

WATER QUALITY MONITORING PLAN

2014



**WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER QUALITY DIVISION
WATERSHED PROTECTION PROGRAM**

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Wyoming's Surface Water Quality Monitoring Strategy 2010-2019

Wyoming's surface water quality monitoring strategy (WDEQ 2010) specifies primary and secondary objectives designed to meet the State's surface water quality monitoring needs. Primary objectives are attained primarily by rotating-basin probabilistic surveys used to assess statewide and regional water quality conditions and direct future targeted monitoring efforts for making designated use-support determinations. Secondary objectives are accomplished through cooperation between the Watershed Protection Program's monitoring, water quality standards, nonpoint source (NPS) and total maximum daily load (TMDL) sub-programs, and other entities. The monitoring group works closely with the water quality standards group to develop study designs and acquire the data necessary to develop new numeric criteria or revise existing criteria. Evaluation of best management practices used to reduce non-point source pollutants is accomplished through a joint effort between the monitoring, NPS and TMDL groups. Likewise, development of some TMDL study designs, data collection in support of TMDLs, and data analysis and interpretation occurs through coordinated efforts between the monitoring and TMDL groups.

Purpose of the Annual Water Quality Monitoring Plan

The annual water quality monitoring plan identifies annual objectives used to achieve the overall objectives of the monitoring strategy and ties them to specific monitoring projects planned for a given year. The plan serves as an informational and outreach tool for the public, government, non-profit and other stakeholders, and provides statewide and regional contact information for questions about regional monitoring activities.

Annual Monitoring Objectives – 2014 Field Season

- 1) Monitoring for Nutrient Criteria Development
- 2) Monitoring and Technical Support of TMDLs
- 3) Monitoring and Technical Support of NPS Pollution Reduction Activities
- 4) Large Reservoir Trend Monitoring
- 5) Reference Site Verification and Sampling

Objective 1 – Monitoring for Nutrient Criteria Development

Wyoming Basin Lake & Reservoir Nutrient Monitoring – The monitoring and water quality standards groups will embark on a second year of collecting nutrient and associated response variable data on lakes and reservoirs within the Wyoming Basin level III ecoregion (Chapman et al. 2003). Data from this study will be used to develop nutrient criteria for lakes and reservoirs within the Wyoming Basin ecoregion in general accordance with Wyoming's plans for nutrient criteria development (WDEQ/WQD 2008b, 2009). The design for this study involves sampling a random selection of 21 primary perennial lakes/reservoirs. The sampling design stratifies the random lake/reservoir selection by three size classes and five level IV ecoregions (Chapman et al. 2003). This stratification results in equal spatial allocation of the 21 primary lakes/reservoirs among all three size classes within each level IV ecoregion. Following the same design, a population of oversample lakes/reservoirs has been generated for each size class/level IV ecoregion combination that are used as replacements when a primary lake/reservoir cannot be sampled. Oversample lakes/reservoirs generated for a size class/level IV ecoregion combination are only used as replacements for primary lakes/reservoirs within the same size class/level IV ecoregion combination to maintain representativeness of the study design. To further understand temporal variability in nutrient and response variables, 14 of 28 Wyoming Basin

lakes/reservoirs sampled in 2013 will be revisited in the spring, summer, and fall of 2014. Data for this project will be supplemented with eight reservoirs in the Bighorn Basin in 2014.

Supplemental Lake, Reservoir & Stream Nutrient Monitoring - The Monitoring Program will continue to acquire the data necessary to support development of numeric nutrient criteria for Wyoming. Nutrient and associated response variable data will be collected as part of other monitoring objectives for 2014.

Objective 2 – Monitoring and Technical Support for TMDL Program

In accordance with the monitoring strategy (WDEQ 2010), the monitoring group will provide monitoring and technical assistance to the TMDL group for the following projects:

North Platte River and tributaries- Several waters within the Poison Spider area west of Casper are on WDEQ's 303(d) list of impaired waters due to non-support of aquatic life uses. Causes of non-support are elevated selenium concentrations and sources are irrigated crop production and natural sources. The monitoring group will cooperate with the TMDL group on identifying background concentrations of selenium in these waters to facilitate development of accurate TMDLs.

Granite Creek – Granite Creek, a tributary to Shell Creek within Shell Canyon, is currently on WDEQ's 303(d) List of impaired waters due to non-support of recreation. An *e.coli* TMDL was recently completed for Granite Creek as part of the Shoshone River TMDL project, therefore it is likely Granite Creek will be re-categorized to 4A in the near future. Despite its likely removal from the 303(d) list, changes in and/or removal of potential pathogen sources warrant additional monitoring to determine if support of recreation has been restored.

