Draft 2022 Integrated Report on Water Quality

Prepared by Utah Department of Environmental Quality
Division of Water Quality

Table of Contents

Abbreviations

Abbreviation	Definition
<	less than
>	greater than
≤	less than or equal to
≥	greater than or equal to
AGRC	Automated Geographic Reference Center
ATTAINS	The Assessment, Total Maximum Daily Load, Tracking and Implementation System. This EPA-maintained database is an online system for accessing information about the conditions of the Nation's surface waters.
AU	assessment unit
Ca	calcium
CFR	Code of Federal Regulations
Chl-a	chlorophyll *a*
CWA	Clean Water Act
DEQ	Utah Department of Environmental Quality
DO	dissolved oxygen
DWQ	Utah Division of Water Quality
E	expected
E. coli	Escherichia coli
EPA	U.S. Environmental Protection Agency

ER	ecosystem respiration
g	grams
GIS	geographic information systems
GPP	gross primary productivity
GSL	Great Salt Lake
GRAMA	Government Records Access and Management Act
HAB(s)	harmful algal bloom(s)
HH	human health
HUC	hydrologic unit
IR	Integrated Report
kg	kilogram
L	liter
Mg	magnesium
mg	milligram
mg/kg	milligram per kilogram
mg/L	milligram per liter
mL	milliliter
MLID	monitoring location identifier
MPN	most probable number
NHD	National Hydrologic Dataset
O	observed
O/E	observed/expected

Pc	probability of capturing
ppm	parts per million
QA	quality assurance
QA/QC	quality assurance/quality control
QC	quality control
QAPP	quality assurance project plan
RIVPACS	River Invertebrate Prediction and Classification System
SAP(s)	sample analysis plan(s)
SD	standard deviation
SDD	Secchi disk depth
SOP(s)	standard operating procedure(s)
T	temperature
TDS	total dissolved solids
TMDL	total maximum daily load
TN	total nitrogen
TP	total phosphorus
TSI	trophic state index
UAC	Utah Administrative Code
UDOH	Utah Department of Health
USGS	U.S. Geological Survey
WMU	watershed management unit
WQP	(EPA's) Water Quality Portal

WQS	water quality standard
µg/L	microgram per liter

Figures

Tables

Executive Summary

Purpose

Section 305(b) of the Clean Water Act (CWA) requires states to submit a biennial report to the Environmental Protection Agency (EPA) on the quality of their waters. The 2022 Integrated Report (IR) prepared by the Utah Division of Water Quality (DWQ) to meet this federal requirement is a comprehensive analysis of the condition of the state‘s rivers, streams, canals, lakes, reservoirs, and ponds.

Section 303(d) of the CWA requires states to submit a list of waterbodies that do not meet the state‘s water quality standards as part of the IR. This list guides the state‘s development of water quality improvement plans (Total Maximum Daily Load plans or TMDLs) for impaired waterbodies to bring them into compliance with their beneficial uses and water quality standards.

The IR supports DWQ‘s commitment to protecting and improving the water quality of Utah‘s rivers, streams, canals, lakes, reservoirs, and ponds by providing critical information and thorough analyses of water quality conditions, waterbody impairments, statewide trends, and emerging issues. DWQ uses these data to identify areas with impairments and prioritize projects, TMDLs, and best management practices (BMPs) to improve and enhance water quality in affected areas.

Scope

The 2022 IR reports on 916 assessment units (AUs), over fifteen thousand perennial miles of rivers, streams, and canals, and nearly 1.5 million lake, reservoir, and pond acres. The water quality assessment data covers the period between October 1, 2014 and September 30, 2020 and includes updates from previous reports. The data used in the report were collected by DWQ, 9 agencies, and numerous public and private stakeholder groups and individuals.

Methods

The State of Utah sets water quality standards that support designated beneficial uses for Utah‘s rivers, streams, canals, lakes, reservoirs, and ponds. These designations protect water quality for different uses, including drinking water, recreation, aquatic life, and agriculture. Waterbodies are protected for several combinations of beneficial uses, such as recreation and aquatic life.

Data Collection

The IR uses water quality data collected by DWQ and a number of public and private entities to determine whether assessed waterbodies in the state meet water quality standards and support their designated beneficial uses. Data submitted or obtained by DWQ during the IR data compilation process are integrated into DWQ‘s assessments and subject to DWQ‘s data management and quality assurance and quality control (QA/QC) processes. Datasets may include laboratory results for water chemistry sampling for conventional (e.g., temperature) and toxic (e.g., metals) parameters, monitoring data specific to lakes, reservoirs, ponds, or flowing surface waters, potential causes of impairments, and macroinvertebrate surveys.

DWQ combines data from individual monitoring sites into a larger spatial scale or Assessment Unit (AU). The Division collects all readily available and credible water quality data for each AU and prepares the data for assessment. Data are assessed according to specific conventional and toxic parameters against beneficial use criteria established in state regulations. DWQ uses these data to categorize the state's assessment units to determine designated beneficial use attainment. The state uses five EPA-approved categories in its assessment determinations:

- Category 1: All beneficial uses attained.
- Category 2: Some beneficial uses attained but there are insufficient data to determine if all beneficial uses are supported.
- Category 3: Insufficient or no data to make a determination.
- Category 4: Impaired for one or more beneficial uses. Does not require the development of a TMDL because one has already been completed (4A), uses are expected to be attained within a reasonable timeframe (4B), or the impairment is not caused by a pollutant (4C).
- Category 5: Impaired for one or more beneficial uses by a pollutant. Requires the development of a TMDL.

Waters determined to be impaired are placed on the state's 303(d) list and prioritized for TMDL development. The TMDLs calculate the pollution reduction levels needed to support designated beneficial uses and meet water quality standards. Once a TMDL is completed and approved by EPA, the assessment unit covered under the TMDL is transferred from Category 5 (impaired) to Category 4A (approved TMDL in place).

Delistings

DWQ reviews the data submitted during the IR process to determine whether assessment units identified as impaired in previous IRs are now meeting their designated beneficial uses. If DWQ finds during its assessment that waterbodies previously listed as impaired are now meeting water quality standards, it provides a list of the sites proposed for removal from the 303(d) list (Category 5) in the report. DWQ can delist a previously impaired parameter, waterbody, or segment within a waterbody that is currently meeting water quality standards if it can demonstrate good cause to stakeholders and EPA. Good cause includes one or more of the following:

- The impairment was resolved through the implementation of nonpoint source projects and/or revised effluent limits.
- Revised water quality standards and/or beneficial uses put the waterbody into attainment of those standards and/or uses.
- A new listing method consistent with state water quality standards and classifications and federal listing requirements changed the previous listing.
- New data led to a reassessment that demonstrated that applicable standards and uses are being met.
- Flaws in the original analysis led to an incorrect listing.
- Improved modeling applications demonstrated that applicable standards and uses are being met.

AU Resegmentation

When site-specific assessments within a single AU conflict, DWQ may determine that it is appropriate to re-segment (i.e. "split") an existing AU polygon into two or more new AUs rather than aggregate those conflicting assessments into a single AU scale category. AUs where water quality criterion exceedances are clearly isolated to a relatively small, hydrologically distinct portion of the larger AU may be re-segmented to more accurately

reflect that variation in water quality. This results in a higher resolution and overall more accurate assessment. DWQ does not consider it appropriate to re-segment an AU when exceedances are observed in multiple locations throughout an AU, or where impaired sites are not hydrologically distinct from unimpaired portions of the AU.

Public Comment Process

DWQ engages its stakeholders early in the process as part of its ongoing commitment to work with the public to safeguard human health and protect and enhance Utah‘s waters. Communities and others affected by the decisions under CWA 305(b) and 303(d) are asked to participate in the IR process during three public involvement opportunities before the Division submits the IR to EPA.

1. Public Comment on Assessment Methods

   DWQ held a public comment period on the 303(d) Assessment Methods from January 20, 2021, to February 26, 2021, to solicit public input on the assessment methods for the 2022 IR. DWQ received comments from four different individuals and groups for a combined total of approximately 32 unique comments. DWQ’s Response to Comments, as well as the comments submitted, can be found on the Integrated Report Program webpage.

2. Publicly Submitted Data Notification

   DWQ issues a formal public notification during each IR cycle through website postings and listservs requesting data and information that can be used for the assessment. Whenever possible, DWQ tries to obtain all data and information with sufficient time to compile the information during odd-numbered years. This provides the Division with adequate time to obtain clarification where necessary and ensures that outside sources of information are used to the greatest extent possible for IR assessments. The 2022 IR Call for Data ran for 30 days from March 9,2021 to April 8, 2021. Data submitters registered on the DWQ Call for Data website and were provided detailed instructions on how to submit data accurately and effectively to EPA’s Water Quality Exchange.

3. Public Comment on 305(b) and 303(d) Decisions

   DWQ provides another formal public notification at the end of the IR report writing process, requesting comments on the placement of AUs in the five categories. DWQ responds to the comments in a summary and can revise the IR based on the public’s feedback. Public comments and DWQ’s response are then submitted to EPA along with the 305(b) report and 303(d) listing decisions.

Findings

DWQ compiled all existing and readily available data and conducted designated beneficial use assessments to determine which waters in the state are supporting or not supporting these uses. The figures, charts, and graphs below offer a view of the state‘s perennial waterbody miles and acreage, areas and water quality parameters assessed, and waterbodies proposed for delisting.

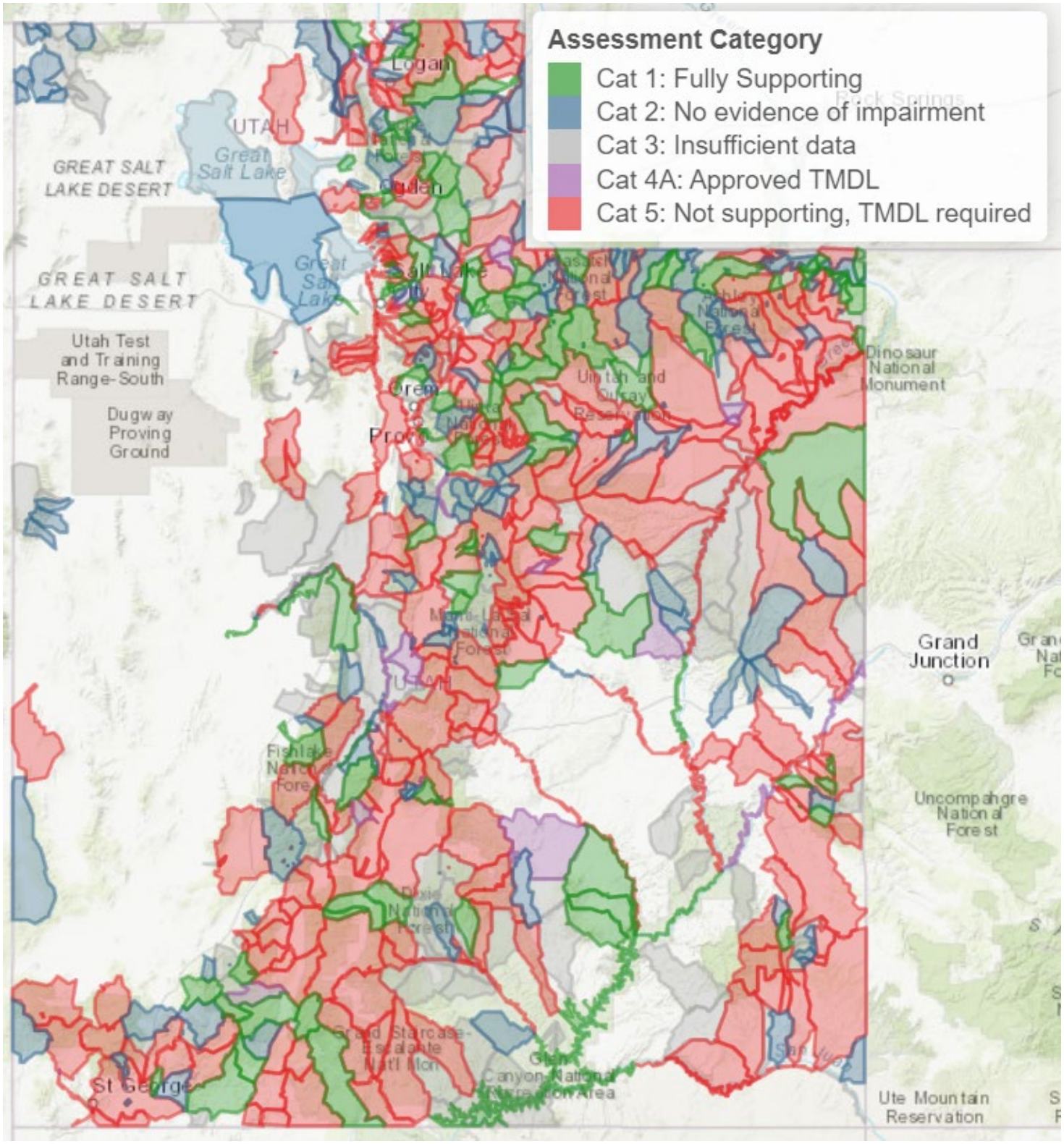

Figure 1. Utah's defined assessment units and assessment categories.

Assessment Totals

- Total AUs reported on: 916
- Total AUs fully supporting (Category 1): 113
- Total AUs with no evidence of impairment (Category 2): 181
- Total AUs with insufficient data (Category 3): 225
- Total AUs with a TMDL in place (Category 4A): 28
- Total AUs requiring a TMDL (Category 5): 369
- Number of data records assessed: 268,000 discrete samples, 2.9 million high frequency dissolved oxygen measurements

River, Stream and Canal Assessments

Assessments

- Total AUs reported on: 774
- Total perennial miles reported on: 15,820
- Total monitoring locations assessed and reported on during the period of record: 1,682

In 2022, 40% of assessment units (AUs) and 52% of perennial stream miles were not meeting their designated beneficial uses (Figure 2, Figure 3). This discrepancy indicates that many of the impaired AUs represent more perennial stream miles than AUs in other categories. Conversely, the 219 AUs (28% of AUs) with insufficient data to make an assessment generally represent fewer than average perennial stream miles. River, stream, and canal AUs are most commonly impaired for dissolved oxygen, pH, and temperature, which make up 39% of 303(d) listings (Figure 4). A majority of these impairments indicate that the waterbody is not meeting its aquatic life beneficial use(s) (Figure 5).

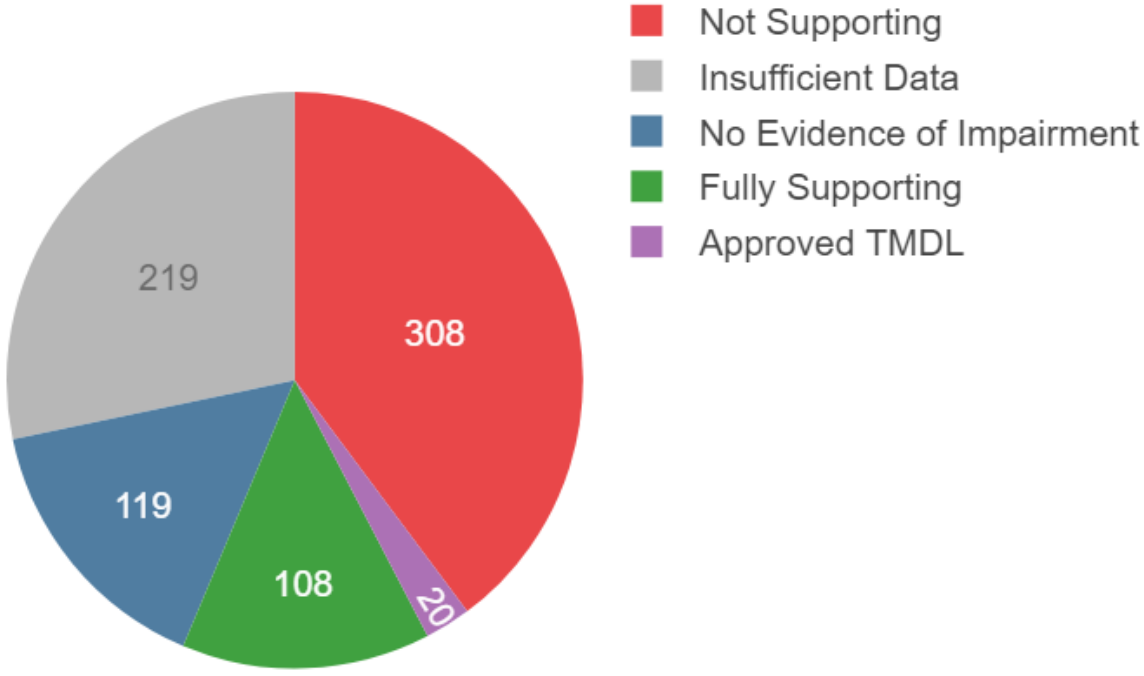

Figure 2. Proportion and number of river, stream, and canal AU's in each assessment category.

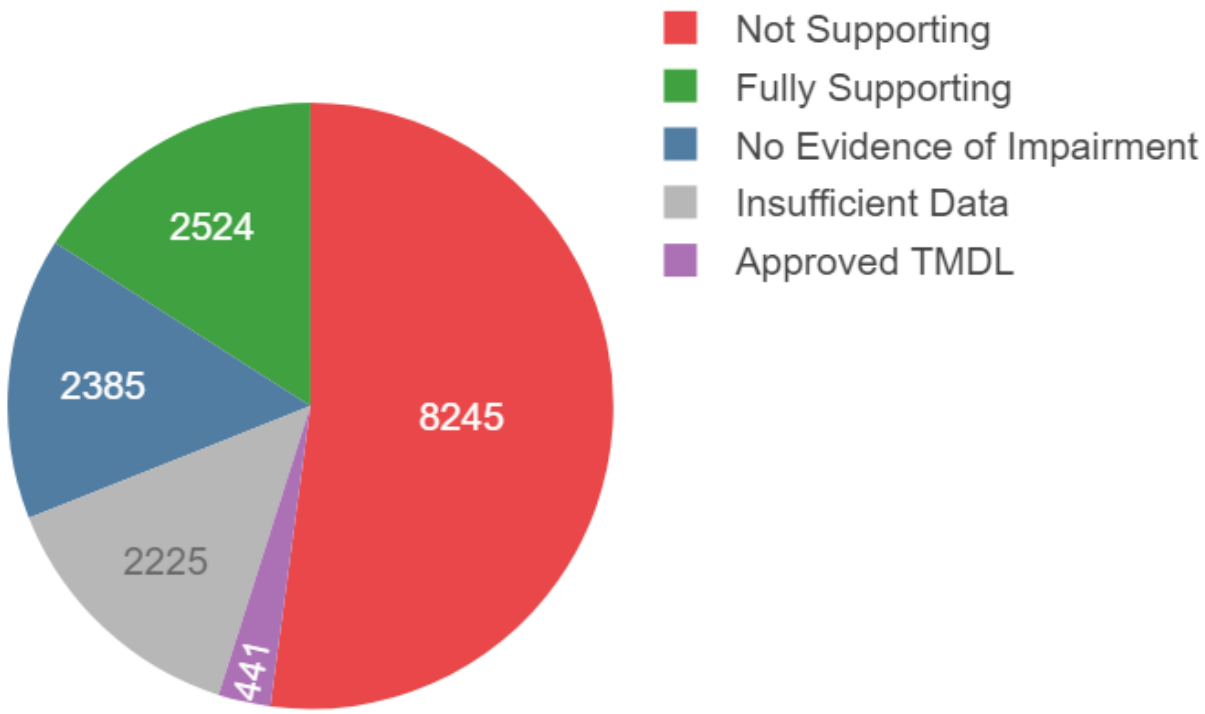

Figure 3. Proportion and number of perennial river, stream, and canal miles in each assessment category.

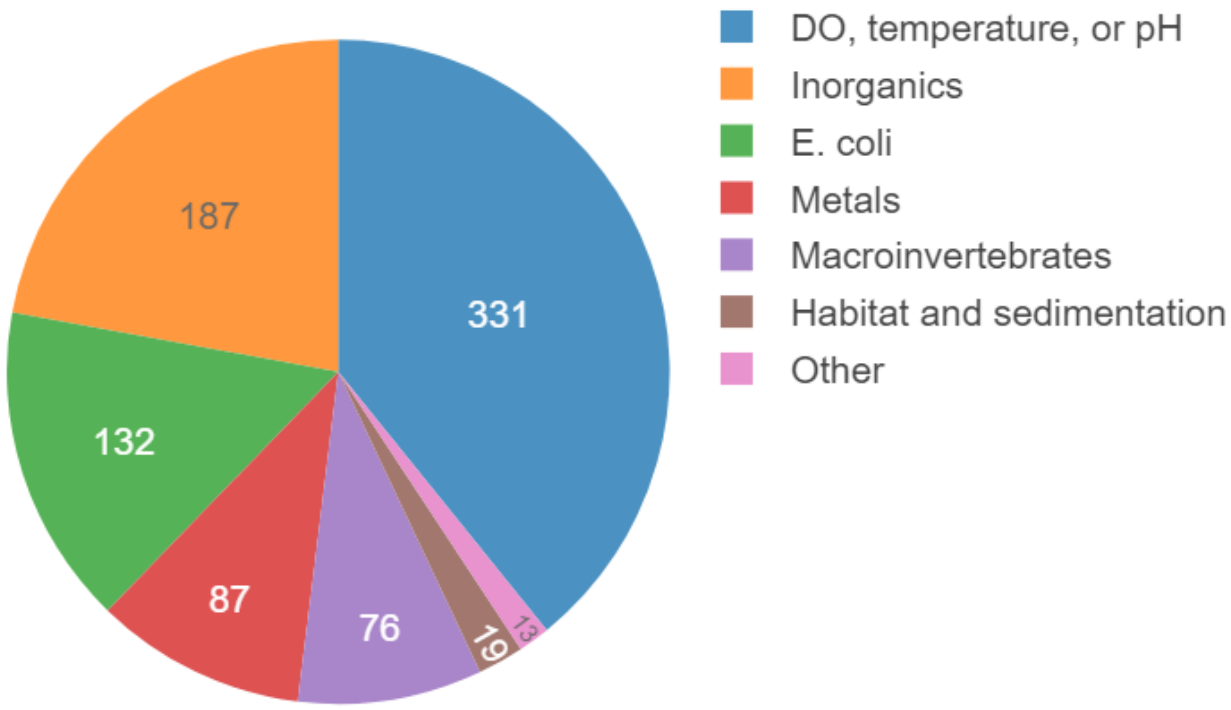

Figure 4. Proportion and number of river, stream, and canal AU impairments by parameter category.

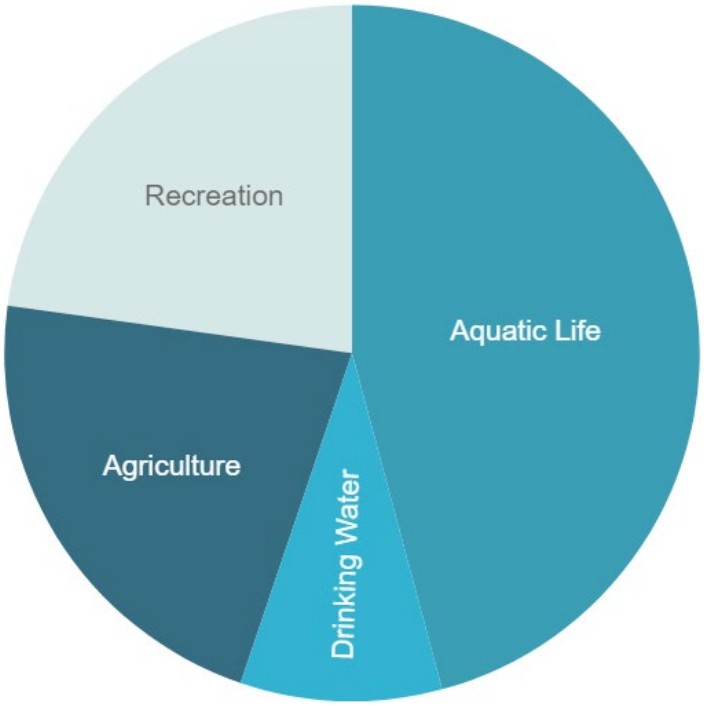

Figure 5. Pie chart of river and stream impairments by use type. Note, some AU impairments are represented twice because parameters may be impaired for multiple uses.

Lake, Reservoir, and Pond Assessments

Assessments

- Total AUs reported on: 142
- Total lake acres reported on: 1.47 million (includes Great Salt Lake at 1.1 million acres)

In lake, reservoir, and pond assessments, large discrepancies in the acreage represented by AUs led to striking differences in the percentage of AUs and acres in each assessment category. While 43% of AUs are not supporting one or more beneficial uses, that accounts for only 10% of total lake acres assessed (Figure 6, Figure 7). This is due to the overwhelming representation of the Great Salt Lake in acreage calculations. Additionally, 47% of AUs and 53% of total lake acres assessed are either fully supporting all designated uses or show no evidence of impairment. Similar to rivers and streams, a majority of impairments are linked to dissolved oxygen, pH, or temperature (Figure 8). Furthermore, most impairments indicate that the waterbody is not meeting its aquatic life beneficial use(s) (Figure 9).

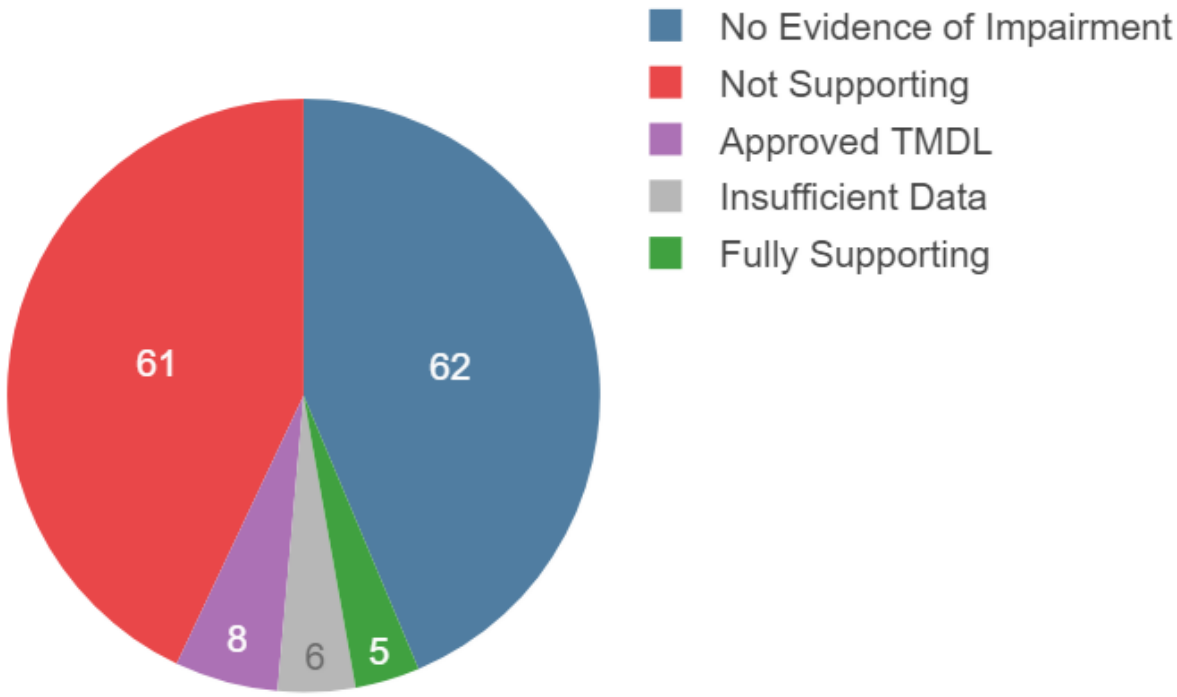

Figure 6. Proportion and number of lake, reservoir, and pond AU's in each assessment category.

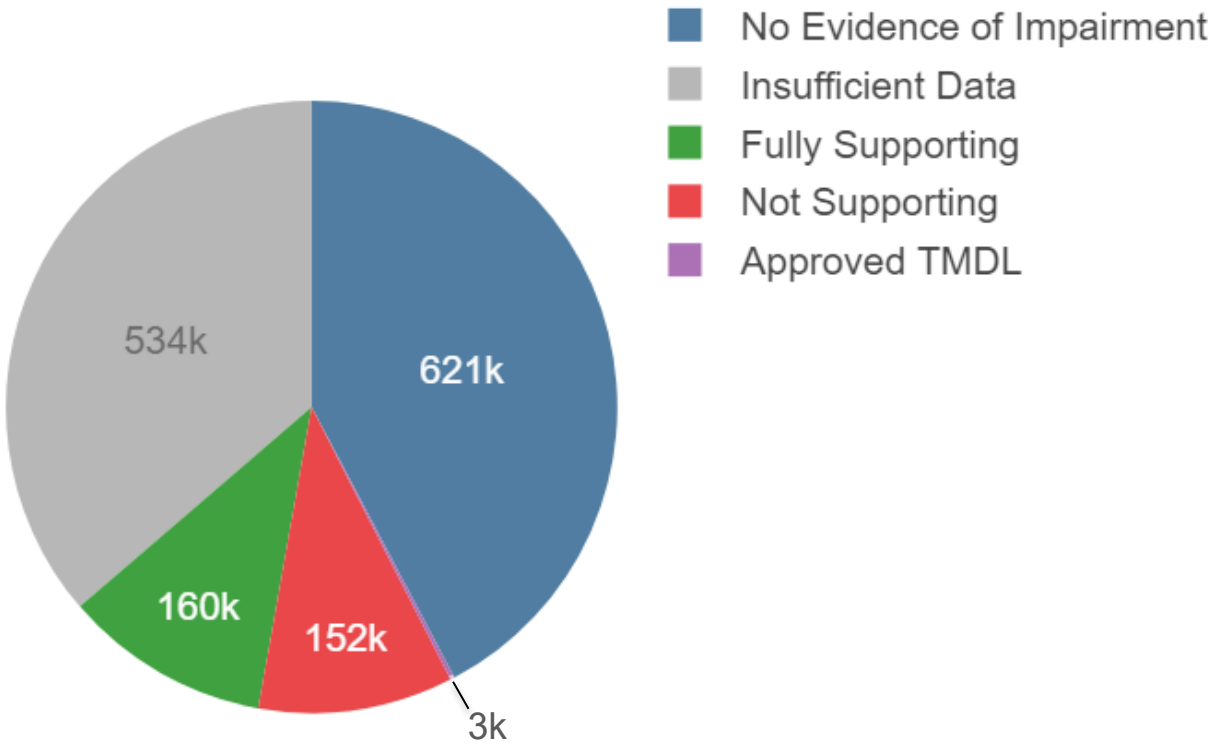

Figure 7. Proportion and number of lake, reservoir, and pond acres in each assessment category.

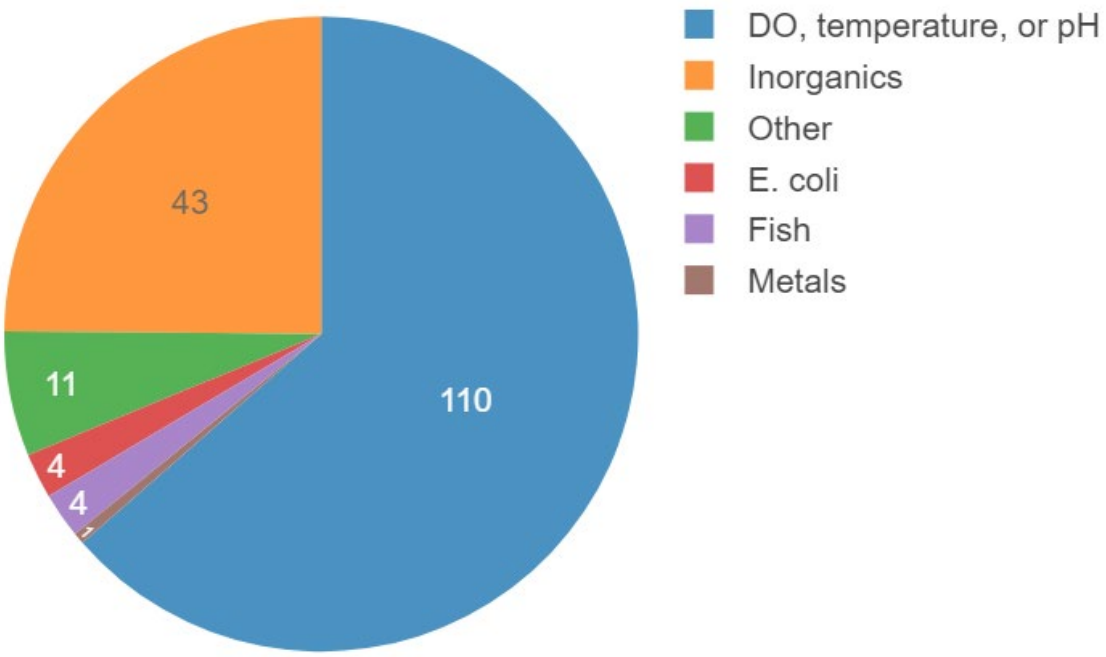

Figure 8. Proportion and number of lake, reservoir, and pond AU impairments by parameter category.

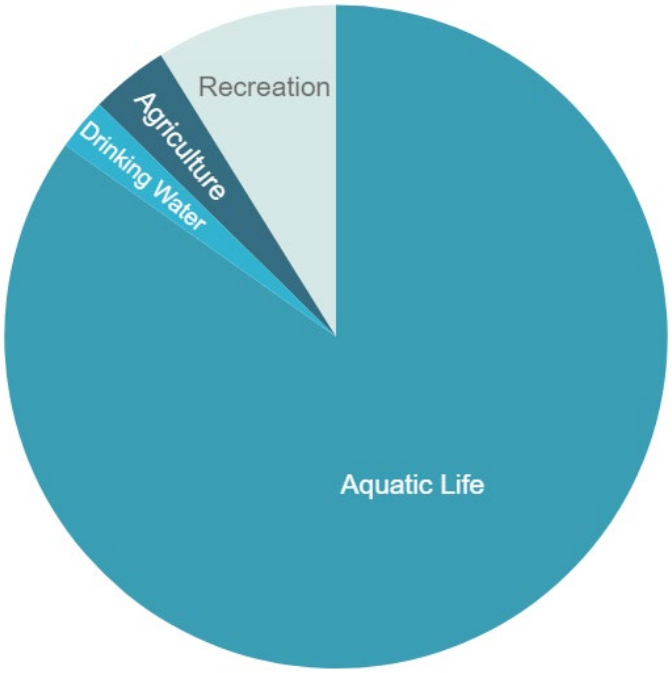

Figure 9. Pie chart of lake, reservoir, and pond impairments by use type. Note, some AU impairments are represented twice because parameters may be impaired for multiple uses.

Delistings

47 AUs were delisted for one or more parameters in the state‘s rivers, streams, and canals. Twelve AUs were delisted for one or more parameters in Utah‘s lakes, reservoirs, and ponds.

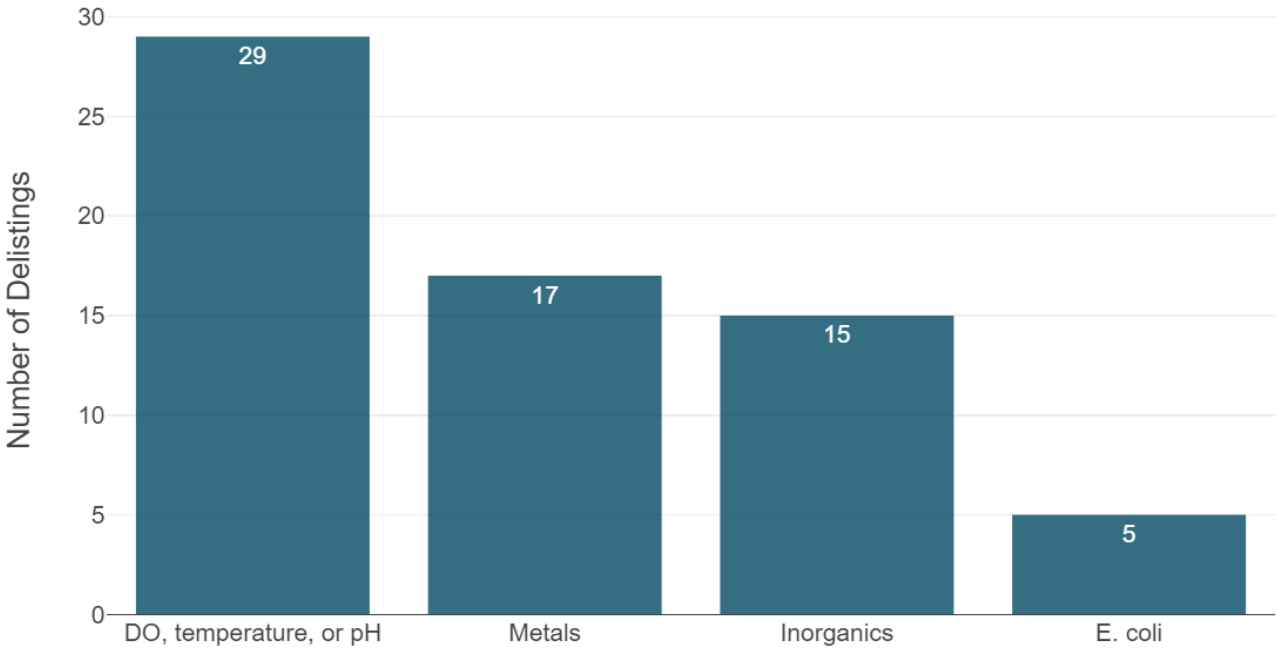

Figure 10. Number of AU delistings by parameter type across all assessed waterbodies.

Figure 11. Pie chart of delisting reasons across all assessed waterbodies.

Recommendations

Priority Waters

The CWA requires the development of total maximum daily load (TMDL) plans for all impaired waterbodies on the 303(d) List but recognizes the limitations in data, time, and staff resources to accomplish this task. Taking these limitations into account, the CWA requires states to prioritize where they will dedicate resources toward TMDL development. DWQ prioritizes impairments or risks to human and ecological health as described in the Division of Water Quality's (DWQ) 303(d) vision document. These priorities focus on the protection and restoration of waters designated for culinary, recreational, and aquatic wildlife uses.

Chapter 1: 303(d) Assessment Methods

Introduction

The Clean Water Act and the Integrated Report

The rules and regulations of the federal Clean Water Act (CWA) require the Utah Division of Water Quality (DWQ) to report the condition or health of all Utah surface waters to the U.S. Congress every other year. The Integrated Report (IR) contains two key reporting elements defined by the CWA:

Statewide reporting under CWA Section 305(b): Section 305(b) reporting summarizes the overall condition of Utah's surface waters and estimates the relative importance of key water quality concerns. These concerns can include pollutants, habitat alteration, and sources of water quality problems.

Water quality assessments under CWA Section 303(d): Section 303(d) requires states to identify waters that are not supporting beneficial uses according to state water quality standards (Utah Administrative Code [UAC] R317-2-7.1). Utah's Section 303(d) list (hereafter the 303(d) list) also prioritizes the total maximum daily loads (TMDL) required for each listed waterbody and the cause of nonattainment. This list includes waters impaired as a result of nonpoint sources, point source discharges, natural sources, or a combination of sources.

In addition to Utah's 303(d) list, DWQ also identifies

- Waterbodies meeting water quality standards
- Waterbodies with water quality problems that DWQ cannot confirm due to insufficient sample size, uncertainty regarding the nature of the data or other factors
- Waterbodies either currently addressed by DWQ through a TMDL or other pollution-control mechanism

Full descriptions of these and other U.S. Environmental Protection Agency (EPA)-identified waterbody assessment classifications are described and summarized in Table 1.

Assessment Categories for Surface Waters

DWQ uses five categories defined by EPA to assess surface waters of the state (EPA, 2005). These categories are described in Table 1.

Table 1. U.S. Environmental Protection Agency categorization of assessed surface waterbodies for Integrated Report purposes.

EPA Assessment Category	Assessment Category Description
1	**Supporting.** All beneficial uses assigned to a waterbody are evaluated against one or more numeric criteria and each use is found to meet applicable water quality standards.
2	**No Evidence of Impairment.** Some, but not all, beneficial uses assigned to a waterbody are evaluated against one or more numeric criteria, and each assessed use is found to meet applicable water quality standards.
3	**Insufficient Data and/or Information.** There are insufficient data and information to conclude support or nonsupport of a use. The category may be applied when: (1) the dataset is smaller in size and has water quality criteria exceedances OR no water quality criteria exceedances; (2) a secondary review applied to a waterbody found it was not meeting water quality standards; (3) water quality criteria and/or beneficial use support assessment methods are not yet developed (or are undergoing development or revisions) so use attainment has not been determined; (4) waterbodies were assessed against water quality parameters and characteristics that require further investigations as defined in UAC R317-2; (5) assessment units (AUs) have improper use designations, lack use designations, or contain other inconsistencies in the dataset. In cases where no recent data are available, historic-listing determinations will be maintained.
4A	**TMDL-Approved**. Waterbodies impaired by a pollutant with a TMDL(s) developed and approved by EPA. Where more than one pollutant is associated with the impairment, the waterbody and the parameters that have an approved TMDL are listed in this category. If a waterbody has other pollutants that need a TMDL, the waterbody is listed in Category 5 with an Approved TMDL.
4B	**Pollution Control**. Waterbodies that are not supporting designated uses where other pollution-control requirements, such as best management practices required by local, state, or federal authority, are stringent enough to bring the waters listed in this category back into attainment in the near future with the approved pollution-control requirements in place, consistent with 40 Code of Federal Regulations (CFR) 130.7(b) (I) (ii) and (iii). All waterbodies placed in this category must have a pollution control requirement plan developed and approved by EPA. Similar to Category 4A, if the waterbody has other pollutants that need a TMDL, or there is already a TMDL in place for another pollutant, the waterbody may also be listed in Categories 5 and 4A. Therefore, an AU with a pollution control in place may be listed in Categories 4B, 4A, and 5.
4C	**Non-Pollutant Impairment**. Waterbodies not supporting designated uses are placed in this category if the impairment is not caused by a pollutant but rather by pollution (for example, hydrologic modification or habitat degradation). Similar to Categories 4A and 4B, if the waterbody has other pollutants that need a TMDL, or there is an approved TMDL or pollution-control mechanism in place, the waterbody may also be listed in Categories 4A, 4B, and 5. Therefore, an AU with a pollution control in place may be listed in Categories 4C, 4B, 4A, and 5.
5	**Not Supporting**. The concentration of a pollutant or several pollutants exceeds numeric water quality criteria, or beneficial uses are not-supporting based on violation of the narrative water quality standards. Waterbodies identified as “threatened” may also be placed in this category. In a “threatened” waterbody, one or more of its uses are likely to become impaired by the next IR cycle and water quality may be exhibiting a deteriorating trend if pollution control actions are not taken. Both impaired and threatened waterbodies constitute Utah’s formal Section 303(d) list and are prioritized for future TMDL development.
5-Alt	**TMDL Alternatives**. The 303(d) program vision promotes the identification of alternative approaches to TMDL development for impaired waters where these approaches would result in a more rapid attainment of water quality standards. Note: This category is referenced in DWQ’s “303(d) Vision Document.”

Utah's Numeric Criteria and Beneficial Uses

DWQ assesses the impacts of measured pollutant concentrations on environmental and human health to determine the appropriate assessment categories for a waterbody (see Table 1). Utah has developed and adopted water quality numeric criteria (chemical concentrations that should not be exceeded) to protect the water quality of surface waters and the uses these waterbodies support (UAC R317-2-14). As noted in UAC R317-2-14, the water quality criteria for a pollutant can vary depending on the beneficial use assigned to a waterbody.

Utah adopted beneficial use classifications that identify the use and value of a waterbody for source water for domestic water systems, aquatic wildlife, recreation, agriculture, and Great Salt Lake (see UAC R317-2-6). DWQ currently designates five beneficial use classes of surface waters within the state:

- Class 1. Protected for use as a raw water source for domestic water systems
- Class 2. Protected for recreational use and aesthetics
- Class 3. Protected for use by aquatic wildlife
- Class 4. Protected for agricultural uses including irrigation of crops and stock watering
- Class 5. The Great Salt Lake (GSL)

Subclassifications for several of these categories are further defined in Table 2.

Table 2. Subclassifications of Utah's beneficial uses.

Beneficial Use Subclassification	Use Definition
1C*	Protected for domestic purposes with prior treatment by treatment processes as required by the Utah Division of Drinking Water
2A	Protected for frequent primary contact recreation where there is a high likelihood of ingestion of water or a high degree of bodily contact with the water. Examples include, but are not limited to, swimming, rafting, kayaking, diving, and water skiing.
2B	Protected for infrequent primary contact recreation. Also protected for secondary contact recreation where there is a low likelihood of ingestion of water or a low degree of bodily contact with the water. Examples include, but are not limited to, wading, hunting, and fishing.
3A*	Protected for cold water species of game fish and other cold water aquatic life, including the necessary aquatic organisms in their food chain.
3B*	Protected for warm water species of game fish and other warm water aquatic life, including the necessary aquatic organisms in their food chain.
3C*	Protected for nongame fish and other aquatic life, including the necessary aquatic organisms in their food chain.
3D*	Protected for waterfowl, shore birds and other water-oriented wildlife not included in Classes 3A, 3B, or 3C, including the necessary aquatic organisms in their food chain.
3E*	Severely habitat-limited waters. Narrative standards will be applied to protect these waters for aquatic wildlife.
4	Protected for agricultural uses including irrigation of crops and stock watering.
5A	**Gilbert Bay** Geographical Boundary: All open waters at or below approximately 4,208-foot elevation south of the Union Pacific Causeway, excluding all of the Farmington Bay south of the Antelope Island Causeway and salt evaporation ponds. Beneficial Uses: Protected for frequent primary and secondary contact recreation, waterfowl, shore birds and other water-oriented wildlife including their necessary food chain.

Beneficial Use Subclassification	Use Definition
5B	**Gunnison Bay** Geographical Boundary: All open waters at or below approximately 4,208-foot elevation north of the Union Pacific Causeway and west of the Promontory Mountains, excluding salt evaporation ponds. Beneficial Uses: Protected for infrequent primary and secondary contact recreation, waterfowl, shore birds and other water-oriented wildlife including their necessary food chain.
5C	**Bear River Bay** Geographical Boundary: All open waters at or below approximately 4,208-foot elevation north of the Union Pacific Causeway and east of the Promontory Mountains, excluding salt evaporation ponds. Beneficial Uses: Protected for infrequent primary and secondary contact recreation, waterfowl, shore birds and other water-oriented wildlife including their necessary food chain
5D	**Farmington Bay** Geographical Boundary: All open waters at or below approximately 4,208-foot elevation east of Antelope Island and south of the Antelope Island Causeway, excluding salt evaporation ponds. Beneficial Uses: Protected for infrequent primary and secondary contact recreation, waterfowl, shore birds and other water-oriented wildlife including their necessary food chain.
5E	**Transitional Waters along the Shoreline of the Great Salt Lake** Geographical Boundary: All waters below approximately 4,208-foot elevation to the current lake elevation of the open water of the Great Salt Lake receiving their source water from naturally occurring springs and streams, impounded wetlands, or facilities requiring a UPDES permit. The geographical areas of these transitional waters change corresponding to the fluctuation of open water elevation. Beneficial Uses: Protected for infrequent primary and secondary contact recreation, waterfowl, shore birds and other water-oriented wildlife including their necessary food chain.
***Footnote: There are human health (HH) criteria associated with these beneficial uses (see UAC R317-2-14). For uses with a HH criteria, (see Table 2.14.6 in UAC R317-2-14), the following use notation will be used in 303(d) data and assessment reports: HH1C, HH3A, HH3B, HH3C, and HH3D.**	

Every beneficial use with numeric criteria and credible and readily available data is assessed and reported for 303(d) assessment purposes. DWQ does not just assess and report on the most environmentally protective criterion and/or use for a parameter and waterbody. Where waterbodies are unclassified and do not have assigned beneficial uses in DWQ data records, DWQ may assign default beneficial uses as articulated in UAC R317-2-13.9,13.10,13.11,13.12, and 13.13. Alternately, these undefined waterbodies may be classified as an EPA Assessment Category 3 or not reported in the IR if an Assessment Unit has not been established.

For more information on how DWQ develops, adopts, and updates the numeric criteria and beneficial uses in UAC R317-2, please refer to DWQ's Standards website.

Priority and Assessed Parameters

DWQ developed a priority parameter list for routine water quality monitoring to make the list of pollutants with numeric criteria in UAC R317-2-14 more manageable for monitoring and assessment purposes. This priority list is a subset of the pollutants listed in UAC R317-2-14 and reflects the following constraints:

- Laboratory resources that limit the ability to assess all parameters in UAC R317-2-14
- Significant monitoring and/or analytical costs associated with processing a sample or measuring a pollutant
- Logistical constraints due to monitoring location and holding times for certain parameters

As a result, water quality assessments may not report on all parameters listed in UAC R317-2-14. Instead, assessments reflect all parameters with adopted numeric criteria that also have readily available and credible datasets from the IR period of record.

To view DWQ's list of priority parameters, please refer to Appendix 1. Please be aware that priority parameters can change from one reporting cycle to the next if laboratory and financial constraints and monitoring priorities within a sampling area change.

Assessment Process and Time Frames

Developing the Methods

This document describes the most up-to-date assessment methods that will be applied to Utah's current IR cycle. Although most of the methods described have been applied in past assessment cycles, other methods are new or modified from previous reporting cycles. Some of the assessment method revisions are intended to clarify ongoing DWQ practices. Other more substantive revisions may be based on comments that were raised during the previous IR's 303(d) assessment methods and draft IR public comment periods.

DWQ updates and revises the 303(d) methods when concerns are raised or when program developments are released by DWQ. Additional modifications or clarifications to the assessment methods may also be made based on feedback provided by EPA during and after a reporting cycle or from the EPA's cycle-specific 303(d) guidance memorandum.

All changes made to the 303(d) assessment methods are typically reviewed and updated on even-numbered years in anticipation of developing the Draft IR and 303(d) list in the following odd-numbered year. This process allows DWQ to consider comments and suggestions on assessment methods before a formal analysis is conducted. This reduces the need to rework analyses from changes in methods. In the 2022 IR cycle, however, methods will be reviewed and updated in an odd-numbered year in time for an even-numbered year submission for EPA approval.

Public Review of the Methods Process and Schedule

The development and acceptance of the Assessment Methods includes a public review process and occurs on the following schedule:

a. DWQ releases the proposed Assessment Methods for a 30-day public comment period. The notice for public comments on the Assessment Methods are advertised on DWQ's News and Announcements webpage, DWQ's Public Notices webpage, and Utah's Integrated Report program webpages.
b. DWQ compiles and responds to the comments received within the 30-day public comment period. DWQ's responses to comments are posted on the Utah's Integrated Report program webpages.
c. If substantial revisions to the Assessment Methods are adopted by DWQ based on comments received in the public comment period, DWQ has the discretion to hold a second public comment period of 30 days or less. Should DWQ proceed with a second public comment period, notifications will be advertised, at a minimum, on DWQ's News and Announcements and/or Public Notices webpages, and the Utah's Integrated Report program webpages.
d. Following the conclusion of the public comment period(s), DWQ posts responses to comments on the Utah's Integrated Report program webpages. Any changes or additions that were made in response to public comments will be documented and issued with the draft IR and 303(d) list. If stakeholders have concerns with the final Assessment Methods released during the draft IR, the public should submit their comments during the next IR cycle, when future calls for public comments on the Assessment Methods are issued.

Concerns and comments not received through the above processes may not be considered for current and future 303(d) methods updates and modifications.

Call for Readily Available Data and Schedule

DWQ issues a request for all readily available data (i.e., the IR Call for Data) after November 1 of even-numbered years.

Existing and Readily Available Data Defined

DWQ assembles and evaluates all existing and readily available data to determine whether a waterbody is supporting or not supporting the assigned beneficial uses and numeric criteria in UAC R317-2 as mandated in 40 CFR 130.7(b)(5). For the purposes of the IR, existing and readily available data may include:

- Data and information referenced in 40 CFR 130.7(b)(5)(i),(iii), and (iv)
- Data collected by DWQ or DWQ cooperators for assessment purposes
- Data collected for other DWQ programs, such as waste load allocations, TMDL development, watershed planning, and use attainability analyses
- Data collected for narrative assessments (see Narrative Assessment: Biological Assessments and Narrative Standards for All Waters)
- Data obtained through EPA's Water Quality Portal (WQP)
- Data and information obtained through the IR's public Call for Data
- Data and information submitted to EPA's Water Quality Exchange System or DWQ's Call for Data to support a credible data submission (e.g., Table 5-8)
- Data included in the Data Types Matrix in Table 10

Data and information (as described above) that are not brought forward during the IR's Call for Data or presented to DWQ in accordance with the schedule as outlined in this document and on Utah's Integrated Report program webpages will not be treated as readily available for the purpose of assessment decisions during the current assessment cycle.

Data that are submitted to DWQ or obtained by DWQ during the IR data compilation process are integrated into DWQ's assessments as described in Table 3 and subject to DWQ's data management and quality assurance/quality control (QA/QC) processes. Should any data and information not be included in the assessment process, DWQ will clearly document which dataset (or datasets) were not included and why (as described and required in 40 CFR 130.7(b)(6)(iii)

Table 3. DWQ's data-availability matrix.

Data Availability	Description	Processing required	Uses for Assessments
Readily available	Data are incorporated into EPA's WQP database and can interface directly with DWQ's IR data processing and assessment tools. Data is submitted by stakeholders or data submitters through DWQ's data submission templates or electronic submission processes which are provided on the Call for Data webpage.[1,2]	None	Fully incorporate into DWQ's assessment tools
	Additional "other" sources of data included in the Data Types Matrix in Table 10 that described the waterbodies in 40 CFR 130.7(b)(5)(i), (iii), and (iv) and are submitted through DWQ's electronic submission process as described on the Call for Data webpage.	None	Fully incorporate into DWQ's Conflicting Assessments of Water Quality Standards and Secondary Review processes
Readily available (additional processing may be required by DWQ)	Quantitative data and information may be stored in and routinely uploaded to a queryable, regularly maintained database that is available on the web or electronically submitted to DWQ during the public call for data. Database format is consistent and allows repeatable queries with predictable results (e.g., parameter names, location descriptions, and parameter units are consistent), making development of automated interface tools practicable.	Full incorporation into IR assessment tools requires DWQ development of interface tools for aggregating, translating, and harmonizing data to appropriate formats. In particular, sampling locations and dates, parameter names, fractions, units, analysis methods, and detection limits require translation and interpretation prior to assessment.	Fully incorporate into IR assessment tools if interface tools have been developed.[2] If interface tools are still in the development phase, (1) screen data for exceedances for the waterbodies described in 40 CFR 130.7(b)(5)(i), (iii), and (iv), or (2) manually assess data for specific sites, dates, and parameters at the request of stakeholders or data submitters for waterbodies described in 40 CFR 130.7(b)(5)(i), (iii), and (iv). Results are fully incorporated into DWQ's Conflicting Assessments of Water Quality Standards and Secondary Review.

[1] DWQ data submission templates and processes are designed to allow for data and information that may not fit the data structure of EPA's Water Quality Exchange System. They may also be used to support a credible data review (Tables 5-8) or perform narrative or high frequency data assessments.

[2] DWQ requests data submitters inform the Division which data system contains their data so DWQ can work with submitters prior to the IR's Call for Data to develop interface tools.

Developing the Components of the Draft Integrated Report and 303(d) List

DWQ reviews all data and assigns a credible data "grade" following its response to public comments on the draft 303(d) Assessment Methods and compilation of all existing and readily available data. All non-rejected, credible data are then assessed. The final 303(d) Assessment Methods, 305(b) Summary, and 303(d) List of Impaired Waters are the minimum reporting elements included in the Integrated Report. These reporting elements are available for public review and comment.

Final 303(d) Assessment Methods

The final version of the publicly-vetted 303(d) Assessment Methods, including any changes or additions made in response to the Assessment Method public comment period(s) is posted on the Utah's Integrated Report program webpages.

305(b) Summary

This summary, at a minimum, will address the following elements for current assessments and previous assessments where new data and information did not result in an EPA-defined categorical change:

- A unique identifier assigned to the Assessment Unit
- The name and location description of the Assessment Unit
- An indicator of whether the Assessment Unit is currently active, or if the Assessment Unit identifier was retired and being kept for historical tracking purposes and is part of an Assessment Unit history of another Assessment Unit
- The geographic state within which the Assessment Unit is contained
- The waterbody type for the Assessment Unit
- The size and the unit of measure for the assessed waterbody type
- The EPA-defined assessment category for each defined and evaluated Assessment Unit

303(d) Assessment Results

At a minimum, the following information will be provided for current assessments and previous assessments where new data and information did not result in an EPA-defined categorical change:

- The minimum elements discussed above in the 305(b) Summary
- The cycle the Assessment Unit was last assessed, which can include any conclusions related to this Assessment Unit and delisting decisions (if appropriate)
- The beneficial use(s) designated to the Assessment Unit and the EPA-defined assessment categories associated with the beneficial use after assessment
- The name of the parameter assessed, the beneficial use associated with the assessed parameter, and the EPA-defined assessment category status for the parameter and beneficial use
- An indicator of the water quality trend representing the beneficial use or parameter assessment
- A flag indicating whether or not the cause of the attainment status is a pollutant
- The agency responsible for identifying the EPA-defined assessment category status for the waterbody
- The IR cycle the Assessment Unit was first listed for a cause
- The name of the source of the EPA-defined assessment category status and if that source has been confirmed
- The reason(s) and the agency responsible for identifying the delisting of a waterbody and cause

305(b) Summary and 303(d) Assessment Metadata

DWQ will provide (at a minimum) the following supporting information and documentation as referenced in CFR 130.7 (b)(6) to support its decision to list or not list waters:

- A description of, and access to, the data records and information used in the IR's current period of record
- A rationale for, and access to, any data and information that was obtained or submitted to DWQ during the call for data but did not meet DWQ's readily available or credible data requirements and was not used for 305(b) and 303(d) assessments
- A rationale for, and access to, any rejected data records and information

For archiving purposes and to assist with the review of the IR and 303(d) List, DWQ will also provide the following as time and resources allow:

- The assessment method type and the assessment method context as defined in ATTAINS
- Geolocation information on the waterbodies assessed
- The date and version of UAC R317-2 used in the assessment cycle
- The list of approved TMDLs used in the assessment cycle
- A fact sheet summarizing the Final IR results

Note: In odd-numbered years, DWQ will "freeze" and establish file versions of several working files to maintain consistency and data integrity. These files include geographic information system (GIS) point files of monitoring locations, layers of AUs, beneficial uses, and water quality standards.

