



## **2016 Annual Fisheries Monitoring Report**

### **Mystic Lake Hydroelectric Project FERC Project Number 2301**

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Public**



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## Acronyms

° C	degrees in Celsius
APH	above Powerhouse
BPH	below Powerhouse
BWRL	below West Rosebud Lake
cfs	Cubic feet per second
Commission	Federal Energy Regulatory Commission
DEQ	Montana Department of Environmental Quality
EB	Brook trout
FERC	Federal Energy Regulatory Commission
FWP	Montana Fish, Wildlife and Parks
Licensee	NorthWestern Energy Corporation
LL	Brown trout
mm	millimeter
NorthWestern	NorthWestern Energy Corporation
Project	Mystic Lake Hydroelectric Project
RB	Rainbow trout
TAC	Technical Advisory Committee
USFS	U.S. Forest Service

# Executive Summary

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Mystic Lake Hydroelectric Project No. 2301 (Project) is operated and owned by NorthWestern Energy Corporation (NorthWestern or Licensee). On December 17, 2007 the Federal Energy Regulatory Commission (FERC or Commission) issued a new License to PPL Montana, the Licensee (now NorthWestern as of November 18, 2014), for the Mystic Lake Hydroelectric Project No. 2301 effective January 1, 2010. The new License includes U.S. Forest Service (USFS) Section 4(e) Terms and Conditions filed on May 3, 2007. Section 4(e) Condition 16 requires the Licensee to prepare and implement a fisheries monitoring plan that must be approved by the Mystic Lake Fisheries, Aquatic Habitats, and Water Quality Technical Advisory Committee, (TAC), including agency representation from the USFS, Montana Department of Environmental Quality (DEQ), and Montana Fish, Wildlife and Parks (FWP).

In consultation with the TAC, NorthWestern updated the 6-Year Fisheries Monitoring Plan (Plan) for implementation between 2016 and 2021 and submitted the updated Plan to the Commission on May 12, 2016. At the same time, NorthWestern filed a 6-Year Fisheries Monitoring Report for 2010 through 2015 (NorthWestern, 2016a). The Commission accepted the updated Plan in a letter dated June 17, 2016. The following outlines the schedule for continuation of fisheries monitoring activities between 2016 and 2021, as specified in the Plan.

Year	A	B	C	D	E	F
2016				X		X
2017		X	X		X	
2018	X					X
2019				X	X	
2020		X	X			
2021	X				X	

- A = Mystic Lake monitoring
- B = West Rosebud Creek between the dam and powerhouse
- C = West Rosebud and Emerald lakes fish monitoring
- D = West Rosebud Creek below Emerald Lake electrofishing
- E = West Rosebud Creek fall redd counts
- F = Water temperature monitoring

This Annual Fisheries Monitoring Report (Report) summarizes fisheries monitoring efforts completed by NorthWestern and TAC members in 2016.

In 2016, fisheries surveys were completed in West Rosebud Creek below Emerald Lake; stream temperatures were monitored from early April into November at four designated locations (upper

bypass, above powerhouse, below powerhouse, and below West Rosebud Lake) in West Rosebud Creek.

## **Stream Temperature Monitoring**

Starting in 2010, stream temperatures in West Rosebud Creek have been monitored every other year between April and October in four designated locations. In 2016, NorthWestern proposed a new location site for below the powerhouse (BPH), which is located downstream of the historic BPH site because of safety concerns associated with accessing the historic BPH site. The historic BPH location was at the bridge and the proposed new BPH site is located about 200 yards downstream of the bridge. Thus, in 2016 there were a total of five temperature loggers deployed, including one in the upper bypass; one above the powerhouse; two below the powerhouse; and one below West Rosebud Lake. These temperature loggers gathered data from early April into November. Because the mean daily temperature difference between the two BPH sites (historic and new) appeared to be minimal in 2016, NorthWestern proposed relocating the temperature logger from the historic BPH site to the new BPH location. USFS and FWP agreed to the proposed change during the TAC meeting in February 2017.

Results from 2016 were similar to previous years with maximum summer temperatures ranging between 15.8 and 16.3 °C at the four locations (monitored with 5 temperature loggers) in West Rosebud Creek. Peak temperatures in West Rosebud Creek remain within the preferred range for salmonids (less than 22 °C) in West Rosebud Creek and are not limiting for salmonid species present. However, growth may be limited for some species because of food availability and/or cold water temperature. The next water temperature monitoring is scheduled for 2018.

## **West Rosebud Creek (Mackay Flat) Fisheries**

In the Mackay Flat section of West Rosebud Creek, electrofishing efforts along a 1.5-mile reach were completed in May 2016. In 2014, the sampling period shifted from fall sampling to spring sampling. In 2016, brown, rainbow, and brook trout were recorded in the Mackay Flat section. As in previous years, the number of rainbow and brook trout were too low to calculate a population estimate.

Results from 2016 estimate the brown trout population to be approximately 309 fish per mile for all lengths. When evaluating 8-inch (203 mm) brown trout or greater fish (Age 2+), the population estimate was approximately 222 brown trout per mile.

Brown trout population estimates in the Mackay Flat section date back to 1986 and have varied between 222 fish per mile to 602 fish per mile. Since then, spring population estimates were completed in 1998 (312 fish per mile), 2014 (242 fish per mile), and 2016 (222 fish per mile). Since 2010, the average size of brown trout has increased from 230 mm in 2010 to 290 mm in 2016. It is possible that with the larger fish size, the carrying capacity for the population may be lower. FWP proposes to monitor this trend and sample in the fall (2017) to see if the population estimate is similar to the 2010 fall sample event.

