AVISTA CORPORATION

COEUR D'ALENE LAKE AQUATIC WEED MANAGEMENT PLAN FOR NON-TRIBAL WATERS

2014 SUMMARY REPORT

SPOKANE RIVER LICENSE ARTICLE 410

SPOKANE RIVER HYDROELECTRIC PROJECT FERC PROJECT NO. 2545

Prepared By: Avista Corporation

February 25, 2015

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1.0 INTRODUCTION

The purpose of the Coeur d'Alene Lake Aquatic Weed Management Plan for Non-Tribal Waters (Plan) is to control the spread and reduce the distribution of aquatic noxious weeds within nontribal Project waters of Coeur d'Alene Lake. To achieve this, Avista cooperates with and supports a multitude of agencies that have existing aquatic weed management programs on Coeur d'Alene Lake. This report summarizes the measures completed by Avista, as well as those by the Idaho Department of Environmental Quality (IDEQ); Kootenai County Noxious Weed Control Board (KCNWCB); Idaho State Department of Agriculture (ISDA) and the Coeur d'Alene Tribe (Cooperating Parties).

1.1 Background

On June 18, 2009, the Federal Energy Regulatory Commission (FERC) issued a License for Avista's Spokane River Hydroelectric Project (Project) (FERC Project No. 2545) for a 50-year term. The License became effective on June 1, 2009 and includes operation of five Hydroelectric Developments (HEDs) on the Spokane River; one in Idaho (Post Falls HED) and four in the state of Washington (Upper Falls, Monroe Street, Nine Mile, and Long Lake HEDs). Article 410 of the License required the development of the Plan, which FERC approved on January 19, 2011 (FERC Order 2545-129). The Plan is specific to Avista's Post Falls HED, which is located on the Spokane River approximately nine miles downstream from the outlet of Coeur d'Alene Lake.

1.2 Coeur d'Alene Lake Aquatic Weed Management Plan

Article 410 of the License required Avista to develop the Plan in consultation with the Idaho Department of Fish and Game and the United States Fish and Wildlife Service. This Plan provides for the management of aquatic noxious weeds within the Post Falls HED Project boundary, excluding the Coeur d'Alene Indian Reservation (Reservation) (Figure 1), and includes the following elements:

- Provisions to establish or expand aquatic noxious weed educational programs;
- A framework for annual monitoring to determine the distribution of aquatic noxious weeds; and
- Management strategies for the control of aquatic noxious weeds.

The Plan also identifies potential Cooperating Parties currently involved in the management of aquatic noxious weeds within the Project boundary, and a schedule within which Avista will implement the various measures. The purpose of the coordination is to cooperate with and support the Cooperating Parties, which implement aquatic weed management programs within the Project boundary.

The littoral habitats have been surveyed for aquatic noxious weeds since 2006, with most habitats susceptible to weed infestation having been surveyed more than once. Eurasian watermilfoil (*Myriophyllum spicatum*) and a hybrid of Eurasian watermilfoil and northern watermilfoil (*M. sibiricum*), referred to collectively as milfoil, unless otherwise specified, are the only aquatic noxious weeds that have been identified in the area addressed by this Plan. Historically infestations of these species have been found in Harrison Slough, along the shoreline

near Harrison, within Heyburn State Park, and within the chain lakes (Cave, Medicine, Blue, Thompson, Anderson, Killarney and Black Lakes) associated with the Coeur d'Alene River (CDAT 2006, 2008, 2009, 2010; IECWMA 2007; Avista 2013). In addition, Avista and the Coeur d'Alene Tribe (2008-2013) have identified infestations of milfoil within the St. Joe and St. Maries rivers upstream of the Reservation boundary.

2.0 COORDINATION

Avista cooperates and supports entities identified in Section 1.0 that have existing aquatic weed management programs on Coeur d'Alene Lake. Avista met with the Cooperating Parties on February 28, 2014 to coordinate activities and develop the following 2014 task list:

- Coordinate aquatic weed monitoring, education and outreach, and treatment efforts with the Cooperating Parties;
- Partner with IDEQ to survey and monitor Blue Creek, Beauty, Bennett and Wolf Lodge Bays for milfoil;
- Complete a visual survey for milfoil along the shoreline litoral areas in Coeur d'Alene Lake;
- If necessary complete milfoil hand pulling using a diver suction dredge in Mica Bay;
- Complete herbicide treatment of milfoil in Thompson Lake;
- Coordinate milfoil management in Coeur d'Alene Lake Tribal waters; and
- Partner with Kootenai County to provide funding for a 2014 Inland Empire Cooperative Weed Management Weed Identification and Control Handbook.

