	Done by	Cleaning Frequency	Done by
Level D					
Component	Coveralls or long sleeve	Daily	Applicators	NA	NA
Component	Shoes with socks	Daily	Applicators	NA	NA
Component	Ear Muffs	Daily	Applicators	NA	NA
Component	Glasses	Daily	Applicators	NA	NA
Component	Ear Muffs	Daily	Applicators	NA	NA

Defective or damaged equipment is not used and is reported to Dave Kluttz so that the equipment can be repaired or discarded.

Evaluation of PPE Program

Evaluation of the effectiveness of site PPE selections occurs throughout site activities in response employee



Lakeland Restoration Services, LLC

78 E River Spur Rd, Priest River, ID 83856

Phone/Fax: 877-273-6674

**CITY OF KENMORE, LAKE
WASHINGTON/SAMMAMISH RIVER
EURASIAN WATERMILFOIL, EGERIA, and AQUATIC
NUISANCE PLANT TREATMENT
SITE SPECIFIC SAFETY PLAN
July 16, 2018**

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Spill Containment Program 3 Pages

Chapter 6
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1.0 ORGANIZATIONAL STRUCTURE

(in compliance with 29 CFR 1910.120(b)(2))

This chapter of the Health and Safety Plan describes lines of authority, responsibility, and communication as they pertain to health and safety functions at this site. The purpose of this chapter is to identify the personnel who impact the development and implementation of the site health and safety plan and to describe their roles and responsibilities. This chapter also identifies other contractors and subcontractors involved in work operations, and establishes the lines of communication among them for safety and health matters.

The organizational structure of this site's safety and health program is consistent with OSHA requirements in 29 CFR 1910.120(b)(2) and provides the following site-specific information:

- * the general supervisor who has the responsibility and authority to direct all hazardous waste operations
- * the site safety and health officer who has the responsibility and authority to develop and implement this HASP and verify compliance
- * other personnel needed for hazardous waste operations and emergency response and their general functions and responsibilities
- * the lines of authority, responsibility, and communication for safety and health functions

This section is reviewed and updated as necessary to reflect the current organizational structure at this site.

1.1 Roles and Responsibilities

All personnel and visitors on this site must comply with the requirements of this HASP. The specific responsibilities and authority of management, safety and health, and other personnel on this site are detailed in the following paragraphs. A site organizational chart illustrating the hierarchy of personnel and lines of communication within this company and with additional contractors on site is found in Figure 1-1.

Project Manager (PM)

The Project Manager (PM) for this site is Dave Kluttz. The PM has responsibility and authority to direct all work operations. The PM coordinates safety and health functions with the Site Safety and Health Officer (SSHO), has the authority to oversee and monitor the performance of the SSHO, and bears ultimate responsibility for the proper implementation of this HASP. The specific duties of the PM are:

Preparing and coordinating the site work plan; providing site supervisor(s) with work assignments and overseeing their performance; coordinating safety and health efforts with the SSHO; ensuring effective emergency response through coordination with the Emergency Response Coordinator (ERC); serving as primary site liaison with public agencies and officials and site contractors.

The qualified alternate Project Manager (PM) for this site is Jim Pogue.

Site Safety and Health Officer (SSHO)

The Site Safety and Health Officer (SSHO) for this site is Dave Kluttz. The SSHO has full responsibility and authority to develop and implement this HASP and to verify compliance. The SSHO reports to the Project Manager. The SSHO is on site or readily accessible to the site during all work operations and has the authority to halt site work if unsafe conditions are detected. The specific responsibilities of the SSHO are:

Managing the safety and health functions on this site; serving as the site's point of contact for safety and health matters; ensuring site monitoring, worker training, and effective selection and use of PPE; assessing site conditions for unsafe acts and conditions and providing corrective action; assisting the preparation and review of this HASP; maintaining effective safety and health records as described in this HASP; coordinating with the Emergency Response Coordinator (ERC), Site Supervisor(s), and others as necessary for safety and health efforts.

The qualified alternate Site Safety and Health Officer (SSHO) for this site is Jim Pogue.

Emergency Response Coordinator (ERC)

The Emergency Response Coordinator (ERC) for this site is Dave Kluttz. The ERC is responsible for assessing site conditions and directing and controlling emergency response activities in accordance with the Site Emergency Response Plan. The ERC reports to the Project Manager (PM). The ERC will ensure the evacuation, emergency transport, and treatment of site personnel and will notify the appropriate emergency response units and management staff in accordance with the emergency response plan of this HASP. Specific duties of the ERC include:

Developing and reviewing the emergency response plan; conducting emergency response rehearsals; ensuring effective emergency response to and evacuation of the site; coordinating emergency response functions with the Site Safety and Health Officer (SSHO), and integrating site emergency response plans with the disaster, fire, and/or emergency response plans of local, state, and federal organizations and agencies.

The qualified alternate Emergency Response Coordinator (ERC) for this site is Jim Pogue.

The qualified second alternate Emergency Response Coordinator (ERC) for this site is Roy Moore.

Site Workers

Site workers are responsible for complying with this HASP, using the proper PPE, reporting unsafe acts and conditions, and following the work and safety and health instructions of the Project Manager (PM), Site Safety and Health Officer (SSHO), and Site Supervisor.

1.2 Identification of Other Site Contractors

There are no other contractors or subcontractors on this site.

2.0 JOB HAZARD ANALYSIS

(in compliance with 29 CFR 1910.120(b)(4)(ii)(A), and 1910.120(i))

This chapter of the HASP describes the safety and health hazards associated with site work and the control measures selected to protect workers. The purpose of a job hazard analysis (JHA) is to identify and quantify the health and safety hazards associated with each site task and operation, and to evaluate the risks to workers. Using this information, appropriate control methods are selected to eliminate the identified risks if possible, or to effectively control them. The control methods are documented in each task-specific JHA. The information contained in this chapter is essential to effective preparation of all other chapters of the HASP. This section of the HASP includes:

- * job hazard analysis
- * hazardous substance information
- * employee notification of hazards

The person responsible for ongoing job hazard analysis at this site Dave KLuttz.

2.1 Job Hazard Analysis

Each site-specific JHA appears on a separate copy of Table 2-1. Each JHA lists a task or operation required during site operations and the location(s) where that task or operation is performed. A single JHA may be used for a task/operation performed in multiple locations if the hazards, potential exposures, and controls are the same in each location.

Each JHA lists the chemical hazards associated with that task and their known or anticipated concentrations during performance of the task. Each JHA also identifies anticipated physical and biological hazards and potential exposure levels or the likelihood of exposure. The final section of each JHA lists the control measures implemented to protect employees from exposure to the identified hazards. The information provided here is designed to satisfy the job hazard analysis requirements of 1910.120(b)(4)(ii)(A) and the workplace hazard assessment requirements of 1910.132(d). Health hazard information for all chemical substance identified in site JHAs appears in hazard data sheets attached to this chapter.

Dave Kluttz modifies site-specific JHAs and the accompanying data sheets when:

- * the scope of work is changed by adding, eliminating, or modifying tasks
- * new methods of performing site tasks are selected
- * observation of the performance of site tasks results in a revised characterization of the hazards
- * new chemical, biological, or physical hazards are identified
- * exposure data indicate changes in the concentration and/or likelihood of exposure
- * new/different control measures are selected

When JHAs are modified, related provisions in other chapters of this HASP are modified as needed.

Table 2-1: Site-Specific Job Hazard Analysis

Operational Phase	Phase No	Task/Operation	Location Where Task/Operation Performed
JH 01	1	On shore loading and handling	Lake Washington & Sammamish

Conducted	Print Name	Signature
July 15, 2018	Dave Kluttz	

Chemical Hazards

Chemical Name	Source	Concentration	Exposure Potential During Operations
Diquat, Hydrothol, Aquathol & Glyphosate	Containers	100	Unlikely

Physical Hazards

Name of Physical Hazard	Source	Exposure Potential During Operations
Falling Down Bank	Steep Banks	Unlikely

Biological Hazards

Name of Biological Hazard	Source	Exposure Potential During Operations
----------------------------------	---------------	---

No Biological Hazards

Control Measures Used

Engineering Controls: Locate pump, tank and hoses to reduce tripping hazards.
 Work Practices: Exercise care when loading and handling, exercise care when moving and transporting equipment and use proper Personal Protection Equipment to reduce exposure hazard. Follow Aquatic Herbicide Label instructions.

Level of PPE: Long Sleeve Shirt or Coveralls
 Shoes with socks
 Eye Protection
 Gloves

PPE Upgrade: No

PPE Downgrade: No

Table 2-1: Site-Specific Job Hazard Analysis

Operational Phase	Phase No	Task/Operation	Location Where Task/Operation Performed
JH 02	1	On boat application to targeted vegetation	Lake Washington Sammamish

Conducted	Print Name	Signature
------------------	-------------------	------------------

07/15/2018

Chemical Hazards

Chemical Name	Source	Concentration	Exposure Potential During Operations
Diquat, Hydrothol, Aquathol & Glyphosate	Containers, Hoses & Pumps	100	Unlikely

Physical Hazards

Name of Physical Hazard	Source	Exposure Potential During Operations
Tripping over hoses	Hoses	Unlikely
Falling Overboard	Water	Unlikely

Biological Hazards

Name of Biological Hazard	Source	Exposure Potential During Operations
No Biological Hazards		

Control Measures Used

Engineering Controls: Locate pump, tank and hoses to reduce tripping hazards.
 Work Practices: Exercise care when loading and handling, exercise care when moving and transporting equipment and use proper Personal Protection Equipment to reduce exposure hazard. Follow Aquatic Herbicide Label instructions.

Level of PPE: Eye Protection
 Long Sleeve Shirt or Coveralls
 Shoes with socks
 Gloves

PPE Upgrade: No

PPE Downgrade: No

2.2 Employee Notification of Hazards and Overall Site Information Program

The information in the JHAs and the attached data sheets is made available to all employees who could be affected by it prior to the time they begin their work activities. Modifications to JHAs and the accompanying data sheets are communicated during routine briefings.

The person responsible for providing site information, this HASP, and any modifications to the HASP to other contractors and subcontractors working on this site is: Dave Kluttz.