TMDL Flow monitoring – Thirteen streams with upcoming TMDL projects have insufficient flow data for development of a TMDL. The monitoring and TMDL groups will cooperate on installation of stage recorders that, in combination with monthly discharge measurements, will be used to construct stage-discharge rating curves. The resultant flow data either will be used to construct flow and load duration curves or for hydrologic modeling for TMDL development.

Willow Creek – Tributary to the Smiths Fork of the Green River, Willow Creek has its origins in the Wasatch/Uinta foothills of southern Uinta County, Wyoming. The entire length of Willow Creek has been on WDEQ's 303(d) List of impaired waters since 1998 due to the threatened status of cold-water game fisheries and aquatic life other than fish designated uses (WDEQ 2012). Cause of the impairment was identified as habitat alterations with grazing as the source. The monitoring and TMDL groups will implement a project to evaluate BMP efforts in the watershed and to gather the credible data for either a possible de-listing, re-categorization of the impaired segment or development of a TMDL. This is the second year of a two-year project.

Objective 3 – Monitoring and Technical Support for NPS Program

In accordance with the monitoring strategy (WDEQ 2010), the monitoring group will provide monitoring and technical assistance to the NPS group for the following projects:

Flat Creek – Tributary to the Snake River, Flat Creek has its origins in the Gros Ventre Range east of Jackson, Wyoming. An 11.1 mile segment of Flat Creek has been on WDEQ's 303(d) List of impaired waters since 2000 due to the threatened status of cold-water game fisheries and aquatic life other than fish designated uses (WDEQ 2012). Cause of the impairment was identified as habitat alterations with storm water as the source. The Flat Creek Restoration Project (FCRP) was initiated in 2004, with the goals of addressing the impairment through implementation of BMPs such as stormceptors and the

recently completed storm water capture/filtration Karns Meadow. The FCRP is a cooperative effort between the Town of Jackson, Trout Unlimited, Teton Conservation District, Wyoming Game and Fish Department and other entities. Preliminary evaluation on multiple years of chemical and biological data collected by the FCRP suggests improving trends in the biological and chemical condition of Flat Creek following BMP implementation. The FCRP will continue to collect chemical and biological data on Flat Creek in 2014 as part of their on-going efforts to evaluate BMP effectiveness. In addition, the Monitoring group in coordination with the NPS group will supplement the existing monitoring by FCRP by collecting physical data and assisting in the collection of biological data. It is anticipated the combined chemical, biological and physical information should provide the credible data necessary to determine if a possible de-listing of Flat Creek is warranted. This is the second year of a two-year project.

Gillette Fishing Lake – Located within the City of Gillette on a tributary to Donkey Creek, Gillette Fishing Lake has been on WDEQ's 303(d) List of impaired waters since 1996 due to non-support of cold-water game fisheries and aquatic life other than fish designated uses (WDEQ 2012). Causes of the impairment were identified as phosphate and sediment with storm water as the primary source. An approved TMDL for this waterbody is anticipated for 2013. Corrective actions by the City of Gillette included stormceptors and the construction of a wetland to capture sediment and nutrients. To evaluate the effectiveness of these BMPs on addressing the listed pollutants, the Monitoring Program in coordination with the NPS Program and City of Gillette will conduct monitoring on Gillette Fishing Lake in 2014. This is the second year of a two-year project.