3.0 SURVEYS

Avista mapped suitable milfoil habitat using high, moderate, and low survey priority categories based on susceptibility to infestation for milfoil within Coeur d'Alene Lake (Avista, 2011). In accordance with the Plan, surveys will occur annually per the following schedule: high priority suitable habitats will be surveyed a minimum of once per three-year period; moderate priority suitable habitats will be surveyed a minimum of once per four-year period; and low priority suitable habitats and shoreline segments will be surveyed a minimum of once per five-year period (Figure 2).

Between 2011-2013 milfoil surveys have been completed at the following locations: the Upper Spokane River; Mica, Sun-Up, Windy, Sixteen to One, Cave, Aberdeen Lodge, Powderhorn, Echo, Loffs, Carlin, Half Round, Turner, Cave, Everwell, Swede, Gotham, Kid Island and Bell Bays, Harrison Slough, and Anderson, Black, Blue, Cave, Killarney, Swan, Medicine and Thompson Lakes.

In 2014, Avista completed a visual survey of all the shoreline segments (Figure 2). The entire littoral shoreline segments identified on Figure 2 (not including the High and Low probability areas) were traversed by boat and visually surveyed for the presence of milfoil. Surveys were

completed on August 28 and 29 and on September 4 and 5. No milfoil was identified in any of the shoreline segments.

Additionally, IDEQ completed surveys on Blue Creek, Beauty, Bennett and Wolf Lodge Bays (Figure 3). The four bays were sampled by the point intercept (grid) method from July 14-16. Grid sampling is designed to cover numerous points within a shallow water area to identify the aquatic plants that are present. Site selection of random points was generated using Fishnet, an ArcGIS extension. Spacing between points was 30-85 meters, and the points were constrained to depths of 30 feet or less. Latitude and longitude were imported into a handheld GPS unit, and sites were located using the waypoint function. Two rake throws were completed at each point. Genus and species groups were identified referencing two field manuals for aquatic plants of North America and Washington State (Borman et al., 1997; DiTomaso and Healy, 2003; Washington State Department of Ecology, 2001).

In addition to the point intercept sampling above, line intersect sampling by SCUBA was conducted over a period of a few weeks in August, according to the following schedule:

- August 4 5: Beauty Bay and Bennett Bay (in order, one transect per day)
- August 11 and 18: Blue Creek Bay (one transect per day)

Samples in this survey were collected at 3-foot depth increments from 3-30 ft (APHA, 1995; Tribe, 2006), with multiple samples collected at 40 yard intervals in cases where depth was constant over a large geospatial area. Two transects were collected in each bay. Sample locations were initially located by measuring depth with a Lowrance HDS8 depth finder, and then marked with a small anchor secured to a numbered buoy. All plants collected were identified as discussed above.

In summary, between 2011 and 2014, milfoil populations have been identified in Mica, Windy, Sixteen to One and Beauty Bays, as well as Anderson, Black, Blue, Cave, Killarney, Medicine and Thompson Lakes. A map of the 2011-2014 survey results on non-tribal waters, was combined with known locations of milfoil in Tribal waters (managed under a separate plan) to document the known populations of milfoil in Coeur d'Alene Lake as of the 2014 survey season (Figure 4).

4.0 MANAGEMENT / TREATMENTS

Avista contracted with Lakeland Restoration Services in 2014 to complete herbicide treatments on 37 acres of dense milfoil in Thompson Lake (Figure 5), which was originally mapped in 2013. The herbicide application was completed on August 11 utilizing a combination of 2,4-D (2 ppm) and Aquathol K (0.5 ppm). Applications were completed utilizing an airboat. Air temperatures ranged from 62 F - 96 F. Wind speeds varied up to seven miles per hour. In 2014 visual pre-treatment surveys and delineation of the treatment area was completed on July 28. Milfoil was dominant throughout the treatment areas, with much of the area containing 90-100% total milfoil cover. Post-treatment surveys will be completed in July or August of 2015, treatment efficacies will be determined based upon the qualitative data obtained during that time. In addition to the herbicide application completed by Avista, ISDA funded one day of milfoil hand pulling using a diver suction dredge in Mica Bay, as a follow up to the diver work completed in 2013. ACE Diving completed one day of hand pulling and removed approximately 30 milfoil plants during July 2014.