3.0 EMERGENCY RESPONSE PLAN

(in compliance with 29 CFR 1910.120(l) and 1910.120(b)(4)(ii)(H))

This is the site-specific emergency response plan. This chapter of the Health and Safety Plan describes potential emergencies at this site, procedures for responding to those emergencies, roles and responsibilities during emergency response, and training that workers must receive in order to follow emergency procedures.

This emergency response plan is consistent with the requirements of 29 CFR 1910.120(l) and provides the following site-specific information:

- * pre-emergency planning
- * personnel roles, lines of authority, and communication
- * emergency recognition and prevention
- * emergency medical treatment and first aid
- * PPE and emergency equipment

3.1 Pre-emergency Planning

This site has been evaluated for potential emergency occurrences, based on site hazards, the tasks within the work plan.

Table 3-1 Potential Site Emergencies		
Type of Emergency	Source of Emergency	Location of Source
Chemical Spill	Containers	All Loading and Handling Areas
Physical Injury	Lifting, Falling, Tripping, Drowning	All Loading, Handling and Application Sites

3.2 On-Site Emergency Response Equipment

Emergency procedures may require specialized equipment to facilitate worker rescue, contamination control and reduction, or post-emergency clean-up. Emergency response equipment stocked on this site is listed in Table 11-2. The equipment inventory and storage locations are based on the potential emergencies described in Table 11-1. This equipment inventory is designed to meet on-site emergency response needs and any specialized equipment needs that off-site responders might require because of the hazards at this site but not ordinarily stocked.

Any additional PPE required and stocked for emergency response is also listed in Table 3-2 below. During an emergency, the Emergency Response Coordinator is responsible for specifying the level of PPE required for emergency response.

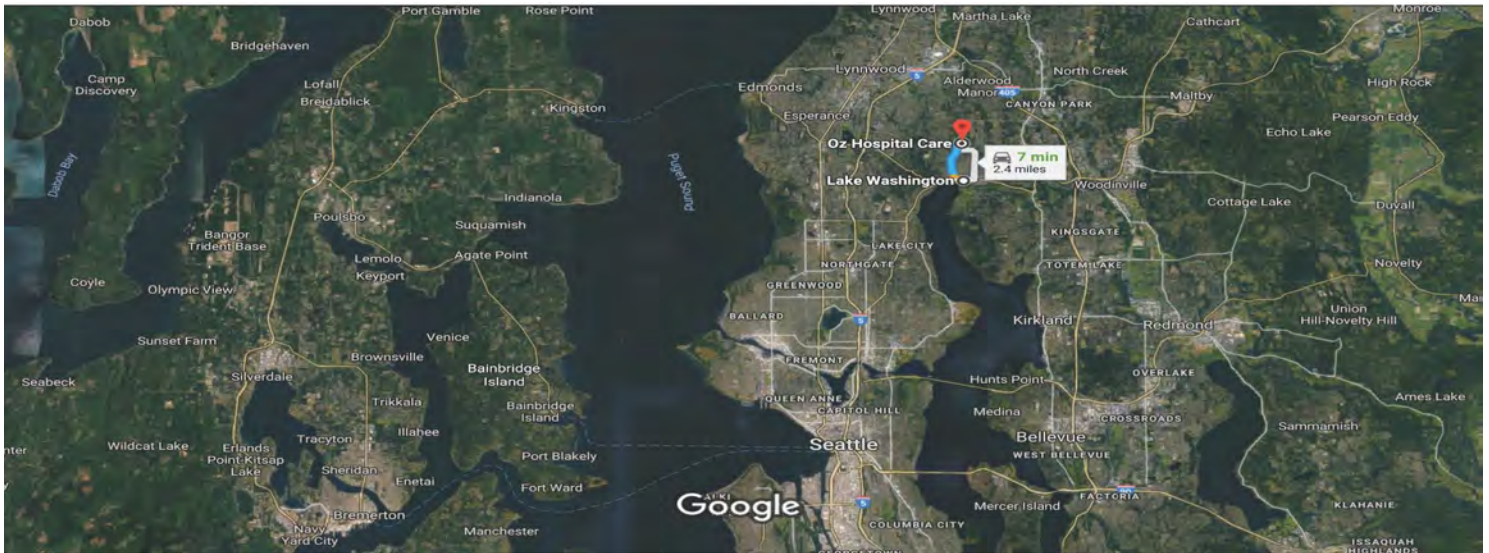
Emergency response equipment is inspected at regular intervals and maintained in good working order. The equipment inventory is replenished as necessary to maintain response capabilities.

Table 3-2 Emergency Equipment and Emergency PPE			
Emergency	Specific Type	Quantity Stocked	Location Stored
Fire extinguisher		5	Boats and Trucks
First Aid and Eye Wash Kits		2	Boats
Spill Kits		2	Loading Area
Emergency PPE	Specific Type	Quantity Stocked	Location Stored
Rubber gloves		24	Boats and Trucks
Eye protection		12	Boats and Trucks

Figure 3-3a provides a map to the nearest emergency medical assistance.

Figure 3-3 Map to Nearest Emergency Medical Assistance

Oz Hospital Care 425-286-6494
24230 18th PL W, Bothell, WA 98021



Lake Washington

Washington

1. Head west on NE 175th St toward 61st Ave NE 0.2 mi
2. Turn right onto 61st Ave NE 1.4 mi
3. Continue onto Locust Way 0.2 mi
4. Turn right onto 18th Pl W
Destination will be on the right 469 ft

Oz Hospital Care

24230 18th Pl W, Bothell, WA 98021

3.4 Roles and Responsibilities for On-Site and Off-Site Personnel

Dave Kluttz is responsible for implementing the emergency response plan and coordinates emergency response activities on this site. He/she provides specific direction for emergency action based upon information available regarding the incident and response capabilities and initiates emergency procedures, including protection of the public and notification of appropriate authorities.

In the event of an emergency, site personnel are evacuated and do not participate in emergency response activities, except as indicated below.

Limited On-Site Emergency Response Activities

For spills

Turn off all pumps
Close all valves
Surround spill with containment dike
Use Absorbent mats to clean up spill
Place in plastic containment bags

For Injuries

Assess extent of injury
Administer First Aid if appropriate
Contact Emergency Medical Personnel
Transport to **Oz Hospital Care 24230 18th PL W, Bothell, WA 98021**

3.5 Emergency Medical Treatment and First Aid

Personnel who require medical care and/or who are transferred to a medical facility are accompanied by MSDSs and other applicable hazard data to apprise caregivers of the chemicals and hazards to which the victim has been potentially exposed. The emergency medical care facility for this site is **24230 18th PL W, Bothell, WA 98021**. The route to the facility is shown in Figure 3-3 a & b.

Table 3.6 Emergency Contact Information

The list of telephone numbers below are the emergency contact numbers for this site. These emergency numbers are verified to be accurate, working numbers. Site personnel are trained and rehearsed in site-specific emergency calling procedures. A copy of this contact information is posted at the following locations:

Trucks and Boats

SITE PERSONNEL

Title	Contact	Telephone
Project Manager (PM)	Dave Kluttz	208-597-6601
Site Safety and Health Officer (SSHO)	Dave Kluttz	20-8597-6601
Emergency Response Coordinator (ERC)	Dave Kluttz	208-597-6601
Emergency Response Coordinator 1st Alternate	Jim Pogue	208-290-4953
Emergency Response Coordinator 2nd Alternate	Roy Moore	509-671-7596

Agency Telephone	Contact	Address/Location
Ambulance/EMS		911
Police		911
Fire		911
Primary Medical Facility	Oz Hospital Care 24230 18th PL W, Bothell, WA 98021	425-286-6494
State Police		911
Local Emergency Response		911
Emergency Medical Assistance		911
Poison Control Center		800-424-9300

4.0 TRAINING PROGRAM

(in compliance with 29 CFR 1910.120(e))

This training program is consistent with the requirements of 29 CFR 1910.120(e) and addresses the following site-specific information:

- * training for site workers
- * site briefings for visitors and workers
- * management and supervisor training

4.1a Training Elements to be Covered for Site Workers:

- names of personnel and alternates responsible for site safety and health
- safety, health and other hazards present on the site
- use of PPE
- work practices by which the employee can minimize risks from hazards
- safe use of engineering controls and equipment on the site
- the emergency response plan detailed in Chapter 3 of this HASP
- the spill containment program detailed in Chapter 5 of this HASP

4.1b Site-Specific Briefings for Visitors

A site-specific briefing is provided to all site visitors who enter this site. For visitors, the site-specific briefing provides information about site hazards, the site lay-out including work zones and places of refuge, the emergency alarm system and emergency evacuation procedures, and other pertinent safety and health requirements as appropriate.

4.1c HASP Information and Site-Specific Briefings for Workers

Site personnel review this HASP and are provided a site-specific briefing prior to the commencement of work to ensure that employees are familiar with this HASP and the information and requirements it contains. Additional briefings are provided as necessary to notify employees of any changes to this HASP as a result of information gathered during ongoing site characterization and analysis. Conditions for which we schedule additional briefings include, but are not limited to: changes in site conditions, changes in the work schedule/plan, newly discovered hazards, and incidents occurring during site work.

4.2 Initial Training

Initial training requirements are based on a worker's potential for exposure.

4.3 Management and Supervisor Training

On-site managers and supervisors who are directly responsible for or who supervise workers engaged in hazardous operations are licensed herbicide applicators in the State of Washington. Mixer/Loaders who work with the applicators are trained and supervised by licensed applicators.

5.0 SPILL CONTAINMENT PROGRAM

(in compliance with 29 CFR 1910.120(b)(4)(ii)(J) and (j)(1)(viii))

This chapter of the Health and Safety Plan describes the potential for hazardous substance spills at this site and procedures for controlling and containing such spills. The purpose of this chapter of the Plan is to ensure that spill containment planning is conducted and appropriate control measures are established.

The spill containment program is consistent with OSHA requirements in 29 CFR 1910.120(b)(4)(ii)(J) and (j)(1)(viii) and addresses the following site-specific information:

- * potential hazardous substance spills and available controls
- * initial notification and response
- * spill evaluation and response
- * post-spill evaluation

5.1 Potential Spills and Available Controls

Table 5-1 below lists the location and type of potential hazardous substance spills at this site. This table also describes the activities or situations in which an accidental spill could occur and the type of release--either an incidental or an emergency release -- likely to result.