## Revision to the Utah Chub Identification in Mystic Lake

In 2012, a new species, a chub, was observed and recorded in Mystic Lake. Initially, the fish were identified as a Utah chub (*Gila atraria*), a non-native species. In 2016, FWP reviewed the Mystic Lake samples again and determined the fish sampled in Mystic Lake in 2012 were not Utah chub, but rather a Lake chub (*Couesius plumbeus*), a species native to the region. After further review of the specimen and comparison to Utah chub sampled from Hebgen Lake, the species identification was revised to Lake chub (T. Lohrenz, Fisheries Biologist, FWP, personal communication, 2016). It is likely that Lake chub have been present in Mystic Lake, but never observed during gillnetting surveys due to their small size.

## Reporting and Compliance

NorthWestern will continue to summarize and present the results of fisheries monitoring activities to the TAC annually, and every 6-years, the TAC will re-evaluate and update the Fisheries Monitoring Plan, as necessary, for the term of the Project License.

In 2022, NorthWestern will prepare a 6-year comprehensive report summarizing fisheries activities completed between 2016 and 2021. The comprehensive report will be submitted to the TAC for review and approval prior to filing with the Commission (no later than December 31, 2022).

The annual reports which are required by FERC, and prepared for TAC review, are posted to the Mystic Lake Project Coordination website ([www.mysticlakeproject.com](http://www.mysticlakeproject.com)).

# 1. Introduction

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Mystic Lake Hydroelectric Project No. 2301 (Project) is operated and owned by NorthWestern Energy Corporation (NorthWestern or Licensee). The Project is situated in south-central Montana, primarily located in Stillwater County with a very small portion within Carbon County. The Project is located in the Beartooth Mountain Range and surrounded on three sides by the Absaroka-Beartooth Wilderness Area. Mystic Lake is located at the head of a high mountain canyon at an elevation of 7,673.5 feet above mean sea level in the upper reaches of West Rosebud Creek. Within West Rosebud Creek drainage (213.4 square miles), Mystic Lake is the fourth and largest lake in a chain of six hydraulically connected lakes (listed in order going downstream: Star, Silver, Island, Mystic, West Rosebud, and Emerald). The Beartooth Ranger District of the Custer National Forest manages approximately 124.7 square miles of the West Rosebud Creek drainage while the remaining 88.7 square miles is privately-owned land.

On December 17, 2007, the Federal Energy Regulatory Commission (FERC or Commission) issued a new License for the Project, effective January 1, 2010 (121 FERC ¶62, 198). The new License includes the U.S. Forest Services (USFS) Section 4(e) Terms and Conditions filed on May 3, 2007. Section 4(e) Condition 16 requires the Licensee (now NorthWestern Energy Corporation (NorthWestern)] to prepare and implement a fisheries monitoring plan that must be approved by the Mystic Fisheries, Aquatic Habitats, and Water Quality Technical Advisory Committee (TAC), represented by USFS, Montana Department of Environmental Quality (DEQ), and Montana Fish, Wildlife and Parks (FWP).

NorthWestern revised the 6-year Fisheries Monitoring Plan, in consultation with the TAC, for implementation between 2016 and 2021. The *2016-2021 Fisheries Monitoring Plan* (NorthWestern, 2016) was approved by FERC in a letter dated, June 17, 2016. The schedule for fisheries monitoring activities between 2016 and 2021 is outlined in Table 1-1; the sampling locations are identified in Figure 1-1

This report summarizes fisheries monitoring efforts completed by NorthWestern and TAC members in 2016 to comply with the fisheries monitoring plan. In 2016, stream temperatures were monitored from early April into November in the four designated locations (using 5 temperature loggers, one at the upper bypass; one above powerhouse; two loggers below powerhouse; and one below West Rosebud Lake) in West Rosebud Creek and fisheries surveys were completed in West Rosebud Creek below Emerald Lake in the Mackay Flat section. Fisheries data collected prior to 2016 is summarized and available in the *6-Year Fisheries Monitoring Report, 2010-2015* (NorthWestern, 2016a).