Objective 4 – Large Reservoir Monitoring

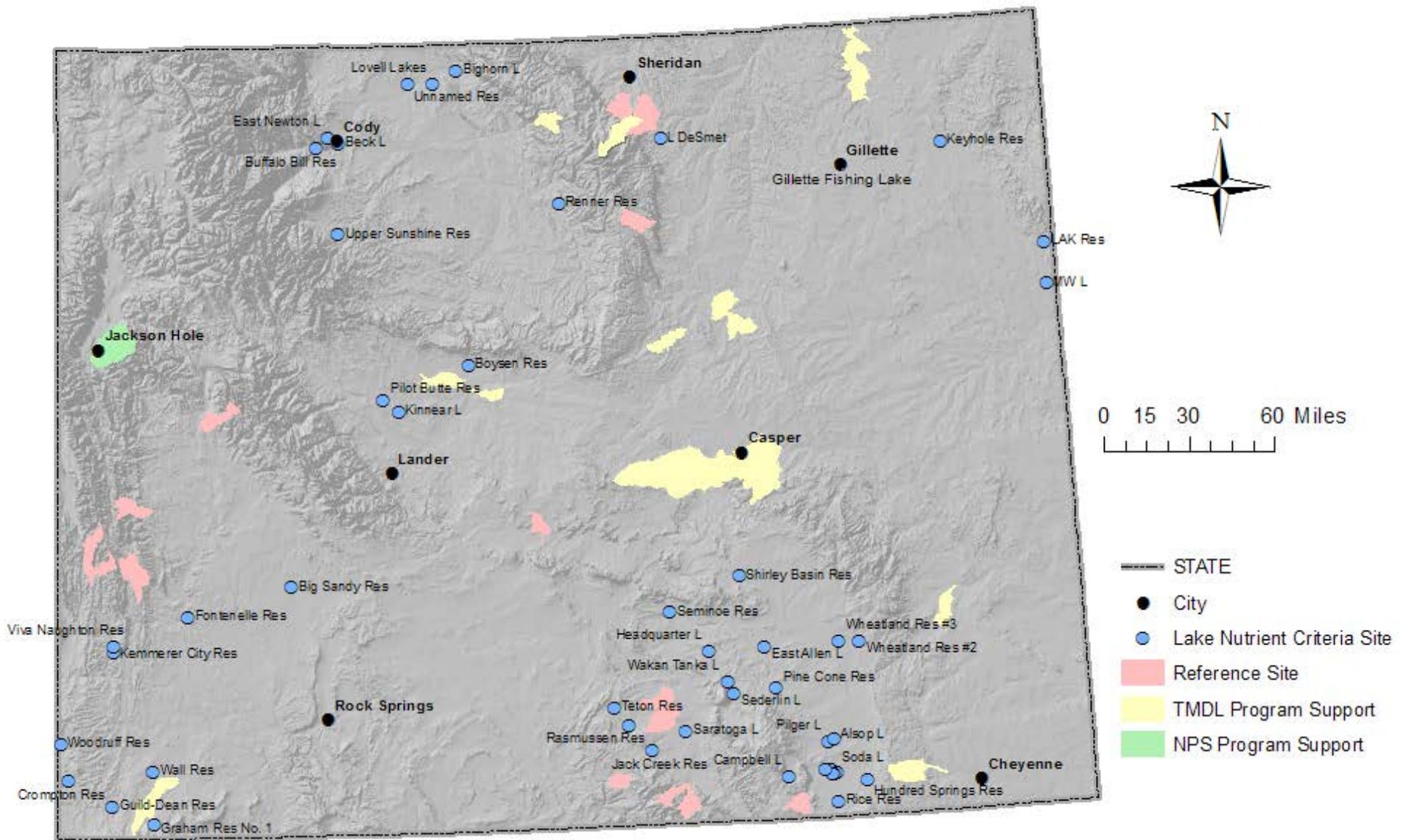
Lake and reservoir monitoring was initiated as part of the original 1997 TMDL workplan directive. The need for additional data for these reservoirs, combined with the CWA directive of assessing all waters led to development of a sampling program for the ten largest reservoirs in the State. The ten largest reservoirs are sampled on a rotation where approximately four are sampled in any given year. Each reservoir is sampled for three consecutive years, followed by three years without sampling. The effort on major reservoirs will focus on identifying trends in water quality over time. The two reservoirs scheduled for monitoring in 2014 (*Buffalo Bill, Fontenelle*) are either on their first or second year of their respective second three-year monitoring periods.

Objective 5 – Reference Site Verification/Sampling

Wyoming's reference site network consists of over 200 sites identified between 1992 and the present and distributed across six level III ecoregions. Most of the earlier (pre-2000) sites have been sampled two or more times since their establishment, with their reference status verified, though several remain unverified and sampled only once. In 2014, most of the remaining unverified sites will be revisited, and re-sampled, if the reference status is verified.

With all reference site networks, enhancing their accuracy and representativeness is a continuous and iterative process. Specifically, additional reference sites on plains and basin streams are needed. Enhancing the existing reference site network within these areas will improve the accuracy and representativeness of reference expectations for water quality and biological condition. In 2014, WDEQ will continue to identify new reference sites as opportunities arise, including a candidate site on the Sweetwater River and possible relocation of several existing sites where reference status is questionable.

Figure 1 – Relative location of Watershed Protection Program monitoring projects in 2014.



