



# The Clark Fork Project

## FERC Project No. 2058

2016 Annual Report





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## Section 1: Introduction

### 1.1 Document Background and Purpose

Avista owns and operates the Noxon Rapids and Cabinet Gorge Hydroelectric developments (Clark Fork Project, Federal Energy Regulatory Commission (FERC) License No. 2058). Operation of the Clark Fork Project is conditioned by the Clark Fork Settlement Agreement (CFSA), signed in 1999, and FERC License No. 2058, effective March 1, 2001. In 2016, Avista implemented the terms and conditions of the CFSA in consultation with, and full approval of the Management Committee (MC) for the eighteenth consecutive year and the terms and conditions of the FERC License for the sixteenth consecutive year.

As specified in this report, Avista, in consultation with members of the MC, comprised of State and Federal agencies, non-governmental organizations, and five Native American Tribes, continued to implement the current PM&E measures identified in the CFSA and license. The MC, Terrestrial Resources Technical Advisory Committee (TRTAC), Water Resources Technical Advisory Committee (WRTAC), and Cultural Resource Management Group (CRMG) continued to meet in 2016.

At the March meeting, the MC members discussed and sought to approve the 2016 Annual Implementation Plans (AIPs) and associated funding for all active 22 PM&E measures identified in the CFSA and the Clark Fork License. This meeting was successfully concluded in one day, with all of the project proposals approved by consensus. During the September meeting, the MC members received updates on the PM&E measures and had the opportunity to tour CFSA implementation projects in Idaho.

The MC members continued to seek long-term resolution on issues associated with the Cabinet Gorge Permanent Fish Passage Facility (CGFPF). Three additional MC conference call meetings were held in August, September, and November to specifically discuss the CFSA amendment related to the CGFPF. By year's end there was tentative agreement on all sections of the CFSA amendment, except Section 2.4 "*No Additional Mitigation For Blockage of Upstream Passage at Cabinet Gorge Dam*". Avista, U.S. Fish and Wildlife Service (USFWS), and the Kalispel Tribe are currently participating in ongoing discussions to determine the best course of action to resolve final language concerns.

### 1.2 Summary

Key activities implemented in 2016 to benefit aquatic, terrestrial, and cultural resources included:

A new passive integrated transponder (PIT) tag array was installed in association with the Graves Creek permanent weir trap. In addition, a number of minor temporary modifications were made and tested, in an effort to improve downstream passage efforts. Notably, a prototype modification to enhance the retention of downstream-moving fish in the trap box was constructed and tested. The prototype incorporates a small drop into the trap box and appears to successfully prevent fish from escaping the trap box.

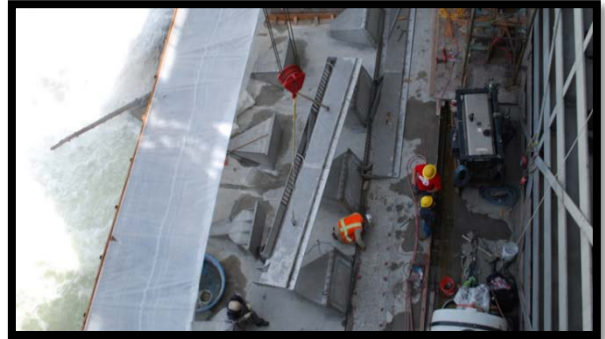




Continued to work with State Historic Preservations Offices, U.S. Forest Service (USFS) and representatives from five Native American tribes to preserve and protect cultural and historic resources associated with the Clark Fork Project. Interpretive signs for the Teepee Kiosk at Pilgrim Creek Park were completed and installed.

Continued to protect and manage Avista-owned project land through the issuance of private recreational, commercial and special use permits, annual monitoring and implementation of the Pesticide/Herbicide Plan.

Modifications to Cabinet Gorge spillway bays 4 and 5 were completed and tested in an effort to reduce total dissolved gas (TDG) that is generated during spill.



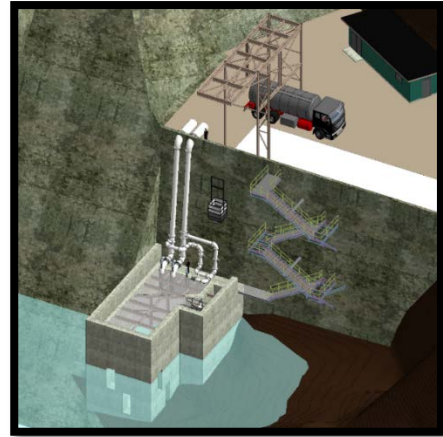
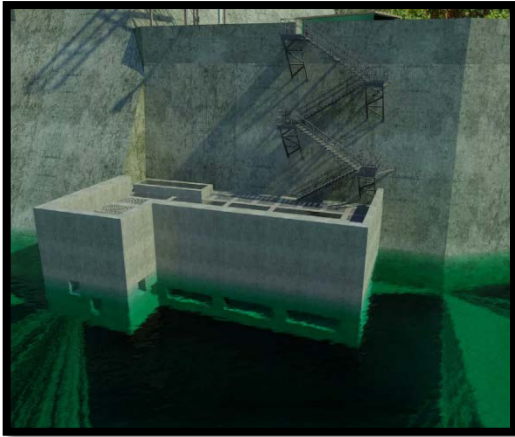
Conducted a variety of tributary fish population estimates, habitat assessments, and continued monitoring stream gages to help guide future management and enhancement efforts.

For the second year in a row Westslope Cutthroat Trout were passed from Idaho, over Cabinet Gorge Dam, into Montana as one of the first steps in ongoing efforts towards re-establishing connectivity. In 2016, aerial tracking was used to monitor the movements of Westslope Cutthroat Trout as in the photo to the right, technicians monitor fish movement in the Clark Fork River Delta.





A value engineering assessment was completed for the proposed CGFPP. This assessment resulted in two major design changes, approved by the design review team (removal of the ladder and use of a siphon for a water supply) that will be implemented, if and when, the facility is built.



Species-specific state required pathogen testing was completed and a Montana import permit was procured. Based on genetic assignment or previous capture history, 21 Montana origin adult Bull Trout were collected downstream of Cabinet Gorge Dam and transported upstream to Montana waters.

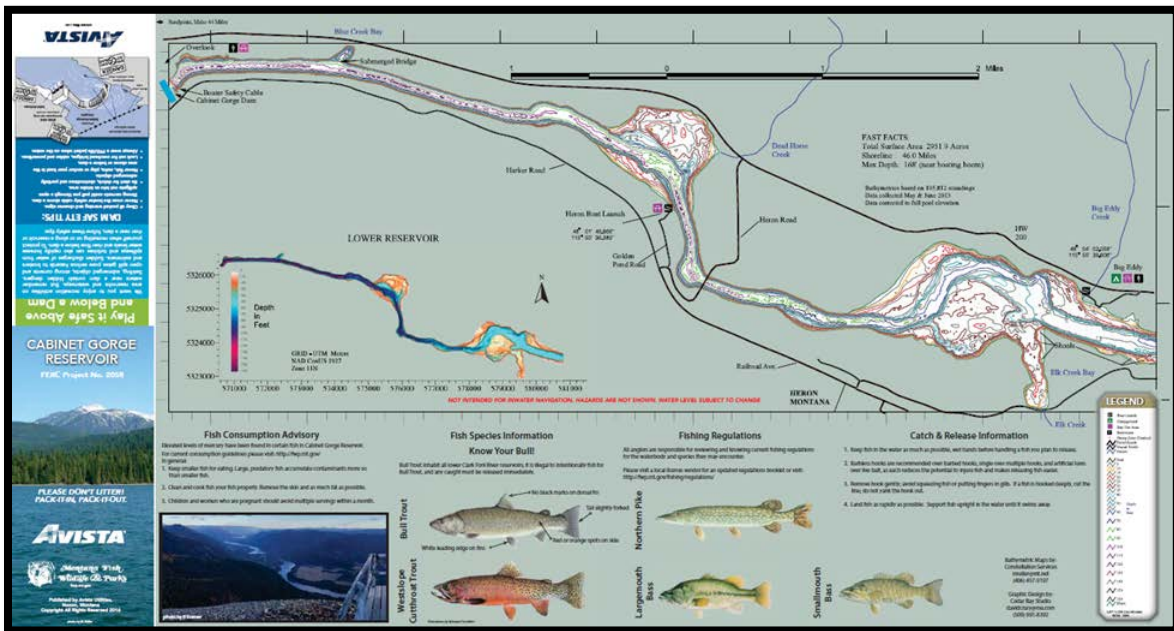
The MC approved the purchase of 330 acres of undeveloped property along lower Twin Creek, a tributary to the Clark Fork River downstream of Cabinet Gorge Dam. The parcel includes the section of creek where extensive restoration work was initiated in 2000. The restoration work was protected with a purchased conservation easement in 2004. In working with the landowners on



developing plans to address issues with the previous restoration work in 2015, the landowners indicated a willingness to sell not only the property covered by the conservation easement, but the adjacent 55-acre riverfront parcel. Resource benefits include conservation of the riparian habitat along the mainstem Clark Fork River, have greater control over the ongoing maintenance of the restoration work on Twin Creek, and providing public access to the lower Clark Fork River.

Completed the Grouse Creek Large Woody Debris Enhancement Project. This restoration project was designed to decrease sediment loading and increase pool frequency in a key native salmonid tributary.

Completed design, printed, and distributed the Cabinet Gorge bathymetric map. In addition to providing anglers with bottom topography of the reservoir, the map includes access point locations, boating safety tips, and a fish identification guide.



Maintenance and improvements to 28 recreation sites was completed to provide safe and accessible recreation opportunities and accommodated a wide range of organized activities including: weddings, bass tournaments, softball tournaments, blues festival, etc.

The first phase of the Miners Gulch Restoration Project was completed as scheduled in August. The project's purpose is to restore a 1,600-foot degraded reach of channel and 11 acres of surrounding floodplain to improve and protect native fish habitat in the Vermilion River.



The Lake Trout suppression project on Lake Pend Oreille was implemented for the eleventh consecutive year. This year, the program was again slightly scaled-back in an effort to help define a long-term sustainable maintenance program.



After multiple CFSA funded studies and several years of discussion, Montana Fish, Wildlife and Parks (MFWP) informed the MC that they will not propose an agency personnel mechanical removal action to attempt suppression of the illegally introduced Walleye population in Noxon and Cabinet reservoirs at this time. Instead based on the conclusions and information learned from the CFSA funded studies, MFWP will continue to suppress the Walleye population through liberal angler harvest regulations (currently no daily limit).



Improvements to the Thompson Falls State Park continued as the fishing pond was dredged and access to the pond was developed. In addition, a new camp-host site is under development.

Contracting with MFWP and Idaho Department of Fish and Game (IDFG) conservation officers continued to ensure enforcement and education throughout the Avista Project area. Numerous day camps, classroom presentations, field trips, and festival appearances promoted Bull Trout identification and appreciation to over 1,500 schoolchildren throughout the Lower Clark Fork River – Lake Pend Oreille area. Warden presence also included patrolling area waters and contacting over 2,000 anglers or recreationalists, and resulted in the issuing of over 200 verbal warnings or written citations, of which only three pertained to Bull Trout.



As part of the Bull River Revegetation 89 fencing enclosures were installed along 8,300 linear feet of floodplain in 2016. These enclosures protect both the matting, which is needed to kill the reed canary grass monoculture, and the diverse woody vegetation seedlings that will be planted in 2017.



The Noxon Rapids Dam Lower Overlook provides visitors an up-close view of the facility, as well as a place to take a break from their travels. Between 1,500 and 2,300 groups visit the site every year, with higher numbers corresponding to years when spill occurs. While the overlook has been in place for over 30 years, major efforts have been completed during the past 15 years to improve the aesthetic appeal of the site. The most recent major site improvement was installed during the spring of 2016: a new picnic pavilion. The new pavilion kit was ordered from a local Noxon business, whose focus is creating large specialty beams from local timber. The pavilion consists of beams made from rough-cut dead-standing Douglas fir, with the interior of the roof made of tongue and groove fir. The old structure and concrete was removed and a new concrete slab was poured to fit the new structure.



A comprehensive evaluation of the Tributary Trapping and Downstream Juvenile Bull Trout Transport Program was completed during 2016. This analysis evaluated the relationships between numerous variables and the likelihood that juvenile Bull Trout transported to Lake Pend Oreille would survive to adulthood and be recaptured as adults downstream of Cabinet Gorge Dam. Notably, the evaluation found that the likelihood of survival and recapture increased with increasing juvenile fish length, and that juvenile Bull Trout transported during July and August were not likely to survive and be recaptured. This information was used to modify length criteria for juvenile transports and to cease transporting juvenile Bull Trout during July and August. Ultimately, these protocol modifications should increase return rates and the production of Bull Trout within Montana streams.



The temporary enclosure fence built within a black cottonwood stand at the Hereford Slough Site during the early spring of 2015 continues to function well in protecting new black cottonwood seedlings from wildlife browsing. The photos show construction in early 2015, and the response in late summer 2015 and 2016.



The vast majority of actions, tasks, and deliverables identified in 2016 were completed as planned. There were no unresolved issues that required initiation of the dispute resolution process.

### 1.3 Acronyms and Abbreviations

AIP	Annual Implementation Plan
AMP	Aesthetics Management Plan
CFS	cubic feet per second
CFSA	Clark Fork Settlement Agreement
CGFPF	Cabinet Gorge HED Permanent Fish Passage Facility
CRMG	Cultural Resources Management Group
EFBR	East Fork Bull River
ESA	Endangered Species Act
EWM	Eurasian watermilfoil
FERC	Federal Energy Regulatory Commission
GMCD	Green Mountain Conservation District
GSCP	Gas Supersaturation Control Program
HED	hydroelectric development
IDFG	Idaho Department of Fish and Game
KLT	Kaniksu Land Trust
LPO	Lake Pend Oreille
LUMP	Land Use Management Plan
MC	Management Committee
MFWP	Montana Fish, Wildlife and Parks
NSRP	Native Salmonid Restoration Plan
PCTU	Panhandle Chapter Trout Unlimited
PIT	passive integrated transponder
PM&E	protection, mitigation, and enhancement
RRMP	Recreation Resource Management Plan
TDG	total dissolved gas
TRTAC	Terrestrial Resources Technical Advisory Committee
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VE	Value Engineering
WRTAC	Water Resources Technical Advisory Committee
WSC	watershed council



## Section 2: Management Committee

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### 2.1 Purpose

Paragraph 26 of the Clark Fork Settlement Agreement (CFSA) established a Management Committee (MC) composed of representatives from each of the CFSA signatories. The MC oversees all Protection Mitigation and Enhancement (PM&E) measures. The MC shall have the authority, subject to such FERC approvals as may be necessary in appropriate cases, to:

- Approve plans developed by Avista and the appropriate technical committee for the implementation of PM&E measures, including funding;
- Approve modifications of PM&E measures;
- Oversee the implementation of all PM&E measures by Avista and the appropriate committees;
- Establish such committees as it deems necessary for the purpose of implementing the CFSA and PM&E measures, and determine, as appropriate, the size, membership, and procedures of such committees;
- Establish appropriate procedures for conducting its activities, including procedures for proxy voting and teleconferencing methods;
- Permit additional entities to execute the CFSA and thereby become members of the MC, and, as appropriate, permit the addition of such new MC members on terms different from those of the original signatories to the CFSA;
- Resolve all disputes regarding implementation of approved PM&E measures and all disputes brought to it for resolution by any of the members or committees;
- Amend the CFSA including the PM&E measures, in accordance with the voting provisions set forth in the CFSA.

### 2.2 List of Representatives

In 2016, the MC consisted of representatives from 27 members of the CFSA. Member representatives are verified bi-annually through the sign-in sheet distributed at each MC meeting. The 2016 MC Representatives are listed below.

Avista	Tim Swant
Bull River Watershed Council	Kathy Ferguson
Cabinet Resource Group	Cal Ryder/Jim Nash
Coeur d'Alene Tribe	Phillip Cerna
Confederated Salish and Kootenai Tribes	Les Evarts
Elk Creek Watershed Council	Mike Miller
Green Mountain Conservation District	Howard Bakke
Idaho Department of Environmental Quality	Tom Herron
Idaho Department of Fish and Game	Chip Corsi
Idaho Rivers United	Kevin Lewis
Kalispel Tribe	Joe Maroney
Kootenai Tribe of Idaho	Scott Soult
Lake Pend Oreille Idaho Club	Ryan Roslak
Montana Bass Federation	Bob Beberg
Montana Department of Environmental Quality	Randy Apfelbeck/Jason Garber

Montana Department of Natural Resources and Conservation  
Montana Fish, Wildlife and Parks  
Montana State Historic Preservation Office  
Noxon-Cabinet Shoreline Coalition  
Panhandle Chapter Trout Unlimited  
Rock Creek Alliance

Sanders County, Montana  
U.S. Fish and Wildlife Service  
U.S. Forest Service

Amy Groen/Ada Montague  
Jim Williams  
Stan Wilmoth  
Rick Robinson  
Loren Albright  
Jim Costello/Mary Crowe-  
Costello  
Tony Cox  
Ben Conard  
John Gubel

Management Committee representatives not designated in 2016:

Alliance for the Wild Rockies  
Idaho Department of Parks and Recreation  
Idaho State Historic Preservation Office

## **2.3 Meeting and Activity Summary**

In accordance with the requirements of Paragraph 28 of the CFSA, the MC met two times. The two required meetings were open to the public, meeting information was placed on Avista's Clark Fork website, and notices were placed in the local newspaper. In addition, three special meetings were held by teleconference to discuss the CFSA amendment.

### **2.3.1 Additional MC Activities**

Throughout 2016, the MC reviewed a number of proposals received through the consent mail request process established by the Clark Fork Management Committee Procedures. Consent mail requests are a business process utilized for decision making between MC meetings. Proposals that are approved move forward, while those that are not approved are discussed at the next regularly scheduled MC meeting. The following proposals were received by consent mail, and approved:

- December 16, 2015 request to utilize funding to purchase 40 radio transmitters for Westslope Cutthroat Trout passage (CFSA appendices C and F5; approved on January 5, 2016).
- January 15, 2016 request for funds for graphic design and printing of the Cabinet Gorge Reservoir Bathymetric Map (CFSA Appendix B).
- July 19, 2016 request for Tributary Trapping and Juvenile Bull Trout Downstream Transport Program – Protocol Revisions (CFSA Appendix C).
- July 21, 2016 request for approval of funds to purchase 330 acres along Twin Creek, Bonner County, Idaho (CFSA Appendix A).
- August 19, 2016 request to utilize funding to address erosion on Clark Fork Delta project (CFSA Appendix K).



## 2.4 Key 2016 References

- Avista. 2016. Management Committee meeting minutes from March 15, 2016. Avista document identification number 2016-0113. Noxon, Montana.
- Avista. 2016. Management Committee meeting minutes from August 16, 2016. Avista document identification number 2016-0338. Noxon, Montana.
- Avista. 2016. Management Committee special meeting minutes from September 7, 2016. Avista document identification number 2016-0433. Noxon, Montana.
- Avista. 2016. Management Committee special meeting minutes from September 23, 2016. Avista document identification number 2016-0369. Noxon, Montana.
- Avista. 2016. Management Committee special meeting minutes from November 2, 2016. *In prep.* Noxon, Montana.
- Sanders County Ledger. 2016. Public meeting notice for the March MC Meeting March 3, 2016. Avista document identification number 2016-0051. Sanders County, Montana.
- Sanders County Ledger. 2016. Public meeting notice for the September MC Meeting September 15, 2016. Avista document identification number 2016-0337. Sanders County, Montana.
- Avista. 2016. Public webpage for the Clark Fork Project.  
[www.avistautilities.com/environment/clarkfork/Pages/license.aspx](http://www.avistautilities.com/environment/clarkfork/Pages/license.aspx). (December 2016)
- Avista. 2016. Consent Mail for Cabinet Gorge Bathetic Map February 2, 2016. Avista document identification number 2016-0028. Noxon, Montana.
- Avista. 2016. Consent Mail for 330-acre purchase July 21, 2016. Avista document identification number 2016-0241. Noxon, Montana.
- Avista. 2016. Consent Mail for Tributary Trapping and Juvenile Bull Trout Transport Program – Protocol revisions July 21, 2016. Avista document identification number 2016-0272. Noxon, Montana.
- Avista. 2016. Consent Mail for Appendix K for additional armoring along sections of the Clark Fork Delta August 19, 2016. Avista document identification number 2016-0292. Noxon, Montana.

## Section 3: Water Resources Technical Advisory Committee

### 3.1 Purpose

The Water Resources Technical Advisory Committee (WRTAC) is one of two technical advisory committees designated by Paragraph 32 of the CFSA. The WRTAC provides technical review of water-related PM&E measures (Section 3.2), including those dealing with fishery resources, water quality, and water quantity. The WRTAC is consulted in the development of appropriate implementation plans for water resources PM&E measures and related funding recommendations.

### 3.2 Water Related PM&E Measures

PM&E	CFSA Appendix	Clark Fork License Article
Idaho Tributary Habitat Acquisition and Fishery Enhancement Program	A	404
Montana Tributary Habitat Acquisition and Recreational Fishery Enhancement Program	B	405
Fish Passage / Native Salmonid Restoration Plan	C	406
Bull Trout Protection and Public Education Project	D	407
Watershed Councils Program	E	408
Clark Fork River Water Quality Monitoring Program	F1	409
Monitoring of Noxon Reservoir Stratification and Mobilization of Sediment Nutrients/Metals	F2	410
Aquatic Organism Tissue Analysis	F3	411
Water Quality Protection and Monitoring Plan for Maintenance, Construction and Emergency Activities	F4	412
Dissolved Gas Supersaturation Control, Mitigation, and Monitoring	F5	413
Project Operations Package	T	429/430/431

### 3.3 List of Representatives

The WRTAC consists of representatives appointed by MC members. The 2016 representatives are listed below.

Avista	Joe DosSantos/Eric Oldenburg
Bull River Watershed Council	Kathy Ferguson
Cabinet Resource Group	Jim Nash
Coeur d'Alene Tribe	Phillip Cerna
Confederated Salish and Kootenai Tribes	Craig Barfoot
Elk Creek Watershed Council	Mike Miller
Green Mountain Conservation District	Leona Gollen
Idaho Department of Environmental Quality	Tom Herron
Idaho Department of Fish and Game	Ken Bouwens
Kalispel Tribe	Ken Merrill
Montana Bass Federation	Bob Beberg
Montana Department of Environmental Quality	Randy Apfelbeck



Montana Department of Natural Resources and Conservation	Amy Groen/Ada Montague
Montana Fish, Wildlife and Parks	Ryan Kreiner
Montana State Historic Preservation Office	Stan Wilmoth
Panhandle Chapter Trout Unlimited	Gregg Mauser
U.S. Fish and Wildlife Service	Wade Fredenberg
U.S. Forest Service	Doug Grupenhoff

Water Resources Technical Advisory Committee representatives not designated in 2016:

Alliance for the Wild Rockies  
Idaho Department of Parks and Recreation  
Idaho State Historic Preservation Office  
Kootenai Tribe of Idaho  
Lake Pend Oreille Idaho Club  
Noxon-Cabinet Shoreline Coalition  
Rock Creek Alliance  
Sanders County, Montana

### **3.4 Meeting and Activity Summary**

The WRTAC met twice in 2016, on January 19, 2016 and September 13, 2016. Both meetings were open to the public. Notices of the meetings were placed in the local newspaper and posted on Avista's Clark Fork website. In addition, all WRTAC members were invited to attend the annual ranking meeting.

### **3.5 Key 2016 References**

Avista. 2016. Water Resources Technical Advisory Committee Meeting Minutes from January 19, 2016. Avista Document identification number 2016-140927. Avista, Spokane, Washington.

Avista. 2016. Water Resources Technical Advisory Committee Meeting Minutes from September 13, 2016. Avista Document identification number 2016-141537. Avista, Spokane, Washington.

Sanders County Ledger. 2016. Public meeting notice for the January WRTAC Meeting January 14, 2016. Avista document identification number 2016-0006. Sanders County, Montana.

Sanders County Ledger. 2016. Public meeting notice for the September WRTAC Meeting September 1, 2016. Avista document identification number 2016-141537. Sanders County, Montana.

