

AVISTA CORPORATION

LAKE SPOKANE AND NINE MILE RESERVOIR 2018 AQUATIC WEED SUMMARY REPORT

SPOKANE RIVER LICENSE APPENDIX B
WASHINGTON 401 CERTIFICATION SECTION 5.3(E)

SPOKANE RIVER HYDROELECTRIC PROJECT
FERC PROJECT NO. 2545

Prepared By:
Avista Corporation

February 22, 2019

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APPENDICES

Appendix A. Consultation Record

1.0 INTRODUCTION

On June 18, 2009, the Federal Energy Regulatory Commission (FERC) issued Avista Corporation (Avista) a License (License) for the Spokane River Hydroelectric Project (Project) for a 50-year term (FERC 2009). The Project consists of five hydroelectric developments (HEDs), including the Post Falls HED in Idaho, and the Upper Falls, Monroe Street, Nine Mile and Long Lake HEDs in Washington.

The Washington Department of Ecology's (Ecology) Section 401 Water Quality Certification (Certification), which is incorporated as Appendix B of the License, required Avista to develop an aquatic weed management plan for Lake Spokane, the reservoir created by Long Lake Dam, and for Nine Mile Reservoir, created by Nine Mile Dam. In accordance with the requirement, Avista developed the Lake Spokane and Nine Mile Reservoir Aquatic Weed Management Plan (AWMP) in consultation with Ecology, the Washington Department of Fish and Wildlife (WDFW), and the Washington Department of Natural Resources (WDNR), in 2010 (Avista 2010). On January 13, 2011, FERC issued an Order modifying and approving the AWMP pursuant to Article 401(a)(5).

1.1 Background

The AWMP was developed to control non-native, invasive, and nuisance aquatic weeds in Lake Spokane, a 5,060-acre, 23.5-mile-long reservoir, created by Long Lake Dam at River Mile (RM) 33.9. The AWMP also includes monitoring for and controlling invasive aquatic weeds in Nine Mile Reservoir, a 440-acre, 6-mile-long reservoir created by Nine Mile Dam (located at RM 58.1).

Lake Spokane was surveyed for aquatic weeds in its entirety in 2000 (TetraTech 2001), 2007 (AquaTechnex 2007), 2012 (AquaTechnex 2012) and again in 2016 (AquaTechnex 2016). The AWMP summarizes the 2000 and 2007 surveys and identifies the following noxious weeds in Lake Spokane: curly-leaf pondweed (*Potamogeton crispus*), Eurasian watermilfoil (milfoil) (*Myriophyllum spicatum*), fragrant waterlily (*Nymphaea odorata*) and yellow floatingheart (*Nymphoides peltata*). Flowering rush (*Butomus umbellatus*) was identified in Lake Spokane in 2010 by Ecology. Additionally, in 2012, Avista identified milfoil and reaffirmed flowering rush in Nine Mile Reservoir (Avista 2013). Based on this information, a revised monitoring and control plan was completed and included in the 2013 Summary Report (Avista 2014).

The goals identified in the AWMP, specific to Lake Spokane, are to: (1) reduce invasive and nuisance aquatic weeds at public and community boat access points, (2) maintain a moderate level of ongoing control of aquatic weeds in areas from 0 to 14 feet in depth, through the use of winter drawdowns, and (3) support weed control efforts and facilitate coordination among the entities involved in aquatic weed control on Lake Spokane. Elements of the AWMP, specific to Lake Spokane include:

- Implementing site-specific aquatic weed control actions at the primary recreation access points;

- Implementing a reservoir-wide winter drawdown for the purpose of aquatic weed control; and
- Monitoring to evaluate the effectiveness of site-specific aquatic weed control actions and reservoir-wide winter drawdowns.

The goals identified in the AWMP, specific to Nine Mile Reservoir, are to: 1) monitor annually for milfoil, flowering rush (*Butomus umbellatus*), or other aquatic noxious weeds, and 2) when necessary, recommend and/or implement appropriate treatments.

For both Lake Spokane and Nine Mile Reservoir, the AWMP specifies that Avista will: 1) coordinate aquatic weed management actions with the Cooperating Parties and 2) prepare an annual report summarizing aquatic weed management activities and their effectiveness

This annual report summarizes aquatic weed management efforts that Avista implemented in 2018, including site-specific aquatic weed herbicide treatments and flowering rush removal in Lake Spokane and Nine Mile Reservoir, winter drawdown monitoring, and educational and public outreach activities. Treatment locations discussed in this Report are identified in Figure 1.

2.0 PLAN IMPLEMENTATION

Avista implements prioritized aquatic weed monitoring and control activities in accordance with the annual Program Task List (List). This List is developed in coordination with the Cooperating Parties, identified in Section 2.1, on an annual basis. The List includes activities that Avista is directly responsible for and other tasks (i.e. local workshops, conferences, other agreed upon site-specific weed control efforts) that Avista may support. Items on the List include but are not limited to: education and outreach related to aquatic weed control, monitoring or surveys for aquatic weeds, and site-specific control activities targeting specific public and private lake access points.

2.1 Coordination with the Cooperating Parties

In order to effectively implement the AWMP, Avista coordinates its weed control activities with the Cooperating Parties, which include Ecology, WDFW, WDNR, the Washington State Parks and Recreation Commission (State Parks), Stevens County Conservation District, Stevens County Noxious Weed Control Board, Spokane County Conservation District, Spokane County Noxious Weed Control Board, Lincoln County Weed Control Board, and the Lake Spokane Association (LSA).

On March 8, 2018, Avista held an annual meeting with the Cooperating Parties and presented proposed tasks for 2018 (Ecology, WDFW, State Parks, and the LSA were in attendance). The 2018 List was refined in coordination with the Cooperating Parties and included the following tasks:

- Evaluate the public and community boat launches in Lake Spokane and potential areas of weed infestation in Nine Mile Reservoir for invasive and/or problematic aquatic weeds, delineate herbicide treatment areas where necessary, and conduct pre-treatment surveys;
- Complete herbicide treatments on Lake Spokane and in Nine Mile Reservoir as needed;
- Conduct pre-drawdown monitoring on Lake Spokane; and
- Implement flowering rush control in Lake Spokane and/or Nine Mile Reservoir.

2.2 Site-Specific Aquatic Weed Control

2.2.1 Aquatic Weed Herbicide Treatment

Lake Spokane

In an effort to reduce aquatic weeds at the public recreation areas with boat launches and community boat launch (CBL) sites on Lake Spokane, site-specific aquatic weed herbicide treatment was conducted at 10 locations in 2018. These included the Spokane Lake Park CBL, Nine Mile Recreation Area, Nine Mile Boating Lane, Lake Ridge Park CBL, West Shore CBL, Suncrest CBL, West Shore Boating Lane, Lake Forest CBL (Felton Slough), Willow Bay Resort/Lakeview, and Lakeshore Estates (Figure 1). In total, 31.4 acres were treated with herbicide on July 10, using a total of 35 gallons of diquat dibromide, a contact herbicide, along with 26 gallons of Hydrothol 191, and 20 gallons of Aquathol.

At each location, pre- and post-treatment surveys were completed by Lakeland Restoration Services (Lakeland). Surveys included visual observations and rake toss samples from a boat at each location. The number of rake throws varied, based upon the size of the treatment area, but generally consisted of 3-4 rake throws within the treatment area and 2-3 rake throws outside the treatment area. Data collected included species identification, relative abundance (percent cover by species), and total cover by species.

In addition to the rake tosses, BioBase mapping was completed in and out of the treatment areas to measure the plant biovolume present before and after treatments. Average percent vegetation biovolume (BV%), based on the BioBase surveys, between the pre-treatment and post-treatment surveys was used to evaluate the effectiveness (efficacy) of each treatment location (Table 1). Percent biovolume (BV%) represents the percent of the water column occupied by plants.

The magnitude of the efficacy at each site varied, but overall, the total BV% at the 10 treatment areas in Lake Spokane was significantly reduced (Paired t-test; $p < 0.01$) by the herbicide treatment. The average pre-treatment BV% in 2018 was the lowest (61%) since BioBase surveys began being conducted on these same 10 treatment locations in 2016. This suggests that the annual treatment of weeds is having a long-term impact on the overall reduction of weeds in Lake Spokane.

Table 1. Lake Spokane Herbicide Treatment Effectiveness Table

Location	Acres Treated	Aquatic Vegetation Biovolume (%)		
		Pre-	Post-	Efficacy*
Spokane Lake Park CBL	1.6	62%	26%	58%
Nine Mile Recreation Area	4.6	55%	44%	20%
Nine Mile Boating Lane	11.0	72%	76%	-5%
Lake Ridge Park CBL	0.9	92%	65%	30%
West Shore CBL	1.3	53%	52%	2%
Suncrest CBL	0.5	51%	13%	75%
West Shore Boating Lane	3.5	60%	41%	31%
Lake Forest CBL	0.6	64%	29%	55%
Willow Bay Resort/Lakeview	6.0	45%	26%	42%
Lakeshore Estates	1.4	56%	32%	43%
Total	31.4	61%	40%	35%

* Efficacy is determined by the difference between pre-treatment and post-treatment percent biovolume divided by the pre-treatment percent biovolume.

Spokane Lake Park Community Boat Launch

The Spokane Lake Park CBL is a private community launch on the south shoreline in the upper portion of Lake Spokane, about a quarter mile downstream of the mouth of the Little Spokane River. It has been treated annually since 2012. In 2018, a total of 1.6 acres were treated (Figure 2). Pre-treatment BV% was 62% and post-treatment BV% was 26%, resulting in an efficacy of 58%.

Nine Mile Recreation Area

The Nine Mile Recreation Area treatment area is located around the community boat launch at the Nine Mile Recreation area, along the south shoreline in the upper portion of Lake Spokane, and has been treated annually since 2011. In 2018, a total of 4.6 acres were treated (Figure 3). Pre-treatment BV% was 55% and post-treatment BV% was 44%, resulting in an efficacy of 20%.