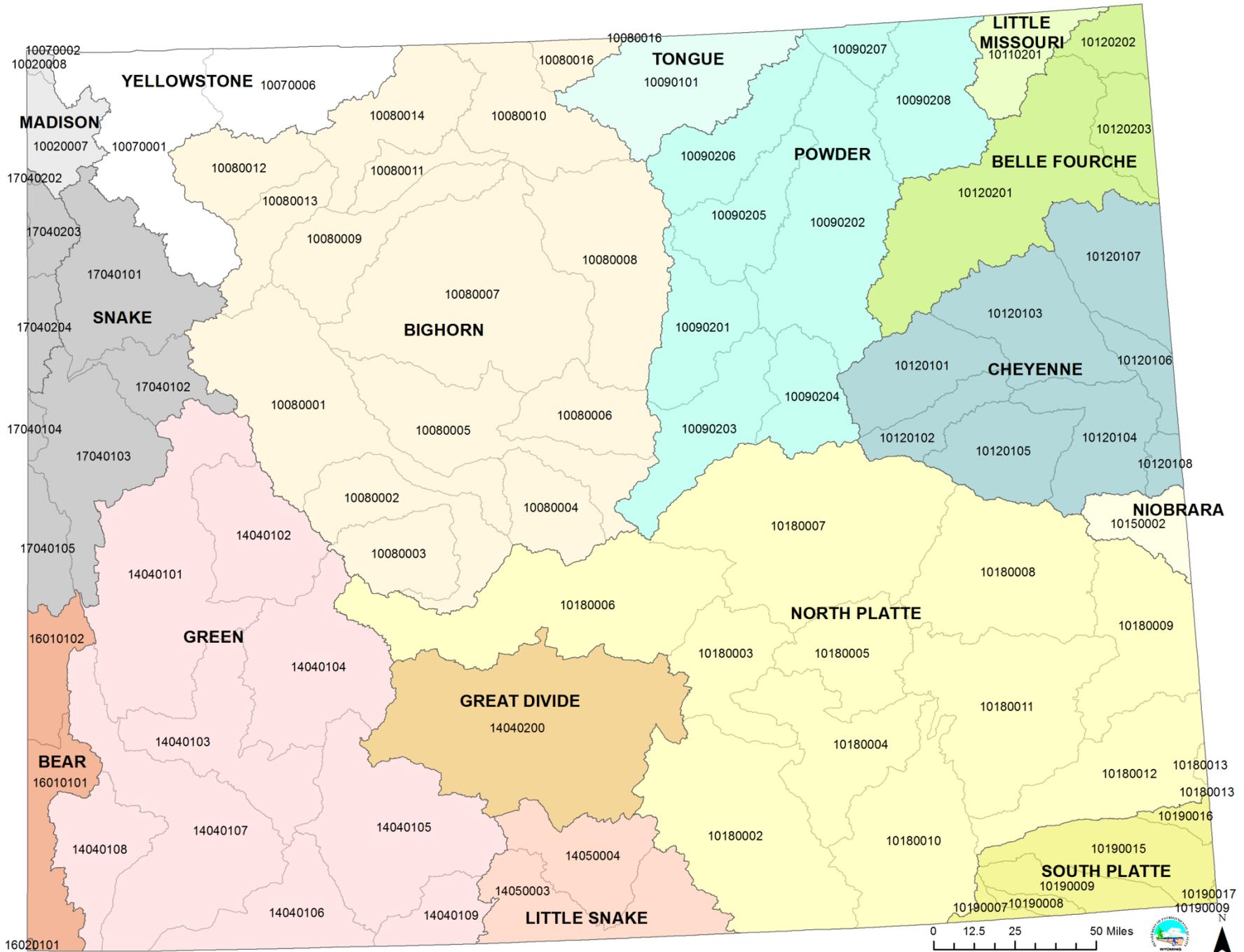
2014 Monitoring Schedule

The 2014 monitoring schedule is shown in Appendices 1 - 7. General locations of waters selected for monitoring in 2014 are illustrated in Figure 1. Hydrologic Unit Codes (HUCs) found in the appendices can be cross-referenced with Figure 2 to show locations of select waters relative to other watersheds in Wyoming. Contact information is shown below:

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2100 W. 5th, Sheridan, WY 82801

Arid, lowland areas typically will be sampled early in the summer, followed by high elevation streams, foothill streams, and finally larger, lowland streams or rivers. Typically, streams are sampled during what is considered summer low flow conditions, while at the same time avoiding potential early snows at high elevations, and dry stream channels in more arid areas during late summer and early fall. However, this general rule may be adjusted dependent on project objectives. Appendices 1 - 7 contain a list of waters scheduled for sampling by the WDEQ during the 2014 field season, including the regional office(s) to which they are assigned.

Figure 2 – Hydrologic basins of Wyoming.