5.0 MILFOIL MANAGEMENT IN COEUR D'ALENE LAKE TRIBAL WATERS

In addition to working with the various entities to monitor and control aquatic weeds on Coeur d'Alene Lake, Avista also funded significant aquatic weed control efforts on Reservation waters in 2014, which is the area within Coeur d'Alene Lake that is most vulnerable to milfoil infestations. The areas that were treated and the methods used to control weeds are listed below. The final efficacy rates will be included in the 2014 Annual Implementation Report prepared by Avista and the Coeur d'Alene Tribe for the Department of Interior and FERC.

Bottom Barriers

The Coeur d'Alene Tribe placed bottom barriers on approximately 2,000 square feet of milfoil and problematic aquatic weeds in Cottonwood Bay (Camp Larson swim area). The 10 ft x 10 ft barrier panels were placed over dense patches of aquatic weeds and were left in place for an eight-week period to control aquatic weeds.

Herbicide Treatments

Avista and the Coeur d'Alene Tribe hired Clean Lakes to complete herbicide treatments on 83 acres of milfoil in the south end of Coeur d'Alene Lake using a combination of 2,4-D and endothall, which was applied using a sub-surface distribution method.

6.0 2014 EDUCATION / OUTREACH

Avista partnered with Kootenai County to provide funding for an updated 2014 Inland Empire Cooperative Weed Management Weed Identification and Control Handbook. This handbook was completed and distributed in 2014.

7.0 FUNDING

Avista made the following funding available for aquatic weed control tasks on non-tribal waters:

Table 1. 2014 Aquatic Weed Funding

Thompson Lake Herbicide Treatments	\$25,192.50
2014 Inland Empire Cooperative Weed Management Weed Identification and Control Handbook	\$3,000.00
TOTAL	\$28,192.50

8.0 PLANNED ACTIVITES FOR 2015

As outlined in the Plan, Avista annually identifies areas for upcoming surveys, reviews available funding, and schedules an annual meeting with the Cooperating Parties to develop and coordinate activities. A final program task list is completed prior to May 1, on an annual basis. Avista is currently in the process of preparing for and scheduling the annual coordination meeting for 2015.

9.0 REFERENCES

APHA (American Public Health Association). 1995. Standard methods for the examination of water and wastewater. 19th Edition. Washington, D.C.

Avista. 2011. Coeur d'Alene Lake Aquatic Weed Management Plan for Non-Tribal Waters 2011 Summary Report.

Avista. 2013. Coeur d'Alene Lake Aquatic Weed Management Plan for Non-Tribal Waters 2013 Summary Report.

Borman, S., Korth, R., and J. Temte. 1997. <u>Through the Looking Glass: A Field Guide to</u> <u>Aquatic Plants</u>. University of Wisconsin Press, Madison, WI. 256 pp.

Coeur d'Alene Tribe Lake Management Department. 2006. 2006 Coeur d'Alene Tribe Eurasian Watermilfoil Control Program Project Completion Report. Coeur d'Alene Tribe Lake Management Department, Plummer, ID.

Coeur d'Alene Tribe Lake Management Department. 2007 Coeur d'Alene Tribe Eurasian Watermilfoil Control Program Project Completion Report. Coeur d'Alene Tribe Lake Management Department, Plummer, ID.

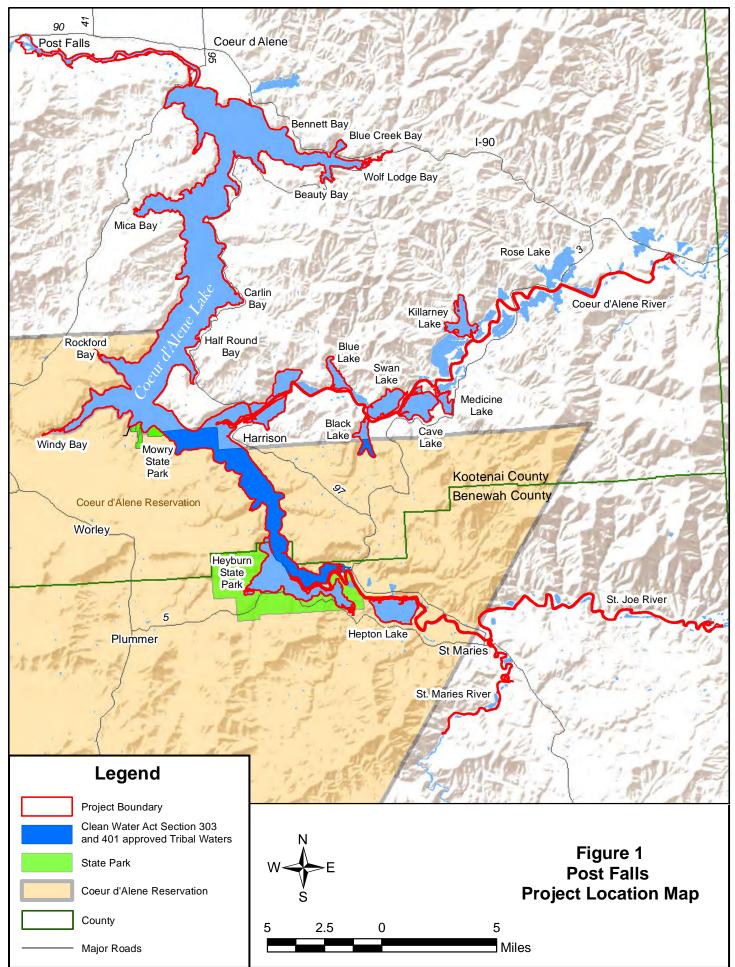
Coeur d'Alene Tribe Lake Management Department. 2008 Coeur d'Alene Tribe Eurasian Watermilfoil Control Program Project Completion Report. Coeur d'Alene Tribe Lake Management Department, Plummer, ID.