Avista. 2016. Public webpage for the Clark Fork Project.  
[www.avistautilities.com/environment/clarkfork/Pages/license.aspx](http://www.avistautilities.com/environment/clarkfork/Pages/license.aspx). (December 2016)

## Section 4: Terrestrial Resources Technical Advisory Committee

### 4.1 Purpose

The Terrestrial Resources Technical Advisory Committee (TRTAC) is one of two technical advisory committees designated by Paragraph 32 of the CFSA. The TRTAC provides technical review of terrestrial-related PM&E measures (Section 4.2), including those dealing with wildlife, botanical resources, wetlands, land use, recreation, and aesthetics. The TRTAC is consulted in the development of appropriate implementation plans for terrestrial resource PM&E measures and related funding recommendations.

### 4.2 Terrestrial Related PM&E Measures

PM&E	CFSA Appendix	Clark Fork License Article
Implementation of the Land Use Management Plan	G	414
Implementation of the Recreation Resource Management Plan	H	415
Implementation of the Aesthetics Management Plan	I	416
Development and Implementation of the Wildlife, Botanical and Wetland Management Plan	J	417
Wildlife Habitat Acquisition, Enhancement and Management Program	K	418
Black Cottonwood Habitat Protection and Enhancement	L	419
Wetlands Protection and Enhancement Program	M	420
Forest Habitat Protection and Enhancement	P	425
Reservoir Island Protection	Q	426
Erosion Fund and Shoreline Stabilization Guidelines Program	S	428

### 4.3 List of Representatives

The TRTAC consists of representatives appointed by MC members. The 2016 representatives are listed below.

Avista	Nate Hall
Bull River Watershed Council	Kathy Ferguson
Cabinet Resource Group	Cal Ryder
Coeur d'Alene Tribe	Phillip Cernera
Elk Creek Watershed Council	Judy Hutchins
Green Mountain Conservation District	Howard Bakke
Idaho Department of Environmental Quality	Bob Steed
Idaho Department of Fish and Game	Kathy Cousins
Kalispel Tribe	Ray Entz
Kootenai Tribe of Idaho	Norm Merz
Montana Bass Federation	Bob Beberg
Montana Department of Environmental Quality	Craig Jones
Montana Fish, Wildlife and Parks	Dave Landstrom/Bruce Sterling

Montana State Historic Preservation Office  
Noxon-Cabinet Shoreline Coalition  
Rock Creek Alliance  
Sanders County, Montana  
U.S. Forest Service

Stan Wilmoth  
Rick Robinson  
Mary Crowe Costello  
Tony Cox  
Les Raynor

Terrestrial Resources Technical Advisory Committee representative not designated in 2016:

Alliance for the Wild Rockies  
Confederated Salish and Kootenai Tribes  
Idaho Department of Parks and Recreation  
Idaho Rivers United  
Idaho State Historic Preservation Office  
Lake Pend Oreille Idaho Club  
Panhandle Chapter Trout Unlimited  
U.S. Fish and Wildlife Service

#### **4.4 Meeting and Activity Summary**

The TRTAC met twice in 2016, on January 20, 2016 and September 14, 2016. Both meetings were open to the public. Notices of the meetings were placed in the local newspaper and posted on Avista's Clark Fork website.

#### **4.5 Key 2016 References**

Avista. 2016. Terrestrial Resources Technical Advisory Committee Meeting Minutes from January 20, 2016. Avista document identification number 2016-0103. Spokane, Washington.

Avista. 2016. Terrestrial Resources Technical Advisory Committee Meeting Minutes from September 14, 2016. Avista document identification number 2016-0404. Spokane, Washington.

Sanders County Ledger. 2016. Public meeting notice for the January TRTAC Meeting January 14, 2016. Avista document identification number 2016-0006. Sanders County, Montana.

Sanders County Ledger. 2016. Public meeting notice for the September TRTAC Meeting September 1, 2016. Avista document identification number 2016-0290. Sanders County, Montana.

Avista. 2016. Public webpage for the Clark Fork Project.  
[www.avistautilities.com/environment/clarkfork/Pages/license.aspx](http://www.avistautilities.com/environment/clarkfork/Pages/license.aspx). (December 2016)



## Section 5: Cultural Resources Management Group (License Article 427 – CFSA Appendix R)

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### 5.1 Purpose

The Cultural Resources Management Group (CRMG) was formed as a result of Clark Fork Settlement Agreement (CFSA) Appendix R (Clark Fork Heritage Resource Program). Appendix R of the CFSA corresponds to Article 427 in the FERC License for Clark Fork Project No. 2058.

The CRMG consists of representatives from each of the signatories (except FERC) to the Programmatic Agreement for the Clark Fork Heritage Resource Program. Individual representatives of each tribe and agency may vary from meeting to meeting. Due to confidentiality requirements, these meetings are not open to the public. The CRMG reviews Annual Implementation Plans (AIPs) as part of the overall annual approval process and projects which are of concern are monitored throughout implementation. The CRMG reviews all ground-disturbing activities that may impact cultural or historic resources, and uses the Clark Fork Heritage Resource Management Plan (Plan) to guide implementation of management efforts.

The purpose of CFSA Appendix R is to provide directives for all eligible properties associated with the Clark Fork Project, including the dam sites, homesteading era properties, prehistoric properties, and sites with traditional cultural significance. The Plan helps to support many of the projects in other CFSA PM&E measures. It also helps to ensure that historic properties are protected and managed. The Plan is intended to extend beyond a mere “treatment plan.” It provides the flexibility to be useful to a number of different audiences. The Plan includes public education goals, objectives, and action strategies as important focuses.

### 5.2 Meeting and Activity Summary

On February 10, 2016, the CRMG held a meeting to discuss the 2016 AIPs for water and terrestrial resources, ground disturbances at recreation sites, various land use permits, and annual monitoring results. This meeting was held in Spokane, Washington with attendees representing Confederated Salish and Kootenai Tribes, U.S. Forest Service Kootenai National Forest, Coeur d’Alene Tribe, Kalispel Tribe, and Avista.

The CRMG annual meeting discussion included the best approach to address three erosion areas near cultural sites, progress of the interpretive teepee kiosk display, and the draft 2016 AIPs. The Confederated Salish and Kootenai Tribes consulted with elders for direction and discussed preferred alternatives to the three erosion sites.

The group acknowledged that Avista, through the work of the CRMG, is fulfilling obligations associated with the Historic Properties Management Plan, and the National Historic Preservation Act (Section 106).

### 5.3 Annual Implementation Plan Objectives

- Schedule and host CRMG meeting(s).
  - *Completed per 2016 AIP<sup>1</sup>*
- Continue annual monitoring of the culturally-sensitive sites as determined by the CRMG.
  - *Completed per 2016 AIP<sup>1</sup>*

- Review, and if appropriate propose modification of, Annual Implementation Plans for water and terrestrial resources that have the potential to impact historic or cultural resources.
  - *Completed per 2016 AIP<sup>1</sup>*
- Conduct site-specific surveys of proposed ground-disturbing activities associated with implementation of Protection, Mitigation and Enhancement efforts identified in the CFSA and the license for FERC Project No. 2058.
  - *Completed per 2016 AIP<sup>1</sup>*
- Ensure compliance with Section 106 of the National Historic Preservation Act.
  - *Completed per 2016 AIP<sup>1</sup>*
- Conduct other tasks as developed and approved by the CRMG.
  - *Completed per 2016 AIP<sup>1</sup>*
- Review and revise the Historic Properties Management Plan, as needed.
  - *Completed per 2016 AIP<sup>1</sup>*
- Implement the Interpretation and Education Cultural Plan.
  - *Completed per 2016 AIP<sup>1</sup>*
- Conduct the Honey Flats Assessment.
  - *Completed per 2016 AIP<sup>1</sup>*

#### **5.4 Key 2016 References**

<sup>1</sup> Avista. *In prep.* CRMG Meeting Minutes Public Version from February 10, 2016. Spokane, Washington.

## Section 6: Water Resources PM&E Implementation Efforts

### 6.1 Idaho Tributary Habitat Acquisition and Fishery Enhancement Program (License Article 404 – CFSA Appendix A)

#### 6.1.1 Purpose and Resource Benefit

The purpose of this program is to offset the power peaking impacts of the Cabinet Gorge Development to native salmonid species (i.e., Bull Trout, Westslope Cutthroat Trout, and Mountain Whitefish). Resource benefits are accomplished through watershed restoration and enhancement, fishery monitoring and management support, and a public education and enforcement initiative focused on Bull Trout in Idaho.

#### 6.1.2 2016 Annual Implementation Plan Objectives

##### Tributary Habitat Acquisition and Enhancement

- Continue operation and maintenance of previously acquired properties (e.g., taxes, noxious weed control, and enforcement).
  - *Completed per 2016 AIP*<sup>1</sup>
- Continue to maintain and monitor previously funded habitat restoration projects as needed.
  - Perform follow up survey to monitor Japanese knotweed on Trestle Creek and treat Japanese knotweed as necessary.
    - *Completed per 2016 AIP*<sup>1,2</sup>
- Continue to pursue opportunities to protect high priority native salmonid tributary habitat, through purchase or easement actions.
  - Continue to provide funding to the Kaniksu Land Trust to help with the habitat protection program.
    - *Completed per 2016 AIP*<sup>1</sup>
  - Continue informal work on ongoing potential conservation easements and land acquisitions.
    - *Completed per 2016 AIP*<sup>1</sup>
- Conduct watershed restoration in cooperation with watershed councils, other interested stakeholders, and landowners:
  - Complete construction of the Twin Creek restoration maintenance project (continuation from 2013).
    - *Completed per 2016 AIP*<sup>1</sup>
  - Complete Grouse Creek large wood enhancement project (continuation from 2014).
    - *Completed per 2016 AIP*<sup>1,3</sup>
  - Initiate the Lightning Creek wood salvage project.
    - *Variance*<sup>1</sup>; See Section 6.1.4
- Continue temperature monitoring in the Pack River watershed (continuation from 2012).
  - *Completed per 2016 AIP*<sup>1,4</sup>
- Continue the Spring and Mosquito creeks pathogen survey (continuation from 2015).
  - *Completed per 2016 AIP*<sup>1,5</sup>



## Fishery Resource Monitoring, Enhancement, and Management

- Monitor salmonid abundance in Lake Pend Oreille tributaries and evaluate any fish passage limitations.
  - *Completed per 2016 AIP*<sup>1, 6, 7</sup>

### 6.1.3 Other 2016 Activities

- Consent mail request July 21, 2016 to purchase 330 acres along Twin Creek.
  - *Completed per Consent Mail*<sup>8</sup>
- Lower Clark Fork River Salmonid Abundance Monitoring Report anticipated in 2016.
  - *Variance*<sup>9</sup>; See Section 6.1.4

### 6.1.4 Projects with Significant Variances

Objective	Variances
<b>Initiate the Lightning Creek wood salvage project</b>	The U.S. Forest Service (project proponent) was unable to procure internal approval for the project and withdrew the proposal.
<b>Lower Clark Fork River Salmonid Abundance Monitoring</b>	Idaho Department of Fish and Game (project proponent) was scheduled to complete a report summarizing the 2014–2015 Lower Clark Fork River salmonid abundance monitoring in June, 2016.

### 6.1.5 Key 2016 References

- <sup>1</sup> Bouwens, K.A. 2016. Idaho Tributary Habitat Acquisition and Fishery Enhancement Program 2016 Annual Work Summary. Avista document identification number 2016-0435. Idaho Department of Fish and Game. Prepared for Avista, Noxon, Montana.
- <sup>2</sup> Lakeland Restoration Services, LLC. 2016. Trestle Creek Knotweed Removal. Avista document identification number 2016-0358.
- <sup>3</sup> Cobb, J., and J. Barenti. 2016. Grouse Creek Field Observations Spring 2016. Avista document identification number 2016-0425. U.S. Forest Service. Priest River, Idaho.
- <sup>4</sup> Erickson, J. 2016. Pack River Temperature Monitoring Project 2016. Pack River Watershed Council. Sandpoint, Idaho. Avista document identification number 2016-0371.
- <sup>5</sup> Jakubowski, R., and K.A. Bouwens. *In prep.* Spring and Mosquito Creek pathology investigations, 2015. Prepared for Avista, Noxon, Montana and the Idaho Department of Fish and Game.
- <sup>6</sup> Bouwens, K.A. and R. Jakubowski. 2016. Idaho Salmonid Research and Monitoring Update - 2015. Avista document identification number 2016-0363. Prepared for Avista, Noxon, Montana and the Idaho Department of Fish and Game.

<sup>7</sup> Bouwens, K.A. and R. Jakubowski. *In prep.* Idaho Salmonid Research and Monitoring Update - 2016. Idaho Department of Fish and Game, Coeur d'Alene, Idaho.

<sup>8</sup> Avista. July 21, 2016. Consent mail request to MC for funding to purchase 330 acres along Twin Creek, Bonner County Idaho. Avista document identification number 2016-0241.

<sup>9</sup> Bouwens, K.A. and R. Jakubowski. *In prep.* 2014-2015 Lower Clark Fork River Fishery Assessment Project Update. Prepared for Avista, Noxon, Montana and the Idaho Department of Fish and Game.

## 6.2 Montana Tributary Habitat Acquisition and Recreational Fishery Enhancement Program (License Article 405 – CFSA Appendix B)

### 6.2.1 Purpose and Resource Benefit

The purpose of this program is to offset the impacts of the power peaking and reservoir operational impacts of the Clark Fork Project to native salmonids and recreational fisheries in Montana. This is achieved through a multiple-component program that includes the restoration and enhancement of Clark Fork River tributary watersheds, support of recreational fishery monitoring and management, and evaluation and implementation of recreational fishery enhancement projects. These programmatic efforts benefit tributary habitats within the project area and the native salmonid and recreational fisheries associated with them.

### 6.2.2 2016 Annual Implementation Plan Objectives

#### Tributary Habitat Acquisition and Enhancement

- Continue to monitor and maintain previously funded habitat restoration projects as needed.
  - Conduct restoration site maintenance in the Prospect Creek drainage and possibly other drainages.
    - *Completed per 2016 AIP<sup>1</sup>*
- Continue to monitor habitat restoration and native salmonid abundance.
  - *Variance<sup>1,2,3</sup>; see Section 6.2.4*
- Continue Montana Key Streams Outreach to Landowners Project (continuation from 2010).
  - *Completed per 2016 AIP<sup>1</sup>*
- Continue maintenance of Rock and Graves creeks stream flow gages (continuation from 2010).
  - *Completed per 2016 AIP<sup>1,4,5</sup>*
- Continue providing funds for the Cabinet Ranger District Automated Snow Recording Site Operation and Maintenance (continuation from 2014).
  - *Completed per 2016 AIP<sup>1</sup>*
- Continue the Lower Clark Fork Watershed Group (LCFWG) Coordination Agreement.
  - *Completed per 2016 AIP<sup>1</sup>*
- Conduct watershed restoration in cooperation with watershed councils, other interested stakeholders, and landowners:
  - Provide “match” funds for outreach in Bull River Revegetation (Section 319 Project) (continuation from 2015).
    - *Variance<sup>1</sup>; see Section 6.2.4*
  - Mainstem Bull River Revegetation on Forest Service lands and NEPA process (continuation from 2015).
    - *Completed per 2016 AIP<sup>1</sup>*
  - Continue the East Fork Blue Creek Reach II Survey and Design Project (continuation from 2013).
    - *Variance<sup>1</sup>; see Section 6.2.4*



- Continue to seek additional funding for the Vermilion River Miner's Gulch Restoration Project (continuation from 2014).
  - o **Completed per 2016 AIP**<sup>1</sup>
- Provide funding to implement the Miner's Gulch Stream and Riparian Restoration Project.
  - o **Completed per 2016 AIP**<sup>1</sup>
- Continue the Dry Creek Road Sediment Reduction NEPA process (continuation from 2014).
  - o **Variance**<sup>1</sup>; see Section 6.2.4
- Initiate the Crow Creek Bull Trout Investigation project.
  - o **Variance**<sup>1</sup>; see Section 6.2.4

## Recreational Fishery Enhancement

- Continue to monitor reservoir fisheries in both Noxon and Cabinet Gorge reservoirs, including thorough Walleye and bass investigations.
  - o **Completed per 2016 AIP**<sup>1, 6, 7</sup>
- Finalize the Noxon Reservoir Fisheries Status Predictive Model (continuation from 2014).
  - o **Completed per 2016 AIP**<sup>1, 8</sup>
- Finalize the Walleye Economic Study (continuation from 2014).
  - o **Completed per 2016 AIP**<sup>1, 9</sup>
- Finalize the Walleye Expansion in Montana Environmental Assessment (Colby and Hunter 1989) (continuation from 2014).
  - o **Completed per 2016 AIP**<sup>1, 10</sup>
- Finalize Cabinet Gorge Reservoir Bathymetric Map (continuation from 2013).
  - o **Completed per 2016 AIP and Consent Mail**<sup>1, 11</sup>
- Continue the Bull River Fishing Access Site Investigation (continuation from 2013).
  - o **Completed per 2016 AIP**<sup>1</sup>
- Technician assistance with recreational fishery monitoring on the Thompson River.
  - o **Variance**<sup>1</sup>; see Section 6.2.4
- Manage Aquatic Invasive Plants in Noxon and Cabinet Gorge reservoirs (continuation from 2014).
  - o **Completed per 2016 AIP**<sup>1, 12, 13</sup>
- Continue the Thompson Falls State Park Improvement projects (continuation from 2015).
  - o **Completed per 2016 AIP**<sup>1</sup>
- Finalize the Noxon and Cabinet Gorge reservoirs and Bull River Creel Survey (continuation from 2015).
  - o **Variance**<sup>1, 14</sup>; see Section 6.2.4
- Initiate Mountain Lakes Fisheries Monitoring Project.
  - o **Completed per 2016 AIP**<sup>1</sup>
- Complete Thompson Falls Field Station Facility Feasibility Study.
  - o **Variance**<sup>1</sup>; see Section 6.2.4

### 6.2.3 Other 2016 Activities

- Final report for 2015 Lower Clark Fork Watershed Group projects (April 2016).
  - *Completed per 2016 AIP*<sup>15</sup>
- Complete Native Salmonid Limiting Factors Investigation final report.
  - *Completed per 2015 AIP*<sup>16</sup>
- Complete Mainstem Bull River Riparian Revegetation Project final report.
  - *Variance*<sup>1</sup>; see Section 6.2.4
- Complete Granite Creek Riparian Road Obliteration Project.
  - *Completed per 2015 AIP*<sup>17</sup>

### 6.2.4 Projects with Significant Variances

Objective	Variances
<b>Continue to monitor habitat restoration and native salmonid abundance</b>	Montana Fish, Wildlife and Parks (project proponent) conducted sampling in in four of potentially six tributaries as described in AIP, but sampling was not conducted in Swamp Creek, nor as described by snorkeling in the Chapel Slide restoration site of the Vermilion River.
<b>Bull River Revegetation (Section 319 Project), additional landowners</b>	Additional landowners and areas were anticipated to be added to this project in 2016. However, upon on-site inspections of revegetation enclosures, a shift in scope from treating additional area to maintaining in-place treatments was instituted.
<b>East Fork Blue Creek Reach II Survey and Design</b>	Completion delayed due to changing landownership. Discussions are underway with the new landowners to allow implementation to progress.
<b>Dry Creek Road Sediment Reduction NEPA Process</b>	Public comment delayed completion of the NEPA process. Completion of the Environmental Assessment is anticipated in the late winter of 2017. A Quality Assurance Project Plan and Sampling Analysis Project Plan was delayed and is under development.
<b>Crow Creek Bull Trout Investigation Project</b>	Cooper Gulch abundance monitoring activities were planned and undertaken by Montana Fish, Wildlife and Parks (project proponent) for this project, but were unintentionally omitted from the AIP.
<b>Technician assistance on the Thompson River</b>	Montana Fish, Wildlife and Parks did not utilize Avista staff for fisheries monitoring work in the Thompson River.
<b>Noxon and Cabinet Gorge reservoirs and Bull River Creel Survey</b>	The data have been collected and analyzed; however, the report is pending completion by Montana Fish, Wildlife and Parks (project proponent).
<b>Thompson Falls Field Station Feasibility</b>	A plan to assess options for a Montana Fish, Wildlife and Parks Thompson Falls Field Station was completed in late 2016. However, the majority of tasks in the AIP were not accomplished.
<b>Mainstem Bull River Riparian Revegetation Project Final Report</b>	The Lower Clark Fork Watershed Group deemed the initial work product unacceptable. The scope was then modified and repairs were made; however, the Lower Clark Fork Watershed Group has not completed the final report.

## 6.2.5 Key 2016 References

- <sup>1</sup> Blakney, J. 2016. 2016. Appendix B Annual Work Summary. Avista document identification number 2016-0460. Prepared for Avista, Noxon Montana.
- <sup>2</sup> Tholl, T., and J. Blakney. 2016. Native Salmonid Abundance and Tributary Habitat Restoration Monitoring Progress Update 2015. Avista document identification number 2016-0360. Prepared for Avista, Noxon Montana.
- <sup>3</sup> Tholl, T., and J. Blakney. *In prep.* Native Salmonid Abundance and Tributary Habitat Restoration Monitoring Progress Update 2016. Prepared for Avista, Noxon Montana.
- <sup>4</sup> USFS (U.S. Forest Service). 2016. Water, temperature data report, Graves Creek at Blue Slide Road, water year 2016. Avista document identification number 2016-0428. USFS, Trout Creek, Montana.
- <sup>5</sup> USFS (U.S. Forest Service). 2016. Water, temperature data report, Rock Creek at Hwy 200, water year 2016. Avista document identification number 2016-0429. USFS, Trout Creek, Montana.
- <sup>6</sup> Kreiner, R. and T. Tholl. 2016. Noxon and Cabinet Gorge Reservoirs Fisheries Monitoring, Comprehensive Report: 2013-2015, including data from 1999-2015. Avista document identification number 2016-0414. Prepared for Avista, Noxon Montana.
- <sup>7</sup> Kreiner, R. and T. Tholl. *In prep.* Noxon and Cabinet Gorge Reservoirs Fisheries Monitoring, Annual Update Report – 2016. Prepared for Avista, Noxon Montana
- <sup>8</sup> Scarnecchia, D.L. and Lim, Y. 2016. Potential effects of walleye on the fish community of Noxon, Reservoir, Montana. Avista document identification number 2016-0072. University of Idaho: Moscow, Idaho.
- <sup>9</sup> Neher, C. 2016. Ecological-Economic Modeling of Changes in Fish Assemblage in a Western Montana Cold Water Reservoir System. Avista document identification number 2016-0405. University of Montana: Missoula, Montana.
- <sup>10</sup> Montana Fish, Wildlife, and Parks. 2016. Ecology and Management of Montana Walleye Fisheries. Avista document identification number 2016-0449. Montana Cooperative Fishery Research Unit, Montana State University, Bozeman, Montana, and Montana Fish, Wildlife and Parks, Helena, Montana.
- <sup>11</sup> Avista. January 15, 2016. Consent mail request to MC and WRTAC for approval of Appendix B: Design and Printing of Cabinet Gorge Reservoir Bathymetric Map. Avista document identification number 2016-0028.

- <sup>12</sup> Hanson Environmental. 2016. Pre-Treatment Survey of Noxon and Cabinet Gorge Reservoirs. July 2016. Avista document identification number 2016-0450. Prepared for Sanders County Aquatic Invasive Plants Task Force, Thompson Falls, Montana.
- <sup>13</sup> Clean Lakes, Inc. 2016. Noxon Rapids Reservoir, Sanders County, Montana, 2016 Aquatic Invasive Species Aquatic Pesticide Application Report (APAR). October, 2016. Avista document identification number 2016-0451. Prepared for Sanders County Aquatic Invasive Plants Task Force, Thompson Falls, Montana.
- <sup>14</sup> Blakney, J. and T. Tholl. *In prep.* Noxon and Cabinet Gorge reservoirs and Bull River Creel Survey – Final Report. Prepared for Avista, Noxon Montana.
- <sup>15</sup> Olson, B. 2016. 2015 Lower Clark Fork Watershed Group Annual Report. Avista document identification number 2016-0157. Prepared for Avista, Noxon Montana.
- <sup>16</sup> Blakney, J. 2016. Lower Clark Fork Native Salmonid Limiting Factors Assessment. Final Report 2011–2015. Avista document identification number 2016-0048. Prepared for Avista, Noxon Montana.
- <sup>17</sup> Grupenhoff, D. 2017. U.S. Forest Service, Kootenai National Forest, Cabinet Ranger District. Personal communication.