Quality Assurance and Quality Control

Quality assurance and quality control (QA/QC) procedures are a critical aspect of the Watershed Protection Program monitoring plans. QA/QC affects the use, repeatability and validation of monitoring data. QA/QC is involved in all aspects of the Monitoring Program, including:

- Education and training of monitoring program field staff;
- Development of project-specific sampling and analysis plans
- Sample collection and analysis;
- Field audits;
- Data entry, management and analysis;
- Application, interpretation and reporting of data

The WDEQ Watershed Protection Program collects and reviews data in accordance with approved procedures as described in WDEQ (2001 and 2011).

Other Watershed Protection Program-Supported Monitoring Projects

USGS “Ambient” Fixed Station Water Quality Monitoring Network

WDEQ contracts with the United States Geological Survey (USGS) to sample 17 locations across the state (Appendix 7). Sampling is generally conducted four times per year on a quarterly basis. Specific sampled parameters vary by site depending on objectives, but include field parameters, major ions, trace metals, nutrients, sediment, and/or bacteria. Sample locations are chosen for a variety of reasons, including monitoring of currently impaired waters, waters associated with Wyoming Pollutant Discharge Elimination System (WYPDES) permits, or trends in large river system water quality.

USGS “CBM” Fixed Station Water Quality Monitoring Network

WDEQ also contracts with the USGS to sample 37 locations in regions where coal-bed methane (CBM) development is present, most of which are in northeast Wyoming (Appendix 8). This project monitors water quality in areas affected by CBM development to determine trends and patterns, establish baseline data in areas that have received minimal or no CBM development, and to determine compliance with existing water quality standards and WYPDES permit conditions.

References

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Appendices
2014 Monitoring Schedule

Appendix 1 – 2014 Wyoming Basin Lake & Reservoir Nutrient Criteria Monitoring - Random

Size Class	Level IV Ecoregion	Reservoir	Type	Latitude	Longitude	Crew
1	Laramie Basin	Osterman Lake	Primary	41.232590	-105.823432	Cheyenne
1	Laramie Basin	Pilger Lake	Primary	41.374803	-105.828665	Cheyenne
1	Laramie Basin	Gibbs Pond	Primary	41.216748	-105.787221	Cheyenne
1	Laramie Basin	Hundred Springs	Primary	41.176473	-105.584743	Cheyenne
1	Laramie Basin	Soda Lake	Primary	41.214570	-105.802158	Cheyenne
1	Laramie Basin	Rice Reservoir	Primary	41.070833	-105.784055	Cheyenne
1	Laramie Basin	Lone Tree Reservoir #2	Oversample	41.093847	-105.763963	
1	Laramie Basin	Lone Tree Reservoir	Oversample	41.086992	-105.678592	
1	Laramie Basin	Dream Lake	Oversample	41.252854	-105.766328	
1	Laramie Basin	West Carroll Lake	Oversample	41.410236	-105.740992	
1	Laramie Basin	Lori Lake	Oversample	41.394797	-105.782176	
1	Laramie Basin	Mortenson Lake	Oversample	41.210809	-105.844722	
1	Laramie Basin	Willow Creek Reservoir	Oversample	41.124249	-105.576342	
1	Laramie Basin	Nelson Pond	Oversample	41.232525	-105.831035	
1	Laramie Basin	Porter Lake	Oversample	41.292732	-105.993134	
2	Laramie Basin	Meeboer Lake	Primary	41.214506	-105.818889	Cheyenne
2	Laramie Basin	Rainey Lake	Oversample	41.631335	-105.933339	
2	Laramie Basin	Caldwell Lake	Oversample	41.156484	-105.790783	
2	Laramie Basin	Hutton Lake	Oversample	41.173171	-105.712426	
2	Laramie Basin	Eightmile Lake	Oversample	41.247893	-105.722947	
3	Laramie Basin	Wheatland Reservoir #2	Primary	41.877195	-105.586797	Sheridan
1	Rolling Sagebrush Steppe	Kinnear Lake	Primary	43.142362	-108.669384	Sheridan
1	Rolling Sagebrush Steppe	Jack Creek Reservoir	Primary	41.378729	-107.023392	Cheyenne
1	Rolling Sagebrush Steppe	Shirley Basin Reservoir	Primary	42.241087	-106.369086	Cheyenne
1	Rolling Sagebrush Steppe	Guild-Dean Reservoir	Primary	41.157566	-110.671453	Cheyenne
1	Rolling Sagebrush Steppe	Pine Cone Reservoir	Primary	41.664531	-106.163608	Cheyenne
1	Rolling Sagebrush Steppe	Headquarter Lake	Primary	41.865703	-106.603244	Cheyenne
1	Rolling Sagebrush Steppe	Rasmussen Reservoir	Primary	41.512383	-107.171432	Cheyenne
1	Rolling Sagebrush Steppe	Wakan Tanka Lake	Primary	41.707267	-106.491361	Cheyenne
1	Rolling Sagebrush Steppe	Piedmont Reservoir	Oversample	41.182209	-110.650873	
1	Rolling Sagebrush Steppe	Foote Creek Lake	Oversample	41.822664	-106.060406	
1	Rolling Sagebrush Steppe	Cow Creek Reservoir	Oversample	41.400701	-107.529712	
1	Rolling Sagebrush Steppe	Morning Star Lake	Oversample	41.706592	-106.484827	
1	Rolling Sagebrush Steppe	Big Sanford Reservoir	Oversample	42.636967	-106.862800	
2	Rolling Sagebrush Steppe	East Allen Lake	Primary	41.875638	-106.222757	Cheyenne
2	Rolling Sagebrush Steppe	Kindt Reservoir	Oversample	41.584646	-107.091791	
2	Rolling Sagebrush Steppe	Goldeneye Reservoir	Oversample	43.019787	-106.708511	
2	Rolling Sagebrush Steppe	Middle Reservoir	Oversample	43.318733	-108.330462	
3	Rolling Sagebrush Steppe	Fontenelle Reservoir	Primary	42.119000	-110.148933	Sheridan
1	Subirrigated High Valleys	Crompton Reservoir	Primary	41.290925	-110.961008	Cheyenne
1	Subirrigated High Valleys	Spring Lake	Oversample	41.073287	-106.472711	
1	Subirrigated High Valleys	Horn & Meason	Oversample	41.409492	-106.716611	
1	Subirrigated High Valleys	Gunst Reservoir	Oversample	41.171065	-106.665739	
1	Subirrigated High Valleys	Ward Ball Reservoir	Oversample	42.728831	-109.696232	
2	Subirrigated High Valleys	Wall Reservoir	Primary	41.334183	-110.394711	Cheyenne
2	Subirrigated High Valleys	67 Reservoir	Oversample	42.597399	-110.214324	