Public Review of the 303(d) List

There will be a formal public review process for the IR and 303(d) list using the following steps:

a. Any person who has a pollution-control mechanism plan for a waterbody and would like to submit that plan for consideration and EPA approval as a Category 4B must submit that information to DWQ by July 1 of even-numbered years (Appendix 5). If approved by DWQ, this information will then be submitted to EPA for review and final approval. It should be noted, however, that it takes a long time for successful Category 4B determinations to receive EPA approval and they may not be received in time to be included in the current IR cycle.
b. Waters and pollutants that are considered for a potential Category 4A (approved TMDLs) must be approved by DWQ's Water Quality Board per UAC R317-1-7 and by EPA per 40 CFR 130.7 by September 30 of even-numbered years. TMDLs that are approved by DWQ and EPA after that date will be considered in future IRs.
c. DWQ will release the proposed IR and 303(d) list for a 30-day public comment period after July 1 of odd-numbered years and no later than February 1 of even-numbered years. At a minimum, the notice for public comments on the IR will be advertised on DWQ's News and Announcements and/or Public Notices webpages, and the Utah's Integrated Report program webpages.
d. Stakeholders who wish to submit data for listing or delisting considerations are encouraged to submit that data and information during the Utah's IR program's Call for Data. However, DWQ may consider data that are submitted during the public comment period of the draft IR and 303(d) list when the commenter can show that submitted data results could result in a change to a specific waterbody assessment decision. Data that are submitted during the public comment period for the draft IR must be submitted in the format articulated in this document and on the IR Call for Data website and be of Grade A or B quality to be used in an assessment decision (see the Data Quality Matrices on the IR Call for Data website). Information submitted during the public comment period will undergo a secondary review (see Secondary Review and Appendix 3).
e. DWQ will compile and respond to comments that were received within the 30-day public comment period after the close of the public comment period.

f. DWQ may offer a second public comment period of 30 days or fewer if substantial revisions to the IR and 303(d) list are adopted on the basis of comments received during the first public comment period. Should DWQ proceed with a second public comment period, notifications will be advertised, at a minimum, on DWQ's News and Announcements and/or Public Notices webpages, and the Utah's Integrated Report program webpages.
g. DWQ will submit a response to the public comments that were received during the 30-day public comment period and a final version of the IR and 303(d) list to EPA for final approval no later than April 1 of even-numbered years. DWQ will post a status update on the Utah's Integrated Report program's webpages to let stakeholders know that a final IR was submitted to EPA for final approval. Any concerns or rebuttals from stakeholders regarding the IR will not be considered for the recently submitted IR after the submission of the IR to EPA for final approval. If stakeholders continue to have concerns with the IR and 303(d) list, they should submit their comments during the next IR cycle.
h. EPA has 30 days to approve or disapprove the 303(d) list after receiving DWQ's formal submission letter, IR chapters, 303(d) list, categorization of non-303(d) waterbodies, public comments received and DWQ's response to them, delisting tables and justifications, list of approved TMDLs/pollution-control mechanisms, and GIS files of all assessment results. If EPA disapproves a state 303(d) list, EPA has 30 days to develop a new list for the state, although historically EPA has rarely established an entire list for a state. EPA may also partially disapprove a list because some waters have been omitted, and EPA may add these waters to the state's list. If EPA's final approval of the IR takes longer than the timeframe identified above, DWQ will post updates on the Utah's Integrated Report programs webpages.
i. Any concerns and comments not received by DWQ through the above processes will not be addressed in the IR.

Finalizing the Integrated Report and 303(d) List

DWQ will release the following information on the Utah's Integrated Report program webpages following approval by EPA:

- A final version of 303(d) Assessment Methods, including the public comments received and DWQ's response to comments
- Final IR chapters and 303(d) lists, including public comments received, DWQ's response to comments, all assessment information considered and evaluated in the finalization of the IR and 303(d) list, and a GIS file of the final assessments and 303(d) list

EPA maintains a database of state IR results and TMDL status. Additional information not available on the Utah's Integrated Report program's webpages may be obtained through a Government Records Access and Management Act request. These requests can be submitted at any time.

Scope of the Assessment

Waters of the State

As defined in UAC R317-1-1, DWQ characterizes waters of the state as follows:

… all streams, lakes, ponds, marshes, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and all other bodies or accumulations of water, surface and underground, natural or artificial, public or private, which are contained within, flow through, or border upon this state or any portion thereof, except that bodies of water confined to and retained within the limits of private property, and which do not develop into or constitute a nuisance, or a public health hazard, or a menace to fish and wildlife, shall not be considered to be "waters of the state" under this definition (Section 19-5-102).

For 303(d) assessment purposes, DWQ reports on the following waterbodies:

- Rivers and streams
- Canals as identified in site-specific standards or named in the list of waters with designated use classifications in UAC R317-2
- Lakes, reservoirs, and ponds

All other waters are currently reported through other programs within DWQ. For more information on these waterbodies and their reports, please visit DWQ's website.

Waterbody Types

Utah assesses surface waters of the state at the monitoring-site level and then summarizes the site-level assessments at a larger spatial scale (the Assessment Unit (AU) scale). DWQ uses the descriptions in Table 4 to determine appropriate assessment sites and categorize monitoring locations.

Table 4. Assessed waterbody types used for categorizing monitoring locations.

Assessed Waterbody Type	Description
Rivers and streams*	Perennial and intermittent surface waters are included in this type. Springs and seeps are also included in this waterbody type, provided they are flowing and connect, contribute, or are influencing water quality in a downstream river or stream.
Canals (general, irrigation, transport, or drainage)*	A human-made water conveyance with flowing water. Note: Canals are only assessed when identified in the site-specific numeric criteria in UAC R317-2-14 or are named in the list of waters with designated use classifications in UAC R317-2-13.
Lakes, reservoirs, and ponds*	An inland body of standing fresh or saline water that is generally too deep to permit submerged aquatic vegetation to take root across the entire body. This type may include expanded parts of a river or natural lake, a reservoir behind a dam, or a natural or excavated depression containing a waterbody without surface water inlet and/or outlet.
***Footnote: Sites associated with these waterbody types that have readily available and credible data are also subject to secondary reviews as described in the Secondary Review section and Appendix 3.**	

Assessment Units

Assessment Unit Delineation and Identification

Surface waters identified for 303(d) assessments are delineated into discrete units called assessment units (AUs). AUs identify waters of the state assessed for support of their designated beneficial uses. Lakes, reservoirs, and ponds are delineated as individual AUs, and their size is reported in acres. Flowing surface waters of the state and canals are delineated by specific rivers or one or more surface water reaches in subwatersheds

Additional Guidelines for Delineating Assessment Units

DWQ follows the guidelines listed below when delineating AUs for flowing surface waters of the state. The first two guidelines are fixed rules.

- The entire AU is within a single 8-digit USGS HUC.
- Each AU comprises reaches with identical designated beneficial use classifications. For example, a waterbody that has beneficial uses of Class 1C, 2B, and 3A in one portion and Class 2B and 3B in another portion would have at least two distinct AUs because of the difference in beneficial use classifications.
- Large flowing surface waters of the state, such as the Green River, Colorado River, and portions of other large rivers (e.g., the Bear River and Weber River) are delineated into "linear" or "ribbon" AUs containing no tributaries. Where a major tributary enters these rivers, or hydrological features such as dams exist, the river is further delineated into two or more AUs.
- Tributaries and headwaters were delineated primarily using the 5th- and 6th-level HUC boundaries to define the AUs.
- Additional AUs were defined by combining or splitting 5th- or 6th-level watersheds using hydrological and ecological changes such as geology, vegetation, or land use.
- Small tributaries to larger flowing surface waters that could not be incorporated into a watershed unit are combined into separate, unique AUs.
- AU boundaries generally follow hydrologic units, but may also be delineated to reflect beneficial use designation changes, major tributaries or other observed hydrologic or chemical changes, administrative boundaries such as at some U.S. Forest Service boundaries, or notable road crossings as stated in water quality standards at UAC R317-2-13.

Individual AUs for flowing surface waters of the state are assigned a unique identification code for indexing. Each AU identifier begins with the prefix “UT,” followed by the associated 8-digit HUC, and ends in a 3-digit DWQ sequential number. Similarly, lake, reservoir, and pond AUs are identified by adding the prefix “UT-L-” to the 8-digit HUC, followed by a 3-digit sequential number.

Figure 12 provides an example of how DWQ uses these guidelines to delineate and identify AUs within a major watershed. The Weber River is delineated as a linear AU from its confluence with Chalk Creek upstream to the Wanship Dam and designated as UT16020101-017. South Fork Chalk Creek (UT16020101-011) in the Chalk Creek watershed is delineated by combining two 12-digit HUCs comprising the South Fork Chalk Creek sub-basin. The first AU (UT16020101-010) in the Chalk Creek watershed above Echo Reservoir is delineated using the confluence of the South Fork as the upstream endpoint. This necessitated splitting the 12-digit HUC into two AUs, one for Chalk Creek below the confluence with South Fork (UT16020101-010) and another AU for Chalk Creek above the South Fork confluence and below the Huff Creek confluence to form UT16020101-012. UT16020101-019 AU is an example of small tributary streams that could not be combined into a hydrological based AU. These are very small tributaries, and the Weber River is not reflective of their stream order or the habitat that they flow through. Echo Reservoir (UT-L-16020101-001) and Rockport Reservoir (UT-L-16020101-002) are examples of lake or reservoir AUs.

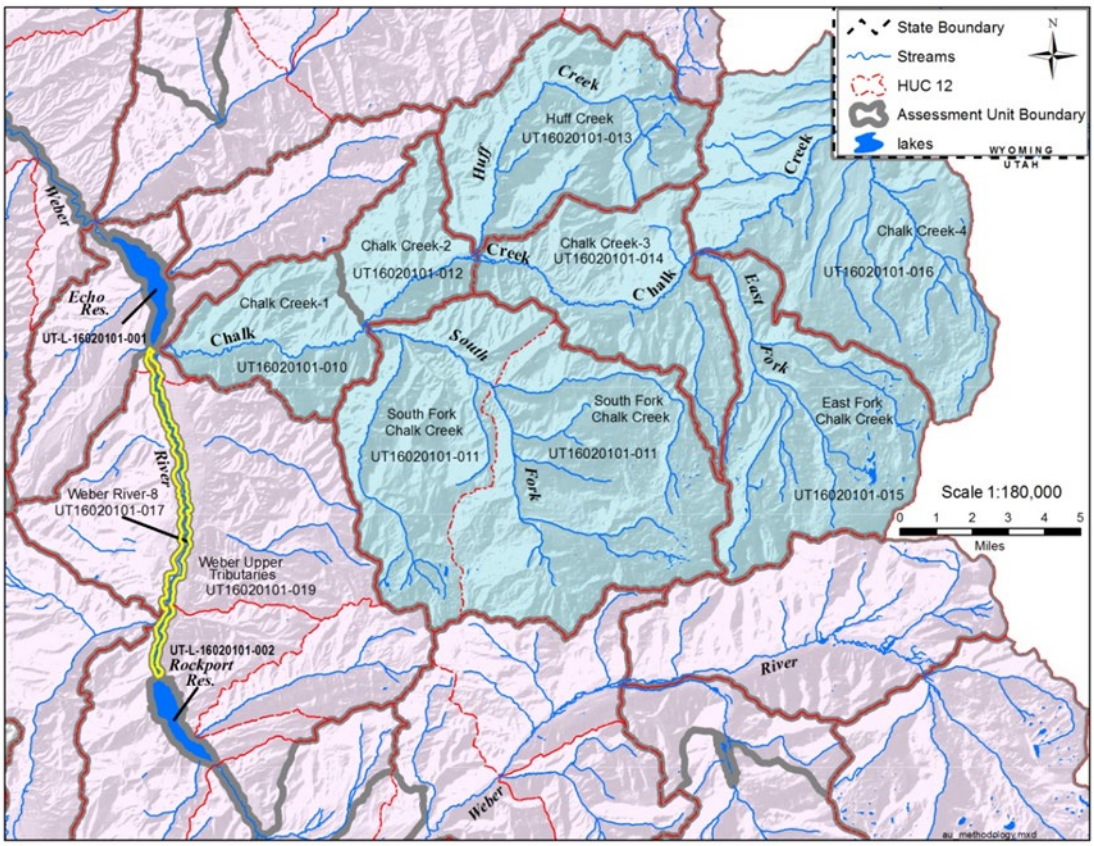

Figure 12. Utah Division of Water Quality assessment unit delineations.

AU Stream Mileage Estimation for Flowing Surface Waters and Canals

Flowing surface water assessments are summarized by stream mileage in each assessment category. Stream mileage within each AU is estimated using a streams GIS layer generated by the Utah Automated Geographic Reference Center (AGRC). This layer was derived from the high resolution (1:24,000 scale) National Hydrologic Dataset (NHD). Stream mileage within an AU is estimated as the sum of the lengths of all perennial and intermittent streams and canals identified in the site-specific numeric criteria in UAC R317-2-14 or named in the list of waters with designated use classifications in UAC R317-2-13.The NHD-based layer is only used to estimate stream mileage within an AU and is not used to define individual monitoring locations as perennial or intermittent or remove monitoring locations from the assessment process..

Waters Within and Shared with Other States

Though readily available data may exist from locations near Utah's state boundaries, DWQ only assesses monitoring sites that are within the jurisdictional boundaries of the state for 303(d) purposes. Assessment units or sites on lands under tribal jurisdiction are not assessed in the IR. Assessed surface waters of the state (as defined in Table 4) that flow into Utah but originate outside of Utah's borders will be assessed using DWQ monitoring locations within state boundaries. Lakes, reservoirs, and ponds that overlap with other state jurisdictions (e.g., Lake Powell, Bear Lake, and Flaming Gorge) will be assessed using the monitoring locations that fall within Utah state jurisdictional boundaries.

DWQ will work with neighboring states, as resources allow, on any impairments that fall close to jurisdictional boundaries by notifying the neighboring state of the impairments or exceedances and available data relevant to the impairment.

Data Quality

Credible Data Defined

All readily available data and information that are submitted to the Utah's Integrated Report program (Utah's IR program) or obtained during the IR's data compilation process must be of high quality to be considered for 303(d) assessments.

Utah's IR program defines credible data as a complete and validated data submission consisting of

- Water quality samples and field measurements (data) that are collected using appropriate quality assurance (QA) and quality control (QC) procedures, including proper documentation
- Environmental data that are representative of water quality conditions at the time of sampling
- Documented field sample collection, processing, and laboratory analyses that are documented and follow established protocols, procedures, and methods. Further information on proper adherence to these requirements is available upon request.

Utah's IR program relies on documentation from project planners, sample collectors, and laboratories to help ensure that data are of known quality and defensible. External entities are not obligated to collect data under the specifications of any of DWQ's or EPA's currently established quality assurance protocols to be considered credible, but all sources of data must meet the definition of credible data. DWQ will evaluate the credibility of data using the criteria and documentation described in the following sections.

Please note that the definition of credible data outlined in this document is specific to Utah's IR program and does not restrict other programs (e.g., water quality standards development, TMDLs, etc.) within DWQ from using data for other Division reporting analyses and actions. Data used for a Watershed Plan, for example, may not necessarily meet the credible data requirements for Utah's IR program but may meet the needs of a Watershed Plan.

Components for Credible Data

Quality Assurance Program Plan Guidance and Example

Utah's IR program requires that all assessment-related decisions that use data are supported by a Quality Assurance Project Plan (QAPP). QAPPs *"integrate all technical and quality aspects of a project, including planning, implementation, and assessment." The purpose of a QAPP is to document planning results for environmental data operations and to provide a project-specific "blueprint" for obtaining the type and quality of environmental data needed for a specific decision or use. The QA Project Plan documents how quality assurance (QA) and quality control (QC) are applied to an environmental data operation to assure that the results obtained are of the type and quality needed and expected"* (EPA, 2002).

DWQ does not require entities to follow a specific QAPP. However, external entities should be prepared to share the QAPP they relied on for the data collection associated with a particular submission. External entities may choose to follow one of the example QAPPs below or develop a QAPP specific to their entity or sampling program(s).

Example QAPPs

- Environmental Protection Agency's Quality Assurance Quality Program Guidance & Requirements. EPA's requirements and guidance documents for ensuring that all environmental data are of a known quality and defensible. Utah's IR program encourages DWQ staff, cooperators, and all other parties interested in submitting high quality data to the IR program to review QA/R-5 and QA/G-5.
- DWQ Quality Assurance Program Planning (QAPP). DWQ's document outlining the minimum Quality Assurance and Quality Control (QA/QC) requirements for environmental data generated by DWQ and used by most of its cooperators.

Sampling Analysis Plan Guidelines and Examples

Sampling Analysis Plans (SAPs) are the second type of documentation that Utah's IR program requires when compiling information for assessments and other programmatic decisions. SAPs *"are intended to assist organizations in documenting the procedural and analytical requirements for one-time, or time-limited, projects involving the collection of water, soil, sediment, or other samples taken to characterize areas of potential environmental contamination. It combines the basic elements of a Quality Assurance Project Plan (QAPP) and a Field Sampling Plan"* (EPA, 2014).

DWQ does not require that entities follow a specific SAP. However, external entities should be prepared to share the SAP relied upon for data collection associated with a particular submission. External entities may choose to follow one of the example SAPs below or develop a SAP specific to their sampling program(s).

Example SAPs

- EPA's Sampling Analysis Plan Guidance & Requirements.
- DWQ's recommended Sampling Analysis Plan Requirements. These requirements are currently used by DWQ and its cooperators This document contains information on what DWQ looks for in a SAP (see Appendix 2)

Standard Operating Procedures Guidelines and Examples

Standard Operating Procedures (SOPs) are documented procedures that describe the routine operations of a monitoring program in full detail. Utah's IR program requires SOPs as part of data submission packages to ensure consistency and comparability across sampling techniques from disparate data sources.

DWQ does not require that entities follow a specific SOP. However, external entities should be prepared to share the SOPs relied upon for data collection associated with a particular submission. External entities may choose to follow the example SOPs below or develop SOPs specific to their sampling program(s).

Example SOPs

- EPA's Guidance for Preparing Standard Operating Procedures (G-6). EPA's guidance for developing and providing the necessary documentation when generating an SOP. DWQ recommends referring to EPA's guidance if not using DWQ's SOP.
- DWQ Standard Operating Procedures. DWQ generates SOPs for any procedure that becomes routine, even when published methods are utilized. The use of SOPs ensures data comparability, defensibility, and accuracy, and reduces bias. DWQ has published the following final SOPs on its website:

    b. Aquatic Benthic Macroinvertebrate Collection in Rivers and Stream
    c. Calibration, Maintenance, and Use of Multiparameter Water Quality Sondes
    d. Chain of Custody Samples
    e. Collection and Handling of Total Coliform and *Escherichia coli (E. coli)* Samples
    f. Collection and Preparation of Fish Tissue for Analysis

g. Lake Water Sampling and Data Collection
h. Collection of Water Chemistry Samples in Streams
i. Collection and Filtering of Water Column and Benthic Chlorophyll a Samples
j. Phytoplankton Collection to Detect Harmful Algal Blooms
k. Secchi Disk Depth Measurements
l. Stream Flow Measurement

Sampling Observations and Laboratory Comments

Utah's IR program requires documentation of field conditions that may affect data quality or laboratory comments on QA/QC issues encountered during analysis. Appendix 2 includes an example of sampling observations DWQ recommends documenting in the field for grab sample collections, and the credible data matrices included in Table 5 - Table 9 describe additional sampling and laboratory observations and comments required by Utah's IR program.

Monitoring Location Information

DWQ must review all of the monitoring location information associated with datasets to assess waterbodies against the numeric criteria assigned in UAC R317-2-14. This process involves validating the location's geospatial information in GIS, assigning beneficial uses to DWQ-validated locations, and merging monitoring locations and their associated data where locations are representative of the same waterbody or segment. Information that must be included with a monitoring location measurement:

- Monitoring Location ID (organization's unique identifier for the sample site)
- Waterbody type description
- Monitoring location, latitude/longitude measurements and associated metadata as defined on Utah's IR program's Call for Data webpages.

A monitoring location and its associated data will not be included in the assessment if DWQ's geospatial review of the monitoring location information finds insufficient or inaccurate information (e.g., it cannot be mapped or is improperly recorded by the sampler in the field).

Credible Data Matrices

DWQ will consider the scientific rigor of the sampling information and measurements associated with sites where beneficial uses can be assigned to a DWQ-validated monitoring location. DWQ uses a data-type–specific, credible-data matrix to assess the validity of the sampling and analytical protocols associated with a sample measurement, As noted in the credible-data matrices, each credible-data matrix considers the field and laboratory QA/QC protocols, sampling and laboratory methods, analytical detection or instrumentation limits, and field observations associated with a sample measurement. DWQ assigns a grade level (A–C) to the associated sample measurement(s) based on the level of information provided and the strength of the metadata associated with the sample measurement.

DWQ considers measurements that receive an A or B grade to be of high quality and will consider and use them to assign an EPA-derived assessment category to a waterbody (i.e., the IR's 305(b) and 303(d) assessments). Measurements that receive a C grade are considered to be of insufficient quality for assessment and 303(d) listing purposes. Details on the required data quality criteria for inclusion in the IR and use by Utah's IR program are included in Table 5.

Table 5. Data validation criteria for water quality field grab sample parameters.

Data Quality Grade	Quality Assurance	Essential Metadata[1]	Calibration Documentation	Field Documentation	Flow Data	Calibration: Water Temperature Methods*	Calibration: pH Methods*	Calibration: Dissolved Oxygen, Percent Saturation for Calibrated Meter*	Calibration: Dissolved Oxygen, Concentration Methods for Calibrated Meter*
A	QAPP, SAP(s), and SOP(s) or equivalents are available for DWQ review if requested	Essential metadata is included with the data submission.	Available for DWQ review if requested for all field parameters	Available for DWQ review if requested	Submitted or available for DWQ review if requested	Checked against NIST A ≤ ± 0.1 ºC	Calibrated pH Probe A ≤ ± 0.2	0-200 %Sat: A ≤ ± 6%	0-8 mg/L: A ≤ ± 0.1mg/L > 8mg/L: A ≤ ± 0.2 mg/L
B	QAPP, SAP(s), and SOP(s) or equivalents are available for DWQ review if requested	Essential metadata is provided to DWQ upon request.	Available for DWQ review if requested, for field parameters	Unavailable	Not submitted or unavailable	A ≤ ± 0.1 ºC	Calibrated pH Probe A ≤ ± 0.2	0-200 %Sat: A ≤ ± 10%	0-20 mg/L: A ≤ ± 0.2 mg/L
C	QAPP, SAP, or SOP is unavailable Not Submitted	Essential metadata is missing from the data submission and is unavailable.	Unavailable	Unavailable	Not submitted or unavailable	A ≥ ± 0.5 ºC OR not a calibrated meter, missing, or rejected data	Not a calibrated meter, missing, or rejected data	Not a calibrated meter, missing, or rejected data	Not a calibrated meter, missing, or rejected data

[1] Essential metadata elements are sample location (latitude/longitude), sample date and time, parameter name, result value and unit.
***Footnote: A = accuracy, values based on technical specifications of commonly used YSI, Hydrolab, and In-Situ smarTROLL sondes.**

Table 6. Data validation criteria for water quality high frequency dissolved oxygen data.

Data Quality Grade	Quality Assurance Quality Assurance Project Plan (QAPP)	Essential Metadata[1]	Calibration Documentation	Data QA/QC Information or Report	Field Documentation	Flow Data	Calibration: Dissolved Oxygen*, Percent Saturation for Calibrated Meter	Calibration: Dissolved Oxygen*, Concentration Methods for Calibrated Meter
A	QAPP, SAP(s), and SOP(s) or equivalents are available for DWQ review if requested	Essential metadata is included with the data submission.	Mandatory-calibration record(s) (e.g., field records of calibration and/or fouling)	Documentation describing the QA/QC process on the raw data	All pertinent deployment data (i.e., information necessary for interpreting data)	Submitted or available for DWQ review if requested	0-200%: A ≤ ± 6%	0-8 mg/L: A ≤ ± 0.1 mg/L > 8mg/L: A ≤ ± 0.2 mg/L
B	QAPP, SAP(s), and SOP(s) or equivalents are available for DWQ review if requested	Essential metadata is provided to DWQ upon request.	Mandatory-calibration record(s) (e.g., field records of calibration and/or fouling)	Documentation describing the QA/QC process on the raw data	All pertinent deployment data (i.e., information necessary for interpreting data)	Not submitted or unavailable	0-200%: A ≤ ± 10%	0-20 mg/L: A ≤ ± 0.2 mg/L
C	QAPP, SAP, or SOP is unavailable	Essential metadata is missing from the data submission and is unavailable.	Unavailable	Unavailable	Unavailable	Not submitted or unavailable	missing, or rejected data	

[1] **Essential metadata elements are sample location (latitude/longitude), sample date and time, parameter name, result value and unit.**
***Footnote: A = accuracy, values based on technical specifications of commonly used YSI, Hydrolab, and In-Situ smarTROLL sondes.**

Please note**: Raw and QA/QC data records *must be* submitted to qualify for consideration in 303(d) assessments.**

Table 7. Data validation criteria for water quality chemistry grab sample parameters.

Data Quality Grade	Quality Assurance Project Plan (QAPP)	Essential Metadata[1]	Laboratory Method	Detection Limits	Lab Certification	QC Data	Laboratory Comments	Field Documentation	Metals*	Organics*	Inorganics*
A	QAPP, SAP(s), and SOP(s) or equivalents are available for DWQ review if requested	Essential metadata is included with the data submission.	Standard Methods	Below applicable water quality standard	Utah Bureau of Laboratory Improvement certification, NELAC, or equivalent	Available for DWQ review if requested	Laboratory Comments Associated with Sample	Available for DWQ review if requested	Chronic: Aluminum submitted with Ca and Mg OR Lab Hardness and field pH; Cadmium, Chromium (III), Copper, Lead, Nickel, Silver, and Zinc submitted with Ca and Mg OR Lab Hardness	Pentachlorophenol submitted with field pH	Total Ammonia as N submitted with field pH or field Temperature
B	QAPP, SAP(s), and SOP(s) or equivalents are available for DWQ review if requested	Essential metadata is provided to DWQ upon request.	Standard Methods	Below applicable water quality standard	Documentation of laboratory procedures	Available for DWQ review if requested	Laboratory Comments Associated with Sample	Unavailable	Chronic: As above, but Aluminum submitted without Hardness or field pH will be assessed at 750 ug/l; As above, but samples submitted without Ca, Mg, or Lab Hardness **	Pentachlorophenol submitted without field pH	Total Ammonia as N submitted with field pH or field Temperature
C	QAPP, SAP, or SOP is unavailable	Essential metadata is missing from the data submission and is unavailable.	Missing or Non-Standard Methods	Above applicable water quality standards	No certification or laboratory documentation	Unavailable	No Laboratory Comments	Unavailable	Chronic: As above, but Aluminum without Hardness or field pH will not be assessed;	Pentachlorophenol submitted without field pH	Total Ammonia as N submitted with field pH or field Temperature

[1] Essential metadata elements are sample location (latitude/longitude), sample date and time, parameter name and fraction, parameter units, analytical method, result value or non-detect limitation, and laboratory name.
***Footnote: Please also refer to UAC R317-2 to confirm that all the necessary data is submitted to DWQ so correction factors and equations may be fully calculated for 303(d) assessment purposes.**
****Footnote: Please refer to the 303(d) Assessment Methods for corrections to assessment due to missing values of hardness or pH.**

Table 8. Data validation criteria for macroinvertebrate data.

Data Quality Grade	Quality Assurance Project Plan (QAPP)	Essential Metadata[1]	Field Documentation	Qualified taxonomy lab
A	EPA-approved Lab QAPP available for DWQ review if requested; SAP and SOP or equivalents available for DWQ review if requested	Essential metadata is provided to DWQ upon request.	Available for DWQ review if requested	Required
B	Lab QAPP or equivalent is available for DWQ review if requested; SAP and SOP or equivalents available for DWQ review if requested	Essential metadata is provided to DWQ upon request.	Unavailable	Required
C	QAPP, SAP, or SOP is unavailable	Essential metadata is missing from the data submission and is unavailable.	Unavailable	Unavailable

[1] **Essential metadata elements are sample location (latitude/longitude), sample date and time, parameter name and fraction, analytical method, result value and unit, and laboratory name.**

Table 9. Data validation criteria for *Escherichia coli (E. coli)* data.

Data Quality Grade	Quality Assurance	Essential Metadata[1]	EPA Approved Method	Lab Documentation	QA/QC
A	QAPP, SAP(s), and SOP(s) or equivalents are available for DWQ review if requested	Essential metadata is provided to DWQ upon request.	IDEXX Colilert	Bench Sheet Present and Complete	Information on holding time, incubation*, and expiration dates provided.
B	QAPP, SAP(s), and SOP(s) or equivalents are available for DWQ review if requested	Essential metadata is provided to DWQ upon request.	IDEXX Colilert or EasyGel	Bench Sheet Present, incomplete, or not available	Not provided
C	QAPP, SAP, or SOP is unavailable	Essential metadata is missing from the data submission and is unavailable.	IDEXX Colilert or EasyGel	Unavailable	Not provided

[1] Essential metadata elements are sample location (latitude/longitude), sample date and time, parameter name and fraction, analytical method, result value and unit, and laboratory name.
***Footnote: "incubation" refers to data and information that is recorded on DWQ's *E. coli* bench sheets and relates to time and temperature (i.e., time samples were placed in and taken out of the incubator and the temperature of the incubator when samples were placed in and taken out of it). For an example of how DWQ records this information, please refer to Appendix 3 of DWQ's Standard Operating Procedure for Collection, Handling, and Quantification of *Escherichia coli (E. coli)* Samples.**

Data Submission Process

Type of Data to Submit

As referenced in 40 CFR 130.7(b)(5), Utah's IR program considers all existing and readily available data as defined in Table 3. Both quantitative and qualitative data may be used to evaluate whether physical, chemical, and biological characteristics of a waterbody are sufficient to support that waterbody's designated uses. However, based on the type of data submitted to or obtained by DWQ during Utah's IR program's Call for Data, some of these data may not be appropriate for assessments. DWQ considers several quantitative and qualitative types of data described in Table 10 for water quality assessments and analyses as recommended in EPA's July 29, 2005, guidance (EPA, 2005).

Table 10. Summary of data types considered by Utah's IR program.

Utah's IR program Data Uses	Quantitative Data	Qualitative Data	Other
305(b) and 303(d) Assessments (Grade A and B Data in credible data matrices)	(1) Assessment parameters contained in Utah Water Quality Standards (UAC R317-2) and Safe Drinking Water Act Standards (see Appendix 1), (2) segment-specific ambient monitoring of analytical, physical, and/or biological conditions, (3)simple dilution calculations, and (4) human health/consumption closures, restrictions, and/or advisories	(1) Observed effects (e.g., fish kills), (2) complaints and comments from the public, and (3) human health/consumption closures, restrictions, and/or advisories	Landscape analysis (when applicable)
Monitoring Planning and Training (Grade C and D Data in credible data matrices)	See above	See above	(1) Landscape analysis (when applicable), (2) technical reports, (3) white papers, (4) articles from referred journals, and (5) other scientific publications

Period of Record

DWQ uses water years to define the period of record and uses the same definition of water years as the U.S. Geological Survey. USGS defines the water year as the 12-month period between October 1 and September 30 of the following year. For the 2022 IR, the period of record is October 1, 2014, to September 30, 2020, (water years 2015-2020).

Data and information from the IR's period of record are considered to be most reflective of the current conditions of a waterbody. DWQ will analyze and assign EPA-derived assessment categories to the assessed waterbodies from this record period, provided the data meet the interpretive, sampling, and analytical considerations and protocols outlined in this document and on Utah's IR program's Call for Data webpages (see Table 1). Note that DWQ will retain all accepted data from the Combined 2018/2020 Integrated Report within the current period of record for assessment. DWQ will combine this dataset with additional data received through the Call for Data as well as any data collected between October 1, 2018, and September 30, 2020, and submitted to readily available data sources.

Older Data and Information

DWQ will not consider data and other information older than the period of record in the current IR and 303(d) list unless the data are used to support a secondary review of an impairment determination. Instead, DWQ will encourage the data submitter to collect newer information and submit that data and information in future calls for data. The IR's period of record does not preclude DWQ from using older or longer-term datasets for programs other than assessments (e.g., water quality standards development, TMDLs, etc.).

Newer Data and Information

Quantitative and qualitative data types that are considered in 303(d) assessments but are collected or represent conditions after the closing date specified in the above period of record will not be considered in the current reporting cycle. DWQ does not include these newer datasets because of the time required to compile data, perform data quality checks, format data from different sources, assess, review assessments, and generate the IR and 303(d) for public comment by April 1 of even-numbered years.

Data Submission Tools

Data should be submitted in a form that is compatible with the Utah's IR program's existing data-management and QA capabilities. Please refer to Table 3 and the Utah's IR program's Call for Data webpages for more information on how to submit data for consideration in the IR.

Data Preparation for Conventional and Toxic Assessments for All Waters

DWQ compiles all high quality credible data within the period of record of concern following the readily available and credible data reviews, and then standardizes, validates, and prepares the data for assessments. To assist reviews and increase transparency to reviewers, DWQ uses a series of database comments and flags rather than altering raw data and accompanying metadata. Though High Frequency Dissolved Oxygen (DO) and *E. coli* assessments are considered conventional assessments (see Table 11), these parameters have data preparation protocols that are unique to those datasets. Please refer to the High Frequency and *E. coli* assessment sections of this document for more details.

Results below Detection Limits

Environmental chemistry laboratories often report sample results as below their detection limit for a given analytical method. These limits are variously reported as minimum detection limit, minimum reporting limit, and/or minimum quantitation limit. DWQ screens and flags laboratory result values that are empty and have detection limits higher than the water quality criteria in UAC R317-2-14.These flagged data records are not considered for the analysis. The reported result value or a value of 0.5 times the lowest reported detection limit for sample results below detection is applied for purposes of the assessment. However, if the detection limit is above the water quality standard, the data will not be used in the assessment.

Duplicate and Replicate Results

Datasets often contain duplicate and replicate sample results due to QA/QC procedures, reporting errors, or sampling design. In these cases, a single daily value is determined by accepting the highest result for parameters with not-to-exceed criteria in UAC R317-2-14, or the lowest reported value for parameters with

minimum criteria in UAC R317-2-14. All data are retained in the assessment dataset and flagged as rejected because of replicate or duplicate values.

Initial Assessment: Monitoring Location Site Level

DWQ determines attainment or nonattainment of numeric standards by assessing credible data at the monitoring location site level against the numeric criteria in UAC R317-2-14. DWQ developed this protocol because individual assessments offer a more direct measure of the support or non-support of water quality standards in UAC R317-2.

Multiple parameter assessments at an individual monitoring location and results from multiple monitoring locations within the same AU are summarized and combined using the procedures outlined in the Determination of Impairment: All Assessment Units section of this report.

Assessments Specific to Rivers, Streams, and Canals

Conventional Parameter Assessments

DWQ currently assesses five parameters within UAC R317-2-14 as conventional parameters and assesses them against the beneficial-use specific criteria established in UAC R317-2. Several waterbodies with conventional numeric criteria have site-specific standards articulated in self-explanatory footnotes within DWQ's surface water standards (UAC R317-2-14). Site-specific standards that require further clarification for 303(d) assessment purposes are noted and explained in Table 11. Sites that do not meet water quality standards as described below are not supporting of beneficial uses for 303(d) assessment purposes.

Table 11. Conventional parameters and associated designated uses as identified for assessment purposes.

Parameters	Designated Use	Notes
DO*	Aquatic life	DO measurements are assessed against the instantaneous minimum, 7-day average, and 30-day average criteria in UAC R317-2-14. Grab samples are assessed following the processes in Figure 13 for rivers and streams and the "Assessments Specific to Lakes, Reservoirs, and Ponds" sections of the methods. High frequency DO datasets are assessed following the processes in Figures 14-16. Note: DWQ will assess against early life stage (ELS) criteria where ELS presence has been confirmed in a specific waterbody. Site specific standards are used for assessment where they have been developed.
Maximum temperature*	Aquatic life	Some site-specific standards are used for assessment purposes.
pH*	Domestic, Recreation, Aquatic life	Criteria are identical across uses.

Parameters	Designated Use	Notes
Total dissolved solids (TDS)**	Agriculture	Many site-specific standards are used for assessment purposes. Clarification on how three site-specific standards are used for 303(d) purposes are provided below: (1) For South Fork Spring Creek from the confluence with Pelican Pond Slough Stream to U.S. Route 89, two seasonal assessments are not performed. Instead, each sample is compared to the monthly corrected criteria in the footnote in UAC R317-2. (2) Ivie Creek and its tributaries from the confluence with Muddy Creek to the confluence with Quitchupah Creek. If TDS exceeds the site-specific standard, the site is not meeting site-specific criteria. If TDS is not exceeding, total sulfate is assessed. (3) Quitchupah Creek from the confluence with Ivie Creek to Utah State Route 10: If TDS exceeds the site-specific standard, it is not meeting site-specific criteria. If TDS is not exceeding, total sulfate is assessed. (4) Blue Creek and tributaries, Box Elder County, from Bear River Bay, Great Salt Lake to Blue Creek Reservoir. The only site to be assessed within this area is 4960740. (All other sites within this area description will not be assessed for TDS). Site-specific standard associated with sulfate for the following areas: (1) Ivie Creek and its tributaries from the confluence with Muddy Creek to the confluence with Quitchupah Creek: When TDS is not exceeding site-specific criteria and total sulfate exceeds site-specific criteria, the area does not meet water quality standards. (2) Quitchupah Creek from the confluence with Ivie Creek to Utah State Route 10: When TDS is not exceeding site-specific criteria and total sulfate exceeds site-specific criteria, the area does not meet water quality standards.
Sulfate**	Agriculture	Site-specific standard associated with sulfate for the following areas: (1) Ivie Creek and its tributaries from the confluence with Muddy Creek to the confluence with Quitchupah Creek: When TDS is not exceeding site-specific criteria and total sulfate exceeds site-specific criteria, the area does not meet water quality standards. (2) Quitchupah Creek from the confluence with Ivie Creek to Utah State Route 10: When TDS is not exceeding site-specific criteria and total sulfate exceeds site-specific criteria, the area does not meet water quality standards.
***Footnote: Indicate that assessments are performed from field measurement only. ****Footnote: Indicate that assessments are performed from lab measurements only.**		

Grab Sample Assessments

A minimum of 10 samples for conventional parameters are required to determine if a site is meeting or not meeting water quality standards (Figure 13). Where locations have sufficient sample sizes of 10 or more, an exceedance percentage is calculated for each applicable beneficial use by dividing the number of samples exceeding the numeric criterion by the total number of samples. If the calculated percentage is less than or equal to 10%, the site is supporting its beneficial use and the next beneficial use is assessed. If the calculated percentage is greater than 10%, the site is not supporting its beneficial use and the next beneficial use is assessed. In the case of waterbodies with site-specific standards for TDS and sulfate, both criteria must be met or the waterbody will be listed as not supporting its agricultural use.

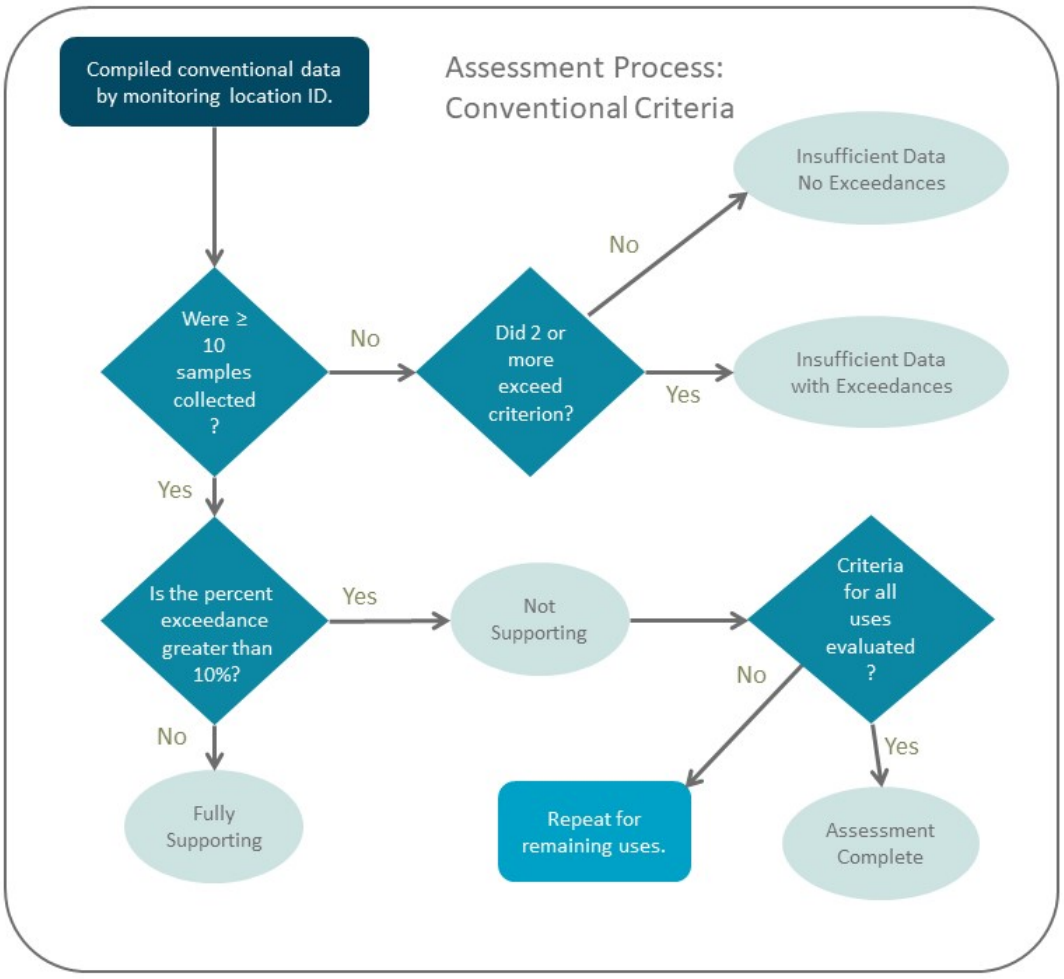

Figure 13. Overview of the assessment process for conventional parameters using grab sample data.

High Frequency Assessments for Dissolved Oxygen

Data Preparation

High frequency data are often screened and corrected to account for sensor drift, calibration shift, strange anomalous points, and battery issues before data analysis and interpretation begins. These data screens are particularly important for dissolved oxygen (DO) sensors because they are subject to bio-fouling, especially in nutrient-rich water where they have the higher potential to become covered in algal growth. When bio-fouling occurs, it results in erroneous logger measurements or sensor drift. DWQ will use corrected high frequency data as documented by the data submitter for assessments. DWQ will contact the data submitter for clarification and additional information if it determines additional corrections may be required.

Data sufficiency

High frequency data must capture complete days to ensure daily minima are captured and daily averages can be accurately calculated. DWQ defines a complete day as a calendar day (i.e., 12:00 a.m. – 11:59 p.m.) in which at least one measurement is made in each hour. Incomplete days will not be included in the high frequency DO assessment.

Assessment Process

A daily minimum and daily average are calculated for each complete day in a dataset. Moving 7- and 30-day averages are then calculated from the daily averages for each 7- or 30-day period within the dataset. These values are then compared to the applicable daily minimum, 7-day average, and 30-day average criteria to determine use impairment or support.

A site does not meet the daily DO minimum criterion if the percentage of total daily minima that fall below the applicable standard is greater than 10% within the period of record (Figure 14).

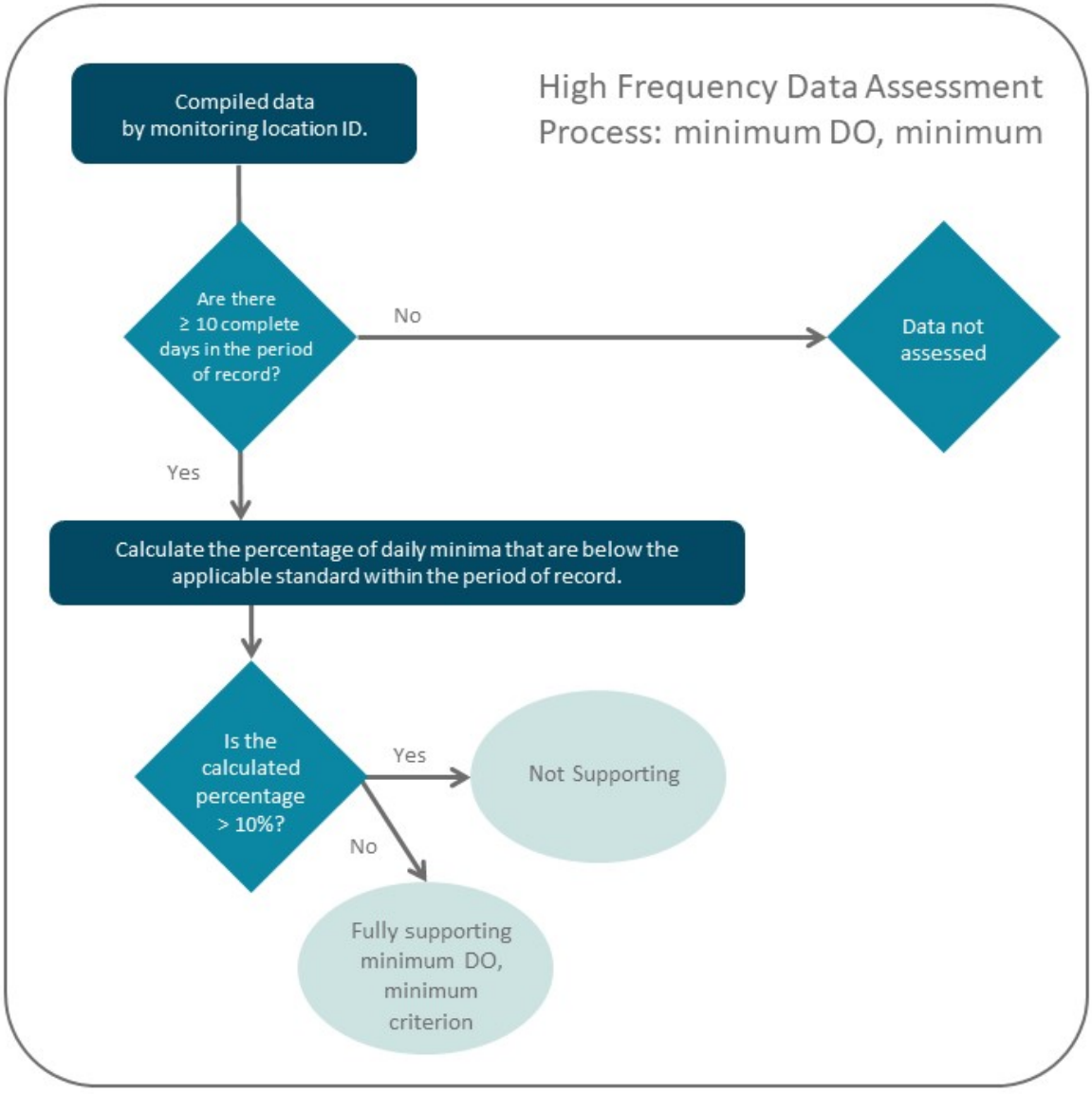

Figure 14. Overview of the assessment process for the minimum dissolved oxygen, minimum, using high frequency data.

A site does not meet the 7-day average criterion if the percentage of 7-day averages that fall below the applicable standard is greater than 10% within the period of record (Figure 15).

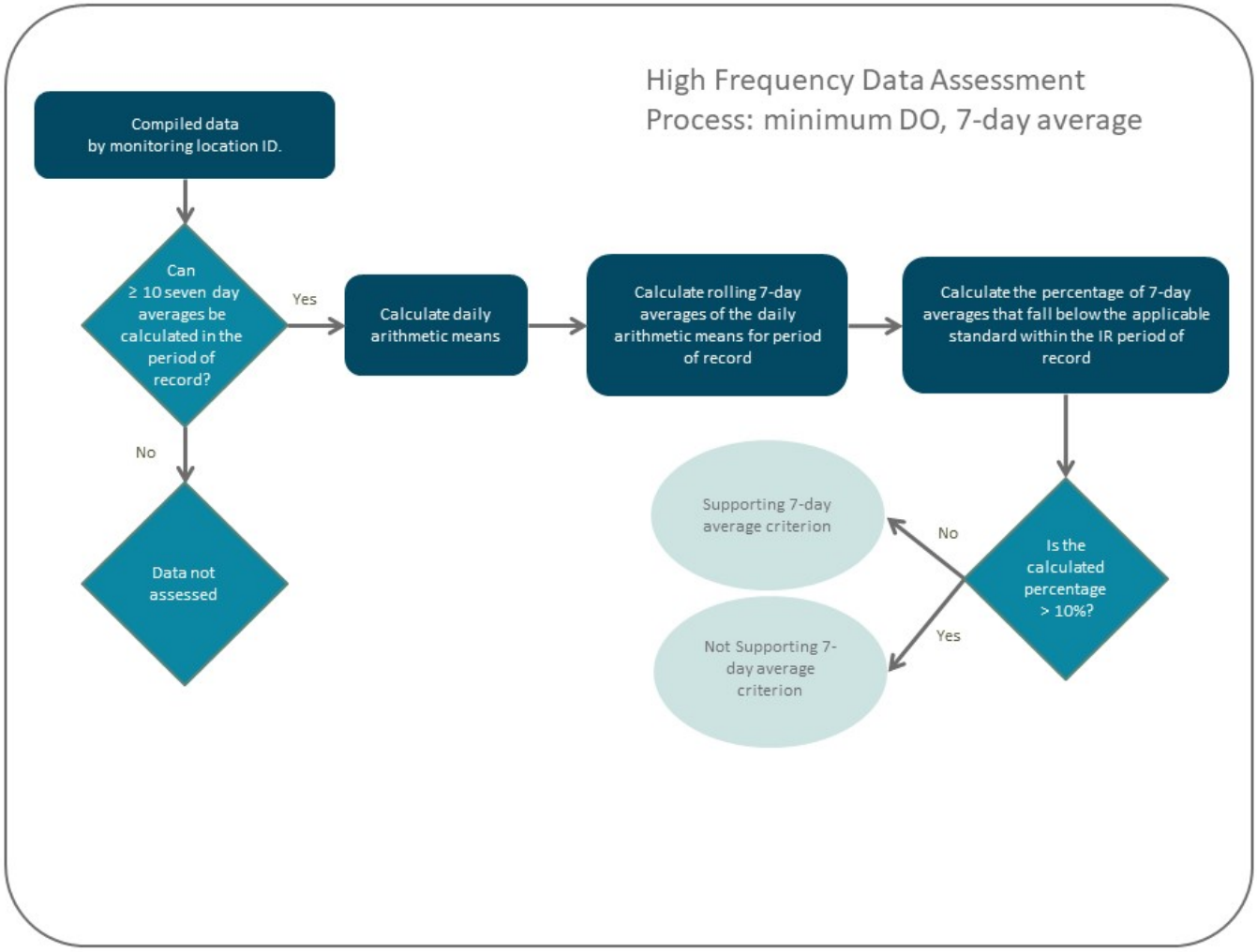

Figure 15. Overview of the assessment process for the minimum dissolved oxygen, 7-day averages using high frequency data.

A site does not meet the 30-day average criterion if the percentage of 30-day averages that fall below the applicable standard is greater than 10% within the period of record (Figure 16).

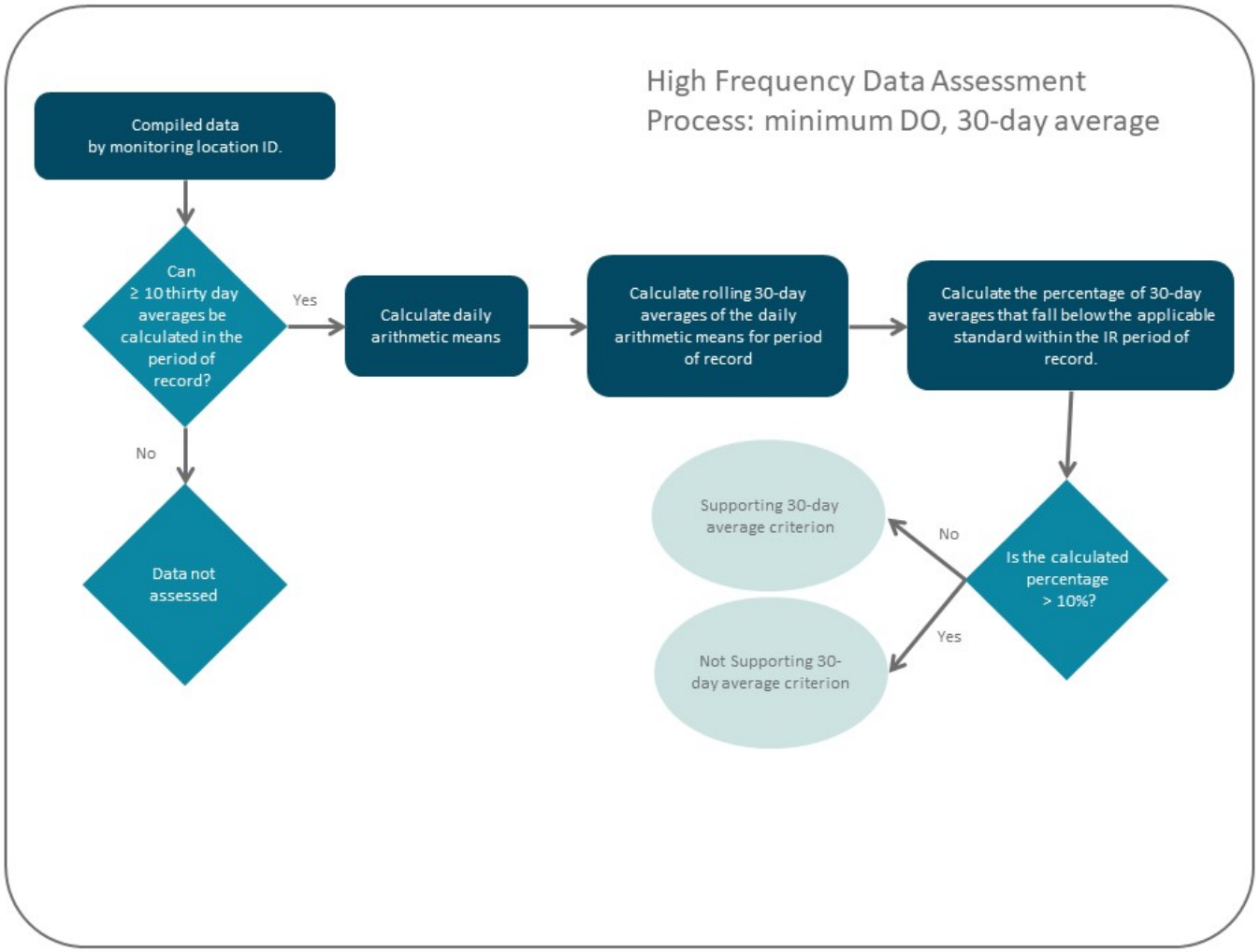

Figure 16. Overview of the assessment process for the minimum dissolved oxygen, 30-day averages, using high frequency data.

A site is considered not supporting if it is not meeting either of the daily minimum, 7-day average, or 30-day average criteria. A site is considered fully supporting if less than 10% violation is observed for all three criteria. This process (Figure 14 - Figure 16) is repeated until each beneficial use has been assessed.

Analyzing Multiple DO Datasets at a Site

DWQ assesses grab and high frequency data independently during the initial assessment of DO at a site and reviews these assessments in the context of one another during the secondary review for determining impairment. These processes are discussed in greater detail in Determinations of Impairment: All Assessment Units.

Nutrient Assessments Specific to Headwater Streams

Utah's Numeric Nutrient Criteria (NNC) require consideration of both ambient nutrient concentrations and ecological response data for headwater streams, which are defined as streams where antidegradation category 1 or 2 protections have been established (UAC R317-2-3). Generally, this includes streams above United States Forest Service (USFS) boundaries—about 50% of all perennial streams statewide

Support of Aquatic Life Uses

The NNC applicable to aquatic life include two thresholds for total nitrogen (TN) and total phosphorus (TP) based on the arithmetic average of a minimum of four samples obtained during the growing season (UAC R317-2-14.8). The growing season is defined by the NNC as the period of algal growth through senescence. For assessment purposes, DWQ assumes that the growing season includes the months of June through November, although this may be lengthened where additional information demonstrates that a longer period of growth is warranted.