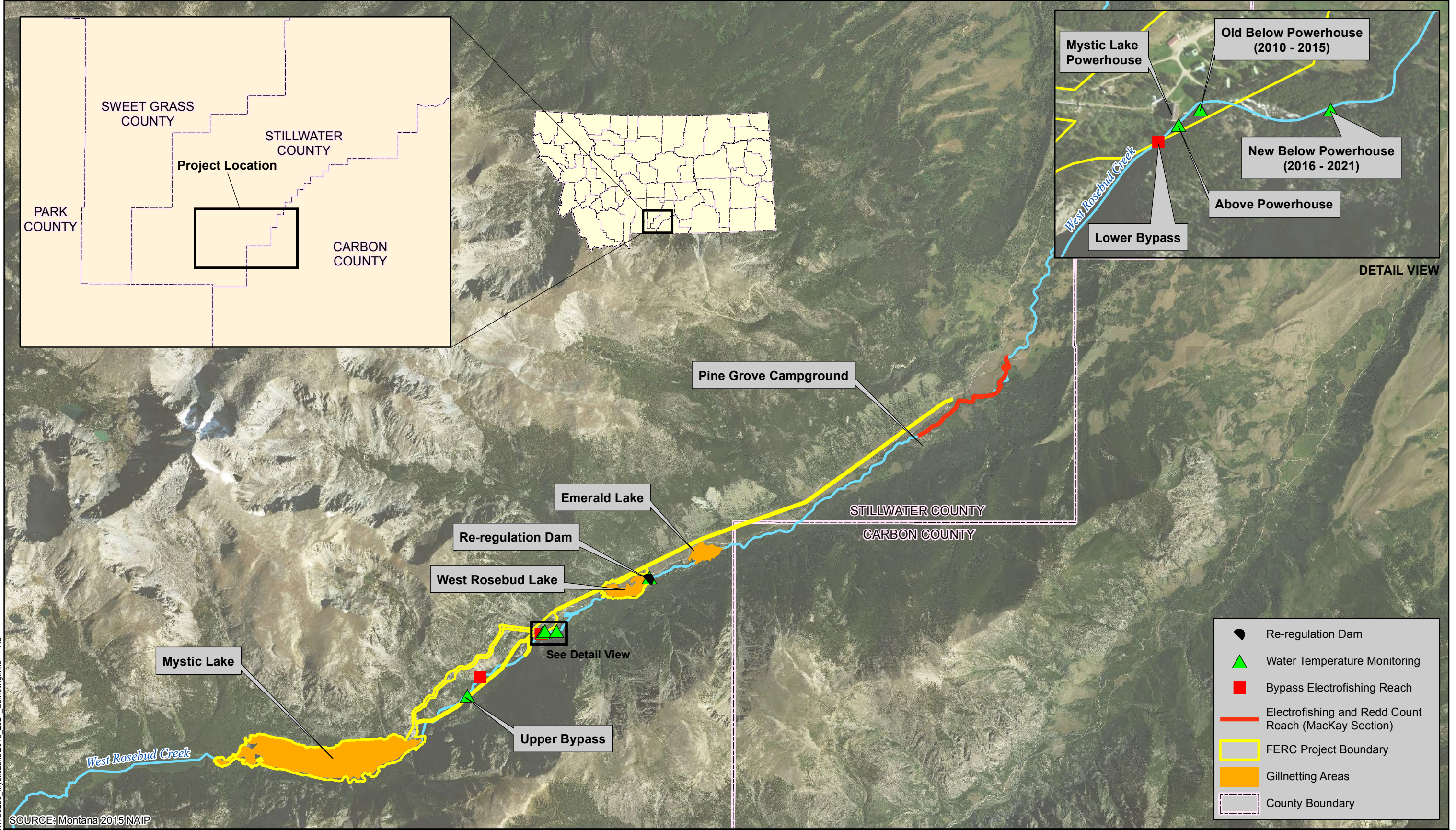


**Table 1-1. Mystic Lake Hydroelectric Project 6-Year (2016-2021) Fisheries Monitoring Schedule.**

<b>Year</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>
<b>2016</b>				X		X
<b>2017</b>		X	X		X	
<b>2018</b>	X					X
<b>2019</b>				X	X	
<b>2020</b>		X	X			
<b>2021</b>	X				X	

- A = Mystic Lake monitoring
- B = West Rosebud Creek between the dam and powerhouse
- C = West Rosebud and Emerald lakes fish monitoring
- D = West Rosebud Creek below Emerald Lake electrofishing
- E = West Rosebud Creek fall redd counts
- F = Water temperature monitoring





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## 2. West Rosebud Creek Water Temperature

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Since 2010, West Rosebud Creek temperature monitoring has been conducted concurrently with West Rosebud Lake and Emerald Lake fish surveys. A summary of the 2010, 2012, and 2014 data are provided in the *6-Year (2010-2015) Fisheries Monitoring Report* (NorthWestern, 2016a). This section provides a summary of the stream temperature data collected in 2016. Stream temperatures in West Rosebud Creek are scheduled to be monitored again in 2018.

### 2.1 Data Collection

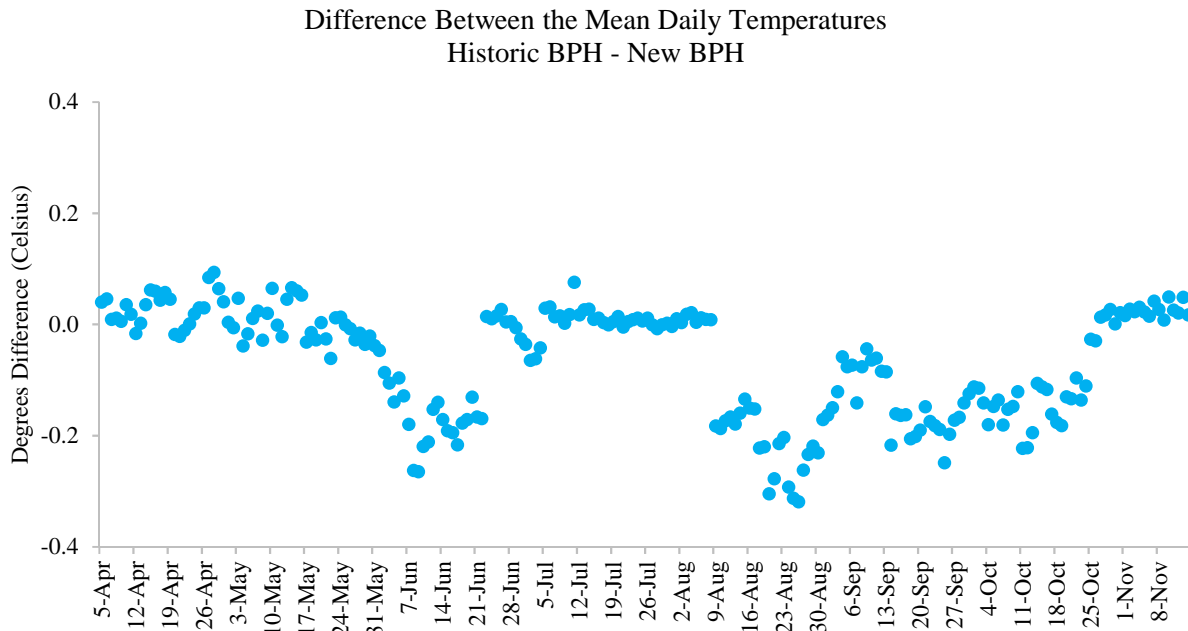
The temperature loggers (HOBO Pendant Temperature Logger) deployed in designated locations in West Rosebud Creek, collected data in 15-minute intervals between April 5 and November 14, 2016. The four designated monitoring locations (using 5 temperature loggers) in West Rosebud Creek include the upper bypass (below Mystic Lake), West Rosebud Creek above the powerhouse (APH), West Rosebud Creek below the powerhouse (BPH), and West Rosebud Creek below West Rosebud Lake/Re-regulation Dam (BWRL) (*refer to* Figure 1-1).