Coeur d'Alene Tribe Lake Management Department. 2009 Coeur d'Alene Tribe Eurasian Watermilfoil Control Program Project Completion Report. Coeur d'Alene Tribe Lake Management Department, Plummer, ID.

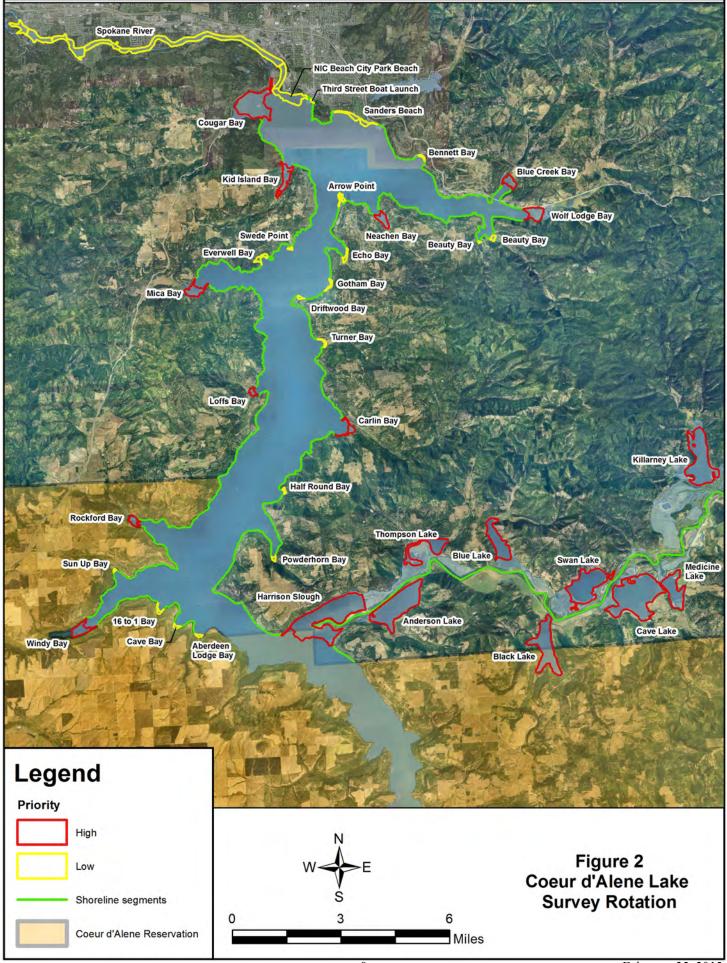
Coeur d'Alene Tribe Lake Management Department. 2010 Coeur d'Alene Tribe Eurasian Watermilfoil Control Program Project Completion Report. Coeur d'Alene Tribe Lake Management Department, Plummer, ID.

DiTomaso, J.M., and E.A. Healy. 2003. <u>Aquatic and Riparian Weeds of the West</u>. Publication 3421. University of California Agriculture and Natural Resources, Oakland, CA. 442 pp.