The arithmetic average of TN or TP, derived from four or more growing season samples, is used to place headwater streams into one of three enrichment tiers (Table 12). Lower criteria thresholds of 0.4 mg/L TN and 0.035 mg/L TP differentiate between low and moderate enrichment streams. Higher thresholds of 0.80 mg/L TN and 0.080 mg/L TP differentiate between moderate and high enrichment streams. The higher of TN or TP enrichment tiers is used to determine whether or not nutrient enrichment has degraded aquatic life uses at a site.

Moderate enrichment streams, with average nutrient concentrations between the upper and lower thresholds, require additional measures of ecological condition to determine whether or not a headwater stream is attaining the NNC water quality standards (Table 12). Nutrients can degrade aquatic life uses via mechanisms related to increased growth of plants/algae (autotrophs) and/or microbes/fungi (heterotrophs). In the case of plant/algae growth, two ecological responses are not-to-be-exceeded at any headwater stream: (1) a daily gross primary production (GPP) rate higher than 6 g O_2/m^2/day or (2) an aerial percent filamentous algae cover exceeding 1/3 of the stream bed. Adverse heterotrophic responses are addressed using ecosystem respiration (ER), which measures the net metabolic activities of all stream biota and is used to understand linkages among microbes/fungi, nutrients, and aquatic life uses. NNC establishes a not-to-be-exceeded rate for ER of 5 g O_2/m^2/day. Any site where TN or TP falls between the NNC thresholds is categorized as not supporting its aquatic life uses if any of the three responses exceeds the adverse effect thresholds, even if a complete set of responses is not available (Table 13). However, a moderately enriched stream site must have all three response parameters collected and occurring below their adverse effect thresholds to obtain a full support assessment for the site. If any response parameters are unavailable despite other response parameter(s) meeting criteria, the site will be assessed as insufficient data (3A) and the division will prioritize the data collection necessary to make a site assessment.

Any site where the growing season average of both TP and TN falls below the lower NNC thresholds (lowest enrichment tier) is considered to be supporting aquatic life uses with respect to nutrient enrichment (Table 13) provided that all three ecological responses have been measured and fall below the threshold that demarcates degraded conditions. If any response parameters fall above their degraded condition threshold, the site will be assessed as impaired (Category 5)

At the other end of the enrichment gradient, any site where the average TN or TP concentration exceeds the upper NNC threshold (high enrichment tier) is categorized as threatened unless degradation is confirmed by an ecological response, in which case it is considered impaired (not supporting aquatic life uses). Threatened AUs are designated as category 5 due to highly enriched conditions, but the Division commits to more thoroughly evaluate the AU for adverse nutrient-related responses.

Please refer to DWQ's Implementation of Utah's Nutrient Criteria for Headwater Streams for more information on efforts to address headwater nutrient impairments.

Table 12. Numeric Nutrient Criteria and Associated Ecological Responses (Bioconfirmation Criteria) to Protect Aquatic Life Uses in Antidegradation Category 1 and 2 (UAC R317-2-12) Headwater Perennial Streams.

Nutrient Enrichment Level	Summertime Average Nutrients		Ecological Response	Assessment Notes
Low	TN < 0.40[a,b]	TP < 0.035[a,b]		Fully supporting biological uses if the average of ≥ 4 summertime samples is below the specified nutrient concentration of either TN and TP unless ecological responses specified for moderate enrichment streams are exceeded. Sites with fewer samples will not be assessed for nutrients.
Moderate	TN 0.40–0.80[a]	TP 0.035–0.080[a]	Plant/Algal Growth[c]< 1/3 or more filamentous algae cover[d,e] OR GPP[c] of < 6 g O_2/m^2/day OR Plant and Microbial Growth ER[c] < 5 g O_2/m^2/day	Headwater streams within this range of nutrient concentrations will be considered impaired (not supporting for nutrients) if any response exceeds defined thresholds. Streams without response data will be listed as having insufficient data and prioritized for additional monitoring if either TN or TP falls within the specified range.
High	TN > 0.80[a,b]	TP > 0.080[a,b]		Streams over these thresholds will initially be placed on Utah's Section 303(d) list as threatened. Threatened streams will be further evaluated using additional data such as nutrient responses, biological assessments, or nutrient-related water quality criteria (e.g., pH and DO) both locally and in downstream waters.

Notes: Criteria would be applicable unless more restrictive total maximum daily load (TMDL) targets have been established to ensure the attainment and maintenance of downstream waters. DO = dissolved oxygen, ER = ecosystem respiration, GPP = gross primary production, TN = total nitrogen in mg/L, and TP = total phosphorus in mg/L.

[a] Seasonal average of ≥ 4 samples collected during the summertime growing season (June 1–September 30) will not be exceeded. Sites will be assessed using the higher of TN and TP threshold classifications.

[b] Response data, when available, will be used to assess aquatic life use support or as evidence for additional site-specific investigations to confirm impairment or derive and promulgate a site-specific exception to these criteria.

[c] Daily whole stream metabolism obtained using open-channel methods. Daily values are not to be exceeded on any collection event.

[d] Filamentous algae cover means patches of filamentous algae > 1 cm in length or mats > 1 mm thick. Daily values are not to be exceeded at any time during the growing season (June 1–September 30).

[e] Quantitative estimates are based on reach-scale averages with at least three measures from different habitat units (i.e., riffle, run) made with quantitative visual estimation methods.

[f] Excluded waters identified in UAC R317-2-13.2 (c).

Table 13. Decision Matrix That Will Be Used to Assess Support of Headwater Aquatic Life Uses for Nutrient-related Water Quality Problems

Nutrient Data (TN or TP)	Ecological Responses: No Data	Ecological Responses: < All Criteria	Ecological Responses: > Any Criterion
No Data or < 4 Samples	Not Assessed[a]	Not Assessed[a]	Impaired (5)[b]
< Low Threshold	Not Assessed[a]	Fully Supporting (1 or 2)[d,f]	Impaired (5) [b,e]
Between Lower and Upper Threshold	Insufficient Data (3A)[c]	Fully Supporting (1 or 2)[d,g]	Impaired (5)
Above Upper Threshold	Threatened (5)[f,]	Threatened (5)[e,f]	Impaired (5)

Note: Associated *Integrated Report* categories are in parentheses.

[a]There are insufficient nutrient-related data to assess whether or not aquatic life uses are supported; however, aquatic life uses may be assessed with other water quality parameters.

[b]Sites where an ecological response threshold has been exceeded, but the lower TN and TP thresholds have not will be listed as impaired on the basis of a biological assessment; cause will be listed as unknown pending follow-up investigations.

[c]Sites where TN or TP fall below the upper threshold, but above the lower threshold, and lack measures for at least one response variable will not be assessed with respect to nutrients. These sites will be prioritized for follow-up monitoring.

[d]The integrated report distinguishes between sites where at least one parameter has been evaluated for all uses (Category 1) and sites where some uses are supported, and other uses are either not supported or not assessed (Category 2).

[e]Sites where nutrient and ecological response data are in conflict may be candidates for site-specific criteria.

[f]Sites below the both lower TN and TP thresholds with at least one response below the lower threshold will be considered to be fully supporting aquatic life uses unless another nutrient-related criterion (e.g., pH, DO) suggests otherwise. Sites without at least one measured response are not assessed.

[g]Sites between the lower and upper threshold require all three response parameters to be considered fully supporting with respect to nutrient enrichment.

Support of Recreational Uses

Excessive nutrients can also degrade recreational uses. To protect these uses in headwater streams the NNC establish a not-to-be-exceeded benthic algae concentration of 125 mg/chlorophyll-a (chl-a)/m^2, or the equivalent 49 g ash free dry mass (AFDM)/m^2 (UAC R317-2-14.7).A site where any reach-scale biomass value exceeds either threshold will be categorized as not supporting recreational uses (Figure 17).

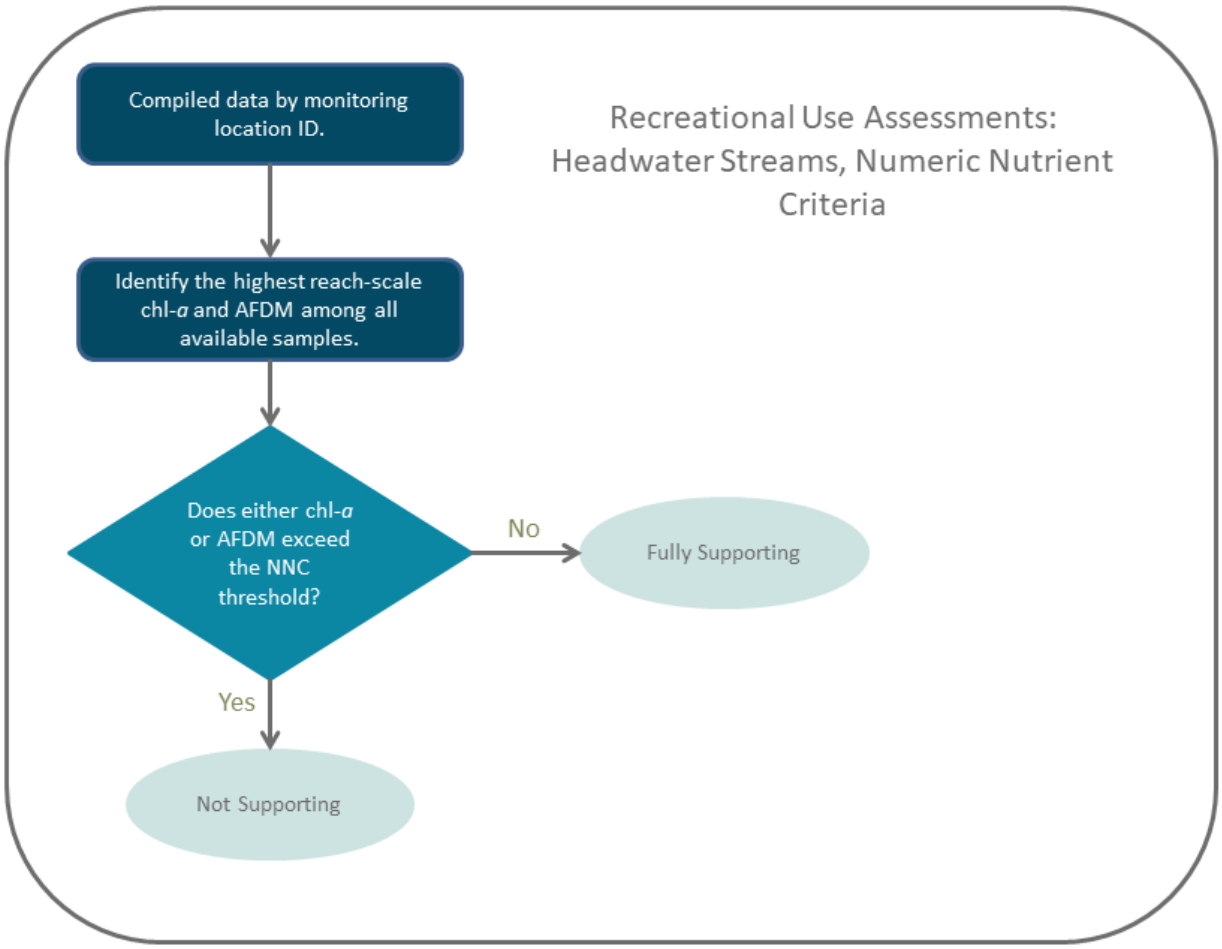

Figure 17. Overview of the assessment process to determine support of recreational life uses based on nutrient enrichment in headwater streams.

Narrative Standards: Biological Assessments

Utah's beneficial uses for aquatic life require the protection of fish (cold water or warm water species) and the organisms on which they depend (UAC R317-2-6.3). DWQ historically assessed these beneficial uses using water chemistry sampling and associated standards that are protective of aquatic organisms. DWQ now uses an empirically based model that directly assesses support of aquatic life uses by quantifying the integrity of macroinvertebrate assemblages. Measuring biological communities directly has the advantage of integrating the combined effects of all pollutants, which allows a direct examination of how pollutants are interacting to affect the condition of a stream ecosystem (Karr,1981). Moreover, because aquatic macroinvertebrates spend most of their life in aqueous environments, they are capable of integrating the effects of stressors over time, providing a measure of past and transient conditions (Karr and Dudley,1981).

Biological assessments are often conducted by comparing the biological assemblage observed at a site with the expected biological assemblage. Ideally, these comparisons are made using historical data to measure changes to the current biological community. However, in most cases, historical data are not available. As a result, biological conditions representing least-human-caused disturbance are typically set using reference sites as benchmarks or controls. The biological integrity of sites can be evaluated by comparing the biological composition observed at a site against a subset of ecologically similar reference sites. Such comparisons are collectively referred to as biological assessments.

Reference sites in aquatic biological assessments are selected to represent the best available condition for waterbodies with similar ecological, physical, and geographical characteristics (Hughes et al.,1986; Suplee et al.,2005; Western Center for Monitoring and Assessment of Freshwater Ecosystems website). Conditions at reference sites selected for water quality programs vary regionally depending on adjacent historical land use. For example, reference sites in Utah mountains are generally more pristine than in valleys. As a result, there are more biological benchmarks in areas of the state that receive less-human-made disturbance than those with more disturbances.

A numeric index is a useful tool that quantifies the biological integrity, or biological beneficial use, of stream and river segments. Data obtained from biological collections are complex, with hundreds of species that vary spatially and temporally found throughout Utah. Similarly, the physical template on which biota depends also varies considerably across streams. A robust index of biological integrity should simultaneously account for naturally occurring physical and biological variability and summarize these conditions through a single, easily interpretable number (Hawkins, 2006; Hawkins et al. 2010).

River Invertebrate Prediction and Classification System Models

DWQ uses the River Invertebrate Prediction and Classification System (RIVPACS) model approach to quantify biological integrity (Wright, 1995). RIVPACS is a classification of freshwater sites based on macroinvertebrate fauna. It was first derived in 1977 and has subsequently been used in numerous biological assessment programs worldwide. In the early 1970s, scientists and water managers recognized a need to understand the links between the ecology of running waters and macroinvertebrate communities. A four-year project was initiated to create a biological classification of unpolluted running waters in Great Britain based on the macroinvertebrate fauna (Clarke et al.,1996; Furse et al.,1984; Moss et al.,1999; Wright,1995).

Over the past 30 years, equivalent RIVPACS models have been developed for aquatic ecosystems throughout the world, including Australia (Davies et al., 2000; Marchant and Hehir, 2002; Metzeling et al., 2002) and Indonesia (Sudaryanti et al., 2001). Additionally, scientists in the United States have developed RIVPACS models to assess the biological integrity of the country's aquatic habitats (Hawkins et al., 2000; Hawkins and Carlisle, 2001).

RIVPACS models compare the list of taxa that are observed (O) at a site to the list of taxa expected (E) with the least-human-caused disturbance for a similar site to quantify biological condition. Predictions of E are obtained empirically from reference sites that together are assumed to encompass the range of ecological variability observed among streams in the region where the model was developed. In practice, these data are expressed as the ratio O/E, the index of biological integrity (Figure 18).

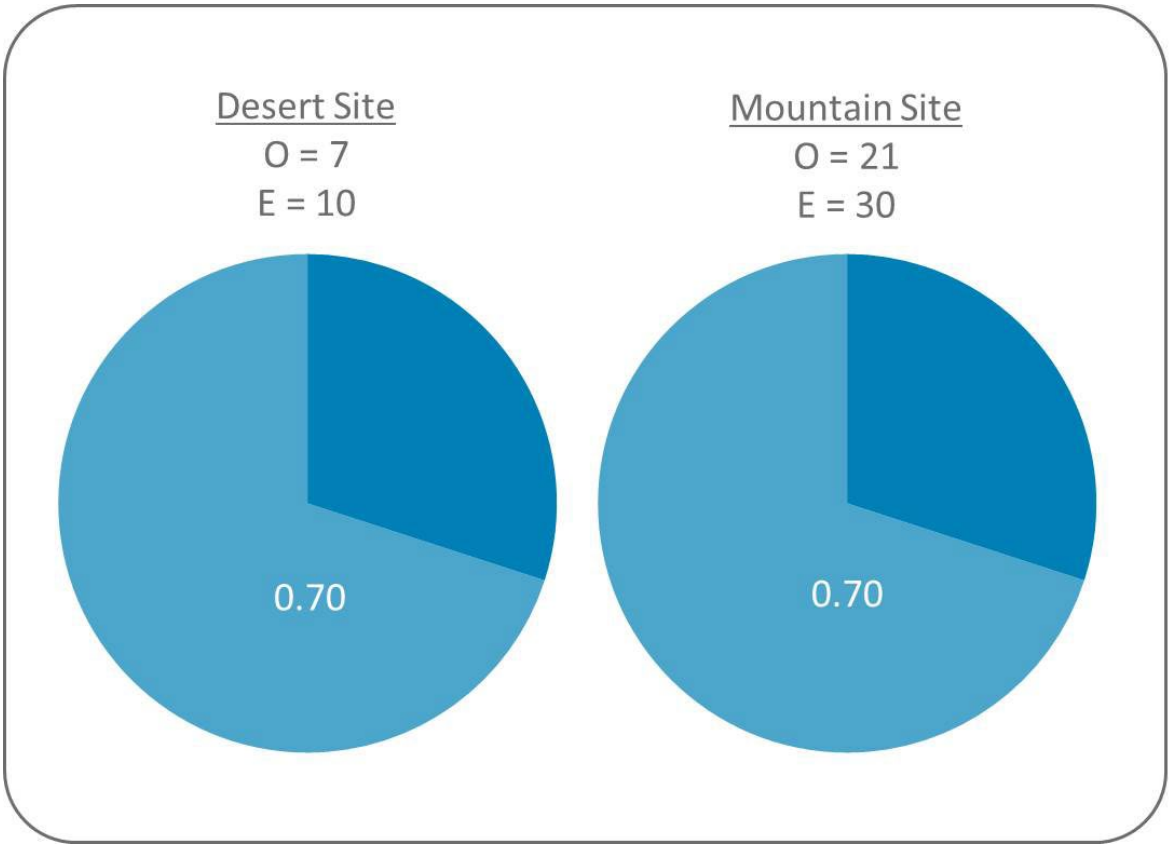

Figure 18. A hypothetical example of O/E as a standardization of biological assessments.

O/E has some very useful properties as an index of biological condition. First, it has an intuitive biological meaning. Species diversity is considered the ecological capital on which ecosystem processes depend; therefore, O/E can be easily interpreted by researchers, managers, policy-makers, and the public. Second, O/E is universally spatial, which allows direct and meaningful comparison throughout the state on a site-specific scale. This is particularly important for Utah, where streams vary considerably from high-altitude mountain environments to arid desert regions. Third, its derivation and interpretation do not require knowledge of stressors in the region as it is simply a biological measuring tool. Finally, the value of O/E provides a quantitative measure of biological condition.

Model Construction and Performance

Construction of a RIVPACS model for Utah began in 2002 and involved the development and evaluation of dozens of models. Details of model development procedures can be found elsewhere (Clarke et al.,1996; Moss et al.,1999; Wright et al.,1993; Wright1995). Additionally, specific detailed instructions can be viewed at the Western Center for Monitoring and Assessment of Freshwater Ecosystems website and there are numerous resources found online. DWQ's model was verified and reconstructed by the USU BugLab that can provide O/E output for samples if appropriate field and lab procedures were followed. A brief summary is provided here to help the reader better understand Utah's model results and subsequent assessments.

Predictions of expected “E” taxa are obtained empirically from reference site collections made throughout Utah. Reference sites represent the reference conditions in different biogeographical settings throughout the state. The initial list of candidate reference sites is independently ranked by different scientists familiar with the waterbodies. Only reference sites with a consensus representing best available conditions are used in model development. Subsequent reference sites are added using scores from reference-scoring metrics developed during site visits and averaged with independent rankings from field scientists.

Some of the calculations used to obtain the list of expected taxa are complex. A heuristic description of the steps involved in predicting “E” provides some context of the assessment methods. The first step in model development is to classify reference sites into groups of sites with similar taxonomic composition using a cluster analysis. Next, models are developed based on watershed descriptors such as climatic setting, soil characteristics, and stream size to generate equations that predict the probability of a new site falling within each group of reference sites. These equations account for environmental heterogeneity and ensure that when a new site is assessed, it is compared against ecologically similar reference sites. When a new site is assessed, predictions of group membership are then coupled to the distributions of taxa across groups of reference sites to estimate the probability of capturing (Pc) each taxon from the regional pool of all taxa found across all reference sites. E is then calculated as the sum of all taxa Pcs that had a greater than 50% chance of occurring at a site given the site’s specific environmental characteristics. Using a Pc limit set at greater than 50% typically results in models that are more sensitive and precise, which results in a better ability to detect biological stress (Hawkins et al., 2000; Simpson and Norris, 2000; Ostermiller and Hawkins, 2004; Hawkins, 2006; Van Sickle et al., 2007, Hawkins et al., 2015; Hawkins and Yuan, 2016; Mazor et al., 2016).

The accuracy and precision of RIVPACS models depend in part on the ability of the models to discriminate among groups of biologically similar reference sites. An extensive list of 74 GIS-based watershed descriptors is evaluated for potential predictor variables in models that predict the probability of membership within biological groups for sites not used in model construction. Site-specific, GIS-based predictor variables, such as soils, meteorology, and geography, instead of field-derived descriptors, are evaluated for a couple of reasons. First, GIS-based descriptors are unlikely to be influenced by human disturbance and are therefore unlikely to bias estimates of expected conditions (Hawkins, 2004). Second, these predictors are easily obtained for any location on a site-specific basis. This allows inclusion of additional macroinvertebrate samples collected by others. Various subsets of potential predictors are evaluated in an iterative, analytical process that explores different combinations of predictors to explain the biological variability among reference sites. The current RIVPACS model used by DWQ includes 15 variables that resulted in the most precisely predictive model (Table 14).

Table 14. Final predictor variables used in model construction.

General Category	Description
Geography	Mean watershed elevation (meters) from National Elevation Dataset
Geography	Minimum watershed elevation (meters) from National Elevation Dataset
Geography	Watershed area in square kilometers
Geography	Latitude of the sample location.
Climate	Watershed average of the mean day of year (1–365) of the first freeze derived from the PRISM data
Climate	Watershed average of the annual mean of the predicted mean monthly precipitation (millimeters) derived from the PRISM data
Climate	Watershed average of the annual maximum of the predicted mean monthly precipitation (millimeters) derived from the PRISM data

General Category	Description
Climate	Watershed average of the annual mean of the predicted mean monthly air temperature derived from PRISM data
Climate	Average of the annual mean of the predicted maximum monthly air temperature at the sample location derived from PRISM data
Climate	Watershed average of the annual mean of the predicted maximum monthly air temperature derived from PRISM data
Climate	Watershed average of the annual mean of the predicted minimum monthly air temperature derived from PRISM data
Climate	Watershed average of the annual mean of the predicted mean monthly relative humidity derived from PRISM data
Climate	Average of the annual mean of the predicted mean monthly air temperature at the sample location derived from PRISM data
Climate	Watershed maximum of mean 1961–1990 annual number of wet days
Vegetation	Watershed maximum of mean 2000–2009 annual enhanced vegetation index

The RIVPACS model used for the current assessments was reconstructed to accommodate broader spatial and temporal data. Models used earlier were limited to samples from streams ranging from second to fifth order and were collected during a fall window of September–November. The updated model accepts data collected from first- to eighth-plus-order rivers and streams with no limitations on season of collection. In addition, new predictor variables were tested, and new and updated reference site data were included. However, the taxon levels required adjustment to include data collected from agencies using different taxonomic laboratories. This resulted in a coarser resolution of taxonomy. However, the resulting model was capable of scoring nearly 1,800 samples collected across the state by various agencies.

The updated model is nearly as accurate and precise as previous models. If the model was perfectly accurate and precise, the O/E score for all reference sites would equal 1.00. Instead, reference O/E values are typically spread in a roughly normal distribution centered on 1.00 (Wright, 1995). Model precision is often expressed as the standard deviation (SD) of reference O/E values, with lower SDs indicating higher model precision. The RIVPACS model used for the current IR assessments has an SD of 0.19, which is within the range of "accepted" water quality models. The precision was likely affected by the coarser resolution of taxonomy and the inclusion of a few large river sites as reference. The average reference O/E score for the current model is 1.00, which means that the model has high precision calculating O/E values. The accuracy of the model was evaluated by examining the distribution of reference O/E scores across environmental settings and determining that reference O/E values are not biased by stream size, elevation, or ecoregion.

Assessing Biological Use Support

DWQ does not have numeric biological criteria. However, DWQ has narrative biological criteria (UAC R317-2-7.3) that specify how quantitative model outputs are used to guide assessments. A systematic procedure to make the narrative assessments as rigorous as possible was devised to use the RIVPACS model O/E values to determine aquatic life beneficial use support (Figure 19). The goal of this assessment process is to characterize each AU as fully supporting or not supporting aquatic life beneficial uses.

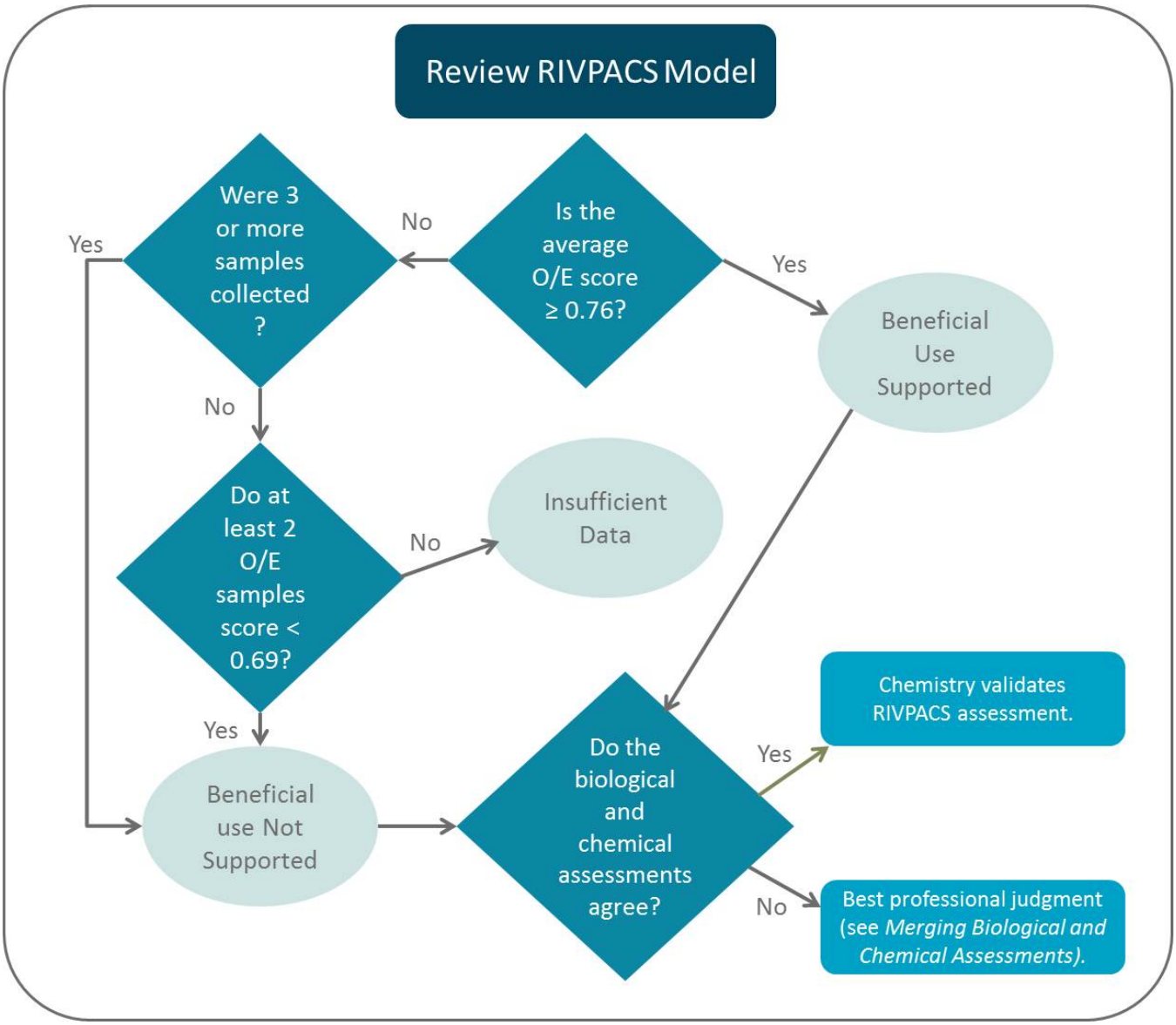

Figure 19. Decision tree for making biological assessment decisions.

Utah currently assesses watersheds based on established AUs. Although many AUs contain a single biological monitoring location, some AUs contain multiple sites. In such instances, DWQ staff examines available data to determine if multiple sites in an AU score similarly. When comparisons suggest that sites in one AU are ecologically similar, O/E scores from all sites in an AU are averaged for assessment purposes, provided that conclusions of biological condition are similar. If O/E scores differ appreciably among multiple sites in an AU, DWQ will investigate possible explanations for such discrepancies (see the Assessment Unit Re-segmentation discussion for more information on that process). Additionally, if only one site is sampled in an AU, it is examined to determine whether it is an appropriate representation of the AU.

To translate the O/E values into assessment categories, it is necessary to devise thresholds, or O/E scores that indicate whether or not a site is meeting biological beneficial uses (Table 15). The 10th and 5th percentiles of reference sites were used for these assessments. Essentially, the data used for the current assessment calculate the threshold based on 5th percentile at 0.69, whereas the 10th percentile is 0.76. These thresholds will provide the bounds according to sample strength. The data will be averaged across six

years since the most recent year of available data. Multiple years are preferred for assessments because O/E scores can vary from year to year and assessments are based on average conditions. Assessments based on the average condition of three or more samples reduce the probability of making an error of biological beneficial-use support as a result of an unusual sampling event (e.g., following a flash flood, or a sample that was preserved improperly).

Table 15. Beneficial use support determination for O/E values obtained from different sample sizes.

Sample Size	O/E Threshold	Use Determination	Comments
≥ 1 sample collected over 6 years	Mean O/E score ≥ 0.76	Fully Supporting	Threshold based on 10th percentile of reference sites
≥ 3 samples collected over 6 years	Mean O/E score < 0.76	Not Supporting	Threshold based on 10th percentile of reference sites
< 3 samples	Mean O/E score ≥ 0.69–≤ 0.76	Insufficient Data	Lower threshold based on 5th percentile of reference sites
< 3 samples	2 O/E scores < 0.69	Not Supporting	Threshold based on 5th percentile of reference sites
< 3 samples	< 2 O/E scores < 0.69	Insufficient Data	Threshold based on 5th percentile of reference sites

AUs not meeting biological thresholds will be assessed as not supporting. Assessments of more than three samples with average O/E scores of greater than or equal to 0.76 have a low probability of being misclassified as nonsupport. Alternatively, assessments with fewer than three samples with an average O/E score of less than 0.69 have a 5% probability of being misclassified as nonsupport. To ensure that one sample was not incorrectly misapplied, at least two samples with a score of 0.69 or less will be required to consider an AU not meeting the aquatic life use. Assessments with fewer than three samples that have a mean O/E score of greater than or equal to 0.69 and less than 0.76 will be placed in Category 3 (insufficient data and information with exceedances), which indicates that there are insufficient data to make an assessment. All sites listed as Category 3 with exceedances will be given a high priority for future biological monitoring.

Assessments Specific to Lakes, Reservoirs, and Ponds

Assessment Overview

Lakes, reservoirs, and ponds are classified by basin in UAC R317-2-13.12, with the accompanying tables listing their designated beneficial uses. Waterbodies not specifically listed are assigned beneficial uses by default to the classification(s) of the tributary stream(s). Numeric water quality criteria for both toxic and conventional parameters are assigned for each designated use in UAC R317-2-14, Deeper lakes naturally stratify thermally, which affects how conventional water quality parameters are assessed (UAC R317-2-14),so each waterbody is evaluated for thermal stratification and assessed appropriately.

Utah lake and reservoir assessments are divided into two tiers:

Tier I

The Tier I assessment is the preliminary determination of beneficial use support for recreational use (Class 2), aquatic life (Class 3), and agricultural (Class 4), classes based on conventional parameters such as DO, temperature, and pH, toxic parameters, and *E. coli*. When Tier I data are not available, DWQ may rely on Tier II data to make an initial assessment. The waterbody will be classified as mixed or stratified based on the depth profile information when considering aquatic life use support within this tier. If it is a stratified waterbody, the evaluation of conventional parameters will follow the protocol designed to evaluate the sufficiency of aquatic life habitat. If the waterbody is mixed, it will follow the assessment protocol that evaluates the entire depth profile.

Tier II

The Tier II assessment looks further into specific weight of evidence criteria (trophic state index [TSI], fish kills, and algal composition) through secondary reviews. The Tier I preliminary support status may be modified through evaluation of the TSI, water quality related fish kills, and the composition and abundance of cyanobacteria, also known as harmful algal blooms. The Tier II evaluation could adjust the preliminary support-status ranking if at least two of the three criteria indicate a different support status.

Tier I Assessment

Drinking Water Use Support

Drinking water use support is assessed through evaluations of pH, toxics, *E. coli*, and harmful algal blooms (HABs). Please review the Toxics Parameter Assessments for All Waters, *Escherichia Coli* Assessment for All Waters, and Harmful Algal Blooms (HAB) assessment sections for further information regarding drinking water use assessments for toxics, *E. coli,* and HABs. The evaluation process of pH is the same as the requirements for aquatic life uses described below.

Recreational Use Support

Recreational use support is assessed through evaluation of pH, *E. coli*, and HABs. The pH evaluation is the same as the requirements for aquatic life uses described below. Please review the *Escherichia Coli* Assessment for All Waters and HAB assessment sections for further information regarding recreational use assessments for *E. coli* and HABs.

Aquatic Life Use Support

Lake monitoring routinely involves collecting pH, temperature, and DO measurements at approximately one-meter intervals throughout the water column from the surface to the lake bottom. (Note: the measurement interval may be modified in the field depending on waterbody depth). These water column measurements are compared against Utah water quality standards to assess beneficial use support (Figure 20). A separate process is used to determine whether sufficient habitat is available for aquatic life for waterbodies that are thermally stratified (Figure 21).

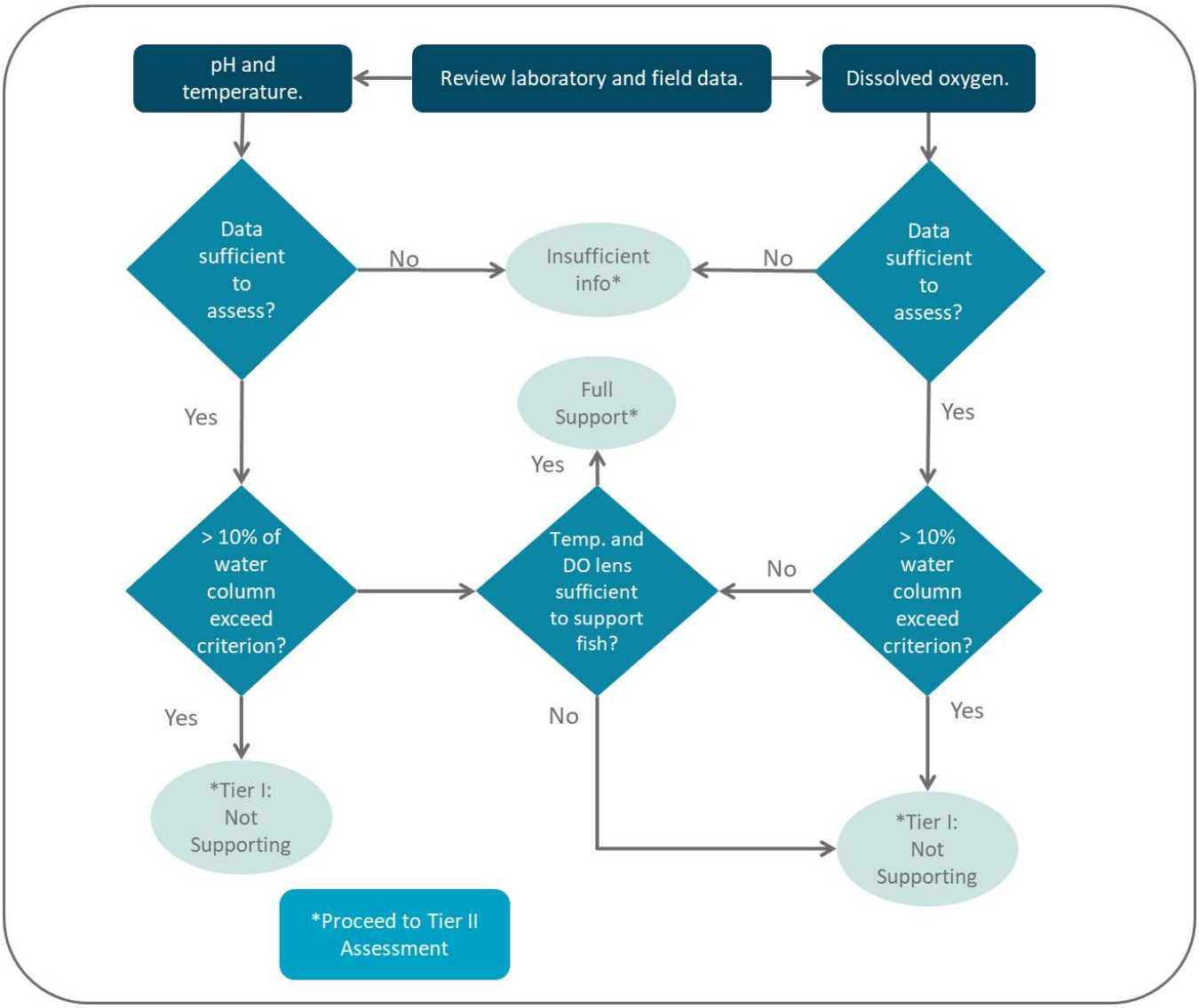

Figure 20. Process using conventional (nontoxic) parameters to assess lakes that are mixed.

pH, All Lakes and Reservoirs

Beneficial Use Supported

The beneficial use is supported if the number of violations are less than or equal to 10% of the measurements (see Figure 21, Panel A).

Beneficial Use Not Supported

The beneficial use is not supported if greater than 10% of the measurements (minimum of two discrete measures outside thresholds) violate the pH criterion (Figure 21, Panel B).

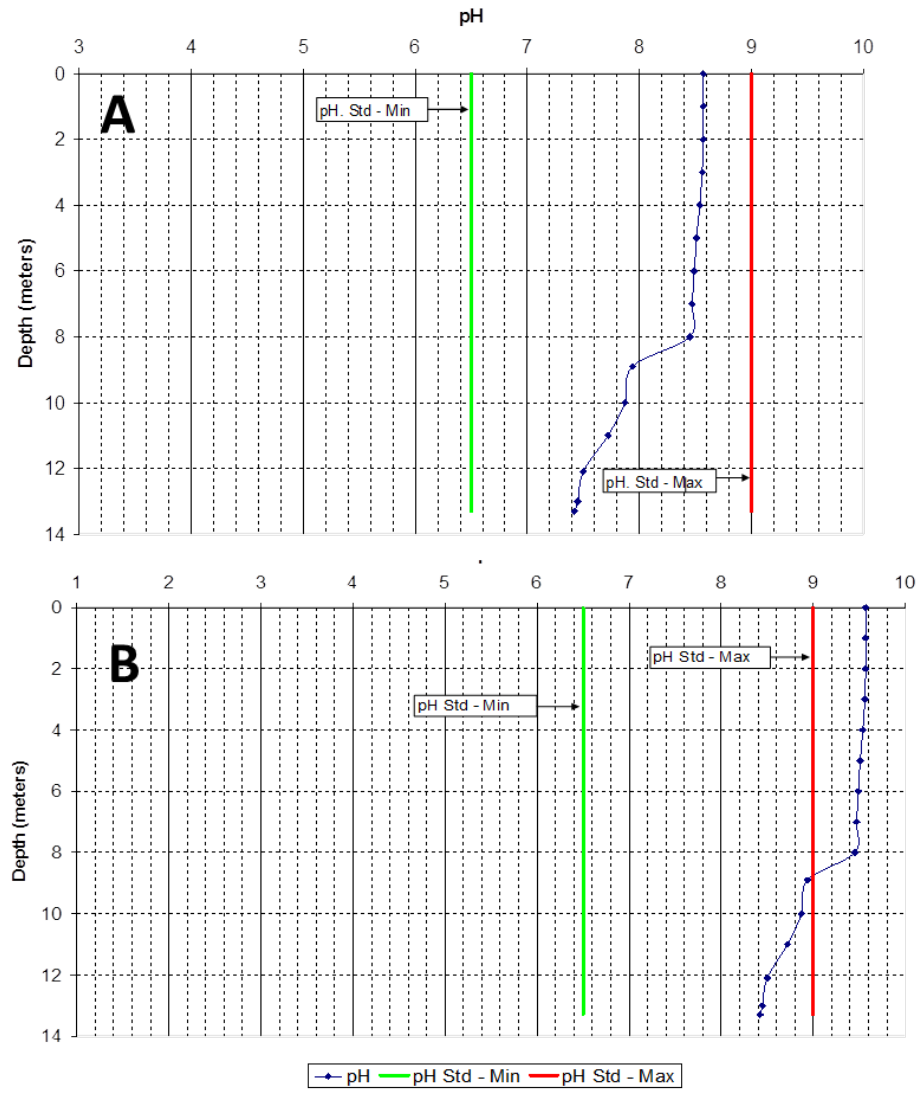

Figure 21. Plots of pH measurements (blue dots) against lake depth for a waterbody meeting (Panel A) and violating (Panel B) the pH water quality standards.

Temperature and Dissolved Oxygen, Mixed Lakes and Reservoirs

Temperature

The criteria used to assess the beneficial use support are based on profile data. If the temperature criterion is exceeded in more than 10% of the measurements, with a minimum of two discrete measures exceeding criteria from any individual sampling event, the site is considered to be not supporting of aquatic life uses.

Beneficial Use Fully Supported

The beneficial use is supported if the number of violations is less than or equal to 10% of the measurements (see Figure 22, Panel A).

Beneficial Use Not Supported

The beneficial use is not supported if more than 10% of the measurements violate the temperature standard (see Figure 22, Panel B).

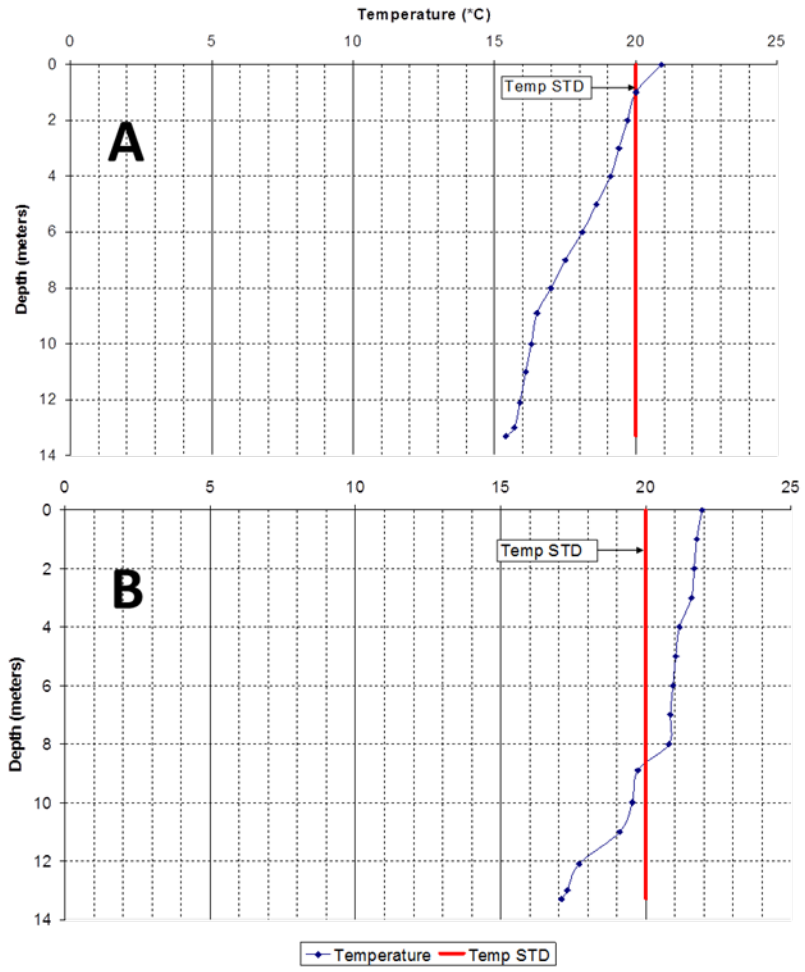

Figure 22. Plots of temperature measurements (blue dots) against lake depth for two sites to provide an example of assessment procedures. Note: The red line illustrates a temperature criterion of 20 degrees Celsius: Class 3A beneficial use. Panel A (top) illustrates a site supporting the beneficial use because less than 10% of the temperature measures are greater than the criterion, whereas Panel B (bottom) illustrates a site not supporting the beneficial use because greater than 10% of the temperature measures exceed the criterion.

Dissolved Oxygen

The DO assessment uses data gathered from profiles. The DO assessment uses the minimum criteria of 4.0 mg/L for Class 3A waters and 3.0 mg/L for Class 3B and 3C waters (UAC R317-2-14, Table 2.14.2). State standards account for anoxic or low DO conditions that may exist in the bottoms of deep waterbodies (UAC R317-2-14). For that reason, DO assessments for stratified lakes and reservoirs follow the stratified lakes and reservoirs assessment methods below.

Beneficial Use Supported

The beneficial use is supported if at least 90% of the oxygen measurements are greater than the standard.

Beneficial Use Not Supported

The beneficial use is not supported if greater than 10% of the oxygen measurements are below the DO standard during any single sampling event.

Stratified Lakes and Reservoirs

Temperature and Dissolved Oxygen: Aquatic Life Use Assessment

When sample locations demonstrate stratification, a separate assessment technique for temperature and DO is used to ensure that sufficient habitat for aquatic life exists. Habitat is considered sufficient if at least three continuous meters of the water column are meeting the criteria for both temperature and DO. The rationale for a conclusion of beneficial use support based on the existence of adequate habitat follows the decision diagram (Figure 23). Figure 24 provides an example of supporting and not supporting beneficial uses based on the DO and temperature data above the thermocline.

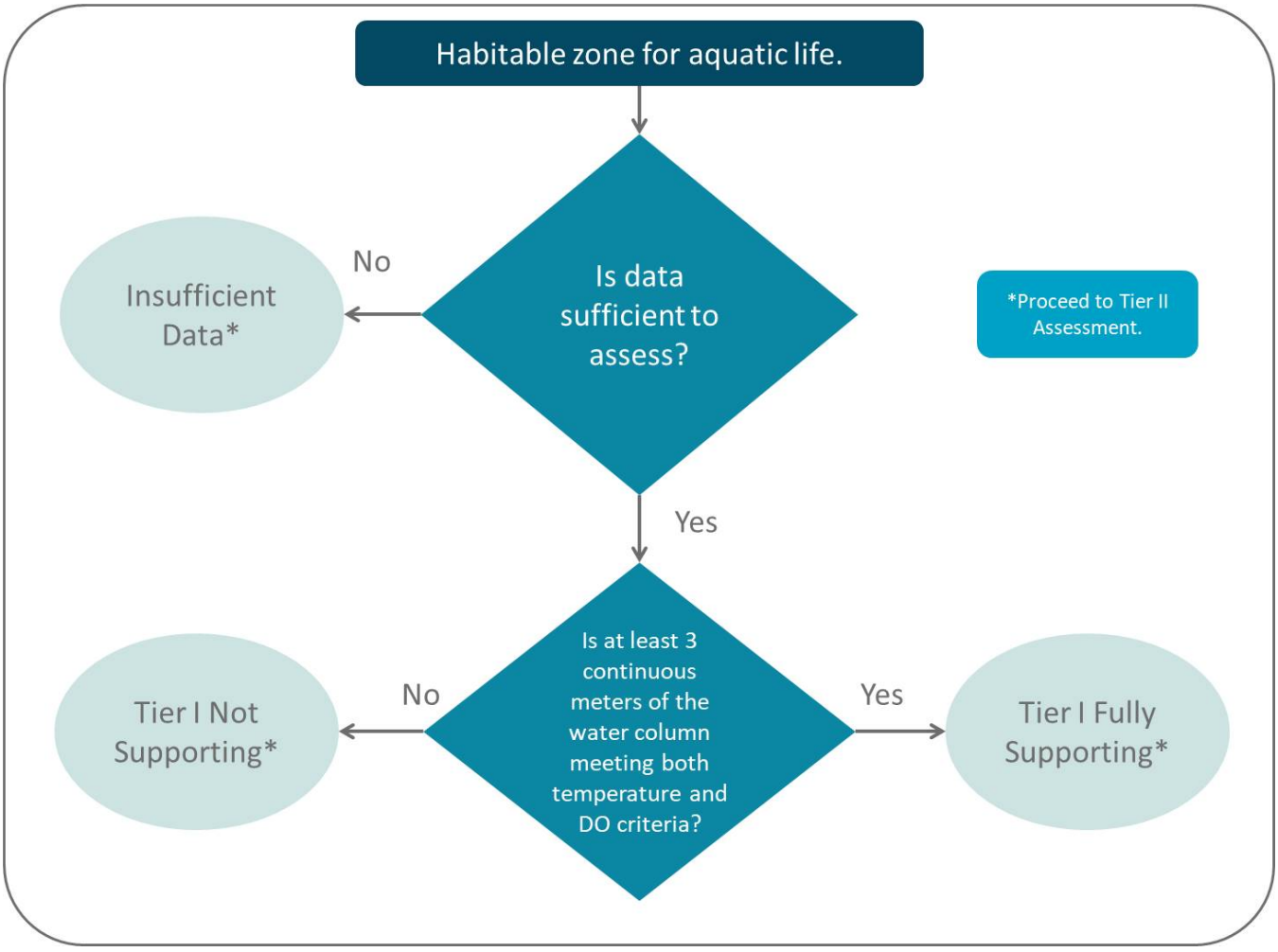

Figure 23. Beneficial use support based on the existence of adequate habitat.

Beneficial Use Supported

The beneficial use is supported if there is sufficient habitat, defined as three continuous meters of the water column meeting the criteria for both temperature and DO.

Beneficial Use Not Supported

The beneficial use is not supported if there is insufficient habitat for aquatic life based on the DO and temperature profile.

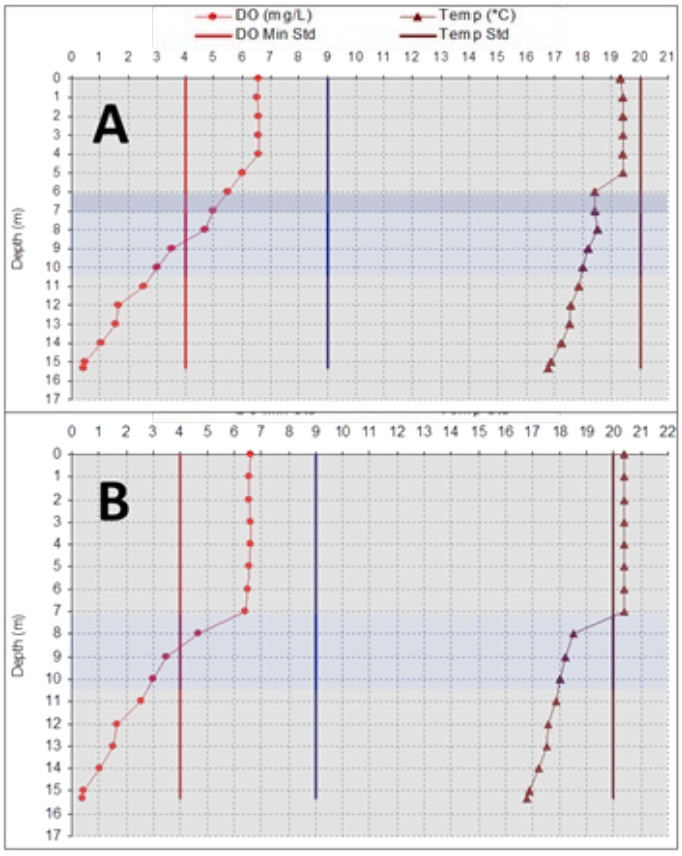

Figure 24. Concept of the habitable zone where both DO and temperature are suitable for aquatic life. The site depicted on the top (Panel A) would be considered supporting because the lens where both temperature and DO provide sufficient habitat is greater than three continuous meters (>=3 m). Conversely, the site on the bottom (Panel B) is not supporting aquatic life uses because although there are regions in the water column where dissolved oxygen and temperature criteria are met separately, the region of overlap in the water column for both temperature and dissolved oxygen criteria (approximately 8 meters depth) is less than three meters.

Total Dissolved Solids: Agricultural Use Support

The following rules are used to determine whether a lake is supporting its agricultural beneficial use (Figure 25):

Beneficial Use Supported

The beneficial use is supported if the standard is exceeded in 10% or fewer of TDS samples.

Beneficial Use Not Supported

The beneficial use is not supported if the TDS standard is exceeded in more than 10% of TDS samples.

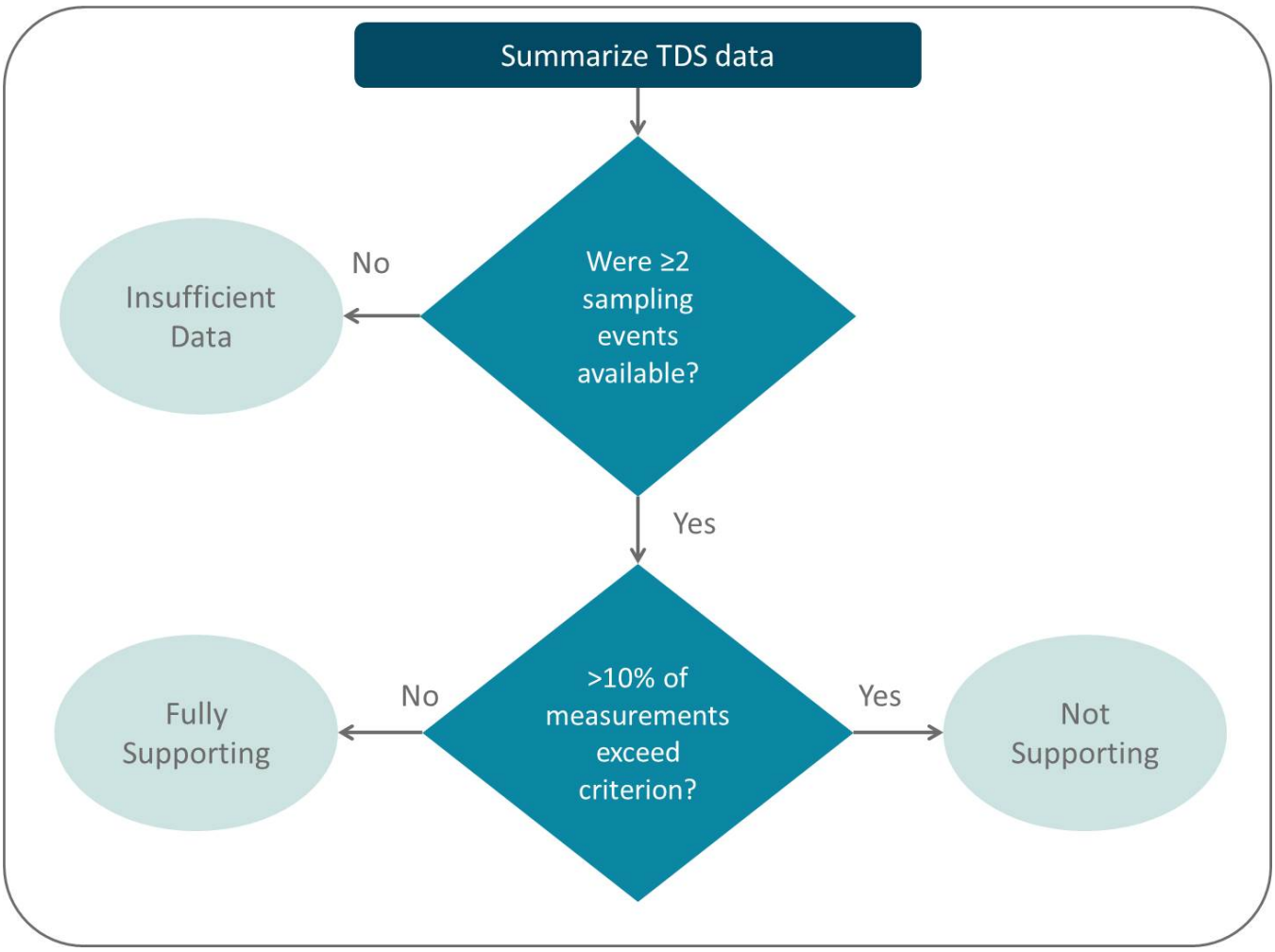

Figure 25. Assessment process to determine support of the agricultural beneficial use with TDS data.

Tier II Assessment

Weight of Evidence Criteria

The weight of evidence criteria allows DWQ to use key lines of evidence for assessing a waterbody's beneficial use support, including evaluations of Utah's narrative standard.