Wherever spills, leaks, or ruptures can occur, this site keeps suitable spill kits available. Their location is noted in Table 5-1. In addition, all areas subject to potential spills are diked or a means to adequately dike these areas in the event of a spill is available so that the entire volume of the hazardous substance being spilled can be contained and isolated. The type and location of spill containment equipment is also listed in Table 5-1.

Table 5-1 Potential Spills and Controls

Hazardous Substance	Location	Source of spill	Potential maximum qty of spill	Classification of spill	Available Spill Containment Equipment	Equipment Location
Herbicide	Lake shoreline loading herbicide into boats	Equipment failure	Unknown	Emergency	Spill Kit	Trucks & Boats
Herbicide	Lake shoreline loading herbicide into boats	Hose/line rupture	Unknown	Emergency	Spill Kit	Trucks & Boats
Herbicide	Spill in boat	Containers, Hoses, Hoppers, Tanks	Unknown	Emergency	Dispose of spillage in treatment zone not to exceed Aquatic Herbicide Label Concentrations	

5.2 Initial Spill Notification and Response

Any worker who discovers a hazardous substance spill will immediately notify Dave Kluttz, Project Manager. The worker will, to his/her best ability, report the hazardous substance involved, the location of the spill, the estimated quantity of material spilled, the direction/flow of the spill material, related fire/explosion incidents, and any associated injuries. The site Emergency Response Plan, found in Chapter 3 of this HASP, will immediately be implemented if an emergency release has occurred.

5.3 Spill Evaluation and Response

Dave Kluttz, Project Manager is responsible for evaluating spills and determining the appropriate response. When this evaluation is being made, the spill area will be isolated and demarcated.

The procedures of the Emergency Response Chapter of this HASP are implemented when the spill is determined to require emergency precautions and action. If necessary to protect nearby community members, notification of the appropriate authorities is made. Table 5-3 below lists the spill conditions that trigger notification of Federal, state, and local agencies.

Table 5-3 Off-site Notification Requirements

Hazardous Substance	Location	Spill Volume/ Conditions	Required Notification
Herbicide	Lake Shoreline, loading herbicide into boats	TBD By PM	Richard Sawyer 425-398-8900 x 6153

When an incidental release occurs, cleanup personnel receive instructions in a pre-cleanup meeting as to spill conditions, PPE, response activities, decontamination, and waste handling. The following are general measures that response/ cleanup personnel take when responding to a spill:

- * To minimize the potential for a hazardous spill, hazardous substance and contaminated soils, control/absorbent media, drums and containers, and other contaminated materials are properly stored and labeled.
- * When a spill occurs, only those persons involved in overseeing or performing spill containment operations will be allowed within the designated hazard areas. If necessary, the area will be roped, ribboned or otherwise blocked off. Unauthorized personnel are kept clear of the spill area.
- * Appropriate PPE, as specified during the pre-cleanup meeting, is donned before entering the spill area.
- * Appropriate spill control measures are specified in the pre-cleanup meeting and applied during spill response.
- * Whenever possible without endangerment of personnel, the spill is stopped at the source or as close to the source as possible.
- * Ignition points are removed if fire or explosion hazards exist.
- * Surrounding reactive materials are removed.
- * Drains or drainage in the spill area will be blocked or surrounded by berms to exclude the spilled waste and any materials applied to it.
- * Provisions are made to contain and recover a neutralizing solution, if used.
- * Small spills or leaks from a drum, tank, or pipe will require immediate cleanup to prevent or limit employee exposure. For small spills, sorbent materials such as sand, sawdust, or commercial sorbents from the spill kit are placed directly on the waste to prevent further spreading and aid in recovery.
- * If any spill is large and/or continuing, an initial isolation area is created. Large spills are diked at the leading edge of the spill. Berms of earthen or sorbent material are constructed downstream of the leading edge of the spill to contain it. Where feasible, pumps are utilized to transfer the liquid to appropriate containers.
- * Spill area is sprayed with appropriate foam where the possibility of volatile emissions exist.
- * If the spill results in the formation of a toxic vapor cloud, from vaporization, or reaction with surrounding materials or by the outbreak of fire, further evacuation may be required.
- * To dispose of spill waste, all contaminated sorbents, liquid waste, or earthen material will be cleaned up and placed in small quantities (50 pounds) in approved drums for proper storage or disposal as hazardous waste.

5.4 Post-Spill Evaluation

A written spill response report is prepared at the conclusion of clean-up operations. The report includes, at a minimum, the following information:

- * date of spill incident
- * cause of incident
- * spill response actions
- * any outside agencies involved, including their incident reports
- * lessons learned or suggested improvements

The spill area is inspected to ensure the area has been satisfactorily cleaned. The use of soil, water, and air sampling is utilized in this determination as necessary. The root cause of the spill is examined and corrective steps taken to ensure the engineering and control measures in place have performed as required. If alternative precautions or measures are needed, they are made available and implemented.

6.0 PERSONAL PROTECTIVE EQUIPMENT

(in compliance with 29 CFR 1910.120(b)(4)(ii)(C) and 29 CFR 1910.120(g))

This chapter of the HASP describes how personal protective equipment (PPE) is used to protect against employee exposures to hazardous substances and hazardous conditions on this site.

- * PPE selection criteria
- * Site-specific PPE ensembles
- * Criteria for PPE upgrades and downgrades
- * Procedures for determining work duration
- * Training in use of PPE
- * Respiratory protection
- * Hearing conservation
- * PPE maintenance && storage
- * Evaluation of this program

The person with the overall responsibility for the PPE program is Dave Kluttz.

6.1 PPE Selection Criteria

Site safety and health hazards are eliminated or reduced to the greatest extent possible through engineering controls and work practices. Where hazards are still present, a combination of engineering controls, work practices, and PPE are used to protect employees.

An initial level of PPE is assigned to each task to provide an adequate barrier to exposure hazards. Initial PPE ensembles are selected based on the anticipated route(s) of entry of the hazardous substances on site and their concentration. Ensemble materials are selected using permeation data supplied by individual manufacturers. Materials providing the greatest duration of protection have been chosen. Tear and seam strength of the PPE are also considered to ensure ensemble durability while work is performed. When necessary, multiple layers of protection are used to accommodate the range of hazards that may be encountered. Where possible, employees are provided with a range of component sizes to ensure properly fitted PPE.

The following criteria are used in selecting PPE levels at this site.

Use of Level D Protection

Employees use Level D protection during tasks that have the following characteristics:

- * The atmosphere contains no known or suspected hazardous substances at concentrations that meet or exceed the published exposure limit.
- * Contact with hazardous levels of any chemicals through splashes, immersion, or by other means will not occur.
- * There is no potential for unexpected inhalation or contact with hazardous levels of any chemical.

6.2 Use of PPE

Site-specific PPE ensembles and materials are identified below in Table 6-2a. These ensembles are consistent with Appendix B of 29 CFR 1910.120. PPE is used in accordance with manufacturers' recommendations.

Table 6-2a Site-Specific PPE Ensembles			
Equipment	Model Purchased	Material	Employee
<u>Level D</u>			
Coveralls/Standard Work Clothes	Coveralls or long sleeve shirts and long pants, hats	Cotton or poly cotton	No
Boots/shoes	Shoes with socks		Yes
Gloves	Chemical Resistant		No
Other: Eye protection	Glasses		No
Other: Ear Muffs	Ear Muffs on boats		No

Criteria for PPE Upgrades and Downgrades

Dave Kluttz has the authority to upgrade or downgrade PPE in a timely manner to respond to changing site conditions and to protect employee health and safety. Routine evaluation of the effectiveness of the PPE program is conducted as identified in Section 6.7 below.

Procedures for Determining Work Duration

Dave Kluttz identifies task-specific work duration based on the following:

- * Physiological requirements of the task
- * PPE level for the task
- * Ambient temperature and humidity
- * Acclimatization of the work force

Employees are informed about task-specific work duration by the SSHO, during initial training and whenever a change is necessary

6.3 Training

Employees receive general training regarding proper selection, use and inspection of PPE during initial training and subsequent refresher training. Site-specific PPE requirements, including task-specific PPE, ensemble components, and inspection and maintenance procedures are communicated as identified in Chapter 4, Training.

6.4 Respiratory Protection

Respiratory protection is not used on this site in accord with the label of the products being applied.

6.5 Hearing Conservation

Employees must use hearing protection when traveling on airboats at speeds which require engine revolutions above 2000 rpm.

6.6 PPE Maintenance & Storage

Table 6-6 describes the PPE maintenance schedule for this site. The person responsible for overseeing PPE maintenance & storage procedures and for maintaining the inspection record is Dave Kluttz.

Table 6-6 PPE Maintenance					
Type of PPE	Model	Inspection Frequency	Done by	Cleaning Frequency	Done by
Level D					
Component	Coveralls or long sleeve	Daily	Applicators	NA	NA
Component	Shoes with socks	Daily	Applicators	NA	NA
Component	Ear Muffs	Daily	Applicators	NA	NA
Component	Glasses	Daily	Applicators	NA	NA
Component	Ear Muffs	Daily	Applicators	NA	NA

Defective or damaged equipment is not used and is reported to Dave Kluttz so that the equipment can be repaired or discarded.

6.7 Evaluation of PPE Program

Evaluation of the effectiveness of site PPE selections occurs throughout site activities in response employee feedback.

Appendix F

WSDA Pesticide Application Records



PESTICIDE APPLICATION RECORD (Version 1)

NOTE: This form must be completed same day as the application and it must be retained for 7 years (Ref. chapter 17.21 RCW)

Washington State Department of Agriculture
Pesticide Management Division
PO Box 42560
Olympia WA 98504-2560
(877) 301-4555

1. Date of Application - Year: 2018 Month: June Day: 4 Start Time: 8:00am
Stop Time: 5:00pm
2. Name of person for whom the pesticide was applied: Richard Sawyer and Janet Quinn
Firm Name (if applicable): City of Kenmore
Street Address: 18120 68th Ave NE City: Kenmore State: WA Zip: 98028
3. Licensed Applicator's Name (if different from #2 above): David Kluttz License No.: 66448
Firm Name (if applicable): Lakeland Restoration Services, LLC Tel No.: 877-273-6674
Street Address: 78 E River Spur Rd City: Priest River State: ID Zip: 83856
4. Name of person(s) who applied the pesticide (if different from #3 above): Jim Pouge
License No(s). If applicable: 90277
5. Application Crop or Site: Parts of Lake Washington and the Sammamish River Channel
6. Total Area Treated (acre, sq. ft., etc.): 30.8 acres
7. Was this application made as a result of a WSDA Permit? ☐ No ☒ Yes (If yes, give Permit No.) # WAG994293
8. Pesticide Information (please list all information for each pesticide, including adjuvants (buffer, surfactant, etc.), in the tank mix):

a) Full Product Name	b) EPA Reg. No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied/Acre (or other measure)	e) Concentration Applied
Triclopyr	81927-13	180 gallons	5.8 gal / acre	
			/	
			/	
			/	
			/	

9. Address **or exact location** of application. NOTE: If the application is made to one acre or more of agricultural land, the field location must be shown on the map on page two of this form.