## 6.3 Fish Passage/Native Salmonid Restoration Plan (License Article 406 – CFSA Appendix C)

### 6.3.1 Purpose and Resource Benefit

The purpose of the Fish Passage/Native Salmonid Restoration Program is “...to mitigate the continuing effects of the project as obstructions to fish passage”, and the resource benefit is “to increase the long-term population viability of native Salmonid in the Lake Pend Oreille-lower Clark Fork River system” (FERC License Article 406). This goal is to be accomplished through the aggressive implementation of the Clark Fork River Native Salmonid Restoration Plan (NSRP).

### 6.3.2 Annual Implementation Plan Objectives

#### ***Upstream Fish Passage Program***

- Continue to implement a “rapid response” genetic analysis program in cooperation with the Abernathy Fish Technology Center (AFTC) for processing adult Bull Trout samples. In addition, continue to update the genetic baseline and determine genetic assignments for Bull Trout captured in LPO.
  - ***Completed per 2016 AIP*** <sup>1, 2</sup>
- Continue to capture adult Bull Trout by night electrofishing, Twin Creek weir trap, hook-and-line sampling, and/or the Cabinet Gorge Fish Hatchery Ladder in the lower Clark Fork River downstream of Cabinet Gorge Dam. Utilize the Cabinet Gorge Fish Handling and Holding Facility to hold fish and transport fish to the appropriate release locations based on genetic assignments or previous capture information.
  - ***Completed per 2016 AIP*** <sup>3, 4</sup>
- Conduct Bull Trout and Westslope Cutthroat Trout pathogen sampling in Idaho to fulfill MFWP requirements to allow upstream fish passage.
  - ***Completed per 2016 AIP*** <sup>5</sup>
- Implement the second year of the Clark Fork River Westslope Cutthroat Trout Experimental Transport Program, cooperatively between Clark Fork Settlement Agreement (CFSA) appendices A, B, and C.
  - ***Completed per 2016 AIP*** <sup>6, 7</sup>
- Investigate the development of an ArcGIS based database to store information on genetic purity of Westslope Cutthroat Trout populations in the Avista project area.
  - ***Completed per 2016 AIP*** <sup>8</sup>
- Maintain a passive integrated transponder (PIT) tag database and process data requests for PIT-tagged fish within the Avista project area.
  - ***Completed per 2016 AIP*** <sup>9</sup>

#### ***Tributary Trapping and Downstream Juvenile Bull Trout Transport Program***

- Continue trapping, electrofishing, and transport operations in important Montana tributaries in the Avista project area.
  - ***Variance*** <sup>10, 11, 12, 13</sup>; see Section 6.3.4
- Draft and implement a new Monitoring and Evaluation (M&E) Plan for the Graves Creek

permanent weir trap. Iteratively evaluate and improve the permanent weir trap.

- *Completed per 2016 AIP* 12, 13
- Maintain, operate, and improve PIT-tag arrays in important Montana tributaries in the Avista project area.
  - *Completed per 2016 AIP* 10, 11
- Continue to support USFS led investigations (i.e., bedload movement and stream gage monitoring).
  - *Completed per 2016 AIP* 10, 11, 14, 15, 16

### **Non-Native Fish Suppression Project in the East Fork Bull River 2015 through 2018**

- Install and operate one or two exclusion weir traps in the East Fork Bull River (EFBR) for the purpose of implementing the non-native fish suppression project. Transport, as per approved protocols, all non-native fish to a downstream release site.
  - *Variance* 17, 18; see Section 6.3.4
- Monitoring in 2016 constitutes the second of the four-year continuation of this project and incorporate results from electrofishing monitoring sections, trap capture, and redd surveys. Continue excavation of identified Brown Trout redds and collect a sub-sample of eggs from each redd for future genetic analysis.
  - *Completed per 2016 AIP* 17, 18

### **Fish Abundance Monitoring**

- Complete fish abundance monitoring utilizing electrofishing in the lower Graves Creek drainage. If conditions and timing constraints permit, conduct less extensive sampling in the Pilgrim, Blue, and Deadhorse creek drainages.
  - *Completed per 2016 AIP* 19, 20, 21
- In conjunction with CFSA appendices B and C personnel, coordinate and conduct annual Bull Trout and Brown Trout redd surveys in the Montana portion of the Avista Project area.
  - *Completed per 2016 AIP* 22, 23

### **Fish Capturing Facilities Operations, Development, and Testing**

- Pending CFSA amendment approval, award the contract for construction of the Cabinet Gorge HED Permanent Fishway project. The contract documents call for the chosen contractor to design and construct a cofferdam in the tailrace of the dam on the south side adjacent to the south thrustblock.
  - *Variance*; see Section 6.3.4 and Section 8.1.2.1
- Continue all other construction permitting and required ESA consultation required for the Cabinet Gorge HED Permanent Fishway project.
  - *Variance*; see Section 6.3.4 and Section 8.1.2.1

### **6.3.3 Other 2016 Activities**

- Implement a genetics monitoring program as directed under the Clark Fork River Native

Salmonid Restoration Plan to evaluate rainbow trout introgression levels in westslope cutthroat trout populations located in tributaries to Cabinet Gorge Reservoir.

- **Completed per 2015 AIP**<sup>1</sup>
- Continue final year of parentage analysis by collecting fin tissue samples from all bull trout captured in Cooper Gulch and the Prospect Creek drainage.
  - **Variance**<sup>24</sup>; see Section 6.3.4
- Complete a DVD based Avista reports database to electronic versions of reports with searchable key words based on content.
  - **Completed per 2014 AIP**<sup>25</sup>
- Complete deliverable from the 2015 Annual Report: Water, temperature, bed sediment data report, East Fork of the Bull River, water year 2015.
  - **Completed per 2015 AIP**<sup>26</sup>

### 6.3.4 Projects with Significant Variances

Objective	Variances
<b>Transport operations</b>	Juvenile Bull Trout transport quotas were not achieved from Cooper Gulch (quota = 16; transported = 10) or the Vermilion River (quota = 20; transported = 10) despite reasonable efforts. Alternative capture methods are being discussed for 2017.
<b>Exclusion Weirs for Non-Native Fish Suppression Project in the EFBR</b>	Abnormally high precipitation and streamflow in October followed by cold weather conditions precluded installation of exclusion weir traps.
<b>Award contract for construction of the Cabinet Gorge HED Permanent Fishway</b>	Entered into Value Engineering process with contractor, resulting in a modified Cabinet Gorge Fishway design that was approved by the Design Review Team (DRT – subgroup of the MC). Awarding a contract is on hold pending MC approval of the CFSA Amendment.
<b>Construction permitting and ESA consultation</b>	Further permitting is pending MC approval of the CFSA Amendment.
<b>Parentage Analysis in Cooper Gulch and Prospect Creek Drainages</b>	Abernathy Fish Technology Center drafted a report that was sent out for review; however, the final revision was not completed in 2016 as anticipated due in part to a career change of the primary author.

### 6.3.5 Key 2016 References

<sup>1</sup> DeHaan, P., B. Adams, J. Von Bargen and M. Brinkmeyer. 2016. Genetic Analysis of Native Salmonids from the Lake Pend Oreille and Clark Fork River System, Idaho and Montana. Annual Report for Calendar Year 2015. Avista document identification number 2016-0316. Prepared for Avista, Noxon, Montana.

<sup>2</sup> Adams, B, and J. Von Bargen. *In prep.* Genetic Analysis of Native Salmonids from the Lake Pend Oreille and Clark Fork River System, Idaho and Montana. Annual Report for Calendar Year 2016. Prepared for Avista, Noxon, Montana.

- <sup>3</sup> Bernall, S. and K. Duffy. 2016. Upstream Fish Passage Program – Bull Trout. Annual Progress Report – 2015. Avista document identification number 2016-0328. Avista, Noxon, Montana.
- <sup>4</sup> Bernall, S. and K. Duffy. *In prep.* Upstream Fish Passage Program – Bull Trout. Annual Project Update – 2016. Avista, Noxon, Montana.
- <sup>5</sup> Sprague, L. *In prep.* Report from Pathology lab. Avista, Noxon, Montana.
- <sup>6</sup> Bernall, S. and J. Johnson. 2016. Clark Fork River Westslope Cutthroat Trout Experimental Transport Program. Annual Progress Report – 2015. Avista document identification number 2016-0347. Avista, Noxon, Montana.
- <sup>7</sup> Bernall, S. and J. Johnson. *In prep.* Clark Fork River Westslope Cutthroat Trout Experimental Transport Program. Annual Project Update – 2016. Avista, Noxon, Montana.
- <sup>8</sup> Avista Westslope Cutthroat Trout Genetics Database; for more information on this database contact Shana Bernall (Shana.Bernall@avistacorp.com).
- <sup>9</sup> Avista Passive Integrated Transponder (PIT) Tag Database; for more information on this database contact Shana Bernall (Shana.Bernall@avistacorp.com).
- <sup>10</sup> Lacy, S. D., J. R. Stover, and E. W. Oldenburg. 2016. Tributary Trapping and Downstream Juvenile Bull Trout Transport Program Annual Progress Report – 2015. Avista document identification number 2016-0390. Avista, Noxon, Montana.
- <sup>11</sup> Oldenburg, E. W., Lacy, S. D., and J. R. Stover. *In prep.* Tributary Trapping and Downstream Juvenile Bull Trout Transport Program Annual Progress Report – 2016. Avista, Noxon, Montana. Final report due November 1, 2017.
- <sup>12</sup> Oldenburg, E., J. Blakney, K. Bouwens, and W. Fredenberg. 2016. Graves Creek permanent weir trap monitoring and evaluation plan. Avista document identification number 2016-0389. Avista, Noxon, Montana.
- <sup>13</sup> Avista. July 19, 2016. Consent mail request to MC and WRTAC to revise protocols for the Tributary Trapping and Juvenile Bull Trout downstream transport Program. Avista document identification number 2016-0272.
- <sup>14</sup> USFS (U.S. Forest Service). *In prep.* Water, temperature, bed sediment data report, East Fork of the Bull River, water year 2016. USFS, Trout Creek, Montana. Final report anticipated in January 2017.
- <sup>15</sup> USFS (U.S. Forest Service). 2016. Water, temperature data report, Graves Creek at Blue Slide Road, water year 2016. Avista document identification number 2016-0428. USFS, Trout Creek, Montana.



- <sup>16</sup> USFS (U.S. Forest Service). 2016. Water, temperature data report, Rock Creek at Hwy 200, water year 2016. Avista document identification number 2016-0429. USFS, Trout Creek, Montana.
- <sup>17</sup> Storaasli, J. 2016. Non-Native Fish Suppression Project in the East Fork Bull River Drainage, Montana: 2015 – 2018. Annual Progress Report – 2015. Avista document identification number 2016-0077. Avista, Noxon, Montana.
- <sup>18</sup> Storaasli, J. *In prep.* Non-Native Fish Suppression Project in the East Fork Bull River Drainage, Montana: 2015 – 2018. Annual Progress Report – 2016. Avista, Noxon, Montana.
- <sup>19</sup> Moran, S., and J. Storaasli. 2016. Fisheries Survey of the Beaver Creek Drainage, Montana – 2015. Avista document identification number 2016-0308. Avista, Noxon, Montana.
- <sup>20</sup> Moran, S., and J. Storaasli. 2016. Fisheries Survey of the Rock Creek Drainage, Montana – 2015. Avista document identification number 2016-0366. Avista, Noxon, Montana.
- <sup>21</sup> Moran, S., and J. Storaasli. *In prep.* Fisheries Survey of the lower Graves Creek, Pilgrim Creek and Deadhorse Creek drainages, Montana – 2016. Avista, Noxon, Montana.
- <sup>22</sup> Storaasli, J. 2016. Lower Clark Fork River, Montana – Avista Project Area – 2015 Annual Bull Trout and Brown Trout Redd Survey Report. Avista document identification number 2016-0151. Avista, Noxon, Montana.
- <sup>23</sup> Storaasli, J. 2017. Lower Clark Fork River, Montana – Avista Project Area – 2016 Annual Bull Trout and Brown Trout Redd Survey Report. Avista document identification number 2017-0036. Avista, Noxon, Montana.
- <sup>24</sup> DeHaan, P., and S. Bernall. *In prep.* Bull Trout Parentage Analysis in the Prospect Creek Drainage, Montana. Avista, Noxon, Montana.
- <sup>25</sup> Avista Reports Database; for more information on this database contact Shana Bernall (Shana.Bernall@avistacorp.com).
- <sup>26</sup> USFS (U.S. Forest Service). 2016. Water, temperature, bed sediment data report, East Fork of the Bull River, water year 2015. Avista document identification number 2016-0457. USFS, Trout Creek, Montana.

## 6.4 Bull Trout Protection and Public Education Project (License Article 407 - CFSA Appendix D)

### 6.4.1 Purpose and Resource Benefit

The purpose of this project is to protect Bull Trout, a federally listed species (threatened), through a combination of enhanced law enforcement efforts by the states of Idaho and Montana, coupled with a public education outreach program. This project will increase the numbers and population viability of Bull Trout by reducing intentional and incidental illegal harvest. In addition the project increases public awareness on Bull Trout life history, habitat needs, identifying characteristics, and the potential for adverse impacts due to land use and other human activities.

### 6.4.2 2016 Annual Implementation Plan Objectives

- Continue implementation of the revised and updated Plan for the Bull Trout Protection and Public Education Project:
  - The plan will continue to be implemented by IDFG, MFWP, and Panhandle Chapter Trout Unlimited (PCTU) using the PM&E annual funding as defined in the CFSA, and with other funding sources as available (see IDFG, MFWP, and PCTU annual work plans).
    - *Completed per 2016 AIP*<sup>1, 2, 3</sup>
  - Continue contractual agreements with IDFG and MFWP as necessary to provide for Bull Trout protection through enhanced law enforcement and public education efforts for the year 2016.
    - *Completed per 2016 AIP*<sup>1, 2, 4</sup>
  - Continue contractual agreement with PCTU as necessary to provide for Bull Trout protection through public education efforts for the year 2016.
    - *Completed per 2016 AIP*<sup>3, 5</sup>

### 6.4.3 Key 2016 References

<sup>1</sup> Whalen, T. 2016. Idaho Department of Fish and Game Appendix D Annual Work Summary. Avista document identification number 2016-0461. Prepared for Avista, Spokane Washington.

<sup>2</sup> Fraley, J., M. Terrazas, and T. Hinck. 2016. Montana Fish, Wildlife, and Parks Appendix D Annual Work Summary. Avista document identification number 2016-0463. Prepared for Avista, Spokane Washington.

<sup>3</sup> Crawford, R. 2016. Panhandle Chapter Trout Unlimited Appendix D Annual Work Summary. Avista document identification number 2016-0462. Prepared for Avista, Spokane Washington.

<sup>4</sup> MFWP (Montana Fish, Wildlife and Parks) Bull Trout Identification Program, website for tutorial. <http://fwp.mt.gov/education/angler/bullTroutIdProgram/default.html>

<sup>5</sup> PCTU (Panhandle Chapter Trout Unlimited) Take No Bull! Website for Bull Trout information and identification. <http://www.takenobull.org/>

## 6.5 Watershed Councils Program (License Article 408 – CFSA Appendix E)

### 6.5.1 Purpose and Resource Benefit

The purpose of this program is to facilitate the protection and restoration of tributary stream habitat in the Lake Pend Oreille – Clark Fork River watershed. This will improve conditions for aquatic life, including macroinvertebrate communities and native fish species (Bull Trout, Westslope Cutthroat Trout, and Mountain Whitefish). The associated protection and enhancement of tributary streams and the aquatic life inhabiting them will serve as mitigation and resource enhancements to offset impacts to aquatic life due to continued power peaking operation of the Cabinet Gorge and Noxon Rapids projects.

### 6.5.2 2016 Annual Implementation Plan Objectives

- Continue to coordinate with Green Mountain Conservation District (GMCD), Bonner Soil and Water Conservation District (BSWCD) and Lower Clark Fork Watershed Group (LCFWG) to assist in program implementation, including providing administrative assistance to the Watershed Councils (through letter agreements with GMCD and BSWCD), development and distribution of informational materials, hosting “Know-Your-Watershed” workshops, coordinating with existing watershed councils (WSC), preparing outside funding requests/grants, and for identifying and contacting local stakeholders for new WSCs.
  - **Completed per 2016 AIP**<sup>1,2</sup>
- Continue to coordinate the efforts of existing WSCs with the appropriate States, local Conservation Districts, the Idaho Tributary Habitat Acquisition and Fishery Enhancement Program, Montana Tributary Habitat Acquisition and Recreational Fishery Enhancement Program, Terrestrial Resources Technical Advisory Committee (TRTAC), Water Resources Technical Advisory Committee (WRTAC), and Cultural Resources Management Group (CRMG), as approved by the Management Committee (MC).
  - **Completed per 2016 AIP**<sup>1,2</sup>

### 6.5.3 Key 2016 References

<sup>1</sup> Lower Clark Fork Watershed Group. 2016. Watershed Councils Program 2016 Annual Work Summary for CFSA Appendix E. Avista document identification number 2016-0431. Prepared for Avista, Spokane Washington.

<sup>2</sup> Pack River Watershed Council. 2016. Annual Work Summary for CFSA Appendix E. Avista document identification number 2016-0464. Prepared for Avista, Spokane Washington.



## 6.6 Clark Fork River Water Quality Monitoring Program (License Article 409 – CFSA Appendix F1)

### 6.6.1 Purpose and Resource Benefit

The purpose of this program is to provide for the systematic, long-term water quality monitoring of nutrients and metals in the Avista project area. Excessive nutrient loading and metals represent high-priority water quality concerns in the lower Clark Fork River–Lake Pend Oreille system. Resource benefits are accomplished through providing valuable information on trends in water quality associated with the project and their reported role as nutrient and/or metals retention “sinks”.

### 6.6.2 2016 Annual Implementation Plan Objectives

- Continue to monitor, in an ad-hoc fashion, the overall nutrient monitoring effort.
  - *Completed per 2016 AIP*<sup>1, 2, 3, 4</sup>
- Continue funding and personal needs for the monthly water quality sampling program (March through November and during the peak flow period) at the three lower Clark Fork River monitoring stations, including QA/QC assistance (contract assistance) and water sample analysis (contract assistance).
  - *Completed per 2016 AIP*<sup>1, 2, 3, 5</sup>
- Confirm continued United States Geological Survey (USGS) maintenance and operation of the Noxon and Cabinet Gorge (Cabinet Gorge Dam station) river flow gaging stations.
  - *Completed per 2016 AIP*<sup>1</sup>

### 6.6.3 Key 2016 References

- <sup>1</sup> Kusnierz, P. 2016. Appendices F1, F2, F3, and F5 Annual Work Summary. Avista document identification number 2016-0438. Avista Corporation, Noxon, Montana.
- <sup>2</sup> Brick, C. 2016. Annual water quality and benthic algae monitoring results for the Clark Fork River basin 2015. Avista document identification number 2016-0236. Clark Fork Coalition, Missoula, Montana.
- <sup>3</sup> Brick, C. *In prep.* Annual water quality and benthic algae monitoring results for the Clark Fork River basin 2016. Clark Fork Coalition, Missoula, Montana.
- <sup>4</sup> Osborne, L. 2016. Clark Fork River-Pend Oreille Watershed Water Quality Monitoring Program, Peak Flow Monitoring Evaluation Memorandum. Avista document identification number 2016-0240. HydroSolutions, Helena, Montana.
- <sup>5</sup> Montana Department of Environmental Quality. 2016. Clark Fork River-Pend Oreille Watershed Water Quality Monitoring Program from Headwaters to Below Cabinet Gorge Dam - Quality Assurance Project Plan Update for 2013-2017 Sampling Program. Avista document identification number 2016-0239. Montana Department of Environmental Quality, Helena, Montana.

## **6.7 Monitoring of Noxon Reservoir Stratification and Mobilization of Sediment Nutrients/Metals (License Article 410 – CFSA Appendix F2)**

### **6.7.1 Purpose and Resource Benefit**

The purpose of this measure is to provide for monitoring of Noxon Reservoir during periods when reservoir stratification is possible. If the reservoir stratifies, the program will intensify monitoring of nutrient and metals levels. Resource benefits are accomplished through providing a better understanding of whether nutrients and/or metals in the reservoir sediments are released into the water during periods of low flow and/or high water temperature.

### **6.7.2 2016 Annual Implementation Plan Objectives**

- Continue to monitor average daily inflows to Noxon Reservoir, via the USGS website, during the July 1 through September 30 periods. Document those times when outflow from Noxon Rapids Dam is equal to or less than 8,000 cfs for at least four out of seven consecutive days during the noted time period.
  - *Completed per 2016 AIP*<sup>1,2</sup>

### **6.7.3 Key 2016 References**

<sup>1</sup> Kusnierz, P. 2016. Appendices F1, F2, F3, and F5 Annual Work Summary. Avista document identification number 2016-0438. Avista, Noxon, Montana.

<sup>2</sup> U.S. Geological Survey. National Water Information System. 12389000 Clark Fork near Plains MT. Available: [https://nwis.waterdata.usgs.gov/mt/nwis/uv?cb\\_00060=on&cb\\_00065=on&format=gif\\_default&site\\_no=12389000&period=&begin\\_date=2016-07-01&end\\_date=2016-09-30](https://nwis.waterdata.usgs.gov/mt/nwis/uv?cb_00060=on&cb_00065=on&format=gif_default&site_no=12389000&period=&begin_date=2016-07-01&end_date=2016-09-30). (January 2017).

## 6.8 Aquatic Organism Tissue Analysis (License Article 441 – CFSA Appendix F3)

### 6.8.1 Purpose and Resource Benefit

The purpose of this PM&E measure is to ensure that resources are available to monitor aquatic organisms for the presence of heavy metals and/or other substances of concern. It provides funding to collect fish and other aquatic organism tissue samples. These samples are analyzed to determine the presence of heavy metals or other substances. Resource benefits are accomplished through providing information that can be used to develop and refine fish consumption advisories.

### 6.8.2 2016 Annual Implementation Plan Objectives

- There were no proposed annual implementation plan objectives included.

### 6.8.3 Other 2016 Activities

- A final report on the 2015 Noxon and Cabinet Gorge Reservoir Mercury Concentration Study was expected in June 2016 but was not completed.
  - *Variance*<sup>1,2</sup>; See Section 6.8.4

### 6.8.4 Projects with Significant Variances

Objective	Variances
Noxon and Cabinet Gorge Reservoir Mercury Concentration Study	The Montana Fish, Wildlife, and Parks (project proponent) report was not completed and it is now expected in early 2017.

### 6.8.5 Key 2016 References

<sup>1</sup> Kusnierz, P. 2016. Appendices F1, F2, F3, and F5 Annual Work Summary. Avista document identification number 2016-0438. Avista, Noxon, Montana.

<sup>2</sup> Selch, T. *In prep.* 2015 Noxon and Cabinet Gorge Reservoir Mercury Concentration Study. Montana Fish, Wildlife, and Parks. Prepared for Avista, Noxon, Montana.

## 6.9 Water Quality Protection and Monitoring Plan for Maintenance, Construction and Emergency Activities (License Article 412 – CFSA Appendix F4)

### 6.9.1 Purpose and Resource Benefit

The purpose of this PM&E measure is to develop and implement a plan that minimizes the impact of project-related maintenance, construction, and emergency activities to lower Clark Fork River and Lake Pend Oreille water quality. The Water Quality Protection and Monitoring Plan for Maintenance, Construction, and Emergency Activities at the Cabinet Gorge and Noxon Rapids HEDs was developed in 2002 and updated in 2011. The resource benefit is accomplished through water quality, resource protection, and monitoring actions that will be implemented in the event of unforeseen and sudden changes to project operations due to emergencies.