West Shore Boating Lane

The West Shore Boating Lane treatment area is located downstream of Suncrest Park, in front of the West Shore community, on Lake Spokane's southern shoreline. This area has been treated annually since 2011. In 2018, 3.5 acres were treated at this location (Figure 4). Pre-treatment BV% was 60% and post-treatment BV% was 41%, resulting in an efficacy of 31%.

Nine Mile Boating Lane

The Nine Mile Boating Lane (in Lake Spokane) treatment area is located approximately one half-mile downstream of the Nine Mile Recreation Area. The boating lane has been treated annually since 2014 and was first treated in 2011. A total of 11 acres were treated at this location in 2018 (Figure 5). Pre-treatment BV% was 72% and post-treatment BV% was 76%, resulting in an efficacy of -5%.

Lake Ridge Park Community Boat Launch

The Lake Ridge CBL treatment area is located just downstream of the Nine Mile Boating Lane treatment area at the Lake Ridge CBL along Lake Spokane's northern shoreline. This site has been treated annually since 2011. A total of 0.9 acres was treated at this location in 2018 (Figure 5). Pre-treatment BV% was 92% and post-treatment BV% was 65%, resulting in an efficacy of 30%.

Suncrest Community Boat Launch

The Suncrest CBL treatment area is located at the private boat launch at Suncrest Park and has been treated annually since 2011. In 2018, 0.5 acres were treated at this location (Figure 6). Pre-treatment BV% was 51% and post-treatment BV% was 13%, resulting in an efficacy of 75%.

West Shore Community Boat Launch

The West Shore Boating CBL treatment area is located downstream of the Suncrest Park, in front of the West Shore community, and on Lake Spokane's southern shoreline. It has been treated annually since 2011. In 2018, 1.3 acres were treated at this location (Figure 6). Pre-treatment BV% was 53% and post-treatment BV% was 52%, resulting in an efficacy of 2%.

Lake Forest Community Boat Launch

The Lake Forest CBL treatment area is located in Felton Slough on Lake Spokane's north shoreline and has been treated with herbicide annually since 2012. In 2018, 0.6 acres were treated at this location (Figure 7). Pre-treatment BV% was 64% and post-treatment BV% was 29%, resulting in an efficacy of 55%.

Willow Bay Resort/Lakeview

The Willow Bay Resort/Lakeview treatment area is located in Willow Bay on Lake Spokane. The Willow Bay Resort and Lakeview community both have boat launches at this location. This area has been treated with herbicide annually since 2011. In 2018, 6 acres were treated at this location (Figure 8). Pre-treatment BV% was 45% and post-treatment BV% was 26%, resulting in an efficacy of 42%.

Lakeshore Estates

The Lakeshore Estates treatment area is located in the Lakeshore community in the town of Tum Tum and has been treated with herbicide annually since 2011. The community has a private boat launch at this location. In 2018, 1.4 acres were treated at this location (Figure 9). Pre-treatment BV% was 56% and post-treatment BV% was 32%, resulting in an efficacy of 43%.

Nine Mile Reservoir

On August 21, 2018, Lakeland and Avista conducted a visual assessment of the weed community in Nine Mile Reservoir, identifying a number of dense and sparse milfoil patches. On September 7, 2018, Lakeland performed an herbicide application to treat 15 acres of milfoil and other nuisance weeds in the reservoir, using a total of 65 gallons of Triclopyr and 15 gallons of Diquat to treat one large area, which was also treated in 2017, and a number of small treatment areas (Figure 10).

Due to many of the treatments areas being small and sparsely populated with milfoil, visual post-treatment surveys were conducted. Visual surveys indicated approximately 95% of the milfoil was successfully treated in the deeper, more open treatment areas and about a 65% success in the near shore, spot treatment areas.

2.2.2 Flowering Rush Removal

Avista continued to implement flowering rush control and contracted with ACE Diving to locate and remove flowering rush in September of 2018. Treatments were carried out by SCUBA divers, aided by technicians wading and/or snorkeling in shallow sites, as appropriate. Prior to initiating any flowering rush treatments, reconnaissance level surveys were conducted to locate the plants. The preferred option for controlling flowering rush was by hand pulling, utilizing a diver suction device, taking special care to ensure the entire plant was removed.

Lake Spokane

Ecology surveyed Lake Spokane in 2010. During the survey they identified and mapped approximately 100 flowering rush plants. Subsequently, Avista removed approximately 200, 900, 485, 580, 1,583, 238, and 392 flowering rush plants between 2011-2017, respectively, utilizing a diver suction dredge. Flowering rush removal was not conducted on Lake Spokane in 2018, and instead Avista increased its efforts to remove more plants in Nine Mile Reservoir, the upstream source of flowering rush.

Avista is planning to draw Lake Spokane down as much as 14 feet, the maximum allowable drawdown elevation, over the winter of 2018-2019, as a means to help reduce the invasive, non-native aquatic weed community in the lake.

Nine Mile Reservoir

Flowering rush was identified in the Nine Mile Reservoir during 2012, when Avista and Ecology conducted independent informal surveys. In 2013, Avista and Ecology completed a visual survey of Nine Mile Reservoir for flowering rush and identified approximately 200 flowering rush plants. In 2014, Avista completed another visual survey and identified approximately 1,150 plants scattered throughout the lower portion of the reservoir.

Between 2014 and 2017, Avista implemented diver hand removal and removed approximately 170, 160, 235, and 660 flowering rush plants, respectively, from Nine Mile Reservoir. In 2018, removal efforts were focused on three of the most densely populated areas (Figure 10). In area 1, 660 lbs (wet weight) of flowering rush was removed, with 360 lbs and 5,400 lbs removed from areas 2 and 3, respectively.

2.3 Lake-wide Aquatic Weed Monitoring

Lake Spokane

Avista did not complete a lake-wide survey for aquatic weeds in 2018, because Aquatechnex LLC completed an Aerial Shoreline Analysis (ASA) for both Lake Spokane and Nine Mile Reservoir to identify and map aquatic weeds in 2016. The ASA was completed utilizing a high resolution digital camera linked to a GPS receiver that recorded location points to identify areas with aquatic weeds. The areas were then mapped and the species identified utilizing the point-intercept method and hydroacoustic aquatic vegetation mapping.

The 2016 survey indicated a total of 1,479 acres of aquatic vegetation in Lake Spokane, which included the following estimated acreages, listed by dominant plant species:

- Milfoil - 221 acres;
- Curly leaf pondweed - 152 acres;
- Flowering rush - 34 acres;
- Native pondweed and/or elodea - 771 acres;
- Floating Yellow Heart - 66 acres;
- Fragrant water lily - 235 acres; and
- Flowering rush - 34 acres

Nine Mile Reservoir

A total of 46.9 acres of aquatic vegetation were identified in Nine Mile Reservoir in 2016, which included the following estimated acreages, listed by dominant plant species:

- Milfoil - 20.3 acres;
- Native pondweed and/or elodea - 26.6 acres; and
- Flowering rush (scattered plants throughout the lower reservoir).

2.4 Lake Spokane Drawdown

As part of implementing the AWMP, Avista plans annual Lake Spokane drawdowns of 13-14 feet for a period of three to six weeks in late December through February to control aquatic weeds. The frequency, duration, and timing of the drawdown is weather and flow dependent, but Avista strives to draw the reservoir down at a minimum of once per four-year period. Avista was not able to draw Lake Spokane down in 2018 due to the warm winter weather and higher than normal precipitation in the form of rain events. Since 2011, Avista has been able to draw Lake Spokane down more than 13 feet, five out of the eight years (Table 3). Out of the eight years, Avista was able to draw the reservoir down 10-14 feet in five years, and down 13-14 feet over three weeks during two of those five years (2012 and 2014).

Table 1. Lake Spokane Winter Drawdown Days and Dates since 2011.

	2011	2012	2013	2014	2015	2016	2017	2018
Total number of days water level was drawn down 13-14 feet	0	35	4	20	0	3	9	0
Dates water level was drawn down 13-14 feet	---	2/8 – 2/13 2/15 – 3/14	3/4 - 3/7	1/25 – 2/5 2/7 – 2/9 2/11 – 2/12 2/18 2/25 – 2/26	---	1/21 – 1/22 2/18	1/15 – 1/21 2/8 – 2/9	---
Total number of days water level was drawn down 10-14 feet	0	57	23	50	0	32	30	0
Dates water level was drawn down 10-14 feet	---	1/20 – 3/16	2/21 – 3/15	1/20 – 3/10	---	1/13 – 1/31 2/14 – 2/26	1/12 – 2/10	---

Winter Drawdown Soil Temperature Monitoring

Soil temperature monitoring was not conducted in 2018, because Lake Spokane was not drawn down due to warm winter weather and higher than normal precipitation in the form of rain. Soil monitoring is planned though, during the 2018/2019 winter drawdown, which again will be weather and flow dependent.

2.5 Lake Spokane Drawdown Vegetation Monitoring

Drawdown vegetation monitoring was not conducted in 2018 because the reservoir was not drawn down. In 2011, ten vegetation monitoring locations were established in recreation areas and boat launches, community boat launch areas, and in problematic aquatic weed areas for drawdown monitoring on Lake Spokane. Monitoring has been completed during June-August and consisted of rake throws and visual observations made at each of the ten monitoring locations. Data is recorded on field monitoring sheets and include the specific dates, monitoring locations, species observed (Table 2), relative abundance, total cover by species, estimated plant height and/or biomass (when possible) for each 10 x 10-foot sampling plot. This information has

been collected to help determine if the overall plant cover and biomass is reduced due to the winter drawdowns. The results of the 2011-2017 drawdown monitoring are identified in Table 3.