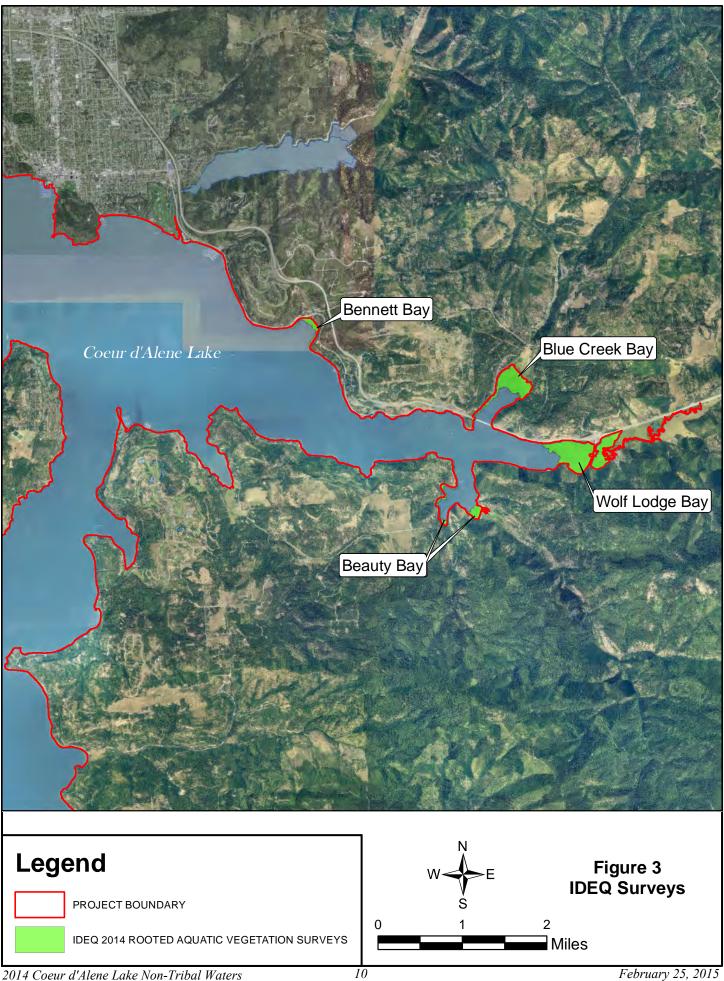
Washington State Department of Ecology. 2001. <u>An Aquatic Plant Identification Manual</u>. Publication 01-10-032. 195 pp. FIGURES



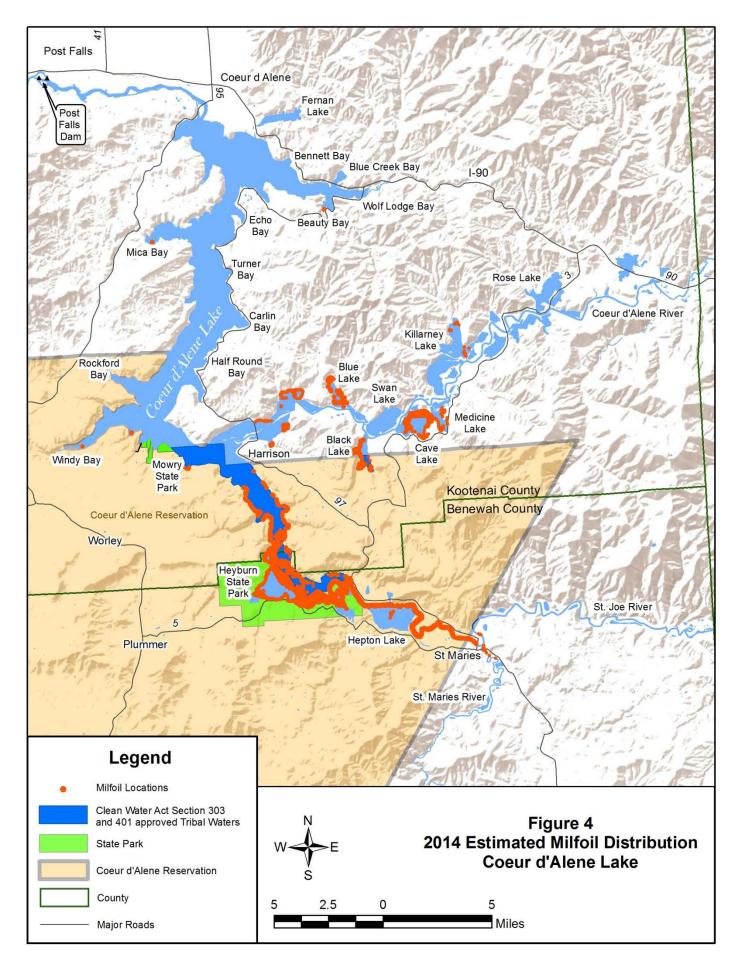
2014 Coeur d'Alene Lake Non-Tribal Waters Aquatic Weed Summary Report February 25, 2015