### 6.9.2 2016 Annual Implementation Plan Objectives

- Avista Hydro Generation & Production and Environmental Affairs staff will meet for their annual internal coordination meeting to review and discuss planned maintenance and/or construction activities that may affect Cabinet Gorge minimum flow and/or reservoir elevation general operating limits.
  - *Completed per 2016 AIP<sup>1</sup>*
- As per the USFS 4(e) conditions, Avista will meet with the USFS to review planned 2016 construction and maintenance activities. Identify those activities which are of concern to the USFS and that could invoke implementation of the Plan.
  - *Completed per 2016 AIP<sup>1</sup>*
- In the event that standard operating procedures for the Clark Fork Project (minimum flow and/or reservoir elevations) are interrupted, implement the MC approved, Water Quality Protection and Monitoring Plan for Maintenance, Construction, and Emergency Activities at the Cabinet Gorge and Noxon Rapids HEDs, including its protocol for agency notification, monitoring, and Best Management Practices.
  - *Completed per 2016 AIP<sup>2,3</sup>*
- Annually update the designated contacts for the Plan, as needed.
  - *Completed per 2016 AIP<sup>4</sup>*

### 6.9.3 Key 2016 References

<sup>1</sup> Email exchange with the USFS regarding 4e Condition 6 of the Clark Fork License. Avista document identification number 2016-0078.

<sup>2</sup> Email from Eric Oldenburg to Steve Lentini regarding General Operating Limits and 2016 operations. Avista document identification number 2017-0044.

<sup>3</sup> Avista. 2010. Water Quality Protection and Monitoring Plan. Avista document identification number 2011-0140. Avista, Noxon, Montana.



<sup>4</sup> Designated contacts for notification purposes under the Water Quality Protection and Monitoring Plan (February 2016). Avista document identification number 2016-0191.

## **6.10 Dissolved Gas Supersaturation Control, Mitigation, and Monitoring (License Article 413 – CFSA Appendix F5)**

### **6.10.1 Purpose and Resource Benefit**

The purpose of this measure is to provide for the study, control, mitigation, and monitoring of gas supersaturation and the associated impacts to biological resources in the lower Clark Fork River – Lake Pend Oreille system related to spill at the Clark Fork Projects. Resource benefits are accomplished through reducing total dissolved gas (TDG) and mitigating for the potential effects of excess TDG on fish in the Clark Fork River downstream of Cabinet Gorge Dam and in Lake Pend Oreille.

### **6.10.2 2016 Annual Implementation Plan Objectives**

#### ***Operations***

- Avista will continue to utilize spillway operations at Noxon Rapids and Cabinet Gorge dams as outlined in the Gas Supersaturation Control Program (GSCP), amended in 2009 to include operation of the Ice and Trash spillways, and amended in 2013 to include operation of the modified spillway #2 during spill. These spillway operations will be amended again in 2016 to include use of spillways #4 and #5, currently under construction for TDG mitigation. The results of the ongoing TDG monitoring program will be utilized to evaluate the effectiveness of the selective spillway usage for reducing TDG levels, and identify any potential changes in spillway usage.
  - *Completed per 2016 AIP<sup>1</sup>*

#### ***TDG Monitoring***

- Continue annual calibration and deployment of TDG monitoring equipment (contract assistance) and seasonal TDG monitoring efforts (contract assistance) at three locations: Cabinet Gorge Dam forebay and approximately one mile downstream of Cabinet Gorge Dam (two redundant systems).
  - *Completed per 2016 AIP<sup>1,2</sup>*

#### ***TDG Alternative Mitigation and Monitoring Program***

- Continue the Lake Pend Oreille Angler Incentive Program (continuation from 2007).
  - *Completed per 2016 AIP<sup>3</sup>*
- Continue the Lake Pend Oreille Trap and Gill Net Program (continuation from 2007).
  - *Completed per 2016 AIP<sup>3,4</sup>*
- Continue the Lake Pend Oreille Bull Trout Survival Study (continuation from 2011).
  - *Completed per 2016 AIP<sup>3,5</sup>*
- Perform the Clark Fork Field Station Facility Upgrade Feasibility Study (continuation from 2015).
  - *Completed per 2016 AIP<sup>3,6,7</sup>*

- Continue the Box Canyon Reservoir Northern Pike Suppression Project (continuation from 2011).
  - *Completed per 2016 AIP* <sup>8</sup>
- Continue to implement and complete the Lake Pend Oreille Creel Survey (continuation from 2014).
  - *Completed per 2016 AIP* <sup>9</sup>
- Complete water quality trophic monitoring in Lake Pend Oreille (continuation from 2013).
  - *Variance* <sup>10, 11</sup>; *See Section 6.10.4*
- Implement Lake Pend Oreille and Lower Clark Fork River Strontium Isotope Baseline Collection.
  - *Variance* <sup>3</sup>; *See Section 6.10.4*

### **GSCP Alternative**

- Continue implementation of TDG reduction measures as described in the GSCP Addendum in the areas of “Engineering & Evaluation” and potentially “Construction & Implementation”.
  - *Completed per 2016 AIP* <sup>1</sup>
- Complete construction of modifications on spillway crest 4 and 5 in 2016.
  - *Completed per 2016 AIP* <sup>1</sup>
- Test, operate, and evaluate the newly modified spillways to determine effectiveness in reducing TDG.
  - *Completed per 2016 AIP* <sup>1</sup>
- Begin final design engineering for crest modifications to one or two additional spillways to be potentially constructed in 2016.
  - *Completed per 2016 AIP* <sup>1</sup>

### **6.10.3 Other 2016 Activities**

- Lake Pend Oreille Nearshore Spring Index Netting Program 2015 Report Deliverable: data will be summarized in the 2015 annual research & monitoring report available in 2016.
  - *Variance* <sup>12</sup>; *See Section 6.10.4*
- Appendix C/ F5: Radio transmitters for Westslope Cutthroat Trout (WCT) Passage
  - *Completed per 2015 Consent Mail* <sup>13</sup>
- Distribute, upon request, the 2015 TDG monitoring results: Total Dissolved Gas Monitoring 2015 Cabinet Gorge and Noxon Rapids Dams
  - *Completed per 2016 AIP* <sup>14</sup>

#### 6.10.4 Projects with Significant Variances

Objective	Variances
<b>Water quality trophic monitoring in Lake Pend Oreille</b>	The September sampling event was not completed by the Idaho Department of Environmental Quality (project proponent; two of seven sites were sampled) due to extreme weather and unsafe lake conditions.
<b>Lake Pend Oreille and Lower Clark Fork River Strontium Isotope Baseline Collection</b>	Water quality samples were not collected by the Idaho Department of Fish and Game and Avista (project proponents) due to high fall discharge conditions. Collection of samples is planned for early 2017.
<b>Lake Pend Oreille Nearshore Spring Index Netting Program</b>	The Idaho Department of Fish and Game (project proponent) report was not completed in 2016 and it is now expected in early 2017.

#### 6.10.5 Key 2016 References

- <sup>1</sup> Kusnierz, P. 2016. Appendices F1, F2, F3, and F5 Annual Work Summary. Avista document identification number 2016-0438. Avista, Noxon, Montana.
- <sup>2</sup> Kusnierz, P. 2016. Total Dissolved Gas Monitoring 2016 Cabinet Gorge and Noxon Rapids Dams. Avista document identification number 2016-0346. Memorandum to the Gas Supersaturation Subcommittee; October 24, 2016.
- <sup>3</sup> Bouwens, K.A. 2016. Dissolved Gas Supersaturation Control, Mitigation, and Monitoring 2016 Annual Work Summary. Avista document identification number 2016-0436. Idaho Department of Fish and Game. Prepared for Avista, Noxon, Montana.
- <sup>4</sup> Wahl, N.C., A.M. Dux, W.J. Ament, and W.H. Harryman. 2015. Lake Pend Oreille Research, 2013. Lake Pend Oreille Fishery Recovery Project. Annual Progress Report January 1, 2013 – December 31, 2013. IDFG Report 15-13. Avista document identification number 2015-0475. Idaho Department of Fish and Game, Boise, Idaho.
- <sup>5</sup> Bouwens, K.A. and R. Jakubowski. 2016. Idaho Salmonid Research and Monitoring Update - 2015. Avista document identification number 2016-0363. Prepared for Avista, Noxon, Montana and the Idaho Department of Fish and Game.
- <sup>6</sup> McMillen Jacobs Associates. 2016. Clark Fork Hatchery Site Evaluation Technical Memorandum. Avista document identification number 2016-0190. McMillen Jacobs Associates: Boise, Idaho.
- <sup>7</sup> URS. 2016. Asbestos-Containing Building Material and Lead Paint Survey and Assessment Report. DPW Project # 17905. Clark Fork Fish Hatchery Complex. Avista document identification number 2016-0378. URS: Salt Lake City, Utah.

- <sup>8</sup> Harvey, S. and N. Bean. 2016. Annual Project Update Report - 2016, Box Canyon Northern Pike Suppression. Avista document identification number 2016-0430. Kalispel Tribe Natural Resources Department. Report prepared for Avista, Spokane Washington.
- <sup>9</sup> Bouwens, K. and Jakobowski, R. 2016. 2014 Lake Pend Oreille Creel Survey. Avista document identification number 2016-0364. Prepared for Avista, Noxon, Montana and the Idaho Department of Fish and Game.
- <sup>10</sup> Idaho Department of Environmental Quality. 2016. Excerpt from the draft Pend Oreille Lake and River Tributaries TMDL 5-Year Review. Avista document identification number 2016-0235. Idaho Department of Environmental Quality: Coeur d'Alene, Idaho.
- <sup>11</sup> Larson, K. 2016. T. Annual Work Summary Trophic and Phytoplankton Monitoring in Lake Pend Oreille Idaho. Avista document identification number 2016-0437. Prepared for Avista, Noxon, Montana.
- <sup>12</sup> Bouwens, K. and Jakobowski, R. *In prep.* 2015 Lake Pend Oreille Nearshore Spring Index Netting Project. Prepared for Avista, Noxon, Montana and the Idaho Department of Fish and Game.
- <sup>13</sup> Avista. December 16, 2015. Consent mail request to MC for funding for radio transmitters for Westslope Cutthroat Trout (WCT) Passage. Avista document identification number 2015-0425.
- <sup>14</sup> Kusnierz, P. 2016. Total Dissolved Gas Monitoring 2015 Cabinet Gorge and Noxon Rapids Dams. Avista document identification number 2016-0187. Memorandum to the Gas Supersaturation Subcommittee; June 21, 2016.



## 6.11 Project Operations Package (License Article 429/430/431 – CFSA Appendix T)

### 6.11.1 Purpose and Resource Benefit

The purpose of this PM&E package is to mitigate for the impacts of maintaining flexibility of project operations. This is to be accomplished by implementing measures that enhance native salmonids and provide recreational fishery opportunities. Most of these implementation measures are addressed in other sections of this report; they primarily concern PM&Es identified in CFSA appendices A, B, D, and E.

The Project Operations Package also establishes general operating limits for the Clark Fork Project and requires Avista to communicate to Albeni Falls, a downstream U.S. Army Corps of Engineers (USACE) project, forecasts of daily discharge from Cabinet Gorge Dam.

### 6.11.2 2016 Annual Implementation Plan Objectives:

- Maintain operating procedures for the Cabinet Gorge Project that will ensure an instantaneous minimum discharge (i.e., minimum flow) at the dam or powerhouse of 5,000 cfs. Assure that the specified minimum flow is maintained, either through flow/operational data available at the dam and/or utilizing the USGS Whitehorse Rapids gaging station data (located approximately ¼ mile downstream of dam). In the event that these operating procedures are interrupted, implement the Water Quality Protection and Monitoring Plan as identified in CFSA Appendix F4.
  - *Completed per 2016 AIP*<sup>1</sup>
- Maintain standard operating procedures for the Cabinet Gorge and Noxon Rapids projects that will ensure that the reservoir (i.e., forebay) water level fluctuation limitations, as outlined in the General Operating Limits tables in Settlement Agreement Appendix T, are maintained. Maintain appropriate documentation of forebay water levels utilizing data available at the dam/powerhouse control room. In the event that these operating procedures are interrupted, implement the Water Quality Protection and Monitoring Plan as identified in CFSA Appendix F4.
  - *Completed per 2016 AIP*<sup>2,3</sup>
- Continue to provide daily discharge forecasts for Cabinet Gorge to the Albeni Falls (USACE) Project, per a January 7, 1999 Letter of Agreement.
  - *Completed per 2016 AIP*<sup>4</sup>
- Continue working on the CFSA Amendment approval process. Pending the outcome of that process, conduct a feasibility analysis of future mitigation concepts designed to address the potential loss in the recreational fishery in the Idaho portion of the lower Clark Fork River associated with a reduction in the minimum flow to 3,000 cfs.
  - *Completed per 2016 AIP*<sup>5</sup>

### 6.11.3 Key 2016 References

<sup>1</sup> U.S. Geological Survey. National Water Information System. 12391950 Clark Fork River below Cabinet Gorge Dam ID. Available:

[https://nwis.waterdata.usgs.gov/id/nwis/uv/?cb\\_00060=on&format=gif\\_default&site\\_no=12391950&period=&begin\\_date=2016-01-01&end\\_date=2016-12-22](https://nwis.waterdata.usgs.gov/id/nwis/uv/?cb_00060=on&format=gif_default&site_no=12391950&period=&begin_date=2016-01-01&end_date=2016-12-22). (December 2016)

- <sup>2</sup> Email from Eric Oldenburg to Steve Lentini regarding General Operating Limits and 2016 operations. Avista document identification number 2017-0044.
- <sup>3</sup> Avista. 2010. Water Quality Protection and Monitoring Plan. Avista document identification number 2011-0140. Avista, Noxon, Montana.
- <sup>4</sup> Ryan, R., and R. Jakubowski. 2012. Lower Clark Fork River Fishery Assessment. Project Completion Report to Avista. Avista document identification number 2012-0158. Avista, Spokane, Washington.
- <sup>5</sup> Memorandum from Tim Bodurtha and Wade Fredenberg to Tim Swant and Joe DosSantos. October 29, 2013. Response to July 26, 2013 memo on Bull Trout Effects Analysis – 3,000 cfs minimum flow below Cabinet Gorge Dam. Avista document identification number 2013-0403.

## Section 7: Terrestrial Resources PM&E Implementation Efforts

### 7.1 Implementation of Land Use Management Plan (License Article 414 – CFSA Appendix G)

#### 7.1.1 Purpose and Resource Benefit

The purpose of this measure is to provide for the long-term protection and maintenance of sensitive and important resources on Avista-owned project lands, including the existing rural and semi-remote character of the shoreline, through the implementation of the Land Use Management Plan (LUMP). Avista project lands are managed to protect these qualities while still allowing for reasonable public access and other compatible uses.

#### 7.1.2 2016 Annual Implementation Plan Objectives

##### **Administration**

- Continue to implement the Private Recreation Permit Program.
  - *Completed per 2016 AIP<sup>1</sup>*
- Continue to address property ownership/trespass issues as they arise.
  - *Completed per 2016 AIP<sup>1</sup>*
- Based on FERC’s acceptance of the increased federal ownership within the project boundary, and based on the outcome of the abandoned railroad right-of-way case from Noxon Rapids Dam to Triangle Pond, Avista and USFS will work to determine future management of this area.
  - *Variance<sup>1</sup>; see Section 7.1.3*
- Continue to process requests for leases/easements of Avista project property.
  - Rock Creek Mine request to place discharge pipe across Project lands.
    - *Completed per 2016 AIP<sup>1</sup>*
- Coordination of information (activities associated with implementation of the LUMP) among TRTAC, GMCD, and the cultural resources, wildlife, recreation, aesthetics, and erosion programs.
  - *Completed per 2016 AIP<sup>1</sup>*
- Continue implementation of the Pesticide and Herbicide Use Plan in consultation with the MC.
  - *Completed per 2016 AIP<sup>1</sup>*
- Continue to participate on the Sanders County Aquatic Invasive Plants Task Force (AIPTF) to implement an Integrated Eurasian watermilfoil (EWM) Management Plan. In 2016, activities include the continued use of bottom barriers, operational level herbicide control of EWM (up to 200 acres, dependent on weather, funding, and permitting), and education efforts including brochures, signage, promotional items, and personal contacts.
  - *Completed per 2016 AIP<sup>1</sup>*
- The Land Use Subgroup, and other interested parties, will complete the 5-year review and update of the LUMP initiated in 2014.
  - *Variance<sup>1</sup>; see Section 7.1.3*
- The Special Uses Subgroup, and other interested parties, will evaluate requests for special use permits by private, for profit rental companies to use Avista recreation areas.
  - *Completed per 2016 AIP<sup>1</sup>*

## Monitoring

- Continue annual inspections of Avista project lands to assure compliance with permit and lease conditions, and assure compliance with acceptable land uses and restrictions as defined by Land Use Classifications.
  - *Completed per 2016 AIP*<sup>1</sup>

## Enforcement

- Continue enforcement to prevent and prosecute violations of the law, permit and lease conditions, and other unauthorized uses of project lands will be coordinated with Avista real-estate, legal, land survey personnel, MFWP, IDFG, USFS, or other law enforcement agencies.
  - *Completed per 2016 AIP*<sup>1</sup>

### 7.1.3 Projects with Significant Variances

Objectives	Variances
<b>Determine future management of abandoned railroad right of way</b>	Due to the vacant Land Use Specialist position, no action was taken on this project in 2016. However, the abandoned railroad right of way continues to be utilized by the public for both motorized and non-motorized recreation.
<b>5-year review and update of the LUMP</b>	Avista recognized the Recreation Resource Management Plan needed to be updated before updating the LUMP.

### 7.1.4 Key 2016 References

<sup>1</sup> Hall, N. 2016. Terrestrial Resources Annual Work Summary. Avista document identification number 2016-0467.

## 7.2 Implementation of the Recreation Resource Management Plan (License Article 415 – CFSA Appendix H)

### 7.2.1 Purpose and Resource Benefit

The purpose of this measure is to provide for appropriate and adequate recreational opportunities and facilities associated with the Clark Fork Project through implementation of the Recreation Resource Management Plan (RRMP). The Land Use, Recreation, and Aesthetics Work Group developed the plan and identified seven goals to be met through its implementation:

- Manage existing recreation resource needs.
- Manage future recreation resource needs.
- Provide adequate and safe public access.
- Preserve recreation resources.
- Coordinate recreation planning and needs.
- Provide cost-effective and desirable recreation opportunities.
- Provide compatible recreation opportunities.

### 7.2.2 2016 Annual Implementation Plan Objectives

#### **Administration**

- Administer the RRMP with Recreational Specialist, clerical, consultant, and technical support.
  - *Completed per 2016 AIP<sup>1</sup>*
- Integrate RRMP programs and projects with land use, cultural resources, wildlife, fisheries, aesthetics, and erosion control programs.
  - *Completed per 2016 AIP<sup>1</sup>*

#### **Facility Development**

- Implement the 2016 Recreation Resource Facility Development Plan.
  - *Variance<sup>1</sup>; see Section 7.2.3*
- Pursue grant and partnership opportunities for facility development work.
  - *Completed per 2016 AIP<sup>1</sup>*

#### **Monitoring**

- Work with the recreation subgroup to implement recreation site evaluations based on the 2012 recreation survey and recreation site examinations. The site evaluation forms replace the previously used facility use inspection forms.
  - *Completed per 2016 AIP<sup>1</sup>*
- Continue working with the recreation subgroup to update the RRMP. The update process includes consultant support and a review of all sections and exhibits in the plan. The subgroup will visit key recreation sites during the summer of 2016, update the plan during



the fall of 2016, with a draft document available to the TRTAC in January 2017. The updated plan will be finalized in 2017.

- *Completed per 2016 AIP*<sup>2</sup>
- Continue to utilize up to 20 automated traffic counters to measure use at various developed and dispersed recreation sites and trails.
  - *Completed per 2016 AIP*<sup>3</sup>
- Continue utilizing standardized reporting for recreation use at Thompson Falls State Park, North Shore Recreation Area, and Bull River Recreation Area.
  - *Completed per 2016 AIP*<sup>3</sup>
- Summarize 2016 recreational use data from Bull River and North Shore campgrounds, MFWP, Thompson Falls State Park, and the Cabinet Gorge Dam and Noxon Rapids Dam viewpoints. Also include in this summary will be maps showing dispersed recreation areas along the projects and permitted dock locations (showing dock densities per 0.5 mile segments of shoreline).
  - *Completed per 2016 AIP*<sup>3,4</sup>

### **Operation and Maintenance**

- Maintain Avista controlled recreation facilities and undeveloped recreation sites on Avista lands.
  - *Completed per 2016 AIP*<sup>1</sup>
- Assist USFS with the maintenance of Finley Flats Recreation Area, North Shore Recreation Area, Marten Creek Recreation Area, Triangle Pond, Bull River Recreation Area, Quinn's Cut Recreation Area, and Big Eddy Recreation Area. The current 5-year funding agreement is for 2014 to 2018.
  - *Completed per 2016 AIP*<sup>1</sup>
- Assist MFWP with the maintenance of Thompson Falls State Park and Flat Iron Ridge Fishing Access Site.
  - *Completed per 2016 AIP*<sup>1</sup>
- Provide low cost leases or permits to the community or civic groups providing recreation opportunities (i.e., Thompson Falls Golf Course).
  - *Completed per 2016 AIP*<sup>1</sup>

### **Interpretation and Education**

- Implementation of Interpretation and Education Program will be integrated with the measures developed and approved by the CRMG in 2008. The Interpretation and Education Program is funded through the facility development program. Maintenance dollars will be used to inventory, standardize, and maintain informational kiosks and EWM signs throughout the project.
  - *Completed per 2016 AIP*<sup>1</sup>

### 7.2.3 Projects with Significant Variances

Objectives	Variances
<b>Implement the 2016 Recreation Resource Facility Development Plan</b>	While the Facility Development Plan intentionally lists more projects than will be completed in any given year, due to the vacant Land Use Specialist position some of the projects were not completed in 2016. Eighteen of the 26 projects were initiated and/or completed in 2016.

### 7.2.4 Key 2016 References

- <sup>1</sup> Hall, N. 2016. 2016 Terrestrial Resources Annual Work Summary. Avista document identification number 2016-0467.
- <sup>2</sup> Pinnacle Research and Consulting. *In prep.* Clark Fork projects Recreation Resource Management Plan, Interim Update prepared for Avista Corporation.
- <sup>3</sup> Pinnacle Research and Consulting 2017. 2016 Clark Fork Recreation Site Visitation prepared for Avista Corporation. Avista document identification number 2017-0068.
- <sup>4</sup> Avista 2016. Avista maps presented at the January 2017 Terrestrial Resources Technical Advisory Committee showing dispersed recreation areas along the projects and permitted dock locations (showing dock densities per 0.5 mile segments of shoreline). Avista document identification number 2016-0468.

## **7.3 Implementation of the Aesthetics Management Plan (License Article 416 – CFSA Appendix I)**

### **7.3.1 Purpose and Resource Benefit**

The purpose of this measure is to provide for the protection and enhancement of aesthetic resources associated with Avista’s Clark Fork Project and to mitigate for project related impacts to those resources through the implementation of the Aesthetics Management Plan. Aesthetic guidelines and considerations of the Aesthetics Management Plan are implemented by permit standards and land use classifications of the LUMP, site design and monitoring in the RRMP, and shoreline stabilization guidelines of the Shoreline Stabilization Guidelines Program. Ongoing coordination with other interest groups and agencies will occur as described for in the Aesthetics Management Plan.

### **7.3.2 2016 Annual Implementation Plan Objectives**

- Monitor recreation, land management, erosion, and facility construction programs to ensure AMP guidelines are considered.
  - *Completed per 2016 AIP<sup>1</sup>*
- Continue to investigate measures to restore views, as appropriate, identified in the 2013 re-inventory of 41 key viewpoints.
  - *Completed per 2016 AIP<sup>1</sup>*

### **7.3.3 Key 2016 References**

<sup>1</sup> Hall, N. 2016. Terrestrial Resources Annual Work Summary. Avista document identification number 2016-0467.

## **7.4 Implementation of the Wildlife, Botanical, and Wetland Management Plan (License Article 417 – CFSA Appendix J)**

### **7.4.1 Purpose and Resource Benefit:**

The purpose of this measure is to provide for the organization and presentation of the various wildlife, botanical, and wetland PM&E measures, site-specific plans, and other management activities within a single, comprehensive management plan document.