The weight of evidence evaluation consists of three components:

- Increasing trophic state index (TSI) trend over the long term (approximately 10 years) or a TSI-Chl-a greater than 50 (see Carlson's Trophic State Index section below for more information)
- The observation of water quality based fish kills (see the Narrative Standards for All Waters for more information) or winter DO measures not meeting the criterion when measured
- Evaluation of phytoplankton community

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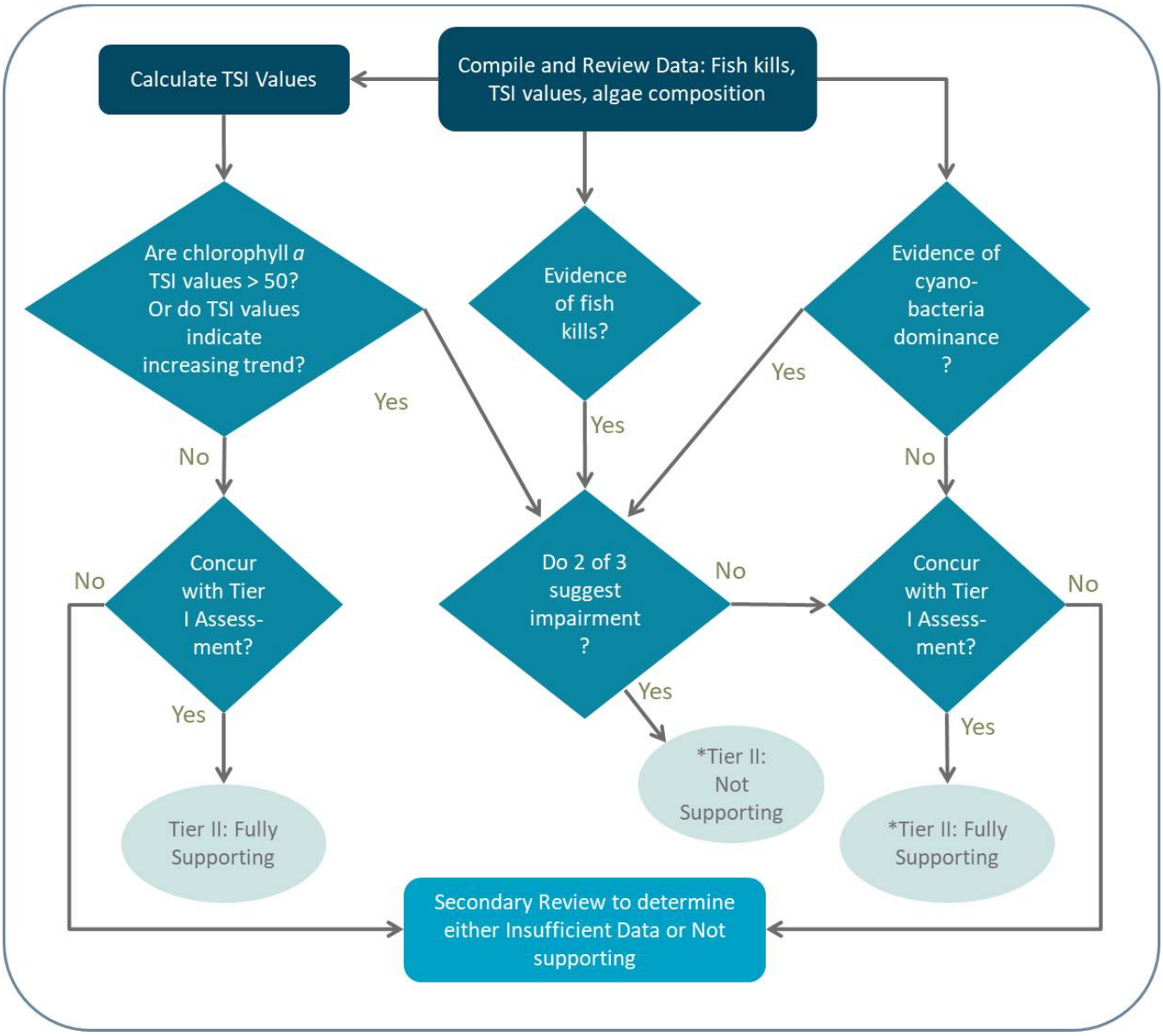

Figure 26. Tier II assessment process for lakes, reservoirs, and ponds.

Carlson's Trophic State Index

The Carlson's TSI is calculated using Secchi disk transparency, total phosphorus, and chlorophyll a. TSI value ranges from 0 to about 100, with increasing values indicating a more eutrophic condition. TSIs are calculated independently for each indicator (i.e., Secchi disk, chlorophyll a, and total phosphorus) and are not averaged. Chlorophyll a (TSI-Chl-a) is generally considered the most reliable indicator of trophic status, followed by Secchi disk (TSI-SDD), and total phosphorus (TSI-TP) (Carlson, 1977).

Carlson's TSI estimate for chlorophyll a is calculated using the following equation:

- Trophic status based on Chlorophyll a (TSI-Chl-a): TSI-Chl-a = 9.81 ln (Chl-a) + 30.60, where Chl-a = chlorophyll a concentrations in µg/L.

Phytoplankton Community

DWQ routinely collects phytoplankton to evaluate the composition and relative abundance of algae and cyanobacteria. These data are used to identify waterbodies potentially undergoing cultural eutrophication that may negatively impact beneficial uses. Phytoplankton data are used in the Tier II assessment process because they may reflect nutrient availability and nutrient ratios. The observation that a waterbody has a diverse assemblage of diatoms or green algae relative to cyanobacteria or other potentially harmful taxa is used as a line of evidence that the waterbody is supporting its designated uses. In contrast, a phytoplankton assemblage dominated by cyanobacteria may be indicative of eutrophication, an increased potential for harmful algal blooms, and a loss of aquatic biodiversity.

Great Salt Lake

The Great Salt Lake (GSL) is assigned its own beneficial use class (Class 5) and is further divided into five subclasses (5A–5E) that represent the four main bays (Gilbert, Gunnison, Bear River, and Farmington) and transitional waters (UAC R317-2-6). The only numeric water quality criterion currently applicable to GSL is a selenium bird- egg tissue criterion for Gilbert Bay (Class 5A). The beneficial uses of GSL are protected and assessed by Utah's narrative water quality standard (UAC R317-2-7.2) in addition to this criterion. The Great Salt Lake Water Quality Strategy outlines the process for monitoring and criteria development for GSL.

Gilbert Bay Bird-Egg Tissue Assessment

Bird eggs are collected annually during each nesting season from representative locations within the Gilbert Bay AU or adjacent transitional wetlands (UAC R317-2-6.5). Selenium concentrations from eggs collected each year are assessed against the criterion in UAC R317-2-14. Gilbert Bay's beneficial use will be identified as impaired if the geometric mean of selenium concentrations from five or more eggs collected in any year exceeds the 12.5 mg/kg criterion. If the geometric mean of selenium concentrations from five or more eggs collected in any year exceeds 9.8 mg/kg dry weight, DWQ will identify Gilbert Bay's beneficial use as threatened and initiate preliminary TMDL studies to evaluate selenium loading sources. If Gilbert Bay is identified as impaired for selenium, five consecutive nesting seasons meeting selenium criteria will be considered sufficient for delisting the impairment.

The Gilbert Bay selenium criterion also includes thresholds below 9.8 mg/kg that trigger management actions (Table 16). DWQ evaluates egg concentrations against these thresholds to inform management decisions, but these thresholds are not used for use attainment determinations in the IR.

Eggs are also collected as part of discharge monitoring programs for certain dischargers to GSL. Eggs collected as a part of these programs are specifically intended to characterize discharge outfall conditions and are therefore not relevant to assessing more general GSL conditions. Eggs collected under these programs are only used for evaluating discharge permits and are not used in 303(d) assessment of the GSL AUs.

Table 16. Selenium trigger levels and DWQ responses (UAC R317-2-14.2(14)).

Se concentration (mg/kg dry weight)	DWQ Response
< 5.0	Routine monitoring with sufficient intensity to determine if selenium concentrations within the Great Salt Lake ecosystem are increasing
5.0	Increased monitoring to address data gaps, loadings, and areas of uncertainty identified from Great Salt Lake selenium studies
6.4	Initiation of a Level II Antidegradation Review (ADR) by the State for all discharge permit renewals or new discharge permits to Great Salt Lake. The Level II ADR may include an analysis of loading reductions.

Se concentration (mg/kg dry weight)	DWQ Response
9.8	Aquatic life use declared as threatened. Initiate preliminary TMDL studies to evaluate selenium loading sources.
12.5	Aquatic life use declared as impaired. Formalize and implement TMDL.

Toxics Parameter Assessments for All Waters

DWQ identifies toxics as all parameters within UAC R317-2-14 that are not defined as conventional parameters (see Table 11 and the Lakes, Reservoirs, and Ponds Assessment section).

Data are compared against one or more toxic criteria, depending on the beneficial use, to ensure protection of designated beneficial uses. One daily measurement at each monitoring location is compared to the chronic and/or acute criteria for 303(d) assessment purposes. DWQ targets dissolved metals sample collection in lakes at one meter above the bottom of the deepest site of the waterbody, as this location is the most likely to identify dissolved metal exceedances in a lake. Dissolved metals are also assessed through this method when additional metals data are available for other lake locations or depths. The acute and chronic averaging periods defined in UAC R317-2-14 are not currently applied for 303(d) assessment analysis because monitoring and sampling frequencies are different and more widely spaced than the acute and chronic periods typically defined in this rule.

Equation-Based Toxic Parameters

A number of toxic criteria are specified as equations rather than specific values (see footnotes in UAC R317-2-14). The equations include variables of other chemical constituents or water properties that either reduce or magnify the extent to which a toxic is harmful to aquatic life. In order to properly apply the correction factor equations, DWQ uses measured data for the variables in the equation to calculate the appropriate numeric criteria for the sample. In order to calculate the correct criterion for a pollutant-result value, the monitoring location site and date of sample must match for the pollutant of concern and the additional parameter(s) that are needed to complete the equation. In the case where there are missing supplemental data values to apply the equation, the following rules will be applied.

- **Hardness-dependent toxics:** For hardness-dependent criteria where a calcium (Ca) or magnesium (Mg) value is missing and the hardness cannot be calculated, a hardness value reported from the laboratory will be used. Data without a hardness value are removed from assessments.
-
- **Aluminum, chronic only:** If either a field pH or calculated or laboratory hardness is missing, the aluminum acute default value of 750 microgram per liter (µg/L) provided in Table 2.14.2 of UAC R317-2 will be applied. Otherwise, the following pH and hardness combination and numeric criteria are applied:

    a. pH ≥ 7.0 and (calculated or laboratory reported) hardness ≥ 50 parts per million (ppm): 750 µg/L
    b. pH < 7.0 and (calculated or laboratory reported) hardness ≥ 50 ppm: 87 µg/L
    c. pH ≥ 7.0 and (calculated or laboratory reported) hardness < 50 ppm: 87 µg/L
    d. pH < 7.0 and (calculated or laboratory reported) hardness < 50 ppm: 87 µg/L

- **Ammonia, chronic:** DWQ assumes fish early life stages are present at all monitoring locations. The following equation is used: ((0.0577/(1+107.688-pH)) + (2.487/(1+ 10pH-7.688))) * MIN (2.85, 1.45*100.028*(25-T)).Where (1.45*100.028*(25-T)) is ≤ 2.85, (1.45*100.028*(25-T)) is applied and if (1.45*100.028*(25-T)) is > 2.85, 2.85 is applied. However, if a field pH or temperature reading is unavailable, a correction factor cannot be made and the result value for ammonia will be removed from the assessment.

-
- **Ammonia, acute**: If a field pH is missing, a correction factor cannot be made, and the result value for ammonia will be removed from the assessment.

Assessment Process

Once chronic and acute criteria are calculated, toxicant sampling results, where applicable, are compared to the criteria to determine if the monitoring location is supporting beneficial uses or is impaired due to exceedances of the standard. Sites with sufficient data (four or more samples) with two or more exceedances of the acute and/or chronic criteria will result in non-support of the beneficial use. Four or more samples will be required with one or zero samples exceeding acute or chronic criteria for sites to meet beneficial uses. In cases where there are fewer than four samples, and one or zero samples are exceeding the acute or chronic criteria, sites will be placed in Category 3, insufficient data (Figure 27).

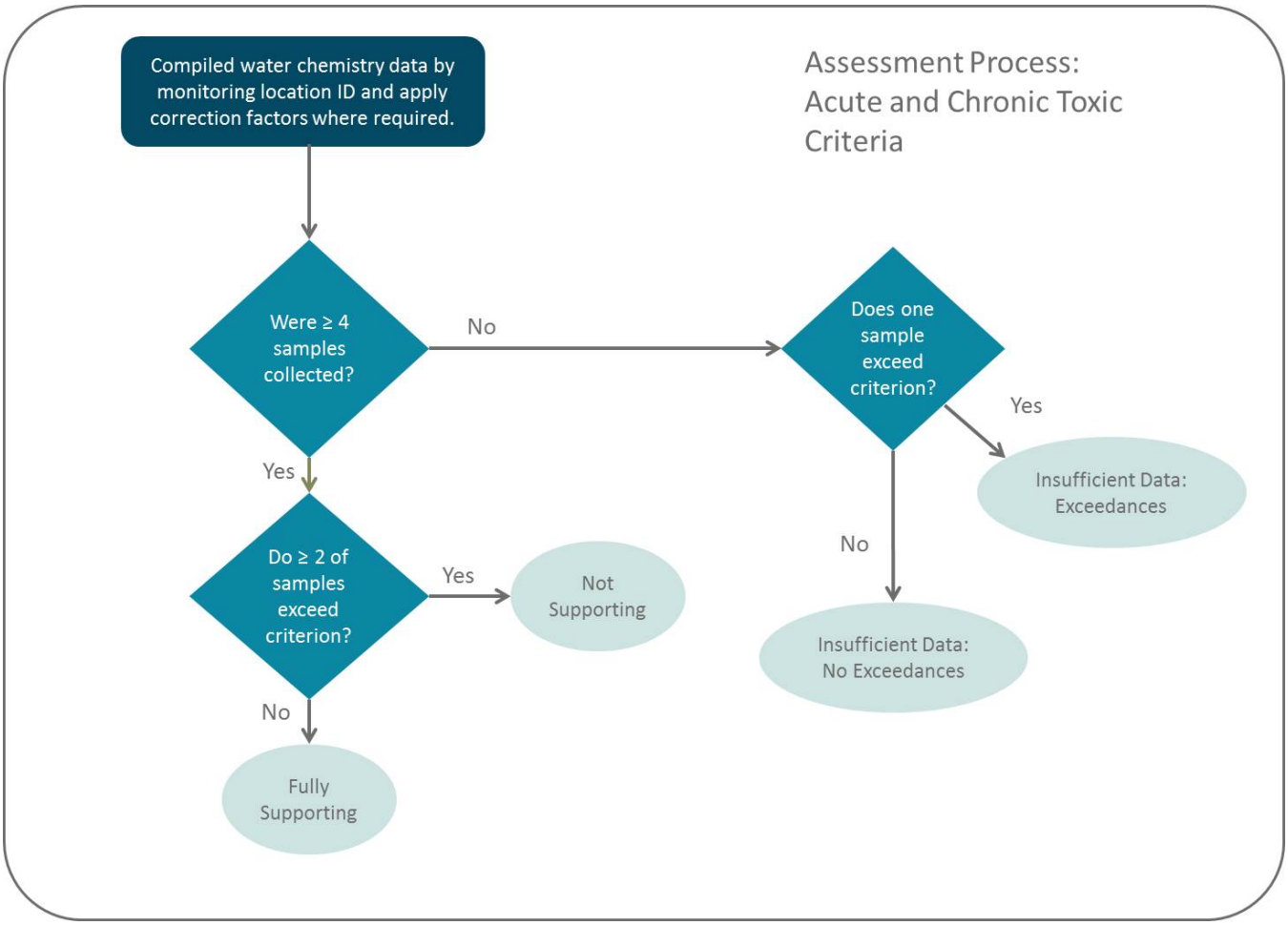

Figure 27. Overview of the assessment process for toxic parameters.

Escherichia Coli Assessment for All Waters

Data Preparation

Following a credible data review and additional QA/QC checks as outlined in DWQ's Quality Assurance Program Plan for Environmental Data Operations (DWQ, 2014), DWQ compiles all credible data within the period of record of concern and makes several adjustments based on the reported limits and sampling frequencies necessary to conduct the assessment. Similar to the other QA/QC and assessment procedures outlined in this document, the raw data and accompanying metadata values in *Escherichia coli (E. coli)* datasets are not altered. Instead, DWQ uses a series of database comments and flags.

Recreation Season

To ensure protection of recreation uses, *E. coli* assessments will be conducted on data collected during the recreation season from May 1 through October 31. The recreation season may be adjusted to be either longer or shorter based on site-specific conditions. Any site-specific adjustments made to the recreation season will be documented.

Escherichia coli Collection Events and Replicate Samples

Datasets at a single monitoring location may contain replicate samples or multiple samples collected in the same day due to sampling design. Single daily values or collection events are required for *E. coli* assessments. DWQ defines a collection event as one of the following:

- The daily most probable number (MPN) result value
- A geometric mean of replicates where multiple samples are collected on the same day
- The daily MPN as a quantified value reported as being obtained from a dilution

In cases where replicate samples were taken and there is 1) a quantified MPN value reported from a dilution and 2) the MPN value reported is greater-than-detect, the quantified MPN value will be used as the collection event for assessment purposes. In this scenario, MPNs reported as greater-than-detect are not used to calculate the geometric mean for the collection event.

Data Substitution for Calculating the Geometric Mean

Assessments use the geometric mean of representative samples to determine if *E. coli* standards are met. *E. coli* data that are reported as less- than-detect (< 1) or 0 will be treated as a value of 1 to allow for the calculation of a geometric mean. Similarly, *E. coli* data that are reported as greater-than-detect (> 2,419.6) will be treated as 2,420 to allow for the calculation of the geometric mean.

Use Designation

DWQ assesses use support for each monitoring location once the data are compiled. All waters of the state are classified for contact recreation (Class 2), and some waters are classified as drinking water sources (Class 1C). These uses have specific associated *E. coli* standards that are used to determine use support. The numeric criteria within UAC R317-2-14 are applied to Class 2 and Class 1C uses based on the beneficial use assignments to a waterbody or segment within a waterbody.

Annual Recreation Season Assessment

DWQ begins the assessment process by gathering information on health advisories and/or closures issued during the recreation season. If a waterbody had two or more *E. coli*–related beach closures and/or health

advisories in a recreation season, or if a health advisory and/or closure was issued for recreational access to a waterbody for two or more weeks, the waterbody is considered impaired and no further assessment is conducted (Figure 28). If there were fewer than two closures or advisories, or if the closure lasted less than two weeks, the assessment process continues using *E. coli* concentrations.

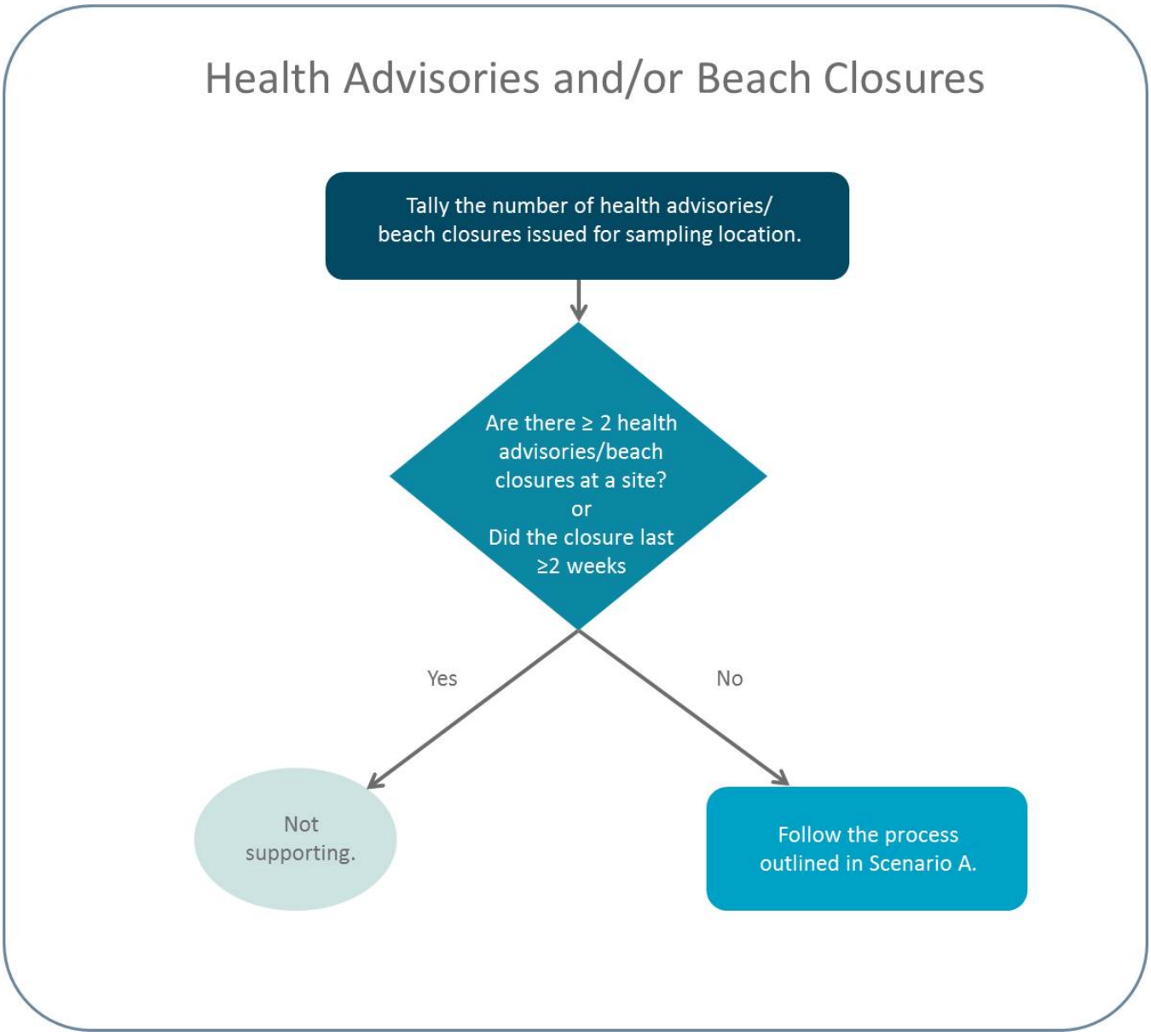

Figure 28. Considering *E. coli*-related beach closures and/or health advisories.

To ensure protection of recreation and drinking water uses of assessed waterbodies of the state, DWQ considers three scenarios based on sampling frequency and the number of collection events at a monitoring location:

- Scenario A: A seasonal assessment against the maximum criterion (Figure 29)
- Scenario B: A 30-day geometric mean assessment (Figure 30)
- Scenario C: A seasonal geometric mean assessment (Figure 31)

Scenario A

If there are greater than or equal to five collection events spaced 48 hours or more apart within a recreation season, then all collection events within the recreation season are used to make an assessment (see Figure 29).

- DWQ does not make impairment decisions based on one exceedance. If the monitoring location has less than 10 collection events within a recreation season, then one collection event may exceed the numeric criterion and the site will still be considered in Scenarios B and C. If two or more collection events exceed the numeric criterion, then the monitoring location is not supporting the beneficial use, and the next beneficial use is assessed.
- If there are 10 or more collection events within a recreation season, a percent exceedance is calculated by dividing the number of collection events that exceed the maximum criterion by the total number of collection events. If the calculated percentage is 10% or less, the monitoring location is then assessed using Scenarios B and C. If the calculated percentage is greater than 10%, the monitoring location is not supporting its beneficial use, and the next beneficial use is assessed.
- If there are less than five collection events spaced 48 hours or more apart within a recreation season, then the monitoring location is placed in the insufficient data category.
- If one or more collection events exceed the maximum criterion, then the monitoring location is placed in the insufficient data with exceedances category.
- If no collection events exceed the maximum criterion, then the monitoring location is placed in the insufficient data, no exceedances category.

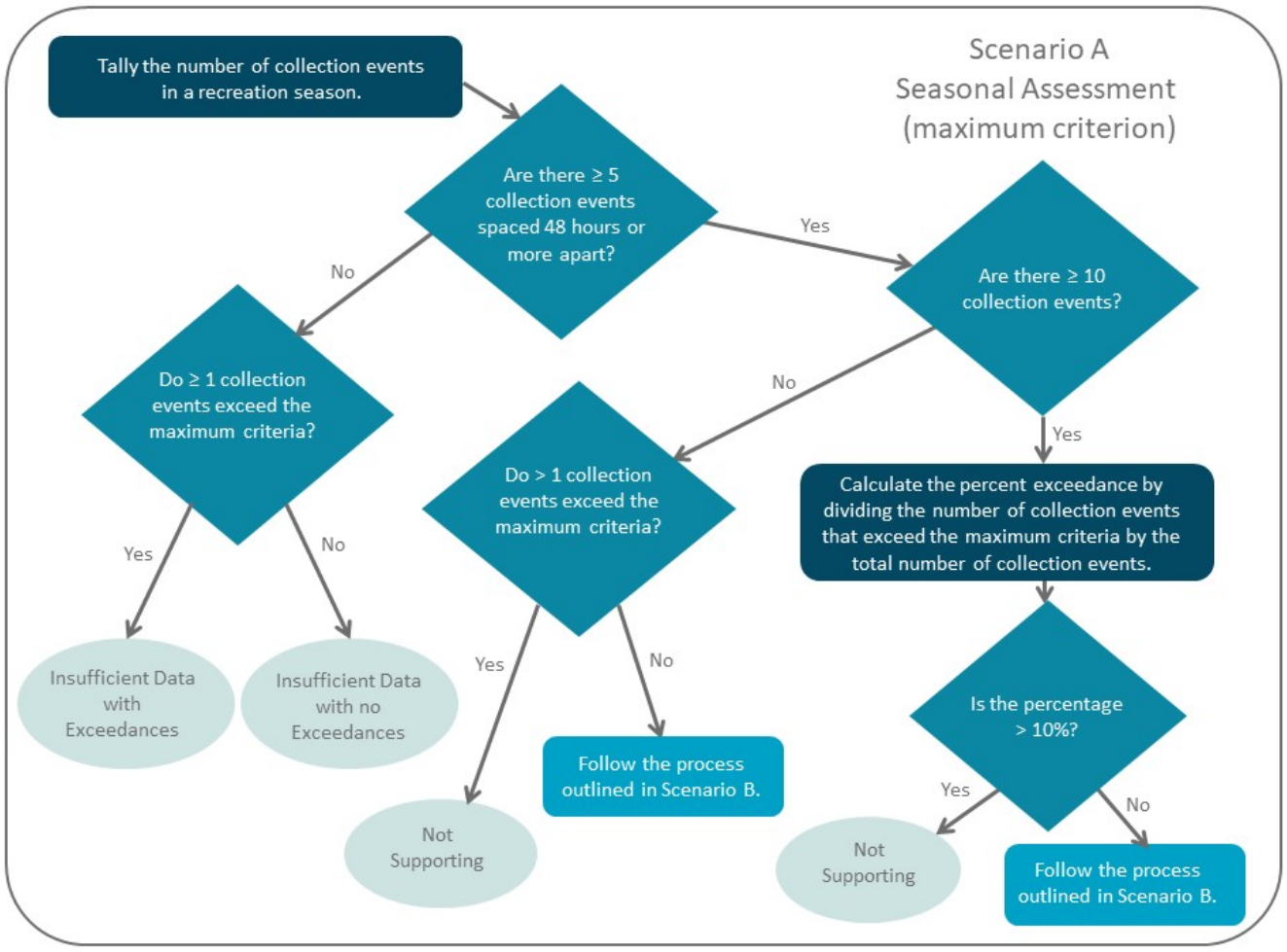

Figure 29. Scenario A: A seasonal assessment using the maximum criterion at a monitoring location.

Scenario B

If the site's calculated percent exceedance of the maximum criterion is less than or equal to 10%, the site is then assessed using the 30-day geometric mean criterion (see Figure 30). There must be a minimum of five collection events in 30 days with at least 48 hours between collection events in order to assess against the 30-day geometric mean criterion directly. This ensures that collection events are adequately spaced and are representative of ambient conditions.

Step 1: Determine if there are ≥5 collection events within a 30-day period.

- Count the number of collection events collected between each sample date (day 1) and the sample date plus 29 days (day 30).

Step 2: Determine if the collection events are representative (must have ≥5 collection events within a 30-day period).

- Count the number of collection events collected between each sample day (day 0) and the sample date plus 2 days (day 3).
- If there are two collection events within this period, only one sample will be considered representative.

Step 3: Calculate the 30-day geometric mean.

- If there are ≥5 representative samples in a 30-day period, then all collection events will be used to calculate the 30-day geometric mean.
- If ≥1 30-day geometric mean exceeds the 30-day criteria, the site is not supporting beneficial uses. If there are not representative data for Scenario B, or if the 30-day geometric mean did not exceed the 30-day criteria, the site is assessed using Scenario C.

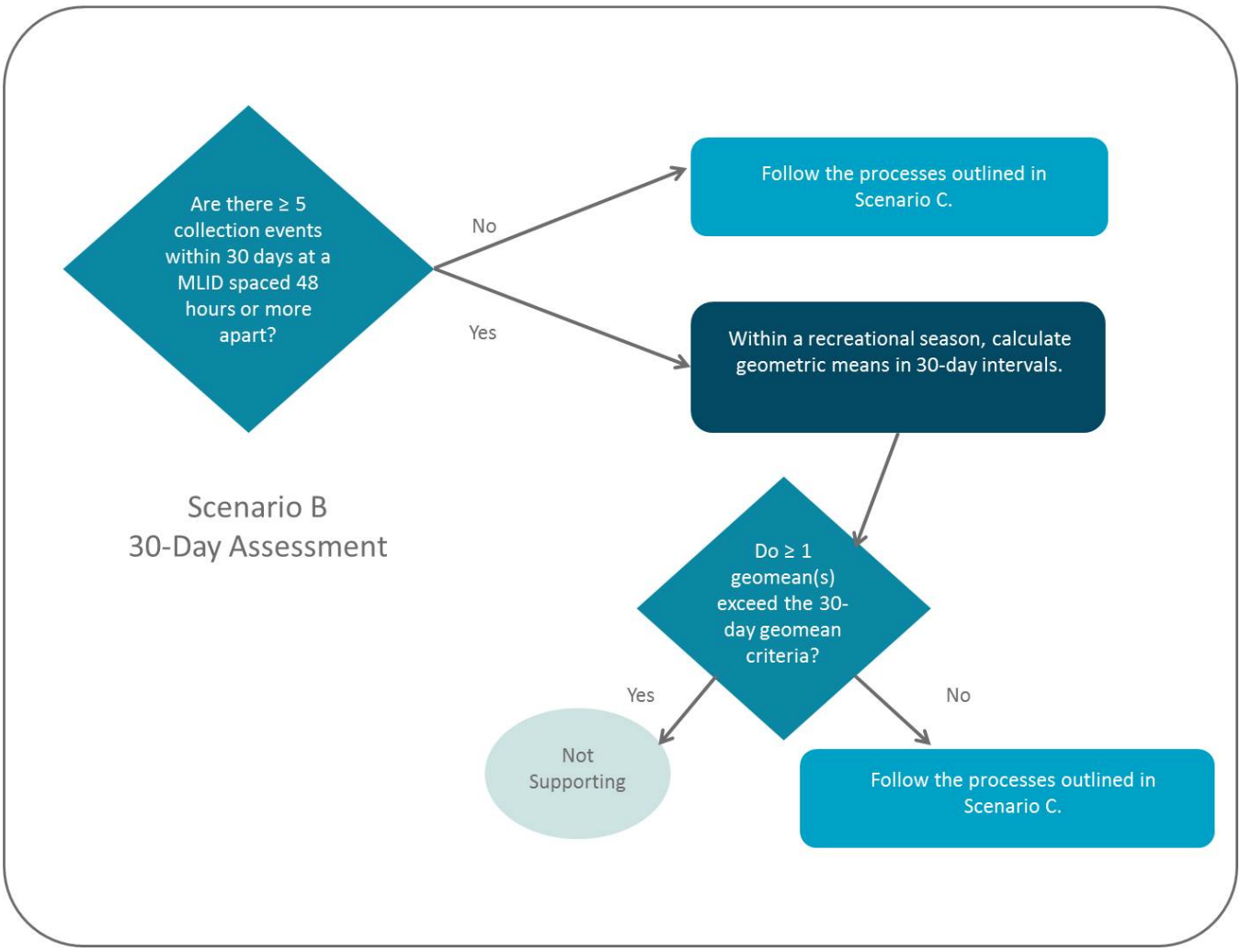

Figure 30. Scenario B: An assessment using the 30-day geometric mean for monitoring locations with five or more collection events within 30 days.

Scenario C

If adequate (at least five samples) and/or representative data spaced by at least 48 hours are not available to assess against the 30-day geometric mean, DWQ will assess *E. coli* data for the recreation season, provided there are at least five collection events during the defined recreational season. Exceedances of the geometric mean criterion will result in the site being classified either as impaired (minimum of 10 collection events in a recreation season) or as insufficient data (sample size is more than five but fewer than 10) (see Figure 31).

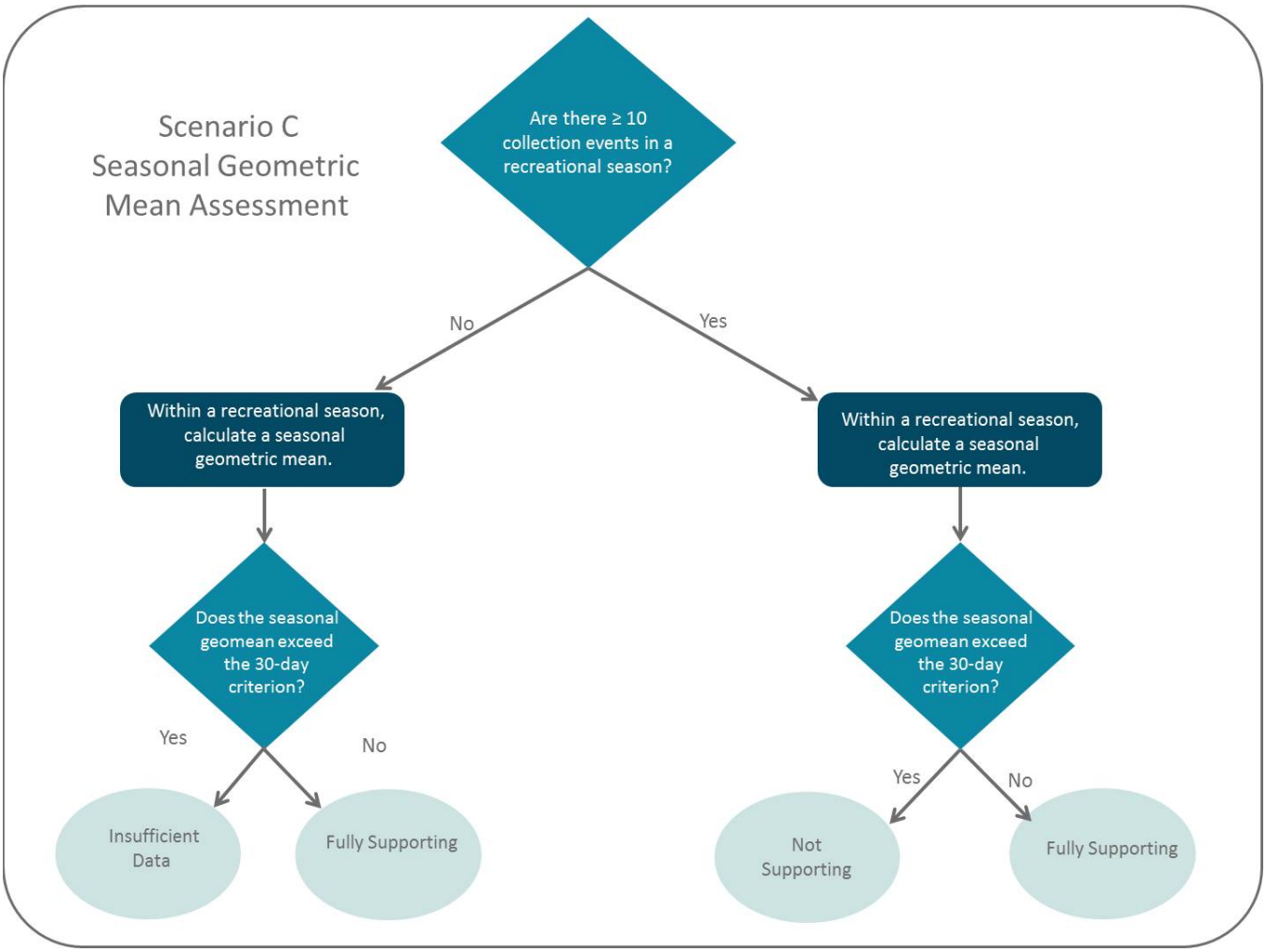

Figure 31. Scenario C: A seasonal geometric mean assessment.

Summarizing Assessment Results

When determining beneficial use support of a monitoring location with assessment results across multiple years, the following rules are applied, in the following order:

Not Supporting (Category 5)

- A lake, reservoir, or pond has two or more posted health advisories or beach closures during any recreation season.
- Any monitoring location with five to nine collection events and two or more collection events that exceed the maximum criterion.
- Any monitoring location where the calculated percent exceedance of the maximum criterion within a recreation season for *E. coli* concentrations is greater than 10% for 10 or more collection events.
- Any monitoring location where the 30-day geometric mean exceeds the 30-day geometric mean criterion (minimum five collection events with at least 48 hours between collection events).
- Any monitoring location where the recreational season geometric mean exceeds the 30-day geometric mean criterion (minimum of 10 collection events).

Insufficient Data or Information Assessment Considerations (Category 3, with exceedances)

- Sites with four or fewer samples in all seasons evaluated will be listed as insufficient data, provided impairment is not suggested by a posted health advisories or beach closures.

Combinations of Category 3 (with no exceedances), 2, and/or 1

- If there is no evidence of impairment at a site by any of the assessment approaches over the period of record, the assessment analysis from the most recent year outweighs the results from previous years. DWQ's process for merging assessment results from multiple locations within an AU is discussed in more detail in Determinations of Impairment: All Assessment Units.

Supporting (Category 1 or 2)

- No evidence of impairment by any assessment approach for all recreation seasons over period of record. A fully supporting determination can be made with a minimum of five collection events during the recreational season.

Combining *E. coli* with Other Parameter Assessment Results

Until the determination of impairment and the review of additional supporting information are completed by reviewers, parameter assessments at an individual monitoring location and results from multiple monitoring locations within the same AU are not summarized and combined (see Determination of Impairment for more details).

Pollutions Indicator Assessments for All Waters

Several parameters and beneficial uses in UAC R317-2 are identified as pollution indicators and have footnotes indicating that further investigations should be conducted when levels are exceeded. To capture this footnote in the assessment process, DWQ reviews preliminary pollution indicator assessments during the Secondary Review process to determine whether pollution indicators demonstrate clear and convincing evidence of supporting or not supporting the beneficial uses assigned to the waterbody in UAC R317-2. Secondary reviews incorporate pollution indicator data into assessment-category determinations and rely on multiple lines of evidence, including pollution indicator thresholds, the presence or absence of other indicator-associated water quality issues, potential pollutant sources, and other site- or watershed-specific knowledge, to determine whether listing or delisting on a pollution indicator parameter is appropriate or whether to prioritize waterbodies for additional monitoring.

Narrative Standards for All Waters

Utah's water quality standards contain narrative criteria that protect beneficial uses in addition to the numeric criteria used to perform water quality assessments. The narrative criteria state:

It shall be unlawful, and a violation of these rules, for any person to discharge or place any waste or other substance in such a way as will be or may become offensive such as unnatural deposits, floating debris, oil, scum, or other nuisances such as color, odor to taste; or cause conditions which produce undesirable aquatic

life or which produce objectionable tastes in edible aquatic organisms; or result in concentration or combinations of substance which produce undesirable human health effect, as determined by bioassay or other tests performed in accordance with standard procedures; or determined by biological assessments in (UAC) Subsection R317-2-7.3.

DWQ will apply the narrative criteria to protect human health and aquatic life where evidence exists that human-caused actions have produced any of these undesirable outcomes in a waterbody. Narrative standards may be used to make an impairment determination for drinking-water closures, fish kills, harmful algal blooms (HABs), beach closures for swimming, and health advisories for the consumption of fish. Assessment of *E. coli* data and associated beach closures to protect human health provide an additional weight of evidence for defining the impairment of recreational uses and is addressed in more detail earlier in this document in the *Escherichia Coli* Assessment for All Waters section.

DWQ will assess a site as impaired for 1C uses if the Utah Division of Drinking Water or a local municipality issues an advisory or closure for a surface drinking water source, unless data show that the problem has been resolved.

Fish Kills

DWQ requests information on reported fish kills from the Utah Division of Wildlife Resources and other stakeholders. These data are used with water quality data to make final assessment decisions. For example, sites that would generally not be assessed due to small sample sizes may be listed as impaired if fish kills have also been observed in the waterbody.

Harmful Algal Blooms (HAB)

For this IR cycle, harmful algal bloom (HAB) assessments are currently on hold while DWQ develops and reviews implementation guidance and assessment methods based on recent EPA recommendations for water quality criteria for cyanotoxins (see *Recommended Human Health Recreational Ambient Water Quality Criteria or Swimming Advisories for Microcystins and Cylindrospermopsins*). In future IR cycles, DWQ expects to continue assessing recreational uses for the occurrence of HABs.

Fish Tissue Assessments and Consumption Health Advisories

DWQ has collected fish tissue samples for mercury analysis in waterbodies throughout the state since 2000. Consumption advisories have been issued for 31 waterbodies since then.

DWQ currently uses the EPA-published ambient water quality criterion for methylmercury for the protection of people who eat fish and shellfish. This criterion is 0.3 milligram (mg) methylmercury per kilogram (kg) fish tissue wet weight. If all fish (small and large) of the same species at a monitoring location have a mean mercury concentration of > 0.3 mg/kg, additional statistical tests are used to determine if a consumption advisory is necessary. If the mean is < 0.3 mg/kg, no advisory is issued. In several instances, size class advisories have been issued when it is apparent that only the larger size class exceeds the safe consumption criterion.

The p-value is considered for locations with a mean mercury concentration of > 0.3 mg/kg, The p-value refers to the probability of obtaining a result equal to or greater than those that were measured at that location. DWQ uses a p-value of 0.05 to be 95% certain an advisory is not issued unnecessarily. Therefore, if a species has a mean of > 0.3 mg/kg and a p-value < 0.05, a consumption advisory is issued. If a species has a mean of > 0.3 mg/kg but a p-value of > 0.05, an advisory is not issued. The consumption advisories are based on long-term consumption; therefore, the mean is the most appropriate and commonly used parameter to estimate exposure.

In an effort to control for false negatives, DWQ calculates 95% confidence limits of the mean mercury concentration. If the upper confidence limit is above 0.3 mg/kg, that site is targeted for additional sampling.

When an advisory is warranted, DWQ sends the data to the Utah Department of Health toxicologist, who uses the mean mercury concentration to calculate the actual consumption recommendations. Those calculations are based on the following:

- Average adult weight: 70 kg (154 pounds). Average adult meal size: 227 grams (8 ounces)/meal
- Average child weight: 16 kg (35 pounds). Average child meal size: 113 grams (4 ounces)/meal

Consumption amounts are calculated for three target populations: pregnant women and children < 6 years old; women of child-bearing age and children between 6–16 years old; and adult women past child-bearing age and men >16 years old.

Mercury Assessment Process

The current approach for mercury assessments for aquatic life is different than the consumption advisory process. The assessment is based on the U.S. Food and Drug Administration (FDA) recommended value of 1.0 mg/kg. The FDA set the consumption concentration at 1.0 mg/kg, which correlates to the water column mercury concentration of 0.012 µg/L identified in previous studies by EPA (EPA, 1985). Utah's water quality standard for mercury is 0.012 µg/L as a four-day average. Therefore, the corresponding fish tissue concentration of 1.0 mg/kg is used for assessment.

Beneficial Use Supported (Category 1)

- No fish consumption advisories for mercury are in place.
- Mean fish tissue mercury concentration for all individuals of the same species at a location is less than 0.3 mg/kg and p-value is < 0.5.

Insufficient Data with Exceedances (Category 3)

- Fish consumption advisories for mercury are in place, but the mean fish tissue mercury concentration for all individuals of the same species at a location is less than or equal to 1.0 mg/kg.

Beneficial Use Not Supported (Category 5)

- Fish consumption advisory for mercury is in place.
- Mean fish tissue mercury concentration is greater than 1.0 mg/kg.

For additional information and the most up-to-date list of consumption advisories, please visit fishadvisories.utah.gov.

Determinations of Impairment: All Assessment Units

Each use and parameter within a waterbody is assigned a provisional EPA-derived assessment category after the initial assessment of credible data against the numeric criteria in UAC R317-2. To verify the use and parameter-specific assessment results and consolidate the often multiple parameter assessments into one result per waterbody, DWQ must consider the quantity of data and the extent to which such data demonstrate clear and convincing evidence of supporting or not supporting the beneficial uses assigned to the waterbody

DWQ considers the following information to determine whether a waterbody is supporting or not supporting its beneficial uses:

- Individual assessment of water quality standards at a single site
- Independent applicability
- Multiple lines of evidence and several levels of secondary reviews

Individual Assessment of Water Quality Standards

DWQ first considers the individual use and parameter-specific assessment results from the monitoring-location level data to determine whether a waterbody is supporting or not supporting the beneficial uses assigned in UAC R317-2, Each use and parameter assessed for the waterbody is assigned a provisional EPA-derived assessment category. Unless noted in the waterbody-specific data assessment protocols, the assessment policies outlined in this document provide a direct and quantifiable method and documentation of data supporting or not supporting DWQ's water quality standards versus data and information that are developed using surrogate parameters or indicators. Because individual assessments at a single monitoring location site offer a more direct measure of supporting or not supporting water quality standards in UAC R317-2, DWQ places a greater weight on individual assessment decisions that follow the data assessment protocols in this document.

DWQ looks across the multiple parameter-specific assessment results that exist for a location and consolidates the results into a preliminary assessment at the individual site level after review of the individual water quality standard assessments for a beneficial use. DWQ then assigns one EPA-derived assessment decision category as defined in Table 1 to each monitoring location.

Conflicting Assessments of Water Quality Standards

DWQ applies the policy of independent applicability to address the possibility of conflicting results among different types of data (e.g., biological versus conventionals, toxics versus *E.coli*) at the site and AU level and goes through a series of considerations to determine if discrepancies are due to

- Differences in data quality
- Environmental factors such as the application of the water-effects ratio, development of site-specific criteria, revision to numeric criteria in UAC R317-2, or completion of a use attainability analysis

Figure 32 describes DWQ's use of the independent applicability policy.

Sites with conflicting assessment results may be listed as Category 3 (insufficient data and information). This allows DWQ to examine conflicting lines of evidence when concerns about the quality of independent datasets cannot be resolved through evaluation and documentation of the QA/QC issues that led to acceptance of one dataset and the resulting assessment result. Specific assumptions regarding model applicability applied during the biological assessment process are discussed in the Biological Assessment section. Similarly, if the application of water-effects ratio, justifiable site-specific criteria change, or change in beneficial uses based on a use attainability analysis cannot rectify the difference in the assessment results, then a Category 3 may be warranted. All evaluations of conflicting assessment decisions will be made in consultation with EPA on a case-by-case basis.

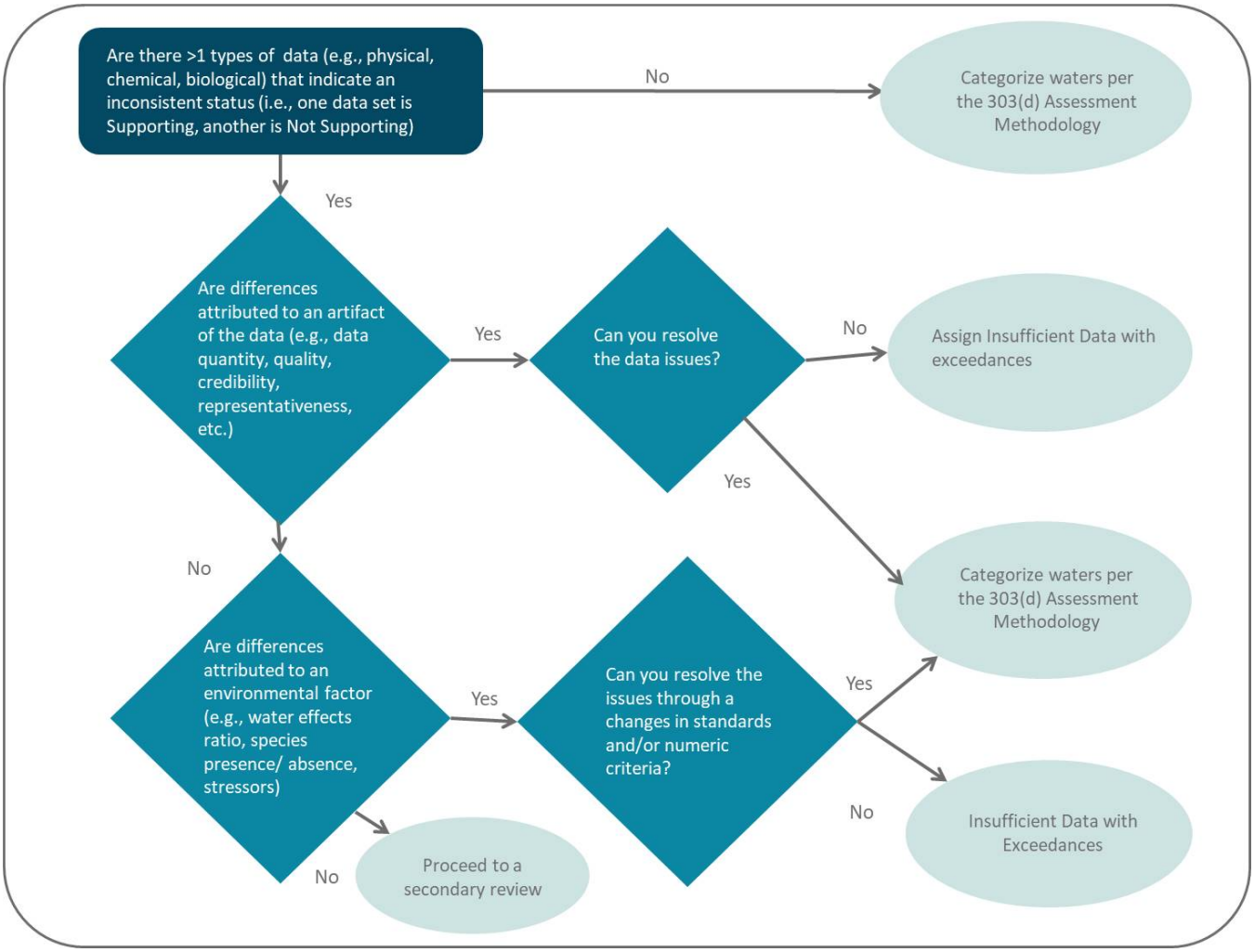

Figure 32. Overview of independent applicability process. Note: These judgment decisions are based in part on EPA's Consolidated Assessment and Listing Methods guidance published in 2002.

Aggregation of Site-Specific Assessments to Assessment Unit Categories

For reporting purposes, DWQ aggregates all site-specific water quality assessments within an AU to a single assessment category for that AU as described in Table 1. A flowchart describing this process is presented in Figure 33 (see Appendix 4 for additional detail).

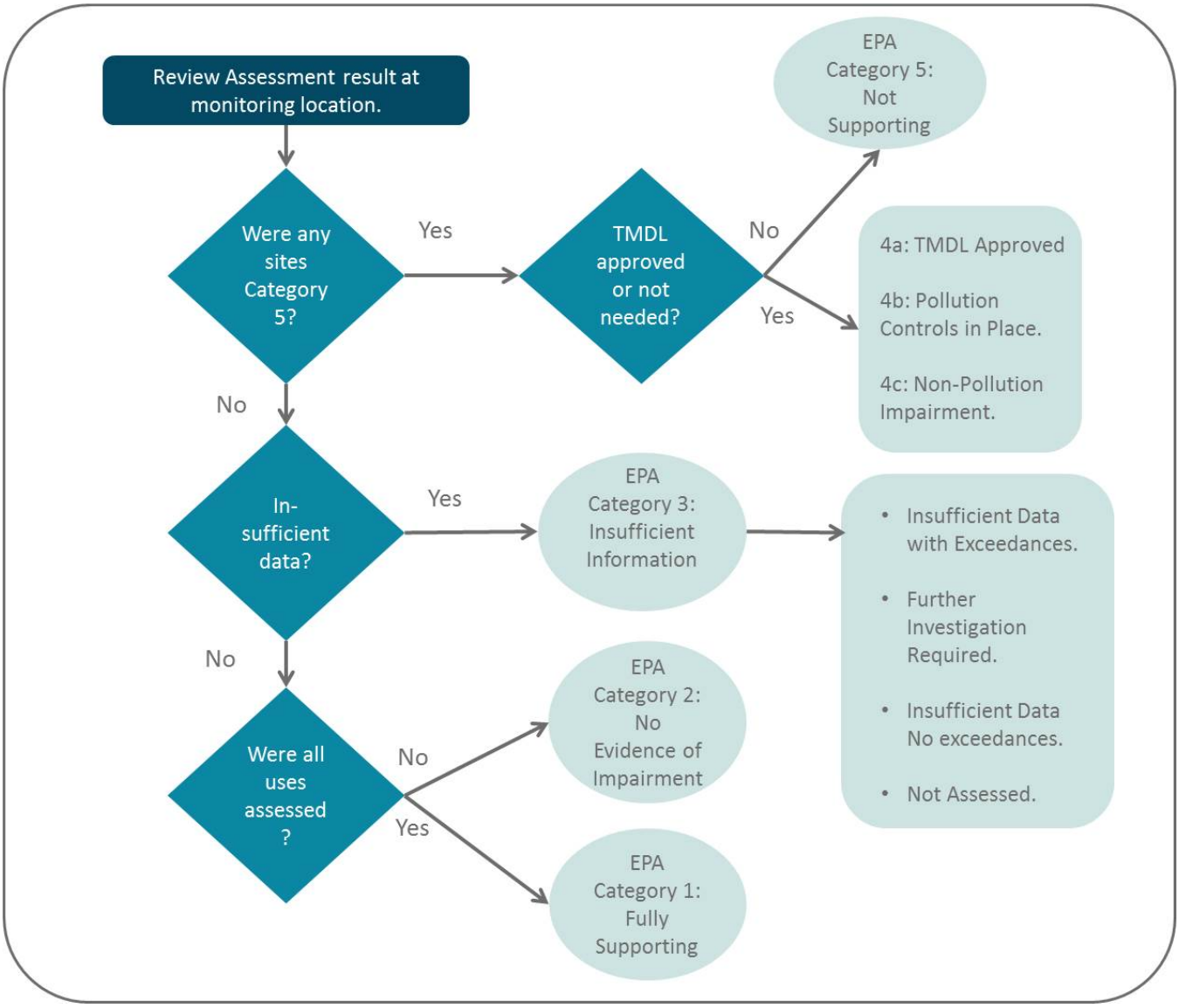

Figure 33. Process of assigning EPA categories to AUs based on results of monitoring location assessments.

Secondary Review

DWQ conducts a secondary review of listing determinations after consolidation of all individual assessment results and assignment of preliminary assessment category(s) for an AU, The secondary review process allows DWQ to apply site/waterbody-specific knowledge and additional data quality controls to evaluate the extent to which data used in the preliminary assessment demonstrate clear and convincing evidence of supporting or not supporting the beneficial uses assigned to the waterbody in UAC R317-2-6. DWQ recognizes that input from reviewers during public comment periods, in addition to the internal secondary review process, may provide key information on the data used in listing decisions. To ensure consistency in its use among different professionals, the secondary review process will be applied in a select number of scenarios using a standard set of guidelines as outlined in Appendix 3.

If documentation from the secondary review provides sufficient evidence to modify the basis and result of the preliminary assessment, the preliminary assessment decision based on the data assessment procedures

outlined in this document will be overwritten. For example, preliminary listings for Category 5. Category 1, or Category 2 waters could be re-assigned as Category 3, insufficient data and information.

The preliminary assessment decision based on the data assessment procedures outlined in this document will carry forward when documentation to override a preliminary assessment decision is insufficient, vague, or cannot be provided,

DWQ will document the original category assignment and a justification for the secondary review to ensure tracking and transparency.

Assessment Unit Re-segmentation

DWQ may decide it is appropriate to re-segment (i.e. "split") an existing AU polygon into two or more new AUs rather than aggregate those conflicting assessments into a single AU scale category when site-specific assessments within a single AU conflict. AUs where water quality criterion exceedances are clearly isolated to a relatively small, hydrologically distinct portion of the larger AU may be re-segmented to more accurately reflect that variation in water quality. For example, a large AU with an impairment isolated to a single tributary may be re-segmented into two AUs: one for the impaired tributary and another for the rest of the existing AU. Assessment categories for both AUs are then determined following standard aggregation (Figure 33 and the delisting procedures discussed in the Delistings section). This results in a higher resolution and overall more accurate assessment. DWQ does not consider it appropriate to re-segment an AU when exceedances are observed in multiple locations throughout an AU or where impaired sites are not hydrologically distinct from unimpaired portions of the AU.