### 2.2 Re-location of the Below Powerhouse Site

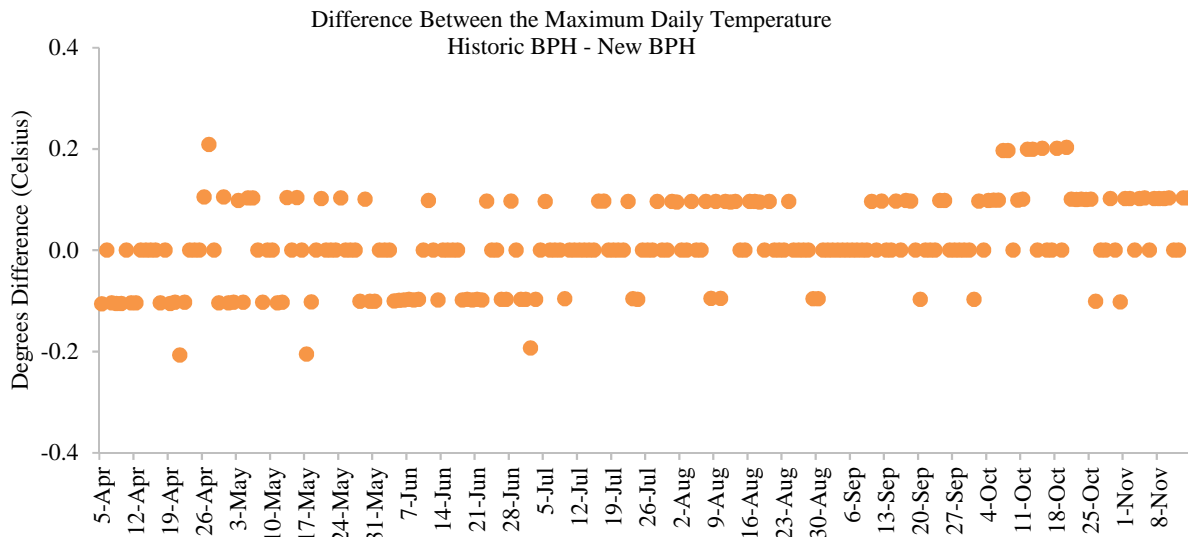
In 2016, NorthWestern proposed a new BPH site, located downstream of the historic BPH site because of safety concerns associated with accessing the historic BPH site. Thus, in 2016 there were a total of five temperature loggers deployed with two loggers representing the BPH site: one logger deployed in the “historic” BPH site and one logger deployed in the “new” BPH site (*refer to* Figure 1-1). The historic BPH location was at the bridge and the proposed new BPH site is located about 200 yards downstream of the bridge. The proposed new BPH site does not pose the same safety concerns as the historic BPH location.

The mean and maximum daily temperatures collected at the historic and new BPH sites remained similar throughout the monitoring season (Figures 2-1 and 2-2). The maximum difference between the mean and maximum daily stream temperatures in the historic and new BPH sites was 0.2 degrees and 0.32 degrees, respectively for the entire monitoring period. Because the mean daily temperature difference between the two BPH sites (historic and new) appeared to be minimal in 2016, NorthWestern proposed removing the temperature logger at the historic BPH site in favor of the more accessible new BPH location. USFS and FWP agreed to the proposed change during the TAC meeting in February 2017.

**Figure 2-1: Difference between the Historic BPH and New BPH mean daily stream temperatures, 2016.**



**Figure 2-2: Difference between the Historic BPH and New BPH maximum daily stream temperatures, 2016.**



### 2.3 Stream Temperature Monitoring Results

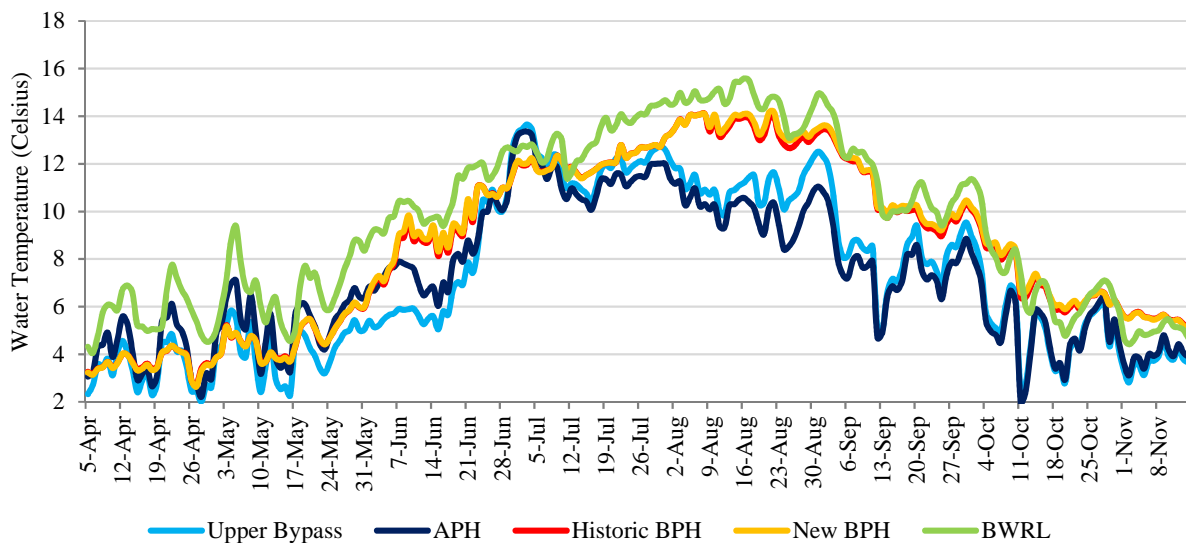
The mean and range (minimum and maximum) of stream temperatures recorded in 2016 for each month at each site along West Rosebud Creek is summarized in Table 2-1. The warmest months at each site are in bold.

Table 2-1: Monthly mean and range (minimum – maximum) of stream temperatures recorded at each monitoring site along West Rosebud Creek in 2016.