Table 2. Species Observed During Drawdown Vegetation Monitoring

Species Observed During Surveys	
Common Name	Scientific Name
Sago pondweed	<i>Potamogeton pectinatus</i>
Elodea	<i>Elodea canadensis</i>
Najas	<i>Najas spp.</i>
Muskwort	<i>Chara spp.</i>
Coontail	<i>Ceratophyllum demersum</i>
Curlyleaf pondweed	<i>Potamogeton crispus</i>
Flat-stem pondweed	<i>Potamogeton zosteriformis</i>
Eurasian watermilfoil	<i>Myriophyllum spicatum</i>

Table 3. Drawdown Monitoring - Total Cover of All Species Observed

Monitoring Location	Total Cover of all Species*							
	2011	2012	2013	2014	2015	2016	2017	2018
Lake Spokane Campground W	5%	0%	0%	0%	2%	5%	1%	---
Lake Spokane Campground E	16%	20%	45%	10%	15%	20%	30%	---
Lakeshore Estates	43%	70%	85%	65%	75%	65%	40%	---
Willow Bay Resort	66%	46%	75%	75%	75%	80%	45%	---
Lake Forest Community	85%	50%	45%	100%	100%	100%	50%	---
Sportsman's Paradise	100%	45%	105%	105%	105%	105%	100%	---
Suncrest	63%	64%	60%	30%	35%	30%	35%	---
Lake Ridge/Nine Mile Boat Lane	90%	97%	35%	35%	65%	65%	100%	---
Nine Mile Rec Area W	75%	75%	55%	40%	55%	60%	100%	---
Nine Mile Rec Area E	95%	95%	55%	55%	60%	60%	90%	---

*The species composition is a combination of species identified in Table 2. Total cover includes more than one vegetation strata, and could result in cover over 100%.

2.6 Education

The AWMP requires Avista to implement education and outreach activities relevant to minimizing the spread of aquatic weeds as part of the comprehensive Interpretation and Education (I&E Plan). As described in the I&E Plan, Avista cooperates with the relevant agencies to develop brochures and other outreach materials that explain how to minimize the spread of invasive aquatic species.

Avista distributed an aquatic weed brochure, specific to Lake Spokane, which discusses the elements of Avista's AWMP, the benefits of a healthy aquatic weed ecosystem, negative effects

of invasive aquatic weeds, and ways to prevent the spread of invasive aquatic weeds. Avista also worked closely with the Lake Spokane Association to provide educational information on aquatic weed management during its annual meeting. Additionally, Avista operated a booth at the Eastern Washington University Earth Day Fair to hand out aquatic weed brochures and answer any questions attendees had about Avista's AWMP.

3.0 PLANNED ACTIVITIES FOR 2019

Avista plans to meet with the Cooperating Parties in spring of 2019 to develop the List that will identify the annual weed control activities. Avista anticipates the following tasks will be included in the 2019 List:

- Evaluate the public and community boat launches in Lake Spokane and potential areas of Nine Mile Reservoir for invasive or problematic aquatic weeds, delineate herbicide treatment areas where necessary, and conduct pre- and post-treatment surveys;
- Continue implementing herbicide treatments in Lake Spokane and/or in Nine Mile Reservoir;
- Conduct Lake Spokane winter drawdown soil temperature and vegetation monitoring;
- Continue to implement control measures for flowering rush in Lake Spokane and Nine Mile Reservoir;
- Distribute educational brochures and outreach materials provided by Avista and the Cooperating Parties;
- Work with the Cooperating Parties to assess the effectiveness of Lake Spokane drawdowns on controlling aquatic weeds;
- Submit the Annual Summary Report to Ecology, WDFW and WDNR; and
- Submit the Annual Summary Report to FERC following agency review.

4.0 PROPOSED CHANGES TO THE PLAN

No changes are proposed to the AWMP at this time.

5.0 REFERENCES

- AquaTechnex. 2007. Aquatic Plant Survey and Mapping Project for Lake Spokane. Prepared by AquaTechnex, Centralia, WA for Avista Corporation, Spokane, WA. Fall 2007.
- AquaTechnex. 2012. Aquatic Plant Survey and Mapping Project for Lake Spokane. Prepared by AquaTechnex, Centralia, WA for Avista Corporation, Spokane, WA. Fall 2012.
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- Avista. 2010. Lake Spokane and Nine Mile Reservoir Aquatic Weed Management Program. Spokane River Hydroelectric Project FERC Project No. 2545-091.
- Avista. 2013. Lake Spokane and Nine Mile Reservoir 2012 Aquatic Weed Summary. Spokane River Hydroelectric Project FERC Project No. 2545-091.
- Avista. 2014. Lake Spokane and Nine Mile Reservoir 2013 Aquatic Weed Summary. Spokane River Hydroelectric Project FERC Project No. 2545-091.
- Federal Energy Regulatory Commission (FERC). 2009. Project Nos. 2545-091, 12606-000, Order Issuing New License and Approving Annual Charges for Use of Reservation Lands. Issued June 18. 167 pp.
- TetraTech. 2001. Lake Spokane Integrated Aquatic Plant Management Plan. Prepared by TetraTech, Inc., Seattle, WA. Prepared for Stevens County Conservation District and Washington State Department of Ecology. February 2001.

FIGURES

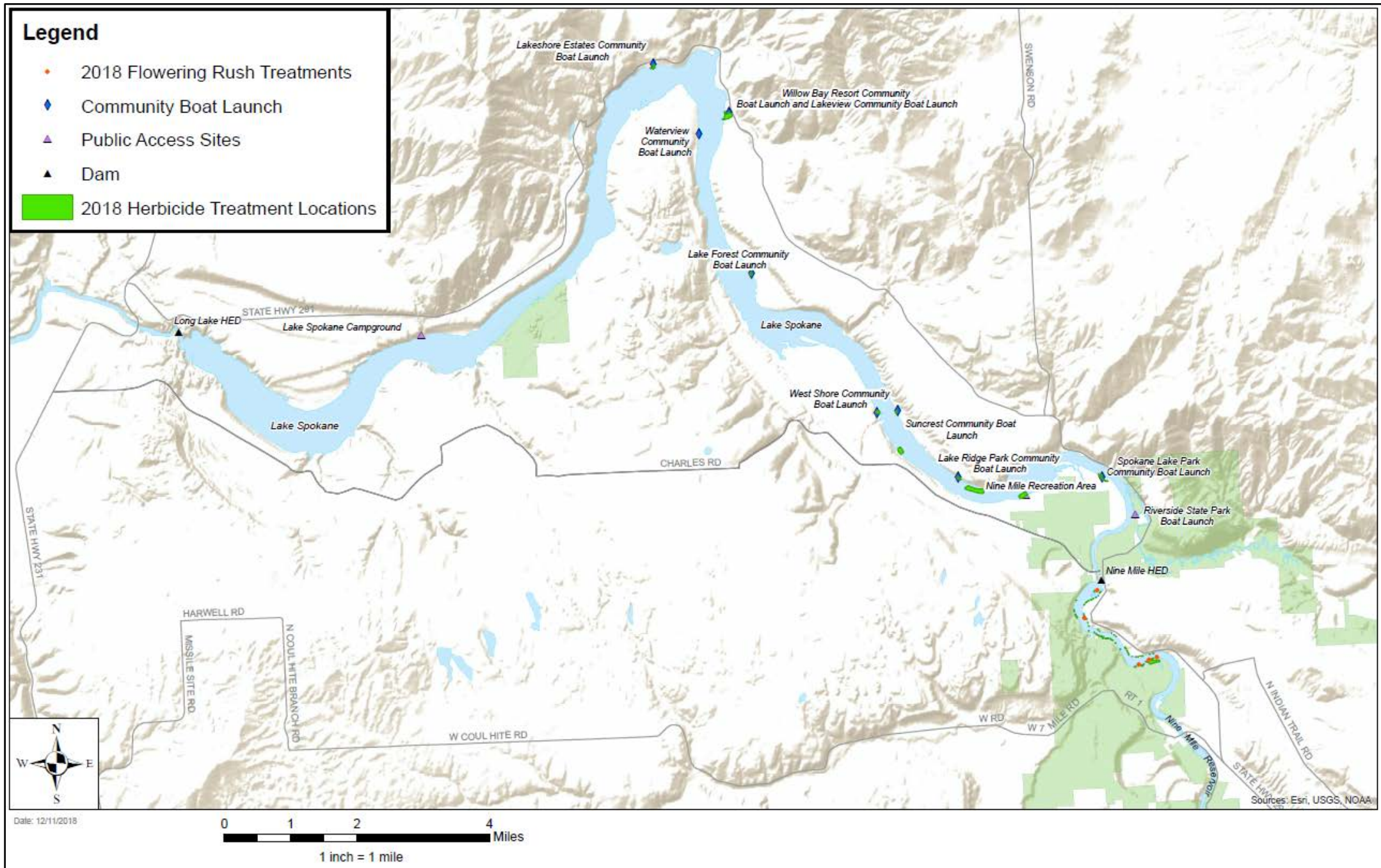


Figure 1. 2018 Aquatic Weed Treatment Areas re 2. Spokane Lake Park Community Boat Launch 2018 Herbicide Treatment Area.