See attached Maps

10. Wind direction and estimated velocity (mph) during the application: 8 mph S
11. Temperature during the application: Low 52 F High 66 F
12. Apparatus license plate number (if applicable): E818
13. ☐ Air ☒ Ground ☐ Chemigation
14. Miscellaneous Information: Airboat



PESTICIDE APPLICATION RECORD (Version 1)

NOTE: This form must be completed same day as the application and it must be retained for 7 years (Ref. chapter 17.21 RCW)

Washington State Department of Agriculture
Pesticide Management Division
PO Box 42560
Olympia WA 98504-2560
(877) 301-4555

1. Date of Application - Year: 2018 Month: July Day: 16 Start Time: 8:00am
Stop Time: 5:00pm

2. Name of person for whom the pesticide was applied: Richard Sawyer and Janet Quinn

Firm Name (if applicable): City of Kenmore

Street Address: 18120 68th Ave NE City: Kenmore State: WA Zip: 98028

3. Licensed Applicator's Name (if different from #2 above): David Kluttz License No.: 66448

Firm Name (if applicable): Lakeland Restoration Services, LLC Tel No.: 877-273-6674

Street Address: 78 E River Spur Rd City: Priest River State: ID Zip: 83856

4. Name of person(s) who applied the pesticide (if different from #3 above): Jim Pouge

License No(s). If applicable: 90277

5. Application Crop or Site: Parts of Lake Washington and the Sammamish River Channel

6. Total Area Treated (acre, sq. ft., etc.): 35 acres

7. Was this application made as a result of a WSDA Permit? ☐ No ☒ Yes (If yes, give Permit No.) # WAG994293

8. Pesticide Information (please list all information for each pesticide, including adjuvants (buffer, surfactant, etc.), in the tank mix):

a) Full Product Name	b) EPA Reg. No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied/Acre (or other measure)	e) Concentration Applied
Diquat	81927-35	35 gallons	1 gal / acre	
Hydrothol	70506-175	35 gallons	1 gal / acre	
Aquathol	70506-176	35 gallons	1 gal / acre	
			/	
			/	

9. Address **or exact location** of application. NOTE: If the application is made to one acre or more of agricultural land, the field location must be shown on the map on page two of this form.

See attached Maps

10. Wind direction and estimated velocity (mph) during the application: 5 mph NW

11. Temperature during the application: Low 63 F High 90 F

12. Apparatus license plate number (if applicable): E818

13. ☐ Air ☒ Ground ☐ Chemigation

14. Miscellaneous Information: Airboat

APPENDIX B

2019 Treatment Report

City of Kenmore

2019 Aquatic Macrophyte Control Program



Prepared By
Northwest Aquatic Eco-Systems
855 Trospen Road SW #108-313
Tumwater, WA 98512
360-357-3285
Pondweeds@comcast.net

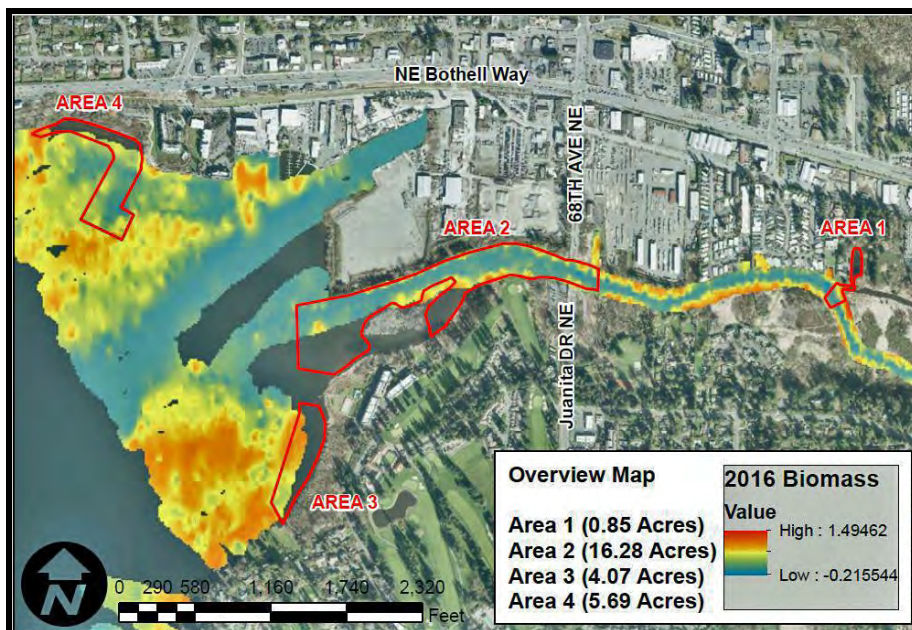
Project Overview

The City of Kenmore has been actively involved since 2017 in controlling noxious and noxious native aquatic macrophytes within approximately 27 acres encompassing 4 treatment sites. Targeted sites are located within the Sammamish River and north shores of Lake Washington. Excessive plant biomass presently interferes with the water-body's ability to function as a safe and aesthetically pleasing water resource. Specifically targeted are Eurasian watermilfoil, fragrant water lily and Brazilian Elodea. Sites were to receive one application prior to July 15 targeting the Eurasian watermilfoil and a second application following July 15. All four treatment sites have a fish timing window (noted above) that restricts general broad spectrum control during this limited two week timeframe. Treatments may occur prior to July 15 and after July 31 but such applications can only utilize specific herbicides that typically target only Eurasian watermilfoil. The only timeline permitted to control Brazilian Elodea is July 15 through July 31.

Eurasian watermilfoil is classified as a non-regulated Class B noxious species while fragrant water lily is a non-regulated Class C species. Both classifications are not designated for control in King County, control is only recommended but not required.

Brazilian Elodea is a Class B noxious species. Typically this classification mandates control in areas where the plant is not wide spread. Brazilian elodea is designated for control throughout King County except in Lake Washington and the Sammamish River. Control at the four targeted sites for this species is under the discretion of the local jurisdiction.

Established Treatment Zones (Four targeted control sites)



Predominant lake use within the targeted sites consists of typical non wake recreational use activities, swimming, fishing, canoeing, kayaking and paddle boarding.

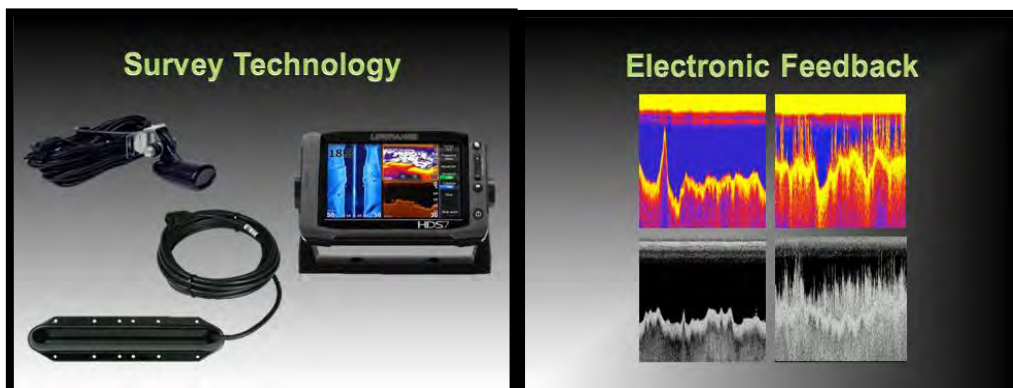
Survey Protocol

The NWAEE mapping protocol utilizes state of the art Bio Base mapping technology. This system produces three map types consisting of a bathymetric contour, a sediment composition profile and a macrophyte density map. All maps are GIS friendly and can be exported into any GIS program. Maps are color coded so they can be easily evaluated by any viewer.

Mapping technology utilizes specialized transducers that electronically collect thousands of data points as the survey boat transects the lakes littoral zone. Data is recorded and viewed onboard. Each file contains one hour of survey data. A completed survey may be comprised of one or more files. Upon completion, all the program files are downloaded and processed. The survey and sonar log produces a stored electronic file of the lake bottom that can be viewed in house at any time and allows the ability to view plant growth along the boats survey track.

Our protocol encompasses a surface vehicle transecting the lake along the entire littoral zone. Boat tracks are designed to be approximately 150 feet apart. Sonar beam data collection extends approximately 150 feet from all directions surrounding the boat. To ensure the efficacy of the survey, a bottom sampling rake is thrown from the boat at various locations lake-wide. The rake is then drawn across the lake bottom, brought to the surface and into the boat. Plants attached to the rake are identified and confirmed as being the same species as noted through the structure scan or visually noted through the water column. This sampling point is then incorporated into the file data log as a single point reference noting the species captured during the rake tow. These points are then added to the final project map.

Noted below is the equipment utilized during a survey event. The survey technology picture below identifies the chart recorder, transducer and structure scan electronics. Electronic feedback picture displays real time data as being recorded and viewed on screen. Color and black/white photos on the left identify a lake bed bottom without weed growth, pictures on the right depict weed growth throughout the water column.



Our program provides for a straightforward format for the interpretation of pre and post treatment results.

One issue related to the use of sonar technology is the inability to accurately map weed beds in depths of less than 3 feet or in areas where weed densities interfere with the ability of the transducer to accurately receive the rebounding signals from the bottom sediments. The transducer must accurately define the lake bottom from which the signal rebounds while also receiving a signal that is not distorted due to the short distance the transducer is in conjunction with the bottom. As a result of these issues it is not advisable to rely on survey data in depths of less than 3 feet. Our late August survey of these sites brings into focus how these environmental conditions influence the survey results.