If after aggregating all of the assessments into one assessment category for an AU, DWQ determines that the supporting or not supporting assessment result decision is not representative of the entire AU, DWQ will investigate further to determine whether the supporting or not supporting decision is widespread or limited to individual portions of the waterbody, such as specific tributaries or reaches. Results from the analysis will be categorized as follows:

Entire AU not supporting (Category 5): DWQ will recommend that the AU not be re-segmented and the entire AU be listed as not supporting. When data from multiple sites or tributaries within an AU indicate multiple (or a combination of) sites that do not support beneficial uses (Category 5) and insufficient data with exceedances (Category 3)

Not supporting tributaries listed as not supporting (Category 5): DWQ may recommend the AU be re-segmented into two AUs and that only the tributaries with data indicating impairment are listed as not supporting if data from one or more tributaries indicate a combination of any of the following:

- Insufficient Data with Exceedances (Category 3)
- No Evidence of Impairments (Category 2)
- Supporting (Category 1)
- Needs Further Investigations (Category 3)
- Insufficient Data with No Exceedances (Category 3)
- Not Assessed (Category 3)

The rest of the AU will be assigned a category following procedures as outlined in Figure 33.

Identifying Causes of Impairments

DWQ will determine if the impairment or impairments are driven by pollutants, pollution, unknown, or natural causes once an AU is assigned an EPA assessment category that is representative of conditions in the AU (see Table 1). DWQ will identify causes of impairment by a pollutant with specific numeric water quality criteria identified in UAC R317-2-14. Pollution is a generalized term for causes of water quality impairment that can include multiple pollutants and other factors such as the absence or lack of water, lack of riparian vegetation, and other modifications that affect a waterbody's ability to support aquatic habitat and other designated uses. With the exception of naturally occurring causes, only one cause will be applied to a not-supporting waterbody and parameter. Procedures on how DWQ identifies the cause of impairments are described in the section below.

Pollutants

DWQ uses CWA's definition as a guide to define pollutant-driven impairments (Category 5) as those resulting from the following:

… dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under Atomic Energy Act of 1954, as amended), heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste discharged into water. (UAC R317-2)

DWQ also includes certain radiological constituents that are regulated under the state's Water Quality Control Act.

For the purpose of the 303(d) list, causes for impairments due to toxic parameters will be identified as the parameter for which there is an impairment. In the case of conventional parameters such as DO, temperature, pH, and biological scores, the cause will be assigned as the parameter that was assessed until a TMDL or pollution prevention plan identifies an alternative cause of the impairment.

DWQ will list the waterbody and the not-supporting parameter(s) as impaired for that pollutant (cadmium, iron, etc.) when an impairment for a waterbody or segment within a waterbody is identified as pollutant-driven. Waterbodies that are not supporting their beneficial uses due to pollutant impairments require future development of a TMDL or application of a TMDL alternative.

Where DWQ can identify that an impairment was not driven by a pollutant, it may consider whether the not-supporting assessment was driven solely by pollution versus a pollutant or by an unknown cause. DWQ will use CWA's definition of pollution as a guide when determining if an impairment resulted from "the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water." Waterbodies with not-supporting parameters that are driven solely by pollution problems do not require the future development of a TMDL and are candidates for a non-pollutant impairment (4C) assessment category. Details on DWQ's process for using EPA's 4C assessment category are described in section Category 4C.

Unknown Sources

For the purpose of the IR, sources of pollution contributing to an impairment will be reported in the 303(d) list to EPA as "unknown" until a TMDL or special study identifies the sources and any additional causes of impairment.

Natural Conditions

DWQ will retain the not-supporting assessment decision in cases where it or a stakeholder can demonstrate that the natural conditions of the waterbody or segment within a waterbody are the key factors for an impairment(s). However, DWQ's response to such exceedances differs unless a site-specific standard has been promulgated. Site-specific standards require documentation that demonstrates the extent to which the violations were due to natural conditions. Proposed changes to standards will be developed once this documentation is assembled Please review DWQ's Standards website for more information on the review and approval process for developing standards and numeric criteria for exceedances caused by naturally occurring conditions.

Revising the 303(d) List and Other Categorical Assessments

Upon validating the strength and extent of the impairments within a waterbody or segment within a waterbody, DWQ includes newly proposed and previously listed not supporting (Category 5) waterbodies on the updated 303(d) list unless the waterbody or waterbody segment(s) is currently included in the IR's TMDL-approved (Category 4A), pollution control (Category 4B), non-pollutant impairment (Category 4C), or delisting lists. Details on how and when DWQ will not apply or carry an impaired listing (not supporting, Category 5) forward on DWQ's 303(d) list are described below.

Category 4A

DWQ may choose to not list or remove an impaired waterbody or segment within a waterbody on the state's 303(d) list by calculating the maximum amount of a pollutant that a waterbody can receive while still meeting the state's water quality standards. This calculation and analysis work must be formalized in a TMDL and go through a thorough internal and external review process. This calculation and analysis work must be formalized in a TMDL that is provided to the public for review and comment, submitted to the Water Quality Board for approval, provided to the Legislative Natural Resources, Agriculture, and Environment Interim Committee for review if implementation costs exceed $10 million or the full State Legislature for approval if implementation costs exceed $100 million, and ultimately to EPA for their approval. Information on DWQ's process for developing and implementing a TMDL can be found on DWQ's Watershed Management Program website and EPA's TMDL 303(d) website. Where DWQ has documentation of a TMDL approved by the Water Quality Board and EPA for an impaired parameter within a not-supporting waterbody or segment within a waterbody, DWQ will override a current or previous not-supporting Category 5 listing decision at the AU level as follows:

Whole AU Category 4A, TMDL-approved if:

The only impairments within the waterbody or segment within the waterbody are included in the approved TMDL.

There are additional impairments within the waterbody or segments within the waterbody that are addressed in a Category 4B demonstration plan (described in section Category 4B and Appendix 5) and are not included in the approved TMDL. If the parameters included in the approved Category 4B demonstration plan are still not supporting or are insufficient data with exceedances in the current assessment cycle, DWQ will indicate that those parameters have an approved Category 4B demonstration plan in place.

There are additional impairments within the waterbody or segments within the waterbody that are pollution-driven (Category 4C) and not included in the approved TMDL. DWQ will indicate that those parameters are pollution versus pollutant driven if the pollution-driven parameters are still not supporting or are insufficient data with exceedances in the current assessment cycle.

Whole AU Category 5, Not Supporting if:

There are any additional pollutant impairments within the waterbody or segments within the waterbody that are not included in the approved TMDL. DWQ will indicate that those parameters have an approved TMDL in place if the parameters included in the approved TMDL are still not supporting or are insufficient data with exceedances in the current assessment cycle.

Category 4B

DWQ may choose to not list or remove an impaired waterbody or segment within a waterbody on the state's 303(d) list by developing a plan that ensures, upon implementation, that the waterbody will meet state water quality standards within a reasonable time period and through state- and EPA-approved pollution-control mechanisms. Similar to a TMDL, a Category 4B demonstration plan must go through a robust internal and external review process. Once DWQ or a stakeholder develops a plan for consideration, DWQ will present the plan to the Water Quality Board and submit the board-approved plan to EPA for final approval. More information on the Category 4B demonstration plan process can be found in Appendix 5 and in EPA's Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act and Information Concerning 2008 Clean Water Act Sections 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions.

Where DWQ has documentation of an EPA-approved Category 4B demonstration plan for an impaired parameter within a not-supporting waterbody or segment within a waterbody, DWQ will override a current (or previous) not-supporting Category 5 listing decision at the AU level as follows:

Whole AU Category 4A, TMDL-approved if:

There are any additional impairments within the waterbody or segments within the waterbody that are addressed in an approved TMDL (Category 4A) and are not included in the approved Category 4B demonstration plan. DWQ will indicate that those parameters have an approved Category 4B demonstration plan in place if the parameters included in the approved Category 4B demonstration plan are still not supporting or are insufficient data with exceedances in the current assessment cycle.

Whole AU Category 4B, Pollution Control if:

The only impairments within the waterbody or segment within the waterbody are included in the approved Category 4B demonstration plan.

There are additional impairments within the waterbody or segments within the waterbody that are pollution driven (Category 4C) and are not included in the approved Category 4B demonstration plan. DWQ will indicate that those parameters are pollution rather than pollutant driven if the pollution-driven parameter impairments are still not supporting or are insufficient data with exceedances in the current assessment cycle.

Whole AU Category 5, Not Supporting if:

There are any additional pollutant impairments within the waterbody or segments within the waterbody that are not included in the approved Category 4B demonstration plan. DWQ will indicate that those parameters have an approved Category 4B demonstration plan in place if the parameters included in the approved

Category 4B demonstration plan are still not supporting or are insufficient data with exceedances in the current assessment cycle.

Category 4C

DWQ may choose to not list or remove an impaired waterbody or segment within a waterbody on the state's 303(d) List is to demonstrate that the parameter-specific impairment (or impairments) is driven by pollution and not by a pollutant or pollutant that causes pollution. Unlike a TMDL or Category 4B demonstration plan, the analysis tries to determine if the cause of impairment is driven by pollution and does not require formal approval from the Water Quality Board or EPA. Pollution analysis work is instead reviewed internally by DWQ and by stakeholders during the public comment period of the draft IR and 303(d) list.

For the draft IR and 303(d) list, DWQ will temporarily assume "approval" of any pollution-driven analysis work and supersede a current or previous not supporting Category 5 listing decision at the AU level as follows:

Whole AU Category 4A, TMDL-approved if:

All impairments within the waterbody or segments within the waterbody are addressed in an approved TMDL (Category 4A). DWQ will indicate that those parameters are pollution- rather than pollutant-driven for pollution-driven impairments that are still not supporting or are insufficient data with exceedances in the current assessment cycle.

Whole AU Category 4B, Pollution Control if:

All impairments within the waterbody or segments within the waterbody are addressed in an approved Category 4B demonstration plan. DWQ will indicate that those parameters are pollution driven for pollution-driven impairments that are still not supporting or are insufficient data with exceedances in the current assessment cycle.

Whole AU Category 4C, Non-Pollutant Impairment if:

The only impairments within the waterbody or segment within the waterbody are included in the approved Category 4B demonstration plan.

Whole AU Category 5, Not Supporting if:

There are any additional pollutant impairments within the waterbody or segments within the waterbody. DWQ will indicate that those parameters are pollution-driven for pollution-driven impairments that are still not supporting or are insufficient data with exceedances in the current assessment cycle.

DWQ will provide stakeholders with draft IR and 303(d) list documentation during the public comment period to demonstrate why the impaired parameter within the waterbody or segment within the waterbody is pollution- and not pollutant-driven and will not require the future development of a TMDL.

Delistings

The fourth and final alternative DWQ has at its disposal is to demonstrate good cause to stakeholders and EPA that a previously impaired parameter and waterbody or segment within a waterbody is now meeting water quality standards in UAC R317-2. Good cause occurs when DWQ can demonstrate one or more of the following categories and scenarios:

Improvements in Watershed Conditions

The waterbody has improved due to implementation of nonpoint source projects and/or revised effluent limits and post-implementation data indicate that the impairment has been resolved. This assessment may be based on additional data beyond that which is typically used in assessments, including before–and-after project implementation monitoring. In some cases, demonstration of improvement may be based on a different time period for data collection that corresponds with known watershed improvements.

Changes to Water Quality Standards

Adoption of revised water quality standards and/or uses so the waterbody now meets the revised standards and/or uses.

Changes to the 303(d) Assessment Methods

Development of a new listing method consistent with the state water quality standards and classifications and federal listing requirements. This includes all information contained in this document and posted on DWQ's Call for Data webpages.

Reassessment (new data and information)

Assessment and interpretation of older data that was not originally included in the previous assessment and/or more recent or more accurate data that demonstrate that the applicable classified uses and numeric and narrative standards are being met.

Geo-location Information Error

Inappropriate listing of a water that is located within Indian country as defined in 18 United States Code 1151.

Analysis Errors

Flaws in the original analysis of data and information that led to the waterbody-pollutant combination being incorrectly listed. Such flaws may include the following: (1) calculation errors in the data assessment methods outlined in the 303(d) assessment methods from that assessment cycle; (2) errors produced when reviewing credible and representative data information; (3) mapping errors generated during the validation of monitoring location information and assigning AU designations; (4) discrepancies between the beneficial use assignments in UAC R317-2 and the IR geo-location information files for internal and external data; (5), incorrect identification and assessment of a waterbody type; and (6) application of the wrong numeric criteria to a beneficial use.

New Modeling

Results of more sophisticated water quality modeling that demonstrate that the applicable classified uses and numeric and narrative standards are being met.

Effluent Limitations

Demonstration pursuant to 40 CFR 130.7(b)(1)(ii) that there are effluent limitations required by state or local authorities that are more stringent than technology-based effluent limitations required by the CWA and that these more stringent effluent limitations will result in support of classified uses and numeric and narrative standards for the pollutant causing the impairment.

Other

There is other relevant information that supports the decision not to include the segment on the Section 303(d) list.

In order to justify a delisting of an AU for a given parameter based on new data, the dataset must be of sufficient quantity and quality to make an assessment. There are two mechanisms for justifying a delisting based on assessment results:

- Delisting an AU for all parameters
- Delisting individual parameters for an AU

DWQ will compare the previous IR cycle's final assessment categories and 303(d) list to the current IR's assessment categories and 303(d) list to demonstrate good cause. Where differences in categorical assignments exist, DWQ will only further investigate the following scenarios for good cause:

- The AU/waterbody or segment within the waterbody was previously not supporting (Category 5) and is now supporting (Category 1), shows no evidence of impairment (Category 2), or has insufficient data with no exceedances (Category 3).
- The AU/waterbody or segment within the waterbody was previously not supporting but had an approved TMDL (Category 4A) and is now supporting (Category 1), shows no evidence of impairment (Category 2), or has insufficient data with no exceedances (Category 3).
- The AU/waterbody or segment within the waterbody was previously not supporting but had an approved Category 4B demonstration plan and is now supporting (Category 1), shows no evidence of impairment (Category 2), or has insufficient data with no exceedances (Category 3).
- The AU/waterbody or segment within the waterbody was previously not supporting but had pollution-driven impairment (Category 4C) and is now supporting (Category 1), shows no evidence of impairment (Category 2), or has insufficient data with no exceedances (Category 3).

Note: The next set of scenarios describes the methods that apply to delisting individual parameters rather than entire AUs.

- A parameter within an AU/waterbody (or segment within the waterbody) was previously not supporting (Category 5) and is now supporting (Category 1), shows no evidence of impairment (Category 2), or has insufficient data with no exceedances (Category 3).
- A parameter within an AU/waterbody (or segment within the waterbody) was previously not supporting but had an approved TMDL (Category 4A) and is now supporting (Category 1), shows no evidence of impairment (Category 2), or has insufficient data with no exceedances (Category 3).
- A parameter within an AU/waterbody (or segment within the waterbody) was previously not supporting but had an approved Category 4B demonstration plan and is now supporting (Category 1), shows no evidence of impairment (Category 2), or has insufficient data with no exceedances (Category 3).
- A parameter within an AU/waterbody (or segment within the waterbody) was previously not supporting but had pollution-driven impairment (Category 4C) and is now supporting (Category 1), shows no evidence of impairment (Category 2), or has insufficient data with no exceedances (Category 3).

Where assessment category assignments at the AU- and parameter-level warrant a further investigation for good cause, DWQ will reevaluate the data using the following:

- The period of record from when the AU and/or parameter was first listed
- The period of record in the current assessment cycle
- The data that were collected between when the AU and/or parameter were first listed and the period of record considered in the current assessment cycle

DWQ will review the data from all assessed sample locations (as defined in Table 4) in the three above scenarios as part of the demonstration-of-good-cause process to confirm whether there were exceedances at the sample sites. Where exceedances occur, DWQ must demonstrate that the exceedances no longer exist,

no longer are of concern, or that water quality has improved. DWQ will provide documentation and a justification as to why the site was not re-sampled and/or whether water quality conditions have improved if a sample site had exceedances and newer data do not exist. If documentation cannot be provided, the AU and parameter will not be delisted, and the previous categorical assignment will carry forward.

Delisting Categorical Pollutant Causes

When TMDLs or special studies identify parameters contributing to a cause of impairment that is not the original cause for listing on the 303(d) list, there may be good cause justification for delisting the categorical cause if the original impaired parameter is no longer impaired and a linkage of the additional causes can be documented in a TMDL or other study. For instance, in some circumstances DWQ has identified phosphorus as a contributing cause of impairment to an existing DO listing and subsequently made a categorical listing for phosphorus as a cause on subsequent 303(d) lists. Since DWQ does not have assessment methods for phosphorus, a delisting based on the process outlined here is not feasible. Therefore, if the assessment results for the original DO listing can justify a delisting, any additional parameters associated with that cause may also be delisted with proper documentation of a direct linkage.

Appendix 6 elaborates on the process DWQ will follow when evaluating good cause at the AU-level and also describes, in more detail, the process DWQ will go through when evaluating good cause at the parameter level. DWQ applies several delisting codes for EPA review and approval (also included in Appendix 6).

If a waterbody or parameter is shown to have good cause for not being listed or removed as an impaired waterbody or segment within a waterbody on the state's 303(d) list, DWQ will state the good cause and provide a detailed description of the good cause. Details of the good-cause evaluation process, such as the data-analysis work, will not be posted online during the draft public comment period or after the final approval and publication of the final IR and 303(d) list. DWQ will, however, summarize the data analysis work in the description of the good cause. The analyses will be available to the public upon request through Utah's Government Records Access and Management Act (GRAMA) process.

Previous Categorical Listings

303(d) Listings

DWQ must continue to list all previous impairments absent proper documentation to support changing a previous not-supporting (Category 5) listing decision to a TMDL-approved (Category 4A), pollution control (Category 4B), non-pollutant impairment (Category 4C), or delisting (demonstration of good cause). At a minimum, this includes carrying forward all waterbodies or segments within a waterbody that were previously not supporting (Category 5), indicating the cause of impairment, listing the beneficial use or uses failing to meet water quality standards, providing the priority of developing a TMDL, and indicating the assessment cycle the waterbody or segment within the waterbody was first listed.

Non-303(d) Categorical Listings

Where DWQ has the proper documentation to support changing a previous not-supporting (Category 5) listing decision to a TMDL-approved (Category 4A), pollution control (Category 4B), non-pollutant impairment (Category 4C), or delisting (demonstration of good cause), it will do so as outlined by the policies and procedure described throughout this document.

DWQ will also carry forward all previous categorizations of waterbodies or segments within a waterbody if the waterbody does not have any credible or representative data from the period of record of the current assessment cycle. This includes carrying the following forward:

- Previous TMDL-approved (Category 4A), pollution control (Category 4B), and non-pollutant impairment (Category 4C) categorizations that do not demonstrate good cause.
- Previous categorizations that have insufficient data with exceedances (Category 3), require further investigations (Category 3), have insufficient data with no exceedances (Category 3), are not assessed (Category 3), show no evidence of impairment (Category 2), or are supporting (Category 1).
- Historical Category 3 waters that had insufficient data with exceedances will remain in that category unless there is new data for assessment.

Waterbodies or segments within a waterbody that are supporting or show no evidence of impairment (Categories 1 and 2, respectively) may carry forward for six consecutive assessment (or two rotating basin) cycles. On the seventh consecutive assessment cycle, DWQ will no longer carry forward a supporting or no evidence of impairment categorization for waterbodies or segment within a waterbody that do not have any new data collected in the last 12 years. Data older than the period of record may not be reflective of current conditions and will not be used for assessment purposes unless there is information or a rationale with supporting documentation that shows the data are reflective of current conditions.

If there is evidence that the data are reflective of current conditions, the previous supporting (Category 1) or no evidence of impairment (Category 2) categorization will carry forward for one more assessment cycle (the current one) and be re-evaluated in the next cycle. DWQ will not carry forward the supporting or no evidence of impairment categorization for a seventh consecutive assessment cycle if there is no (or not enough) supporting evidence that the data are reflective of current conditions. DWQ will instead change the categorization to insufficient data with no exceedances (Category 3).

303(d) Vision and TMDL Priority Development

DWQ must ensure that TMDLs will be developed following the final release of the current IR and 303(d) list for waterbodies or segments within a waterbody that are impaired by a pollutant. Recognizing that all TMDLs cannot be completed at once and that certain risks may be greater than others, CWA Section 303(d) allows states to prioritize impaired waterbodies or segments within a waterbody on the Section 303(d) list for the future development of TMDLs.

On December 5, 2013, EPA announced a collaborative framework for implementing the CWA Section 303(d) program to help guide states on how to best prioritize TMDL development and demonstrate progress on addressing the water quality concerns highlighted and reported on in the IR and 303(d) list (See A Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act Section 303(d) Program). This EPA document provides a framework that states can use to optimize their resources when developing TMDLs and other water quality improvement programs such as the anti-degradation program, nonpoint source implementation program, and the 401 water quality certification program. DWQ worked with stakeholders after the release of this document and developed new policies and procedures for the following IR and 303(d) reporting-specific elements:

- Assigning TMDL priorities to impaired waterbodies and segments within waterbodies on DWQ's 303(d) list
- Performing cost–benefit analyses that estimate the environmental, economic, and social costs and benefits, and time needed to achieve the objectives of CWA and state water quality standards
- Tracking the status and development of TMDLs

Please refer to Appendix 7 to learn more about DWQ's prioritization process for the development of future TMDLs contained on DWQ's 303(d) list.

Revision Requests between Cycles

DWQ will, barring unforeseen circumstances, only propose to revise the IR and 303(d) list during the regularly scheduled reviews, which are currently biennially and on even-numbered years. Interested persons may petition DWQ at any time to request a revision to the IR and 303(d) list, whether it is an addition or deletion to the final 303(d) list. However, such revisions may only be considered if failing to add a segment to the list or delete a segment from the list before the next scheduled review will result in a substantial hardship to the party or parties requesting the revision(s). DWQ will take the potential revision under strong consideration and begin a dialogue with the interested party or parties and EPA if such hardship is shown.

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Chapter 2: Assessments Specific to Lakes, Reservoirs, and Ponds

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: 305(b) and 303(d)

Assessment unit information						Associated parameter information					
Watershed Management Unit	Assessment Unit (AU) ID	AU Name	Water Size Unit	AU Category	Category Description	Water Quality Parameter	Parameter Status	303(d) Status	Use(s)	Cycle First Listed	303(d) Priority
Bear River	UT-L-16010101-001_00	Woodruff Reservoir	92.1 Acres	2	No Evidence of Impairment						
Bear River	UT-L-16010101-002_00	Birch Creek	61.6 Acres	3	Insufficient Data						
Bear River	UT-L-16010101-007_00	Little Creek Reservoir	67.2 Acres	2	No Evidence of Impairment						
Bear River	UT-L-16010101-030_00	Whitney Reservoir	129.3 Acres	2	No Evidence of Impairment						
Bear River	UT-L-16010201-003_00	Bear Lake	35414.5 Acres	2	No Evidence of Impairment						
Bear River	UT-L-16010202-002_00	Cutler Reservoir	1356.1 Acres	4A	Approved TMDL	Eutrophication	Not meeting criteria	TMDL Approved (38237)	Aquatic Wildlife (Warm Water)	2004	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (38237)	Aquatic Wildlife (Warm Water)	2004	Low
						Dissolved Oxygen	Meeting criteria	TMDL Approved (38237)	Aquatic Wildlife (Warm Water)		
Bear River	UT-L-16010202-013_00	Newton Reservoir	171.8 Acres	5	Not Supporting but has Approved TMDL for some parameters	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2006	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Approved (11148)	Aquatic Wildlife (Cold Water)	1998	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (11148)	Aquatic Wildlife (Cold Water)	1998	Low
Bear River	UT-L-16010203-005_00	Hyrum Reservoir	445.6 Acres	5	Not Supporting but has Approved TMDL for some parameters	Dissolved Oxygen	Not meeting criteria	TMDL Approved (4011)	Aquatic Wildlife (Cold Water)	1998	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (4011)	Aquatic Wildlife (Cold Water)	1998	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	1994	Low
Bear River	UT-L-16010203-009_00	Porcupine Reservoir	180.2 Acres	2	No Evidence of Impairment						
Bear River	UT-L-16010203-012_00	Tony Grove Lake	25.1 Acres	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2006	Low
						pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2004	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	1996	Low
Bear River	UT-L-16010204-033_00	Mantua Reservoir	513.8 Acres	5	Not Supporting but has Approved TMDL for some parameters	Harmful Algal Blooms	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2020	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2008	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Approved (762)	Aquatic Wildlife (Cold Water)	1998	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (762)	Aquatic Wildlife (Cold Water)	1998	Low
						pH	Meeting criteria	TMDL Approved (762)	Aquatic Wildlife (Cold Water)		
Cedar-Beaver	UT-L-16030006-002_00	Upper Enterprise Reservoir	352.8 Acres	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2016	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2012	Low
Cedar-Beaver	UT-L-16030006-008_00	Newcastle Reservoir	158.8 Acres	5	Not Supporting but has Approved TMDL for some parameters	pH	Not meeting criteria	TMDL Approved (35080)	Aquatic Wildlife (Cold Water)	2022	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2012	Low
						Mercury In Fish Tissue	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2010	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Approved (35080)	Aquatic Wildlife (Cold Water)	1996	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (35080)	Aquatic Wildlife (Cold Water)	1996	Low
Cedar-Beaver	UT-L-16030006-017_00	Yankee Meadow Reservoir	56.1 Acres	2	No Evidence of Impairment						
Cedar-Beaver	UT-L-16030006-019_00	Red Creek Reservoir (Iron Co)	59.0 Acres	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
						pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
						Phosphorus, Total	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2006	Low
Cedar-Beaver	UT-L-16030007-011_00	Minersville Reservoir	1070.7 Acres	5	Not Supporting but has Approved TMDL for some parameters	pH	Not meeting criteria	TMDL Approved (808)	Aquatic Wildlife (Cold Water)	2014	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Approved (808)	Aquatic Wildlife (Cold Water)	1998	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (808)	Aquatic Wildlife (Cold Water)	1998	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	1994	Low
Cedar-Beaver	UT-L-16030007-020_00	Kents Lake	38.9 Acres	5	Not Supporting but has Approved TMDL for some parameters	pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Approved (601)	Aquatic Wildlife (Cold Water)	1998	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (601)	Aquatic Wildlife (Cold Water)	1998	Low
Cedar-Beaver	UT-L-16030007-024_00	Anderson Meadow Reservoir	7.8 Acres	2	No Evidence of Impairment						
Cedar-Beaver	UT-L-16030007-025_00	Three Creeks Reservoir	55.1 Acres	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2006	Low
Cedar-Beaver	UT-L-16030007-027_00	LaBaron Lake	21.6 Acres	4A	Approved TMDL	Phosphorus, Total	Not meeting criteria	TMDL Approved (610)	Aquatic Wildlife (Cold Water)	2014	Low
						Dissolved Oxygen	Meeting criteria	TMDL Approved (610)	Aquatic Wildlife (Cold Water)		
Cedar-Beaver	UT-L-16030007-028_00	Puffer Lake	58.0 Acres	4A	Approved TMDL	pH	Not meeting criteria	TMDL Approved (964)	Aquatic Wildlife (Cold Water)	2014	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Approved (964)	Aquatic Wildlife (Cold Water)	1998	Low
Jordan River	UT-L-16020201-005_00	Tibble Fork Reservoir	11.2 Acres	1	Fully Supporting						
Jordan River	UT-L-16020201-006_00	Silver Lake Flat Reservoir	32.7 Acres	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: 305(b) and 303(d)

Assessment unit information						Associated parameter information					
Watershed Management Unit	Assessment Unit (AU) ID	AU Name	Water Size Unit	AU Category	Category Description	Water Quality Parameter	Parameter Status	303(d) Status	Use(s)	Cycle First Listed	303(d) Priority
Jordan River	UT-L-16020204-024_00	Lake Mary	19.2 Acres	3	Insufficient Data						
Jordan River	UT-L-16020204-026_00	Little Dell Reservoir	221.0 Acres	2	No Evidence of Impairment						
Lower Colorado River	UT-L-15010008-001_00	Gunlock Reservoir	221.1 Acres	4A	Approved TMDL	Phosphorus, Total	Not meeting criteria	TMDL Approved (12106)	Aquatic Wildlife (Warm Water)	1998	Low
						Dissolved Oxygen	Meeting criteria	TMDL Approved (12106)	Aquatic Wildlife (Warm Water)		
Lower Colorado River	UT-L-15010008-008_00	Baker Dam Reservoir	44.1 Acres	5	Not Supporting but has Approved TMDL for some parameters	Phosphorus, Total	Not meeting criteria	TMDL Approved (12105)	Aquatic Wildlife (Cold Water)	2002	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Approved (12105)	Aquatic Wildlife (Cold Water)	1998	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	1992	Low
Lower Colorado River	UT-L-15010008-018_00	Kolob Reservoir	237.9 Acres	2	No Evidence of Impairment						
Lower Colorado River	UT-L-15010008-024_00	Quail Creek Reservoir	587.9 Acres	2	No Evidence of Impairment						
Lower Colorado River	UT-L-15010008-025_00	Sand Hollow Reservoir	1260.3 Acres	2	No Evidence of Impairment						
Lower Sevier River	UT-L-16030003-005_00	Barney Lake	20.6 Acres	2	No Evidence of Impairment						
Lower Sevier River	UT-L-16030003-006_00	Manning Meadow Reservoir	84.8 Acres	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2016	Low
						Phosphorus, Total	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	1994	Low
Lower Sevier River	UT-L-16030003-007_00	Sevier Bridge Reservoir (Yuba Lake)	8978.0 Acres	2	No Evidence of Impairment						
Lower Sevier River	UT-L-16030003-012_00	Redmond Lake	239.9 Acres	2	No Evidence of Impairment						
Lower Sevier River	UT-L-16030003-016_00	Rex Reservoir	34.9 Acres	2	No Evidence of Impairment						
Lower Sevier River	UT-L-16030004-001_00	Ninemile Reservoir	184.9 Acres	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2008	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2008	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	1998	Low
						Phosphorus, Total	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	1996	Low
Lower Sevier River	UT-L-16030004-002_00	Gunnison Reservoir	1258.1 Acres	2	No Evidence of Impairment						
Lower Sevier River	UT-L-16030004-005_00	Palisade Lake	79.6 Acres	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	1992	Low
Lower Sevier River	UT-L-16030005-021_00	Gunnison Bend Reservoir	497.4 Acres	2	No Evidence of Impairment						
Lower Sevier River	UT-L-16030005-026_00	D.M.A.D. Reservoir	773.2 Acres	2	No Evidence of Impairment						
Southeast Colorado River	UT-L-14030004-001_00	Dark Canyon Lake	5.1 Acres	2	No Evidence of Impairment						
Southeast Colorado River	UT-L-14030005-004_00	Kens Lake	77.5 Acres	1	Fully Supporting						
Southeast Colorado River	UT-L-14070006-001_00	Lake Powell	149885.2 Acres	1	Fully Supporting						
Southeast Colorado River	UT-L-14080201-002_00	Blanding City Reservoir	91.5 Acres	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2012	Low
Southeast Colorado River	UT-L-14080201-007_00	Recapture Reservoir	221.0 Acres	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
Southeast Colorado River	UT-L-14080203-002_00	Monticello Lake	5.5 Acres	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2016	Low
						pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2006	Low
Southeast Colorado River	UT-L-14080203-009_00	Lloyds Reservoir	90.5 Acres	2	No Evidence of Impairment						
Uinta Basin	UT-L-14040106-001_00	Hoop Lake	171.4 Acres	2	No Evidence of Impairment						
Uinta Basin	UT-L-14040106-002_00	Spirit Lake	42.0 Acres	2	No Evidence of Impairment						
Uinta Basin	UT-L-14040106-016_00	Sheep Creek Lake	81.1 Acres	2	No Evidence of Impairment						
Uinta Basin	UT-L-14040106-019_00	Browne Lake	48.1 Acres	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
						pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
Uinta Basin	UT-L-14040106-021_00	Flaming Gorge Reservoir	12525.0 Acres	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
Uinta Basin	UT-L-14040106-026_00	Crouse Reservoir	110.9 Acres	2	No Evidence of Impairment						
Uinta Basin	UT-L-14040106-031_00	Beaver Meadow Reservoir	105.7 Acres	2	No Evidence of Impairment						
Uinta Basin	UT-L-14040106-032_00	Long Park Reservoir	300.6 Acres	2	No Evidence of Impairment						
Uinta Basin	UT-L-14040106-033_00	Matt Warner Reservoir	364.1 Acres	5	Not Supporting but has Approved TMDL for some parameters	Eutrophication	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
						Harmful Algal Blooms	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2020	Low
						pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Approved (33618)	Aquatic Wildlife (Cold Water)	1998	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (33618)	Aquatic Wildlife (Cold Water)	1998	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	1996	Low

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: 305(b) and 303(d)

Assessment unit information						Associated parameter information					
Watershed Management Unit	Assessment Unit (AU) ID	AU Name	Water Size Unit	AU Category	Category Description	Water Quality Parameter	Parameter Status	303(d) Status	Use(s)	Cycle First Listed	303(d) Priority
Uinta Basin	UT-L-14040106-034_00	Calder Reservoir	94.2 Acres	5	Not Supporting but has Approved TMDL for some parameters	Ammonia, Total	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
						Eutrophication	Not meeting criteria	TMDL Approved (33613)	Aquatic Wildlife (Cold Water)	2016	Low
						pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2016	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2010	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Approved (33613)	Aquatic Wildlife (Cold Water)	1998	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (33613)	Aquatic Wildlife (Cold Water)	1998	Low
Uinta Basin	UT-L-14040107-001_00	Meeks Cabin Reservoir	16.8 Acres	2	No Evidence of Impairment						
Uinta Basin	UT-L-14040107-003_00	Marsh Lake	41.9 Acres	2	No Evidence of Impairment						
Uinta Basin	UT-L-14040107-004_00	Bridger Lake	19.3 Acres	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2016	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	1996	Low
Uinta Basin	UT-L-14040107-005_00	Lyman Lake	35.4 Acres	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	1996	Low
Uinta Basin	UT-L-14040107-006_00	China Lake	27.1 Acres	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2000	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	1996	Low
Uinta Basin	UT-L-14040107-007_00	Stateline Reservoir	273.7 Acres	2	No Evidence of Impairment						
Uinta Basin	UT-L-14060003-002_00	Scout Lake	19.2 Acres	2	No Evidence of Impairment						
Uinta Basin	UT-L-14060003-003_00	Pyramid Lake	14.8 Acres	2	No Evidence of Impairment						
Uinta Basin	UT-L-14060003-006_00	Mirror Lake	53.5 Acres	2	No Evidence of Impairment						
Uinta Basin	UT-L-14060003-011_00	Marshall Lake	18.8 Acres	2	No Evidence of Impairment						
Uinta Basin	UT-L-14060003-012_00	Hoover Lake	18.6 Acres	2	No Evidence of Impairment						
Uinta Basin	UT-L-14060003-112_00	Moon Lake	786.1 Acres	2	No Evidence of Impairment						
Uinta Basin	UT-L-14060003-230_00	Big Sand Wash Reservoir	394.5 Acres	2	No Evidence of Impairment						
Uinta Basin	UT-L-14060003-293_00	Butterfly Lake	4.7 Acres	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
						pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2016	Low
Uinta Basin	UT-L-14060003-296_00	Upper Stillwater Reservoir	300.8 Acres	2	No Evidence of Impairment						
Uinta Basin	UT-L-14060003-297_00	Paradise Park Reservoir	147.0 Acres	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
Uinta Basin	UT-L-14060004-001_00	Strawberry Reservoir	15614.2 Acres	5	Not Supporting but has Approved TMDL for some parameters	pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (33705)	Aquatic Wildlife (Cold Water)	1998	Low
						Dissolved Oxygen	Meeting criteria	TMDL Approved (33705)	Aquatic Wildlife (Cold Water)		
Uinta Basin	UT-L-14060004-003_00	Red Creek Reservoir	146.9 Acres	2	No Evidence of Impairment						
Uinta Basin	UT-L-14060004-004_00	Lake Canyon Lake	29.2 Acres	5	Not Supporting	Arsenic	Not meeting criteria	TMDL Needed	Domestic Source	2016	Low
						Boron	Not meeting criteria	TMDL Needed	Agricultural	2016	Low
						pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2016	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2016	Low
Uinta Basin	UT-L-14060004-006_00	Starvation Reservoir	3350.7 Acres	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
Uinta Basin	UT-L-14060004-007_00	Currant Creek Reservoir	274.4 Acres	2	No Evidence of Impairment						
Uinta Basin	UT-L-14060010-001_00	Pelican Lake	1114.4 Acres	5	Not Supporting	Phosphorus, Total	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2012	Low
						pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2004	Low
Uinta Basin	UT-L-14060010-002_00	Brough Reservoir	135.9 Acres	5	Not Supporting but has Approved TMDL for some parameters	Mercury In Fish Tissue	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2008	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Approved (35100)	Aquatic Wildlife (Cold Water)	1998	Low
Uinta Basin	UT-L-14060010-003_00	Ashley Twin Lakes	31.7 Acres	2	No Evidence of Impairment						
Uinta Basin	UT-L-14060010-005_00	Oaks Park Reservoir	338.2 Acres	2	No Evidence of Impairment						
Uinta Basin	UT-L-14060010-006_00	Steinaker Reservoir	745.2 Acres	5	Not Supporting but has Approved TMDL for some parameters	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2008	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Approved (35078)	Aquatic Wildlife (Cold Water)	1998	Low
Uinta Basin	UT-L-14060010-007_00	East Park Reservoir	178.6 Acres	2	No Evidence of Impairment						
Uinta Basin	UT-L-14060010-008_00	Red Fleet Reservoir	477.9 Acres	5	Not Supporting but has Approved TMDL for some parameters	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2010	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Approved (35079)	Aquatic Wildlife (Cold Water)	1998	Low
Uinta Basin	UT-L-14060010-009_00	Stewart Lake	158.3 Acres	5	Not Supporting	Selenium	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2016	Low
Upper Provo River	UT-L-16020203-001_00	Deer Creek Reservoir	2561.6 Acres	5	Not Supporting but has Approved TMDL for some parameters	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2006	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Approved (4046)	Aquatic Wildlife (Cold Water)	1998	Low
Upper Provo River	UT-L-16020203-002_00	Trial Lake	62.3 Acres	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: 305(b) and 303(d)

Assessment unit information						Associated parameter information					
Watershed Management Unit	Assessment Unit (AU) ID	AU Name	Water Size Unit	AU Category	Category Description	Water Quality Parameter	Parameter Status	303(d) Status	Use(s)	Cycle First Listed	303(d) Priority
Upper Provo River	UT-L-16020203-003_00	Jordanelle Reservoir	2989.1 Acres	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2016	Low
Upper Provo River	UT-L-16020203-004_00	Mill Hollow Reservoir	18.3 Acres	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	1992	Low
						Phosphorus, Total	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	1992	Low
Upper Provo River	UT-L-16020203-005_00	Washington Lake	106.7 Acres	2	No Evidence of Impairment						
Upper Provo River	UT-L-16020203-006_00	Wall Lake	72.0 Acres	3	Insufficient Data						
Upper Sevier River	UT-L-16030001-001_00	Navajo Lake	631.0 Acres	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2016	Low
Upper Sevier River	UT-L-16030001-006_00	Panguitch Lake	1182.3 Acres	5	Not Supporting but has Approved TMDL for some parameters	pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (11149)	Aquatic Wildlife (Cold Water)	2000	Low
						Dissolved Oxygen	Meeting criteria	TMDL Approved (11149)	Aquatic Wildlife (Cold Water)		
Upper Sevier River	UT-L-16030001-011_00	Piute Reservoir	2152.3 Acres	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
						pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2008	Low
						Phosphorus, Total	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2006	Low
Upper Sevier River	UT-L-16030002-002_00	Tropic Reservoir	181.8 Acres	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
Upper Sevier River	UT-L-16030002-004_00	Otter Creek Reservoir	2494.7 Acres	5	Not Supporting but has Approved TMDL for some parameters	Phosphorus, Total	Not meeting criteria	TMDL Approved (30890)	Aquatic Wildlife (Cold Water)	1998	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	1994	Low
Upper Sevier River	UT-L-16030002-005_00	Lower Box Creek Reservoir	22.2 Acres	5	Not Supporting but has Approved TMDL for some parameters	pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2010	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Approved (31020)	Aquatic Wildlife (Cold Water)	2004	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (31020)	Aquatic Wildlife (Cold Water)	1998	Low
Upper Sevier River	UT-L-16030002-007_00	Pine Lake	85.4 Acres	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2016	Low
Upper Sevier River	UT-L-16030002-011_00	Koosharem Reservoir	340.9 Acres	5	Not Supporting but has Approved TMDL for some parameters	pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Approved (30891)	Aquatic Wildlife (Cold Water)	1998	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (30891)	Aquatic Wildlife (Cold Water)	1998	Low
Utah Lake-Lower Provo River	UT-L-16020201-001_00	Mona Reservoir	1561.8 Acres	2	No Evidence of Impairment						
Utah Lake-Lower Provo River	UT-L-16020201-004_01	Utah Lake other than Provo Bay	87984.2 Acres	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Frequent Primary Contact)	2022	Low
						Eutrophication	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2020	Low
						Harmful Algal Blooms	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Frequent Primary Contact)	2016	Low
						PCBs In Fish Tissue	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2010	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2006	Low
						Phosphorus, Total	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	1994	Low
Utah Lake-Lower Provo River	UT-L-16020201-004_02	Provo Bay portion of Utah Lake	3611.5 Acres	5	Not Supporting	Eutrophication	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2020	Low
						Harmful Algal Blooms	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Frequent Primary Contact)	2020	Low
						Ammonia, Total	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2016	Low
						pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2016	Low
						PCBs In Fish Tissue	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2010	Low
						Phosphorus, Total	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	1994	Low
Utah Lake-Lower Provo River	UT-L-16020202-001_00	Salem Lake	18.7 Acres	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Frequent Primary Contact)	2016	Low
Utah Lake-Lower Provo River	UT-L-16020202-002_00	Big East Lake	26.4 Acres	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
						Phosphorus, Total	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2012	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2012	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	1996	Low
Weber River	UT-L-16020101-001_00	Echo Reservoir	1337.2 Acres	5	Not Supporting but has Approved TMDL for some parameters	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2012	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (59860)	Aquatic Wildlife (Cold Water)	1994	Low
						Dissolved Oxygen	Meeting criteria	TMDL Approved (59860)	Aquatic Wildlife (Cold Water)		

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: 305(b) and 303(d)

Assessment unit information						Associated parameter information					
Watershed Management Unit	Assessment Unit (AU) ID	AU Name	Water Size Unit	AU Category	Category Description	Water Quality Parameter	Parameter Status	303(d) Status	Use(s)	Cycle First Listed	303(d) Priority
Weber River	UT-L-16020101-002_00	Rockport Reservoir	1059.8 Acres	5	Not Supporting but has Approved TMDL for some parameters	E. coli	Not meeting criteria	TMDL Needed	Domestic Source, Recreation and Aesthetics (Frequent Primary Contact)	2022	Low
						pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2012	Low
						Dissolved Oxygen	Meeting criteria	TMDL Approved (59861)	Aquatic Wildlife (Cold Water)		
Weber River	UT-L-16020101-003_00	Lost Creek Reservoir	369.6 Acres	2	No Evidence of Impairment						
Weber River	UT-L-16020101-005_00	Smith and Morehouse Reservoir	207.1 Acres	2	No Evidence of Impairment						
Weber River	UT-L-16020102-004_00	Willard Bay Reservoir	10109.4 Acres	1	Fully Supporting						
Weber River	UT-L-16020102-014_00	Pineview Reservoir	3009.9 Acres	5	Not Supporting but has Approved TMDL for some parameters	pH	Not meeting criteria	TMDL Approved (4055)	Aquatic Wildlife (Cold Water)	2022	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Approved (4055)	Aquatic Wildlife (Cold Water)	1998	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (4055)	Aquatic Wildlife (Cold Water)	1998	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	1994	Low
Weber River	UT-L-16020102-020_00	East Canyon Reservoir	639.7 Acres	4A	Approved TMDL	pH	Not meeting criteria	TMDL Approved (39157)	Aquatic Wildlife (Cold Water)	2022	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (400, 39157)	Aquatic Wildlife (Cold Water)	1988	Low
						Dissolved Oxygen	Meeting criteria	TMDL Approved (39157)	Aquatic Wildlife (Cold Water)		
						Dissolved Oxygen	Meeting criteria	TMDL Approved (400)	Aquatic Wildlife (Cold Water)		
Weber River	UT-L-16020102-021_00	Causey Reservoir	126.8 Acres	1	Fully Supporting						
West Desert	UT-L-16020304-002_00	Rush Lake	242.5 Acres	2	No Evidence of Impairment						
West Desert	UT-L-16020304-003_00	Stansbury Lake	91.3 Acres	5	Not Supporting	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2016	Low
West Desert	UT-L-16020304-004_00	Settlement Canyon Reservoir	26.0 Acres	2	No Evidence of Impairment						
West Desert	UT-L-16020304-005_00	Grantsville Reservoir	95.3 Acres	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
Western Colorado River	UT-L-14060007-001_00	Fairview Lakes	103.9 Acres	2	No Evidence of Impairment						
Western Colorado River	UT-L-14060007-004_00	Lower Gooseberry Reservoir	64.2 Acres	5	Not Supporting	Phosphorus, Total	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2010	Low
Western Colorado River	UT-L-14060007-005_00	Scofield Reservoir	2670.4 Acres	5	Not Supporting but has Approved TMDL for some parameters	Eutrophication	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	High
						Harmful Algal Blooms	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2020	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Approved (1060)	Aquatic Wildlife (Cold Water)	1998	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (1060)	Aquatic Wildlife (Cold Water)	1998	Low
						pH	Meeting criteria	TMDL Approved (1060)	Aquatic Wildlife (Cold Water)		
Western Colorado River	UT-L-14060009-001_00	Ferron Reservoir	54.1 Acres	2	No Evidence of Impairment						
Western Colorado River	UT-L-14060009-004_00	Duck Fork Reservoir	42.3 Acres	2	No Evidence of Impairment						
Western Colorado River	UT-L-14060009-017_00	Joes Valley Reservoir	1052.2 Acres	2	No Evidence of Impairment						
Western Colorado River	UT-L-14060009-018_00	Huntington Reservoir	163.0 Acres	2	No Evidence of Impairment						
Western Colorado River	UT-L-14060009-023_00	Miller Flat Reservoir	160.5 Acres	2	No Evidence of Impairment						
Western Colorado River	UT-L-14060009-024_00	Cleveland Reservoir	146.6 Acres	2	No Evidence of Impairment						
Western Colorado River	UT-L-14060009-025_00	Electric Lake	450.7 Acres	2	No Evidence of Impairment						
Western Colorado River	UT-L-14060009-026_00	Millsite Reservoir	367.1 Acres	2	No Evidence of Impairment						
Western Colorado River	UT-L-14060009-034_00	Huntington Lake North	235.1 Acres	2	No Evidence of Impairment						
Western Colorado River	UT-L-14070003-006_00	Fish Lake	2586.5 Acres	2	No Evidence of Impairment						
Western Colorado River	UT-L-14070003-010_00	Johnson Valley Reservoir	671.7 Acres	4A	Approved TMDL	Phosphorus, Total	Not meeting criteria	TMDL Approved (4059)	Aquatic Wildlife (Cold Water)	1998	Low
Western Colorado River	UT-L-14070003-015_00	Mill Meadow Reservoir	160.4 Acres	4A	Approved TMDL	Phosphorus, Total	Not meeting criteria	TMDL Approved (4061)	Aquatic Wildlife (Cold Water)	1998	Low
Western Colorado River	UT-L-14070003-018_00	Cook Lake	10.4 Acres	2	No Evidence of Impairment						
Western Colorado River	UT-L-14070003-019_00	Forsyth Reservoir	165.1 Acres	4A	Approved TMDL	Phosphorus, Total	Not meeting criteria	TMDL Approved (4060)	Aquatic Wildlife (Cold Water)	1998	Low
						Dissolved Oxygen	Meeting criteria	TMDL Approved (4060)	Aquatic Wildlife (Cold Water)		
Western Colorado River	UT-L-14070003-027_00	Donkey Reservoir	23.8 Acres	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
Western Colorado River	UT-L-14070003-044_00	Lower Bowns Reservoir	107.9 Acres	5	Not Supporting	Phosphorus, Total	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2012	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2012	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2010	Low
						pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2006	Low
Western Colorado River	UT-L-14070005-008_00	Posey Lake	12.0 Acres	2	No Evidence of Impairment						

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: 305(b) and 303(d)

Assessment unit information						Associated parameter information					
Watershed Management Unit	Assessment Unit (AU) ID	AU Name	Water Size Unit	AU Category	Category Description	Water Quality Parameter	Parameter Status	303(d) Status	Use(s)	Cycle First Listed	303(d) Priority
Western Colorado River	UT-L-14070005-011_00	Wide Hollow Reservoir	155.6 Acres	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2010	Low
						pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2008	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2008	Low
Great Salt Lake	UT-L-16020310-001_00	Gilbert Bay	559424.0 Acres	2	No Evidence of Impairment						
Great Salt Lake	UT-L-16020310-002_00	Gunnison Bay	384588.2 Acres	3	Insufficient Data						
Great Salt Lake	UT-L-16020310-003_00	Bear River Bay	71681.3 Acres	3	Insufficient Data						
Great Salt Lake	UT-L-16020310-004_00	Farmington Bay	77243.2 Acres	3	Insufficient Data						

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: Delistings

Watershed Management Unit	Assessment Unit ID	Assessment Unit Name	Water Quality Parameter	Delisting Reason	Delisting Comment
Bear River	UT-L-16010202-002_00	Cutler Reservoir	Dissolved Oxygen	Meeting water quality criteria due to restoration activities.	
Bear River	UT-L-16010204-033_00	Mantua Reservoir	pH	Meeting water quality criteria with new data.	
Cedar-Beaver	UT-L-16030007-027_00	LaBaron Lake	Dissolved Oxygen	Meeting water quality criteria with new data.	
Southeast Colorado River	UT-L-14070006-001_00	Lake Powell	pH	Meeting water quality criteria with new data.	Previously observed pH exceedances have not occurred in profiles since 2015.
Uinta Basin	UT-L-14060004-001_00	Strawberry Reservoir	Dissolved Oxygen	Meeting water quality criteria due to restoration activities.	
Upper Sevier River	UT-L-16030001-006_00	Panguitch Lake	Dissolved Oxygen	Meeting water quality criteria with new data.	
Upper Sevier River	UT-L-16030002-004_00	Otter Creek Reservoir	pH	Meeting water quality criteria with new data.	pH exceedances not observed since 2004
Weber River	UT-L-16020101-001_00	Echo Reservoir	Dissolved Oxygen	Meeting water quality criteria with new data.	
Weber River	UT-L-16020101-002_00	Rockport Reservoir	Dissolved Oxygen	Meeting water quality criteria with new data.	
West Desert	UT-L-16020304-004_00	Settlement Canyon Reservo	pH	Meeting water quality criteria with new data.	Previously observed pH exceedances have not occurred in profiles since 2012.
Western Colorado River	UT-L-14060007-005_00	Scofield Reservoir	pH	Meeting water quality criteria due to restoration activities.	
Western Colorado River	UT-L-14070003-044_00	Lower Bowns Reservoir	Ammonia, Total	Meeting water quality criteria with new data.	Supporting with new data and information.