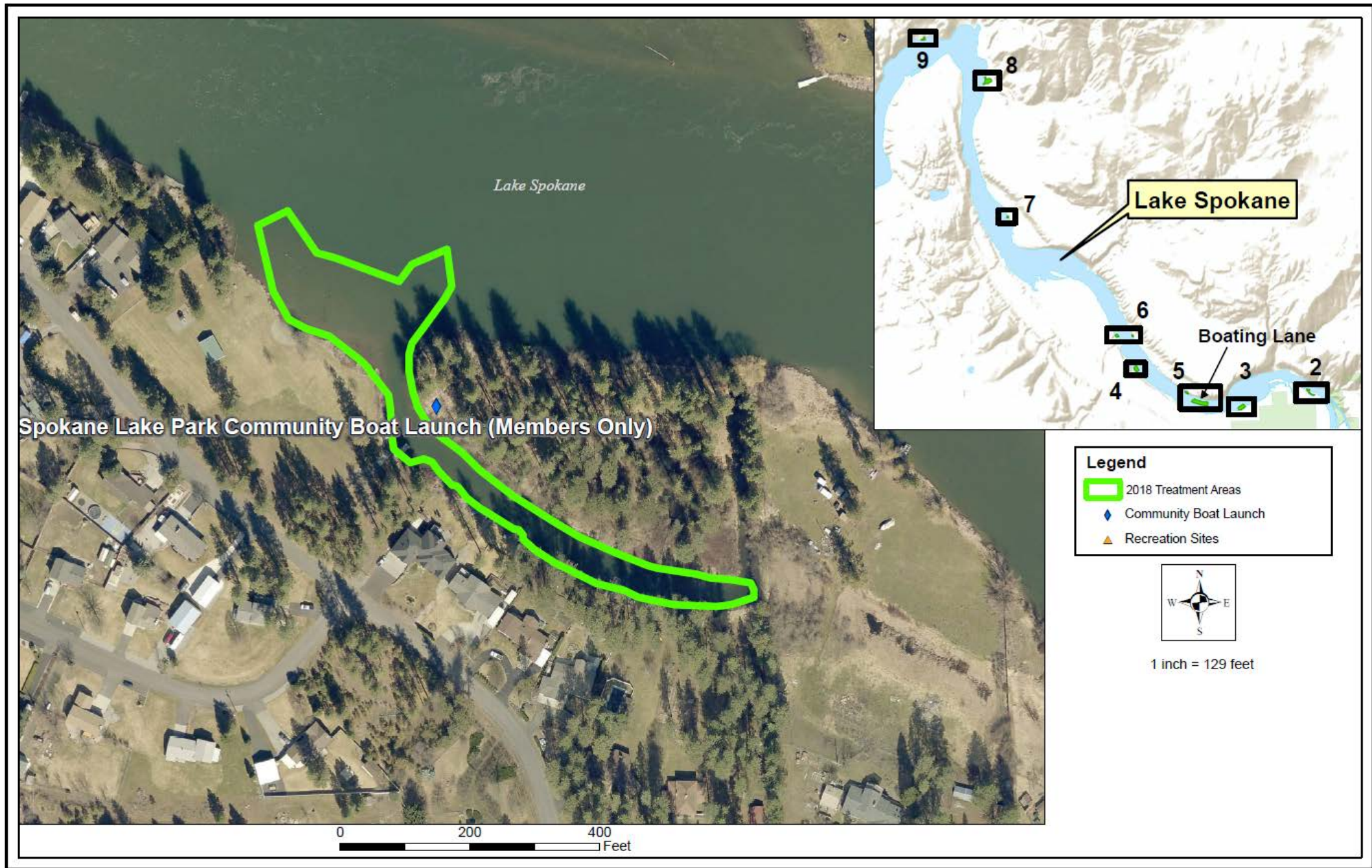


Figure 2. Spokane Lake Park Community Boat Launch 2018 Herbicide Treatment Area.

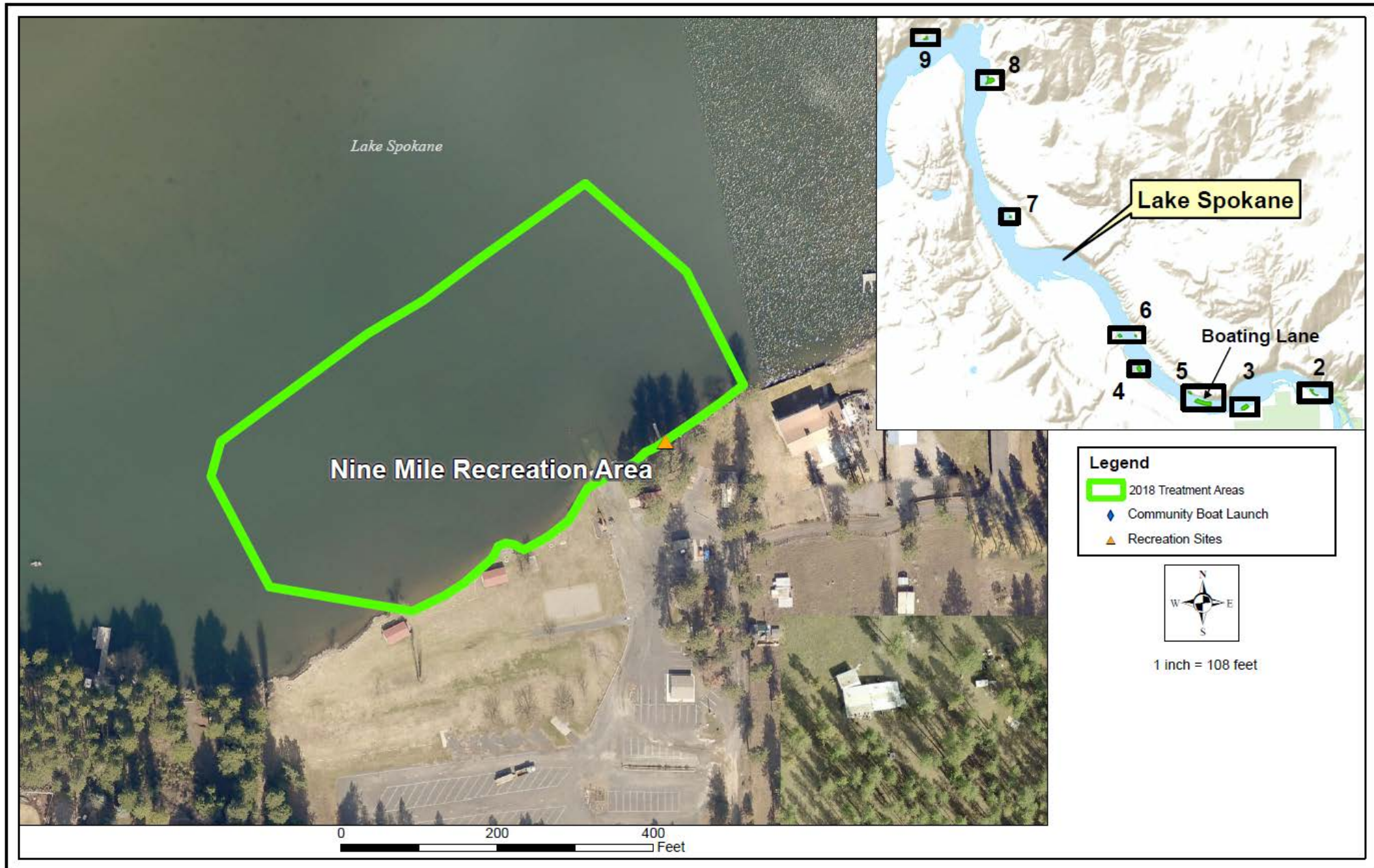


Figure 3. Nine Mile Recreation Area 2018 Herbicide Treatment Area.

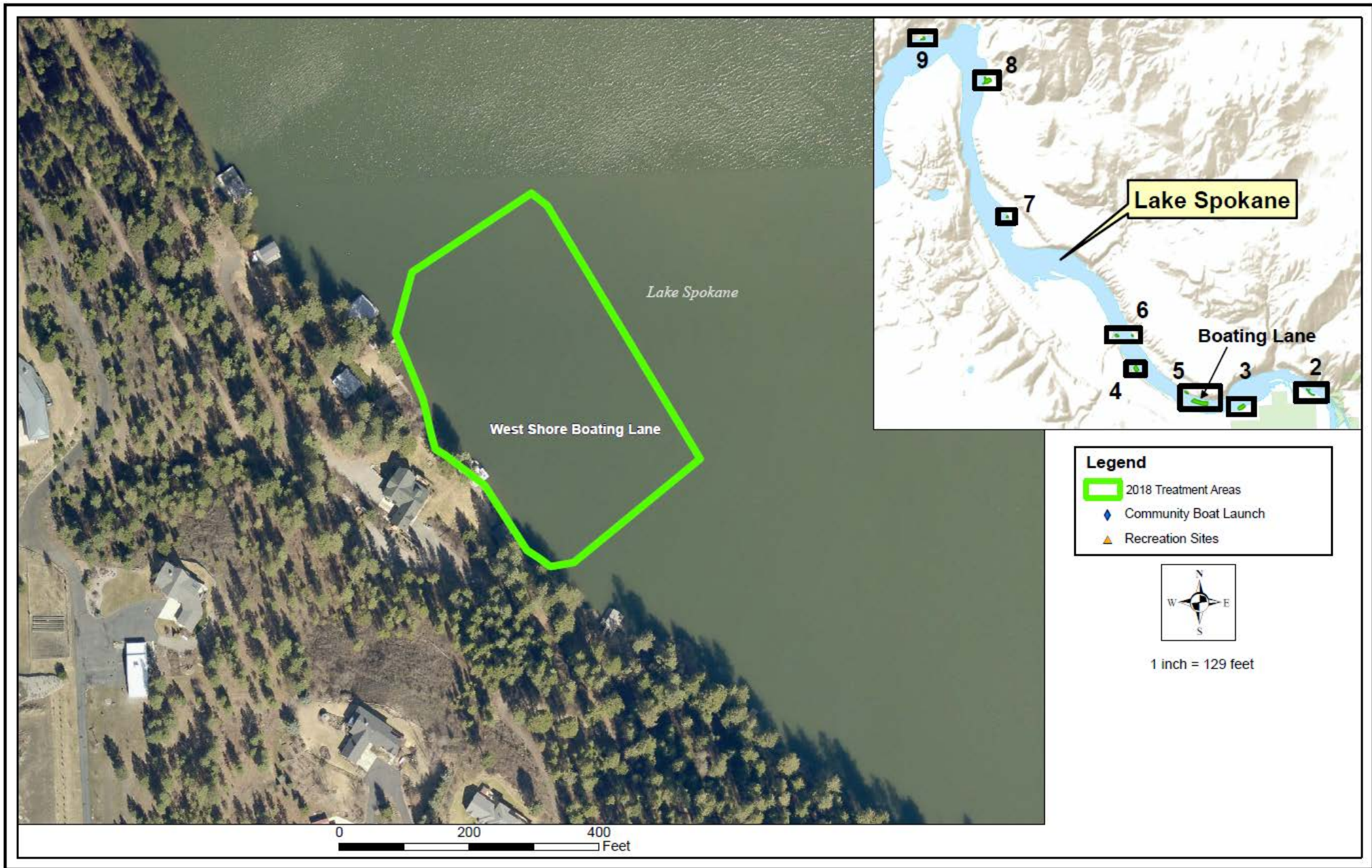


Figure 4. West Shore Boating Lane 2018 Herbicide Treatment Area.