Appendix 2 – 2014 Wyoming Basin Lake & Reservoir Nutrient Criteria Monitoring - Revisits

Size Class	Level IV Ecoregion	Reservoir	Latitude	Longitude	Crew
1	Laramie Basin	Alsop Lake	41.392732	-105.791110	Cheyenne
1	Laramie Basin	Campbell Lake	41.211024	-106.105257	Cheyenne
2	Laramie Basin	Twin Butte Reservoir	41.237026	-105.859229	Cheyenne
3	Laramie Basin	Wheatland Reservoir #3	41.881157	-105.721165	Sheridan
1	Rolling Sagebrush Steppe	Sederlin Lake	41.650190	-106.446580	Cheyenne
1	Rolling Sagebrush Steppe	Teton Reservoir	41.604347	-107.261567	Cheyenne
3	Rolling Sagebrush Steppe	Pilot Butte	43.207453	-108.773945	Sheridan
3	Rolling Sagebrush Steppe	Boysen Reservoir	43.367743	-108.175406	Sheridan
3	Rolling Sagebrush Steppe	Seminole Reservoir	42.073924	-106.853805	Sheridan
1	Subirrigated High Valleys	Graham Reservoir No. 1	41.067723	-110.390534	Cheyenne
2	Subirrigated High Valleys	Saratoga Lake	41.470988	-106.784634	Cheyenne
3	Subirrigated High Valleys	Woodruff Reservoir	41.477314	-111.017009	Cheyenne
2	Foothill Shrub/Low Mnts	Kemmerer City Reservoir	41.941961	-110.654034	Cheyenne
3	Foothill Shrub/Low Mnts	Viva Naughton Reservoir	41.972476	-110.660609	Cheyenne

Appendix 3 – 2014 Bighorn Basin and NE Wyoming Lake & Reservoir Nutrient Criteria Monitoring