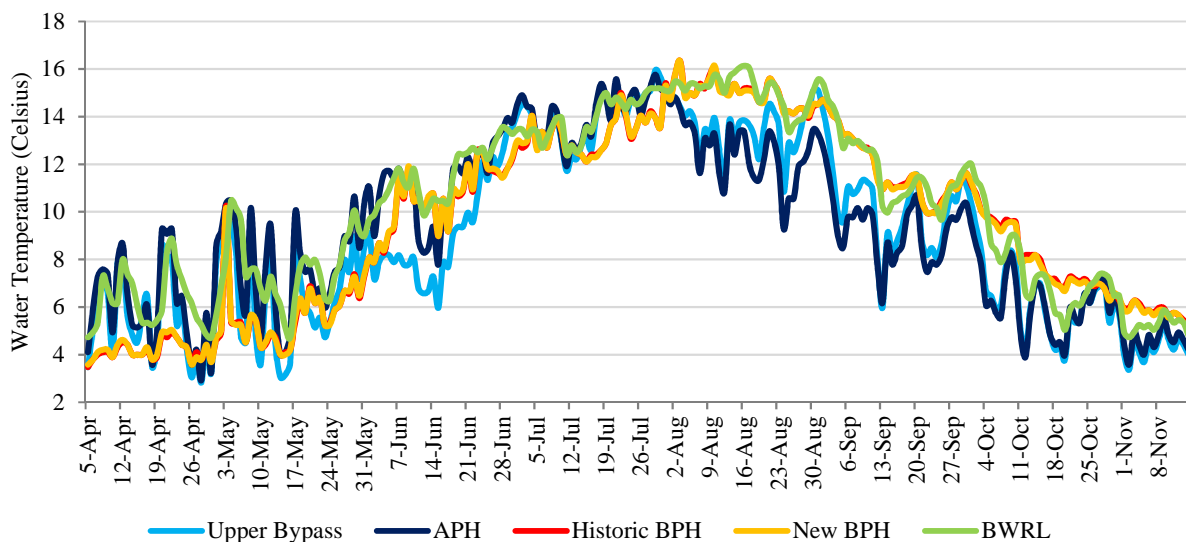
2016 West Rosebud Creek Stream Temperature Monitoring Sites															
Month	Upper Bypass			APH			Historic BPH			New BPH			BWRL		
	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
<b>APR</b>	3.3	0.9	8.6	4.0	1.2	9.3	3.6	1.7	4.9	3.6	1.7	5.0	5.7	3.4	8.9
<b>MAY</b>	4.2	1.2	9.6	5.3	1.8	10.7	4.7	2.7	10.3	4.7	2.6	10.2	6.8	4.2	10.5
<b>JUN</b>	7.1	3.3	13.6	8.2	4.1	13.9	9.2	4.8	12.6	9.3	5.0	12.5	10.6	8.1	13.6
<b>JUL</b>	<b>12.0</b>	<b>9.1</b>	<b>16.0</b>	<b>11.6</b>	<b>8.2</b>	<b>15.8</b>	12.1	10.3	15.4	12.1	10.3	15.3	13.2	10.7	15.2
<b>AUG</b>	11.1	8.2	15.1	10.1	6.7	14.8	<b>13.5</b>	<b>10.0</b>	<b>16.3</b>	<b>13.6</b>	<b>10.3</b>	<b>16.3</b>	<b>14.6</b>	<b>12.8</b>	<b>16.1</b>
<b>SEP</b>	8.3	3.8	14.2	7.7	3.4	12.7	10.7	7.8	14.7	10.9	8.2	14.7	11.3	9.1	15.4
<b>OCT</b>	5.2	0.2	10.4	5.1	0.2	9.5	7.1	3.7	11.1	7.2	4.3	11.2	7.1	4.4	12.0
<b>NOV</b>	3.7	2.3	5.2	3.9	2.6	5.6	5.5	4.9	6.3	5.5	4.9	6.3	4.9	4.0	5.9

In 2016, the maximum daily stream temperatures recorded in West Rosebud Creek varied from 15.8 (APH) to 16.3 degrees Celsius (°C) (BPH). The maximum daily temperature recorded in the upper bypass and APH sites occurred in July, while the maximum temperature recorded downstream at the BPH and BWRL sites occurred in August (*refer to* Table 2-1). The average stream temperatures in July and August ranged from 11.6 to 14.6 °C with the cooler temperatures upstream and warmer temperatures downstream. The monthly median stream temperature varied a maximum of 0.7 degrees from the monthly average stream temperature. The mean and maximum daily stream temperatures for the 2016 monitoring season are shown in Figures 2-3 and 2-4, respectively.

**Figure 2-3: Mean daily stream temperatures recorded in West Rosebud Creek monitoring sites in 2016.**



**Figure 2-4: Maximum daily stream temperatures recorded in West Rosebud Creek monitoring sites in 2016.**



Stream temperature was also monitored in previous years, but the dataset for the entire season (April-October) is only available for years 2012 and 2016. In other years, data collection was not available for the entire season at all sites due to various equipment issues. In 2012, the maximum daily temperatures ranged from 15.2 to 16.2 °C and were similar to 2016 results. The seasonal maximum daily temperatures at each site in 2012 and 2016 are provided in Table 2-2.

**Table 2-2: Seasonal maximum daily water temperature recorded at each monitoring site along West Rosebud Creek in 2012 and 2016.**

	Maximum Daily Temperature in Celsius			
	Upper Bypass	APH	BPH (Historic)	BWRL
<b>2012</b>	<b>16.1</b>	<b>16.2</b>	<b>15.2</b>	<b>15.6</b>
<b>2016</b>	<b>16.0</b>	<b>15.8</b>	<b>16.3</b>	<b>16.1</b>

## 2.4 Discussion

Water temperature is of interest primarily because of its potential to influence salmonids' behavior and survival. Salmonids are cold-water fish with specific temperature requirements. Although some populations of salmonids have adapted to warmer temperatures, in general salmonids are not present if summer water temperatures consistently exceed 22 °C (Griffith, 1999).