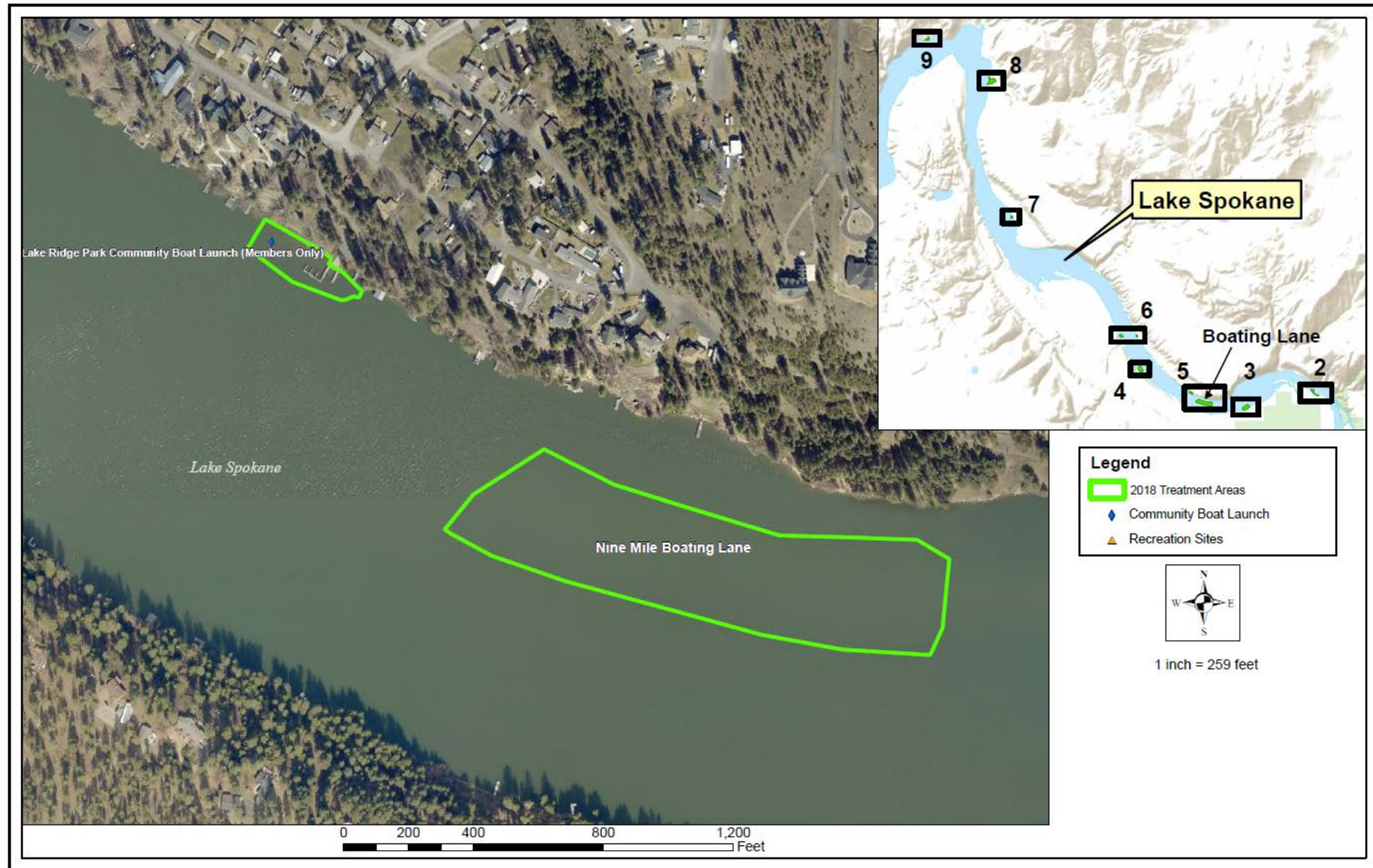


Figure 5. Lake Ridge Park Community Boat Launch and Nine Mile Boating Lane 2018 Herbicide Treatment Area.

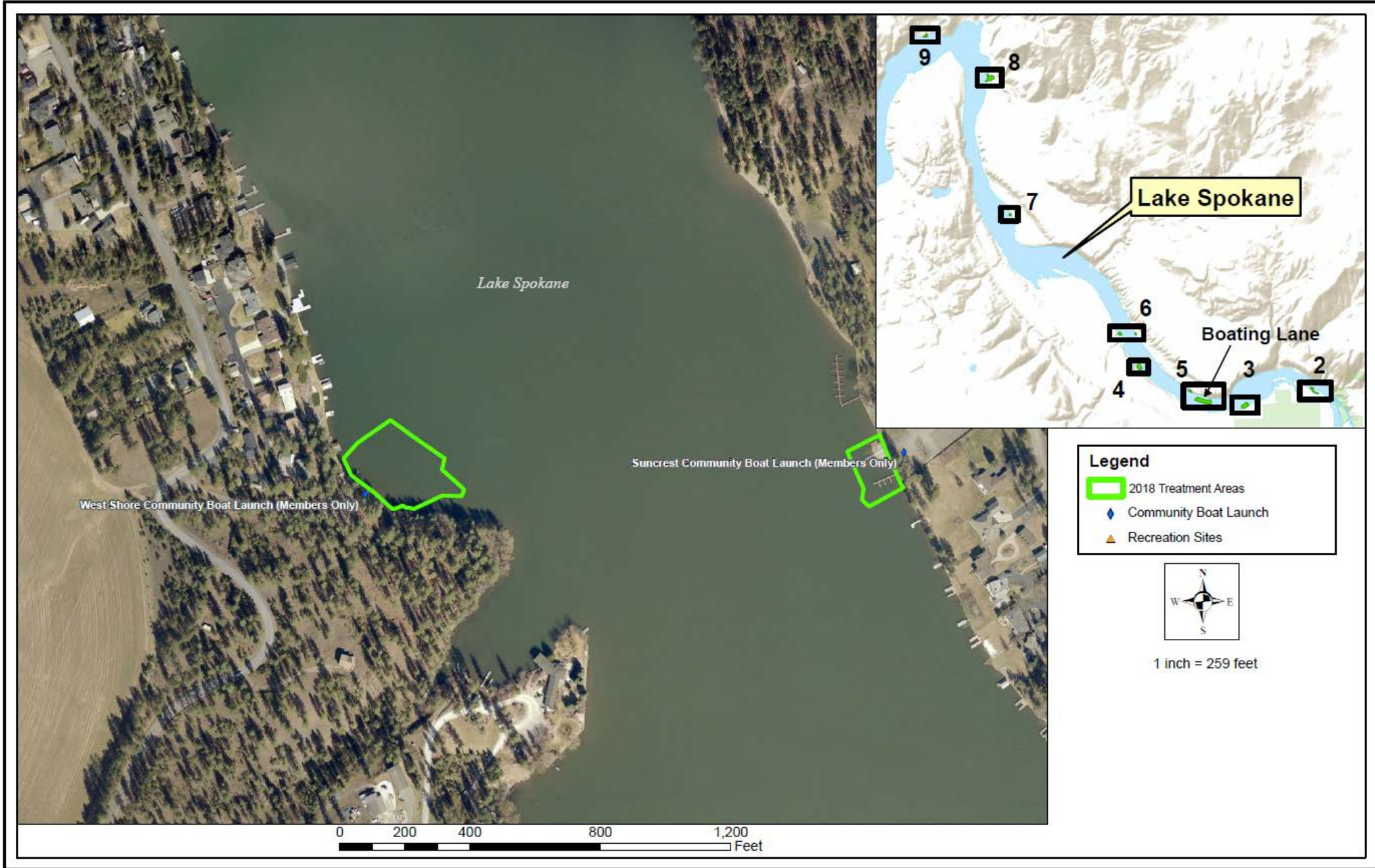


Figure 6. West Shore and Suncrest Community Boat Launch 2018 Herbicide Treatment Area.

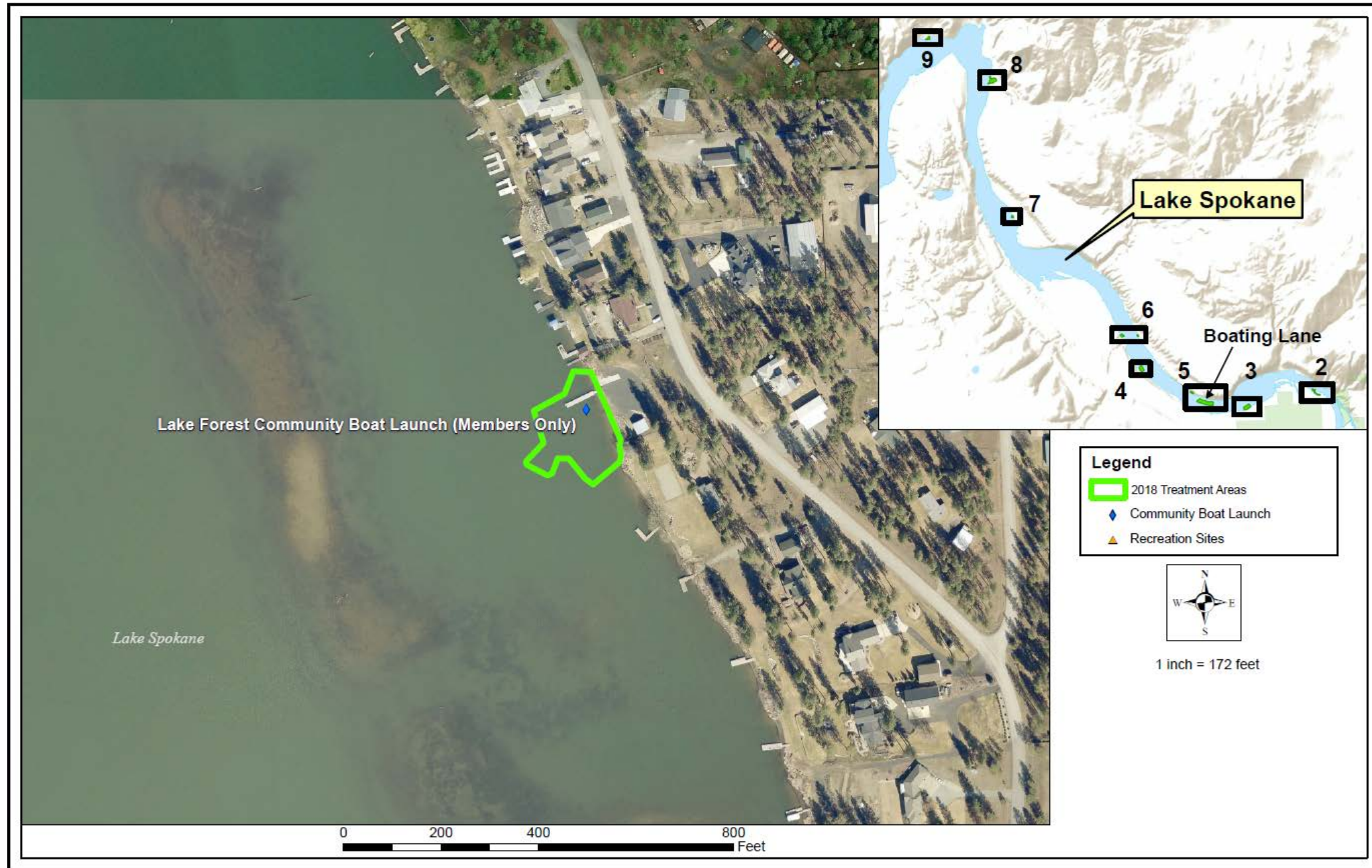


Figure 7. Lake Forest Community Boat Launch 2018 Herbicide Treatment Area.