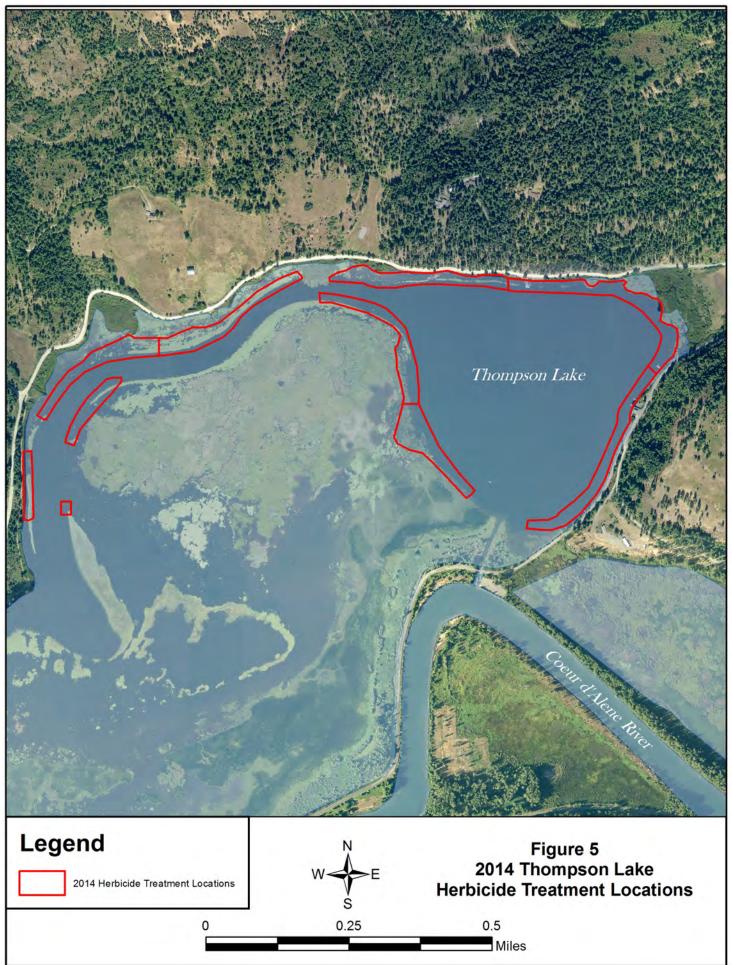


2014 Coeur d'Alene Lake Non-Tribal Waters Aquatic Weed Summary Report February 25, 2015



Aquatic Weed Summary Report





2014 Coeur d'Alene Lake Non-Tribal Waters Aquatic Weed Summary Report February 25, 2015

APPENDIX A CONSULTATION RECORD

Avista's Letter to Coeur d'Alene Tribe



Ben Scofield Coeur d'Alene Tribe P.O. Box 408 / 850 A Street Plummer, ID 83851

Subject: Spokane River Project License, FERC Project No. 2545, Article 410, Submittal of the 2014 Coeur d'Alene Lake Aquatic Weed Management Plan for Non-Tribal Waters Summary Report

Dear Mr. Scofield:

In accordance with the Federal Energy Regulatory Commission's (FERC) June 18, 2009 Spokane River Hydroelectric Project (No. 2545) License Article 410, Avista developed and submitted a Coeur d'Alene Lake Aquatic Weed Management Plan for Non-Tribal Waters (Plan) for FERC's approval. FERC approved the Plan on January 19, 2011 allowing Avista to begin implementation.

The Plan requires Avista to submit an annual report that summarizes the activities that it implemented during 2014 to monitor and control aquatic weeds on Coeur d'Alene Lake Non-Tribal Waters to the Idaho Department of Environmental Quality (IDEQ), Idaho State Department of Agriculture (ISDA), Kootenai County Noxious Weed Control Board (KCNWCB), and the Coeur d'Alene Tribe for a 30-day review prior to submitting it to FERC for approval. With this, please review the attached 2014 Coeur d'Alene Lake Aquatic Weed Management for Non-Tribal Waters Summary Report and provide any comments or recommendations that you may have prior to February 1, 2015.

If you have any questions regarding the annual report, please feel free to contact me at (509) 495-2796.