There is variation in temperature preferences between salmonid species. Brown trout can survive in warmer waters, 18 to 24 °C, compared to other species of trout (Wydoski and Whitney, 2003). Optimal growth for brown trout has been reported at temperatures ranging between 14 and 17 °C (Forseth and Jonsson, 1994). These optimum growth temperatures indicate stream temperatures in West Rosebud Creek are in the optimum range for brown trout only during the warmest portion of the summer.

Rainbow trout generally prefer temperatures less than 21 °C (Wydoski and Whitney, 2003) and achieve optimal growth around 13.1 °C (Bear, 2005). Water temperature in West Rosebud Creek during the warmest part of the summer is occasionally above the optimum growth temperature for rainbow trout, but is well within the preferred temperature range. Monitoring in 2016 indicates that West Rosebud Creek has a maximum daily stream temperature around 16 °C, which has also been observed in previous years (NorthWestern, 2016a).

In conclusion, stream temperatures in 2016 (as in previous years) appear to be within the preferred range for salmonids in West Rosebud Creek; however, growth may be limited for some species as a result of food availability and/or cold water temperature.

### 3. West Rosebud Creek (Mackay Flat) Fisheries

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The Mackay Flat section, located near the Custer Gallatin National Forest boundary, of West Rosebud Creek extends 7,900 feet (1.5-mile) from the Pine Grove Campground (N 45.27567, W 109.64538) downstream to the first set of cabins and bridge at the Mackay Ranch (N 45.28834, W 109.62402). Brown, rainbow, and brook trout, mountain whitefish, and sculpin (*Cottus* sp.) are present in this section with brown trout being the predominant fish. Fishing pressure within this section, particularly on the upstream end near the Pine Grove Campground, is relatively heavy. The section is also known to be an important spawning area for both resident fish and migratory rainbow and brown trout from the Yellowstone and Stillwater rivers. Many of the larger fish caught in this section may have spent at least a portion of their lives in the Yellowstone or Stillwater rivers.

The Mackay Flat section has been surveyed every 3 years, starting in 2010. The objective of these surveys is to evaluate changes or trends in the fish community over time. Data collected between 2010 and 2015 is provided in the *6-Year (2010-2015) Fisheries Monitoring Report* (NorthWestern, 2016a). In 2014, the Mackay Flat survey was moved from a fall activity to a spring activity. The last spring surveys occurred in 2014 and 1998. Results from 2016 are provided in the following sections.

#### 3.1 Data Collection

FWP personnel electrofished the Mackay Flat section of West Rosebud Creek (*see* Figure 1-1) in spring 2016. The first electrofishing run (marking) was conducted on April 25, 2016 and the second electrofishing run (recapture) was conducted on May 2, 2016.

#### 3.2 Results

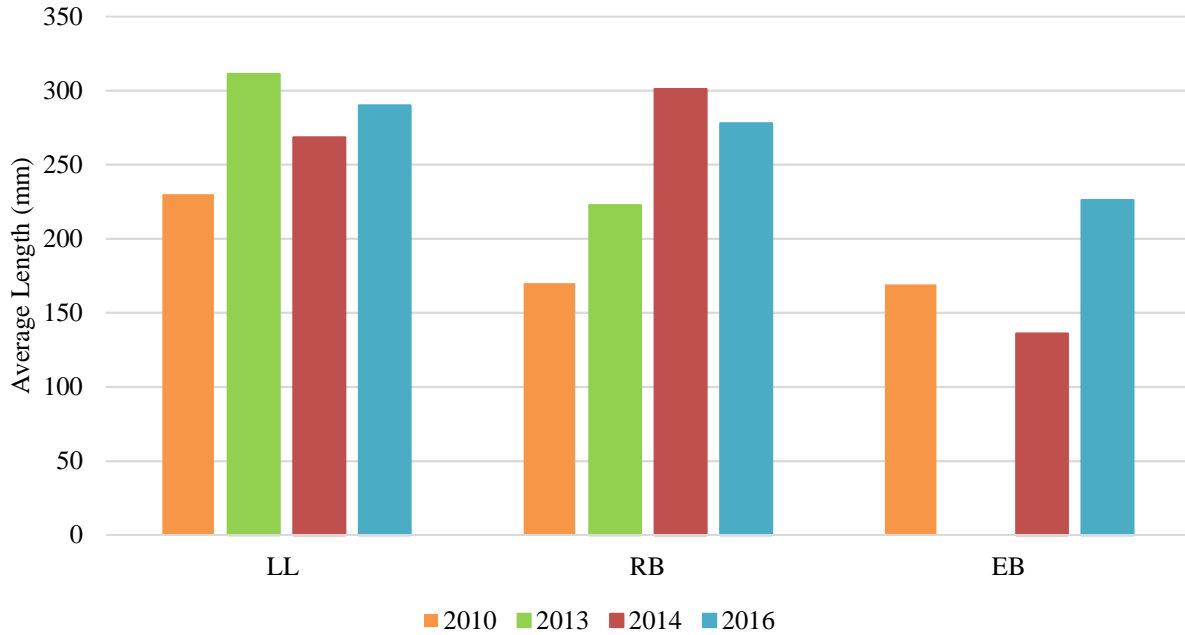
The first run resulted in capturing and marking with a fin clip 122 brown trout, 19 rainbow trout, and two brook trout. During the recapture run, a total of 116 brown trout (30 recaptures), eight rainbow trout (1 recapture), and one brook trout (1 recapture) were sampled.

In 2016, the average length for brown trout was 290 mm, rainbow trout averaged 278 mm, and brook trout length averaged 226 mm (Figure 3-1). The average size of brown and rainbow trout in 2016 was within the range observed in previous sample years. Brook trout average size was greater than in previous years.