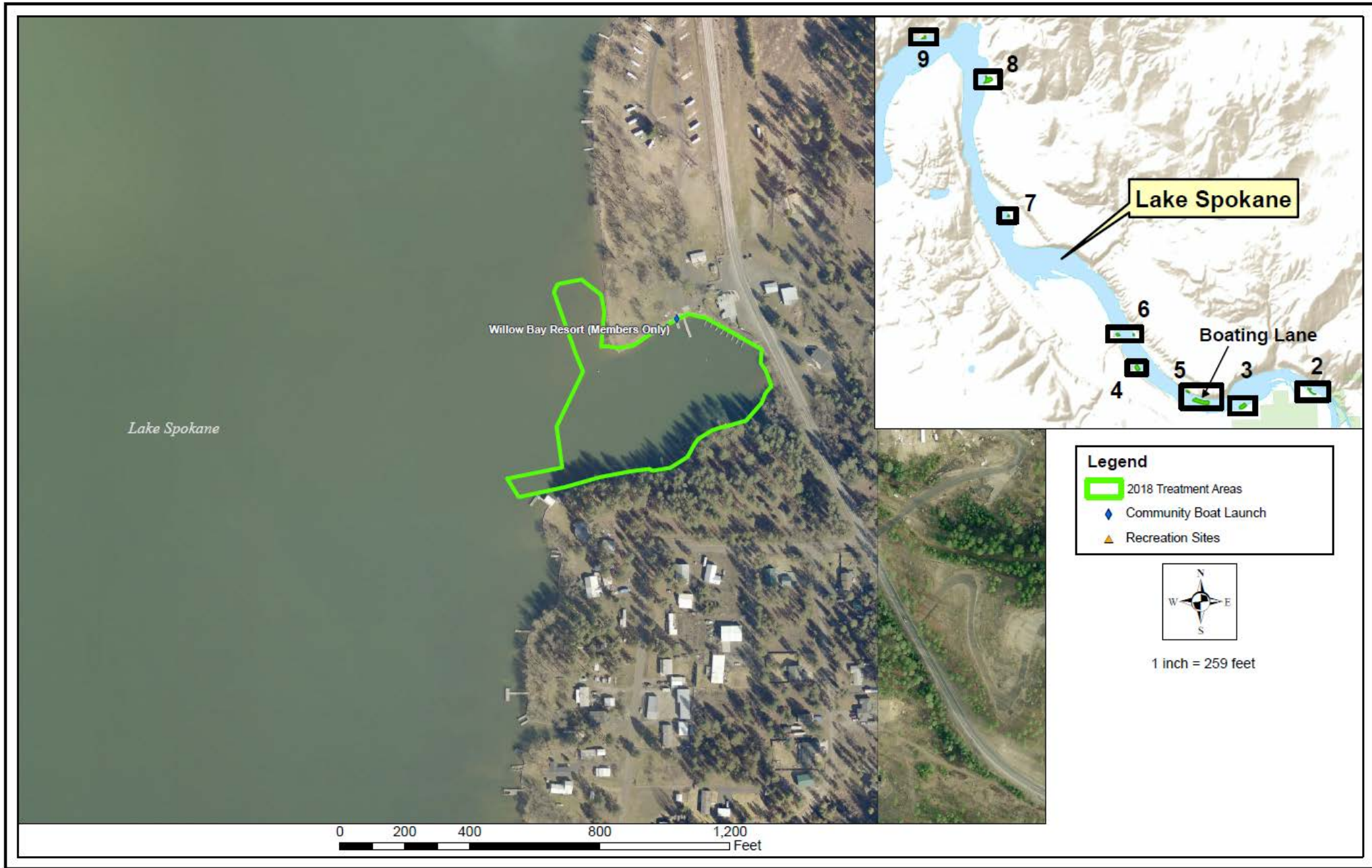


Figure 8. Willow Bay Resort/Lakeview 2018 Herbicide Treatment Area



Figure 9. Lakeshore Estates Community Boat Launch 2018 Herbicide Treatment Area

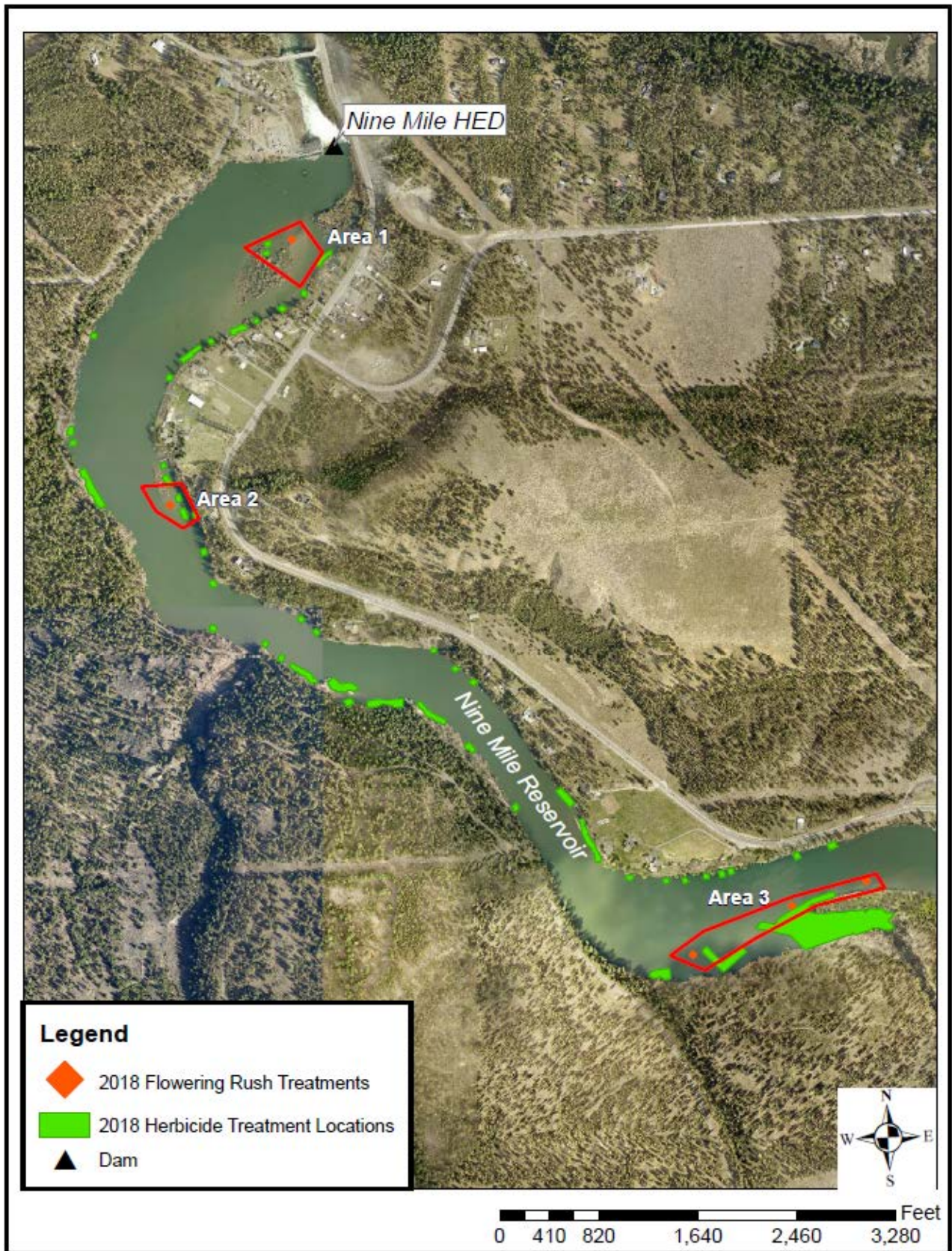
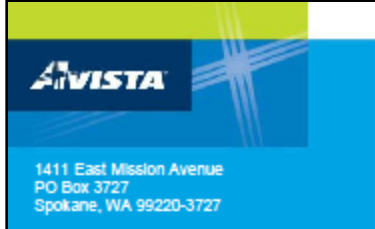


Figure 10. Nine Mile Reservoir 2018 Herbicide and Flowering Rush Treatment Areas.

APPENDIX A
CONSULTATION RECORD

Avista's December 31, 2018 Letter to the Washington Department of Ecology



December 31, 2018

Patrick McGuire
Washington Department of Ecology
Eastern Regional Office
4601 N. Monroe Street
Spokane, WA 99205-1295

**Subject: Spokane River Project License, FERC Project No. 2545, Appendix B
Section 5.3(E), Submittal of the 2018 Lake Spokane and Nine Mile Reservoir
Aquatic Weed Summary Report**

Dear Mr. McGuire:

In accordance with the Federal Energy Regulatory Commission's (FERC) June 18, 2009 Spokane River Hydroelectric Project (No. 2545) License, Appendix B Section 5.3(E), Avista developed and submitted a Lake Spokane and Nine Mile Reservoir Aquatic Weed Management Program (Plan) for FERC's approval. FERC approved the Plan on January 13, 2011. The Plan requires Avista to submit an annual report that summarizes the activities that were implemented during 2018 to monitor and control aquatic weeds on Lake Spokane and Nine Mile Reservoir.