Sincerely,

David Armes Terrestrial Resource Specialist

Enclosure

cc: Jamie Brunner, IDEQ Tom Woolf, ISDA Bill Hargrave, KCNWCB Speed Fitzhugh, Avista

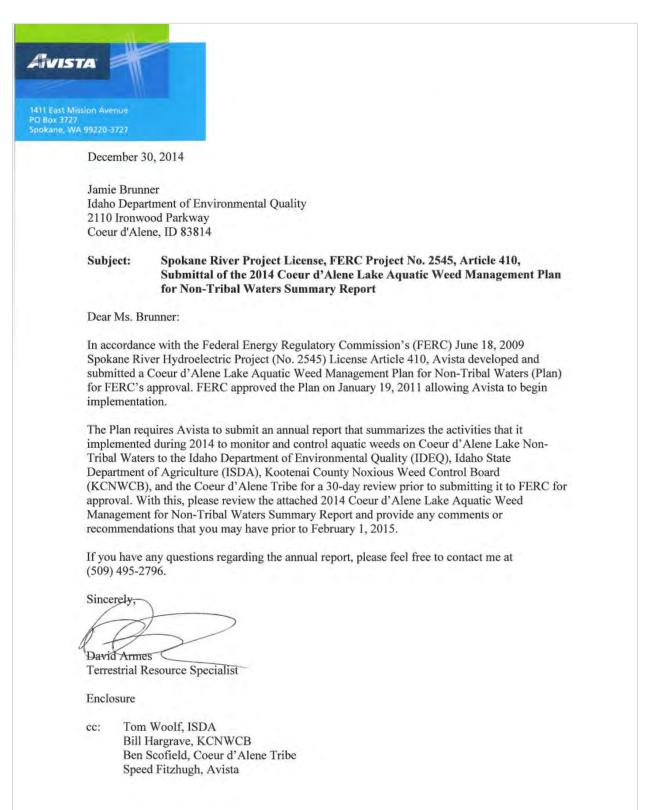
Summary of Comments on 2014 Summary Report Lake CdA NonTribal Aquatic Weeds rf BDS com.pdf

Author: bscofield 2014?	Subject: Highlight	Date: 01-21-2015 8:42:39 AM	
Author: bscofield Aquathol K?	Subject: Highlight	Date: 01-21-2015 8:44:12 AM	
Page: 6	- 1-2 - 1-4 - 1-4 - 1-4		
Author: bscofield 0.05 acres (2000 si		Date: 01-21-2015 8:48:22 AM	
Author: bscofield 0.05 acres (2000 s	quare feet)	Date: 01-21-2015 8:48:22 AM Date: 01-21-2015 8:50:06 AM	
Author: bscofield 0.05 acres (2000 so Author: bscofield sub-surface	quare feet) Subject: Highlight		

Avista's Response to the Coeur d'Alene Tribe's comments:

Avista addressed all of the Coeur d'Alene Tribe's comments in the final report.

Avista's Letter to Idaho Department of Environmental Quality

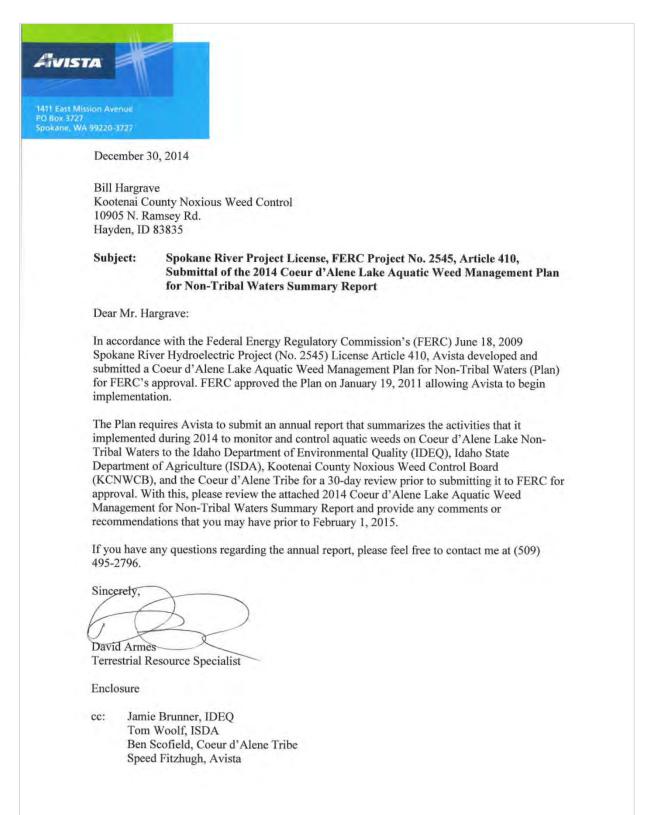


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Idaho Department of Environmental Quality's Response