Size Class	HUC 8 Basin	Reservoir	Latitude	Longitude	Crew
1	Shoshone	East Newton Lake	44.544695	-109.117791	Sheridan
1	Nowood	Renner Reservoir	44.174139	-107.500718	Sheridan
2	Shoshone	Lovell Lakes	44.801643	-108.362430	Sheridan
2	Shoshone	Unnamed Reservoir	44.806144	-108.543371	Sheridan
2	Shoshone	Beck Lake	44.511948	-109.048014	Sheridan
3	Bighorn	Yellowtail Reservoir/Bighorn Lake	44.867819	-108.189713	Sheridan
3	Shoshone	Buffalo Bill Reservoir	44.489769	-109.205573	Sheridan
3	Greybull	Upper Sunshine Reservoir	44.051165	-109.062885	Sheridan
1	Cheyenne	LAK Reservoir	43.826952	-104.109693	Sheridan
2	Cheyenne	MW Lake	43.614685	-104.118581	Sheridan
3	Belle Fourche	Keyhole Reservoir	44.375348	-104.784561	Sheridan
3	Clear	Lake DeSmet	44.476060	-106.753274	Sheridan

Appendix 4 – Monitoring and Technical Support for TMDL Program

Basin	Stream	HUC	Crew
North Platte	North Platte River and tributaries	10180007	Cheyenne
Bighorn	Granite Creek	10080010	Sheridan
Green	Willow Creek (Year 2 of 2)	14040107	Lander
Powder North Platte South Platte Green Bighorn	<u>TMDL Flow Monitoring Project</u>	10090206	Sheridan Cheyenne Cheyenne Lander Lander
	North Piney Creek, Salt Creek, Willow Creek, and Little Powder River (Powder)	10090204	
	Wheatland Creek (North Platte)	10090203	
	Middle Crow Creek and North Branch North Fork Crow Creek (South Platte)	10090208	
	Willow Creek and Smith Fork (Green)	10180011	
	Poison Creek and Muddy Creek (Bighorn)	10190009	
		14040107	
		10080005	

Appendix 5 – Monitoring and Technical Support for NPS Program

Basin	Stream	HUC	Crew
Snake	Flat Creek (Year 2 of 2)	17040103	Lander
Belle Fourche	Gillette Fishing Lake (Year 2 of 2)	10120201	Sheridan

Appendix 6 – Large Reservoir Monitoring

Basin	Reservoir Name	HUC	Crew
Green	Fontenelle Reservoir (Year 1 of 3)	14040101	Sheridan / Lander
Green	Flaming Gorge Reservoir (Year 1 of 3)	14040106	Sheridan / Lander
Bighorn	Buffalo Bill Reservoir (Year 2 of 3)	10080012, 10080013	Sheridan

Appendix 7 - Reference Site Verification/Sampling

Basin	Stream	HUC	Crew
Powder	Doyle Creek, Little Piney Creek, and South Piney Creek	10090206	Sheridan
Tongue	Prairie Dog Creek, Little Goose Creek	10090208	Sheridan
Bear	Coantag Creek, North Fork Smiths Fork, Smiths Fork, Hobble Creek	16010102	Lander
Green	North Piney Creek, LaBarge Creek, Rock Creek, New Fork River	14040101, 14040102	Lander
North Platte	Sweetwater River	10180006	Lander
Snake	Cache Creek	17040103	Lander
North Platte River	North Platte River, North Fork Encampment River, Encampment River, and Laramie River	10180002, 10180010	Cheyenne
Little Snake	Dirtyman Fork	14050003	Cheyenne
	Additional sites as time allows		all

Appendix 8 - WDEQ/USGS Non-CBM Fixed Station Monitoring Network for 2014

USGS	Station Name	Constituents (1,2)	Frequency
06259000	Wind River below Boysen Reservoir	Field, CBM (major anions and cations, selected trace elements, WWR As), Nutrients	12/yr
06264700	Bighorn River at Lucerne	Field, Bacteria, Nutrients, Sediment	4/yr
06274300	Bighorn River at Basin	Field, Bacteria, Nutrients, Sediment	4/yr
06276500	Greybull River near Meeteetse	Field, Bacteria, Nutrients, Sediment	4/yr
06279500	Bighorn River at Kane	Field, Bacteria, Nutrients, Sediment	4/yr
06285100	Shoshone River at Lovell	Field, Bacteria, Nutrients, Sediment	4/yr
06630000	North Platte River above Seminoe, near Sinclair	Field, Bacteria, Nutrients, Sediment	4/yr
06639000	Sweetwater River near Alcova	Field, Major Anions and Cations, Nutrients, Sediment, Bacteria	4/yr
06645000	North Platte River below Casper	Field, Bacteria, Nutrients, Major Anions and Cations, Trace metals, Sediment	4/yr
06652000	North Platte River near Orin	Field, Bacteria, Nutrients, Sediment	4/yr
06670500	Laramie River at Fort Laramie	Field, Bacteria, Nutrients, Sediment	4/yr
06674500	North Platte River at WY-NE State line	Field, Bacteria, Nutrients, Sediment	4/yr
09209400	Green River nr La Barge	Field, CBM, Nutrients, Sediment	12/yr
09224050	Hams Fork River near Diamondville	Field, Bacteria, Nutrients, Sediment	4/yr
09224700	Blacks Fork nr Little America	Field, Bacteria, Nutrients, Sediment	4/yr
09259050	Little Snake River below Baggs	Field, Major Anions and Cations, Nutrients, Sediment	4/yr
13025500	Crow Creek nr Fairview	Field, Major Anions and Cations, Trace Metals, Nutrients, Gage	4/yr