### **7.4.2 2016 Annual Implementation Plan Objectives:**

- Utilize the Wildlife, Botanical and Wetland Management Plan to help guide implementation of Wildlife, Botanical, and Wetland Protection, Mitigation, and Enhancement programs.
  - *Completed per 2016 AIP<sup>1</sup>*
- Continue to update the habitat protection spreadsheet as acquisitions are completed.
  - *Completed per 2016 AIP<sup>2</sup>*
- As discussed at the January 20, 2016 TRTAC meeting observations regarding bald eagles, peregrine falcons, and common loons will be reported here annually.
  - *Completed per 2016 AIP<sup>1</sup>*

### **7.4.3 Key 2016 References:**

<sup>1</sup> Hall, N. 2016. Terrestrial Resources Annual Work Summary. Avista document identification number 2016-0467.

<sup>2</sup> Hall, N. 2016. Habitat Protected Through CFSA 2000 - 2016. Avista document identification number 2016-0471.

## 7.5 Wildlife Habitat Acquisition, Enhancement, and Management Program (License Article 418 – CFSA Appendix K)

### 7.5.1 Purpose and Resource Benefit:

The purpose of this program is to mitigate for the potential effects to wildlife resources and habitat due to the continued operation of the Clark Fork Project. The program will focus on the types of habitat most significantly affected, such as wetland and riparian habitat. The goal is to provide for a continuing source of financial resources that will be used to acquire, protect, enhance, and/or manage important wildlife habitat in the vicinity of the projects.

### 7.5.2 2016 Annual Implementation Plan Objectives:

- Provide for operation and maintenance of the Bull River properties. Includes continuing to work with MFWP to develop a Timber Management Plan.
  - *Completed per 2016 AIP <sup>1</sup>*
- Continue to pursue acquisition of 75 acres of wetland/upland habitat near Heron, Montana.
  - *Completed per 2016 AIP <sup>1</sup>*
- Continue to work with KLT and Natural Resources Conservation Service (NRCS) to acquire a conservation easement that includes approximately two miles of Pack River shoreline.
  - *Completed per 2016 AIP <sup>1</sup>*
- Work with KLT to identify and pursue habitat protection projects.
  - *Completed per 2016 AIP <sup>1</sup>*
- Work with CFSA Appendix A to develop Timber and Property Management Plan for the Avista owned Trestle Creek properties (approximately 375 acres).
  - *Completed per 2016 AIP <sup>1</sup>*
- Maintain funding available for taxes, power bills, and other management needs for properties acquired through this PM&E program. These dollars will also be used to explore new opportunities as they arise.
  - *Completed per 2016 AIP <sup>1</sup>*

### 7.5.3 Other 2016 Activities:

- August 19, 2016 consent mail request to utilize funding to address erosion on the Clark Fork Delta project (CFSA Appendix K).
  - *Variance <sup>2</sup>; see Section 7.5.4*

### 7.5.4 Projects with Significant Variances:

Objectives	Variances
Address erosion on Clark Fork Delta	Work was postponed until spring 2017, due to the barges needed for the work being tied up on other projects.



### **7.5.5 Key 2016 References:**

<sup>1</sup> Hall, N. 2016. Terrestrial Resources Annual Work Summary. Avista document identification number 2016-0467.

<sup>2</sup> Avista. August 19, 2016. Consent mail request to MC for funding to address erosion on Clark Fork Delta. Avista document identification number 2016-0292.

## **7.6 Black Cottonwood Habitat Protection and Enhancement (License Article 419 – CFSA Appendix L)**

### **7.6.1 Purpose and Resource Benefit**

The purpose of this measure is to provide for the protection of black cottonwood trees and stands on Avista owned project lands through the development of site-specific management and enhancement plans for three specific cottonwood sites identified by the Wildlife, Botanical, and Wetlands Work Group. Additionally, existing stands and trees will be protected through the implementation of land use classifications in the Land Use Management Plan (LUMP).

### **7.6.2 2016 Annual Implementation Plan Objectives**

- Monitor site-specific enhancement measures at Hereford Slough to determine response, and implement any additional management/maintenance activities as needed to achieve desired results.
  - *Completed per 2016 AIP<sup>1</sup>*
- Continue to monitor Noxon Slough site to determine if additional management activities are necessary.
  - *Completed per 2016 AIP<sup>1</sup>*
- Ensure that restrictions developed for the protection of cottonwood sites and trees are utilized in land use classifications described in the LUMP.
  - *Completed per 2016 AIP<sup>1</sup>*

### **7.6.3 Key 2016 References**

<sup>1</sup> Hall, N. 2016. Terrestrial Resources Annual Work Summary. Avista document identification number 2016-0467.

## 7.7 Wetlands Protection and Enhancement Program (License Article 420 – CFSA Appendix M)

### 7.7.1 Purpose and Resource Benefit

The purpose of this measure is to provide for the protection of wetlands occurring on Avista-owned project lands, and for the evaluation and potential enhancement of selected wetland areas. The overall goal is to ensure no net loss of wetlands, or of wetland function and values in certain high-priority wetland areas while also evaluating opportunities for enhancements.

### 7.7.2 2016 Annual Implementation Plan Objectives

- Monitor enhancements completed at Hereford Slough, McKay Creek, Finley Flats, and Blacktail Bay/Islands.
  - *Completed per 2016 AIP*<sup>1</sup>
- Utilize data collected by Ducks Unlimited (DU) and the subsequent conceptual plans (completed in 2014), baseline fish community and water temperature data from 2015, to complete the permitting process in 2016, so that construction on the Bull River Wildlife Management Area (WMA) wetland enhancement can occur in 2017.
  - *Variance*<sup>1</sup>; see Section 7.7.3

### 7.7.3 Projects with Significant Variances

Objectives	Variances
<b>Bull River Wildlife Management Area wetland enhancement</b>	Future work on this project was terminated based on Montana Fish, Wildlife and Parks concerns over potential negative impacts to the springs that provide cold water flow to mainstem Bull River.

### 7.7.4 Key 2016 References

<sup>1</sup> Hall, N. 2016. Terrestrial Resources Annual Work Summary. Avista document identification number 2016-0467.

## **7.8 Forest Habitat Protection and Enhancement (License Article 425 – CFSA Appendix P)**

### **7.8.1 Purpose and Resource Benefit**

The purpose of this measure is to provide for the protection and enhancement of specific forest habitat parcels of Avista project land along the reservoirs. The Wildlife, Botanical, and Wetland Work Group identified these parcels as having significant wildlife habitat value.

### **7.8.2 2016 Annual Implementation Plan Objectives**

- Ensure that restrictions developed for the protection of these areas are utilized in the land use classifications described in the LUMP including the following:
  - Continue refinement of the Copper Flats Management Plan with CRMG.
    - *Completed per 2016 AIP<sup>1</sup>*
  - Continue to implement the controlled access program at Stevens Creek Point.
    - *Completed per 2016 AIP<sup>1</sup>*
  - Continue timber stand improvement project for Tuscor property.
    - *Completed per 2016 AIP<sup>1</sup>*
  - Continue block management on Tuscor, Genesis, and Wood Duck properties.
    - *Completed per 2016 AIP<sup>1</sup>*
  - Complete any touch-up (seeding, tree planting, etc.) as needed on the timber stand improvement to the Stevens Creek Area that was conducted in 2015.
    - *Completed per 2016 AIP<sup>1</sup>*

### **7.8.3 Key 2016 References**

<sup>1</sup> Hall, N. 2016. Terrestrial Resources Annual Work Summary. Avista document identification number 2016-0467.

## **7.9 Reservoir Islands Protection (License Article 426 – CFSA Appendix Q)**

### **7.9.1 Purpose and Resource Benefit**

The purpose of this measure is to provide for the protection of islands owned by Avista in the project reservoirs. The goal is to maintain the unique and high quality wildlife habitat functions and values of these islands.

### **7.9.2 2016 Annual Implementation Plan Objectives**

- Continue to ensure restrictions developed for the protection of these areas utilizing the land use classifications described in the LUMP.
  - *Completed per 2016 AIP*<sup>1</sup>

### **7.9.3 Key 2016 References**

<sup>1</sup> Hall, N. 2016. Terrestrial Resources Annual Work Summary. Avista document identification number 2016-0467.



## 7.10 Erosion Fund and Shoreline Stabilization Guidelines Program (License Article 428 – CFSA Appendix S)

### 7.10.1 Purpose and Resource Benefit:

The purpose of this measure is to address impacts to resources of interest caused by erosion attributed to the continued operation of the Clark Fork Project. Resources of interest include important cultural or natural resources, and private or public property not covered by applicable easement.

### 7.10.2 2016 Annual Implementation Plan Objectives:

- Address erosion concerns identified by the CRMG.
  - *Completed per 2016 AIP<sup>1</sup>*
- Address a site where erosion threatens to go past Avista ownership on Cabinet Gorge Reservoir (Laundry site). Design work for this task was initiated in 2012. Permitting will be completed in 2016 with construction to follow.
  - *Completed per 2016 AIP<sup>1</sup>*
- It was determined in 2014 that the erosion control work adjacent to the Finley Flats boat ramp parking lot would be best addressed as part of a larger redesign of the entire parking area. This project will be evaluated and designed as part of the 2016 work efforts.
  - *Completed per 2016 AIP<sup>1</sup>*
- Continue to evaluate and provide technical assistance for an erosion control project being undertaken by an adjacent landowner on Noxon Reservoir (Vermilion Point area).
  - *Variance<sup>1</sup>; see Section 7.10.3*
- Utilize a geotechnical contractor to assist with evaluating erosion control proposals received by Avista.
  - *Completed per 2016 AIP<sup>1</sup>*

### 7.10.3 Projects with Significant Variances:

Objectives	Variances
<b>Technical assistance for erosion control project (Vermilion Point)</b>	Due to the vacant Land Use Specialist position, and lack of availability of the landowner (project proponent), no action was taken on this project in 2016.

### 7.10.4 Key 2016 References:

<sup>1</sup> Hall, N. 2016. Terrestrial Resources Annual Work Summary. Avista document identification number 2016-0467.

## Section 8: Other Clark Fork License Articles

This section specifically addresses annual compliance with articles 432 through 443 of the Clark Fork Project License.

### 8.1 Threatened and Endangered Species Plan and Annual Report (License Article 432 – Amended June 13, 2003)

#### 8.1.1 Purpose

Article 432 of the FERC License (License) requires that Avista file a Threatened and Endangered Species Plan (T&E Plan) and Annual Report for Commission approval before April 15 of each year, after consultation with the Management Committee (MC). The T&E Plan must address compliance with the Reasonable and Prudent Measures (RPMs) and associated terms and conditions of the incidental take statement issued by the USFWS on August 23, 1999, and attached as Appendix D to the FERC License Order. The plan should include a description of any modifications to Project facilities or operations proposed to minimize take of Bull Trout; documentation of any consultations; copies of comments and recommendations received on the completed plan; and specific descriptions of how entities' comments are accommodated by the plan or Avista's reasons for not including such comments, based on Project-specific information.

In 2002, Avista and USFWS agreed that Article 432's T&E planning requirement, as well as Avista's annual reporting and consultation requirements for several Protection, Mitigation and Enhancement (PM&E) measures, are adequately addressed through the Annual Implementation Plans (AIPs), which are approved by the MC, and by providing the annual activity summaries contained in this section of the Annual Report. Those PM&E measures are:

- Idaho and Montana Tributary Habitat Acquisition and Fishery Enhancement Programs (License Articles 404 and 405).
- Fish Passage/Native Salmonid Restoration Plan (License Article 406).
- Bull Trout Protection and Public Education Project (License Article 407).
- Dissolved Gas Supersaturation Control, Mitigation, and Monitoring (License Article 413).
- Project Operations Package (License Articles 429, 430, and 431).

Section 8.1.2 below provides the 2016 activity report for the PM&E measures listed above, which comprises Avista's T&E Plan and is intended to satisfy Avista's annual reporting requirement for these measures. To assist the Commission and USFWS in evaluating compliance with USFWS's RPMs and their associated terms and conditions, Section 8.1.2 is organized by RPM.

#### 8.1.2 2016 Activity Summary

##### 8.1.2.1 Terms and Conditions to Implement RPM #1 and Corresponding Activities

The incidental take statement's RPM #1 states:

*Identify adult bull trout attempting to travel upstream of the dams and in a timely manner, agreed to by Interior, provide fish passage, in accordance with the Native Salmonid Restoration Plan, to*

*facilitate their spawning migrations from Lake Pend Oreille in order to reduce or eliminate incidental take from dam blockage of migrants (Article 406).*

The four terms and conditions (a through d) and corresponding 2016 activities associated with RPM #1 are listed below.

***a) Through genetic testing and other means determine the likely natal origin of adult bull trout which congregate downstream of Cabinet Gorge Dam.***

Genetic sampling and testing was initiated in 1999, and is an ongoing activity for all adult Bull Trout captured downstream of Cabinet Gorge Dam. This genetic sampling and testing continued in 2016.

In 2016, 26 adult Bull Trout ( $\geq 350$  mm in length) were captured downstream of Cabinet Gorge Dam. Based on fish capture histories, 23 of these individual adult Bull Trout required rapid response genetic analysis. Capture histories and genetic analysis results for these fish were then used to make upstream transport decisions. Juvenile Bull Trout fin tissue samples were also collected from tributaries to the Clark Fork River to allow for an improvement in the accuracy of the genetic baseline that is used to determine transport locations.

***b) In order to positively identify bull trout originating from spawning areas upstream of the dams, institute a permanent fish tagging system for all bull trout handled during monitoring and other fisheries investigation activities in the project area.***

A PIT-tag database, originally developed in 2000, continued to be utilized in 2016 to allow for the storage of information on all Bull Trout PIT-tagged in the project area. In an email to Avista on April 16, 2007 the USFWS granted a waiver on this condition for permanently marking juvenile Bull Trout in Idaho (i.e., Clark Fork Settlement Agreement (CFSA) Appendix A activities). The PIT-tag database is updated annually and data requests are processed upon request.

***c) Establish adult bull trout collection facilities, downstream of Cabinet Gorge Dam for the purpose of capturing adult bull trout for transport above the dam.***

At the beginning of 2016, there were still several issues that needed to be resolved associated with the proposed construction and operation of a Cabinet Gorge HED Permanent Fish Passage Facility (CGFPF). At the direction of the MC, representatives from Avista, Montana Fish, Wildlife and Parks (MFWP), Idaho Fish and Game (IDFG) and U.S. Fish and Wildlife Service (USFWS) had worked in 2014 and 2015 to try to resolve outstanding issues related to CGFPF construction and operation, including Cabinet Gorge Dam's minimum flow, funding for operations of the CGFPF, timing of Noxon Rapids HED Permanent Fishway construction, long-term resolution of the pathogen and Montana import permit issue (an issue on which Trout Unlimited also participated), assurances regarding the satisfaction of Avista's mitigation obligations, and overall approval language for CGFPF construction and design through a number of emails, conference calls, and meetings. As per MC direction, group representatives and their attorneys worked on drafting a

CFSA amendment. The CFSA amendment would resolve outstanding issues and form the basis for Avista's FERC license amendment application for CGFPF construction and operation.

In 2016 MFWP, IDFG, USFWS, and Avista continued to meet and discuss the language of the CFSA amendment with numerous e-mails and conference calls. Once these parties were satisfied with the draft amendment, it was sent to the MC on July 29, 2016 for their review followed by a special MC meeting specific to the CFSA amendment. The specific language in the CFSA amendment was discussed at three special MC meetings which were held to address limited questions and concerns from other parties. At the end of 2016, all parties were close to consensus on the appropriate language with the exception of one provision. The parties are currently participating in ongoing discussions to determine the best course of action to resolve final language concerns.

In the meantime, Avista continued to implement actions in support of the proposed CGFPF project. Avista personnel continued to refine existing documentation pertaining to the FERC license amendment application and draft NEPA analysis for the project. Completion of these documents and the draft ESA Biological Evaluation is dependent on the parties' agreement on the outstanding issues that form the basis of the proposed CFSA amendment, as detailed above. Once agreement is reached, Avista can complete these documents and submit them to FERC, which will also facilitate initiation of the Section 7 ESA consultation with the USFWS, and other state and federal reviews and approvals necessary to construct and operate the CGFPF.

Due to the aforementioned pending agreement, the status and schedule of the actual construction of the CGFPF remains uncertain. The finalized contract documents for the construction of the CGFPF were sent out to prospective bidders in October of 2015. Two construction firms submitted bids for construction and both exceeded the engineers estimate formulated by Avista's design consultant by a range of 58% - 188%. Rather than award the contract, Avista chose to work with the lower bidder and embark on a Value Engineering (VE) evaluation with a team consisting of the contractor, Avista and its design consultant (including a contract biologist considered an expert in salmonid behavior and fish passage) and another independent construction contractor who is considered an expert in the field and has done extensive work for Avista in the past. The purpose of this VE evaluation was to explore different construction methods which could be incorporated to lower construction costs and help to spread the project risk (risk was identified as a primary reason the bids for the project came in so much higher than the engineer's estimate). During this process the group also examined factors that may improve the efficiency of capture of target species.

After several VE meetings consisting of brainstorming, vetting options and evaluating expected performance, it was determined the preferred alternative for the CGFPF would include two design modifications. These modifications (referred to as the "two-chamber concept" and "siphon water supply concept") eliminated the ladder steps, moved the water supply to a siphon system from the dam forebay while keeping the entrance pool as is and maintaining all of the design criteria which the original design was based on. These changes would dramatically reduce the footprint of the structure, reduce the cofferdam size and save a large amount of rock excavation. The group also believed this design would improve the capture of target species as fish would only have to move from the entrance pool into a holding pool and would not have to navigate the ladder. The project

was developed to a conceptual level pending review and approval of the Design Review Team (DRT) (consisting of members from Avista, the U.S. Fish and Wildlife Service (USFWS), the Idaho Department of Fish and Game (IDFG) and Montana Fish, Wildlife and Parks (MFWP)). The DRT conducted two reviews with the VE team, one in a meeting in Spokane and one via conference call. In December 2016, all three agencies approved in writing moving the two-chamber trap and siphon water supply concepts forward to final design.

In 2016, Avista continued to utilize the Cabinet Gorge Fish Hatchery Ladder, night electrofishing, hook-and-line sampling, and the Twin Creek weir trap to collect adult Bull Trout downstream of Cabinet Gorge Dam (Table 1).

**Table 1.** Number of adult Bull Trout and other fish captured in Idaho in 2016 (not including within year recaptures).

Method of Capture	Dates of Operation	Bull Trout	Adult Bull Trout Transported	Other Fish
Cabinet Gorge Fish Hatchery Ladder	August 9–October 13	6	5	0
Night Electrofishing	March 31–August 31	18	16	915
Hook-and-Line	April 20–October 7	2	0	281
Twin Creek Weir Trap	August 16–October 13	0	0	77
Total		26	21	1,273

***d) In a timely manner, agreed to by the Service, for those bull trout determined to have originated from natal areas upstream of Cabinet Gorge Dam, transport these fish captured below Cabinet Gorge Dam to an appropriate location for release in Cabinet Gorge Reservoir.***

Bull Trout captured downstream of Cabinet Gorge Dam are genetically tested and transported upstream based on their genetic assignment. In 2016, Bull Trout were transported upstream of Cabinet Gorge, Noxon Rapids and Thompson Falls dams.

*Fish Pathogens:*

Avista is required to lethally sample 60 Bull Trout collected downstream of Cabinet Gorge Dam for pathogens prior to the issuance of a MFWP import permit. In 2016, adult Bull Trout (captured as bycatch from the Lake Pend Oreille (LPO) Trap and Gill Net Program) were collected and analyzed for pathogens. No pathogens were detected, so these results will be used to apply for a 2017 MFWP import permit.

*Fish Transport:*

In 2016, as agreed to by the USFWS, 26 individual adult Bull Trout ( $\geq 350$  mm in length) were captured in the lower Clark Fork River downstream of the Cabinet Gorge Dam. Five adult Bull Trout were released in Region 1 downstream of Cabinet Gorge Dam based on genetic assignments. Twenty-one were transported upstream to Montana, based on genetic assignments or previous

capture histories (Table 2), and there were no documented mortalities. Protocols for transport and release of Bull Trout were approved by the management committee including the USFWS.

**Table 2.** Release regions for adult Bull Trout captured in Idaho and either released in Idaho or transported upstream to Montana in 2016.

Release Region	Adult Bull Trout
Lower Clark Fork River (Region 1)	5
Cabinet Gorge Reservoir (Region 2)	14
Noxon Reservoir (Region 3)	5
Thompson Falls Reservoir (Region 4)	2
Total	26

### 8.1.2.2 Terms and Conditions to Implement RPM #2 and Corresponding Activities

The incidental take statement’s RPM #2 states:

*Identify juvenile bull trout attempting to travel downstream and provide safe fish passage, in accordance with the Native Salmonid Restoration Plan, to facilitate their migration to Lake Pend Oreille in order to minimize incidental take related to dam effects on juvenile fish from moving through or over the dams (Article 406).*

The two terms and conditions (a through b) and corresponding 2016 activities associated with RPM #2 are listed below.

**a) During stock assessment and other fisheries investigations in tributary streams to the reservoirs, in a timely manner agreed to by the Service, capture and transport all juvenile bull trout, determined to be migrating downstream, to an appropriate release site downstream of Cabinet Gorge Dam.**

Term and condition a) of RPM #2 was fulfilled through Tributary Trapping and Downstream Juvenile Bull Trout Transport Studies. The resultant Tributary Trapping and Downstream Juvenile Bull Trout Transport Program is adaptively managed.

A total of 286 juvenile Bull Trout were captured in Montana tributaries and transported to Idaho during 2016 (Table 3). An additional 12 juvenile Bull Trout that would have otherwise been eligible for transport were captured within Graves Creek, but were released on site to facilitate the study of outmigration timing, capture and detection probabilities, and return rates of reservoir-type fish. Following capture, fish were measured (length and weight), and implanted with a PIT tag if they were greater than 99 mm and if a PIT tag was not already present. No Bull Trout were captured within minnow traps. All juvenile transports were released in the lower Clark Fork River at the Cabinet Gorge Fish Hatchery site.

**Table 3.** Method used and tributary of capture for juvenile Bull Trout transported to Idaho under the Tributary Trapping and Downstream Juvenile Bull Trout Transport Program in 2016.



Tributary	Method	Bull Transport Number
Graves Creek	Permanent Weir	222
Rock Creek	Weir/ Screw Trap	30
EFBR	Weir/ Screw Trap	13
Vermilion River	Stream Electrofishing	10
Cooper Gulch	Stream Electrofishing	10
Prospect Creek	Rescue Electrofishing	1
Total		286

***b) Implement assessment measures in the Native Salmonid Restoration Plan for determining the feasibility of downstream fishways for minimizing take of migrating juvenile bull trout.***

Safe downstream passage of juvenile Bull Trout was implemented and assessed through the Tributary Trapping and Downstream Juvenile Bull Trout Transport Studies. Thus, term and condition b) of RPM #2 was fulfilled through Tributary Trapping and Downstream Juvenile Bull Trout Transport Studies. The resultant Tributary Trapping and Downstream Juvenile Bull Trout Transport Program is adaptively managed. An assessment of the program was conducted in 2016 utilizing the long-term dataset and methods were modified as noted in the July 19, 2016 consent mail.

**8.1.2.3 Terms and Conditions to Implement RPM #3 and Corresponding Activities**

The incidental take statement’s RPM #3 states:

*Develop and implement a dissolved gas supersaturation control, mitigation, and monitoring program, in accordance with timing and other provisions agreed to in the Settlement Agreement, to reduce incidental take of bull trout by effects of gas bubble disease (Article 413).*

The three terms and conditions (a through c) and corresponding 2016 activities associated with RPM #3 are listed below.

***a) Interim operational procedures will be implemented to reduce or minimize total dissolved gas production at Noxon Rapids and Cabinet Gorge Dams during periods of spill.***

Interim spillgate procedures were formalized in the 2004 Gas Supersaturation Control Program (GSCP) approved by FERC on January 11, 2005 and the GSCP Addendum approved by FERC on February 19, 2010. Spillway operations at Cabinet Gorge Dam were amended to include the use of spillway 2 in 2014 and spillways 4 and 5 in 2016 after modifications were made to these spillways to reduce total dissolved gas (TDG).

Due to the low flow conditions experienced in 2016, the hydraulic capacity of the Noxon Rapids Dam powerhouse was only exceeded on May 8. Spillbays 1 through 6 were used May 8 through May 11 and May 27 through May 30 for normal operations. In addition to the spill that occurred

in May, gates on Spillbays 2 and 5 were each opened for about an hour on April 20 and gates on Spillbays 1 through 8 were each opened for FERC-required testing purposes on April 27.