Chapter 3: Assessments Specific to Rivers, Streams, and Canals

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: 305(b) and 303(d)

Assessment unit information						Associated parameter information					
Watershed Management Unit	Assessment Unit (AU) ID	AU Name	Water Size Unit	AU Category	Category Description	Water Quality Parameter	Parameter Status	303(d) Status	Use(s)	Cycle First Listed	303(d) Priority
Bear River	UT16010101-001_00	Bear River West	6.8 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2020	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
Bear River	UT16010101-002_00	Six Mile Creek - Bear	19.6 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
						E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2016	Low
Bear River	UT16010101-003_00	Little Creek - Bear	8.0 Miles	2	No Evidence of Impairment						
Bear River	UT16010101-004_00	Sage Creek	11.2 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
						E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2014	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2010	Low
Bear River	UT16010101-005_00	Otter Creek	25.9 Miles	1	Fully Supporting						
Bear River	UT16010101-006_00	Bear River-4	52.6 Miles	5	Not Supporting but has Approved TMDL for some parameters	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Approved (30887)	Aquatic Wildlife (Cold Water)	2000	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (30887)	Aquatic Wildlife (Cold Water)	2000	Low
Bear River	UT16010101-007_00	Big Creek	31.0 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2014	Low
						pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2006	Low
Bear River	UT16010101-008_00	North Woodruff	2.4 Miles	2	No Evidence of Impairment						
Bear River	UT16010101-009_00	Bear River-5	12.2 Miles	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
Bear River	UT16010101-010_00	Birch Creek - Bear	19.6 Miles	3	Insufficient Data						
Bear River	UT16010101-011_00	Woodruff Creek-1	8.2 Miles	2	No Evidence of Impairment						
Bear River	UT16010101-012_00	Unnamed Creek	0.0 Miles	3	Insufficient Data						
Bear River	UT16010101-013_00	Woodruff Creek-4	42.1 Miles	3	Insufficient Data						
Bear River	UT16010101-014_00	Woodruff Creek-3	0.0 Miles	3	Insufficient Data						
Bear River	UT16010101-015_00	Woodruff Creek-2	5.8 Miles	2	No Evidence of Impairment						
Bear River	UT16010101-016_00	Saleratus Creek	29.1 Miles	5	Not Supporting but has Approved TMDL for some parameters	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2012	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Approved (30885)	Aquatic Wildlife (Cold Water)	1998	Low
Bear River	UT16010101-017_00	Dry Creek	1.4 Miles	3	Insufficient Data						
Bear River	UT16010101-018_00	Sutton Creek	35.5 Miles	3	Insufficient Data						
Bear River	UT16010101-019_01	Yellow Creek Tributaries-1	23.3 Miles	2	No Evidence of Impairment						
Bear River	UT16010101-019_02	Yellow Creek Tributaries-2	0.0 Miles	2	No Evidence of Impairment						
Bear River	UT16010101-021_00	Bear River-6	20.2 Miles	5	Not Supporting	Aluminum	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
Bear River	UT16010101-022_00	Mill Creek	58.7 Miles	1	Fully Supporting						
Bear River	UT16010101-023_00	West Fork Bear River	72.1 Miles	2	No Evidence of Impairment						
Bear River	UT16010101-024_00	Hayden Fork	17.7 Miles	2	No Evidence of Impairment						
Bear River	UT16010101-025_00	Stillwater Fork	34.9 Miles	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact)	2020	Low
Bear River	UT16010101-026_00	East Fork Bear River	53.9 Miles	2	No Evidence of Impairment						
Bear River	UT16010101-027_00	Bear River East	2.8 Miles	2	No Evidence of Impairment						
Bear River	UT16010101-028_00	Yellow Creek	16.8 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2008	Low
Bear River	UT16010102-001_00	Bear River North	0.1 Miles	3	Insufficient Data						
Bear River	UT16010201-001_00	Bear Lake West	1.2 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2016	Low
Bear River	UT16010201-002_00	Laketown	12.3 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2008	Low
Bear River	UT16010201-003_00	South Eden	5.9 Miles	2	No Evidence of Impairment						

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: 305(b) and 303(d)

Assessment unit information						Associated parameter information					
Watershed Management Unit	Assessment Unit (AU) ID	AU Name	Water Size Unit	AU Category	Category Description	Water Quality Parameter	Parameter Status	303(d) Status	Use(s)	Cycle First Listed	303(d) Priority
Bear River	UT16010201-004_00	North Eden	17.6 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2020	Low
Bear River	UT16010202-001_00	Worm Creek	0.0 Miles	2	No Evidence of Impairment						
Bear River	UT16010202-002_00	Newton Creek	2.6 Miles	5	Not Supporting but has Approved TMDL for some parameters	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2008	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (11147)	Aquatic Wildlife (Cold Water)	1996	Low
Bear River	UT16010202-003_00	Hopkins Slough	9.9 Miles	3	Insufficient Data						
Bear River	UT16010202-004_00	Bear River-3	41.4 Miles	5	Not Supporting but has Approved TMDL for some parameters	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2020	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (38238)	Aquatic Wildlife (Warm Water), Aquatic Wildlife (Waterfowl, Shorebirds, and Other)	1998	Low
						Sediment	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water), Aquatic Wildlife (Waterfowl, Shorebirds, and Other)	1998	Low
Bear River	UT16010202-005_00	Summit Creek Lower	8.0 Miles	1	Fully Supporting						
Bear River	UT16010202-006_00	City Creek	8.9 Miles	3	Insufficient Data						
Bear River	UT16010202-007_00	Cherry Creek - Bear	5.0 Miles	2	No Evidence of Impairment						
Bear River	UT16010202-008_00	High Creek Lower	3.4 Miles	4A	Approved TMDL	Phosphorus, Total	Not meeting criteria	TMDL Approved (38238)	Aquatic Wildlife (Cold Water)	1998	Low
Bear River	UT16010202-009_00	Spring Creek Lewiston	2.3 Miles	4A	Approved TMDL	Dissolved Oxygen	Not meeting criteria	TMDL Approved (38238)	Aquatic Wildlife (Warm Water)	1998	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (4012, 38238)	Aquatic Wildlife (Warm Water)	1998	Low
Bear River	UT16010202-010_00	Cub River	16.5 Miles	5	Not Supporting but has Approved TMDL for some parameters	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2020	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (38238)	Aquatic Wildlife (Warm Water)	1998	Low
						Sediment	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	1998	Low
Bear River	UT16010202-011_00	Summit Creek Upper	10.0 Miles	1	Fully Supporting						
Bear River	UT16010202-012_00	High Creek Upper	9.5 Miles	1	Fully Supporting						
Bear River	UT16010202-013_00	Clarkston Creek	23.9 Miles	1	Fully Supporting						
Bear River	UT16010202-014_00	The Slough	3.2 Miles	2	No Evidence of Impairment						
Bear River	UT16010202-015_00	Clay Slough	3.0 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water), Aquatic Wildlife (Waterfowl, Shorebirds, and Other)	2012	Low
						pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Warm Water), Aquatic Wildlife (Waterfowl, Shorebirds, and Other), Recreation and Aesthetics (Infrequent Primary Contact)	2012	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2012	Low
Bear River	UT16010203-001_00	Cutler West	2.8 Miles	3	Insufficient Data						
Bear River	UT16010203-002_00	Swift Slough	10.9 Miles	2	No Evidence of Impairment						
Bear River	UT16010203-005_00	Logan River-1	40.0 Miles	5	Not Supporting but has Approved TMDL for some parameters	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2020	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (38238)	Aquatic Wildlife (Cold Water)	1998	Low
Bear River	UT16010203-006_00	Logan River-2	71.8 Miles	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Waterfowl, Shorebirds, and Other), Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact)	2020	Low
Bear River	UT16010203-007_00	Little Bear-3	15.2 Miles	3	Insufficient Data						
Bear River	UT16010203-008_00	Spring Creek-Hyrum	10.9 Miles	5	Not Supporting but has Approved TMDL for some parameters	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2020	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2006	Low
						E. coli	Not meeting criteria	TMDL Approved (4012)	Recreation and Aesthetics (Infrequent Primary Contact)	2002	Low
						Ammonia, Total	Not meeting criteria	TMDL Approved (4012)	Aquatic Wildlife (Waterfowl, Shorebirds, and Other), Aquatic Wildlife (Cold Water)	1998	Low
Bear River	UT16010203-009_00	Little Bear River-1	27.8 Miles	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2008	Low
Bear River	UT16010203-010_00	Little Bear-4	2.2 Miles	3	Insufficient Data						
Bear River	UT16010203-011_00	Little Bear River-2	8.9 Miles	1	Fully Supporting						
Bear River	UT16010203-012_00	Little Bear River Tributaries	1.0 Miles	2	No Evidence of Impairment						
Bear River	UT16010203-013_00	South Fork Little Bear	21.6 Miles	1	Fully Supporting						

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: 305(b) and 303(d)

Assessment unit information						Associated parameter information					
Watershed Management Unit	Assessment Unit (AU) ID	AU Name	Water Size Unit	AU Category	Category Description	Water Quality Parameter	Parameter Status	303(d) Status	Use(s)	Cycle First Listed	303(d) Priority
Bear River	UT16010203-014_00	East Fork Little Bear-1	7.7 Miles	1	Fully Supporting						
Bear River	UT16010203-015_00	Davenport Creek	37.2 Miles	3	Insufficient Data						
Bear River	UT16010203-016_00	Porcupine Creek	1.5 Miles	2	No Evidence of Impairment						
Bear River	UT16010203-017_00	East Fork Little Bear-2	31.0 Miles	3	Insufficient Data						
Bear River	UT16010203-018_00	Blacksmith Fork-2	56.6 Miles	2	No Evidence of Impairment						
Bear River	UT16010203-019_00	Left Hand Fork Blacksmith Fork	25.5 Miles	1	Fully Supporting						
Bear River	UT16010203-020_00	Blacksmith Fork-1	11.6 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2016	Low
Bear River	UT16010204-001_00	Box Elder Creek-1	0.0 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2020	Low
Bear River	UT16010204-002_00	Bear River Lower-East	26.2 Miles	5	Not Supporting	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2012	Low
Bear River	UT16010204-003_00	Bear River-1	19.1 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2010	Low
Bear River	UT16010204-004_00	Bear River Lower-West	10.4 Miles	3	Insufficient Data						
Bear River	UT16010204-005_00	Box Elder Creek-2	7.5 Miles	3	Insufficient Data						
Bear River	UT16010204-006_00	Malad River-1	61.3 Miles	5	Not Supporting	Ammonia, Total	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Non-game Fish and Other)	2020	Low
						Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Non-game Fish and Other)	2020	Low
						E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2020	Low
Bear River	UT16010204-007_01	Middle Bear East-1	4.5 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2020	Low
Bear River	UT16010204-007_02	Middle Bear East-2	6.0 Miles	2	No Evidence of Impairment						
Bear River	UT16010204-008_01	Bear River-2-1	42.7 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2008	Low
Bear River	UT16010204-008_02	Bear River-2-2	13.3 Miles	5	Not Supporting	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2020	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water), Aquatic Wildlife (Waterfowl, Shorebirds, and Other)	2014	Low
						Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2008	Low
Bear River	UT16010204-010_01	Malad River-2-1	8.6 Miles	2	No Evidence of Impairment						
Bear River	UT16010204-010_02	Malad River-2-2	3.7 Miles	2	No Evidence of Impairment						
Bear River	UT16010204-011_01	Mantua Reservoir Tributaries-1	1.0 Miles	3	Insufficient Data						
Bear River	UT16010204-011_02	Mantua Reservoir Tributaries-2	1.1 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2020	Low
Bear River	UT16010204-013_00	Salt Creek-Bothwell	4.8 Miles	3	Insufficient Data						
Cedar-Beaver	UT16030006-001_00	Coal Creek - C/B	45.2 Miles	1	Fully Supporting						
Cedar-Beaver	UT16030006-002_00	Pinto Creek	31.9 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2016	Low
						E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2016	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Cedar-Beaver	UT16030006-003_00	Summit Creek-Iron	15.2 Miles	2	No Evidence of Impairment						
Cedar-Beaver	UT16030006-004_00	Parowan Creek	32.9 Miles	3	Insufficient Data						
Cedar-Beaver	UT16030006-005_00	Little Creek (Iron Co.)	16.2 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2022	Low
Cedar-Beaver	UT16030006-006_00	Shoal Creek	6.2 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2022	Low
Cedar-Beaver	UT16030006-007_00	Red Creek (Iron Co.)	7.1 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2020	Low
Cedar-Beaver	UT16030006-008_00	Red Creek Lower (Iron Co.)	0.5 Miles	3	Insufficient Data						
Cedar-Beaver	UT16030006-009_00	Cottonwood Canyon-Parowan Valley	6.0 Miles	2	No Evidence of Impairment						
Cedar-Beaver	UT16030007-001_00	Beaver River-1	8.0 Miles	3	Insufficient Data						

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: 305(b) and 303(d)

Assessment unit information						Associated parameter information					
Watershed Management Unit	Assessment Unit (AU) ID	AU Name	Water Size Unit	AU Category	Category Description	Water Quality Parameter	Parameter Status	303(d) Status	Use(s)	Cycle First Listed	303(d) Priority
Cedar-Beaver	UT16030007-002_00	Beaver River-2	65.2 Miles	5	Not Supporting but has Approved TMDL for some parameters	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2016	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Approved (96)	Aquatic Wildlife (Cold Water)	2014	Low
						Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2008	Low
						Temperature	Not meeting criteria	TMDL Approved (96)	Aquatic Wildlife (Cold Water)	1998	Low
Cedar-Beaver	UT16030007-003_00	Beaver River-3	181.0 Miles	2	No Evidence of Impairment						
Cedar-Beaver	UT16030007-004_00	Pine Creek-Tushar	6.3 Miles	3	Insufficient Data						
Jordan River	UT16020201-002_01	American Fork River-2	29.2 Miles	2	No Evidence of Impairment						
Jordan River	UT16020201-002_02	Mary Ellen Gulch	3.6 Miles	5	Not Supporting	Cadmium	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
						Copper	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
						Zinc	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
Jordan River	UT16020201-008_00	Jordan River-8	9.9 Miles	5	Not Supporting	Arsenic	Not meeting criteria	TMDL Needed	Domestic Source	2014	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2006	Low
Jordan River	UT16020201-015_00	Dry Creek-Alpine	11.3 Miles	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact)	2014	Low
Jordan River	UT16020204-001_01	Jordan River-1	9.1 Miles	5	Not Supporting but has Approved TMDL for some parameters	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water), Aquatic Wildlife (Waterfowl, Shorebirds, and Other)	2008	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Approved (54300)	Aquatic Wildlife (Warm Water), Aquatic Wildlife (Waterfowl, Shorebirds, and Other)	2002	High
Jordan River	UT16020204-001_02	North Canyon Creek	0.0 Miles	5	Not Supporting but has Approved TMDL for some parameters	Copper	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Waterfowl, Shorebirds, and Other)	2014	Low
						E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2010	Low
						Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Waterfowl, Shorebirds, and Other)	2008	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Approved (54300)	Aquatic Wildlife (Waterfowl, Shorebirds, and Other)	2002	Low
Jordan River	UT16020204-002_00	Jordan River-2	4.4 Miles	5	Not Supporting but has Approved TMDL for some parameters	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2008	Low
						E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2006	High
						Dissolved Oxygen	Not meeting criteria	TMDL Approved (54321)	Aquatic Wildlife (Warm Water), Aquatic Wildlife (Waterfowl, Shorebirds, and Other)	2002	High
Jordan River	UT16020204-003_00	Jordan River-3	4.4 Miles	5	Not Supporting but has Approved TMDL for some parameters	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2008	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Approved (54322)	Aquatic Wildlife (Warm Water)	2008	High
						Phosphorus, Total	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2008	Low
						E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2006	High
Jordan River	UT16020204-004_00	Jordan River-4	5.7 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2014	High
						Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2010	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2008	Low
Jordan River	UT16020204-005_00	Jordan River-5	4.6 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2006	High
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2006	Low
Jordan River	UT16020204-006_01	Jordan River-6	12.6 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2008	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2006	Low
Jordan River	UT16020204-006_02	Big Willow Creek	0.0 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Waterfowl, Shorebirds, and Other)	2008	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Waterfowl, Shorebirds, and Other)	2006	Low

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: 305(b) and 303(d)

Assessment unit information						Associated parameter information					
Watershed Management Unit	Assessment Unit (AU) ID	AU Name	Water Size Unit	AU Category	Category Description	Water Quality Parameter	Parameter Status	303(d) Status	Use(s)	Cycle First Listed	303(d) Priority
Jordan River	UT16020204-006_03	Dry Creek	0.0 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Waterfowl, Shorebirds, and Other)	2008	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Waterfowl, Shorebirds, and Other)	2006	Low
Jordan River	UT16020204-007_00	Jordan River-7	3.8 Miles	5	Not Supporting	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2020	Low
						Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2008	Low
Jordan River	UT16020204-009_00	City Creek-1	4.2 Miles	1	Fully Supporting						
Jordan River	UT16020204-010_00	City Creek-2	6.3 Miles	1	Fully Supporting						
Jordan River	UT16020204-011_00	Red Butte Creek Upper	5.6 Miles	2	No Evidence of Impairment						
Jordan River	UT16020204-012_00	Emigration Creek	3.7 Miles	4A	Approved TMDL	E. coli	Not meeting criteria	TMDL Approved (42669)	Recreation and Aesthetics (Infrequent Primary Contact)	2008	Low
Jordan River	UT16020204-013_00	Parleys Canyon Creek-2	15.7 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact), Domestic Source	2022	Low
						Cadmium	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Jordan River	UT16020204-014_00	Mountain Dell Creek-1	0.8 Miles	1	Fully Supporting						
Jordan River	UT16020204-015_00	Mountain Dell Creek-2	7.8 Miles	2	No Evidence of Impairment						
Jordan River	UT16020204-016_00	North Canyon	0.0 Miles	1	Fully Supporting						
Jordan River	UT16020204-017_00	Mill Creek2-SLCity	7.5 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2010	Low
						E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2002	High
Jordan River	UT16020204-018_00	Mill Creek3-SLCity	19.1 Miles	1	Fully Supporting						
Jordan River	UT16020204-019_00	Big Cottonwood Creek-1	10.0 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2014	High
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2006	Low
Jordan River	UT16020204-020_00	Big Cottonwood Creek-2	44.5 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact), Domestic Source	2022	Low
						Cadmium	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						Copper	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Jordan River	UT16020204-021_00	Little Cottonwood Creek-1	9.7 Miles	5	Not Supporting	Cadmium	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2014	High
						Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact)	2008	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2006	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2006	Low
Jordan River	UT16020204-022_00	Little Cottonwood Creek-2	30.0 Miles	5	Not Supporting but has Approved TMDL for some parameters	Cadmium	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						Copper	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						pH	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact), Domestic Source	2014	Low
						Zinc	Not meeting criteria	TMDL Approved (4014)	Aquatic Wildlife (Cold Water)	1998	Low
Jordan River	UT16020204-023_00	Bingham Creek	4.4 Miles	5	Not Supporting	Selenium	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Waterfowl, Shorebirds, and Other)	2014	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2014	Low
Jordan River	UT16020204-024_01	Midas Creek	1.5 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2014	Low
						Selenium	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Waterfowl, Shorebirds, and Other)	2014	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2014	Low

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: 305(b) and 303(d)

Assessment unit information						Associated parameter information					
Watershed Management Unit	Assessment Unit (AU) ID	AU Name	Water Size Unit	AU Category	Category Description	Water Quality Parameter	Parameter Status	303(d) Status	Use(s)	Cycle First Listed	303(d) Priority
Jordan River	UT16020204-024_02	Butterfield Creek	4.7 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2014	High
						Selenium	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Waterfowl, Shorebirds, and Other)	2014	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2014	Low
Jordan River	UT16020204-025_00	Parleys Canyon Creek-1	13.6 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
						Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact), Domestic Source	2010	High
Jordan River	UT16020204-026_00	Mill Creek1-SLCity	1.1 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Non-game Fish and Other)	2014	Low
						E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2014	High
Jordan River	UT16020204-027_00	Coon Creek	4.1 Miles	3	Insufficient Data						
Jordan River	UT16020204-028_00	Barneys Canyon Creek	2.4 Miles	3	Insufficient Data						
Jordan River	UT16020204-029_00	Rose Creek	7.0 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2014	High
Jordan River	UT16020204-030_00	Bells Canyon	4.4 Miles	3	Insufficient Data						
Jordan River	UT16020204-031_00	Little Willow Creek	2.8 Miles	3	Insufficient Data						
Jordan River	UT16020204-032_00	Surplus Canal	11.5 Miles	3	Insufficient Data						
Jordan River	UT16020204-033_00	Emigration Creek Lower	1.1 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2014	High
Jordan River	UT16020204-034_00	State Canal	4.5 Miles	5	Not Supporting	Ammonia, Total	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water), Aquatic Wildlife (Waterfowl, Shorebirds, and Other)	2016	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2016	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water), Aquatic Wildlife (Waterfowl, Shorebirds, and Other)	2014	Low
Jordan River	UT16020204-035_00	Red Butte Creek Lower	2.3 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
						E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2022	High
						Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Jordan River	UT16020204-036_00	Lee Creek	5.2 Miles	1	Fully Supporting						
Lower Colorado River	UT15010003-001_00	Cottonwood Canyon	6.0 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Non-game Fish and Other)	2014	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Non-game Fish and Other)	2014	Low
Lower Colorado River	UT15010003-002_01	Kanab Creek-1-1	6.7 Miles	5	Not Supporting	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2008	Low
Lower Colorado River	UT15010003-002_02	Kanab Creek-1-2	11.4 Miles	5	Not Supporting	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2008	Low
Lower Colorado River	UT15010003-003_00	Kanab Creek-2	6.2 Miles	5	Not Supporting	Selenium	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Non-game Fish and Other)	2016	Low
						Boron	Not meeting criteria	TMDL Needed	Agricultural	2014	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2014	Low
Lower Colorado River	UT15010003-004_00	Johnson Wash-1	22.2 Miles	5	Not Supporting	Boron	Not meeting criteria	TMDL Needed	Agricultural	2014	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2008	Low
Lower Colorado River	UT15010003-005_00	Johnson Wash-2	27.2 Miles	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact)	2022	Low
						Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2016	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2014	Low
						Zinc	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Lower Colorado River	UT15010003-006_00	Kanab Creek-3	1.2 Miles	3	Insufficient Data						

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: 305(b) and 303(d)

Assessment unit information						Associated parameter information					
Watershed Management Unit	Assessment Unit (AU) ID	AU Name	Water Size Unit	AU Category	Category Description	Water Quality Parameter	Parameter Status	303(d) Status	Use(s)	Cycle First Listed	303(d) Priority
Lower Colorado River	UT15010008-001_00	Santa Clara-1	23.8 Miles	5	Not Supporting but has Approved TMDL for some parameters	Boron	Not meeting criteria	TMDL Needed	Agricultural	2008	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2008	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Approved (12104)	Agricultural	1998	Low
Lower Colorado River	UT15010008-002_00	Santa Clara-2	27.0 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2008	Low
Lower Colorado River	UT15010008-003_00	Santa Clara-3	38.1 Miles	5	Threatened	Nutrient/Eutrophication Biological Indicators	Threatened	Alternative restoration plan	Aquatic Wildlife (Cold Water)	2022	Low
Lower Colorado River	UT15010008-004_00	Virgin River-2	34.6 Miles	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2022	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2014	Low
						Boron	Not meeting criteria	TMDL Needed	Agricultural	2008	Low
Lower Colorado River	UT15010008-005_00	Quail Creek	1.0 Miles	3	Insufficient Data						
Lower Colorado River	UT15010008-006_00	Leeds Creek	10.4 Miles	2	No Evidence of Impairment						
Lower Colorado River	UT15010008-007_00	Ash Creek-1	27.2 Miles	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2016	Low
Lower Colorado River	UT15010008-008_00	Ash Creek-2	8.1 Miles	3	Insufficient Data						
Lower Colorado River	UT15010008-009_00	Ash Creek-3	44.5 Miles	2	No Evidence of Impairment						
Lower Colorado River	UT15010008-010_00	La Verkin Creek	48.0 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2016	Low
Lower Colorado River	UT15010008-011_00	Virgin River-3	4.3 Miles	1	Fully Supporting						
Lower Colorado River	UT15010008-012_00	Virgin River-4	20.5 Miles	2	No Evidence of Impairment						
Lower Colorado River	UT15010008-013_00	North Fork Virgin River-2	37.7 Miles	5	Not Supporting but has Approved TMDL for some parameters	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						E. coli	Not meeting criteria	TMDL Approved (R8-UT-2018-01)	Domestic Source, Recreation and Aesthetics (Frequent Primary Contact)	2010	High
Lower Colorado River	UT15010008-014_00	North Creek-Virgin	25.4 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Non-game Fish and Other)	2016	Low
Lower Colorado River	UT15010008-015_00	North Fork Virgin River-1	47.2 Miles	5	Not Supporting but has Approved TMDL for some parameters	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2010	Low
						E. coli	Meeting criteria	TMDL Approved (R8-UT-2018-01)	Domestic Source, Recreation and Aesthetics (Frequent Primary Contact)		
Lower Colorado River	UT15010008-016_00	Kolob Creek	15.6 Miles	3	Insufficient Data						
Lower Colorado River	UT15010008-017_00	Deep Creek	66.1 Miles	2	No Evidence of Impairment						
Lower Colorado River	UT15010008-018_00	East Fork Virgin-1	38.5 Miles	1	Fully Supporting						
Lower Colorado River	UT15010008-019_00	East Fork Virgin-2	25.8 Miles	1	Fully Supporting						
Lower Colorado River	UT15010008-020_00	East Fork Virgin-3	35.9 Miles	2	No Evidence of Impairment						
Lower Colorado River	UT15010009-001_00	Fort Pearce Wash	0.0 Miles	5	Not Supporting	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2012	Low
Lower Colorado River	UT15010009-002_00	Short Creek	5.3 Miles	3	Insufficient Data						
Lower Colorado River	UT15010010-001_00	Virgin River-1	11.9 Miles	5	Not Supporting	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2014	Low
						Boron	Not meeting criteria	TMDL Needed	Agricultural	2008	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2006	Low
Lower Colorado River	UT15010010-002_00	Beaver Dam Wash	24.4 Miles	2	No Evidence of Impairment						
Lower Sevier River	UT16030003-001_00	Sevier River-19	0.1 Miles	3	Insufficient Data						
Lower Sevier River	UT16030003-002_00	Willow Creek - Axtell	15.8 Miles	3	Insufficient Data						
Lower Sevier River	UT16030003-003_00	Salina Creek-1	4.6 Miles	4A	Approved TMDL	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Approved (11125)	Agricultural	1998	Low
Lower Sevier River	UT16030003-004_01	Sevier River-16-1	3.4 Miles	3	Insufficient Data						
Lower Sevier River	UT16030003-004_02	Sevier River-16-2	0.2 Miles	3	Insufficient Data						
Lower Sevier River	UT16030003-004_03	Sevier River-16-3	0.0 Miles	3	Insufficient Data						
Lower Sevier River	UT16030003-005_00	Lost Creek-1	5.9 Miles	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Non-game Fish and Other)	2022	Low
						Boron	Not meeting criteria	TMDL Needed	Agricultural	2016	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2012	Low
Lower Sevier River	UT16030003-006_00	Salina Creek-2	158.4 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
						E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2022	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
						pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact)	2020	Low

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: 305(b) and 303(d)

Assessment unit information						Associated parameter information					
Watershed Management Unit	Assessment Unit (AU) ID	AU Name	Water Size Unit	AU Category	Category Description	Water Quality Parameter	Parameter Status	303(d) Status	Use(s)	Cycle First Listed	303(d) Priority
Lower Sevier River	UT16030003-007_00	Beaver Creek-1 Sevier	17.2 Miles	1	Fully Supporting						
Lower Sevier River	UT16030003-008_00	Lost Creek2-Salina	8.5 Miles	3	Insufficient Data						
Lower Sevier River	UT16030003-009_00	Sevier River-11	0.0 Miles	3	Insufficient Data						
Lower Sevier River	UT16030003-010_00	Lost Creek3-Salina	33.3 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
						E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2020	Low
Lower Sevier River	UT16030003-011_00	Sevier River-12	13.6 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2022	Low
Lower Sevier River	UT16030003-012_00	Sevier River-17	28.8 Miles	4A	Approved TMDL	Phosphorus, Total	Not meeting criteria	TMDL Approved (11122)	Aquatic Wildlife (Warm Water)	2000	Low
						Sediment	Not meeting criteria	TMDL Approved (11122)	Aquatic Wildlife (Warm Water)	2000	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Approved (11122, 11150)	Agricultural	2000	Low
Lower Sevier River	UT16030003-013_00	Monroe Creek	78.6 Miles	1	Fully Supporting						
Lower Sevier River	UT16030003-014_00	Sevier River-14	12.4 Miles	2	No Evidence of Impairment						
Lower Sevier River	UT16030003-015_00	Sevier River-8	29.4 Miles	1	Fully Supporting						
Lower Sevier River	UT16030003-016_00	Sevier River-10	1.5 Miles	3	Insufficient Data						
Lower Sevier River	UT16030003-017_00	Sevier River-6	31.1 Miles	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2006	Low
Lower Sevier River	UT16030003-018_00	Clear Creek-I70	120.0 Miles	5	Not Supporting	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2022	Low
						Aluminum	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Lower Sevier River	UT16030003-019_00	Sevier River-9	11.5 Miles	3	Insufficient Data						
Lower Sevier River	UT16030003-020_00	Beaver Creek2-Piute	54.7 Miles	3	Insufficient Data						
Lower Sevier River	UT16030003-021_00	Manning Creek	19.6 Miles	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact)	2022	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Lower Sevier River	UT16030003-022_00	Sevier River-5	9.3 Miles	3	Insufficient Data						
Lower Sevier River	UT16030003-023_00	Sevier River-18	29.9 Miles	3	Insufficient Data						
Lower Sevier River	UT16030003-024_00	Sevier River-15	14.9 Miles	2	No Evidence of Impairment						
Lower Sevier River	UT16030003-025_00	Sevier River-13	1.7 Miles	3	Insufficient Data						
Lower Sevier River	UT16030003-026_00	Sevier River-7	0.0 Miles	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact)	2014	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Lower Sevier River	UT16030003-027_00	Peterson Creek	8.1 Miles	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Non-game Fish and Other)	2022	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2016	Low
Lower Sevier River	UT16030004-001_00	San Pitch-1	19.0 Miles	4A	Approved TMDL	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Approved (11150)	Agricultural	2014	Low
Lower Sevier River	UT16030004-002_00	Twelve Mile Creek	71.6 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2022	Low
Lower Sevier River	UT16030004-003_00	Six Mile Creek - Sevier	40.2 Miles	5	Not Supporting	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2022	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2012	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2012	Low
Lower Sevier River	UT16030004-004_00	South Creek	33.5 Miles	2	No Evidence of Impairment						
Lower Sevier River	UT16030004-005_01	San Pitch-3-1	68.5 Miles	5	Not Supporting but has Approved TMDL for some parameters	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Waterfowl, Shorebirds, and Other), Aquatic Wildlife (Non-game Fish and Other)	2020	Low
						Ammonia, Total	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Waterfowl, Shorebirds, and Other), Aquatic Wildlife (Non-game Fish and Other)	2016	Low
						E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2016	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Approved (11151)	Agricultural	1998	Low
Lower Sevier River	UT16030004-005_02	San Pitch-3-2	0.0 Miles	5	Not Supporting but has Approved TMDL for some parameters	Ammonia, Total	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Waterfowl, Shorebirds, and Other), Aquatic Wildlife (Non-game Fish and Other)	2016	Low
						E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2016	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Approved (11151)	Agricultural	1998	Low

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: 305(b) and 303(d)

Assessment unit information						Associated parameter information					
Watershed Management Unit	Assessment Unit (AU) ID	AU Name	Water Size Unit	AU Category	Category Description	Water Quality Parameter	Parameter Status	303(d) Status	Use(s)	Cycle First Listed	303(d) Priority
Lower Sevier River	UT16030004-006_00	Oak Creek-1	16.0 Miles	3	Insufficient Data						
Lower Sevier River	UT16030004-007_01	Upper Willow Creek	15.3 Miles	2	No Evidence of Impairment						
Lower Sevier River	UT16030004-007_02	Ephraim Creek	4.8 Miles	2	No Evidence of Impairment						
Lower Sevier River	UT16030004-008_00	Pleasant Creek	58.0 Miles	1	Fully Supporting						
Lower Sevier River	UT16030004-009_00	San Pitch-5	71.1 Miles	5	Not Supporting but has Approved TMDL for some parameters	pH	Not meeting criteria	TMDL Approved (11151)	Agricultural, Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact)	2022	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
						E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2016	Low
Lower Sevier River	UT16030004-010_00	Oak Creek-2	23.4 Miles	1	Fully Supporting						
Lower Sevier River	UT16030004-011_00	San Pitch-4	14.1 Miles	5	Not Supporting	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2014	Low
Lower Sevier River	UT16030004-012_00	Oak Creek Upper	7.1 Miles	1	Fully Supporting						
Lower Sevier River	UT16030004-013_00	Cottonwood Creek-SP	10.4 Miles	1	Fully Supporting						
Lower Sevier River	UT16030005-002_00	Cherry Creek	26.4 Miles	3	Insufficient Data						
Lower Sevier River	UT16030005-003_00	Tanner Creek	15.1 Miles	3	Insufficient Data						
Lower Sevier River	UT16030005-004_00	Oak Creek-1	0.0 Miles	3	Insufficient Data						
Lower Sevier River	UT16030005-005_00	Fool Creek-1	0.0 Miles	3	Insufficient Data						
Lower Sevier River	UT16030005-006_00	Fishlake National Forest-I15	12.3 Miles	3	Insufficient Data						
Lower Sevier River	UT16030005-007_00	Sevier River-21	21.1 Miles	3	Insufficient Data						
Lower Sevier River	UT16030005-008_00	Sevier River-27	0.6 Miles	1	Fully Supporting						
Lower Sevier River	UT16030005-011_00	Chicken Creek-3	13.4 Miles	3	Insufficient Data						
Lower Sevier River	UT16030005-012_00	Ivie Creek	16.6 Miles	2	No Evidence of Impairment						
Lower Sevier River	UT16030005-013_00	Goose Creek-1	0.0 Miles	3	Insufficient Data						
Lower Sevier River	UT16030005-014_00	Goose Creek-2	0.3 Miles	3	Insufficient Data						
Lower Sevier River	UT16030005-015_00	Pioneer Creek-1	0.4 Miles	3	Insufficient Data						
Lower Sevier River	UT16030005-016_00	Pioneer Creek-2	3.8 Miles	3	Insufficient Data						
Lower Sevier River	UT16030005-017_00	Sevier River-23	0.0 Miles	3	Insufficient Data						
Lower Sevier River	UT16030005-018_00	Chalk Creek-1	0.0 Miles	3	Insufficient Data						
Lower Sevier River	UT16030005-019_00	Chalk Creek2-Fillmore	35.1 Miles	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact)	2022	Low
Lower Sevier River	UT16030005-020_00	Chicken Creek-1	13.4 Miles	2	No Evidence of Impairment						
Lower Sevier River	UT16030005-021_00	Corn Creek	61.7 Miles	1	Fully Supporting						
Lower Sevier River	UT16030005-022_00	Chicken Creek-2	25.1 Miles	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2016	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	1998	Low
Lower Sevier River	UT16030005-023_00	Meadow Creek	6.3 Miles	2	No Evidence of Impairment						
Lower Sevier River	UT16030005-024_00	Round Valley Creek	0.0 Miles	3	Insufficient Data						
Lower Sevier River	UT16030005-025_00	Sevier River-20	36.1 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2008	Low
Lower Sevier River	UT16030005-026_00	Sevier River-22	39.0 Miles	4A	Approved TMDL	Phosphorus, Total	Not meeting criteria	TMDL Approved (11124)	Aquatic Wildlife (Warm Water)	1998	Low
						Sediment	Not meeting criteria	TMDL Approved (11124)	Aquatic Wildlife (Warm Water)	1998	Low
Lower Sevier River	UT16030005-027_00	Sevier River-24	17.2 Miles	5	Not Supporting but has Approved TMDL for some parameters	pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Warm Water), Recreation and Aesthetics (Infrequent Primary Contact)	2022	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (11124)	Aquatic Wildlife (Warm Water)	1998	Low
						Sediment	Not meeting criteria	TMDL Approved (11124)	Aquatic Wildlife (Warm Water)	1998	Low
Lower Sevier River	UT16030005-028_00	Sevier River-25	19.8 Miles	1	Fully Supporting						
Lower Sevier River	UT16030005-029_00	Sevier River-26	0.0 Miles	3	Insufficient Data						
Southeast Colorado River	UT14010005-001_00	Colorado River-6	3.8 Miles	4A	Approved TMDL	Selenium	Not meeting criteria	TMDL Approved (60100)	Aquatic Wildlife (Warm Water)	2004	Low
Southeast Colorado River	UT14010005-002_00	Unknown tribs	0.0 Miles	3	Insufficient Data						
Southeast Colorado River	UT14030001-001_00	Cottonwood Wash	22.7 Miles	5	Not Supporting	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2020	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2014	Low
Southeast Colorado River	UT14030001-002_00	Little Dolores River	7.2 Miles	3	Insufficient Data						
Southeast Colorado River	UT14030001-003_00	Westwater Creek	18.4 Miles	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2012	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2012	Low

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: 305(b) and 303(d)

Assessment unit information						Associated parameter information					
Watershed Management Unit	Assessment Unit (AU) ID	AU Name	Water Size Unit	AU Category	Category Description	Water Quality Parameter	Parameter Status	303(d) Status	Use(s)	Cycle First Listed	303(d) Priority
Southeast Colorado River	UT14030001-004_00	Bitter Creek	3.8 Miles	3	Insufficient Data						
Southeast Colorado River	UT14030001-005_00	Colorado River-5	33.3 Miles	4A	Approved TMDL	Selenium	Not meeting criteria	TMDL Approved (60103)	Aquatic Wildlife (Warm Water)	2004	Low
Southeast Colorado River	UT14030001-006_00	Nash Wash	6.4 Miles	2	No Evidence of Impairment						
Southeast Colorado River	UT14030002-001_01	La Sal Creek-1	23.9 Miles	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact)	2022	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
Southeast Colorado River	UT14030002-001_02	La Sal Creek	0.0 Miles	3	Insufficient Data						
Southeast Colorado River	UT14030002-001_03	La Sal Creek	0.0 Miles	3	Insufficient Data						
Southeast Colorado River	UT14030004-001_00	Dolores River	61.6 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Non-game Fish and Other)	2020	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Non-game Fish and Other)	2014	Low
Southeast Colorado River	UT14030004-002_00	Granite Creek - CRSE	10.8 Miles	3	Insufficient Data						
Southeast Colorado River	UT14030004-003_00	Roc Creek	23.7 Miles	3	Insufficient Data						
Southeast Colorado River	UT14030005-001_00	Kane Spring Wash	22.2 Miles	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Non-game Fish and Other)	2014	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2014	Low
Southeast Colorado River	UT14030005-002_00	Indian Creek-2	17.6 Miles	1	Fully Supporting						
Southeast Colorado River	UT14030005-003_00	Colorado River-3	62.3 Miles	4A	Approved TMDL	Selenium	Not meeting criteria	TMDL Approved (60105)	Aquatic Wildlife (Warm Water)	2006	Low
Southeast Colorado River	UT14030005-004_00	Colorado River-4	35.9 Miles	5	Not Supporting but has Approved TMDL for some parameters	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Frequent Primary Contact)	2020	Low
						Selenium	Not meeting criteria	TMDL Approved (60104)	Aquatic Wildlife (Warm Water)	2006	Low
Southeast Colorado River	UT14030005-005_00	Mill Creek1-Moab	28.5 Miles	5	Not Supporting but has Approved TMDL for some parameters	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact), Domestic Source	2016	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						Temperature	Not meeting criteria	TMDL Approved (4047)	Aquatic Wildlife (Cold Water)	1998	Low
Southeast Colorado River	UT14030005-006_01	Mill Creek-2-Moab	11.2 Miles	2	No Evidence of Impairment						
Southeast Colorado River	UT14030005-006_02	Pack Creek-2	15.6 Miles	1	Fully Supporting						
Southeast Colorado River	UT14030005-007_00	Salt Wash	22.1 Miles	5	Not Supporting	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2016	Low
Southeast Colorado River	UT14030005-008_00	Grandstaff Canyon	8.6 Miles	1	Fully Supporting						
Southeast Colorado River	UT14030005-009_00	Castle Creek-1	12.9 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Domestic Source, Recreation and Aesthetics (Frequent Primary Contact)	2020	High
						Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2008	Low
Southeast Colorado River	UT14030005-010_00	Onion Creek Lower	8.7 Miles	5	Not Supporting but has Approved TMDL for some parameters	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2016	Low
						Temperature	Not meeting criteria	TMDL Approved (4008)	Aquatic Wildlife (Warm Water)	1998	Low
Southeast Colorado River	UT14030005-011_00	Pack Creek	8.9 Miles	5	Not Supporting but has Approved TMDL for some parameters	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact), Domestic Source	2016	Low
						Selenium	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2010	Low
						Temperature	Not meeting criteria	TMDL Approved (4047)	Aquatic Wildlife (Cold Water)	2006	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2006	Low
Southeast Colorado River	UT14030005-012_00	Castle Creek-2	6.7 Miles	1	Fully Supporting						
Southeast Colorado River	UT14030005-013_00	Onion Creek Upper	2.8 Miles	1	Fully Supporting						
Southeast Colorado River	UT14030005-014_00	Indian Creek-1	8.6 Miles	2	No Evidence of Impairment						
Southeast Colorado River	UT14030005-015_00	North Cottonwood Creek	28.6 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2014	Low
Southeast Colorado River	UT14030005-016_00	Salt Creek-Canyonlands	0.0 Miles	3	Insufficient Data						
Southeast Colorado River	UT14030005-017_00	Courthouse Wash	0.0 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2020	Low
Southeast Colorado River	UT14030005-018_00	Courthouse Wash	1.1 Miles	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2022	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2022	Low
Southeast Colorado River	UT14030005-019_00	Professor Creek	0.0 Miles	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2012	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2012	Low
Southeast Colorado River	UT14070001-003_00	Colorado River-2	15.3 Miles	1	Fully Supporting						
Southeast Colorado River	UT14070001-004_00	White Canyon	0.0 Miles	3	Insufficient Data						

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: 305(b) and 303(d)

Assessment unit information						Associated parameter information					
Watershed Management Unit	Assessment Unit (AU) ID	AU Name	Water Size Unit	AU Category	Category Description	Water Quality Parameter	Parameter Status	303(d) Status	Use(s)	Cycle First Listed	303(d) Priority
Southeast Colorado River	UT14070006-007_01	Lake Powell Tributaries-4-1	1.4 Miles	3	Insufficient Data						
Southeast Colorado River	UT14070006-007_02	Lake Powell Tributaries-4-2	0.0 Miles	3	Insufficient Data						
Southeast Colorado River	UT14070006-007_03	Lake Powell Tributaries-4-3	0.0 Miles	3	Insufficient Data						
Southeast Colorado River	UT14070006-007_04	Lake Powell Tributaries-4-4	0.0 Miles	3	Insufficient Data						
Southeast Colorado River	UT14080201-001_00	Butler Wash	3.8 Miles	3	Insufficient Data						
Southeast Colorado River	UT14080201-002_00	Cottonwood Wash-1	0.0 Miles	2	No Evidence of Impairment						
Southeast Colorado River	UT14080201-003_00	Recapture Creek-2	3.7 Miles	3	Insufficient Data						
Southeast Colorado River	UT14080201-004_00	Johnson Creek	4.2 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2010	Low
Southeast Colorado River	UT14080201-005_00	Recapture Creek-1	1.6 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2020	Low
Southeast Colorado River	UT14080201-006_00	Cottonwood Wash-2	5.7 Miles	5	Not Supporting but has Approved TMDL for some parameters	Arsenic	Not meeting criteria	TMDL Needed	Domestic Source	2022	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2022	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2012	Low
						Alpha Particles	Not meeting criteria	TMDL Approved (4013)	Domestic Source	1998	Low
						Radium	Not meeting criteria	TMDL Needed	Domestic Source	1998	Low
Southeast Colorado River	UT14080201-007_00	Cottonwood Wash-3	8.9 Miles	5	Not Supporting but has Approved TMDL for some parameters	Alpha Particles	Not meeting criteria	TMDL Approved (4013)	Agricultural, Domestic Source	2010	Low
						Radium	Not meeting criteria	TMDL Needed	Agricultural, Domestic Source	2010	Low
Southeast Colorado River	UT14080201-008_00	Westwater Creek	5.8 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2012	Low
						Selenium	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2012	Low
Southeast Colorado River	UT14080201-009_00	San Juan River-2	28.5 Miles	5	Not Supporting	Thallium	Not meeting criteria	TMDL Needed	Domestic Source	2022	Low
						Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2020	Low
						E. coli	Not meeting criteria	TMDL Needed	Domestic Source, Recreation and Aesthetics (Frequent Primary Contact)	2020	Low
						Cadmium	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2016	Low
						Iron	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2016	Low
						Lead	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2016	Low
Southeast Colorado River	UT14080201-010_00	San Juan River-3	30.1 Miles	3	Insufficient Data						
Southeast Colorado River	UT14080201-011_00	Comb Wash	7.2 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2020	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2014	Low
						Selenium	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2014	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2014	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2014	Low
Southeast Colorado River	UT14080202-001_00	McElmo Creek	18.8 Miles	2	No Evidence of Impairment						
Southeast Colorado River	UT14080203-001_00	Verdure Creek-1	5.3 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
Southeast Colorado River	UT14080203-002_00	Verdure Creek-2	11.0 Miles	2	No Evidence of Impairment						
Southeast Colorado River	UT14080203-003_00	Montezuma Creek-2	5.6 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
Southeast Colorado River	UT14080203-004_00	South Creek	0.0 Miles	3	Insufficient Data						
Southeast Colorado River	UT14080203-005_01	Montezuma Creek-1-1	0.0 Miles	2	No Evidence of Impairment						
Southeast Colorado River	UT14080203-005_02	Montezuma Creek-1-2	0.0 Miles	2	No Evidence of Impairment						
Southeast Colorado River	UT14080203-006_00	Spring Creek	5.9 Miles	3	Insufficient Data						
Southeast Colorado River	UT14080203-007_00	Montezuma Creek-3	10.1 Miles	5	Not Supporting	Selenium	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Southeast Colorado River	UT14080203-008_00	North Creek	4.5 Miles	3	Insufficient Data						

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: 305(b) and 303(d)

Assessment unit information						Associated parameter information					
Watershed Management Unit	Assessment Unit (AU) ID	AU Name	Water Size Unit	AU Category	Category Description	Water Quality Parameter	Parameter Status	303(d) Status	Use(s)	Cycle First Listed	303(d) Priority
Southeast Colorado River	UT14080205-001_00	San Juan River-1	62.5 Miles	5	Not Supporting	Aluminum	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2022	Low
						Copper	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2022	Low
						Iron	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2022	Low
						Lead	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water), Domestic Source	2022	Low
						Thallium	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water), Domestic Source	2022	Low
						E. coli	Not meeting criteria	TMDL Needed	Domestic Source, Recreation and Aesthetics (Frequent Primary Contact)	2020	Low
Southeast Colorado River	UT14080205-002_00	Grand Gulch	0.0 Miles	3	Insufficient Data						
Southeast Colorado River	UT14080205-003_00	San Juan River-1 Triburaries	8.4 Miles	5	Not Supporting	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2012	Low
Uinta Basin	UT14040106-001_00	Dahlgreen Creek	0.0 Miles	2	No Evidence of Impairment						
Uinta Basin	UT14040106-002_00	Henrys Fork River	60.0 Miles	2	No Evidence of Impairment						
Uinta Basin	UT14040106-003_00	West Fork Beaver Creek	24.2 Miles	1	Fully Supporting						
Uinta Basin	UT14040106-004_00	Middle Fork Beaver Creek	33.0 Miles	1	Fully Supporting						
Uinta Basin	UT14040106-005_00	Burnt Fork Creek	44.0 Miles	2	No Evidence of Impairment						
Uinta Basin	UT14040106-006_00	Birch Creek-tribs	14.8 Miles	3	Insufficient Data						
Uinta Basin	UT14040106-007_00	Sheep Creek	122.1 Miles	1	Fully Supporting						
Uinta Basin	UT14040106-008_01	Green River-1 Tribs-1	14.9 Miles	1	Fully Supporting						
Uinta Basin	UT14040106-008_02	Green River-1 Tribs-2	7.2 Miles	1	Fully Supporting						
Uinta Basin	UT14040106-008_03	Green River-1 Tribs-3	5.0 Miles	2	No Evidence of Impairment						
Uinta Basin	UT14040106-008_04	Green River-1 Tribs-4	0.0 Miles	1	Fully Supporting						
Uinta Basin	UT14040106-008_05	Green River-1 Tribs-5	0.0 Miles	1	Fully Supporting						
Uinta Basin	UT14040106-009_00	Birch Spring Draw	23.8 Miles	5	Not Supporting	Selenium	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Non-game Fish and Other)	2012	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2012	Low
Uinta Basin	UT14040106-010_00	Carter Creek	111.7 Miles	5	Not Supporting	Aluminum	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Uinta Basin	UT14040106-011_00	Eagle Creek	10.0 Miles	1	Fully Supporting						
Uinta Basin	UT14040106-012_01	Flaming Gorge Tributaries-1	0.0 Miles	3	Insufficient Data						
Uinta Basin	UT14040106-012_02	Flaming Gorge Tributaries-2	10.7 Miles	3	Insufficient Data						
Uinta Basin	UT14040106-012_03	Flaming Gorge Tributaries-3	0.0 Miles	3	Insufficient Data						
Uinta Basin	UT14040106-012_04	Flaming Gorge Tributaries-4	3.0 Miles	2	No Evidence of Impairment						
Uinta Basin	UT14040106-013_00	Spring Creek	5.1 Miles	3	Insufficient Data						
Uinta Basin	UT14040106-014_00	Cart Creek	17.7 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
						Aluminum	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Uinta Basin	UT14040106-015_00	Gorge Creek	8.4 Miles	2	No Evidence of Impairment						
Uinta Basin	UT14040106-016_00	Davenport Creek	5.8 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
Uinta Basin	UT14040106-017_00	Goslin Creek	4.9 Miles	1	Fully Supporting						
Uinta Basin	UT14040106-018_00	Red Creek	15.7 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Non-game Fish and Other)	2020	Low
Uinta Basin	UT14040106-019_00	Green River-1	29.6 Miles	1	Fully Supporting						
Uinta Basin	UT14040106-020_00	Jackson Creek	11.4 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
Uinta Basin	UT14040106-021_00	Pot Creek	25.1 Miles	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
						E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2020	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						Iron	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Uinta Basin	UT14040106-022_00	Sears Creek	7.9 Miles	1	Fully Supporting						
Uinta Basin	UT14040106-023_00	Pot Creek Lower	0.4 Miles	3	Insufficient Data						
Uinta Basin	UT14040106-024_00	Willow Creek - Daggett	16.5 Miles	1	Fully Supporting						
Uinta Basin	UT14040106-025_00	O-Wi-Yu-Kuts Creek	2.2 Miles	3	Insufficient Data						
Uinta Basin	UT14040106-026_00	Tolivers Creek	6.6 Miles	2	No Evidence of Impairment						
Uinta Basin	UT14040106-027_00	Beaver Creek	1.5 Miles	2	No Evidence of Impairment						

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: 305(b) and 303(d)

Assessment unit information						Associated parameter information					
Watershed Management Unit	Assessment Unit (AU) ID	AU Name	Water Size Unit	AU Category	Category Description	Water Quality Parameter	Parameter Status	303(d) Status	Use(s)	Cycle First Listed	303(d) Priority
Uinta Basin	UT14040107-001_00	Blacks Fork	180.3 Miles	5	Not Supporting	Aluminum	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Uinta Basin	UT14040107-002_00	Archie Creek	4.7 Miles	2	No Evidence of Impairment						
Uinta Basin	UT14040107-003_00	West Fork Smiths Fork	22.7 Miles	2	No Evidence of Impairment						
Uinta Basin	UT14040107-004_00	Gilbert Creek	7.6 Miles	2	No Evidence of Impairment						
Uinta Basin	UT14040107-005_00	East Fork Smiths Fork	61.5 Miles	5	Not Supporting	Aluminum	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						Zinc	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Uinta Basin	UT14040108-001_00	West Muddy Creek	7.2 Miles	3	Insufficient Data						
Uinta Basin	UT14050007-001_00	White River	70.8 Miles	1	Fully Supporting						
Uinta Basin	UT14050007-002_00	Bitter Creek Lower	0.0 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
						Boron	Not meeting criteria	TMDL Needed	Agricultural	2014	Low
						Selenium	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2014	Low
Uinta Basin	UT14050007-003_00	Evacuation Creek	0.4 Miles	5	Not Supporting	Boron	Not meeting criteria	TMDL Needed	Agricultural	2014	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2014	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2008	Low
Uinta Basin	UT14050007-004_00	Sweetwater Creek	4.2 Miles	2	No Evidence of Impairment						
Uinta Basin	UT14050007-005_00	Bitter Creek Upper	27.5 Miles	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2014	Low
Uinta Basin	UT14060001-001_01	Green River-2 Tribs-1	1.2 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Domestic Source, Recreation and Aesthetics (Frequent Primary Contact)	2014	Low
Uinta Basin	UT14060001-001_02	Green River-2 Tribs-2	0.5 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact), Domestic Source, Recreation and Aesthetics (Frequent Primary Contact)	2014	Low
Uinta Basin	UT14060001-001_03	Green River-2 Tribs-3	4.7 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Domestic Source, Recreation and Aesthetics (Frequent Primary Contact)	2014	Low
Uinta Basin	UT14060001-001_04	Green River-2 Tribs-4	7.5 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Domestic Source, Recreation and Aesthetics (Frequent Primary Contact)	2014	Low
Uinta Basin	UT14060001-002_00	Jones Hole Creek	6.0 Miles	1	Fully Supporting						
Uinta Basin	UT14060001-003_00	Diamond Gulch	32.6 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
						E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2020	Low
Uinta Basin	UT14060001-004_00	Green River-2	99.7 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Frequent Primary Contact)	2022	Low
						pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Warm Water), Domestic Source, Recreation and Aesthetics (Frequent Primary Contact)	2022	Low
						Selenium	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2014	Low
Uinta Basin	UT14060002-001_00	Ashley Creek Lower	7.8 Miles	5	Not Supporting	Selenium	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Warm Water)	1992	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	1992	Low
Uinta Basin	UT14060002-002_00	Middle Ashley Creek	18.2 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2020	Low
						Aluminum	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2014	Low
						Selenium	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2008	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2008	Low
Uinta Basin	UT14060002-003_00	Brush Creek	25.7 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2014	Low
						Selenium	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2004	Low
Uinta Basin	UT14060002-004_00	Little Brush Creek Lower	8.5 Miles	2	No Evidence of Impairment						
Uinta Basin	UT14060002-005_00	Little Brush Creek Upper	36.2 Miles	5	Not Supporting	Aluminum	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2014	Low
Uinta Basin	UT14060002-006_00	Big Brush Creek	38.3 Miles	5	Not Supporting	Aluminum	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Uinta Basin	UT14060002-007_00	Ashley Creek Upper	70.6 Miles	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact), Domestic Source	2022	Low
						Aluminum	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: 305(b) and 303(d)

Assessment unit information						Associated parameter information					
Watershed Management Unit	Assessment Unit (AU) ID	AU Name	Water Size Unit	AU Category	Category Description	Water Quality Parameter	Parameter Status	303(d) Status	Use(s)	Cycle First Listed	303(d) Priority
Uinta Basin	UT14060002-008_00	Dry Fork Creek Lower	6.7 Miles	2	No Evidence of Impairment						
Uinta Basin	UT14060002-009_00	Dry Fork Creek Upper	48.3 Miles	2	No Evidence of Impairment						
Uinta Basin	UT14060003-001_00	Duchesne River-1	17.2 Miles	5	Not Supporting but has Approved TMDL for some parameters	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2014	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Approved (33615)	Agricultural	1998	Low
Uinta Basin	UT14060003-002_00	Duchesne River-2	30.9 Miles	5	Not Supporting but has Approved TMDL for some parameters	Boron	Not meeting criteria	TMDL Needed	Agricultural	2016	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Approved (33616)	Agricultural	2016	Low
						E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2014	Low
Uinta Basin	UT14060003-003_00	Uinta River-1	6.0 Miles	4A	Approved TMDL	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Approved (4056)	Agricultural	2016	Low
Uinta Basin	UT14060003-004_00	Uinta River-2	7.2 Miles	4A	Approved TMDL	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Approved (4056)	Agricultural	1998	Low
Uinta Basin	UT14060003-005_00	Antelope Creek	34.1 Miles	5	Not Supporting	Arsenic	Not meeting criteria	TMDL Needed	Domestic Source	2014	Low
						Selenium	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						Boron	Not meeting criteria	TMDL Needed	Agricultural	2008	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	1998	Low
Uinta Basin	UT14060003-006_00	Duchesne River-3	43.4 Miles	2	No Evidence of Impairment						
Uinta Basin	UT14060003-007_00	Zimmerman Wash	0.8 Miles	5	Not Supporting	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2020	Low
Uinta Basin	UT14060003-008_00	Lake Fork-1	33.2 Miles	5	Not Supporting but has Approved TMDL for some parameters	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water), Aquatic Wildlife (Severely Habitat-Limited)	2020	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
						Aluminum	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Approved (33617)	Agricultural	2004	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2000	Low
Uinta Basin	UT14060003-009_00	Dry Gulch Creek	99.2 Miles	5	Not Supporting but has Approved TMDL for some parameters	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2014	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Approved (4058)	Agricultural	1998	Low
Uinta Basin	UT14060003-010_00	Uinta River-3	76.7 Miles	3	Insufficient Data						
Uinta Basin	UT14060003-011_00	Whiterocks River Lower	30.7 Miles	2	No Evidence of Impairment						
Uinta Basin	UT14060003-012_00	Deep Creek - Uinta	27.8 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Uinta Basin	UT14060003-013_00	Whiterocks River Upper	92.3 Miles	2	No Evidence of Impairment						
Uinta Basin	UT14060003-014_00	Pole Creek	35.8 Miles	1	Fully Supporting						
Uinta Basin	UT14060003-015_00	Lake Fork-2	34.9 Miles	1	Fully Supporting						
Uinta Basin	UT14060003-016_00	Rock Creek Lower	29.9 Miles	3	Insufficient Data						
Uinta Basin	UT14060003-017_00	Duchesne River-4	78.3 Miles	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
Uinta Basin	UT14060003-018_00	West Fork Duchesne	89.8 Miles	1	Fully Supporting						
Uinta Basin	UT14060003-019_00	North Fork Duchesne	64.6 Miles	1	Fully Supporting						
Uinta Basin	UT14060003-020_00	Rock Creek Upper	104.4 Miles	1	Fully Supporting						
Uinta Basin	UT14060003-021_00	Moon Lake Tributaries	149.5 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Uinta Basin	UT14060003-022_00	Lake Fork-3	29.9 Miles	3	Insufficient Data						
Uinta Basin	UT14060003-023_00	Yellowstone Upper	126.2 Miles	2	No Evidence of Impairment						
Uinta Basin	UT14060003-024_00	Uinta River-4	95.7 Miles	5	Not Supporting	Zinc	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Uinta Basin	UT14060004-001_00	Strawberry River-1	6.5 Miles	1	Fully Supporting						
Uinta Basin	UT14060004-002_00	Indian Canyon Creek	48.2 Miles	5	Not Supporting	Selenium	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						Arsenic	Not meeting criteria	TMDL Needed	Domestic Source	2008	Low
						Boron	Not meeting criteria	TMDL Needed	Agricultural	2008	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	1998	Low
Uinta Basin	UT14060004-003_01	Starvation Tributaries-1	0.0 Miles	2	No Evidence of Impairment						
Uinta Basin	UT14060004-003_02	Starvation Tributaries-2	0.0 Miles	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2020	Low
Uinta Basin	UT14060004-004_00	Stawberry River-2	22.4 Miles	5	Not Supporting	Arsenic	Not meeting criteria	TMDL Needed	Domestic Source	2020	Low
Uinta Basin	UT14060004-005_00	Avintaquin Creek	51.8 Miles	5	Not Supporting	Arsenic	Not meeting criteria	TMDL Needed	Domestic Source	2008	Low
Uinta Basin	UT14060004-006_00	Red Creek Lower	6.3 Miles	2	No Evidence of Impairment						

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: 305(b) and 303(d)

Assessment unit information						Associated parameter information					
Watershed Management Unit	Assessment Unit (AU) ID	AU Name	Water Size Unit	AU Category	Category Description	Water Quality Parameter	Parameter Status	303(d) Status	Use(s)	Cycle First Listed	303(d) Priority
Uinta Basin	UT14060004-007_00	Red Creek Middle	20.1 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
Uinta Basin	UT14060004-008_00	Red Creek Upper	20.7 Miles	3	Insufficient Data						
Uinta Basin	UT14060004-009_00	Currant Creek Lower	71.0 Miles	1	Fully Supporting						
Uinta Basin	UT14060004-010_00	Strawberry River-3	23.2 Miles	1	Fully Supporting						
Uinta Basin	UT14060004-011_00	Timber Canyon Creek	17.1 Miles	5	Not Supporting	Arsenic	Not meeting criteria	TMDL Needed	Domestic Source	2014	Low
Uinta Basin	UT14060004-012_00	Willow Creek - Wasatch	15.9 Miles	2	No Evidence of Impairment						
Uinta Basin	UT14060004-013_00	Strawberry-4	120.0 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact), Domestic Source	2014	Low
Uinta Basin	UT14060004-014_00	Strawberry River Upper	62.7 Miles	1	Fully Supporting						
Uinta Basin	UT14060004-015_00	Currant Creek Upper	74.1 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Uinta Basin	UT14060005-001_01	Green River-3 Tribs-1	2.6 Miles	3	Insufficient Data						
Uinta Basin	UT14060005-001_02	Green River-3 Tribs-2	0.0 Miles	3	Insufficient Data						
Uinta Basin	UT14060005-001_03	Green River-3 Tribs-3	0.1 Miles	3	Insufficient Data						
Uinta Basin	UT14060005-001_04	Green River-3 Tribs-4	35.5 Miles	3	Insufficient Data						
Uinta Basin	UT14060005-001_05	Green River-3 Tribs-5	23.4 Miles	3	Insufficient Data						
Uinta Basin	UT14060005-001_06	Green River-3 Tribs-6	25.1 Miles	3	Insufficient Data						
Uinta Basin	UT14060005-001_07	Green River-3 Tribs-7	0.0 Miles	3	Insufficient Data						
Uinta Basin	UT14060005-001_08	Green River-3 Tribs-8	53.4 Miles	3	Insufficient Data						
Uinta Basin	UT14060005-002_00	Pariette Draw Creek	59.1 Miles	5	Not Supporting but has Approved TMDL for some parameters	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water), Aquatic Wildlife (Waterfowl, Shorebirds, and Other)	2020	Low
						Boron	Not meeting criteria	TMDL Approved (39159)	Agricultural	1998	Low
						Selenium	Not meeting criteria	TMDL Approved (39159)	Aquatic Wildlife (Warm Water), Aquatic Wildlife (Waterfowl, Shorebirds, and Other)	1998	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Approved (39159)	Agricultural	1998	Low
Uinta Basin	UT14060005-003_00	Ninemile	156.7 Miles	5	Not Supporting but has Approved TMDL for some parameters	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
						Temperature	Not meeting criteria	TMDL Approved (68462)	Aquatic Wildlife (Cold Water)	1998	High
Uinta Basin	UT14060005-004_00	Range Creek Upper	6.4 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2016	Low
Uinta Basin	UT14060005-005_00	Range Creek Middle	26.4 Miles	2	No Evidence of Impairment						
Uinta Basin	UT14060005-006_00	Range Creek Lower	9.3 Miles	2	No Evidence of Impairment						
Uinta Basin	UT14060005-007_00	Florence Creek	33.6 Miles	3	Insufficient Data						
Uinta Basin	UT14060005-008_00	Rock Creek	28.1 Miles	3	Insufficient Data						
Uinta Basin	UT14060005-009_00	Green River-3	111.7 Miles	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Warm Water), Domestic Source, Recreation and Aesthetics (Frequent Primary Contact)	2020	Low
Uinta Basin	UT14060006-001_00	Willow Creek	74.6 Miles	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2020	Low
						Boron	Not meeting criteria	TMDL Needed	Agricultural	2014	Low
Uinta Basin	UT14060006-002_00	Willow Creek Upper	161.5 Miles	2	No Evidence of Impairment						
Uinta Basin	UT14060006-003_00	Hill Creek	105.3 Miles	3	Insufficient Data						
Uinta Basin	UT14060008-001_00	Green River-4	42.4 Miles	1	Fully Supporting						
Uinta Basin	UT14060008-002_00	Green River-5	98.7 Miles	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2022	Low
Uinta Basin	UT14060008-003_00	Green River-5 Tributaries	7.9 Miles	2	No Evidence of Impairment						
Uinta Basin	UT14060008-004_00	Floy Creek	27.2 Miles	2	No Evidence of Impairment						
Uinta Basin	UT14060008-005_00	Horse Canyon-Canyonlands	0.0 Miles	3	Insufficient Data						
Uinta Basin	UT14060008-006_00	Barrier Creek	1.0 Miles	3	Insufficient Data						
Uinta Basin	UT14060008-007_00	Ten Mile Canyon - Grand	3.5 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2014	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2014	Low
Upper Provo River	UT16020203-002_00	Provo River-2	4.0 Miles	5	Not Supporting	Nutrient/Eutrophication Biological Indicators	Not meeting criteria	4C assessment	Aquatic Wildlife (Cold Water)	2022	Low
Upper Provo River	UT16020203-003_00	Provo River-3	6.3 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: 305(b) and 303(d)