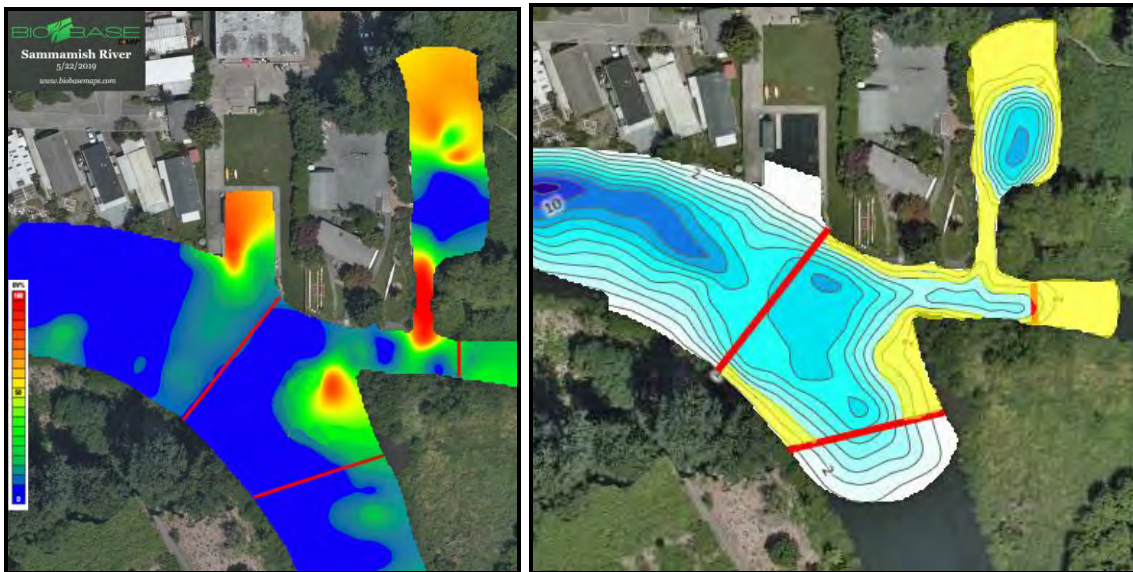
Pre Treatment Survey 5-22-19

The 2019 pre-treatment assessment was conducted on May 22. Survey maps were broken down into three separate events Area #1, Areas #2 & #3 and Area #4. A bathymetric map of each site is included in the survey with water depths less than three feet identified in yellow.

Maps have been produced and processed utilizing the BioBase (www.biobasemaps.com) mapping software.

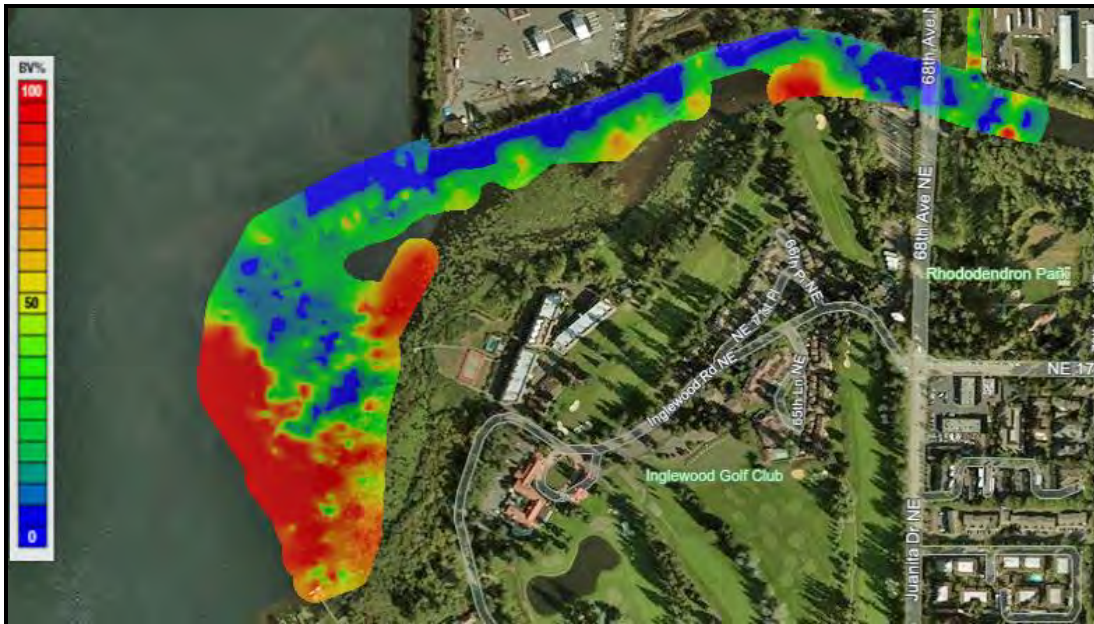
Blue areas indicate no plant biomass present, yellow 50% and red 100%. Bathymetric maps have been delineated at one foot contour intervals.

Area #1



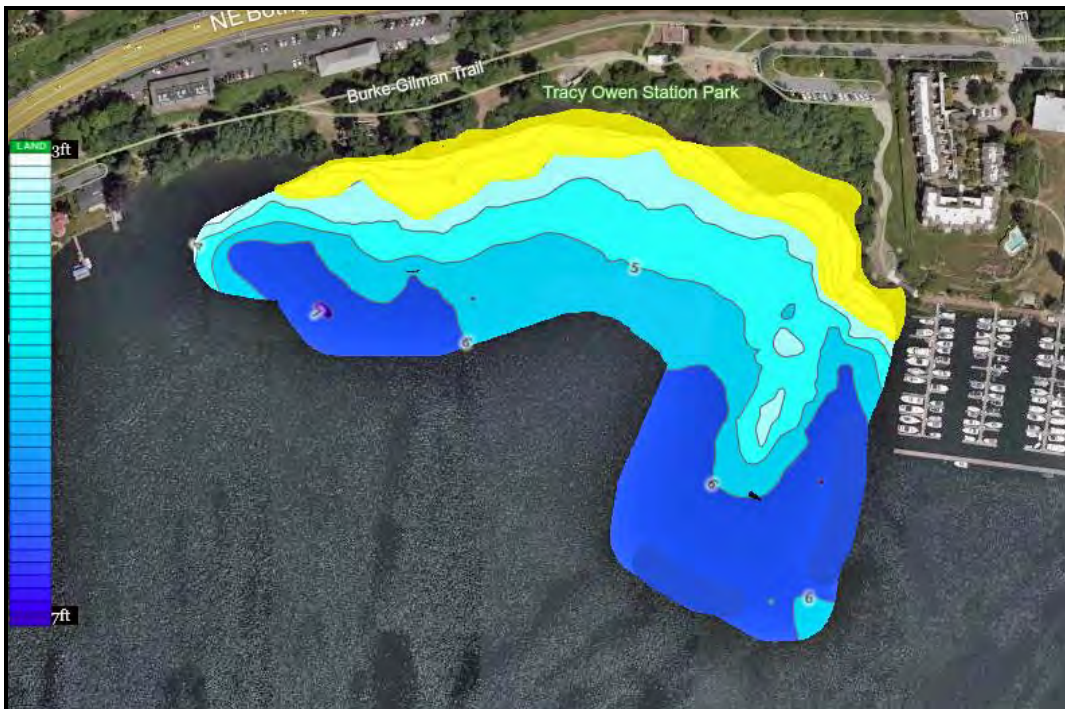
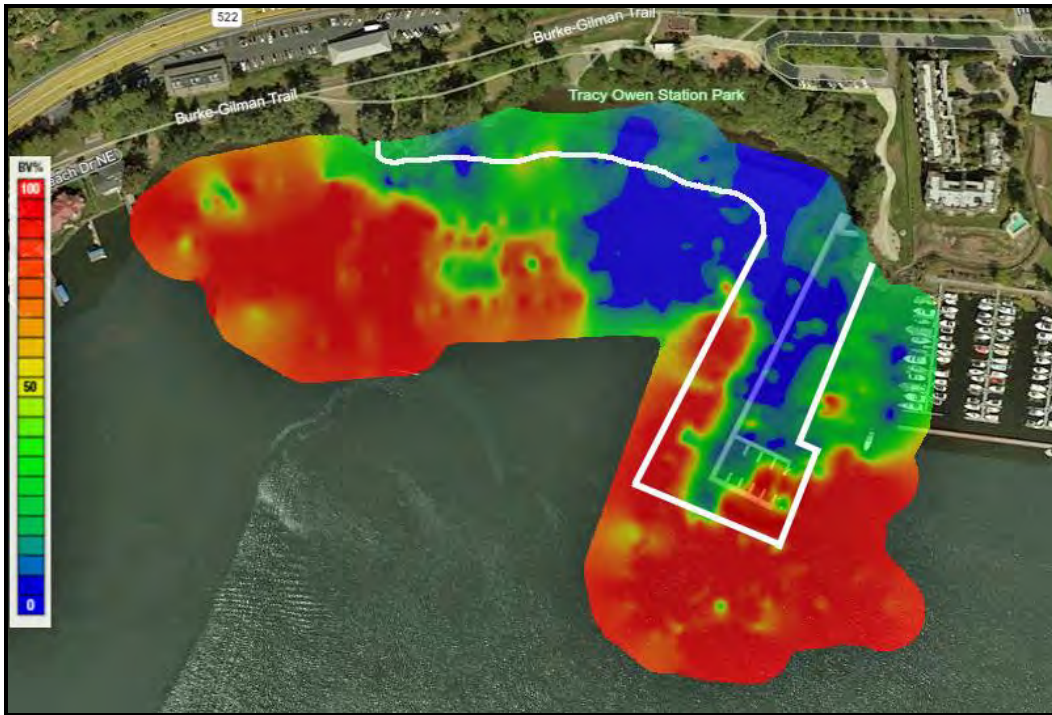
Three foot yellow contour

Area #2 & #3



Three foot yellow contour

Area #4



Three foot yellow contour

Pre treatment rake bottom sampling data was mistakenly erased from the unit during a hard set reboot during the post treatment survey.