From: To: Subject:	Jamie.Brunner@deq.idaho.gov Armes, David RE: 2014 Coeur d'Alene Lake Aquatic Weed Management Plan Summary Report Eriday: Fohmary 06, 2015 10:19:29 AM
Date: Attachments:	Friday, February 06, 2015 10:18:28 AM image001.png image002.png image003.png
Hi David,	
This looks good	d to me. I don't have any comments.
Regards,	
Jamie	
Sent: Tuesday To: Jamie Brun Cc: Fitzhugh, S	David [mailto:David.Armes@avistacorp.com] , December 30, 2014 12:17 PM ner Gpeed (Elvin); Goloborodko, Yelena; Glen Pettit Coeur d'Alene Lake Aquatic Weed Management Plan Summary Report
Jamie,	
Attached for ye	our review is the 2014 Coeur d'Alene Lake Aquatic Weed Management Plan Summary
Report. Please	provide any comments or recommendations you may have prior to February 1,
2015.	
Thanks!	
David Armes	
Terrestrial Reso	ource Specialist
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PO Box 3727 MS0 Spokane, WA 992 1411 E Mission M Phone 509.495.27 Cell 208.651.4536 F 509.495.8469 http://www.avistau	20 SC-1 96
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Avista's Letter to Kootenai County Noxious Weed Control



Kootenai County Noxious Weed Control's Response

From:Bill HargraveTo:Armes, DavidSubject:RE: 2014 Coeur d'Alene Lake Aquatic Weed Management Plan Summary ReportDate:Friday, January 23, 2015 10:34:54 AMAttachments:image001.png
image002.png
image003.png

David,

Kootenai County Noxious Weed Control has no comments to add to the 2014 Summary Report. We look forward to the discussions regarding the 2015 plans. Once again thank you, for helping us fund a reprint of our booklet.

Bill Hargrave
Weed Superintendent
Kootenai County
Noxious Weed Control
Chair IECWMA
10905 N.Ramsey Rd.
Hayden, ID 83835

From: Armes, David [mailto:David.Armes@avistacorp.com]
Sent: Tuesday, December 30, 2014 11:18 AM
To: Bill Hargrave
Cc: Fitzhugh, Speed (Elvin); Goloborodko, Yelena
Subject: 2014 Coeur d'Alene Lake Aquatic Weed Management Plan Summary Report

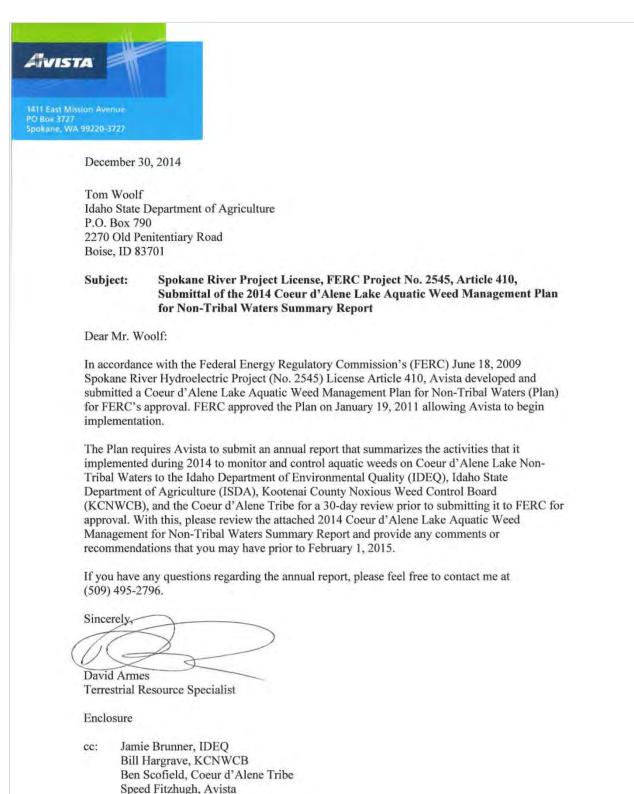
Bill,

Attached for your review is the 2014 Coeur d'Alene Lake Aquatic Weed Management Plan Summary Report. Please provide any comments or recommendations you may have prior to February 1, 2015.

Thanks!

David Armes Terrestrial Resource Specialist

Avista's Letter to the Idaho State Department of Agriculture



No comments were provided by the Idaho State Department of Agriculture.