With this, Avista is submitting the 2018 Lake Spokane and Nine Mile Reservoir Aquatic Weed Summary Report (Report) for your review. We would like to receive any comments or recommendations that you may have prior to February 1, 2019, which will allow us time to file the Report to FERC by March 1, 2019.

If you have any questions regarding the Report, please feel free to contact me at (509) 495-4084.

Sincerely,

A handwritten signature in blue ink, appearing to read "Chris Moan".

Chris Moan
Fisheries Habitat Biologist

Enclosure

cc: Leslie King, Washington Department of Fish and Wildlife
Todd Palzer, Washington Department of Natural Resources
Meghan Lunney, Avista

The Washington Department of Ecology's Comments

From: McGuire, Patrick D. (ECY)
To: [Moan, Chris](#)
Cc: [Lunney, Meghan](#)
Subject: [External] RE: Avista's Lake Spokane and Nine Mile Reservoir 2018 Aquatic Weed Summary Report
Date: Friday, February 01, 2019 9:43:46 AM
Attachments: [images001.png](#)

Chris,

Ecology has reviewed the 2018 Aquatic Weed Summary Report. We have no comments on the 2018 Report.

Let me know if you need any additional information, thanks.

Patrick McGuire
Hydropower Projects 401 Certification Manager
Water Quality Program
Eastern Regional Office
(509) 329-3567
e-mail: pmcg461@ecy.wa.gov

From: Moan, Chris <Chris.Moan@avistacorp.com>
Sent: Monday, December 31, 2018 11:23 AM
To: McGuire, Patrick D. (ECY) <PMCG461@ECY.WA.GOV>
Cc: King, Leslie C (DFW) <Leslie.King@dfw.wa.gov>; PALZER, TODD (DNR) <TODD.PALZER@dnr.wa.gov>; Lunney, Meghan <Meghan.Lunney@avistacorp.com>
Subject: Avista's Lake Spokane and Nine Mile Reservoir 2018 Aquatic Weed Summary Report

Hi Pat,

Attached for your review is the Lake Spokane and Nine Mile Reservoir 2018 Aquatic Weed Summary Report and associated cover letter. Please provide any comments you may have prior to February 1, 2019, as we are required to submit this report to FERC prior to March 1, 2019.

Thank you.

Chris Moan, Fisheries Habitat Biologist

1411 E Mission Ave MSC-1, Spokane, WA, 99202
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www.myavista.com

[myavista](#)

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For questions or concerns, please e-mail phishing@avistacorp.com

Washington Department of Ecology's Comments and Avista's Response

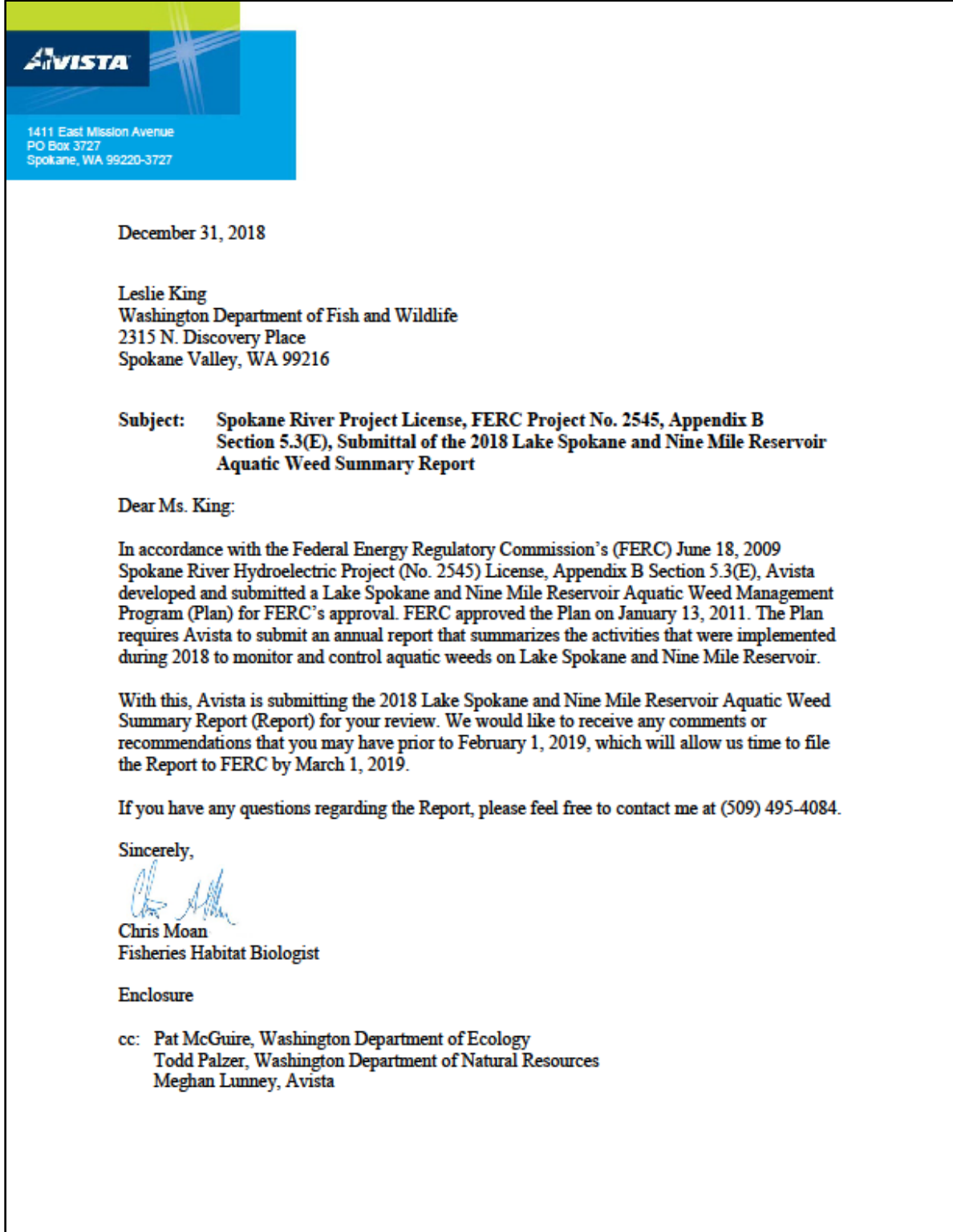
Ecology Comment #1

Ecology has reviewed the 2018 Aquatic Weed Summary Report. We have no comments on the 2018 Report.

Avista Response

Avista appreciates your review of the 2018 Summary Report.

Avista's December 31, 2018 Letter to the Washington Department of Fish and Wildlife



December 31, 2018

Leslie King
Washington Department of Fish and Wildlife
2315 N. Discovery Place
Spokane Valley, WA 99216

**Subject: Spokane River Project License, FERC Project No. 2545, Appendix B
Section 5.3(E), Submittal of the 2018 Lake Spokane and Nine Mile Reservoir
Aquatic Weed Summary Report**

Dear Ms. King:

In accordance with the Federal Energy Regulatory Commission's (FERC) June 18, 2009 Spokane River Hydroelectric Project (No. 2545) License, Appendix B Section 5.3(E), Avista developed and submitted a Lake Spokane and Nine Mile Reservoir Aquatic Weed Management Program (Plan) for FERC's approval. FERC approved the Plan on January 13, 2011. The Plan requires Avista to submit an annual report that summarizes the activities that were implemented during 2018 to monitor and control aquatic weeds on Lake Spokane and Nine Mile Reservoir.

With this, Avista is submitting the 2018 Lake Spokane and Nine Mile Reservoir Aquatic Weed Summary Report (Report) for your review. We would like to receive any comments or recommendations that you may have prior to February 1, 2019, which will allow us time to file the Report to FERC by March 1, 2019.

If you have any questions regarding the Report, please feel free to contact me at (509) 495-4084.

Sincerely,

A handwritten signature in blue ink, appearing to read "Chris Moan".