Triclopyr Treatment 5-28

All sites were treated with Triclopyr to control Eurasian watermilfoil and fragrant water lily. Prior to treatment all residents and business within ¼ mile of the targeted sites were sent a Business and Residential treatment notification in accordance with the permit guidelines. A mailing list provided by the city was utilized to complete this task. On the day of treatment docks and properties within 400 feet of the sites were posted with signage that also complied with the permit requirements.



A sixteen foot Airgator airboat with two 25 gallon holding tanks and weighted discharge hoses were incorporated into the project as the vessel responsible for applying the herbicide mixture. As each site was sprayed the correct prescribed dosage was added into the tanks. If the tanks were not full the remaining volume in each tank was then filled with clean lake water. Upon arrival at each designated site the onboard pumping system was then engaged. Water was drawn from the lake and mixed onboard with the herbicide through a metered injection system. Once mixed the resulting combination was then injected back into the water column within two feet of the bottom. The treatment boat transversed each targeted location until the mixture was evenly distributed.

All empty containers were triple rinsed at the staging area or treatment sites.

Treatment Area ID #1 5-28-2019

Chemical Used –Triclopyr

Active Ingredient 15 pounds, 5 gallons

Acreage Treated– .85

Treatment Area ID #2 5-28-2019

Chemical Used –Triclopyr

Active Ingredient 255 pounds, 78 gallons

Acreage Treated 16.28

Treatment Area ID #3 5-28-2019

Chemical Used –Triclopyr

Active Ingredient 25 pounds 25, 8.5 gallons
Acreage Treated– 4.07

Treatment Area ID #4 5-28-2019

Chemical Used –Triclopyr
Active Ingredient 30 pounds, 10 gallons
Acreage Treated– 5.69

Post Treatment Visual Survey 6-15-19

A brief visual inspection of the site was performed to assess the effectiveness of the Triclopyr treatment. Milfoil plants were exhibiting a typical and expected response of bent stems, discolored leaves and partial defoliation. Fragrant water lily plants were experiencing a very limited barely noticeable response. Characteristically these plants should have been exhibiting a much stronger response to the Triclopyr. It appeared that limited uptake of the herbicide occurred.

Diquat & Hydrothol Treatment 7-17 & 7-18

The same posting procedure noted during the earlier treatment was once again utilized during this event. Application equipment was the same with the one exception that the discharge hoses were now positioned one foot from the water's surface. Targeted species for all sites consisted of pondweeds (dominant species white stem), coontail, elodea, and Brazilian Elodea. Area #1 was experiencing a filamentous algae problem so Hydrothol 191 was applied to this small site at a rate of .2ppm. Areas #1 & #2 were treated first. Poor weather shortly surfaced as the treatment boat was forced to secure cover in the marina adjacent to site #4. Weather conditions continued to degrade as planes were no longer landing or taking off from Kenmore Air. Our crew remained hostage to the weather for approximately three hours. A short downturn in the weather occurred and the crew proceeded back to the launch. NWAEC returned back to the site the following day to complete the treatment of sites #3 & #4. Wind and rain likely created problems with the posting signage remaining in place.

Treatment Area ID #1 7-17-2019-

Chemical Used –Diquat, Hydrothol 191
Active Ingredient 5.6 pounds Diquat, 1.5 gallons, Hydrothol 3.0 pounds, 1.5 gallons
Acreage Treated– .85

Treatment Area ID #2 7-17-2019

Chemical Used –Diquat
Active Ingredient 93.25 pounds, 25 gallons
Acreage Treated 16.28

Treatment Area ID #3 7-18-2019

Chemical Used – Diquat, Triclopyr

Active Ingredient 26.1 pounds Diquat, 7 gallons, Triclopyr 1.5 pounds, .5 gallons

Acreage Treated– Diquat 4.07, Triclopyr .25

Treatment Area ID #4 5-28-2019

Chemical Used –Diquat

Active Ingredient 37.3 pounds, 10 gallons

Acreage Treated– 5.69

Post Treatment Visual Survey 7-26-19

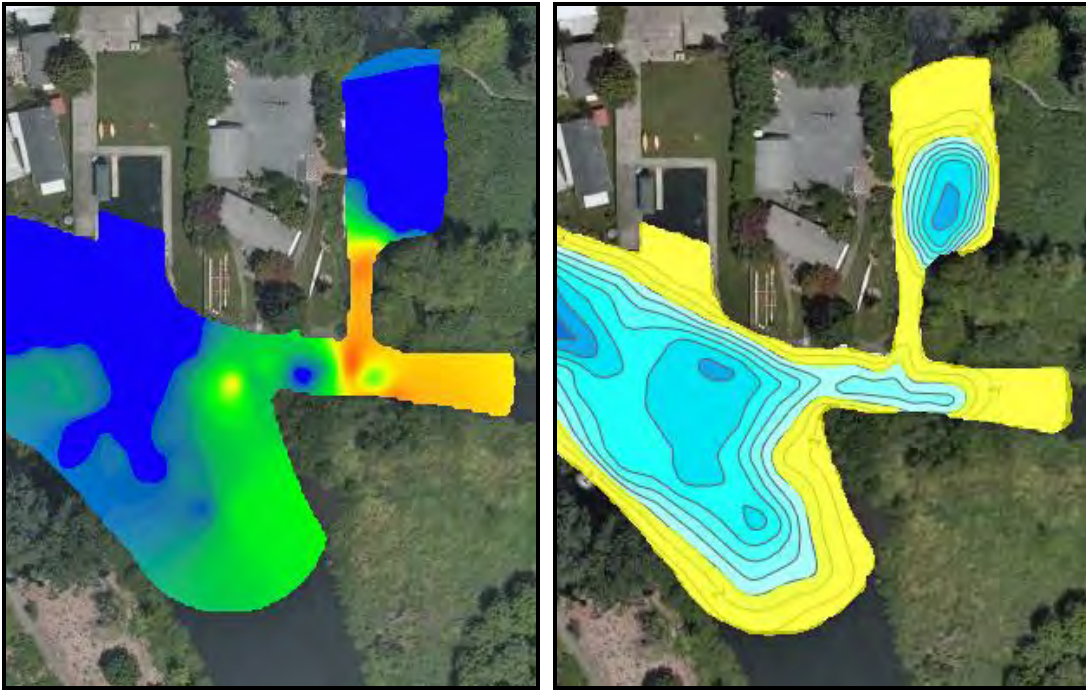
A visual inspection of all sites resulted in observing all targeted species responding to the application. The small test site within site #3 was exhibiting a favorable response to the surface spraying of the lily pads with triclopyr.

Post Treatment Survey 8-19

A post treatment survey was conducted on 8-19, 30 days following the 7-17 & 7-18 treatments. At the time of the survey water levels had declined. These lower water levels resulted in access related issues and survey complications. Lake level decline was approximately one foot. Three foot contour lines established during the 8-19 survey represented very closely the old 4 to 4.5 foot contour detected during the May survey. Much of the main basin and lower Sammamish River (areas #2 & #3) were now below the acceptable limit for a reliable electronic survey.

Lower water levels also resulted in the eel grass (*vallisneria*) positioned horizontally in the water column instead of vertically. This horizontal positioning tends to skew the data as a result of more leaf area having greater exposure to the sonar.