Assessment unit information						Associated parameter information					
Watershed Management Unit	Assessment Unit (AU) ID	AU Name	Water Size Unit	AU Category	Category Description	Water Quality Parameter	Parameter Status	303(d) Status	Use(s)	Cycle First Listed	303(d) Priority
Upper Provo River	UT16020203-004_00	Provo River-4	15.9 Miles	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact), Domestic Source	2022	Low
Upper Provo River	UT16020203-005_00	Provo River-5	13.1 Miles	5	Not Supporting	Aluminum	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2016	Low
Upper Provo River	UT16020203-006_01	Provo River-6-1	26.4 Miles	5	Not Supporting	Aluminum	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Upper Provo River	UT16020203-006_02	Provo River-6-2	39.7 Miles	5	Not Supporting	Aluminum	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						Zinc	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Upper Provo River	UT16020203-006_03	Provo River-6-3	40.9 Miles	5	Not Supporting	Copper	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
						pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact), Domestic Source	2020	Low
						Aluminum	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Upper Provo River	UT16020203-007_00	South Fork Provo River	10.7 Miles	1	Fully Supporting						
Upper Provo River	UT16020203-008_00	North Fork Provo River	8.0 Miles	2	No Evidence of Impairment						
Upper Provo River	UT16020203-009_00	Main Creek-1	7.4 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
						Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2016	Low
						E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact), Domestic Source	2010	Low
Upper Provo River	UT16020203-010_00	Main Creek-2	34.4 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact), Domestic Source	2016	Low
Upper Provo River	UT16020203-011_00	Daniels Creek-1	10.7 Miles	2	No Evidence of Impairment						
Upper Provo River	UT16020203-012_00	Daniels Creek-2	11.6 Miles	3	Insufficient Data						
Upper Provo River	UT16020203-013_00	Provo Deer Creek	20.5 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2008	Low
Upper Provo River	UT16020203-014_00	Snake Creek-1	4.9 Miles	5	Not Supporting	Chromium	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
						Arsenic	Not meeting criteria	TMDL Needed	Domestic Source	2006	High
Upper Provo River	UT16020203-015_00	Snake Creek-2	17.3 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact), Domestic Source	2020	Low
Upper Provo River	UT16020203-016_00	McHenry Creek	0.9 Miles	5	Not Supporting	Cadmium	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Upper Provo River	UT16020203-017_00	Little South Fork Provo	30.3 Miles	2	No Evidence of Impairment						
Upper Provo River	UT16020203-018_00	South Fork Provo	30.6 Miles	1	Fully Supporting						
Upper Provo River	UT16020203-019_00	Lake Creek-2	22.9 Miles	1	Fully Supporting						
Upper Provo River	UT16020203-020_00	Lost Creek and tributaries from confluence with Provo River	0.0 Miles	3	Insufficient Data						
Upper Provo River	UT16020203-021_00	Upper Falls Drainage	0.4 Miles	3	Insufficient Data						
Upper Provo River	UT16020203-022_00	Bridal Veil Falls	0.0 Miles	3	Insufficient Data						
Upper Provo River	UT16020203-023_00	Provo Lower Tributaries	0.0 Miles	3	Insufficient Data						
Upper Provo River	UT16020203-024_00	Rock Canyon	3.4 Miles	3	Insufficient Data						
Upper Provo River	UT16020203-025_00	Provo Canyon	0.0 Miles	3	Insufficient Data						
Upper Provo River	UT16020203-026_00	Heber Valley	46.9 Miles	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact), Domestic Source	2022	Low
						E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact), Domestic Source	2020	Low
Upper Provo River	UT16020203-027_00	Spring Creek-Heber	10.1 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact), Domestic Source	2016	High
Upper Provo River	UT16020203-028_01	Provo Tributaries-Heber-1	4.6 Miles	3	Insufficient Data						
Upper Provo River	UT16020203-028_02	Provo Tributaries-Heber-2	10.9 Miles	3	Insufficient Data						
Upper Sevier River	UT16030001-001_00	Piute West	11.6 Miles	3	Insufficient Data						
Upper Sevier River	UT16030001-002_00	Sevier River-4	17.9 Miles	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: 305(b) and 303(d)

Assessment unit information						Associated parameter information					
Watershed Management Unit	Assessment Unit (AU) ID	AU Name	Water Size Unit	AU Category	Category Description	Water Quality Parameter	Parameter Status	303(d) Status	Use(s)	Cycle First Listed	303(d) Priority
Upper Sevier River	UT16030001-004_00	Bear Creek	8.2 Miles	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact)	2022	Low
						E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2020	Low
						Copper	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Cold Water)	2014	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Upper Sevier River	UT16030001-005_00	Sevier River-3	22.1 Miles	5	Not Supporting but has Approved TMDL for some parameters	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2022	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (11126, 30892)	Aquatic Wildlife (Cold Water)	1998	Low
						Sediment	Not meeting criteria	TMDL Approved (11126)	Aquatic Wildlife (Cold Water)	1998	Low
Upper Sevier River	UT16030001-006_00	Panguitch Creek-2	39.2 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2020	Low
Upper Sevier River	UT16030001-007_00	Sevier River-2	52.7 Miles	5	Not Supporting but has Approved TMDL for some parameters	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
						Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (11127)	Aquatic Wildlife (Cold Water)	2002	Low
						Sediment	Not meeting criteria	TMDL Approved (11127)	Aquatic Wildlife (Cold Water)	2002	Low
Upper Sevier River	UT16030001-008_00	Panguitch Creek-1	25.3 Miles	1	Fully Supporting						
Upper Sevier River	UT16030001-009_00	Mammoth Creek Lower	26.0 Miles	4A	Approved TMDL	Phosphorus, Total	Not meeting criteria	TMDL Approved (11129)	Aquatic Wildlife (Cold Water)	2004	Low
Upper Sevier River	UT16030001-010_00	Duck Creek	4.4 Miles	1	Fully Supporting						
Upper Sevier River	UT16030001-011_00	Asay Creek	47.4 Miles	1	Fully Supporting						
Upper Sevier River	UT16030001-012_00	Sevier River-1	34.6 Miles	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2008	Low
Upper Sevier River	UT16030001-013_00	Piute	3.5 Miles	3	Insufficient Data						
Upper Sevier River	UT16030001-014_00	Threemile Creek	25.1 Miles	5	Not Supporting	Nutrient/Eutrophication Biological Indicators	Threatened	Further evaluation needed	Aquatic Wildlife (Cold Water)	2022	Low
						pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact)	2022	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2008	Low
Upper Sevier River	UT16030001-015_00	Mammoth Creek Upper	28.3 Miles	3	Insufficient Data						
Upper Sevier River	UT16030002-001_00	Otter Creek-4	23.6 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2016	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2008	Low
Upper Sevier River	UT16030002-002_00	Otter Creek-1	96.4 Miles	5	Not Supporting	Nutrient/Eutrophication Biological Indicators	Not meeting criteria	Alternative restoration plan	Aquatic Wildlife (Cold Water)	2022	Low
						pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact)	2022	Low
						Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2008	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2008	Low
Upper Sevier River	UT16030002-003_00	Otter Creek-3	29.8 Miles	5	Not Supporting but has Approved TMDL for some parameters	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
						E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2022	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (900)	Aquatic Wildlife (Cold Water)	1998	Low
						Sediment	Not meeting criteria	TMDL Approved (900)	Aquatic Wildlife (Cold Water)	1998	Low
Upper Sevier River	UT16030002-004_00	Otter Creek-2	23.1 Miles	4A	Approved TMDL	Dissolved Oxygen	Not meeting criteria	TMDL Approved (900)	Aquatic Wildlife (Cold Water)	2012	Low
						Habitat Alterations	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	1998	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (900)	Aquatic Wildlife (Cold Water)	1998	Low
						Sediment	Not meeting criteria	TMDL Approved (900)	Aquatic Wildlife (Cold Water)	1998	Low
Upper Sevier River	UT16030002-005_00	East Fork Sevier River-4	27.3 Miles	5	Not Supporting but has Approved TMDL for some parameters	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2006	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (30892)	Aquatic Wildlife (Cold Water)	2000	Low

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: 305(b) and 303(d)

Assessment unit information						Associated parameter information					
Watershed Management Unit	Assessment Unit (AU) ID	AU Name	Water Size Unit	AU Category	Category Description	Water Quality Parameter	Parameter Status	303(d) Status	Use(s)	Cycle First Listed	303(d) Priority
Upper Sevier River	UT16030002-006_00	East Fork Sevier-3	24.5 Miles	1	Fully Supporting						
Upper Sevier River	UT16030002-007_00	Deer Creek	18.7 Miles	1	Fully Supporting						
Upper Sevier River	UT16030002-008_00	Antimony Creek	28.1 Miles	1	Fully Supporting						
Upper Sevier River	UT16030002-009_00	East Fork Sevier-2	137.3 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Upper Sevier River	UT16030002-010_00	East Fork Sevier-1	41.8 Miles	1	Fully Supporting						
Utah Lake-Lower Provo River	UT16020201-001_00	American Fork River-1	7.1 Miles	1	Fully Supporting						
Utah Lake-Lower Provo River	UT16020201-003_00	Currant Creek	4.2 Miles	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2002	Low
Utah Lake-Lower Provo River	UT16020201-004_00	Salt Creek-1	2.3 Miles	3	Insufficient Data						
Utah Lake-Lower Provo River	UT16020201-005_00	Salt Creek-2	22.6 Miles	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact)	2014	Low
Utah Lake-Lower Provo River	UT16020201-006_00	Hop Creek	16.3 Miles	1	Fully Supporting						
Utah Lake-Lower Provo River	UT16020201-007_00	Summit Creek-Santaquin	8.0 Miles	2	No Evidence of Impairment						
Utah Lake-Lower Provo River	UT16020201-009_00	Spring Creek-Lehi	4.9 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2022	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
Utah Lake-Lower Provo River	UT16020201-010_00	Powell Slough	0.0 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Waterfowl, Shorebirds, and Other)	2014	Low
Utah Lake-Lower Provo River	UT16020201-011_00	Lindon Hollow	0.8 Miles	3	Insufficient Data						
Utah Lake-Lower Provo River	UT16020201-012_00	Mill Race Creek-1	0.5 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2020	Low
						Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2016	Low
Utah Lake-Lower Provo River	UT16020201-013_00	Ironton Canal Lower	0.1 Miles	2	No Evidence of Impairment						
Utah Lake-Lower Provo River	UT16020201-014_00	Currant Creek-Juab Valley	21.3 Miles	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2016	Low
Utah Lake-Lower Provo River	UT16020201-016_00	American Fork	0.1 Miles	1	Fully Supporting						
Utah Lake-Lower Provo River	UT16020201-017_00	Currant Creek-Goshen	19.4 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2022	Low
Utah Lake-Lower Provo River	UT16020202-001_00	Spanish Fork River-1	16.6 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2020	Low
Utah Lake-Lower Provo River	UT16020202-002_00	Spanish Fork River-2	6.6 Miles	2	No Evidence of Impairment						
Utah Lake-Lower Provo River	UT16020202-003_00	Hobble Creek-1	10.5 Miles	1	Fully Supporting						
Utah Lake-Lower Provo River	UT16020202-004_00	Hobble Creek-2	25.4 Miles	2	No Evidence of Impairment						
Utah Lake-Lower Provo River	UT16020202-005_00	Hobble Creek-3	30.7 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2022	Low
Utah Lake-Lower Provo River	UT16020202-006_00	Diamond Fork-1	26.6 Miles	1	Fully Supporting						
Utah Lake-Lower Provo River	UT16020202-007_00	Diamond Fork-2	4.3 Miles	1	Fully Supporting						
Utah Lake-Lower Provo River	UT16020202-008_00	Diamond Fork-3	27.2 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2022	Low
Utah Lake-Lower Provo River	UT16020202-009_00	Sixth Water Creek	20.4 Miles	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact)	2022	Low
Utah Lake-Lower Provo River	UT16020202-010_00	Third Water Creek	24.7 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2022	Low
Utah Lake-Lower Provo River	UT16020202-011_00	Cottonwood Creek	11.4 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2022	Low
Utah Lake-Lower Provo River	UT16020202-012_00	Soldier Creek-1	21.0 Miles	5	Not Supporting but has Approved TMDL for some parameters	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (31023)	Aquatic Wildlife (Cold Water)	1998	Low
						Sediment	Not meeting criteria	TMDL Approved (31023)	Aquatic Wildlife (Cold Water)	1998	Low
Utah Lake-Lower Provo River	UT16020202-013_00	Soldier Creek-2	6.9 Miles	2	No Evidence of Impairment						
Utah Lake-Lower Provo River	UT16020202-014_00	Sheep Creek	5.5 Miles	3	Insufficient Data						
Utah Lake-Lower Provo River	UT16020202-015_00	Tie Fork	14.9 Miles	2	No Evidence of Impairment						
Utah Lake-Lower Provo River	UT16020202-016_00	Lake Fork	29.6 Miles	2	No Evidence of Impairment						
Utah Lake-Lower Provo River	UT16020202-017_00	Dairy Fork	5.9 Miles	2	No Evidence of Impairment						

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: 305(b) and 303(d)

Assessment unit information						Associated parameter information					
Watershed Management Unit	Assessment Unit (AU) ID	AU Name	Water Size Unit	AU Category	Category Description	Water Quality Parameter	Parameter Status	303(d) Status	Use(s)	Cycle First Listed	303(d) Priority
Utah Lake-Lower Provo River	UT16020202-018_00	Mill Fork	10.5 Miles	3	Insufficient Data						
Utah Lake-Lower Provo River	UT16020202-019_00	Clear Creek-Tucker	13.6 Miles	2	No Evidence of Impairment						
Utah Lake-Lower Provo River	UT16020202-020_00	Starvation Creek	19.0 Miles	2	No Evidence of Impairment						
Utah Lake-Lower Provo River	UT16020202-021_00	Indian Creek	3.1 Miles	3	Insufficient Data						
Utah Lake-Lower Provo River	UT16020202-022_00	Thistle Creek-1	21.2 Miles	4A	Approved TMDL	Sediment	Not meeting criteria	TMDL Approved (33611)	Aquatic Wildlife (Cold Water)	2008	Low
Utah Lake-Lower Provo River	UT16020202-023_00	Thistle Creek-2	20.6 Miles	2	No Evidence of Impairment						
Utah Lake-Lower Provo River	UT16020202-024_00	Bennie Creek	4.8 Miles	3	Insufficient Data						
Utah Lake-Lower Provo River	UT16020202-025_00	Nebo Creek	40.2 Miles	2	No Evidence of Impairment						
Utah Lake-Lower Provo River	UT16020202-026_00	Spring Creek-Payson	13.3 Miles	3	Insufficient Data						
Utah Lake-Lower Provo River	UT16020202-027_00	Beer Creek	16.4 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2020	Low
						Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Non-game Fish and Other)	2014	Low
Utah Lake-Lower Provo River	UT16020202-028_00	Peteetneet Creek	22.0 Miles	2	No Evidence of Impairment						
Utah Lake-Lower Provo River	UT16020202-030_00	Benjamin Slough	6.2 Miles	5	Not Supporting	Ammonia, Total	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2016	Low
Utah Lake-Lower Provo River	UT16020202-031_00	Moark	0.0 Miles	3	Insufficient Data						
Utah Lake-Lower Provo River	UT16020202-032_00	Thistle Creek-5	0.0 Miles	3	Insufficient Data						
Utah Lake-Lower Provo River	UT16020202-033_00	Soldier Creek-3	0.0 Miles	3	Insufficient Data						
Utah Lake-Lower Provo River	UT16020202-034_00	Soldier Creek-4	2.2 Miles	3	Insufficient Data						
Utah Lake-Lower Provo River	UT16020202-035_00	Dry Creek-1	3.2 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2020	Low
Utah Lake-Lower Provo River	UT16020202-036_00	Dry Creek-2	8.7 Miles	3	Insufficient Data						
Utah Lake-Lower Provo River	UT16020202-037_00	Thistle Creek-3	10.5 Miles	3	Insufficient Data						
Utah Lake-Lower Provo River	UT16020202-038_00	Thistle Creek-4	1.2 Miles	3	Insufficient Data						
Utah Lake-Lower Provo River	UT16020202-039_00	Soldier Creek-5	0.0 Miles	3	Insufficient Data						
Utah Lake-Lower Provo River	UT16020202-042_00	Spring Creek-Springville	3.0 Miles	1	Fully Supporting						
Utah Lake-Lower Provo River	UT16020203-001_00	Provo River-1	11.1 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
						Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2008	Low
Weber River	UT16020101-001_00	Lost Creek1-Croydon	26.1 Miles	1	Fully Supporting						
Weber River	UT16020101-002_00	Francis Creek	8.1 Miles	3	Insufficient Data						
Weber River	UT16020101-003_00	Lost Creek2-Croydon	57.0 Miles	3	Insufficient Data						
Weber River	UT16020101-004_00	Weber River-7	11.6 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2008	Low
						Phosphorus, Total	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2008	Low
Weber River	UT16020101-005_00	Main Canyon	12.7 Miles	2	No Evidence of Impairment						
Weber River	UT16020101-006_00	Weber Upper Tributaries-1	1.5 Miles	3	Insufficient Data						
Weber River	UT16020101-007_00	Echo Creek	44.4 Miles	5	Not Supporting but has Approved TMDL for some parameters	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2014	Low
						Sediment	Not meeting criteria	TMDL Approved (30893)	Aquatic Wildlife (Cold Water)	1998	Low
Weber River	UT16020101-008_00	Carruth Creek	7.9 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact), Domestic Source	2020	Low
Weber River	UT16020101-009_00	Grass Creek	10.2 Miles	3	Insufficient Data						
Weber River	UT16020101-010_00	Chalk Creek1-Coalville	8.2 Miles	1	Fully Supporting						
Weber River	UT16020101-011_00	South Fork Chalk Creek	53.6 Miles	5	Not Supporting but has Approved TMDL for some parameters	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact), Domestic Source	2020	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (239)	Aquatic Wildlife (Cold Water)	1998	Low
						Sediment	Not meeting criteria	TMDL Approved (239)	Aquatic Wildlife (Cold Water)	1998	Low
Weber River	UT16020101-012_00	Chalk Creek-2	5.6 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact), Domestic Source	2020	Low
Weber River	UT16020101-013_00	Huff Creek	20.5 Miles	4A	Approved TMDL	Phosphorus, Total	Not meeting criteria	TMDL Approved (239)	Aquatic Wildlife (Cold Water)	1998	Low
						Sediment	Not meeting criteria	TMDL Approved (239)	Aquatic Wildlife (Cold Water)	1998	Low

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: 305(b) and 303(d)

Assessment unit information						Associated parameter information					
Watershed Management Unit	Assessment Unit (AU) ID	AU Name	Water Size Unit	AU Category	Category Description	Water Quality Parameter	Parameter Status	303(d) Status	Use(s)	Cycle First Listed	303(d) Priority
Weber River	UT16020101-014_00	Chalk Creek3-Coalville	17.2 Miles	4A	Approved TMDL	Habitat Alterations	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	1998	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (239)	Aquatic Wildlife (Cold Water)	1998	Low
						Sediment	Not meeting criteria	TMDL Approved (239)	Aquatic Wildlife (Cold Water)	1998	Low
Weber River	UT16020101-015_00	East Fork Chalk Creek	35.2 Miles	1	Fully Supporting						
Weber River	UT16020101-016_00	Chalk Creek-4	54.8 Miles	5	Not Supporting but has Approved TMDL for some parameters	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (239)	Aquatic Wildlife (Cold Water)	1998	Low
						Sediment	Not meeting criteria	TMDL Approved (239)	Aquatic Wildlife (Cold Water)	1998	Low
Weber River	UT16020101-017_00	Weber River-8	11.3 Miles	1	Fully Supporting						
Weber River	UT16020101-018_00	Weber Upper Tributaries-2	6.1 Miles	3	Insufficient Data						
Weber River	UT16020101-019_00	Weber Upper Tributaries-3	23.2 Miles	1	Fully Supporting						
Weber River	UT16020101-020_01	Silver Creek-1	13.2 Miles	5	Not Supporting but has Approved TMDL for some parameters	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact), Domestic Source	2020	Low
						Nitrate	Not meeting criteria	TMDL Needed	Domestic Source	2014	Low
						Nitrate/Nitrite (Nitrite + Nitrate As N)	Not meeting criteria	TMDL Needed	Domestic Source	2014	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2010	Low
						Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2008	Low
						Arsenic	Not meeting criteria	TMDL Needed	Domestic Source	2006	Low
						Cadmium	Not meeting criteria	TMDL Approved (11152)	Agricultural, Aquatic Wildlife (Cold Water), Domestic Source	1998	Low
						Zinc	Not meeting criteria	TMDL Approved (11152)	Aquatic Wildlife (Cold Water)	1998	Low
Weber River	UT16020101-020_02	Silver Creek-2	26.2 Miles	5	Not Supporting but has Approved TMDL for some parameters	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact), Domestic Source	2020	Low
						Nitrate	Not meeting criteria	TMDL Needed	Domestic Source	2014	Low
						Nitrate/Nitrite (Nitrite + Nitrate As N)	Not meeting criteria	TMDL Needed	Domestic Source	2014	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2010	Low
						Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2008	Low
						Arsenic	Not meeting criteria	TMDL Needed	Domestic Source	2006	Low
						Cadmium	Not meeting criteria	TMDL Approved (11152)	Agricultural, Aquatic Wildlife (Cold Water), Domestic Source	1998	Low
						Zinc	Not meeting criteria	TMDL Approved (11152)	Aquatic Wildlife (Cold Water)	1998	Low
Weber River	UT16020101-021_00	Weber Upper Tributaries-4	10.1 Miles	2	No Evidence of Impairment						
Weber River	UT16020101-022_00	Fort Creek	11.1 Miles	1	Fully Supporting						
Weber River	UT16020101-023_00	Weber River-9	25.5 Miles	1	Fully Supporting						
Weber River	UT16020101-024_00	Weber River-10	50.5 Miles	1	Fully Supporting						
Weber River	UT16020101-025_00	Weber River-11	39.1 Miles	1	Fully Supporting						
Weber River	UT16020101-026_00	Smith Morehouse River-1	9.0 Miles	1	Fully Supporting						
Weber River	UT16020101-027_00	Smith Morehouse River-2	13.9 Miles	3	Insufficient Data						
Weber River	UT16020101-028_00	Weber River-12	27.7 Miles	2	No Evidence of Impairment						
Weber River	UT16020101-029_00	Beaver Creek-1	15.9 Miles	3	Insufficient Data						
Weber River	UT16020101-030_00	Beaver Creek2-Kamas	22.5 Miles	5	Not Supporting	Aluminum	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
Weber River	UT16020101-031_00	Sawmill Creek	2.8 Miles	1	Fully Supporting						
Weber River	UT16020102-001_00	Weber River-1	108.7 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Waterfowl, Shorebirds, and Other), Aquatic Wildlife (Non-game Fish and Other)	2008	Low
Weber River	UT16020102-002_00	Weber River-3	19.4 Miles	1	Fully Supporting						
Weber River	UT16020102-003_00	Four Mile Creek	2.7 Miles	2	No Evidence of Impairment						
Weber River	UT16020102-004_00	Burch Creek-2	4.1 Miles	3	Insufficient Data						
Weber River	UT16020102-005_00	Ogden River-1	10.0 Miles	1	Fully Supporting						
Weber River	UT16020102-006_00	North Fork Ogden River	50.0 Miles	2	No Evidence of Impairment						
Weber River	UT16020102-007_00	Weber River-2	0.5 Miles	2	No Evidence of Impairment						

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: 305(b) and 303(d)

Assessment unit information						Associated parameter information					
Watershed Management Unit	Assessment Unit (AU) ID	AU Name	Water Size Unit	AU Category	Category Description	Water Quality Parameter	Parameter Status	303(d) Status	Use(s)	Cycle First Listed	303(d) Priority
Weber River	UT16020102-008_00	Wheeler Creek	13.9 Miles	1	Fully Supporting						
Weber River	UT16020102-009_00	Middle Fork Ogden River	30.6 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Weber River	UT16020102-010_00	South Fork Ogden River-1	14.7 Miles	5	Not Supporting	Nutrient/Eutrophication Biological Indicators	Not meeting criteria	4C assessment	Aquatic Wildlife (Cold Water)	2022	Low
Weber River	UT16020102-011_00	Beaver Creek-Weber	20.0 Miles	1	Fully Supporting						
Weber River	UT16020102-012_00	South Fork Ogden River	38.1 Miles	1	Fully Supporting						
Weber River	UT16020102-013_00	Strong Canyons Creek	1.4 Miles	3	Insufficient Data						
Weber River	UT16020102-014_00	Burch Creek-1	3.2 Miles	3	Insufficient Data						
Weber River	UT16020102-015_00	Spring Creek	2.4 Miles	3	Insufficient Data						
Weber River	UT16020102-016_00	Weber Lower Tributaries-2	0.0 Miles	3	Insufficient Data						
Weber River	UT16020102-017_01	Weber Lower Tributaries-1-1	3.1 Miles	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
Weber River	UT16020102-017_02	Weber Lower Tributaries-1-2	38.9 Miles	3	Insufficient Data						
Weber River	UT16020102-018_00	Cottonwood Creek	6.5 Miles	3	Insufficient Data						
Weber River	UT16020102-019_00	Weber Lower Tributaries-4	3.6 Miles	3	Insufficient Data						
Weber River	UT16020102-020_00	Weber River-4	10.1 Miles	1	Fully Supporting						
Weber River	UT16020102-021_00	Weber Lower Tributaries-3	24.6 Miles	3	Insufficient Data						
Weber River	UT16020102-022_00	Weber River-6	12.6 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2008	Low
Weber River	UT16020102-023_00	Hardscrabble Creek	27.8 Miles	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2012	Low
Weber River	UT16020102-024_00	East Canyon Creek-1	25.5 Miles	1	Fully Supporting						
Weber River	UT16020102-025_00	East Canyon Creek-3	5.2 Miles	3	Insufficient Data						
Weber River	UT16020102-026_01	East Canyon Creek-2	36.4 Miles	5	Not Supporting but has Approved TMDL for some parameters	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2014	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (399)	Aquatic Wildlife (Cold Water)	1992	Low
Weber River	UT16020102-026_02	Murnin Creek	7.4 Miles	5	Not Supporting but has Approved TMDL for some parameters	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2014	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (399)	Aquatic Wildlife (Cold Water)	1992	Low
Weber River	UT16020102-026_03	Toll Canyon	0.1 Miles	5	Not Supporting but has Approved TMDL for some parameters	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2014	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (399)	Aquatic Wildlife (Cold Water)	1992	Low
Weber River	UT16020102-027_00	Kimball Creek	13.7 Miles	5	Not Supporting	Arsenic	Not meeting criteria	TMDL Needed	Domestic Source	2014	Low
Weber River	UT16020102-028_00	Weber Lower Tributaries-7	0.1 Miles	3	Insufficient Data						
Weber River	UT16020102-029_00	Weber Lower Tributaries-8	0.0 Miles	3	Insufficient Data						
Weber River	UT16020102-030_00	North Fork Kays Creek	2.2 Miles	2	No Evidence of Impairment						
Weber River	UT16020102-031_00	Kays Creek	7.7 Miles	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Warm Water), Recreation and Aesthetics (Infrequent Primary Contact)	2022	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2022	Low
						Copper	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2016	Low
						E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2014	Low
Weber River	UT16020102-032_01	South Fork Kays Creek	2.1 Miles	5	Not Supporting	Copper	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Weber River	UT16020102-032_02	Middle Fork Kays Creek	0.0 Miles	5	Not Supporting	Copper	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Weber River	UT16020102-033_00	Snow Creek	0.0 Miles	5	Not Supporting	Copper	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Non-game Fish and Other)	2022	Low
						pH	Not meeting criteria	TMDL Needed	Agricultural, Recreation and Aesthetics (Infrequent Primary Contact), Aquatic Wildlife (Non-game Fish and Other)	2022	Low
						E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2020	Low
Weber River	UT16020102-034_00	Holmes Creek-2	5.9 Miles	2	No Evidence of Impairment						
Weber River	UT16020102-035_00	Holmes Creek-1	10.0 Miles	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Warm Water), Recreation and Aesthetics (Infrequent Primary Contact)	2022	Low
						Copper	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2014	Low
						E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2014	Low

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: 305(b) and 303(d)

Assessment unit information						Associated parameter information					
Watershed Management Unit	Assessment Unit (AU) ID	AU Name	Water Size Unit	AU Category	Category Description	Water Quality Parameter	Parameter Status	303(d) Status	Use(s)	Cycle First Listed	303(d) Priority
Weber River	UT16020102-036_00	Baer Creek-3	2.8 Miles	5	Not Supporting	Copper	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
						pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact), Domestic Source	2022	Low
Weber River	UT16020102-037_00	Shepard Creek	0.0 Miles	3	Insufficient Data						
Weber River	UT16020102-038_00	Farmington Creek-2	20.1 Miles	5	Not Supporting	Aluminum	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2016	Low
						Copper	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Weber River	UT16020102-039_00	Farmington Creek-1	0.2 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2022	Low
						Aluminum	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2020	Low
						pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Warm Water), Recreation and Aesthetics (Infrequent Primary Contact)	2020	Low
						Copper	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2014	Low
						E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2014	Low
Weber River	UT16020102-040_00	Steed Creek	1.9 Miles	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact), Domestic Source	2022	Low
Weber River	UT16020102-041_00	Davis Creek	2.3 Miles	5	Not Supporting	Copper	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
Weber River	UT16020102-042_00	Ricks Creek	3.4 Miles	5	Not Supporting	Copper	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
Weber River	UT16020102-043_00	Barnard Creek	1.9 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2016	Low
						Copper	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Weber River	UT16020102-044_01	Parrish Creek	3.9 Miles	1	Fully Supporting						
Weber River	UT16020102-044_02	Centerville Canyon	5.4 Miles	5	Not Supporting	Copper	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Weber River	UT16020102-045_00	Stone Creek-2	5.1 Miles	2	No Evidence of Impairment						
Weber River	UT16020102-046_00	Stone Creek-1	0.1 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2016	Low
						pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact)	2016	Low
						Copper	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Weber River	UT16020102-047_00	Barton Creek	3.6 Miles	1	Fully Supporting						
Weber River	UT16020102-048_00	Weber River-5	1.5 Miles	1	Fully Supporting						
Weber River	UT16020102-049_00	Mill Creek2-Davis	6.6 Miles	5	Not Supporting	Copper	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Weber River	UT16020102-050_00	Mill Creek1-Davis	0.2 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2020	Low
						Copper	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2014	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2014	Low
Weber River	UT16020102-051_00	Baer Creek-2	2.3 Miles	3	Insufficient Data						
Weber River	UT16020102-052_00	Rudd Creek	1.1 Miles	5	Not Supporting	Copper	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
						pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact)	2022	Low
Weber River	UT16020102-053_00	Baer Creek-1	1.2 Miles	5	Not Supporting	Copper	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Non-game Fish and Other)	2022	Low
						E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2020	Low
Weber River	UT16020102-054_00	Weber Lower Tributaries-6	1.1 Miles	3	Insufficient Data						
Weber River	UT16020102-055_00	Weber Lower Tributaries-5	27.0 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact), Domestic Source	2020	Low
Weber River	UT16020102-056_00	Corbett Creek	1.8 Miles	3	Insufficient Data						
Weber River	UT16020102-057_00	Unknown	2.4 Miles	3	Insufficient Data						
West Desert	UT16020301-001_00	Lake Creek-Millard Co	19.5 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water), Aquatic Wildlife (Cold Water)	2020	Low
West Desert	UT16020301-002_00	Hamlin Valley Wash	3.3 Miles	2	No Evidence of Impairment						

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: 305(b) and 303(d)

Assessment unit information						Associated parameter information					
Watershed Management Unit	Assessment Unit (AU) ID	AU Name	Water Size Unit	AU Category	Category Description	Water Quality Parameter	Parameter Status	303(d) Status	Use(s)	Cycle First Listed	303(d) Priority
West Desert	UT16020304-001_00	Vernon Creek	13.5 Miles	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact)	2014	Low
West Desert	UT16020304-002_00	Faust Creek	13.6 Miles	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2016	Low
West Desert	UT16020304-003_00	North Willow Creek	4.2 Miles	3	Insufficient Data						
West Desert	UT16020304-004_00	Ophir Creek	3.8 Miles	3	Insufficient Data						
West Desert	UT16020304-005_00	Soldier Creek	6.6 Miles	3	Insufficient Data						
West Desert	UT16020304-006_00	Settlement Canyon Creek	1.1 Miles	3	Insufficient Data						
West Desert	UT16020304-007_00	Middle Canyon	4.6 Miles	3	Insufficient Data						
West Desert	UT16020304-008_00	South Willow Creek	3.5 Miles	3	Insufficient Data						
West Desert	UT16020304-009_00	Clover Creek	3.5 Miles	3	Insufficient Data						
West Desert	UT16020306-001_00	Trout Creek	14.4 Miles	2	No Evidence of Impairment						
West Desert	UT16020306-002_00	Granite Creek	13.8 Miles	2	No Evidence of Impairment						
West Desert	UT16020306-003_00	Thomas Creek	11.7 Miles	2	No Evidence of Impairment						
West Desert	UT16020306-004_00	Basin Creek	7.1 Miles	3	Insufficient Data						
West Desert	UT16020306-005_00	Deep Creek - 1 WD/C	53.1 Miles	3	Insufficient Data						
West Desert	UT16020308-001_00	Donner Creek	1.3 Miles	3	Insufficient Data						
West Desert	UT16020308-002_00	Bettridge Creek	2.4 Miles	3	Insufficient Data						
West Desert	UT16020308-003_00	Red Butte Creek	12.3 Miles	2	No Evidence of Impairment						
West Desert	UT16020308-004_00	Pine Creek	15.7 Miles	3	Insufficient Data						
West Desert	UT16020308-005_00	Warm Creek	3.2 Miles	2	No Evidence of Impairment						
West Desert	UT16020308-006_00	Straight Fork Creek	4.5 Miles	2	No Evidence of Impairment						
West Desert	UT16020308-007_00	Grouse Creek	38.9 Miles	2	No Evidence of Impairment						
West Desert	UT16020308-008_00	Birch Creek	9.5 Miles	3	Insufficient Data						
West Desert	UT16020308-009_00	Cottonwood Creek	5.0 Miles	3	Insufficient Data						
West Desert	UT16020308-010_00	Muddy Creek	2.7 Miles	3	Insufficient Data						
West Desert	UT16020309-001_00	Deep Creek	8.8 Miles	3	Insufficient Data						
West Desert	UT16020309-002_00	Blue Creek	7.0 Miles	5	Not Supporting	Boron	Not meeting criteria	TMDL Needed	Agricultural	2020	Low
						E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact)	2020	Low
						pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Waterfowl, Shorebirds, and Other), Recreation and Aesthetics (Infrequent Primary Contact)	2012	Low
						Selenium	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Waterfowl, Shorebirds, and Other)	2012	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2012	Low
West Desert	UT16030005-001_00	Judd Creek	3.8 Miles	3	Insufficient Data						
West Desert	UT17040210-001_00	Raft River	24.3 Miles	2	No Evidence of Impairment						
West Desert	UT17040210-002_00	Junction Creek	9.7 Miles	3	Insufficient Data						
West Desert	UT17040210-003_00	South Junction Creek	52.5 Miles	3	Insufficient Data						
West Desert	UT17040210-004_00	Johnson Creek - WD/C	23.3 Miles	3	Insufficient Data						
West Desert	UT17040210-005_00	Holt Creek	0.4 Miles	3	Insufficient Data						
West Desert	UT17040210-006_00	Clear Creek-Sawtooth NF	19.3 Miles	3	Insufficient Data						
West Desert	UT17040211-001_01	Goose Creek-1	8.2 Miles	3	Insufficient Data						
West Desert	UT17040211-001_02	Goose Creek-2	0.0 Miles	3	Insufficient Data						
West Desert	UT17040211-002_00	Pole Creek	18.9 Miles	2	No Evidence of Impairment						
West Desert	UT17040211-003_00	Birch Creek - WD/C	5.4 Miles	2	No Evidence of Impairment						
Western Colorado River	UT14060007-001_00	White River-Colton	41.7 Miles	5	Threatened	Nutrient/Eutrophication Biological Indicators	Threatened	Alternative restoration plan	Aquatic Wildlife (Cold Water)	2022	Low
Western Colorado River	UT14060007-002_00	Scofield Tributaries	98.5 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2016	Low
Western Colorado River	UT14060007-003_00	Price River-1	82.3 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Western Colorado River	UT14060007-004_00	Willow Creek - Carbon	48.3 Miles	3	Insufficient Data						
Western Colorado River	UT14060007-005_00	Price River-2	9.5 Miles	1	Fully Supporting						
Western Colorado River	UT14060007-006_00	Gordon Creek	57.6 Miles	5	Not Supporting but has Approved TMDL for some parameters	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Non-game Fish and Other)	2020	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Approved (11130)	Agricultural	2014	Low

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: 305(b) and 303(d)

Assessment unit information						Associated parameter information					
Watershed Management Unit	Assessment Unit (AU) ID	AU Name	Water Size Unit	AU Category	Category Description	Water Quality Parameter	Parameter Status	303(d) Status	Use(s)	Cycle First Listed	303(d) Priority
Western Colorado River	UT14060007-007_00	Price River-3	18.0 Miles	5	Not Supporting but has Approved TMDL for some parameters	Ammonia, Total	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Non-game Fish and Other)	2014	Low
						Boron	Not meeting criteria	TMDL Needed	Agricultural	2014	Low
						Selenium	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Non-game Fish and Other)	2014	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Approved (11135)	Agricultural	2014	Low
Western Colorado River	UT14060007-008_00	Coal Creek	31.4 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Non-game Fish and Other)	2014	Low
Western Colorado River	UT14060007-009_00	Soldier Creek	23.3 Miles	2	No Evidence of Impairment						
Western Colorado River	UT14060007-010_00	Miller Creek	27.5 Miles	5	Not Supporting	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2020	Low
Western Colorado River	UT14060007-011_00	Desert Seep Wash	30.7 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water), Aquatic Wildlife (Waterfowl, Shorebirds, and Other), Aquatic Wildlife (Non-game Fish and Other)	2020	Low
Western Colorado River	UT14060007-012_00	Grassy Trail Creek Lower	2.8 Miles	3	Insufficient Data						
Western Colorado River	UT14060007-013_00	Grassy Trail Creek Upper	12.0 Miles	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Western Colorado River	UT14060007-014_00	Price River-4	70.5 Miles	1	Fully Supporting						
Western Colorado River	UT14060007-015_00	Price River-5	36.9 Miles	4A	Approved TMDL	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Approved (11131)	Agricultural	2016	Low
Western Colorado River	UT14060007-017_00	Pinnacle Wash	0.0 Miles	4A	Approved TMDL	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Approved (11132)	Agricultural	2016	Low
Western Colorado River	UT14060009-001_00	Electric Lake Tributaries	17.3 Miles	2	No Evidence of Impairment						
Western Colorado River	UT14060009-002_00	LF Huntington Creek	41.2 Miles	3	Insufficient Data						
Western Colorado River	UT14060009-003_01	Huntington Creek-3-1	56.5 Miles	5	Not Supporting but has Approved TMDL for some parameters	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Approved (11137)	Agricultural	2016	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact), Domestic Source	2014	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Western Colorado River	UT14060009-003_02	Huntington Creek-3-2	3.4 Miles	5	Not Supporting but has Approved TMDL for some parameters	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Approved (11137)	Agricultural	2016	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact), Domestic Source	2014	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Western Colorado River	UT14060009-003_03	Rilda Canyon	0.0 Miles	5	Not Supporting but has Approved TMDL for some parameters	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Approved (11137)	Agricultural	2016	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact), Domestic Source	2014	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Western Colorado River	UT14060009-003_04	Bear Canyon-2	1.0 Miles	5	Not Supporting but has Approved TMDL for some parameters	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Approved (11137)	Agricultural	2016	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact), Domestic Source	2014	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Western Colorado River	UT14060009-004_01	Huntington Creek-2	25.7 Miles	5	Not Supporting but has Approved TMDL for some parameters	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact), Domestic Source	2014	Low
						Total Dissolved Solids (TDS)	Meeting criteria	TMDL Approved (11137)	Agricultural		
Western Colorado River	UT14060009-004_02	Bear Canyon-1	1.2 Miles	5	Not Supporting but has Approved TMDL for some parameters	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact), Domestic Source	2014	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Approved (11137)	Agricultural	2014	Low
Western Colorado River	UT14060009-005_00	Lowery Water	51.6 Miles	3	Insufficient Data						
Western Colorado River	UT14060009-006_00	Joes Valley	44.6 Miles	3	Insufficient Data						
Western Colorado River	UT14060009-007_00	Cottonwood Creek Upper	21.7 Miles	5	Not Supporting	pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Cold Water), Recreation and Aesthetics (Infrequent Primary Contact), Domestic Source	2014	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2014	Low

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: 305(b) and 303(d)

Assessment unit information						Associated parameter information					
Watershed Management Unit	Assessment Unit (AU) ID	AU Name	Water Size Unit	AU Category	Category Description	Water Quality Parameter	Parameter Status	303(d) Status	Use(s)	Cycle First Listed	303(d) Priority
Western Colorado River	UT14060009-009_00	Ferron Creek Upper	104.6 Miles	5	Not Supporting	E. coli	Not meeting criteria	TMDL Needed	Recreation and Aesthetics (Infrequent Primary Contact), Domestic Source	2022	Low
Western Colorado River	UT14060009-010_00	Huntington Creek-1	33.4 Miles	5	Not Supporting	Selenium	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Non-game Fish and Other)	2006	Low
Western Colorado River	UT14060009-011_00	Cottonwood Creek Lower	26.1 Miles	5	Not Supporting but has Approved TMDL for some parameters	pH	Not meeting criteria	TMDL Needed	Agricultural, Recreation and Aesthetics (Infrequent Primary Contact), Aquatic Wildlife (Non-game Fish and Other)	2014	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Approved (11139)	Agricultural	2014	Low
Western Colorado River	UT14060009-012_00	Ferron Creek Lower	26.5 Miles	1	Fully Supporting						
Western Colorado River	UT14060009-013_00	San Rafael Upper	24.4 Miles	2	No Evidence of Impairment						
Western Colorado River	UT14060009-014_00	San Rafael Lower	88.1 Miles	5	Not Supporting but has Approved TMDL for some parameters	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Non-game Fish and Other)	2022	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Approved (11141)	Agricultural	2016	Low
						Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Non-game Fish and Other)	2010	Low
Western Colorado River	UT14070001-001_00	Halls Creek	0.0 Miles	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2020	Low
Western Colorado River	UT14070001-002_00	Bullfrog Creek	0.0 Miles	3	Insufficient Data						
Western Colorado River	UT14070001-005_00	Lake Canyon	0.0 Miles	3	Insufficient Data						
Western Colorado River	UT14070001-006_00	Navajo Long Creek	0.0 Miles	3	Insufficient Data						
Western Colorado River	UT14070001-093_00	North Wash	9.3 Miles	1	Fully Supporting						
Western Colorado River	UT14070001-094_00	Trachyte Creek	4.7 Miles	1	Fully Supporting						
Western Colorado River	UT14070002-001_00	Muddy Creek Upper	80.7 Miles	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2016	Low
						Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2014	Low
Western Colorado River	UT14070002-002_00	Quitchipah Creek Upper	30.4 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2010	Low
Western Colorado River	UT14070002-003_00	Saleratus Creek - Emery	14.5 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2020	Low
Western Colorado River	UT14070002-004_01	Ivie Creek Upper-1	0.0 Miles	3	Insufficient Data						
Western Colorado River	UT14070002-004_02	Ivie Creek Upper-2	28.1 Miles	3	Insufficient Data						
Western Colorado River	UT14070002-005_00	Last Chance Creek	6.6 Miles	3	Insufficient Data						
Western Colorado River	UT14070002-006_00	Muddy Creek Middle	20.1 Miles	3	Insufficient Data						
Western Colorado River	UT14070002-007_00	Quitchipah Creek Lower	14.5 Miles	5	Not Supporting but has Approved TMDL for some parameters	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Approved (11144)	Agricultural	2014	Low
						Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Non-game Fish and Other)	2010	Low
Western Colorado River	UT14070002-008_00	Ivie Creek Lower	16.1 Miles	5	Not Supporting but has Approved TMDL for some parameters	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Non-game Fish and Other)	2016	Low
						Boron	Not meeting criteria	TMDL Needed	Agricultural	2014	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Approved (11145)	Agricultural	2014	Low
Western Colorado River	UT14070002-009_00	Muddy Creek Lower	82.2 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Non-game Fish and Other)	2020	Low
Western Colorado River	UT14070003-001_00	Johnson Valley	18.4 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
						E. coli	Not meeting criteria	TMDL Needed	Domestic Source, Recreation and Aesthetics (Frequent Primary Contact)	2020	Low
Western Colorado River	UT14070003-002_00	UM Creek	28.3 Miles	5	Not Supporting	Nutrient/Eutrophication Biological Indicators	Not meeting criteria	Alternative restoration plan	Aquatic Wildlife (Cold Water)	2022	Low
						E. coli	Not meeting criteria	TMDL Needed	Domestic Source, Recreation and Aesthetics (Frequent Primary Contact)	2020	Low
						Zinc	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2012	Low
Western Colorado River	UT14070003-003_00	UM Creek Lower	2.0 Miles	1	Fully Supporting						
Western Colorado River	UT14070003-004_00	Fremont River-1	8.6 Miles	1	Fully Supporting						

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: 305(b) and 303(d)

Assessment unit information						Associated parameter information					
Watershed Management Unit	Assessment Unit (AU) ID	AU Name	Water Size Unit	AU Category	Category Description	Water Quality Parameter	Parameter Status	303(d) Status	Use(s)	Cycle First Listed	303(d) Priority
Western Colorado River	UT14070003-005_00	Fremont River-2	40.7 Miles	5	Not Supporting but has Approved TMDL for some parameters	E. coli	Not meeting criteria	TMDL Approved (R8-UT-2021-01	Domestic Source, Recreation and Aesthetics (Frequent Primary Contact)	2020	Low
						pH	Not meeting criteria	TMDL Needed	Agricultural, Aquatic Wildlife (Cold Water), Domestic Source, Recreation and Aesthetics (Frequent Primary Contact)	2014	Low
						Phosphorus, Total	Not meeting criteria	TMDL Approved (4062)	Aquatic Wildlife (Cold Water)	1998	Low
Western Colorado River	UT14070003-006_00	Pine Creek (Wayne Co)	20.6 Miles	3	Insufficient Data						
Western Colorado River	UT14070003-007_00	Donkey Creek	36.4 Miles	3	Insufficient Data						
Western Colorado River	UT14070003-008_00	Fremont River-3	81.2 Miles	5	Not Supporting but has Approved TMDL for some parameters	E. coli	Not meeting criteria	TMDL Approved (R8-UT-2021-01	Domestic Source, Recreation and Aesthetics (Frequent Primary Contact)	2014	High
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2014	Low
Western Colorado River	UT14070003-009_00	Pleasant Creek-1	57.9 Miles	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2016	Low
Western Colorado River	UT14070003-010_00	Pleasant Creek-2	10.3 Miles	3	Insufficient Data						
Western Colorado River	UT14070003-011_00	Oak Creek	30.3 Miles	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Western Colorado River	UT14070003-012_00	Sandy Creek	30.6 Miles	2	No Evidence of Impairment						
Western Colorado River	UT14070003-013_00	Henry Mountains	32.1 Miles	3	Insufficient Data						
Western Colorado River	UT14070003-014_00	Fremont River-4	82.9 Miles	4A	Approved TMDL	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Approved (4063)	Agricultural	1998	Low
Western Colorado River	UT14070003-015_00	Fish Lake Tributaries	5.7 Miles	2	No Evidence of Impairment						
Western Colorado River	UT14070004-001_00	Dirty Devil River	69.4 Miles	5	Not Supporting	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2016	Low
Western Colorado River	UT14070004-002_00	Dirty Devil west side tributaries	11.1 Miles	1	Fully Supporting						
Western Colorado River	UT14070005-001_00	Upper Valley Creek	0.2 Miles	3	Insufficient Data						
Western Colorado River	UT14070005-002_00	Birch Creek	30.3 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2022	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Western Colorado River	UT14070005-003_00	North Creek-Escalante	49.8 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2014	Low
Western Colorado River	UT14070005-004_00	Pine Creek	33.0 Miles	3	Insufficient Data						
Western Colorado River	UT14070005-005_00	Mamie Creek	0.0 Miles	3	Insufficient Data						
Western Colorado River	UT14070005-006_00	Sand Creek	46.1 Miles	2	No Evidence of Impairment						
Western Colorado River	UT14070005-007_00	Calf Creek	8.1 Miles	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Cold Water)	2008	Low
Western Colorado River	UT14070005-008_00	Deer Creek (Garfield Co.)	64.9 Miles	1	Fully Supporting						
Western Colorado River	UT14070005-010_00	The Gulch	44.5 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2020	Low
Western Colorado River	UT14070005-011_00	Escalante River Lower	67.5 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2022	Low
Western Colorado River	UT14070005-012_00	Escalante River Upper	28.3 Miles	5	Not Supporting	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2016	Low
						Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2008	Low
Western Colorado River	UT14070005-013_01	Escalante Tributaries-1	0.0 Miles	3	Insufficient Data						
Western Colorado River	UT14070005-013_02	Escalante Tributaries-2	0.0 Miles	3	Insufficient Data						
Western Colorado River	UT14070005-013_03	Escalante Tributaries-3	0.0 Miles	3	Insufficient Data						
Western Colorado River	UT14070005-013_04	Escalante Tributaries-4	0.0 Miles	3	Insufficient Data						
Western Colorado River	UT14070005-013_05	Escalante Tributaries-5	0.1 Miles	3	Insufficient Data						
Western Colorado River	UT14070005-013_06	Escalante Tributaries-6	0.0 Miles	3	Insufficient Data						
Western Colorado River	UT14070005-013_07	Escalante Tributaries-7	0.0 Miles	3	Insufficient Data						
Western Colorado River	UT14070005-013_08	Escalante Tributaries-8	0.0 Miles	3	Insufficient Data						
Western Colorado River	UT14070005-014_00	Alvey Wash Upper	0.0 Miles	3	Insufficient Data						
Western Colorado River	UT14070005-015_00	Alvey Wash Lower	9.9 Miles	3	Insufficient Data						
Western Colorado River	UT14070005-016_00	Wolverine Creek	0.0 Miles	3	Insufficient Data						
Western Colorado River	UT14070005-017_00	Coyote Gulch	13.3 Miles	2	No Evidence of Impairment						
Western Colorado River	UT14070005-018_00	Boulder Creek	58.6 Miles	3	Insufficient Data						
Western Colorado River	UT14070005-019_00	Lower Escalante River Tributaries	0.0 Miles	3	Insufficient Data						
Western Colorado River	UT14070006-001_00	Wahweap Creek	0.1 Miles	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2014	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2014	Low
Western Colorado River	UT14070006-002_00	Warm Creek	0.0 Miles	3	Insufficient Data						

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: 305(b) and 303(d)

Assessment unit information						Associated parameter information					
Watershed Management Unit	Assessment Unit (AU) ID	AU Name	Water Size Unit	AU Category	Category Description	Water Quality Parameter	Parameter Status	303(d) Status	Use(s)	Cycle First Listed	303(d) Priority
Western Colorado River	UT14070006-003_00	Lake Powell Tribs-1	0.0 Miles	3	Insufficient Data						
Western Colorado River	UT14070006-004_00	Last Chance Creek	16.1 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2022	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2014	Low
						Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Warm Water)	2008	Low
Western Colorado River	UT14070006-005_00	Croton	2.3 Miles	3	Insufficient Data						
Western Colorado River	UT14070006-006_01	Lake Powell Tribs-3-1	0.0 Miles	3	Insufficient Data						
Western Colorado River	UT14070006-006_02	Lake Powell Tribs-3-2	0.0 Miles	3	Insufficient Data						
Western Colorado River	UT14070006-008_00	Lake Powell Tribs-2	0.0 Miles	3	Insufficient Data						
Western Colorado River	UT14070007-001_00	Paria River-1	28.9 Miles	5	Not Supporting	Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Non-game Fish and Other)	2020	Low
						Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Non-game Fish and Other)	2008	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2000	Low
Western Colorado River	UT14070007-002_00	Paria River-2	34.6 Miles	5	Not Supporting	Temperature	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Non-game Fish and Other)	2014	Low
						Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2014	Low
Western Colorado River	UT14070007-003_00	Buckskin Gulch	2.5 Miles	1	Fully Supporting						
Western Colorado River	UT14070007-004_00	Cottonwood Creek	6.4 Miles	5	Not Supporting	Dissolved Oxygen	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Non-game Fish and Other)	2014	Low
Western Colorado River	UT14070007-005_00	Paria River-3	11.0 Miles	5	Not Supporting	Total Dissolved Solids (TDS)	Not meeting criteria	TMDL Needed	Agricultural	2014	Low
						Benthic Macroinvertebrates Bioassessments	Not meeting criteria	TMDL Needed	Aquatic Wildlife (Non-game Fish and Other)	2008	Low

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: Delistings

Watershed Management Unit	Assessment Unit ID	Assessment Unit Name	Water Quality Parameter	Delisting Reason	Delisting Comment
Bear River	UT16010204-003_00	Bear River-1	Total Dissolved Solids (TDS)	Original listing incorrect.	This assessment unit was originally listed under an agricultural beneficial use. However, it does not have an agricultural beneficial use. Instead, it has the Recreation and Aesthetics (Infrequent Primary Contact), Aquatic Wildlife (Warm Water), and Aquatic Wildlife (Waterfowl, Shorebirds, and Other) uses. The original listing occurred when we did not have as well-resolved spatial files denoting our beneficial uses and assessment units. The delisting has been filed under the Aquatic Wildlife (Waterfowl, Shorebirds, and Other) use and the Agricultural use has been removed in the 2022 cycle.
Cedar-Beaver	UT16030006-001_00	Coal Creek - C/B	Temperature	Meeting water quality criteria with new data.	Site that triggered the impairment is a USGS site, with data exceeding the 3A standard from 2011 to 2014. An additional 3 years of data show full support. These data were rejected from assessment because the activity type lends itself to a lab sample (Sample-Routine) rather than a field sample, however, all other evidence and BPJ suggest these data are appropriate for assessment and delisting.
Cedar-Beaver	UT16030006-002_00	Pinto Creek	Aluminum	Meeting water quality criteria with new data.	At site 4940660, 2 exceedances in 2011-2012 triggered the original listing. Since then, additional data collected in 2013-2020 all fall below the acute and chronic criteria at all sites.
Cedar-Beaver	UT16030007-002_00	Beaver River-2	Aluminum	Meeting water quality criteria with new data.	At site 5940440, 3/12 samples exceeded the chronic criterion between 2013 and 2014. Additional data collected in 2019 and 2020 at the same site do not exceed the chronic or the acute criteria.
Jordan River	UT16020204-001_01	Jordan River-1	E. coli	Original listing incorrect.	UT16020204-001_01 was listed in 2010 for E coli due to site 4990987 (North Canyon Creek near Legacy Nature Preserve). In the 2018/2020 cycle, North Canyon Creek became its own AU (UT16020204-001_02) and site 4990987 occurs within UT16020204-001_02. All sites in the Jordan River-1 AU show no evidence of impairment for E. coli.
Jordan River	UT16020204-001_01	Jordan River-1	Total Dissolved Solids (TDS)	Original listing incorrect.	Original listing in 2016 at site 4990987, which is no longer in assessment unit (split in 2018/20 and now occurs in UT16020204-001_02). Water quality data collected and included last cycle indicate that remaining sites within the AU are supporting for TDS.
Jordan River	UT16020204-001_02	North Canyon Creek	Total Dissolved Solids (TDS)	Original listing incorrect.	This assessment unit was originally listed under an agricultural beneficial use. However, it does not have an agricultural beneficial use. Instead, it has the Recreation and Aesthetics (Infrequent Primary Contact) and Aquatic Wildlife (Waterfowl, Shorebirds, and Other) uses. The original listing occurred when we did not have as well-resolved spatial files denoting our beneficial uses and assessment units. The delisting has been filed under the Aquatic Wildlife use and the Agricultural use has been removed in the 2022 cycle.
Jordan River	UT16020204-005_00	Jordan River-5	Temperature	Applicable water quality standard attained, due to change in water quality standard.	Assessment unit had a beneficial use correction from Aquatic Wildlife (Cold Water) to Aquatic Wildlife (Warm Water) in the 2022 cycle. All sites assessed show no exceedances of the warm water aquatic life temperature criteria.
Jordan River	UT16020204-006_01	Jordan River-6	Temperature	Applicable water quality standard attained, due to change in water quality standard.	Assessment unit had a beneficial use correction from Aquatic Wildlife (Cold Water) to Aquatic Wildlife (Warm Water) in the 2022 cycle. All sites assessed show no exceedances of the warm water aquatic life temperature criteria.
Jordan River	UT16020204-006_02	Big Willow Creek	Total Dissolved Solids (TDS)	Original listing incorrect.	This assessment unit was originally listed under an agricultural beneficial use. However, it does not have an agricultural beneficial use. Instead, it has the Recreation and Aesthetics (Infrequent Primary Contact) and Aquatic Wildlife (Waterfowl, Shorebirds, and Other) uses. The original listing occurred when we did not have as well-resolved spatial files denoting our beneficial uses and assessment units. The delisting has been filed under the Aquatic Wildlife use and the Agricultural use has been removed in the 2022 cycle.
Jordan River	UT16020204-006_03	Dry Creek	Total Dissolved Solids (TDS)	Original listing incorrect.	This assessment unit was originally listed under an agricultural beneficial use. However, it does not have an agricultural beneficial use. Instead, it has the Recreation and Aesthetics (Infrequent Primary Contact) and Aquatic Wildlife (Waterfowl, Shorebirds, and Other) uses. The original listing occurred when we did not have as well-resolved spatial files denoting our beneficial uses and assessment units. The delisting has been filed under the Aquatic Wildlife use and the Agricultural use has been removed in the 2022 cycle.
Jordan River	UT16020204-007_00	Jordan River-7	Temperature	Applicable water quality standard attained, due to change in water quality standard.	Assessment unit had a beneficial use correction from Aquatic Wildlife (Cold Water) to Aquatic Wildlife (Warm Water) in the 2022 cycle. All sites assessed show no exceedances of the warm water aquatic life temperature criteria.
Lower Colorado River	UT15010003-004_00	Johnson Wash-1	Selenium	Meeting water quality criteria with new data.	At site 5994410, more than 2 samples collected exceeded the criterion in 2010-2012. However, 0/13 samples collected in 2017-2019 at 5994410 exceed the acute or chronic criteria.
Lower Colorado River	UT15010003-005_00	Johnson Wash-2	Copper	Meeting water quality criteria with new data.	At site 5994740, 2 samples exceeded the acute criterion between 2008 and 2012. 5 additional samples collected at 5994740 in 2019 do not exceed the acute criterion. Hardness data were not collected, however, the 5 data points do not exceed the acute or chronic criteria given a hardness value of 100 mg/L.
Lower Colorado River	UT15010003-005_00	Johnson Wash-2	Lead	Meeting water quality criteria with new data.	At site 5994740, 2 samples exceeded the acute and chronic criterion in 2008 and 2012. Additional data were collected at 5994740 in 2019, and no exceedances were detected. Hardness was not collected with the chemistry sample, however, lead was only detected in 1 sample, and it was far below reference acute and chronic criteria.