In 2016, spill occurred at Cabinet Gorge Dam between March 23 and June 11. On March 23 gates on Spillbays 4 and 5 were opened to test newly installed breakers. On April 14, gates on Spillbays 4 and 5 were opened to test the strength of the newly installed baffle blocks and to bring the gates to their upper limits. Spill tests to compare modified and unmodified spillbays were performed on 11 days between May 6 and June 10. When spill was occurring but no testing was taking place, the ice and trash gates and/or gates on Spillbays 2, 4, and 5 were used. In addition, all gates except the one on Spillbay 7 were opened for FERC-required testing purposes in 2016. Spillbay 7 was designated for emergency use only operation.

***b) In order to assess the extent, effect and solution of the gas supersaturation resulting from spill, monitoring of total dissolved gas will be conducted in the project area, biological impact studies will be conducted, and engineering feasibility studies will be conducted to assess options for reduction of gas supersaturation.***

A consultant assisted Avista personnel with annual maintenance and calibration of TDG monitoring equipment, and installation of three TDG monitoring stations: one in the Cabinet Gorge Dam forebay (March 16) and two approximately one mile downstream of Cabinet Gorge Dam (March 16 and 17).

Downstream of Noxon Rapids Dam, from March 21 through June 13, hourly average TDG in the Cabinet Gorge Dam forebay averaged 103.6% with a minimum of 100.6% and a maximum of 109.1%. During the same time period at the downstream Cabinet Gorge #1 station, hourly average TDG averaged 105.4% with a minimum of 100.9% and a maximum of 127.9%. From April 19 through June 13, hourly average TDG at the downstream Cabinet Gorge #2 station averaged 105.5% with a minimum of 100.4% and a maximum of 123.7%. With the exception of a structural test for spillgates 4 and 5 on April 14, all of the TDG values greater than 110% recorded downstream of Cabinet Gorge Dam were observed in May and early June. No signs of gas bubble disease were observed in adult Bull Trout and Westslope Cutthroat Trout that were collected for upstream transport purposes.

Avista continues with spillway crest modification at Cabinet Gorge Dam. Construction of modifications on spillways 4 and 5 was completed in spring 2016. Spillway operations were amended in 2016 to include use of spillways 4 and 5. Construction of modifications to spillways 1 and 3 is anticipated to occur in 2017.

***c) In 2002, a comprehensive Gas Supersaturation Control Program will be submitted to the Service for approval.***

This condition is complete. FERC issued an order approving the GSCP on January 11, 2005 and approved the final GSCP Addendum on February 19, 2010. The GSCP Addendum abandons the original concept of reopening the two diversion tunnels and instead requires Avista to evaluate and, if feasible, construct a variety of smaller-capacity options to abate TDG by 2018.

Avista continued to implement the GSCP Addendum in 2016.

#### **8.1.2.4 Terms and Conditions to Implement RPM #4 and Corresponding Activities**

The incidental take statement's RPM #4 states:

*Increase the minimum dam discharge downstream of Cabinet Gorge Dam to reduce incidental take of bull trout related to the effects of power peaking operations on river level changes that increase susceptibility of downstream migrating juvenile bull trout to predation (Article 429).*

The two terms and conditions (a through b) and corresponding 2016 activities associated with RPM #4 are listed below.

**a) *The instantaneous minimum flow below Cabinet Gorge Dam will be increased to 5,000 cfs.***

The minimum flow (i.e., discharge) at Cabinet Gorge Dam was increased to 5,000 cfs on February 28, 1999. Computers in the Cabinet Gorge control room constantly monitor discharge through turbines and spillgates. Accusonic flow meters located in the penstocks relay individual unit discharge to the control room computers. The minimum flow was maintained throughout 2016.

**b) *The benefit of the increased minimum flow to bull trout and other species will be evaluated for a ten year period and in 2009, or earlier, a recommendation for continuation or change of the minimum flow will be submitted to the Service for approval.***

On February 28, 1999, the new minimum flow of 5,000 cfs was initiated as the standard operating procedure (minimum flow previously was 3,000 cfs). The results of this ten-year study, which was memorialized in the 2012 Lower Clark Fork River Fishery Assessment, indicated that there was no detectable increase in fish abundance as a result of higher minimum flows. On December 6, 2013, USFWS confirmed in writing that they could support returning to a 3,000 cfs minimum flow for the majority of the year, so long as a 5,000 cfs minimum flow is maintained from September 15 through October 31 each year. To date, no formal action has been taken to change the 5,000 cfs minimum flow from Cabinet Gorge Dam. It is the intent of the parties to memorialize a minimum flow change to 3,000 cfs (except September 15 through October 31) in the CFSA amendment, which is still pending MC approval.

#### **8.1.2.5 Terms and Conditions to Implement RPM #5 and Corresponding Activities**

The incidental take statement's RPM #5 states:

*Implement provisions of the Native Salmonid Restoration Plan and the Montana Tributary Habitat Acquisition and Recreational Fishery Enhancement Plan that call for evaluating, monitoring, and controlling exotic fishes in order to reduce incidental take of juvenile and sub-adult bull trout through predation and competition in the reservoirs (Articles 405, 406).*

The three terms and conditions (a through c) and corresponding 2016 activities associated with RPM #5 are listed below.

***a) An assessment of potential impacts on Bull Trout of particular exotic species in the reservoirs and their tributaries will be performed in a timely manner, agreed to by the Service.***

Assessment of the potential impacts of exotic (non-native) fish on Bull Trout in the reservoirs and tributaries were summarized in a previously-cited report that was finalized in 2001.

*Noxon Reservoir Walleye Investigations:*

Three studies related to Walleye in Noxon Reservoir were completed in 2016. These studies were conducted to address questions pertaining to future Walleye management decisions, and when originally proposed, were anticipated to help MFWP in preparing an Environmental Assessment (EA) to meet Montana Environmental Protection Act requirements. The updated assessment of the potential effects of Walleye on the fish community of Noxon Reservoir postulated that the cumulative effect of Walleye and other non-native warmwater predator species (e.g., Smallmouth and Largemouth Bass and Northern Pike) could destabilize the current predator – forage species balance, and that if unchecked, may decrease the potential success of native fish restoration. The study of the economic impact of potential Walleye suppression categorized the estimated decrease in angler spending in the area as negligible. The third study updated and revised a previous assessment of the status, effects, management characteristics, and other aspects pertaining to the introduction of Walleye to new waters throughout Montana. At the September 2016 MC meeting, MFWP stated that after reviewing the relevant facts, including the results of these three studies, no management actions are planned at this time. MFWP further clarified that until a management action is proposed, an EA will not be developed.

***b) Based on the assessment (a., above), evaluation of the site specific need for exotic species control programs will be prepared in a timely manner, agreed to by the Service.***

Based on the above assessment and findings of impacts including Bull Trout hybridization with Brook Trout, and the superimposition of Brown Trout redds on Bull Trout redds, a non-native fish suppression project was originally proposed for the East Fork Bull River (EFBR) in 2003, and following the Montana Environmental Protection Act process and additional studies, was approved by MFWP Decision Notice in September 2006. An eight-year (2007 – 2014) non-native fish suppression effort in the EFBR was completed in 2014.

***Exotic species control programs will be developed, implemented, and monitored in coordination with appropriate State management agencies.***

Findings of the eight-year non-native fish suppression effort depicted a short-lived increase in juvenile Bull Trout abundance in 2009 and 2010, with abundance decreasing thereafter, and an ability to maintain a greater than 70% reduction in non-native salmonid abundance by less-intensive means. Based on these results, and recent increases in adult Bull Trout transported to the EFBR and resultant higher redd counts, it was recommended to extend the period of less-intensive non-native fish suppression from 2015 through 2018.

### Non-Native Fish Suppression Project in the East Fork Bull River; 2015 through 2018:

In accordance with the approved AIP for this project, electrofishing was to be performed during the second and final years (i.e., 2016 and 2018) of implementation. This data was combined with annual fish trap capture and redd survey data to assess the salmonid assemblage of the EFBR. Fish trap and redd survey data from 2015 indicated that non-native salmonids continued to utilize the lower EFBR at a level below that recorded prior to suppression. Preliminary results from 2016 presented below will be presented in a report which will be finalized in 2017.

Removal of non-native salmonids began with the installation of fish traps in the lower EFBR under the Tributary Trapping and Downstream Juvenile Bull Trout Transport (Tributary Trapping) Program on March 30, 2016. Abnormally high rainfall disabled Tributary Trapping Program traps and precluded the installation of exclusion weir fish traps in the fall as had been done in past years. A total of 86 non-native salmonids (e.g., Brown, Brook and Rainbow trout) were captured in all traps, which was 51% less than the 177 non-native salmonids captured and removed in 2015. Monitoring electrofishing along the seven established sections was performed in August 2016. The 105 Brown Trout and Brook Trout captured represented a 169% increase from 2014 sampling; while the total number of Bull Trout captured increased 135%, and Westslope Cutthroat Trout decreased 25%. Subsamples of eggs were collected from 15 Brown Trout redds along the lower EFBR in December 2016 and along with the samples collected in 2015, were sent for genetic analysis in December 2016.

### **8.1.2.6 Terms and Conditions to Implement RPM #6 and Corresponding Activities**

The incidental take statement's RPM #6 states:

*Identify juvenile bull trout attempting to travel downstream from tributary streams through the reservoirs to Lake Pend Oreille and provide safe fish passage, in accordance with the Native Salmonid Restoration Plan, to facilitate their migration to Lake Pend Oreille in order to minimize incidental take related to reservoir effects on migration patterns (Article 406).*

The three terms and conditions (a through c) and corresponding 2016 activities associated with RPM #6 are listed below.

#### **a) Conduct a feasibility evaluation of various interim methods for collecting and transporting downstream migrating juveniles from tributary streams to Cabinet Gorge Reservoir.**

Term and condition a) of RPM #6 was addressed through the Tributary Trapping and Downstream Juvenile Bull Trout Transport Studies. The resultant program is adaptively managed, implemented, evaluated annually, and approved by the USFWS, as a member of the MC, through the AIP process.

**b) Implement and monitor the effectiveness of the interim juvenile transport program (a., above) and investigate permanent long-term solutions to minimize the impact to downstream juvenile migrations.**

Term and condition b) of RPM #6 was addressed through the Tributary Trapping and Downstream Juvenile Bull Trout Transport Studies. The resultant program is adaptively managed and is implemented through electrofishing, Graves Creek permanent weir, and temporary screw and weir traps (see Section 8.1.2.3). Annual activities are approved by the USFWS, as a member of the MC, through the AIP process.

**c) In a timely manner, agreed to by the Service, propose for Service approval a permanent downstream fishway solution for juvenile migrations.**

Continuation and further development of the Tributary Trapping and Downstream Juvenile Bull Trout Transport Program is the permanent downstream fishway solution for juvenile migrations. This program is described in sections 8.1.2.2 and 8.2.2.2.

### **8.1.2.7 Terms and Conditions to Implement RPM #7 and Corresponding Activities**

The incidental take statement's RPM #7 states:

*Monitor ongoing bull trout prey species studies and bull trout population trends in Lake Pend Oreille and, when and if appropriate, provide safe fish passage at the dams for prey species (or other mitigation measures) in order to reduce indirect take of bull trout through species interactions related to inadequate prey base (Article 406).*

The three terms and conditions (a through c) and corresponding 2016 activities associated with RPM #7 are listed below.

**a) In consultation with Idaho Fish and Game and using the best available information, annually prepare and submit to the Service an assessment of the Lake Pend Oreille bull trout population trend (tributary redd counts, etc.).**

*Bull Trout Redd Surveys in LPO Tributaries:*

This is an ongoing activity under CFSA Appendix A. As in past years, the 2016 annual redd count table was provided, by email, to the USFWS from IDFG on December 19, 2016.

*Lake Pend Oreille Bull Trout Survival Study:*

The LPO Bull Trout Survival Study was initiated in 2011 and involves marking juvenile Bull Trout in both Trestle and Granite creeks using PIT tags. Bull Trout in-lake survival is then estimated through monitoring movement patterns of tagged fish from these LPO tributaries using PIT-tag antenna arrays placed near the outlet of these creeks.

In 2016, no additional Bull Trout or Westslope Cutthroat Trout were implanted with PIT tags. The PIT-tag arrays were maintained to passively monitor movements of these tagged fish. Movement of PIT-tagged Bull Trout was documented both out of and into these tributaries. Movements of



PIT-tagged Bull Trout tagged through the LPO Trap and Gill Net Program were also detected in both tributaries. These initial PIT tag detections provide valuable information on the timing of Bull Trout migratory movements within the basin. Monitoring of fish movements will be necessary for at least eight years to adequately account for the detection of returning adult Bull Trout used to estimate survival.

***b) In consultation with Idaho Fish and Game, annually prepare and submit to the Service an assessment, based on the best available information, of the Lake Pend Oreille prey base population trends (kokanee and other species) and an evaluation of the need for fish passage (or other measures) to benefit prey species to mitigate dam impacts to prey species.***

Idaho Department of Fish and Game continued annual monitoring and assessment of LPO prey base population trends. Based upon 2002 interagency discussions and IDFG management actions, IDFG, in consultation with Avista and USFWS, conducted the eleventh season of a large-scale spring and fall trap netting operation on LPO in 2016. Periodic updates of this trap netting operation are provided to both Avista and USFWS, through email, by IDFG. These program updates will constitute Avista's "assessment" and "evaluation of need" for 2016 (in lieu of submitting a formal report to USFWS).

Other ongoing activities that provide insight as to the LPO prey base include the LPO Creel Survey and the annual Kokanee estimates associated with the LPO Trap and Gill Net Program.

***c) In a timely manner, agreed to by the Service, propose, for Service approval, fish passage or other measures to offset dam impacts on prey species in Lake Pend Oreille.***

A proposal for fish passage (or other measures) to benefit prey species will be addressed in future years, if warranted, following coordination with IDFG. Other ongoing activities that provide direct benefits to the LPO prey base include the LPO Trap and Gill Net Program and associated annual Kokanee estimates.

*Lake Pend Oreille Angler Incentive Program:*

This program has been implemented annually, since 2006, in an effort to reduce predator, specifically Lake Trout, abundance in LPO. In 2016, funding of the LPO Angler Incentive Program continued. Anglers participating in the program turned in Lake Trout heads along with information cards at freezers maintained at access points around LPO. In 2016, anglers turned in 2,871 Lake Trout (Table 4). Lake Trout harvest declined considerably from the range of previously observed catches by anglers.

Lake Pend Oreille Angler Incentive Program funds were also used to sponsor angling derbies on LPO. Sponsorship dollars were used to encourage additional anglers to participate in harvest oriented angling of LPO Lake Trout and to encourage Bull Trout education. In 2016, five traditional LPO derbies were recipients of sponsorship funding.



Lake Pend Oreille Trap and Gill Net Program:

The goal of this program is to increase Kokanee numbers by reducing predator abundance. The focus of this program is Lake Trout reduction and efforts to obtain this goal have been implemented annually in conjunction with the LPO Angler Incentive Program since 2006.

In 2016, the LPO Trap and Gill Net Program was implemented for the eleventh year and removed 7,185 Lake Trout (Table 4). Since 2006, a combination of angling and netting has removed nearly 200,000 Lake Trout. Netting catch rates for Lake Trout have declined substantially since the program was initiated. Standardized trap net catch rates are the primary index used to track changes in adult Lake Trout abundance and have declined over 80% since 2006 but increased slightly in 2016. In addition, gill net catch rates for juvenile Lake Trout (primarily age-2 through age-4) have declined by over 75% since 2009, which is when they first were targeted with small mesh nets. Total catch rates have declined, indicating a reduced Lake Trout population.

**Table 4.** Lake Trout harvested and removed from Lake Pend Oreille, Idaho in 2016 by collection method.

Collection Method	Number Harvested
Angling	2,871
Netting	7,185
Total	10,065

Corresponding to a reduction in the Lake Trout population, a positive response by kokanee has been observed. Kokanee abundance estimates remained high for the fourth consecutive year. Age-specific abundance estimates are not yet finalized, but the total abundance for all age classes was 64% higher than in 2012, and over two and a half times higher than the low point of Kokanee abundance in 2008.

Bull Trout abundance has also shown some signs of improvement. Standardized trap net catch rates for Bull Trout have approximately doubled since 2007. The responses observed to date suggest that suppression of Lake Trout can be achieved and provide benefits for both kokanee and Bull Trout. For this to happen, exploitation of Lake Trout at or above current levels needs to be sustained in coming years. Lake Pend Oreille predator removal success will continue to be monitored by evaluating the population response of Lake Trout, Bull Trout, and kokanee.

Lake Pend Oreille Creel Survey:

The 2014 Lake Pend Oreille Creel Survey report was completed in 2016.

Box Canyon Reservoir Northern Pike Suppression Project:

This project was initiated by the Kalispel Tribe in 2012 to reduce the impact of non-native predators, specifically Northern Pike, on native fish recovery efforts. In 2016, a total of 181 Northern Pike were removed in 419 overnight gill net sets during the Box Canyon Reservoir Northern Pike Suppression Project.

Relative population size was monitored through spring pike index netting surveys. Catch per unit effort of Northern Pike in the overall project area ranged from approximately 12 to 13 Northern

Pike per net pre-suppression (2010 and 2011) to less than one Northern Pike per net per night in 2016.

### **8.1.2.8 Terms and Conditions to Implement RPM # 8 and Corresponding Activities**

The incidental take statement's RPM #8 states:

*Implement reporting and consultation requirements as outlined in the terms and conditions below in order to minimize take of bull trout related to implementation of the Native Salmonid Restoration Plan and other fisheries monitoring activities (Article 406).*

The four terms and conditions (a through d) and corresponding 2016 activities associated with RPM #8 are listed below.

- a) Annually prepare and submit to the Service a report of the next year's proposed activities under the Native Salmonid Restoration Plan and other fisheries monitoring that may result in intentional as well as incidental take of bull trout. The report will quantify the number of bull trout proposed to be intentionally "taken" by each activity and summarize the extent of intentional take from all previous year's activities.**

In 2016, the USFWS was a reviewer in the preparation of AIPs for the Native Salmonid Restoration Plan and other fisheries monitoring that may result in intentional as well as incidental take of Bull Trout. The USFWS, as part of the MC, approved all draft fisheries plans and activities at the March 2016 meeting. The USFWS received the final approved plans in April 2016. The USFWS also verified that the information reported in this section is sufficient to cover the requirement for a report quantifying the number of Bull Trout proposed to be intentionally "taken" and the extent of take from all previous year's activities (see discussion under subsection d, below).

***Upon locating dead, injured, or sick bull trout, or upon observing destruction of redds, notification must be made within 24 hours to the Service's Division of Law Enforcement Special Agent (Richard Branzell, P.O. Box 7488, Missoula, MT., 59807-7488, 406-329-3000). Instructions for proper handling and disposition of such specimens will be issued by the Division of Law Enforcement. Care must be taken in handling sick or injured fish to ensure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible state. In conjunction with the care of sick or injured bull trout, or the preservation of biological materials from a dead trout, the FERC and the applicant have the responsibility to ensure that information relative to the date, time, and location of the fish when found, and possible cause of injury or death of each fish be recorded and provided to the Service. Dead, injured, or sick bull trout should also be reported to the Service's Helena Field Office (406-449-5225).***

As directed by the USFWS, notifications were sent to the USFWS representative Wade Fredenberg, located in Creston, Montana, and a yearly summary report is prepared (see discussion under subsection d, below).

**b) During project implementation the FERC or applicant shall promptly notify the Service of any emergency or unanticipated situations arising that may be detrimental for bull trout relative to the proposed activity.**

The USFWS was notified of an incident on September 27, when two adult Bull Trout were captured moving downstream in the Graves Creek permanent weir trap. One of these fish was a mortality and details were relayed to the appropriate individuals and described in more detail in the Tributary Trapping and Downstream Juvenile Bull Trout Transport Program bi-weekly update.

**c) Within 90 days of the end of each year, the FERC or applicant will provide a written report or letter to the Service indicating the actual number of bull trout taken, if any, as well as any relevant biological/habitat data or other pertinent information on bull trout that was collected.**

This Annual Report and the summary of activities for a, above, satisfy this condition. This was the seventeenth year of program implementation. Sampling techniques are always being refined, and new techniques employed. During field activities conducted in 2016 the total number of Bull Trout handled and “the extent of intentional take” for Bull Trout is described in Table 5. The number of Bull Trout proposed to be intentionally “taken” by each activity in 2017 is also outlined in Table 5.

The CFSA Appendix F5 LPO Trap and Gill Net and LPO Angler Incentive programs, “take” of Bull Trout in 2016 was 1,612 with 549 mortalities and is covered under a separate permit issued by the USFWS (Spokane) to IDFG.

**Table 5.** Bull Trout take and mortalities reported in 2016 along with proposed intentional take for 2017.

Program	Bull Trout Take	Number of Bull Trout Mortalities	Proposed 2017 Bull Trout Take
CFSA Appendix A	72	0	100
CFSA Appendix B	350	4	450
CFSA Appendix C	599	2	800
Total	1,021	6	1,350

### 8.1.2.9 Terms and Conditions to Implement RPM #9 and Corresponding Activities

The incidental take statement’s RPM #9 states:

*Investigate and develop a plan, and implement the plan if determined appropriate by the Service, to preserve the genetic variability of Lake Pend Oreille bull trout as represented by migratory stocks present in the Clark Fork River upstream of Cabinet Gorge Dam (Article 406).*

The three terms and conditions (a through c) and corresponding 2016 activities associated with RPM #9 are listed below.

***a) During stock assessment and other fisheries investigations in tributary streams to the reservoirs, determine the need for measures to preserve the genetic integrity of migratory bull trout stocks.***

This term and condition is being met through the routine collection and processing of Bull Trout genetic samples (see Section 8.1.2.1). The need to implement measures to preserve the genetic integrity of migratory Bull Trout stocks beyond upstream transport of Bull Trout is premature at this time, and will be addressed in future years when warranted.

Fin tissue samples are collected annually from Bull Trout in tributaries to the Clark Fork River and LPO. In 2016, fin tissue samples were collected from over 100 juvenile Bull Trout captured in the project area and will be analyzed and used to update the genetic baseline. The sampling and analysis of fin tissue collected from juvenile Bull Trout allows for an improvement in the accuracy of the genetic baseline that is used to make Bull Trout transport decisions. This analysis also provides an opportunity to assess changes in genetic diversity between and within populations over time.

A parentage study investigation was initiated in upper Prospect Creek and Cooper Gulch between 2012 and 2014. The goal of this study was to determine the contribution of transport and non-transport Bull Trout to these populations and obtain important Bull Trout life history information in the drainage. The report for this project was completed in the winter of 2016-2017 and the results provided evidence that the upper Prospect and Cooper Gulch drainages are primarily resident with some genetic exchange between the tributaries. There was also evidence of a limited contribution of adult Bull Trout transported upstream of Cabinet Gorge Dam. This is partially due to intermittency issues in the drainage and also due to the resident nature of these populations with few juveniles migrating downstream to Lake Pend Oreille, Idaho.

***b) In a timely manner, agreed to by the Service, prepare a plan for genetic conservation of migratory bull trout stocks.***

In June 2000, a Bull Trout Genetics Advisory Panel was convened to provide advice on the most appropriate management actions for Bull Trout. After reviewing available information, and following a series of meetings and subsequent discussions, the Panel produced the Genetic Management Plan for Bull Trout in the Lake Pend Oreille–Lower Clark Fork River System. The panel decided that one of the greatest genetic and conservation management gains could be gained by re-establishing connectivity among all parts of the system. This Plan can be viewed as a guiding document.

**c) *If deemed appropriate by the Service, prepare and implement a plan for creating a genetic reserve, or other measures, to be used in conserving and restoring migratory bull trout stocks to the Clark Fork tributary systems.***

The preparation and implementation of a plan for creating a genetic reserve, or other measures, to be used in conserving and restoring migratory Bull Trout stocks to the Clark Fork tributary systems is premature at this time, and will be addressed in future years if warranted.