Area #1

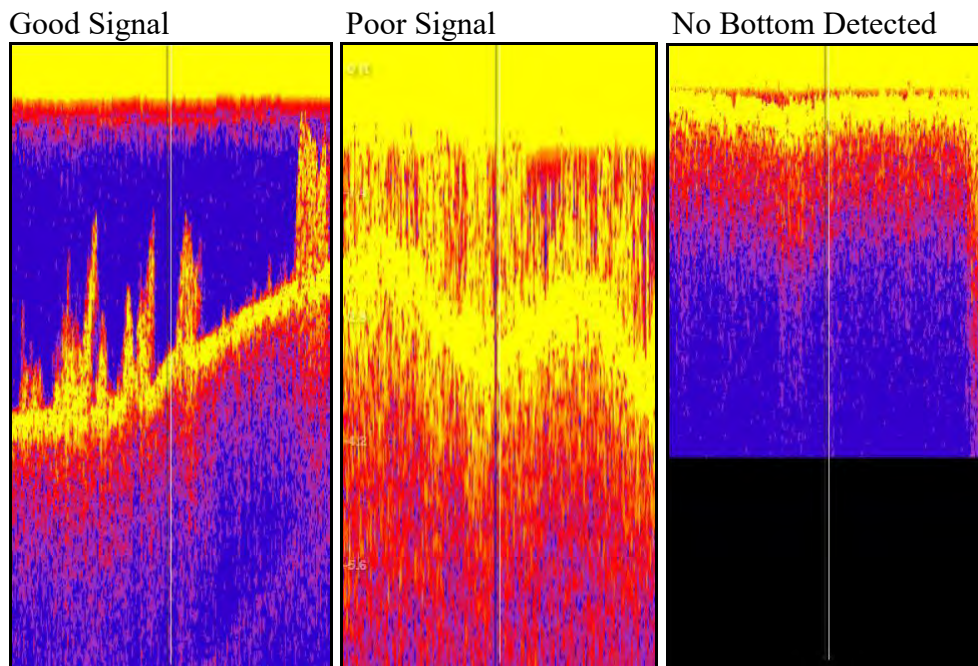


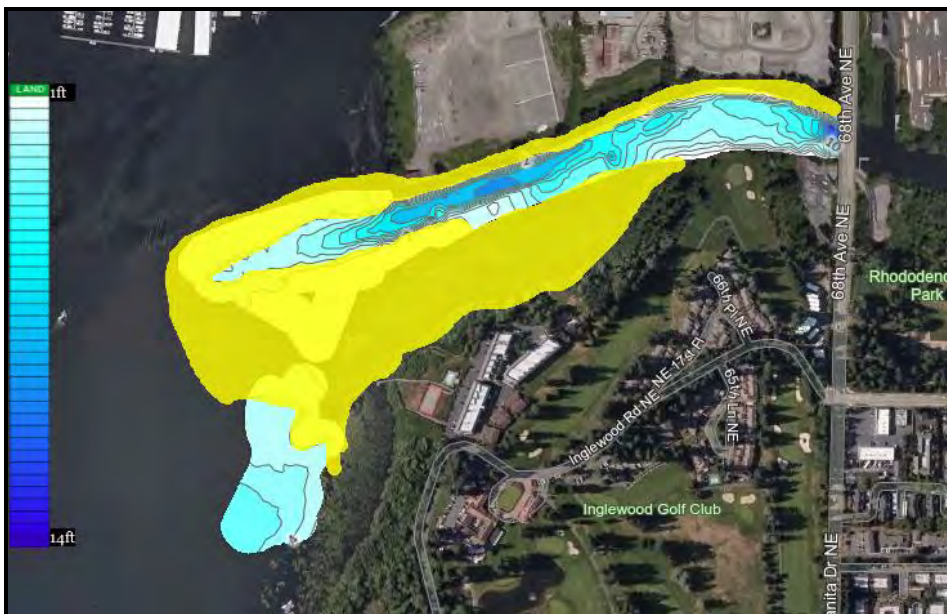
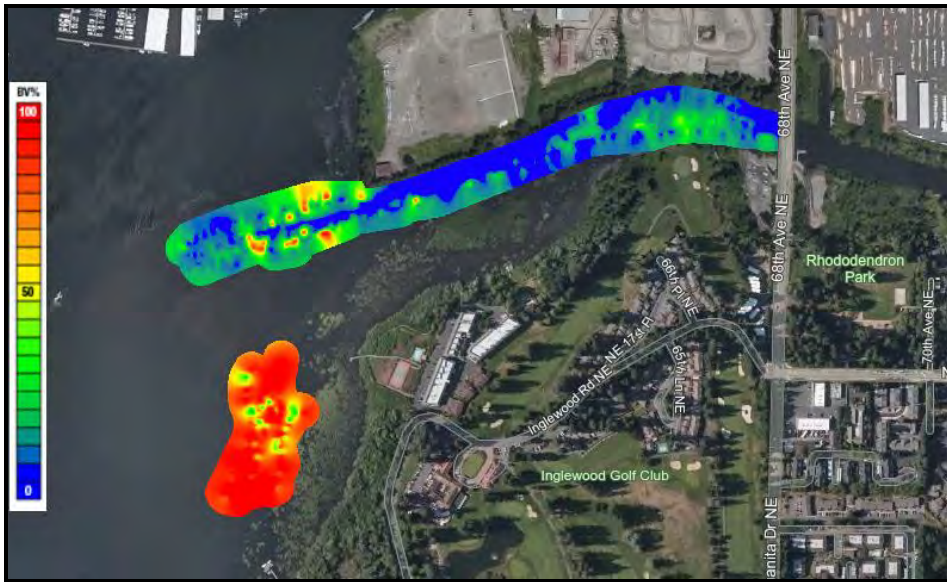
Three foot yellow contour

Nearly all of the areas representing weed densities greater than 50% are located in waters three feet or less in depth.

Areas #2 & #3

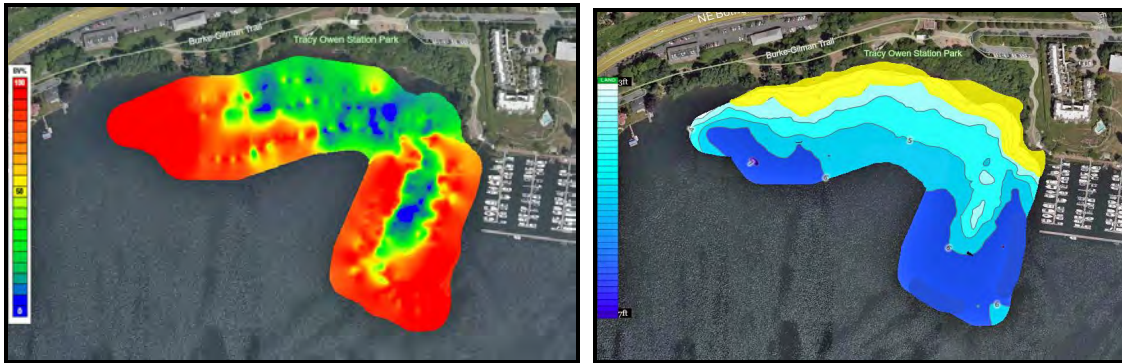
Areas #2 & #3 proved to be the most difficult to survey as a result of low water levels throughout most of the site. The boat had limited access to much of the lily pad infestation zones due to excessive lily growth and low water levels. As observed in the vegetation map below only a channel down the center of the waterway leading into Lake Washington produced any meaningful data. Sonar signals were weak off the bottom at times producing no viable on screen image. Typically the on board screen illustrates a strong bottom line identifying the bottom sediments accompanied with a clear water profile. These critical attributes were limited throughout the survey.





Three foot yellow contour

Area #4



Yellow three foot contour

Bottom Sampling Tows

20 data points were collected throughout the sites identifying the macrophyte community within the immediate sampling area. Sampling points were then imported into the site project map.





Bottom sample from waypoint #014

Waypoint	Comment	Latitude	Longitude
001	E, A	N47.75471	W122.241
002	C, A	N47.75428	W122.241
003	C, A	N47.75418	W122.241
004	N	N47.75450	W122.242
005	A	N47.75450	W122.249
006	TP, A	N47.75478	W122.250
007	TP	N47.75470	W122.252
008	C	N47.75378	W122.256
009	A	N47.75354	W122.257
010	A, C	N47.75318	W122.258
011	A	N47.75350	W122.258
012	A, BE, DP	N47.75091	W122.258
013	A, DP	N47.75030	W122.259
014	NI, A, WP	N47.75596	W122.263
015	C, V, A	N47.75516	W122.264
016	V, C	N47.75507	W122.264
017	dead plants	N47.75686	W122.264
018	V, E	N.47.75687	W122.263
019	WP	N47.75529	W122.264
020	BE	N47.75586	W122.264

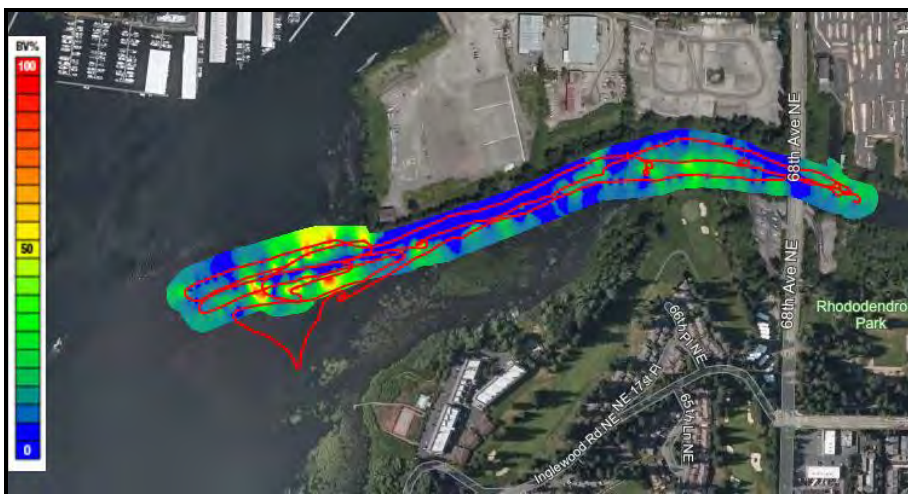
E- elodea, V- vallisneria, C- coontail, WP- white stem pondweed
 NI- niad, A- filamentous algae, N- nitella, TP- thin leaf pondweed
 DP- dead plants

Treatment Evaluation

The shallow nature of three of the four sites in conjunction with the change in water level proved to be a difficult task when evaluating the success or failure of the 2019 control program. Our survey protocol and processing are capable of evaluating biomass in a number of formats.

A polygon can be delineated around weed beds or specific areas. Weed densities can be evaluated between different contour lines or a shape file of the treatment site can be used as the reference with all calculations occurring within the file shape. The change in water depth, no referenced shape file and the difficulty of accurately representing the treatment site by creating a best guess estimate with a polygon proved to be unattainable. The degree of control requested by the City of Kenmore within their RFP appears to be a standard that may be unrealistic over the length of a growing season. Most all of the native plants residing throughout the sites reproduce from seed germination and this process occurs throughout the length of the season. Contact herbicides simply burn the green vegetative portion of the plants leaving viable roots to sprout new growth approximately 45 days post application. These products are only active to the plants present at the site during treatment. There are no residual related properties. Regrowth typically doesn't create a seasonal problem in deep water bodies but in shallow system's supporting good light penetration, once regrowth initiates the process proceeds quickly. This often results in seasonal weed growth patterns that afford low density biomass immediately succeeding application however as the season progresses these biomass densities increase in relation to the water's depth. A fifteen foot water depth supporting regrowth of two feet proves to be a non issue in this scenario. However a two foot regrowth in a three foot depth creates a water column that now consists of nearly a 66% biomass volume.

Associated problems noted throughout all of the sites consisted of the boat track (red line) not being able to successfully capture the sonar signal resulting in no data along that portion of the track.



What can be concluded from this year's final survey was that no native or noxious plants were creating any type of recreational hazard within areas that were not dominated by fragrant water lilies. Most all of the shallow areas did not support motor boat access as was noted by our survey boat constantly churning up the bottom, becoming stuck in soft muck and damaging the prop in an effort to access all the targeted sites.

Only one Brazilian Elodea plants were observed and only sparse single stemmed milfoil plants were identified. No milfoil was noted at the bottom sampling stations. The majority of the milfoil observed was within area #2 noted on the map below.



It was clear that milfoil was controlled as a result of the Triclopyr treatment. Milfoil plants outside of the treatment #3 site had been impacted from the resulting drift of material off site.