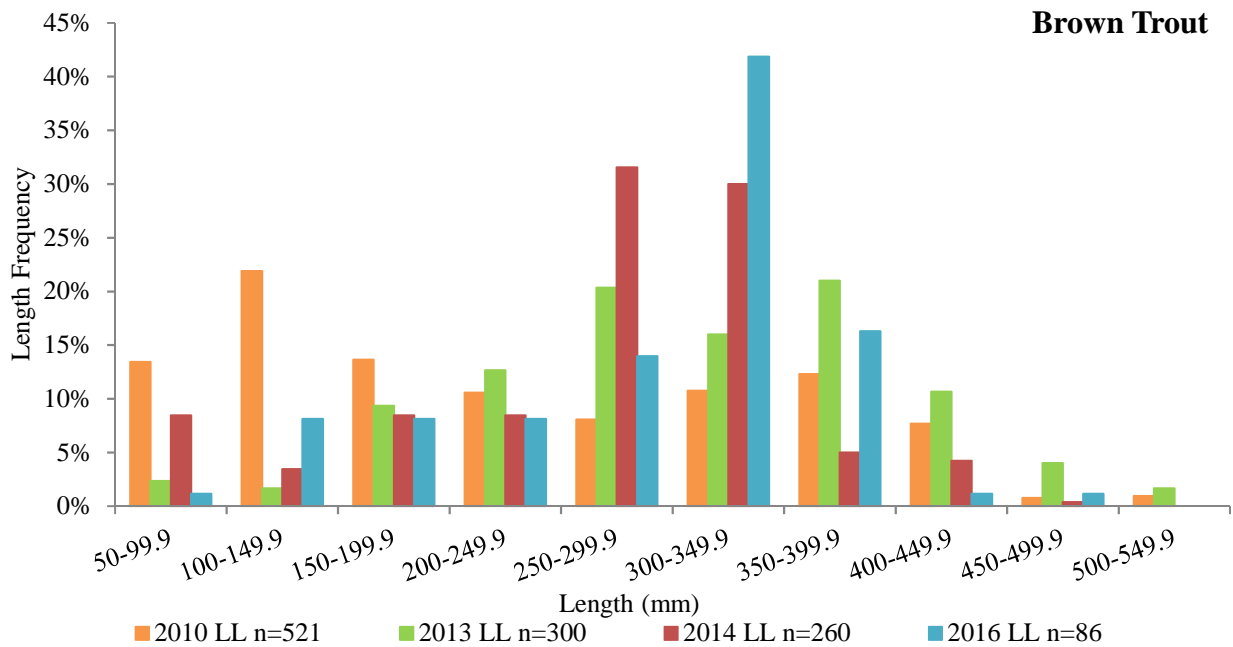
Brown trout and rainbow trout measuring between 300 and 350 mm were the most abundant size class captured during the 2016 sampling. Length-frequency histograms for brown trout and rainbow trout are presented in Figures 3-2 and 3-3, respectively. The most abundant size class of brown and rainbow trout was larger in 2016 compared to previous sample years.



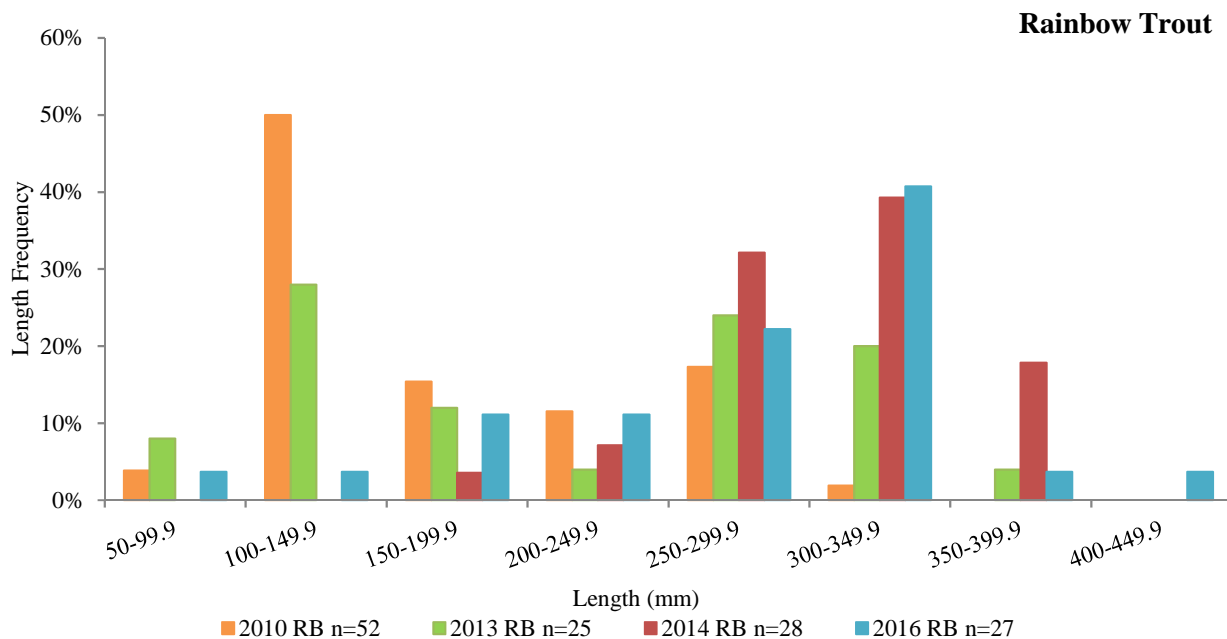
**Figure 3-1: Average length for brown trout (LL), rainbow trout (RB), and brook trout (EB) sampled in fall 2010 and 2013 and in spring 2014 and 2016 in the McKay Flat section of West Rosebud Creek.**



**Figure 3-2: Length frequency (percentage) of brown trout (LL) sampled in the MacKay Flat section in fall 2010 and 2013 and in spring 2014 and 2016.**