### **8.1.3 Key 2016 References**

Avista. July 11, 2002. Annual 2001 reports on Threatened and Endangered Species Plan (License Article 432) and Fishway Plan (License Article 433), as presented to MC; reports contain revised format that will be included in future *Clark Fork Project Annual Reports on Implementation of PM&E Measures*. Avista document identification number 2002-0184.

Avista. December 24, 2002. Letter sending the Proposed Gas Supersaturation Control Program to USFWS, IDEQ and FERC for approval. Avista document identification number 2002-0483.

Avista. July 19, 2016. Consent mail request to MC and WRTAC to revise protocols for the Tributary Trapping and Juvenile Bull Trout downstream transport Program. Avista document identification number 2016-0272.

Avista. 2009. Final 2009 Addendum. Final Gas Supersaturation Control Program for the Clark Fork Project. Avista document identification number 2009-0290.

Avista. December 30, 2014. Correspondence via letter to Gas Supersaturation Subcommittee for approval of TDG Monitoring Program - Proposed 2015 Changes. Avista document identification number 2014-0507.

Avista. August 7, 2015. Correspondence via letter to IDEQ, MTDEQ, USFS, IDFG, MFWP, KTI and USFWS regarding Cabinet Gorge Dam – Minimum Flow. Avista document identification number 2015-0242.

Blakney, J. *In prep.* Noxon and Cabinet Gorge reservoirs and Bull River Creel Survey Report. Prepared for Avista Corporation, Noxon Montana.

Bodurtha, T. USFWS. August 8, 2002. Letter stating that incorporation of Avista’s annual Threatened and Endangered Species and Fishway reports into future *Clark Fork Project Annual Reports on Implementation of PM&E Measures* adequately meets reporting requirements of License Articles 432/433; report format is satisfactory. Avista document identification number 2002-0191.

Bouwens, K. IDFG. December 19, 2016. Letter to USFWS and Avista containing Lake Pend Oreille Bull Trout Redd Count data. Avista document identification number 2016-0458.

- Bouwens, K.A., and R. Jakubowski. 2016. 2014 Lake Pend Oreille Creel Survey. Avista document identification number 2016-0364. Prepared for Avista, Noxon, Montana and the Idaho Department of Fish and Game.
- FERC. February 23, 2000. Order Issuing New License for Clark Fork Project No. 2058, effective date March 1, 2001. Avista document identification number 2000-0047.
- FERC. January 11, 2005. Order Approving Gas Supersaturation Control Program Per Articles 413, 432, and Appendices D and F5. Avista document identification number 2005-0007.
- FERC. February 19, 2010. License order approving the Addendum to Gas Supersaturation Control Program per License Article 413 and appendix F5. Avista document identification number 2010-0035.
- FERC. July 21, 2011. Order Modifying and Approving 2010 Annual Report and 2011 Implementation Plans per Article 402, Annual Threatened and Endangered Species Plan per Article 432 and Annual Fishway Plan per Article 433. Avista document identification number 2011-0270.
- Harvey, S., and N. Bean. 2016. Annual Project Update Report - 2016, Box Canyon Northern Pike Suppression. Avista document identification number 2016-0430. Kalispel Tribe Natural Resources Department. Report prepared for Avista, Spokane Washington.
- Kleinschmidt Associates & KL Pratt. July 1998. Clark Fork River Native Salmonid Restoration Plan. Avista document identification number 1998-0469.
- Kleinschmidt Associates & KL Pratt. August 2001. Exotic Species Suppression and Recreational Fishery Enhancement Plan for Cabinet Gorge Reservoir, Phase 1 Volume 1 & 2. Avista document identification number 2001-0239.
- Management Committee Meeting Summary: March 15, 2016. Avista document identification number 2016-0113.
- Management Committee Meeting Summary: September 27, 2016. Avista document identification number 2016-0433.
- Management Committee Conference Call Summary: August 16, 2016. Avista document identification number 2016-0338.
- Management Committee Conference Call Summary: September 23, 2016. Avista document identification number 2016-0369.
- Management Committee Conference Call Summary: November 2, 2016. *In prep.*

- McMaster, K. U.S. Department of Interior. August 5, 1999. Biological Opinion for Relicensing of the Cabinet Gorge and Noxon Rapids HEDs. Avista document identification number 1999-0595.
- Montana Fish Wildlife and Parks. 2014. Administrative Rules of Montana (ARM) Amendment. Avista document identification number 2014-0501.
- Montana Fish, Wildlife, and Parks. 2016. Ecology and Management of Montana Walleye Fisheries. Avista document identification number 2016-0449. Montana Cooperative Fishery Research Unit, Montana State University, Bozeman, Montana, and Montana Fish, Wildlife and Parks, Helena, Montana.
- Moran, S., and J. Storaasli. 2015. Non-Native Fish Suppression Project in the East Fork Bull River Drainage, Montana: 2007 – 2014. Final Report – 2014. Prepared for Avista Corporation, Noxon, Montana. Avista document identification number 2015-0218.
- Neher, C. 2016. Ecological-Economic Modeling of Changes in Fish Assemblage in a Western Montana Cold Water Reservoir System. Avista document identification number 2016-0405. University of Montana: Missoula, Montana.
- Ryan, R., and R. Jakubowski. 2012. Lower Clark Fork River Fishery Assessment. Project Completion Report. Report to Avista Corporation, Noxon, Montana. Avista document identification number 2012-0158.
- Satterfield, J. September 11, 2006. Decision Notice for Proposed Non-Native Fish Suppression Project in East Fork Bull River. Avista document identification number 2006-0302.
- Scarnecchia, D.L., and Lim, Y. 2016. Potential effects of walleye on the fish community of Noxon, Reservoir, Montana. Avista document identification number 2016-0072. University of Idaho: Moscow, Idaho.
- Spruell, P., J. Epifanio, G. Haas, K. Pratt, B. E. Rieman, C. Stockwell, F. M. Utter and W. P. Young. 2000. Genetic Management Plan for Bull Trout in the Lake Pend Oreille – Lower Clark Fork River System. Report to the Aquatic Implementation Team. Avista document identification number 2000-0670.
- Storaasli, J. 2016. Non-Native Fish Suppression Project in the East Fork Bull River Drainage, Montana: 2015 – 2018. Annual Progress Report – 2015. Avista document identification number 2016-0077. Avista, Noxon, Montana.
- USFWS. December 16, 2016. E-mail from Wade Fredenberg confirming that the information reported in Section 8.1 of Avista’s FERC Annual Report is sufficient to cover Avista’s requirement under the Biological Opinion to report on Bull Trout take. Avista document identification number 2016-0410.



USFWS. April 16, 2007. E-mail from Lockard granting a waiver from Term and Condition 1. b. of the Incidental Take Statement that the USFWS will not require permanent fish tagging of adult bull trout captured in Lake Pend Oreille during 2007 fisheries investigations and other fisheries management activities. Avista document identification number 2007-0190.

USFWS. December 6, 2013. Email response to Avista December 5, 2013 email regarding Effects Analysis on Bull Trout – 3,000 cfs Minimum Flow Below Cabinet Gorge Dam. Avista document identification number 2013-0405.

Wilson, M. USFWS. February 25, 2004. Letter providing USFWS approval of Avista's Gas Supersaturation Control Program (GSCP). Avista document identification number 2004-0096.

## **8.2 Fishway Plan and Annual Report (License Article 433 – Amended June 13, 2003)**

### **8.2.1 Purpose**

Article 433 of the FERC License (License) requires that, on or before April 15 of each year and after consultation with the Management Committee (MC), the Licensee file for Commission approval a Fishway Plan and Annual Report. The Plan must address the Licensee's compliance with the USFWS's Section 18 fishway prescriptions contained in Appendix C to the License, including a detailed description of any fish passage devices or measures and any proposed modifications to project facilities or operations; documentation of any consultations; copies of comments and recommendations received on the completed plan; and specific descriptions of how entities' comments are accommodated by the Plan or Avista's reasons for not including such comments, based on Project-specific information.

In 2002, Avista and USFWS agreed that Article 433's Fishway Plan requirement, as well as Avista's annual reporting and consultation requirements for Clark Fork Settlement Agreement (CFSA) appendices A, B and C (License articles 404, 405 and 406) are adequately addressed through the Annual Implementation Plans (AIPs), which are approved by the MC, and by providing the annual activity summaries contained in this section of the Annual Report. Section 8.2.2 below provides the 2016 activity report for these Protection, Mitigation and Enhancement (PM&E) measures, which comprises Avista's Fishway Plan and is intended to satisfy Avista's annual reporting requirement for these measures.

### **8.2.2 2016 Activity Summary**

#### **8.2.2.1 Prescription 1 Conditions and Corresponding Activities**

##### ***Prescription 1 Description***

USFWS's Section 18 Prescription 1 states the following:

*The licensee shall assess, plan, design, construct, operate, and maintain upstream fishway devices or measures and downstream fish protection devices or measures in accordance with the Native Salmonid Restoration Plan (Plan) (License Application Volume IV.A). Construction, operation, and maintenance of fishways will proceed in a stepwise manner, beginning at the effective date of the Settlement Agreement (License Application Volume III), utilizing the principles of adaptive management (i.e., the ability to change program direction based on new information provided by monitoring and evaluation of experimental measures). Following initial feasibility assessments, and within one year of the effective date of the Settlement Agreement, an experimental fish trap and truck program for the purpose of moving bull trout from below Cabinet Gorge Dam to the Cabinet Gorge Reservoir pool shall be constructed, operated, and maintained. Assessment and implementation of other fish stock enhancement measures shall begin at the effective date of the Settlement Agreement, as described in the Plan. Evaluation of the effectiveness of the fish trap and truck program below Cabinet Gorge, and evaluation of other stock enhancement measures will determine the timing of construction, operation, and maintenance of other upstream fishway*

*facilities and measures and downstream fish entrainment protection devices at Cabinet Gorge and Noxon Rapids Dams.*

## **2016 Activities Associated with Prescription 1**

### *Adult Bull Trout Capture and Transport:*

Bull Trout capture efforts downstream of Cabinet Gorge Dam and subsequent upstream transport have occurred annually since 2001. The goal of this program is to reconnect adult Bull Trout with their most likely tributary of origin based on genetic testing or capture history in order to increase the number of spawning Bull Trout in Montana tributaries. From mid-April through mid-October 2016, 26 individual adult Bull Trout (defined as greater than 350 mm in length for upstream transport purposes) were captured in the lower Clark Fork River downstream of Cabinet Gorge Dam utilizing three collection methods: night electrofishing, hook-and-line sampling, and the Cabinet Gorge Fish Hatchery Ladder. No Bull Trout were captured in the weir trap installed in Twin Creek.

These fish were held at the Cabinet Gorge Fish Handling and Holding Facility (Facility) while awaiting a genetic population assignment from the genetics laboratory. Based on genetic assignment or juvenile capture history, 21 of these 26 adult Bull Trout were transported to Montana to either: Cabinet Gorge Reservoir or its tributaries (14), Noxon Reservoir or its tributaries (5), or upstream of Thompson Falls Dam (2).

### *Westslope Cutthroat Trout Experimental Transport:*

This is the second year Westslope Cutthroat Trout have been captured downstream of Cabinet Gorge Dam and have been transported upstream to Cabinet Gorge Reservoir. Night electrofishing and hook-and-line sampling were utilized to capture 40 fish for transport. The management goal for Westslope Cutthroat Trout passage is to increase the number of large migratory Westslope Cutthroat Trout available to spawn in Montana tributaries.

Westslope Cutthroat Trout movements were monitored in 2015 and 2016 following transport. In 2016, fish were transported between late March and early June and released at the Big Eddy boat ramp in Cabinet Gorge Reservoir. Over 40% of these fish entered a potential spawning tributary to Cabinet Gorge Reservoir including the Bull River and Rock Creek in the spring. None of these fish were observed directly on a redd, but eight of the fish detected in the upper reaches of the Bull River (40 km upstream of Cabinet Gorge Reservoir) were located in an area where other large bodied Westslope Cutthroat Trout were observed constructing redds in previous years.

### *Cabinet Gorge HED Permanent Fishway:*

At the beginning of 2016, there were still several issues that needed to be resolved associated with the proposed construction and operation of a Cabinet Gorge HED Permanent Fish Passage Facility (CGFPF). At the direction of the MC, representatives from Avista, MFWP, IDFG and USFWS had worked in 2014 and 2015 to try to resolve outstanding issues related to CGFPF construction and operation, including Cabinet Gorge Dam's minimum flow, funding for operations of the CGFPF, timing of Noxon Rapids HED Permanent Fishway construction, long-term resolution of the pathogen and Montana import permit issue (an issue on which Trout Unlimited also participated), assurances regarding the satisfaction of Avista's mitigation obligations, and overall approval language for CGFPF construction and design through a number of emails, conference

calls, and meetings. As per MC direction, group representatives and their attorneys worked on drafting a CFSA amendment. The CFSA amendment would resolve outstanding issues and form the basis for Avista's FERC license amendment application for CGFPF construction and operation.

In 2016 MFWP, IDFG, USFWS, and Avista continued to meet and discuss the language of the CFSA amendment with numerous e-mails and conference calls. Once these parties were satisfied with the draft amendment, it was sent to the MC on July 29, 2016 for their review followed by a special MC meeting specific to the CFSA amendment. The specific language in the CFSA amendment was discussed at three special MC meetings which were held to address limited questions and concerns from other parties. At the end of 2016, all parties were close to consensus on the appropriate language with the exception of one provision. The parties are currently participating in ongoing discussions to determine the best course of action to resolve final language concerns.

In the meantime, Avista continued to implement actions in support of the proposed CGFPF project. Avista personnel continued to refine existing documentation pertaining to the FERC license amendment application and draft NEPA analysis for the project. Completion of these documents and the draft ESA Biological Evaluation is dependent on the parties' agreement on the outstanding issues that form the basis of the proposed CFSA amendment, as detailed above. Once agreement is reached, Avista can complete these documents and submit them to FERC, which will also facilitate initiation of the Section 7 ESA consultation with the USFWS, and other state and federal reviews and approvals necessary to construct and operate the CGFPF.

Due to the aforementioned pending agreement, the status and schedule of the actual construction of the CGFPF remains uncertain. The finalized contract documents for the construction of the CGFPF were sent out to prospective bidders in October of 2015. Two construction firms submitted bids for construction and both exceeded the engineers estimate formulated by Avista's design consultant by a range of 58% - 188%. Rather than award the contract, Avista chose to work with the lower bidder and embark on a Value Engineering (VE) evaluation with a team consisting of the contractor, Avista and its design consultant (including a contract biologist considered an expert in salmonid behavior and fish passage) and another independent construction contractor who is considered an expert in the field and has done extensive work for Avista in the past. The purpose of this VE evaluation was to explore different construction methods which could be incorporated to lower construction costs and help to spread the project risk (risk was identified as a primary reason the bids for the project came in so much higher than the engineer's estimate). During this process the group also examined factors that may improve the efficiency of capture of target species.

After several VE meetings consisting of brainstorming, vetting options and evaluating expected performance, it was determined the preferred alternative for the CGFPF would include two design modifications. These modifications (referred to as the "two-chamber concept" and "siphon water supply concept") eliminated the ladder steps, moved the water supply to a siphon system from the dam forebay while keeping the entrance pool as is and maintaining all of the design criteria which the original design was based on. These changes would dramatically reduce the footprint of the structure, reduce the cofferdam size and save a large amount of rock excavation. The group also believed this design would improve the capture of target species as fish would only have to move

from the entrance pool into a holding pool and would not have to navigate the ladder. The project was developed to a conceptual level pending review and approval of the Design Review Team (consisting of members from Avista, the U.S. Fish and Wildlife Service (USFWS), the Idaho Department of Fish and Game (IDFG) and Montana Fish, Wildlife and Parks (MFWP)). The Design Review Team conducted two reviews with the VE team, one in a meeting in Spokane and one via conference call. In December 2016, all three agencies approved in writing moving the two-chamber trap and siphon water supply concepts forward to final design.

*Noxon Rapids HED Permanent Fishway:*

No new work was proposed or conducted for the Noxon Rapids HED Permanent Fishway and fish handling facility project in 2016 (see previous annual reports for additional information).

*Downstream Fish Passage:*

Safe downstream passage of Bull Trout has been addressed through the Tributary Trapping and Downstream Juvenile Bull Trout Transport Program. Under this program, juvenile Bull Trout are captured in traps during their outmigrations, or through targeted stream electrofishing efforts. Following capture, juvenile Bull Trout are measured, implanted with a PIT tag, and transported to the Clark Fork River downstream of Cabinet Gorge Dam where they are released. In addition, adult Bull Trout that were previously transported upstream and recaptured in tributaries following the spawn are transported back to the Clark Fork River downstream of Cabinet Gorge Dam.

Fish trapping and transport for the 2016 season began on March 27 with the installation of the Graves Creek permanent weir trap. Screw traps were installed in the EFBR (south channel) and Rock Creek (upper site) on March 31 and April 19. As stream discharge decreased in late spring, screw traps were removed and channel-spanning (full) weir traps were installed and operated in the EFBR (one in the north channel and one in the south channel) and Rock Creek (upper site). Exclusion weir traps were not installed in the EFBR due to high discharge and debris loads associated with unusually high fall rains. Conventional and permanent weir trap fishing operations were conducted until November 23 except when traps were disabled by high discharge events. Cooper Gulch electrofishing was conducted from August 15 through August 18. Prospect Creek electrofishing was conducted in stranding pools during four days in August. Vermilion River electrofishing was conducted during seven days in August. In addition, baited minnow traps were fished in Cooper Gulch and the Vermilion River from October 24 through November 22. During this time, four traps were fished in Cooper Gulch for 28 days (112 trap days) and eight traps were fished in the Vermilion River for 28 days (224 trap days).

A total of 286 juvenile Bull Trout were captured in Montana tributaries and transported to Idaho during 2016 (Table 1). An additional 12 juvenile Bull Trout that would have otherwise been eligible for transport were captured within Graves Creek, but were released on site to facilitate the study of outmigration timing, capture and detection probabilities, and return rates of reservoir-type fish. Following capture, fish were measured (length and weight), and implanted with a PIT tag if they were greater than 99 mm and if a PIT tag was not already present. No Bull Trout were captured within minnow traps. All juvenile transports were released in the lower Clark Fork River at the Cabinet Gorge Fish Hatchery site.

**Table 1.** Method used and tributary of capture for juvenile Bull Trout transported to Idaho under the Tributary Trapping and Downstream Juvenile Bull Trout Transport Program in 2016.

Tributary	Method	Bull Transport Number
Graves Creek	Permanent Weir	222
Rock Creek	Weir/ Screw Trap	30
EFBR	Weir/ Screw Trap	13
Vermilion River	Stream Electrofishing	10
Cooper Gulch	Stream Electrofishing	10
Prospect Creek	Rescue Electrofishing	1
Total		286

A comprehensive analysis of the Downstream Program was conducted during 2016. Results from this analysis resulted in a few modifications to the program. These actions are intended to increase return rates of transported fish and potentially increase the number of fish that remain within the tributary-reservoir system and survive to maturity. First, a new length criteria for juvenile transports of 120–250 mm was established. In addition, trapping and transport operations will no longer take place during July and August. Lastly, all fish will now be released at the Cabinet Gorge Fish Handling and Holding Facility.

Following a feasibility investigation, Avista constructed a concrete-bedded weir trap (permanent weir trap) on lower Graves Creek in late 2012 and operation was initiated in 2013. Operation of the permanent weir trap was anticipated to facilitate higher capture efficiencies for outmigrating juvenile Bull Trout, particularly during periods of higher streamflow that proved difficult to trap with existing methodologies. The Graves Creek Permanent Weir Trap M&E Plan was completed in 2013 and was designed to evaluate the operation and fish capture effectiveness of the permanent weir trap. The M&E Plan was updated during 2016.

From the inception of permanent weir operation through 2015, a number of issues were identified and addressed by Avista, MFWP, and USFWS. For 2016, the primary goal was to get the tools in place to thoroughly evaluate and iteratively improve capture and passage rates for adult fish. Thus, a state-of-the-art PIT tag array was purchased and installed at the site. Unfortunately, there were issues with the performance of the array and 2016 was spent optimizing the system. Thus, limited movement information were collected during 2016 but sound information should be produced during future years. Despite the limited information collected by the array, some important anecdotal information was collected. First, it appears that gated entrances may be used to effectively retain adult fish within the trap box. Second, the array detected some juvenile fish within the trap box that had escaped prior to being collected. Thus, although the permanent weir trap has greatly increased capture probabilities and the number of juvenile Bull Trout captured, there may still be room for improvement.

A prototype drop-height element was fabricated and incorporated into the trap in attempt to retain a higher proportion of juvenile Bull Trout. Following installation of the prototype, no Bull Trout were detected escaping the trap and capture rates were the highest on record. The drop-height element will be further evaluated and refined during 2017.

## 8.2.2.2 Prescription 2 Conditions and Corresponding Activities

### **Prescription 2 Description**

USFWS's Section 18 Prescription 2 states the following:

*At the effective date of the Settlement Agreement (License Application Volume III), the licensee shall develop and implement a fish passage program in accordance with the terms of the Clark Fork Settlement Agreement and the Native Salmonid Restoration Plan (License Application Volume IV.A). Implementation of the Plan shall include initial project scoping activities resulting in goals and objectives; background information, compilation and updating in areas of fish genetics, fish pathogens, exotic fish control, existing fish populations, stream and mainstem habitat conditions; assessment of suitable fish stock availability, fish transfer options, and fish hatchery options; and implementation of experimental and comprehensive fish passage measures, as appropriate, and a monitoring program to assess the effectiveness of fishways and other measures.*

### **2016 Activities Associated with Prescription 2**

The year 2016 was the seventeenth year of implementation of the Fish Passage/Native Salmonid Restoration Plan (CFSA Appendix C–License Article 406) (“Fish Passage/NSRP”). During this time, scoping activities, monitoring and implementation of projects in areas of fish genetics, pathogens, exotic fish, habitat restoration and fish abundance monitoring have been assessed and will continue to be addressed in future years. A Native Salmonid Restoration Five-Year Plan has been developed to provide guidance to individuals implementing programs under the CFSA. The previous plan approved by the Management Committee covered work conducted from 2011 through 2015. Beginning in the spring of 2015, staff members from MFWP, IDFG, USFWS, and Avista began work on developing the next five-year plan for the NSRP (2016 through 2020). The completion of this five-year plan is contingent upon successful resolution of the CFSA amendment and the five-year plan was sent to the MC for review in the spring of 2016. The MC postponed approval of the final document, pending approval of the CFSA amendment. Details on the CFSA amendment are discussed above, in the interim program leaders are abiding by the guidelines of the draft 5-year plan.

In 2016, a USFWS staff member was a reviewer during the preparation of the AIP for Fish Passage/NSRP. The approved AIP contained a variety of project plans, which collectively address many of the activities described above. These include:

- Upstream Fish Passage Program
- Clark Fork River Westslope Cutthroat Trout Experimental Transport Program
- Tributary Trapping and Downstream Juvenile Bull Trout Transport Program
- Non-Native Fish Suppression Project in the East Fork Bull River–2015 through 2018
- Fish Abundance Monitoring
- Fish Capturing Facilities Operation, Development, and Testing

Assessing and/or improving stream and mainstem habitat conditions and the implementation of a monitoring program to assess the effectiveness of fishways and other measures are activities



addressed through the coordinated implementation of CFSA appendices A and B (see sections 6.1.3 and 6.2.3). The USFWS approved these 2016 AIPs.

### **8.2.3 Key 2016 References**

Avista. July 11, 2002. Annual 2001 reports on Threatened and Endangered Species Plan (License Article 432) and Fishway Plan (License Article 433), as presented to MC; reports contain revised format that will be included in future *Clark Fork Project Annual Reports on Implementation of PM&E Measures*. Avista document identification number 2002-0184.

Avista July 19, 2016. Consent mail request to MC and WRTAC to revise protocols for the Tributary Trapping and Juvenile Bull Trout downstream transport Program. Avista document identification number 2016-0272.

Avista. 2016 Clark Fork Annual Implementation Plans and 2015 Clark Fork Annual Report, License Articles 402, 432 and 433. Clark Fork Project, FERC Project No. 2058. Avista document identification number 2016-0084.

Bernall, S. and K. Duffy. 2016. Upstream Fish Passage Program – Bull Trout. Annual Progress Report – 2015. Avista document identification number 2016-0328. Avista, Noxon, Montana.