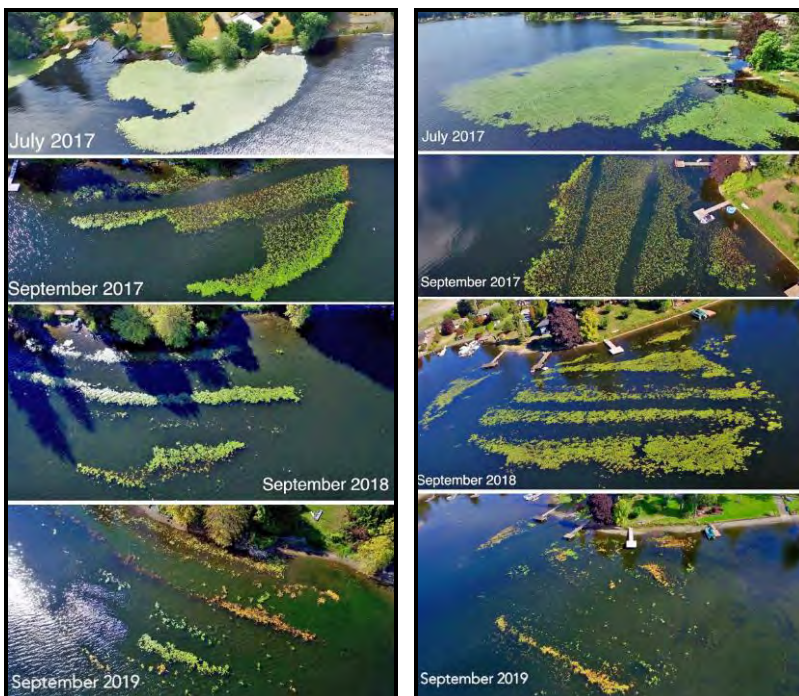


Little if any noticeable change in the fragrant water lily infestations was noted. This is the third year lily pads have been targeted and the accompanying results appear to fall far short of what should be expected.



Lily pads that have been sprayed for three years within site #3. Semi open channel represents a single surface spraying of the pads that occurred during 2019.

Below is a three year sequence of a lily pad eradication process actively in progress utilizing surface application.



Recommendations

1. City of Kenmore should disclose in the RFP the limited depths associated with each site and the potential for access related problems accompanying depth changes as the season progresses. The shallow nature of the sites disrupted our teams technical approach to the project. A bathymetric map of the area would also prove to be helpful.
2. A shape file of each treatment site should be provided in the RFP so that interested parties have a clear understanding as to the boundaries of each site. The file and site locations can then be utilized by the selected contractor in evaluating project components and results. Our team could only guess the boundaries of each site in accordance with the hard copy site plan provided.
3. The lack of milfoil and Brazilian elodea throughout the sites during the initial survey complements the fact that these areas are currently experiencing limited noxious weed issues and that the recreational related access issues is more related to native plant growth. Perhaps targeting the current sparse milfoil growth on a full scale basis with an expensive early seasonal treatment should be reconsidered. Perhaps a spot treatment approach or bi annual treatment would prove to be more cost effective.
4. The current approach of injecting herbicide into the lily pad infestations while also controlling the milfoil appears not to have resulted in favorable long term results. Typically lily pads are surface sprayed so that ample material is translocated down into the root system over an extended period of time. Injecting into the water column provides only a short window for this translocation to occur. Early seasonal spraying of lily pads is less effective than mid to late seasonal spraying. Two surface applications should be applied approximately 30 days apart. First application should occur late July. These infested areas currently provided limited recreational access. Perhaps submersed weed control activities should be curtailed until greater access is achieved and the funding currently allocated for submersed weed control within these areas be shifted to floating plant control.
5. The City of Kenmore should extend the contract terms to two years. There was considerable confusion amongst property owners as to who was providing the service. Over the past three years different contractors have been responsible for treatment. In addition to eliminating confusion the selected contractor would know that his effort or lack of effort would be realized the preceding year. It would also encourage the contractor to institute recognized changes the second year that were learned to be beneficial the initial year. At times a contractor during the contract year will uncover site specific issues that can improve the projects outcome but is unwilling to make those discoveries known knowing that they may not be involved with the project the following year.
6. The treatment window for native species is only approximately two weeks. The program should require a visual survey 7-10 days post application so that if an additional treatment is required it can be performed within the treatment window opening. Our crew

noted that the weather conditions can change quickly in the northern portion of Lake Washington. Wind will move the herbicide, create suspended sediment issues and if a rain event were to occur, possibly flush the herbicide from the sites prior to securing the proper exposure time. This visual survey should be performed with a City of Kenmore representative on the survey boat.

7. A more realistic method to evaluate plant density changes at these shallow targeted sites.

PESTICIDE APPLICATION RECORD (Version 3)

NOTE: This form must be completed same day as the application and it must be retained for 7 years. (Ref. RCW 17.21)

1. Date of Application-Year: 2019 **Month:** May 28 **Date:** 06 **Time:** 9:00

2. Name of person for whom the pesticide was applied: City of Kenmore

Firm Name (if applicable): Richard Sawyer

Street Address: 18120 68th Ave NE **City:** Kenmore, 98028

3. Licensed Applicator's Name (if different from #2 above): Douglas Dorling

Firm Name): Northwest Aquatic Eco-Systems

4426 Bush Mountain Drive SW.

Olympia, WA. 98512

360-357-3285

License # 375

4. Name of person who applied the pesticide (if different than #3 above):

License No(s). if applicable:

5. Application Crop or Site: Lake WA, Sammamish River

6. Total Area Treated (acre, sq. ft., etc.): 27 acres,

7. Was this application made as a result of a WSDA Permit ? No

8. Pesticide information (please list all information for each pesticide in the tank mix):

a) Product Name Pesticide Applied	b) EPA Reg. No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied/Acre (or other measure)	e) Concentration Applied ppm
Triclopyr	819127-3	101.5 gallon	4-6 gals/acre	

9. Address or exact location of application NOTE: If the application made to one acre or more of Agricultural land, the field location must also be shown on the map on page two of this form. City of Kenmore north shore of Lake Washington and Sammamish River as it enters Lake WA.

10. Date: 5-28-19

11. Name of person making application: Douglas Dorling

12. License No: 375

13. Apparatus License. Plate No.: G-425

14. Start: 9:00 **Stop:** 5:00

15. Acres completed : 27

16. Wind Direction: SW **Wind Velocity:** 0-5

17. Temperature: 70

Location of Application (If the application covers more than one township or range, please indicate the township & range for the top left section of the map only):

Township: T26N

Range: E OR W (please indicate) 04E

Section(s): 11

County: King

PLEASE NOTE:

The map is divided into 4 sections with each section divided into quarter-quarter sections.

Please complete it by marking the appropriate section number(s) on the map and indicate as accurately as possible the location of the area treated.

PESTICIDE APPLICATION RECORD (Version 3)

NOTE: This form must be completed same day as the application and it must be retained for 7 years. (Ref. RCW 17.21)

1. Date of Application-Year: 2019 **Month:** July **Date:** 17 **Time:** 9:00

2. Name of person for whom the pesticide was applied: City of Kenmore

Firm Name (if applicable): Richard Sawyer

Street Address: 18120 68th Ave NE **City:** Kenmore, 98028

3. Licensed Applicator's Name (if different from #2 above): Douglas Dorling

Firm Name): Northwest Aquatic Eco-Systems

4426 Bush Mountain Drive SW.

Olympia, WA. 98512

360-357-3285

License # 375

4. Name of person who applied the pesticide (if different than #3 above):

License No(s). if applicable:

5. Application Crop or Site: Lake WA, Sammamish River

6. Total Area Treated (acre, sq. ft., etc.): 17 acres,

7. Was this application made as a result of a WSDA Permit ? No

8. Pesticide information (please list all information for each pesticide in the tank mix):

a) Product Name Pesticide Applied	b) EPA Reg. No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied/Acre (or other measure)	e) Concentration Applied ppm
Diquat	100-1390	26.5 gallons	1-2 gals/acre	
Hydrothol 191	70506-1753	1.5 gallons		.2 ppm

9. Address or exact location of application NOTE: If the application made to one acre or more of Agricultural land, the field location must also be shown on the map on page two of this form. City of Kenmore north shore of Lake Washington and Sammamish River as it enters Lake WA.

10. Date: 7-17-19

11. Name of person making application: Douglas Dorling

12. License No: 375

13. Apparatus License. Plate No.: G-425

14. Start: 9:00 **Stop:** 1:00

15. Acres completed : 17.3

16. Wind Direction: S **Wind Velocity:** 0-5 Treatment stopped due to wind

17. Temperature: 74

Location of Application (If the application covers more than one township or range, please indicate the township & range for the top left section of the map only):

Township: T26N

Range: E OR W (please indicate) 04E

Section(s): 11

County: King

PLEASE NOTE:

The map is divided into 4 sections with each section divided into quarter-quarter sections.

Please complete it by marking the appropriate section number(s) on the map and indicate as accurately as possible the location of the area treated.

PESTICIDE APPLICATION RECORD (Version 3)

NOTE: This form must be completed same day as the application and it must be retained for 7 years. (Ref. RCW 17.21)

1. **Date of Application-Year: 2019 Month: July Date: 18 Time: 9:30**

2. **Name of person for whom the pesticide was applied: City of Kenmore**
Firm Name (if applicable): Richard Sawyer
Street Address: 18120 68th Ave NE City: Kenmore, 98028

3. **Licensed Applicator's Name (if different from #2 above): Douglas Dorling**
Firm Name): Northwest Aquatic Eco-Systems
4426 Bush Mountain Drive SW.
Olympia, WA. 98512
360-357-3285
License # 375

4. **Name of person who applied the pesticide (if different than #3 above):**
License No(s). if applicable:

5. **Application Crop or Site: Lake WA, Sammamish River**

6. **Total Area Treated (acre, sq. ft., etc.): 9.76 acres,**

7. **Was this application made as a result of a WSDA Permit ? No**

8. **Pesticide information (please list all information for each pesticide in the tank mix):**

a) Product Name Pesticide Applied	b) EPA Reg. No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied/Acre (or other measure)	e) Concentration Applied ppm
Diquat	100-1390	17 gallons	1-2 gals/acre	
Triclopyr	81927-3	.5		1%

9. **Address or exact location of application NOTE: If the application made to one acre or more of Agricultural land, the field location must also be shown on the map on page two of this form. City of Kenmore north shore of Lake Washington and Sammamish River as it enters Lake WA.**

10. **Date: 7-18-19**

11. **Name of person making application: Douglas Dorling**

12. **License No: 375**

13. **Apparatus License. Plate No.: G-425**

14. Start: 9:30 Stop: 2:00

15. Acres completed : 9.76

16. Wind Direction: SW Wind Velocity: 0-5 continuation of 7-17 treatment

17. Temperature: 76

Location of Application (If the application covers more than one township or range, please indicate the township & range for the top left section of the map only):

Township: T26N

Range: E OR W (please indicate) 04E

Section(s): 11

County: King

PLEASE NOTE:

The map is divided into 4 sections with each section divided into quarter-quarter sections.

Please complete it by marking the appropriate section number(s) on the map and indicate as accurately as possible the location of the area treated.