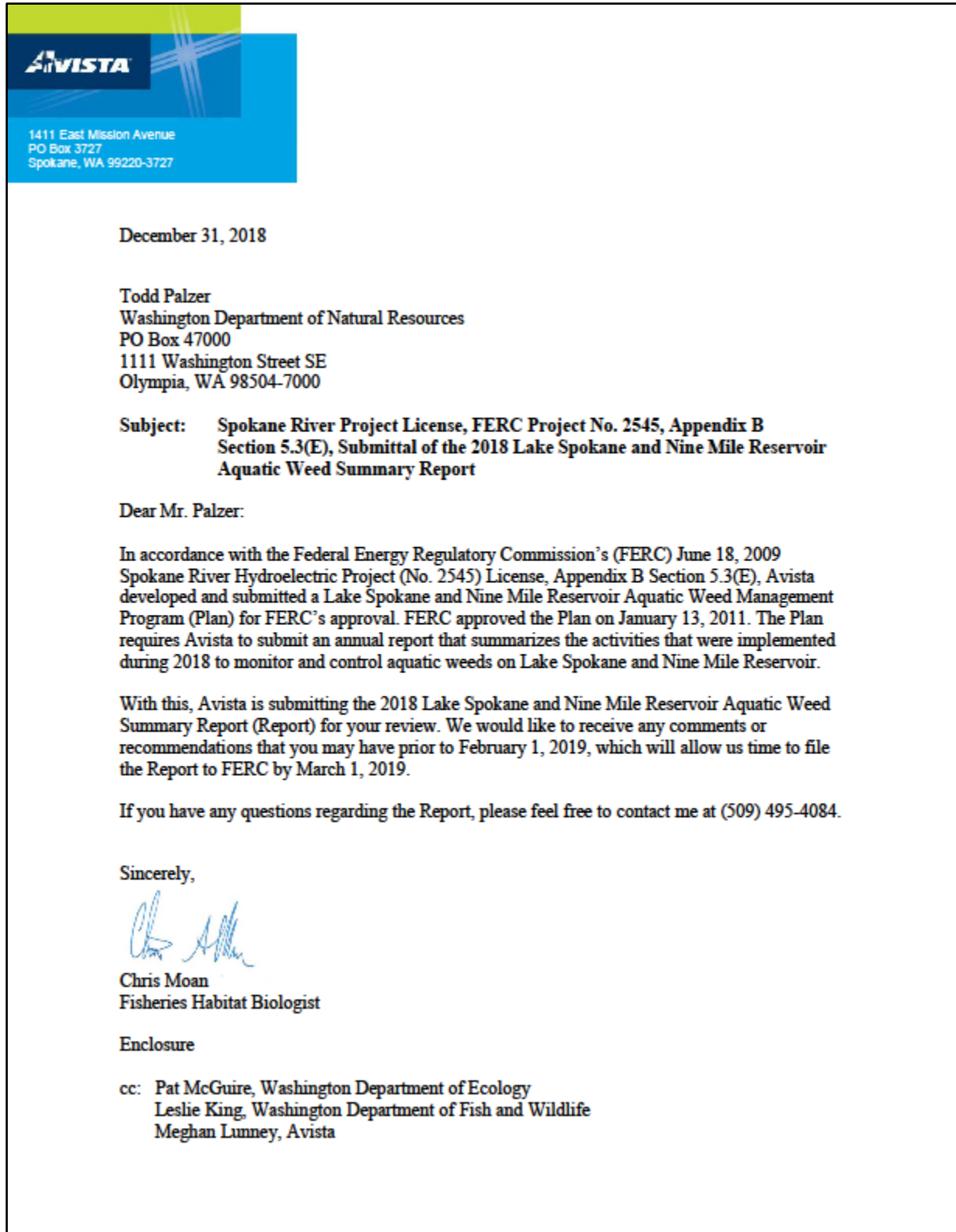
Chris Moan
Fisheries Habitat Biologist

Enclosure

cc: Pat McGuire, Washington Department of Ecology
Todd Palzer, Washington Department of Natural Resources
Meghan Lunney, Avista

The Washington Department of Fish and Wildlife did not provide comments on the 2018 Summary Report.

Avista's December 31, 2018 Letter to the Washington Department of Natural Resources



December 31, 2018

Todd Palzer
Washington Department of Natural Resources
PO Box 47000
1111 Washington Street SE
Olympia, WA 98504-7000

**Subject: Spokane River Project License, FERC Project No. 2545, Appendix B
Section 5.3(E), Submittal of the 2018 Lake Spokane and Nine Mile Reservoir
Aquatic Weed Summary Report**

Dear Mr. Palzer:

In accordance with the Federal Energy Regulatory Commission's (FERC) June 18, 2009 Spokane River Hydroelectric Project (No. 2545) License, Appendix B Section 5.3(E), Avista developed and submitted a Lake Spokane and Nine Mile Reservoir Aquatic Weed Management Program (Plan) for FERC's approval. FERC approved the Plan on January 13, 2011. The Plan requires Avista to submit an annual report that summarizes the activities that were implemented during 2018 to monitor and control aquatic weeds on Lake Spokane and Nine Mile Reservoir.

With this, Avista is submitting the 2018 Lake Spokane and Nine Mile Reservoir Aquatic Weed Summary Report (Report) for your review. We would like to receive any comments or recommendations that you may have prior to February 1, 2019, which will allow us time to file the Report to FERC by March 1, 2019.

If you have any questions regarding the Report, please feel free to contact me at (509) 495-4084.

Sincerely,

A handwritten signature in blue ink, appearing to read "Chris Moan".

Chris Moan
Fisheries Habitat Biologist

Enclosure

cc: Pat McGuire, Washington Department of Ecology
Leslie King, Washington Department of Fish and Wildlife
Meghan Lunney, Avista

Washington Department of Natural Resources' Comments

From: PALZER, TODD (DNR)
To: [Moan, Chris](#)
Cc: [Parsons, Jenifer \(RCY\)](#); [BEEVES, BLAIN \(DNR\)](#); [GEIST, JOHN \(DNR\)](#)
Subject: Re: [External] Fw: 2019 WSWCA Conference Draft Agenda
Date: Thursday, January 31, 2019 12:29:55 PM

Mr. Chris Moan - Fisheries Habitat Biologist
AVISTA
1411 East Mission Avenue
Spokane, WA 99220-3727

Re: WDNR comments on 2018 Lake Spokane and Nine Mile Reservoir Aquatic Weed Summary Report for Spokane River Project License (FERC Project # 2545).

Dear Mr. Moan,

Thank you for the opportunity to review the 2018 activities summary report related to monitoring and treatment of aquatic weed species within the Spokane River for Lake Spokane and Nine Mile Reservoir conducted by AVISTA as part of the FERC licensing requirements.

I greatly appreciate your return call yesterday and the opportunity to discuss how aquatic weed monitoring and control is conducted by AVISTA on Lake Spokane and Nine Mile Reservoir as part of its existing plan. As shared in our phone discussion, DNR supports the work that AVISTA has been doing for weed control and draw down provisions that support these control efforts. The one area that I would ask for future consideration is related to the overall increase and spread of the flowering rush population in both water bodies over multiple survey and treatment seasons.

Flowering Rush is an aggressive invasive species listed as a Class A by the State Noxious Weed Control Board (Class A weeds require eradication versus control under Washington State Law <https://www.nwcb.wa.gov/class-a-noxious-weeds>) as compared to some of the other listed weed species being managed within Lake Spokane and Nine Mile Reservoir. DNR asks that AVISTA take into consideration the risk posed by a particular species such as Flowering Rush and its state weed classification as part of your resource allocation process for general aquatic weed control in the future.

As I mentioned during our discussion, Washington State Department of Ecology is working with the US Army Corps of Engineers to secure grant funding for flowering rush treatment and, if this is successful, I would encourage you coordinating with Jennifer Parsons at Washington Department of Ecology to see if any of this funding might be obtained to help the flowering rush control efforts. Also, DNR has partnered with AVISTA through contract in the past to help support flowering rush removal and we are willing to consider reviving such an arrangement if we can help achieve an aggressive approach to flowering rush control that is

working towards eradication.

You indicated that you are in the process of setting up a meeting to discuss aquatic weed management planning for these water bodies in the near future. DNR will plan on attending once a meeting notice and agenda are available for calendaring purposes. I'm looking forward to discussing this further and see if we can work together to help support AVISTA's efforts and DNR Aquatic Invasive Species program goals.

Sincerely,

Todd Palzer - Resource Planning Manager
Aquatic Resources Division
Washington Department of Natural Resources
1111 Washington Street SE
PO BOX 47027
Olympia, WA 97504-7027

Office - (360) 902-1864
Work Cell - (360) 280-9153

www.dnr.wa.gov

Washington Department of Natural Resources' Comments and Avista's Response

WDNR Comment #1

Thank you for the opportunity to review the 2018 activities summary report related to monitoring and treatment of aquatic weed species within the Spokane River for Lake Spokane and Nine Mile Reservoir conducted by AVISTA as part of the FERC licensing requirements.

Avista's Response

Avista appreciates the continued collaboration with the Washington Department of Natural Resources.

WDNR Comment #2

I greatly appreciate your return call yesterday and the opportunity to discuss how aquatic weed monitoring and control is conducted by AVISTA on Lake Spokane and Nine Mile Reservoir as part of its existing plan. As shared in our phone discussion, DNR supports the work that AVISTA has been doing for weed control and draw down provisions that support these control efforts. The one area that I would ask for future consideration is related to the overall increase and spread of the flowering rush population in both water bodies over multiple survey and treatment seasons.

Avista's Response

Thank you for supporting Avista's continued aquatic weed management activities. We agree with the need to consider the increase and spread of the Flowering Rush populations in Nine Mile Reservoir and Lake Spokane and look forward to discussing that and future management options by, and with, all the Cooperating Parties during our upcoming 2019 annual meeting.

WDNR Comment #3

Flowering Rush is an aggressive invasive species listed as a Class A by the State Noxious Weed Control Board (Class A weeds require eradication versus control under Washington State Law <https://www.nwcb.wa.gov/class-a-noxious-weeds>) as compared to some of the other listed weed species being managed within Lake Spokane and Nine Mile Reservoir. DNR asks that AVISTA take into consideration the risk posed by a particular species such as Flowering Rush and its state weed classification as part of your resource allocation process for general aquatic weed control in the future.

Avista's Response

Thank you for the background information on Flowering Rush. Avista will consider the risk Flowering Rush poses in Nine Mile Reservoir and Lake Spokane as it plans and prioritizes tasks with the Cooperating Parties for aquatic weed treatments during our upcoming 2019 annual meeting.

WDNR Comment #4

As I mentioned during our discussion, Washington State Department of Ecology is working with the US Army Corps of Engineers to secure grant funding for flowering rush treatment and, if this

is successful, I would encourage you coordinating with Jennifer Parsons at Washington Department of Ecology to see if any of this funding might be obtained to help the flowering rush control efforts. Also, DNR has partnered with AVISTA through contract in the past to help support flowering rush removal and we are willing to consider reviving such an arrangement if we can help achieve an aggressive approach to flowering rush control that is working towards eradication.

Avista's Response

Avista looks forward to exploring potential funding sources with the Washington Department of Ecology and the WDNR to aid in management of Flowering Rush in Nine Mile Reservoir and Lake Spokane.

WDNR Comment #5

You indicated that you are in the process of setting up a meeting to discuss aquatic weed management planning for these water bodies in the near future. DNR will plan on attending once a meeting notice and agenda are available for calendaring purposes. I'm looking forward to discussing this further and see if we can work together to help support AVISTA's efforts and DNR Aquatic Invasive Species program goals.

Avista's Response

Avista's annual aquatic weed meeting with the Cooperating Parties will take place this March and WDNR has accepted the invitation to attend. Avista looks forward to furthering the discussion on Flowering Rush management at the meeting.