Bernall, S. and J. Johnson. 2016. Clark Fork River Westslope Cutthroat Trout Experimental Transport Program. Annual Progress Report – 2015. Avista document identification number 2016-0347. Avista, Noxon, Montana.

Bodurtha, T. USFWS. August 8, 2002. Letter stating that incorporation of Avista’s annual Threatened and Endangered Species and Fishway reports into future Clark Fork Project Annual Reports on Implementation of PM&E Measures adequately meets reporting requirements of License Articles 432 and 433; format is satisfactory. Avista document identification number 2002-0191.

FERC. February 23, 2000. Order Issuing New License for Clark Fork Project No. 2058, effective date March 1, 2001. Avista document identification number 2000-0047.

Management Committee Meeting Summary: March 15, 2016. Avista document identification number 2016-0113.

Management Committee Meeting Summary: September 27, 2016. Avista document identification number 2016-0433.

Management Committee Conference Call Summary: August 16, 2016. Avista document identification number 2016-0338.

Management Committee Conference Call Summary: September 23, 2016. Avista document identification number 2016-0369.

Management Committee Conference Call Summary: November 2, 2016. *In prep.*

Oldenburg, E., J. Blakney, K. Bouwens, and W. Fredenberg. 2016. Graves Creek permanent weir trap monitoring and evaluation plan. Avista document identification number 2016-0389. Avista, Noxon, Montana.

## 8.3 Other Clark Fork License Articles

### 8.3.1 Purpose

This section of the Annual Report highlights any annual activities (Section 8.3.2) that occurred in 2016 associated with other License Articles for the Clark Fork Project No. 2058 that do not directly tie to a specific CFSA PM&E measures.

### 8.3.2 2016 Activity Table

License Article Number	License Article Description	2016 Activity
438	Dispute Resolution	No activity occurred
439	Rock Creek Mine Discharge Facility	No activity occurred
440	Revised License Exhibit G	No activity occurred
441	Alterations per Fish and Wildlife Program	No activity occurred
442	Permission for Use and Occupancy of Project Lands and Waters	See Section 8.3.2.1
443	Construction, Operation, and Maintenance of Fishways	No activity occurred

#### 8.3.2.1 Permission for use and Occupancy of Project Lands and Waters

In 2016, Avista granted permission for certain types of use and occupancy of Project lands and waters to comply with CFSA appendices G and H (License Articles 414 and 415). Uses and occupancy are included in sections 7.1 and 7.2 of this report. Avista conveyed one new one new easement for an established septic system drain field on Avista property (License Article 442, Section (a)).

Avista granted a Drain Field Easement in Gross to an adjacent landowner in 2016 for a long established (over 30 years) drain field located on Avista Project land. The encroachment was discovered, and reported by the adjacent landowner, when the private property was surveyed prior to being sold. Upon inspection of the site it was determined that the established drain field was located more than 150 feet from the shoreline, thus not impacting project waters, and that requiring the relocation at this time would result in more resource disturbance than allowing it to remain in place until it needs to be replaced (thus meeting the requirements for Section (a) of License Article 442). Conditions of the easement require that once the drain field fails the replaced drain field will be relocated off of Avista property. The drain field is also identified in their annual Property Use Permit issued as part of CFSA Appendix G (License Article 414) implementation.

#### 8.3.3 Key 2016 References:

Avista. 2016. Drain Field in Gross. Recorded in Sanders County, Montana. Book 1, Page 86313. Avista document identification number 2016-0459.

## Section 9: Federal Energy Regulatory Commission Issues and Actions

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### 9.1 Purpose

The purpose of this section is to inform FERC of any “out of the ordinary” issues pertaining to the implementation of the Clark Fork License No. 2058 and any items requiring FERC action through December 31, 2016. The FERC-related activities for 2016 (such as FERC filings, FERC orders, and FERC correspondence), and FERC awareness items (such as Clark Fork Settlement Agreement PM&E modifications and clarifications and specific issues of interest) are also included in this section of the annual report.

#### 9.1.1 FERC Activities/Awareness

In 2016, FERC activities related to the Clark Fork Project included two report filings: April 15, 2016 and October 13, 2016 Semi-Annual Progress reports on the Designation of Funding for the Operation and Maintenance of the Cabinet Gorge Fishway.

As of December 31, 2016, there were no items requiring FERC action.

#### 9.1.2 Key 2016 References

Avista. April 15, 2016. Semi-Annual Progress Report on Fish Passage. Avista Document identification number 2016-0090

Avista. October 13, 2016. Semi-Annual Progress Report on Fish Passage. Avista Document identification number 2016-0339

## Section 10: Amendments, Modifications, and Clarification of License Articles

### 10.1 Purpose

This portion of the Annual Report highlights and summarizes all amendments, modifications, and/or clarifications (other than one-time filing extensions or Exhibits and annual approvals) made to the License for Clark Fork Project No. 2058, through December 31, 2016. Note that terms and conditions of the original license took effect on March 1, 2001. There was a FERC Order approving revised exhibits to the License.

Each FERC amendment, modification, or clarification to/of an existing license article is shown in the chart below. The date of each amendment, modification, or clarification is also documented.

### 10.2 Amendments/Modifications/Clarifications of License Articles for Clark Fork Project No. 2058

Article Number	Description	Date Amended or Clarified
L-2	Exhibit Drawings	10/29/2013
201	Authorized Installed Capacity and Annual Charges	7/13/2006
201	Authorized Installed Capacity and Annual Charges	10/10/2006
201	Annual Charges and Exhibit A	6/15/2007
201	Authorized Installed Capacity and Annual Charges	4/10/2008
201	Exhibit G Drawings and Annual Charges	2/10/2009
201	Exhibit G Drawings and Annual Charges	10/9/2014
204	Exhibit F and Exhibit G Drawings	1/9/2002
412	Water Quality Protection and Monitoring Plan	12/10/2002
412	Water Quality Protection and Monitoring Plan	6/23/2011
<b>413</b>	<b>Exhibit F Drawings</b>	<b>11/18/2016</b>
427	Programmatic Agreement	10/30/2000
431	Coordination of Flows with Albeni Falls	11/22/2002
432	Threatened and Endangered Species Plan	06/13/2003
433	Fishway Plan	6/13/2003
434	Erosion Plan	3/4/2003
435	Solid Waste and Waste Water Plan	12/10/2002
436	Oil and Hazardous Substance Plan	12/10/2002
437	Pesticide & Herbicide Use Plan	11/22/2002
438	Dispute Resolution	10/30/2000
438	Dispute Resolution	11/22/2002
442	Use and Occupancy of Project Lands and Waters	11/22/2002
443	Fishway Prescriptions	10/30/2000
n/a	Approval to Replace Transmission Lines	3/5/2014

#### 10.2.1 Approval of Exhibit F Drawings (November 18, 2016)

A November 18, 2016 FERC order approved Exhibit drawings F-9 and F-29, which were updated to reflect spillway modifications at the Cabinet Gorge HED.

### **10.3 Key 2016 References**

FERC. 2016. Order Approving Revised Exhibit F Drawings. Avista document identification number 2016-0411. Washington, DC.

## Section 11: Clarifications and Modifications to Clark Fork Settlement Agreement and PM&E Measures

### 11.1 Purpose

This portion of the Annual Report highlights and summarizes all clarifications and modifications to the CFSA and PM&E measures.

Each clarification or modification document is shown in the chart below, with the date of MC (or, in the case of the Programmatic Agreement, Cultural Resources Management Group) approval.

### 11.2 Clarifications/Modifications to Clark Fork Settlement Agreement and PM&E Measures

Document Or Appendix	Document Title	Date Approved
CFSA ¶ 26	Cost Over-Run Guidelines	9/27/2000
CFSA ¶ 26	Management Committee Membership Application	12/29/2000
CFSA ¶ 26	Management Committee Procedures	9/30/2003
CFSA Appendix C	Clarification of Usage of Funding Sources	9/30/2003
CFSA Appendix C	Joint Agreement Regarding Fish Passage	3/16/2010
CFSA Appendix F1	Title Revised	10/26/2016
CFSA Appendix N1	Obligation Fulfilled	10/26/2016
CFSA Appendix N2	Obligation Fulfilled	10/26/2016
CFSA Appendix N3	Obligation Fulfilled	10/26/2016
CFSA Appendix O	Obligation Fulfilled	10/26/2016
CFSA Appendix T	Project Operations during Low Inflows	9/26/2001
CFSA Appendix V	Guidelines for Acquisition of Land Interests	3/26/2010
PA	Programmatic Agreement (CRMG) Reporting	4/12/2001
PA	Programmatic Agreement (CRMG) Reporting	11/23/2004

### 11.3 Key 2016 References

FERC. 2016. Order Approving 2015 Annual Report and 2016 Implementation Plans Per Article 402, Annual Threatened and Endangered Species Plans Per Article 432, and Annual Fishway Plans Per Article 433. Avista document identification number 2016-0350. Washington, DC.



## Sections 12: Annual Budget and Grant Summary for 2016

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### 12.1 Budget Summary

On the following page is a spreadsheet summary of final budget activities for each of the PM&Es for the entire 2016 calendar year. (Annual budget summaries for 1999 to 2015 are included in previous Clark Fork Project Annual Reports on Implementation of PM&E Measures).

The first dollar amount column in the spreadsheet shows funding obligations carried over from 2015 (unspent 2015 dollars plus 0.51% interest). Total carryover (including interest) was \$8,374,258.

The “2016 Funding Obligation” column, totaling \$4,036,654, details Avista’s annual funding obligation per Appendix U (Funding Summary Table) of the CFSA.

Under terms of Paragraph 23 of the CFSA, the “GDP” (Gross Domestic Product) column adjusts certain annual funding obligations for inflation (.91% for 2016). This equates to an additional \$36,535 for 2016.

The “Total Funding Obligation” column is the sum of the “Carryover Funding with Interest” column, plus the “2016 Funding Obligation” column, plus the “GDP Amount” column. For 2016, the “Total Funding Obligation” was \$12,447,449. Note that the MC approved the removal of CFSA appendices N1, N2, N3, and O from the ongoing list of CFSA PM&Es, as Avista has met the obligation under these appendices for the remainder of the current FERC license. (see Footnote #1 on the spreadsheet).

The “2016 Annual Implementation Plan Budget” column, totaling \$9,354,927, shows the implementation budget amounts determined by the TRTAC and WRTAC and approved by the MC. Note that, due to TRTAC, WRTAC, and MC decisions, some 2016 AIP budgets were more or less than the actual 2016 funding obligations. Note there were no approved budgets for CFSA appendices F2, F3, F4, Q, or T.

The “O&M & Capital Expenditures” column shows expenditures for each of the PM&Es, totaling \$5,554,637.

The “Unspent Budget Dollars” column shows the net of the “O&M & Capital Expenditures” column and the “2016 Funding Obligation” column, totaling \$3,800,290.

The “Carryover Dollars” column shows the amount of unspent dollars for certain annual funding obligations totaling \$8,412,665. In 2012, expenditures from CFSA Appendix C (Annual Facilities Contribution) Fund exceeded the annual contribution and all carryover dollars were depleted. Since then the dollar amounts represented in the “Appendix C Facilities” row have been represented as negative amounts. The negative amounts accurately reflect the expenditures above and beyond the annual contribution.

Under terms of Paragraph 23 of the CFSA, the “Treas constant maturity 1-year” column adjusts the carryover dollars for interest (.80% for 2016). This equates to an additional \$66,087 for 2016.

The final column on the spreadsheet is the “2016 Dollars with Interest”. For more details regarding the current interest rates utilized, refer to both Paragraph 23 and Appendix U (Funding Summary Table) of the CFSA. Total 2016 end-of-year carryover, plus 0.80% interest, is \$8,478,752.

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App.	PM&E - Description	Carryover Funding Oblig w/int.	2016 Funding Obligation*	Ill qtr		Total Funding Obligation	2016 Annual Implementation Plan Budget	Clearing Spent	Capital Spent	O&M & Capital Expenditures	Unspent Budget Dollars	Carryover Dollars	Treas	2016			
				Notes	Notes								30-Nov		Interest	Dollars with	
				GDP	GDP***								0.88%	Amount	Interest		
A	Idaho Tributary & Fishery Enhancement Program																
	Tributary Habitat Acquisition & Enhancement	\$1,887,739	\$538,385	5	0.0091	\$4,873	\$543,258	\$2,430,997	\$1,729,450	\$40,810	\$1,540,091	\$1,580,901	\$148,549	\$850,096	0.0080	\$6,801	\$856,897
Fish	Resource Monitoring, Enhancement & Management	\$9,812	\$46,484		0.0091	\$421	\$46,904	\$56,716	\$52,900	\$43,776	\$43,776	\$9,124	\$12,939	0.0080	\$104	\$13,043	
B	Montana Tributary Habitat Acquisition & Recreational Fishery Enhancement																
	Tributary Habitat Acquisition & Enhancement	\$1,610,110	\$383,600	3	0.0091	\$3,472	\$387,072	\$1,997,182	\$619,355	\$105,477	\$515,964	\$621,441	-\$2,086	\$1,375,741	0.0080	\$11,006	\$1,386,747
	Recreational Fishery Enhancement	\$1,088,852	\$255,731		0.0091	\$2,315	\$258,048	\$1,346,898	\$566,742	\$145,669	\$145,669	\$421,073	\$1,201,228	0.0080	\$9,610	\$1,210,838	
C	Fish Passage/Native Salmonid Restoration Plan																
	Annual Operation	\$1,019,691	\$741,624		0.0091	\$6,712	\$748,336	\$1,768,027	\$1,018,009	\$20,218	\$20,218	\$997,791	\$1,747,810	0.0080	\$13,982	\$1,761,792	
	Facilities	-\$1,971,646	\$538,387		0.0091	\$4,873	\$543,260	\$543,260	\$440,000	\$1,392,444	\$1,392,444	-\$952,444	-\$849,184	0.0080	-\$6,793	-\$855,978	
D	Bull Trout Protection & Public Education Project	\$102,299	\$166,003		0.0091	\$1,502	\$167,506	\$269,805	\$180,516	\$162,967	\$162,967	\$17,549	\$106,838	0.0080	\$855	\$107,693	
E	Watershed Council Program	\$9,048	\$13,280		0.0091	\$120	\$13,400	\$22,449	\$13,069	\$13,069	\$13,069	\$0	\$9,380	0.0080	\$75	\$9,455	
F1	Clark Fork River water Quality Monitoring Program	\$5,005	\$19,922		0.0091	\$180	\$20,102	\$25,108	\$20,102	\$21,304	\$21,304	-\$1,202	\$3,804	0.0080	\$30	\$3,834	
F2	Monitoring Noxon Reservoir Stratification				**			\$0	\$0	\$0	\$0	\$0	\$0				
F3	Aquatic Organism Tissue Analysis				****			\$0	\$0	\$9,435	\$9,435	-\$9,435	\$0				
F4	Water Quality Protection & Monitoring Plan for Maintenance, Construction & Emergency Activities				****			\$0	\$0	\$0	\$0	\$0	\$0				
F5	Gas Supersaturation				**			\$0	\$25,500	\$10,571	\$10,571	\$14,929	\$0				
	TDG Monitoring				**			\$0	\$25,500	\$10,571	\$10,571	\$14,929	\$0				
	Mitigation	\$1,090,369	\$803,921	6	0.0091	\$7,276	\$811,198	\$1,901,567	\$603,805	\$473,015	\$85,158	\$558,174	\$45,631	\$1,343,393	0.0080	\$10,747	\$1,354,140
	GSCP Alternative				**			\$0	\$2,550,000	\$277,562	\$277,562	\$2,272,438	\$0				
G	Implementation of Land Use Mgmt Plan				**			\$0	\$202,500	\$129,060	\$129,060	\$73,440	\$0				
H	Implementation of Recreation Resource Mgmt Plan				**			\$0	\$205,348	\$216,016	\$216,016	-\$10,668	\$0				
	Management				**			\$0	\$205,348	\$216,016	\$216,016	-\$10,668	\$0				
	Facilities Fund	\$239,195	\$205,325		0.0091	\$1,858	\$207,183	\$446,378	\$446,378	\$45,164	\$13,746	\$58,910	\$387,468	\$387,468	0.0080	\$3,100	\$390,568
I	Implementation of Aesthetics Mgmt Plan				**			\$0	\$7,000	\$0	\$0	\$7,000	\$0				
J	Implementation of Wildlife, Botanical & Wetland Mgmt Plan				**			\$0	\$5,000	\$0	\$0	\$5,000	\$0				
K	Wildlife Habitat Acquisition & Enhancement Fund	\$636,108	\$267,469	4	0.0091	\$2,421	\$269,890	\$914,152	\$348,753	\$49,630	\$208,438	\$258,068	\$90,685	\$656,084	0.0080	\$5,249	\$661,333
L	Black Cottonwood Habitat on Avista Property	\$55,024	\$6,524		0.0091	\$59	\$6,583	\$61,607	\$5,000	\$0	\$0	\$5,000	\$61,607	0.0080	\$493	\$62,100	
M	Wetlands on Avista Property	\$368,976	\$0					\$368,976	\$30,000	\$59	\$59	\$29,941	\$368,917	0.0080	\$2,951	\$371,868	
N1	Bald Eagle	\$4,636	\$0		0.0091	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.0080	\$0	\$0	
N2	Peregrine Falcon	\$0	\$0		0.0091	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.0080	\$0	\$0	
N3	Common Loon	\$3,518	\$0		0.0091	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.0080	\$0	\$0	
O	Clark Fork Delta Habitat				****			\$0	\$0	\$0	\$0	\$0	\$0				
P	Forest Habitat for Selected Avista Lands				****			\$0	\$5,000	\$1,640	\$1,640	\$3,360	\$0				
	Annual Fund				****			\$0	\$5,000	\$1,640	\$1,640	\$3,360	\$0				
	Improvement Fund							\$0	\$0	\$0	\$0	\$0	\$0				
	Timber Revenue	\$151,753	\$0					\$151,753	\$0	\$0	\$0	\$151,753	\$0				
Q	Reservoir Islands Owned by Avista				**			\$0	\$0	\$0	\$0	\$0	\$0				
R	Clark Fork Heritage Resource Program				**			\$0	\$182,500	\$14,709	\$15,480	\$30,189	\$152,311	\$0			
S	Erosion Fund & Shoreline Stabilization - Guidelines				**			\$0	\$0	\$0	\$0	\$0	\$0				
	Annual Fund	\$92,122	\$50,000		0.0091	\$453	\$50,453	\$142,575	\$98,000	\$6,474	-\$3,310	\$3,164	\$94,836	\$139,410	0.0080	\$1,115	\$140,526
T	Project Operating Limits	\$0	\$0	**				\$0	\$0	\$0	\$0	\$0	\$0				
	<b>Total</b>	<b>\$8,374,258</b>	<b>\$4,036,654</b>			<b>\$36,535</b>	<b>\$4,073,190</b>	<b>\$12,447,449</b>	<b>\$9,354,927</b>	<b>\$1,509,064</b>	<b>\$4,045,574</b>	<b>\$5,554,637</b>	<b>\$3,800,290</b>	<b>\$8,412,665</b>		<b>\$66,087</b>	<b>\$8,478,752</b>

\* Refers to Appendix U "Funding Summary Table"  
 \*\* Estimate based on current work level  
 \*\*\* Used Qtr3 GDP for Implicit price deflators.  
 \*\*\*\* Period one-time costs

App S Total Fund amount capped at \$200,000  
 Note 1 App K, N1, N2, and N3 - 2005 Management Committee approved transfer of Appendices N1, N2, and N3 carryover amounts to Appendix K. New obligation amount: N1 retains; N2 transfer to App K; and N3 retains \$3,500 with remainder to App K.  
 Note 2 The totals of "Carryover Funding Obligations w/int", "Unspent Dollars", "Carryover Dollars with Interest" columns exclude App C Facilities Fund balance. The negative amounts depict total expenditures exceeding the defined annual App C Facility Fund contribution in the CFSA. If the App C Facility Fund carryover was included in the total it would not accurately reflect the total funding carryover.

- CONSENT MAILS:
- Note 3 App B \$3.5k Design and Printing of Cabinet Gorge Reservoir Bathymetric Map (Jan 15,2016)
  - Note 4 App K \$30k to address erosion on the Clark Fork Delta Project (Aug 19, 2016)
  - Note 5 App A \$1.5M purchase of 330 acres along Twin Creek, Bonner County ID (July 21, 2016)
  - Note 6 App F5 \$15k Radio transmitters for Westslope Cutthroat Trout Passage (Dec 16,2015)

Fund refers to dollars that are made available annually. These funds are adjusted annually by the percentage change of the GDP-IDP as reported by the Bureau of Economic Analysis. Unused funds are carried forward to the next year and increased by the yield in percent as reported in the Federal Reserve Statistical Release H-15 of US treasury securities as a constant maturity.  
 Estimate refers to dollars that are projections made now however; Avista will pay the actual costs of implementation. Unused funds are not carried forward to the next year.  
 Budget refers to dollars that support initiatives within programs that are the responsibility of other parties. Avista will pay the actual costs in an amount not to exceed the agreed budget. Unused funds are carried forward to the next year and increased by the yield in percent as reported in the Federal Reserve Statistical Release H-15 of the US treasury securities as a constant maturity.  
 Periodic refers to dollars that are periodic or a one-time cost. Avista will pay the actual costs in an amount not to exceed the specified budget.

## 12.2 Grant Summary

Appendices B and H of the Clark Fork Settlement Agreement included a provision intended to leverage PM&E measure funds through grants. Avista has employed a grant writer who pursues creative funding opportunities to match and enhance the financial commitments being made to implement the PM&E measures. It is important to note that any funding received does not reduce Avista's contribution to the implementation effort; rather, the funds create additional protection, mitigation, and enhancement opportunities.

The grant writer coordinates with program leaders, technical committees, MC members and other local constituencies to identify projects for grant funding, research funding sources, prepare grant applications, and conduct grant project follow-up and reporting.

Since project start-up in October 1999, \$11,146,541 in federal, state, and private foundation grants have been acquired to assist with implementation of a variety of on the ground aquatic and terrestrial projects. Grants received in 2016 totaled \$234,347.

Grant funding this year included a \$75,000 grant from the North American Wetlands Conservation Act Small Grants Program to Kaniksu Land Trust to fund acquisition of the Ring-Necked Duck Conservation Area. The grant writer worked with the Green Mountain Conservation District and Lower Clark Fork Watershed Group to secure three state and federal grants totaling \$92,000 to help fund the Miner's Gulch stream restoration project in the Vermilion River watershed.

Other grants awarded to Green Mountain Conservation District supported an additional year of monitoring on the Bull River riparian re-vegetation project (\$6,097 from Montana Department of Environmental Quality), and creation of Lower Clark Fork watershed educational materials (\$2,000 from the Soil and Water Conservation Districts of Montana). The Lower Clark Fork Watershed Group received a \$1,750 grant from the Norcross Wildlife Foundation to purchase field equipment (including a GPS and waterproof digital camera) to facilitate the project coordinator's field work.

A \$20,000 grant was awarded to Montana State University by the Montana Department of Natural Resources and Conservation to conduct a two-year research project on hybrid watermilfoil in Noxon Reservoir. The Sanders County Resource Advisory Committee provided \$7,500 to the U.S. Forest Service for work on Dry Creek, and \$20,000 to Avista for improvements to the Bull River Recreation Area boat ramp.



Montana Conservation Corps crew members set out to maintain fencing on a multi-landowner riparian restoration project on the Bull River. This work was funded by grants, with matching funds from Avista.

A \$10,000 grant from the Sample Foundation was awarded to the Trout Creek Senior Citizens to complete construction of an addition to their building. This was a “white hat” project, in which the grant writer’s time was donated by Avista to assist a community organization in need.

At year’s end, a \$200,000 grant request from Sanders County for Congressional funding to control invasive watermilfoil on Noxon and Cabinet Gorge reservoirs was still pending. If awarded, the funds would not be used until the 2018 field season.

Along with Avista PM&E measure funds, a variety of partners provide funds and in-kind match support for grant proposals. In 2016, matching partners included Sanders County, Sanders County Aquatic Invasive Plants Task Force, Sanders County Community Development Corporation, U.S. Forest Service, Lower Clark Fork Watershed Group, Green Mountain Conservation District, Bull River Watershed Council, Montana Department of Environmental Quality, Montana Fish, Wildlife and Parks, and private landowners.