1. Field parameters: discharge, pH, water temperature, dissolved oxygen, electrical conductivity (EC)
2. CBM parameters: field parameters, major anions and cations, select filtered trace metals, arsenic

Appendix 9 - WDEQ/USGS CBM Fixed Station Monitoring Network for 2014

Station	Name	Code (1,2)	Frequency
06299980	Tongue R at Monarch	CBM, Gage	12/yr
06304500	Little Goose Cr at Sheridan	CBM, Sediment	4/yr
06305500	Goose Cr bel Sheridan	CBM, Sediment	4/yr
06306020	Tongue R bel Youngs Cr nr Acme	CBM, FIL Se, FIL Hg	12/yr
06306200	Prairie Dog Cr at Wakely Siding nr Sheridan	CBM , Gage	12/yr
06306250	Prairie Dog Cr nr Acme	CBM, Gage	12/yr
06313400	Salt Cr nr Sussex	CBM and FIL Se	12/yr
06313500	Powder R at Sussex	CBM and FIL Se, Gage, Continuous EC Monitor	12/yr
06313590	Powder River ab Burger Draw nr Buffalo	CBM, Gage	12/yr
06313605	Powder R bel Burger Draw nr Buffalo	CBM	12/yr
06316400	Crazy Woman Cr at Upper Station nr Arvada	CBM Sediment, Gage, Continuous EC Monitor	12/yr
06317000	Powder R at Arvada	CBM Nutrients	12/yr
06320210	Clear Cr ab Kumor Draw nr Buffalo	CBM , Sediment	12/yr
06324000	Clear Cr nr Arvada	CBM , Gage, Continuous EC Monitor	12/yr
06324970	Little Powder R ab Dry Cr nr Weston	CBM Nutrients	12/yr
06369500	Cheyenne R nr Dull Center	CBM, Gage	12/yr
06386500	Cheyenne R nr Spencer	CBM	12/yr
06425900	Caballo Cr at mouth nr Piney	CBM Nutrients	12/yr

06426400	Donkey Cr nr Moorcroft	CBM	12/yr
06426500	Belle Fourche R bel Moorcroft	CBM Nutrients, Sediment	12/yr
06428050	Belle Fourche R bel Hulett	CBM , Sediment	4/yr
06635000	Medicine Bow R ab Seminoe Res nr Hanna	CBM Nutrients Sediment	12/yr
06636000	N Platte R ab Pathfinder Res	CBM Sediment	12/yr
06313540	Willow Cr nr mouth nr Sussex	Field, Major Anions and Cations	4/yr
06313560	Pumpkin Cr nr mouth nr Sussex	Field, Major Anions and Cations	4/yr
06313585	Beaver Cr at mouth nr Sussex	Field, Major Anions and Cations	4/yr
06313604	Burger Draw at mouth nr Buffalo	Field, Major Anions and Cations	4/yr
06313633	Van Houten Draw at mouth nr Buffalo	Field, Major Anions and Cations	4/yr
06317030	Wild Horse Cr at mouth at Arvada	Field, Major Anions and Cations	4/yr
06317100	Powder R ab Clear Cr nr Arvada	Field, Major Cations	4/yr
06323550	Clear Cr ab Double Crossing Cr nr Clearmont	Field, Major Cations	4/yr
06324200	L X Bar Cr at mouth nr Moorhead MT	Field, Major Anions and Cations	4/yr
06324300	S A Cr at mouth nr Moorhead MT	Field, Major Anions and Cations	4/yr
06324870	Rawhide Cr at mouth nr Gillette	Field, Major Cations	4/yr
06324940	Horse Cr at mouth nr Weston	Field, Major Cations	4/yr
06324950	Little Powder R bel Elk Cr nr Weston	Field, Major Cations	4/yr
06425720	Belle Fourche R bel Rattlesnake Cr nr Piney	Field, Major Cations	4/yr

1. Field parameters: discharge, pH, water temperature, dissolved oxygen, electrical conductivity (EC)
2. CBM parameters: field parameters, major anions and cations, select filtered trace metals, arsenic