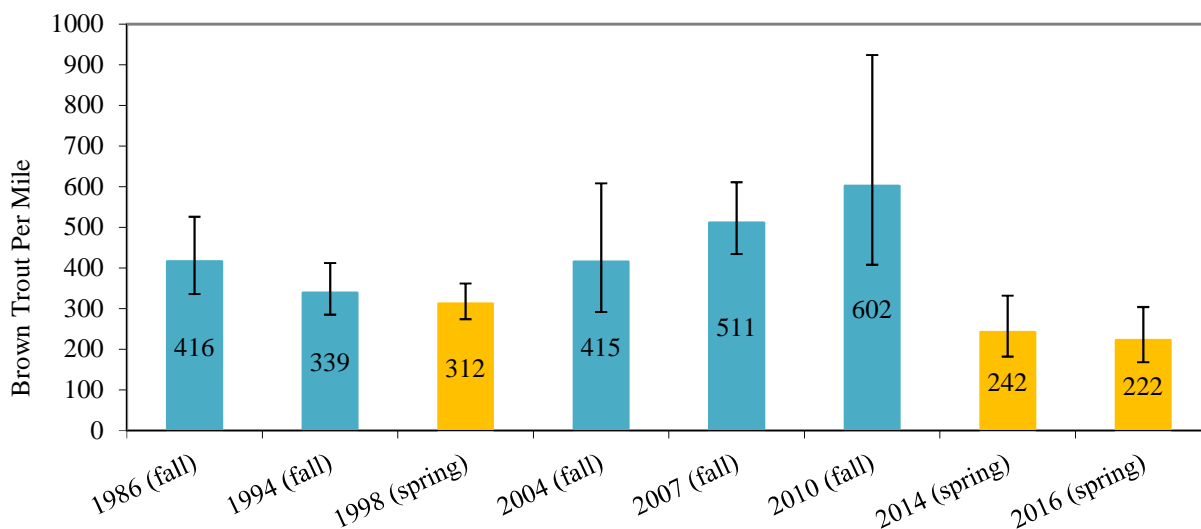


**Figure 3-3: Length frequency of rainbow trout (RB) sampled in MackKay Flat section in fall 2010 and 2013 and in spring 2014 and 2016.**



In 2016, the population of brown trout greater than 203 mm (> 8 inches) was estimated at 222 brown trout per mile (Figure 3-4). The 2016 population estimate was the lowest brown trout per mile estimate since sampling was first initiated in this section in 1986 (Figure 3-4). However, the 2016 results were not significantly different than estimates from 2014 or 1998 when spring sampling was also completed.

**Figure 3-4: Population estimate of brown trout per mile (minimum length 8 inches) with upper and lower confidence intervals in the Mackay Flat section in West Rosebud Creek between 1986 and 2014 (FWP unpublished, 2017).**



Due to the life history of brown trout migrating in the fall to spawn, fall and spring population estimates likely vary. It is possible that the fall population estimates are higher compared to spring population due to spawning. Although, the natural variation between fall and spring has not been evaluated in the Mackay Flat section. FWP proposes to monitor this trend and sample in the fall (2017) to see if the brown trout population estimate is similar to past fall sampling events.

## 4. Mystic Lake – Chub Identification Update

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On August 6 and 7, 2012, five chub were captured during gillnetting efforts in Mystic Lake (NorthWestern, 2016a). This was the first time that a chub species was recorded in Mystic Lake during routine sampling efforts.

In 2015, two chub specimens from the 2012 sampling in Mystic Lake were transported and delivered to Dr. Bramblett of Montana State University in Bozeman, Montana to confirm the species identification. Dr. Bramblett concluded that the specimens were Utah Chub (*Gila atraria*) based on fin ray counts and lack of barbels (B. Bramblett, MSU, personal communication, 2015).

Utah chub are not native to the drainage, so the origin of the species, if correctly identified, is unknown. The closest drainage to West Rosebud Creek with Utah chub present is in Hebgen Lake, the Madison River drainage. The specimens sampled from Mystic Lake remained frozen and in possession of USFS Custer Gallatin National Forest office in Livingston, Montana in the event that any additional analysis or evaluation was requested/required.

In 2016, the chub specimens were reexamined by FWP. The specimens were compared to Utah chub and native species, Lake chub (*Couesius plumbeus*). Travis Lohrenz, FWP Fisheries Biologist familiar with the nonnative Utah chub in Hebgen Lake and native Lake chub in the region evaluated the Mystic Lake specimens. Mr. Lohrenz (personal communication, 2016) examined the 2012 chub specimens from Mystic Lake and determined the fish were Lake chub based on morphological features of the head. Although the origin of Lake chub is unknown, it is likely that Lake chub have been present in Mystic Lake for several years, but never observed during gillnetting surveys due to their small size compared to the size of the sampling gear.

## 5. Fisheries Monitoring Schedule for 2017

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In 2017, fisheries monitoring efforts in the Project area will focus on electrofishing in the bypass channel between Mystic Lake Dam and the powerhouse, fish surveys in West Rosebud and Emerald lakes via gillnetting, and autumn redd surveys in West Rosebud Creek for brown trout (*refer to Table 1-1 for the 2016-2021 monitoring schedule*).

NorthWestern will continue to prepare and submit annual reports summarizing the previous year's monitoring activities to the TAC and posting the reports on the Mystic Lake Project Coordination website ([www.mysticlakeproject.com](http://www.mysticlakeproject.com)). Every 6 years, the TAC will re-evaluate and update the Fisheries Monitoring Plan, as necessary for the term of the Project License (40 years).

A comprehensive 6-year (2016–2021) summary report with an updated 6-year (2022–2027) Fisheries Monitoring Plan will be prepared in 2022 and submitted to the TAC for review and approval prior to filing with the Commission. These two reports will be filed with the Commission no later than December 31, 2022. The final reports will also be posted on the Mystic Lake Project Coordination website.

## 6. References

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121 FERC ¶62, 198. 2007. Order Issuing New License.

Bear, E.A. 2005. Effects of temperature on survival and growth of westslope cutthroat trout and rainbow trout: implications for conservation and restoration. Master's thesis, Montana State University, Bozeman, Montana.

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