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Draft 2022 Integrated Report: Delistings

Watershed Management Unit	Assessment Unit ID	Assessment Unit Name	Water Quality Parameter	Delisting Reason	Delisting Comment
Lower Colorado River	UT15010008-001_00	Santa Clara-1	Arsenic	Meeting water quality criteria with new data.	At site 4950500, 2 or more samples exceeded the acute criterion in 2007-2011 in the 2014 IR. New data were collected in 2018 and 2019 that are below all arsenic criteria.
Lower Colorado River	UT15010008-003_00	Santa Clara-3	Aluminum	Meeting water quality criteria with new data.	At site 4950640, 3 samples exceeded the chronic criterion between 2008 and 2011. However, an additional 7 samples collected between 2018 and 2019 do not exceed the chronic or acute criteria.
Lower Colorado River	UT15010008-014_00	North Creek-Virgin	pH	Meeting water quality criteria with new data.	At site 4950920, >10% of pH samples exceeded the max pH in the 2014 IR. With more data collected 2018-2020, less than 10% of samples now exceed the criteria (only one sample in the 2022 POR). Data are sufficient to delist.
Lower Colorado River	UT15010008-015_00	North Fork Virgin River-1	E. coli	Meeting water quality criteria due to restoration activities.	Site 4951199 exceeded criteria in 2014 IR. 4951199 is no longer monitored, but 4951200 is instead. Site 4951200 was not supporting in the 2018/20 IR, but it is now supporting its beneficial uses with additional data collected in 2018-2020.
Lower Sevier River	UT16030003-005_00	Lost Creek-1	Copper	Meeting water quality criteria with new data.	Site 4945120 was listed in 2016 due to 2 exceedances of the acute criterion from data collected in 2013 and 2014. These data were also considered in the 2018/2020 IR. Data collected from 2019 and 2020 show full support, with no exceedances at 4945120.
Lower Sevier River	UT16030003-018_00	Clear Creek-I70	Temperature	Meeting water quality criteria with new data.	At site 4948820, 2/12 measurements exceeded the temperature criterion in 2013-2014. Additional data collected in 2019-20 show no exceedances. Other sites show a reduction in temperature in the AU as well.
Lower Sevier River	UT16030003-027_00	Peterson Creek	Copper	Meeting water quality criteria with new data.	At site 4947520, 2/10 samples exceeded the chronic copper criterion between 2013 and 2014. In 2019/2020, 11 additional samples were collected at 4947520 and none exceeded copper standards.
Lower Sevier River	UT16030004-005_01	San Pitch-3-1	pH	Meeting water quality criteria with new data.	At site 4946960, 2/14 samples exceeded the max pH criterion between 2016 and 2018. However, 8 additional samples collected in 2018 and 2019 all fall below the max pH criterion and are sufficient additional data to delist the assessment unit.
Lower Sevier River	UT16030005-027_00	Sevier River-24	Total Dissolved Solids (TDS)	Meeting water quality criteria with new data.	At site 4941280, 2/11 samples exceeded the site-specific criterion in 2013-2014. 11 additional samples collected in 2019-2020 all fall below the site-specific criterion.
Southeast Colorado River	UT14080205-001_00	San Juan River-1	Temperature	Meeting water quality criteria with new data.	At site 4952940, 3/20 samples between 3/11/2012 and 9/30/2018 exceeded the 3B standard. However, only 1 out of 28 samples at 4952940 exceeded the standard in the current period of record. There exists sufficient new data to delist.
Uinta Basin	UT14040106-003_00	West Fork Beaver Creek	Aluminum	Meeting water quality criteria with new data.	Site 4939340 was listed for exceedance of the chronic criterion in 5/8 samples 2011-2012. Additional data collected in 2016-2018 do not exceed the chronic or acute criterion and are sufficient to delist.
Uinta Basin	UT14040106-004_00	Middle Fork Beaver Creek	Aluminum	Meeting water quality criteria with new data.	Original listings in 2014 at sites 4939280 and 4939320 due to exceedances in the chronic criterion. Exceedances persisted in 2018/20 IR period of record, however, new data collected at impaired sites showed no exceedances in the acute nor the chronic criterion. The exceedances are now outside of the period of record and the 2016-2018 data is sufficient to delist.
Uinta Basin	UT14040106-021_00	Pot Creek	Aluminum	Meeting water quality criteria with new data.	At site 5937880, 5/6 samples collected in 2011 exceeded the chronic criterion. Additional data collected in 2016 to 2020 were assessed against the acute criterion and no samples exceeded the acute criterion. There was no pH or hardness data collected to potentially assess against the chronic criterion, however, only 1/13 samples were over 87 ug/L. Sufficient new data of low enough concentration exist to delist.
Uinta Basin	UT14050007-003_00	Evacuation Creek	Selenium	Meeting water quality criteria with new data.	Site 4933870 was listed in 2014 due to 5/12 exceedances of the chronic 4-day criterion. Ample additional data from 2015-2019 all fall below the chronic criterion at 4933870 and are sufficient to delist.
Uinta Basin	UT14060001-003_00	Diamond Gulch	Aluminum	Meeting water quality criteria with new data.	At site 4937976, 2/11 samples exceeded the chronic criteria in 2011. An additional 10 samples collected 2016-2017 are all supporting the acute and chronic criteria.
Uinta Basin	UT14060003-018_00	West Fork Duchesne	pH	Meeting water quality criteria with new data.	At site 4936800, 3/10 samples in 2013 exceeded the max pH range. However, no samples exceeded the max or min pH range from samples collected in 2017. Additional data are sufficient to delist.
Uinta Basin	UT14060003-019_00	North Fork Duchesne	Aluminum	Meeting water quality criteria with new data.	At site 4936770, 5 samples exceeded the chronic criterion in 2011. More recent data (n=12 samples) from 2016-2017 do not exceed the acute or chronic criteria.
Uinta Basin	UT14060003-020_00	Rock Creek Upper	Aluminum	Meeting water quality criteria with new data.	At site 4935450, 6 samples in 2011 exceeded the chronic criterion. However, an additional 10 samples were collected in 2016-2017, and none of the samples exceeded the chronic or acute criteria.
Uinta Basin	UT14060003-024_00	Uinta River-4	Aluminum	Meeting water quality criteria with new data.	At site 4935160, 5 samples exceeded the chronic criterion in 2011. More recent data (n=12 samples) from 2016-2017 do not exceed the acute or chronic criteria.
Uinta Basin	UT14060003-024_00	Uinta River-4	pH	Meeting water quality criteria with new data.	At site 4935160, 2/11 samples fell below the minimum pH range in 2011 to 2012. An additional 12 samples were collected in 2016-2017 and none fell below the the pH minimum criteria.
Uinta Basin	UT14060005-002_00	Pariette Draw Creek	Temperature	Meeting water quality criteria with new data.	At site 4933476, 2 samples exceeded the criterion in 2008 and 2009. Additional data from 2015-2020 do not yield any exceedances at 4933476. There are two exceedances at other sites, but the other sites are still fully supporting, and exceedances are + <1 from the standard criterion.

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Draft 2022 Integrated Report: Delistings

Watershed Management Unit	Assessment Unit ID	Assessment Unit Name	Water Quality Parameter	Delisting Reason	Delisting Comment
Upper Provo River	UT16020203-004_00	Provo River-4	E. coli	Original listing incorrect.	Site 4997250 was impaired for E. coli in 2012. However, this site occurs in a different AU (UT16020203-027_00), which is currently listed for E. coli. No other sites in UT16020203-004_00 are impaired for E. coli. Delist due to spatial site error.
Upper Provo River	UT16020203-006_01	Provo River-6-1	Zinc	Meeting water quality criteria with new data.	AU has been split since original listing of site 4999000, which occurs in UT16020203-006_03. Sites in UT16020203-006_01 are all fully supporting for zinc, with data collected through 2020.
Upper Provo River	UT16020203-006_03	Provo River-6-3	Zinc	Meeting water quality criteria with new data.	Site 4999000 tripped zinc listing in 2014 in original Provo River AU. In 2016, 4999050 was also impaired for zinc. This cycle, both 4999000 and 4999050 are supporting for zinc, with all data in PORND. 4999000 was assessed against chronic and acute criteria, while 4999050 was assessed against the HH criteria (however, had hardness data and pH been collected, it would have fallen below those criteria as well).
Upper Sevier River	UT16030001-008_00	Panguitch Creek-1	Temperature	Meeting water quality criteria with new data.	At site 5949870, greater than 10% of samples exceeded the criterion. An additional 12 samples were collected in 2019 and 2020 and none exceeded the criterion.
Utah Lake-Lower Provo River	UT16020202-003_00	Hobble Creek-1	pH	Meeting water quality criteria with new data.	At site 4996100, >10% of samples exceeded the max pH criterion between 2009 and 2013. However, in the current period of record, 6/100 samples exceed the max criterion, with only one exceedance in the additional 45 samples collected since 2018.
Utah Lake-Lower Provo River	UT16020202-009_00	Sixth Water Creek	Dissolved Oxygen	Original listing incorrect.	Site 4995700 caused dissolved oxygen listing in 2018/2020 Integrated Report. However, site 4995700 is located at a transbasin diversion tunnel outlet and is not representative of Sixth Water Creek conditions. All other sites are meeting DO criteria.
Utah Lake-Lower Provo River	UT16020202-009_00	Sixth Water Creek	Selenium	Original listing incorrect.	2014: 4995780 was not supporting for Se. 2016 IR: 4995780 was ID'd through the public comment period that the site was representative of groundwater and not the river/stream. MLID is removed from the assessment and Se is delisted. Let 2016's Period of Record data determine assessment of UT16020202-009_00. Erroneously re-listed in 2018/2020 IR.
Utah Lake-Lower Provo River	UT16020202-027_00	Beer Creek	Ammonia, Total	Meeting water quality criteria with new data.	Site 4995420 triggered listing in 2016, which was maintained in 2018/20. Between 2009 and 2013, greater than 10 samples were collected at 4995420 and more than one sample exceeded the criterion. These samples were included in the 2018/20 IR, with an additional 10 samples collected in 2018, where 4/32 exceeded. This cycle, all exceedances have dropped out of the period of record, but no new data were collected since 2018.
Utah Lake-Lower Provo River	UT16020202-027_00	Beer Creek	pH	Meeting water quality criteria with new data.	At site 4995420, 7/26 samples between 9/2010 and 8/2013 exceeded the upper pH range. However, there were no exceedances at this site with additional data spanning from 09/2017 to 10/2018.
Utah Lake-Lower Provo River	UT16020202-035_00	Dry Creek-1	pH	Meeting water quality criteria with new data.	At site 4996030, 7/29 samples from 2010 to 2013 exceeded the max pH range. However, no samples exceeded the criterion at this site from 2017 to 2018. Additionally, none of the other sites within the assessment unit have sufficient exceedances to maintain the not support status, though we do see singular exceedances of the standard at 4996040.
Utah Lake-Lower Provo River	UT16020202-042_00	Spring Creek-Springville	Ammonia, Total	Meeting water quality criteria with new data.	Site 4996190 exceeded the calculated chronic criterion greater than two times in samples from 2012 and 2013. In samples collected by WFWQC at the same location in 2016 to 2020, only one sample exceeded the chronic criterion, out of 38 samples.
Western Colorado River	UT14060007-017_00	Pinnacle Wash	Selenium	Meeting water quality criteria with new data.	At site 4932530, 2/10 samples in 2012 and 2013 exceeded the chronic criterion. However, 6 additional samples collected at that site in 2019 do not exceed the criterion.
Western Colorado River	UT14060009-004_01	Huntington Creek-2	Total Dissolved Solids (TDS)	Meeting water quality criteria with new data.	The DOGM site that triggered the impairment occurs in UT14060009-004_02. Previously impaired DWQ site 4930524 occurs in assessment unit UT14060009-010.
Western Colorado River	UT14060009-010_00	Huntington Creek-1	Temperature	Original listing incorrect.	Listed in error. All sites show no evidence of impairment, including in 2014 assessment.
Western Colorado River	UT14060009-010_00	Huntington Creek-1	Total Dissolved Solids (TDS)	Meeting water quality criteria with new data.	Site 4930524 used to be impaired but was wrongly assigned to UT14060009-004 in 2014. With new data, site and AU are delisted (though AU was not previously listed for TDS, so basically jumping on-off list but counts as a delisting for DWQ at the site level).
Western Colorado River	UT14070003-005_00	Fremont River-2	E. coli	TMDL Approved by EPA (4A)	
Western Colorado River	UT14070003-005_00	Fremont River-2	Temperature	Meeting water quality criteria due to restoration activities.	At site 4955310, 3/22 samples between 2003 and 2008 exceeded the temperature criterion. Additional data collected show 1 exceedance in August 2019 at 4955310 out of 12 samples, which is sufficient to delist.
Western Colorado River	UT14070003-008_00	Fremont River-3	E. coli	TMDL Approved by EPA (4A)	

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Draft 2022 Integrated Report: AU Resegmentation

Original Assessment Unit ID	New Assessment Unit ID	New Assessment Unit Name	New Assessment Unit Description
UT14030005-006_00	UT14030005-006_01	Mill Creek-2-Moab	Mill Creek and tributaries from USFS boundary to headwaters
UT14030005-006_00	UT14030005-006_02	Pack Creek-2	Pack Creek and tributaries from USFS boundary to headwaters
UT16020101-020_00	UT16020101-020_01	Silver Creek-1	Silver Creek and tributaries, from the confluence with Weber River to below the confluence with Tollgate Creek
UT16020101-020_00	UT16020101-020_02	Silver Creek-2	Silver Creek and tributaries, from confluence with Tollgate Creek to headwaters
UT15010003-002_00	UT15010003-002_01	Kanab Creek-1-1	Kanab Creek and tributaries from state line to the Kane County Water Conservancy District diversion approximately one mile above Kanab
UT15010003-002_00	UT15010003-002_02	Kanab Creek-1-2	Kanab Creek and tributaries above the Kane County Water Conservancy District Diversion to the confluence with Fourmile Hollow near the White Cliffs

Appendix 1

Priority Parameters

DWQ Parameter Name	DWQ Parameter Fraction	Recommended CAS Number	Parameters impacted by New/ Revised Assessment Methodology	DWQ Parameters Routinely Measured for Assessment Purposes	Required Additional Parameter Submissions for Complete Assessment Purposes	Additional Submission Considerations for QAQC
Fish Mercury		n/a				
Flow	n/a	Field Measurement		X		
pH	n/a	Field Measurement		X		
Secchi Depth	n/a	Field Measurement		X	for Lake Samples only	
Temperature, Air	n/a	Field Measurement			Accompanying Fluoride, Dissolved for Fluoride Assessment	
Temperature, Water	n/a	Field Measurement		X		
Total Dissolved Gases	Total	Field Measurement				
Bromate	Total	15541-45-4				
Chlorine (Total Residual)	Total	Field Measurement				
Chlorite	Total	14998-27-7				
Cyanide	Dissolved	57-12-5				(1) The dissolved metals method involves filtration of the sample in the field, acidification of the sample in the field, no digestion process in the laboratory, and analysis by EPA approved laboratory methods for the required detection levels. (2) Recommended that the **Total** fraction result value is also submitted in the data package for QA/QC purposes.
Cyanide	Total	57-12-5				
Fluoride	Total	16984-48-8			Accompanying Air Temperature measurement	

Hardness	Dissolved	Calculated			X		
Hydrogen Sulfide	Total	7783-06-4				Accompanying Field pH Measurement	
Sulfate	Total	14808-79-8				Accompanying Total Dissolved Solids measurements for Site-specific locations located on Ivie Creek and its tributaries from the confluence with Muddy Creek to the confluence with Quitchupah Creek, and Quitchupah Creek from confluence with Ivie Creek to U-10	
Total Dissolved Solids	Total	n/a			X		
BOD	Total	n/a					
Total Nitrogen				X			
Total Phosphorus				X			
Chlorophyll a	Total	n/a			X	for Lake Samples only; Accompanying Secchi Depth	
Chlorophyll a, uncorrected for pheophytin	Total	n/a			X	for Lake Samples only; Accompanying Secchi Depth	
Fillamentous algae cover	n/a			X		for Headwater Numeric Nutrient Criteria ecological response; Accompanying Total Nitrogen and/or Total Phosphorus	
Gross primary productivity	n/a			X		for Headwater Numeric Nutrient Criteria ecological response; Accompanying Total Nitrogen and/or Total Phosphorus	
Periphyton	n/a			X		for Headwater Numeric Nutrient Criteria only	Must be expressed as a chlorophyll concentration or as ash free dry mass
Ecosystem respiration	n/a			X		for Headwater Numeric Nutrient Criteria ecological response; Accompanying Total Nitrogen and/or Total Phosphorus	
Dissolved Oxygen (% Sat)	n/a	Field Measurement					Recommend submitting Water Temperature

Dissolved Oxygen (Concentration)	n/a	Field Measurement	X	Please refer to the credible data requirements and DWQ's Call for Data Website.	Please refer to the credible data requirements and DWQ's Call for Data Website.
Aluminum	Dissolved	7429-90-5	X	Accompanying Field pH Measurement AND Hardness or Calcium, Dissolved AND Magnesium, Dissolved Measurement	(1) The dissolved metals method involves filtration of the sample in the field, acidification of the sample in the field, no digestion process in the laboratory, and analysis by EPA approved laboratory methods for the required detection levels. (2) Recommended that the **Total** fraction result value is also submitted in the data package for QA/QC purposes.
Antimony	Total	7440-36-0			
Arsenic	Dissolved	7440-38-2	X		Recommended that the **Total** fraction result value is also submitted in the data package for QA/QC purposes.
Arsenic (Trivalent)	Dissolved	7440-38-2	O - DWQ unable to routinely measure this parameter due to analytical constraints		(1) The dissolved metals method involves filtration of the sample in the field, acidification of the sample in the field, no digestion process in the laboratory, and analysis by EPA approved laboratory methods for the required detection levels. (2) Recommended that the **Total** fraction result value is also submitted in the data package for QA/QC purposes.
Asbestos	Total	1332-21-4			
Barium	Dissolved	7440-39-3	X		Recommended that the **Total** fraction result value is also submitted in the data package for QA/QC purposes.
Beryllium	Dissolved	7440-41-7	X		Recommended that the **Total** fraction result value is also submitted in the data package for QA/QC purposes.
Boron	Total	7440-42-8	X		
Cadmium	Dissolved	7440-43-9	X	Accompanying Hardness or Calcium, Dissolved AND Magnesium, Dissolved Measurement	(1) The dissolved metals method involves filtration of the sample in the field, acidification of the sample in the field, no digestion process in the laboratory, and analysis by EPA approved laboratory methods for the required detection levels. (2) Recommended that the **Total** fraction result value is also submitted in the data package for QA/QC purposes.
Calcium	Dissolved	7440-70-2	X	Accompanying Magnesium, Dissolved for Hardness calculation	Recommended that the **Total** fraction result value is also submitted in the data package for QA/QC purposes.
Chromium	Dissolved	7440-47-3	X		Recommended that the **Total** fraction result value is also submitted in the data package for QA/QC purposes.

Chromium (Hexavalent)	Dissolved	18540-29-9	O - DWQ unable to routinely measure this parameter due to analytical constraints		(1) The dissolved metals method involves filtration of the sample in the field, acidification of the sample in the field, no digestion process in the laboratory, and analysis by EPA approved laboratory methods for the required detection levels. (2) Recommended that the **Total** fraction result value is also submitted in the data package for QA/QC purposes.
Chromium Trivalent	Dissolved	16065-83-1	O - DWQ unable to routinely measure this parameter due to analytical constraints	Accompanying Hardness or Calcium, Dissolved AND Magnesium, Dissolved Measurement	(1) The dissolved metals method involves filtration of the sample in the field, acidification of the sample in the field, no digestion process in the laboratory, and analysis by EPA approved laboratory methods for the required detection levels. (2) Recommended that the **Total** fraction result value is also submitted in the data package for QA/QC purposes.
Copper	Dissolved	7440-50-8	X	Accompanying Hardness or Calcium, Dissolved AND Magnesium, Dissolved Measurement	(1) The dissolved metals method involves filtration of the sample in the field, acidification of the sample in the field, no digestion process in the laboratory, and analysis by EPA approved laboratory methods for the required detection levels. (2) Recommended that the **Total** fraction result value is also submitted in the data package for QA/QC purposes.
Iron	Dissolved	7439-89-6	X		(1) The dissolved metals method involves filtration of the sample in the field, acidification of the sample in the field, no digestion process in the laboratory, and analysis by EPA approved laboratory methods for the required detection levels. (2) Recommended that the **Total** fraction result value is also submitted in the data package for QA/QC purposes.
Lead	Dissolved	7439-92-1	X	Accompanying Hardness or Calcium, Dissolved AND Magnesium, Dissolved Measurement	(1) The dissolved metals method involves filtration of the sample in the field, acidification of the sample in the field, no digestion process in the laboratory, and analysis by EPA approved laboratory methods for the required detection levels. (2) Recommended that the **Total** fraction result value is also submitted in the data package for QA/QC purposes.
Magnesium	Dissolved	7439-95-4	X	Accompanying Calcium, Dissolved for Hardness calculation	Recommended that the **Total** fraction result value is also submitted in the data package for QA/QC purposes.

Mercury	Dissolved	7439-97-6		X		(1) The dissolved metals method involves filtration of the sample in the field, acidification of the sample in the field, no digestion process in the laboratory, and analysis by EPA approved laboratory methods for the required detection levels. (2) Recommended that the **Total** fraction result value is also submitted in the data package for QA/QC purposes.
Nickel	Dissolved	7440-02-0		X	Accompanying Hardness or Calcium, Dissolved AND Magnesium, Dissolved Measurement	(1) The dissolved metals method involves filtration of the sample in the field, acidification of the sample in the field, no digestion process in the laboratory, and analysis by EPA approved laboratory methods for the required detection levels. (2) Recommended that the **Total** fraction result value is also submitted in the data package for QA/QC purposes.
Selenium	Dissolved	7782-49-2		X		(1) The dissolved metals method involves filtration of the sample in the field, acidification of the sample in the field, no digestion process in the laboratory, and analysis by EPA approved laboratory methods for the required detection levels. (2) Recommended that the **Total** fraction result value is also submitted in the data package for QA/QC purposes.
Silver	Dissolved	7440-22-4		X	Accompanying Hardness or Calcium, Dissolved AND Magnesium, Dissolved Measurement	(1) The dissolved metals method involves filtration of the sample in the field, acidification of the sample in the field, no digestion process in the laboratory, and analysis by EPA approved laboratory methods for the required detection levels. (2) Recommended that the **Total** fraction result value is also submitted in the data package for QA/QC purposes.
Thallium	Total	7440-28-0				
Uranium	Total	7440-61-1				
Zinc	Dissolved	7440-66-6		X	Accompanying Hardness or Calcium, Dissolved AND Magnesium, Dissolved Measurement	(1) The dissolved metals method involves filtration of the sample in the field, acidification of the sample in the field, no digestion process in the laboratory, and analysis by EPA approved laboratory methods for the required detection levels. (2) Recommended that the **Total** fraction result value is also submitted in the data package for QA/QC purposes.
E. coli	n/a	n/a		X		
Beach Closures		n/a				
Drinking Water Closures		n/a				

Fish Kills		n/a			
Harmful Algal Blooms: Cyanobacteria cell density		n/a	X - assessments on hold	X	for Lake Samples only
Harmful Algal Blooms: Cyanobacteria taxanomic composition (i.e., phytoplankton)		n/a	X - assessments on hold	X	
Harmful Algal Blooms: Cyanobacteria toxin concentrations		n/a	X - assessments on hold	X	
Nitrate as N	Total and/ or Dissolved	14797-55-8		X	
Total Ammonia as N	Total	7664-41-7		X	Accompanying Field pH AND Field Water Temperature Measurement
Total Phosphorus as P	Total	7723-14-0		X	
1,1,1-Trichloroethane	Total	71-55-6			
1,1,2,2-Tetrachloroethane	Total	79-34-5			
1,1,2-Trichloroethane	Total	79-00-5			
1,1-Dichloroethane	Total	75-34-3			
1,1-Dichloroethylene	Total	75-35-4			
1,2 -Trans-Dichloroethylene	Total	156-60-5			
1,2,4-Trichlorobenzene	Total	120-82-1			
1,2-Dichlorobenzene	Total	95-50-1			
1,2-Dichloroethane	Total	107-06-2			
1,2-Dichloropropane	Total	78-87-5			

1,2-Diphenylhydrazine	Total	122-66-7
1,3-Dichlorobenzene	Total	541-73-1
1,3-Dichloropropene	Total	542-75-6
1,4-Dichlorobenzene	Total	106-46-7
2,4,5-TP	Total	93-72-1
2,4,6-Trichlorophenol	Total	88-06-2
2,4-D	Total	94-75-7
2,4-Dichlorophenol	Total	120-83-2
2,4-Dimethylphenol	Total	105-67-9
2,4-Dinitrophenol	Total	51-28-5
2,4-Dinitrotoluene	Total	121-14-2
2,6-Dinitrotoluene	Total	606-20-2
2-Chloroethyl vinyl Ether	Total	110-75-8
2-Chloronaphthalene	Total	91-58-7
2-Chlorophenol	Total	95-57-8
2-Methyl-4,6-Dinitrophenol	Total	534-52-1
2-Nitrophenol	Total	88-75-5
3,3'-Dichlorobenzidine	Total	91-94-1
3-Methyl-4-Chlorophenol	Total	59-50-7
4,4-DDD	Total	72-54-8
4,4-DDE	Total	72-55-9
4,4'-DDT	Total	50-29-3
4-Bromophenyl Phenyl Ether	Total	101-55-3
4-Chlorophenyl Phenyl Ether	Total	7005-72-3
4-Nitrophenol	Total	100-02-7
Acenaphthene	Total	83-32-9
Acenaphthylene	Total	208-96-8

Acrolein	Total	107-02-8
Acrylonitrile	Total	107-13-1
Alachlor	Total	15972-60-8
Aldrin	Total	309-00-2
alpha-BHC	Total	319-84-6
alpha-Endosulfan	Total	959-98-8
Anthracene	Total	120-12-7
Atrazine	Total	1912-24-9
Benzene	Total	71-43-2
Benzidine	Total	92-87-5
Benzo(a)Anthracene	Total	56-55-3
Benzo(a)Pyrene	Total	50-32-8
Benzo(b)Fluoranthene	Total	205-99-2
Benzo(ghi)Perylene	Total	191-24-2
Benzo(k)Fluoranthene	Total	207-08-9
beta-BHC	Total	319-85-7
beta-Endosulfan	Total	33213-65-9
Bis(2-Chloroethoxy)Methane	Total	111-91-1
Bis(2-Chloroethyl)Ether	Total	111-44-4
Bis(2-Chloroisopropyl)Ether	Total	39638-32-9
Bis(2-Ethylhexyl)Phthalate	Total	117-81-7
Bromoform	Total	75-25-2
Butylbenzyl Phthalate	Total	85-68-7
Carbofuran	Total	1563-66-2
Carbon Tetrachloride	Total	56-23-5
Chlordane	Total	57-74-9

Chlorobenzene	Total	108-90-7
Chlorodibromomethane	Total	124-48-1
Chloroethane	Total	75-00-3
Chloroform	Total	67-66-3
Chlorpyrifos	Total	2921-88-2
Chrysene	Total	218-01-9
Dalapon	Total	75-99-0
Di(2-ethylhexl)adipate	Total	103-23-1
Diazinon	Total	333-41-5
Dibenzo(a,h)Anthracene	Total	53-70-3
Dibromochloropropane	Total	96-12-8
Dichlorobromomethane	Total	75-27-4
Dichloroethylene (cis-1,2)	Total	156-59-2
Dieldrin	Total	60-57-1
Diethyl Phthalate	Total	84-66-2
Dimethyl Phthalate	Total	131-11-3
Di-n-Butyl Phthalate	Total	84-74-2
Di-n-Octyl Phthalate	Total	117-84-0
Dinoseb	Total	88-85-7
Dioxin	Total	1746-01-6
Diquat	Total	85-00-7
Endosulfan Sulfate	Total	1031-07-8
Endothall	Total	145-73-3
Endrin	Total	72-20-8
Endrin Aldehyde	Total	7421-93-4
Ethylbenzene	Total	100-41-4
Ethylene Dibromide	Total	106-93-4
Fluoranthene	Total	206-44-0
Fluorene	Total	86-73-7

gamma-BHC (Lindane)	Total	58-89-9	
Glyphosate	Total	1071-83-6	
Haloacetic acids	Total	n/a	
Heptachlor	Total	76-44-8	
Heptachlor epoxide	Total	1024-57-3	
Hexachlorobenzene	Total	118-74-1	
Hexachlorobutadine	Total	87-68-3	
Hexachlorocyclohexane (Lindane)	Total	58-89-9	
Hexachlorocyclopentadiene	Total	77-47-4	
Hexachloroethane	Total	67-72-1	
Ideno 1,2,3-cdPyrene	Total	193-39-5	
Isophorone	Total	78-59-1	
Methoxychlor	Total	72-43-5	
Methyl Bromide	Total	74-83-9	
Methyl Chloride	Total	74-87-3	
Methylene Chloride	Total	75-09-2	
Mirex	Total	2385-85-5	
Naphthalene	Total	91-20-3	
Nitrobenzene	Total	98-95-3	
N-Nitrosodimethylamine	Total	62-75-9	
N-Nitrosodi-n-Propylamine	Total	621-64-7	
N-Nitrosodiphenylamine	Total	86-30-6	
Nonylphenol	Total	84852-15-3	
Oxamyl (vydate)	Total	23135-22-0	
Parathion	Total	56-38-2	
PCB's	Total	1336-36-3	
Pentachlorophenol	Total	87-86-5	Accompanying Field pH Measurement

Phenanthrene	Total	85-01-8	
Phenol	Total	108-95-2	
Picloram	Total	1918-02-1	
Polychlorinated Biphenyls	Total	1336-36-3	
Pyrene	Total	129-00-0	
Simazine	Total	122-34-9	
Styrene	Total	100-42-5	
Tetrachloroethylene	Total	127-18-4	
Toluene	Total	108-88-3	
Toxaphene	Total	8001-35-2	
Trichloroethylene	Total	79-01-6	
Vinyl Chloride	Total	75-01-4	
Xylenes	Total	1330-20-7	
Tributyltin	Dissolved	n/a	Please refer to appropriate method for QC requirements and to ensure that method sensitivity is sufficient to accurately quantify constituent concentration from natural waters
Gross Alpha	Total	12587-46-1	
Gross Beta (Combined)	Total	12587-47-2	
Radium 226	Total	13982-63-3	
Radium 228	Total	15262-20-1	
Strontium 90	Total	10098-97-2	
Tritium	Total	10028-17-8	

NOTE: This list and accompanying information may not be complete. Please check UAC R317-2 for the most current list of parameters and the 303(d) Methods for additional information on what parameters are assessed, readily available, and credible.

Appendix 2

Data Quality Guideline Examples

DWQ Sampling Analysis Plan Requirements

Revision 1.1 July 6, 2016

Utah Division of Water Quality

Checklist of Essential Elements for Sampling and Analysis Plans (SAPs)

Monitoring Project/Program:_____

Preparer(s):_____

Reviewer(s):_____

Date Submitted for Review:_____

Date of Review:_____

Parent QAPP or Equivalent Document:_____

Instructions for Preparers:

As required by DWQ's Quality Assurance Program Plan for Monitoring Programs (DWQ QAPP), ***any monitoring activity*** conducted or overseen by DWQ ***must*** have a SAP, excluding one-time response actions (such as a spill) or compliance sampling. The SAP must be reviewed and revised for each field season/monitoring year. SAPs are approved and kept on file by the Monitoring Section QA Staff and must be distributed to everyone involved with a monitoring project. Use the template and checklist below to help create your SAP. The SAP should contain or reference all the elements in this checklist but need not have the same format. Rather than extensive text, include as much information as possible in the form of tables, which are easier to refer to in the field.

The SAP should be a usable, stand-alone document that can be taken into the field by Monitors. Therefore, if you choose to use an element directly from the DWQ QAPP that needs to be viewable when reading the SAP, copy and paste it into the SAP rather than just referencing the QAPP so that Monitors do not have to read through both documents while in the field. The Monitoring- and Data and Information-Section's QA Staff are available to assist you in preparing your SAP and you may view other DWQ SAP examples on the Monitoring Council Webpage at http://www.waterquality.utah.gov/Monitoring/Council.

Definitions and Acronyms:

DPM - Designated Project Manager. As defined by DEQ's Quality Management Plan (QMP), the DPM is the staff member responsible for a specific project and has immediate managerial or technical control of that project. The DPM is responsible for specifying the quality of the data required for each project and initiating corrective actions when quality control is not being met. The DPM may also be a program manager. The DPM is responsible for designing monitoring strategies, setting project-specific data quality objectives (DQOs), and developing project-specific SAPs. DPMs are responsible for making sure all personnel involved with the

project are briefed and/or trained on the procedures to be used. Roles of DPMs are further discussed throughout the DWQ QAPP.

IR –Integrated Report

SMP – Strategic Monitoring Plan

Introduction and Background Information (This can be brief if it references some previous documentation or the IR or SMP, etc.)

- Site history
- Regulatory framework
- Summary of previous investigations
- Location/characteristics of any known pollution sources at the site or in the area
- Site location map showing area at a broad scale

Objectives and Design of the Investigation (This should be very specific to the project and should be a result of discussions between DPM, data users, stakeholders, science panel, etc.)

- Specific objectives of this study (describe how they support broader program goals/objectives or regulatory framework)
- Study design (i.e. spatial/temporal limits, sample characteristics, the smallest population, area, volume, or time frame for which decisions will be made).
- Representative sampling conditions and instructions for field personnel if they encounter non-representative sampling conditions
- Parameters of concern (narrative – must conform to list(s) in sections 4 and 6)
- Number, location, and frequency of samples and quality control samples
- Sampling Site Locations
- Rationale for site selection
- Site map(s) showing sampling locations and “control” sites and any other pertinent features such as land use, etc. within the sampling area

Special Precautions and Safety Plan

- Detailed itemization of any specific safety concerns
- Reference to an applicable safety plan
- Any additional safety training required for project
- Documentation that field personnel comply with your Invasive Species Plan and SOPs to prevent spread of invasive species

Field Sampling Methods and Documentation

- Any special training needed beyond those discussed in DWQ QAPP and where training documentation will be kept
- A table listing each field instrument to be used (equipment, describe operation or indicate where operation manual is kept for field event, include calibration procedures, if any)
- A table listing each sampling method to be used (sampling equipment if needed, cite method in SAP, attach applicable SOPs)
- Operation of any sampling equipment used or location of operation manual for field event, include decontamination procedures, if any, attach applicable SOPs
- Equipment lists and sampling trip organizing checklists if not found in SOPs
- Corrective actions for problems that may occur in the field

- Field documentation required and how field records shall be generated and stored

Laboratory Sample Handling Procedures

- Sample containers, preservatives, holding times
- Field documentation (COC) and sample labeling procedures
- Shipping plan for sample transport to laboratory

Analytical Methods and Laboratory Documentation

- Chemical – list parameter, cite preparation method and analytical method, list required sensitivity or detection limits
- Biological – cite method or desired taxonomic level and organism target count, etc.
- Required reporting procedures (e.g. hardcopy, electronic deliverables) and turn-around times
- Be sure DWQ has obtained QA documentation for each laboratory used (check with Monitoring Section QA Staff), reference this information and any new/research analytical methods being used (obtain these protocols if available from lab)
- List the required data package contents from the analyzing laboratories [or reference a service contract or Memorandum of Understanding (MOU)]

Project Quality Control Requirements

- Table of QC limits for field instruments (operation range, accuracy, and precision)
- Table listing each Data Quality Indicator (precision, accuracy, bias, etc.), how it will be measured, and the performance criteria against which it will be evaluated (use the table in the DWQ QAPP and adapt it to this project if needed): (1) analytical (internal to lab) QC limits for chemical analyses (acceptable precision, accuracy, and negative control – lab method blank, (2) field sample QC limits for chemical analyses [Acceptable precision (field duplicates) and negative control (field or trip blanks)], and (3) QC limits for biological analysis [Acceptable precision (% diff in enumeration, 5 taxonomic difference)]
- QC limits, schedule, and descriptions of planned field/lab audits/assessments
- Data quality assurance review procedures: (1) describe system of data qualification, (2) describe measure of completeness relative to planned design, and (3) corrective actions for non-conformance

Data Analysis, Record Keeping, and Reporting Requirements

- Data interpretation approach (include means to temper decision-making if limited completeness of design occurs)
- Project record keeping procedures and archive (hardcopies, electronic data)
- How and when DPM wishes to be notified of available laboratory/field results
- Expected content and format of final project report and who will receive original/copies.

Schedule and Budget

- Table or figure showing project schedule with key project milestones
- List funding sources for project and include anticipated equipment, consumables, personnel purchases/costs
- Sample costs/lab resources per fee schedule

Project Team and Responsibilities

- Project team responsibilities and personnel
- Sampling personnel

- Subcontractors (e.g. chemical and biological labs)

References (include references to DWQ-prepared documents)

Appendices and Attachments (include SOPs, chain of custody forms, field forms, sample labels, etc.)

Example Field Observation Form for Grab Samples

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY

Version 2.0
Monitoring Location ID: _____
Monitoring Location Name: _____
Monitoring Location Description: _____

Sample Date: _____
Sample Time: _____

Check the water color desciption that best fits the sampling location:
□ Brown/Gray (turbid) □ Black □ Clear □ Stained (tea-look) □ Green □ Other (describe) _____

Indicate the level of coverage of *Didymosphenia geminata* (didymo) in reach
□ Absent (0%) □ Sparse (<10%) □ Moderate (10-75%) □ Heavy (>75%)

<-- Example of didymo.
Photo fromhttp://www.wvdnr.gov/fishing/didymo.shtm

Indicate the level of coverage of Filmentous algae in reach
□ Absent (0%) □ Sparse (<10%) □ Moderate (10-75%) □ Heavy (>75%)

<-- Example of filamentous algae
Photo from http://www.dep.wv.gov/WWE/Programs/
/wqs/Pages/FilamentousAlgaeinWestVirginia.aspx

(Lake sampling) Is there blue green algae? □ Y □ N

<-- Example of blue green algae
Photo courtesy of Utah County Health Dept

Is there an Algal Mat? ☐ Y ☐ N Fish kill?: ☐ Y ☐ N Number of Fish Observed: _____ Type of Fish: _____

Does the underside of the rock look black AND have a straong sulfur/ rotten eggs smell? ☐ Y ☐ N Sheen present?: ☐ Y ☐ N Odor at the site?: ☐ Y ☐ N

Anthropogenic disturbances present at site that may affect sample results? ☐ Y ☐ N

If yes to any above, explain here: _____

Were any photos take from the site visit? ☐ Y ☐ N

Circle all weather codes that apply
1 Windy
2 Dust
3 Rain in the last 24/48 hrs
4 Rain (presently
5 Runoff (indicate if you are sampling/ trying to capture runoff)

Circle all flow codes that apply
1 Standing Water (no flow BUT measurement/ sample taken
2 Measurement/ sample taken from backwater
3 Swift and deep
4 Shallow/trickle
5 Ice Present: evidence of flow beneath surface
6 Ice Present: unsure if flowing beneath surface

Circle all field condition codes that apply
1 Fire (evidence of)
2 Landslide/ Mudslide (evidence of)
3 Flooding (evidence of)
4 Presently Flooding/ Water Rising
5 Livestock (present)
6 Livestock (not present but evidence of)
7 Beaver Dam (sample taken upstream)
8 Beaver Dam (sample taken downstream)
9 Dam (sample taken downstream of resevoir tailrace)

FIELD COMMENTS: _____

Other comments/concerns/issues: _____

Appendix 3

Application of Secondary Review Process

Data Concern	Secondary Review Process	Data Application
Temporal variation within a dataset	Insufficient sampling frequency within an assessment period of record	Individual data records
Bias in sampling design	(1) Event monitoring (review flow, weather, and spill/response/incident data; narrative criteria; field observations and photographs; satellite imagery; other data types collected in same (and around the) period of concern, etc.), (2) sample time of day (literature review to determine if parameter is impacted by the time of day sample is collected), (3) sampling a specific season (unless approved by DWQ in a SAP or is data-type specific (e.g., *E. coli* sampling during the recreation season)], (4) and locational bias	Individual data records
Data quality	(1) Quality Assurance Program Plan For Environmental Data Operations, (2) field calibration documentation, (3) laboratory methods, (4) standard operating procedures, (5) demonstration of capability (if applicable to data type), and (6) discussion with sample collector	Individual data records, and/or, parameter(s) in period of record, and/or monitoring location
Wrongly monitored	(1) Measured point source (vs. main water body), review imagery of area, flow, etc., (2) waterbody type DWQ does not assess, (3) grab sample vs. composite, (4) flow conditions (too low or not flowing), and (5) field observation that impacts quality of data	Individual data records and/or monitoring location
Outlier	(1) Need more than a statistical test. Should be based on scientific or QA basis, (2) QA/QC field sampling blanks, duplicates/replicate, (3) laboratory Analytical Batch QC, (4) value is nonsensical (e.g., cannot be measured with field/laboratory method), and (5) refer to data quality (above)	Individual data records
Magnitude of exceedance	(1) Significant figures and (2) narrative criteria review	Individual data records
QA/QC concerns	(1) Holding time, (2) laboratory comment, (3) dilutions, spikes, and (4) other laboratory QC performance checks	Individual data records

Data Concern	Secondary Review Process	Data Application
Assessment unit grouping/spatial variation	(1) Multiple locations not grouped correctly (either should or should not have been grouped), (2) AUs where water quality criterion exceedances are clearly isolated to a relatively small, hydrologically distinct portion of the larger AU and may need to be re-segmented to more accurately reflect that variation in water quality (please refer to 303(d) Assessment Methods section on "Assessment Unit Re-segmentation" for more information on the process), and (3) a surface water (e.g., a spring or seep) was sampled in the AU and was assessed but additional information indicates that the surface water may not have been flowing or did not connect, contribute, or influence downstream water quality	Monitoring location
Credible data	(1) Data type applied incorrectly and (2) data type not considered. (Data type must meet credible and representative data requirements in 303(d) Assessment Methods, and if included in the assessment analysis would result in a change in the categorization of the waterbody and parameter	Individual data records and/or parameter(s) in period of record, monitoring location
Other	(1) Parameters wrongly grouped (by CAS, fraction, or methods), (2) data type is laboratory measurement (when the data assessment requires a field measurement), (3) IR QA/QC flagged data, and (4) errors in standards	Individual data records. Entire parameter assessments
Conflicting DO assessments between grab and high frequency data	Scenario: Two types of data available at the site(s) (i.e., grab or high frequency data) do not have the same preliminary assessment result. Reviews to consider: (1) sampling period captured, (2) duration of conditions below criterion, (3) frequency of recurrent low DO events, (4) magnitude of exceedance, (5) spatial extent of low DO, and (6) diel flux of DO	Individual data records. Entire parameter assessments
Representativeness and Environmental Factors*	Examples of extreme events include the following: (1) accidental spills of toxic chemicals, (2) scouring storm flows that lead to diminished aquatic-life beneficial uses, and (3) extreme drought conditions. Given the scope of these assessments, it is not always possible to identify where such circumstances may be influencing a specific sample, but DWQ will consider any evidence presented that a sample is not representative of ambient conditions. Examples of such a review may include reviewing flow, weather, spill data, narrative criteria, field observations and photographs, satellite imagery, other data types collected in the same (and around the) period of concern, etc.	Individual data records

Data Concern	Secondary Review Process	Data Application
Pollution Indicators	Secondary reviewers will incorporate indicator data into assessment category determinations, relying on multiple lines of evidence, including pollution indicator thresholds, the presence or absence of other indicator-associated water quality issues, potential pollutant sources, and other site or watershed-specific knowledge to determine whether listing or delisting on a pollution indicator parameter is appropriate or whether to prioritize waterbodies for additional monitoring.	(1) Pollution indicator evaluations will be posted with the report(s (e.g. exceedance counts & frequencies), so DWQ programs and stakeholders can consider the results when planning for future monitoring, studies, evaluations, etc, (2) pollution Indicator evaluations may be included in a narrative assessment/standard not supporting or supporting assessment decision, (3) pollution indicators may be reported by the IR as a cause of pollution impairment, and (4) pollution indicators may be reported by the IR as the source of an impairment

*Footnote: Where these conditions are present in a dataset, DWQ will run the analysis without the extreme events/data record and will apply and document an appropriate assessment result for the waterbody using the methods outlined below.
Category 1: Supporting: If analyses with and without the extreme events are supporting (Category 1.
Category 2: No evidence of impairment: If analyses with the extreme events are supporting (Category 1), but the analyses without the extreme events show no evidence of impairment (Category 2)
Category 2: No evidence of impairment: If analyses with and without the extreme events do not indicate evidence of impairment (Category 2)
Category 2: No evidence of impairment: If analyses with the extreme events are evidence of impairment (Category 3 with exceedances), but the analyses without the extreme events show no evidence of impairment (Category 2)
Category 2: No evidence of impairment: If analyses with the extreme events are not supporting (Category 5), but the analyses without the extreme events show no evidence of impairment (Category 2)
Category 3: Insufficient Data, Exceedances: If analyses with and without the extreme events show evidence of impairment (Category 3)
Category 3: Insufficient Data, Exceedances: If analyses with the extreme events are not supporting (Category 5), but the analyses without the extreme events are supporting (Category 1)
Category 5: Not supporting: If analyses with the extreme events are evidence of impairment (Category 3), but the analyses without the extreme events are not supporting (Category 5)
Category 5: Not supporting: If analyses with the extreme events are not supporting (Category 5), but the analyses without the extreme events show evidence of impairment (Category 3)
Category 5: Not supporting: If analyses with and without the extreme events are not supporting (Category 5)

Appendix 4

Summarizing Assessments From Site to Assessment Unit Level

Going from multiple beneficial uses assessments for a parameter (i.e., a Parameter Summary Report) to One Parameter Category per Monitoring Location ID (MLID)*.

IR Analysis Action: 3: (Insufficient Data with Exceedances)

- 1,2, or 3 exceedances (with no data rejected for a use). Param Cat: 3 insufficient data with exceedances → Param EPA Cat: 3
- 1,2, or 3 exceedances (with some data rejected for a use). Param Cat: 3 insufficient data with exceedances → Param EPA Cat: 3
- 0 exceedances (with no data rejected for a use). Param Cat: 3 insufficient data with no exceedances → Param EPA Cat: 3
- 0 exceedances (with some data rejected for a use). Param Cat: 3 insufficient data with no exceedances → Param EPA Cat: 3
- All data removed for every use. Param Cat: 3 insufficient data because not assessed → Param EPA Cat: 3

IR Analysis Action: Not Assessed

- All data removed for every use. Param Cat: 3 insufficient data because not assessed → Param EPA Cat: 3

IR Analysis Action: Not Assessed

- IR Analysis Comment: "Non-Rejected data available for MLID/AU, but data available for individual use assessment was all rejected." Param Cat: 3 insufficient data because not assessed →Param EPA Cat: 3

IR Analysis Action: Not Assessed

- IR Analysis Comment: "No Uses assigned to site." Param Cat: 3 insufficient data because not assessed →Param EPA Cat: 3

IR Analysis Action: Assessed By Use

- FS Only →Param EPA Cat: 1
- FS Only + some data rejected by use →Param EPA Cat: 2
- Contains an NS →Param EPA Cat: 5
- All data was rejected for a use →Param EPA Cat: 3, insufficient data because not assessed
- FS Only + exceedances by Use + some data rejected by use →Param Cat: 3 insufficient data with exceedances →Param EPA Cat: 3
- FS Only + no exceedances by Use + some data rejected by use →Param EPA Cat: 2
- FS Only + exceedances by Use + NO data rejected by use →Param Cat: 3 insufficient data with exceedances →Param EPA Cat: 3
- FS Only + no exceedances by Use + NO data rejected by use →Param EPA Cat: 2

- Exceedances by Use + some data rejected by use →3 insufficient data with exceedances →Param EPA Cat: 3
- No exceedances by Use + some data rejected by use →3 insufficient data with no exceedances →Param EPA Cat: 3
- Exceedances by Use + NO data rejected by use →3 insufficient data with exceedances →Param EPA Cat: 3
- No exceedances by Use (NO exceedances) + NO data rejected by use →3 insufficient data with no exceedances →Param EPA Cat: 3
- BOD, TP**, and Nitrate (for non 1C uses) →Parameter Cat: MLID Cat =3 Further Investigations →Param EPA Cat: 3

*Note: after this rollup there will be multiple parameter assessment categories for one MILD. For example, MLID "X" will have one Iron, one Copper, one Temperature, one Dissolved Oxygen, etc.

Going from many Parameter Categories within an MLID to 1 Category for the MLID take MLID_Param Cats and Group them by MLID. Then assign the MLID category by the following logic:

- **Parameter Cat = 5 →MLID Cat = 5 AND MLID EPA Cat = 5
- Parameter Cat = 3 with exceedances →MLID Cat =3 with exceedances AND MLID EPA Cat = 3
- Parameter Cat = 1 → (Cat1 Matrix Check is a match) →MLID Cat =1 AND MLID EPA Cat = 1
- Parameter Cat = 1 → (Cat1 Matrix Check is a NOT a match) → MLIDCat =2 AND MLIDEPACat = 2
- Parameter Cat = 2 →MLID Cat =2 AND MLID EPA Cat = 2
- Parameter Cat = 3 further investigations needed →MLID Cat =3 further Investigations Needed AND MLID Cat = 3
- Parameter Cat = 3 no exceedances →MLID Cat =3 no exceedance AND MLID EPA Cat = 3
- Parameter Cat = 3 not assessed →MLID Cat =3 no assessed AND MLID EPA Cat = 3

** Should be able to see a concatenation of the uses for a parameter that created a Category 5 (needs validation too)

Going from many MLID Categories within an Assessment Unit (AU) to 1 Category for the AU take MLID Cats and Group them by AUID. Then assign the AUID category by the following logic:

- **MLID Cat = 5 →AUID Cat = 5 AND AUID EPA Cat = 5
- AUID Cat = 5 (and TMDL in Place) →AUID Cat = 5 AND AUID EPA Cat = 4A
- AUID Cat = 5 (and non-TMDL in Place) →AUID Cat = 5 AND AUID Cat = 4B
- **MLID Cat = 5 → (and TMDL is in place & only parameter assessed for that AUID is being considered) →AUID Cat = 4a AND AUID EPA Cat = 4A
- AUID Cat = 5 (and non-TMDL in place) →AUID Cat = 4a AND AUID EPA Cat = 4B
- **MLID Cat = 5 → (and non-TMDL is in place & only parameter assessed for that AUID is being considered) →AUID Cat = 4b AND AUID Cat = 4B
- MLID Cat = 3 with exceedances →AUIDCat =3 with exceedances AND AUID EPACat = 3
- MLID Cat = 2 →AUID Cat =2 AND AUID EPA Cat = 2
- MLID Cat = 1 →AUID Cat =1 AND AUID EPA Cat = 1
- MLID Cat = 3 further investigations needed →AUID Cat =3 further investigations needed AND AUID Cat = 3
- MLID Cat = 3 no exceedances →AUID Cat =3 no exceedances AND AUID Cat = 3
- MLID Cat = 3 not assessed →AUID Cat =3 not assessed AND AUID Cat = 3

** Should be able to see a concatenation of the uses for a parameter that created a 5 category (needs validation too)

Extra Checks: Biological assessments only assess 3A, 3B, 3C, or 3D beneficial uses. For an AU to be Category 1, all assigned beneficial uses must be assessed. Query AUs with biological assessments in them and confirm that the AU assessment category follows the roll up process described in this document. One example: a biological assessment is performed for an AU and the AU is Category 1 (should be changed to a Category 2).

Appendix 5

4B Submission Policies and Procedures: Process for Determining Category 4B Classification

An approved Category 4B demonstration plan is an alternative to listing an impaired segment on the state's 303(d) list. A Category 4B demonstration plan, when implemented, must ensure that all applicable water quality standards are met through agreed-upon pollution-control mechanisms within a reasonable time period. These pollution-control mechanisms can include approved compliance schedules for capital improvements or plans enforceable under other environmental statutes (such as Comprehensive Environmental Response, Compensation, and Liability Act) and their associated regulations. A Category 4B demonstration can be used for segments impaired by point sources and/or nonpoint sources. Both DWQ and EPA must accept a Category 4B demonstration plan for the affected segment to be placed in Category 4B. In the event that the Category 4B demonstration plan is not accepted, the segment at issue will be included on the 303(d) list, Category 5.

Generally speaking, the following factors will be considered necessary for Category 4B demonstration plan acceptance: 1) appropriate voluntary, regulatory, or legal authority to implement the proposed control mechanisms through permits, grants, compliance orders for Utah Pollutant Discharge Elimination System permits, etc.; 2) existing commitments by the proponent(s) to implement the controls; 3) adequate funding; and 4) other relevant factors appropriate to the segment.

The following evidence must be provided as a rationale for a Category 4B demonstration plan:

A statement of the problem causing the impairment

1. A description of
    a. The pollution controls to be used
    b. How these pollution controls will achieve attainment with all applicable water quality standards
    c. Requirements under which those pollution controls will be implemented
2. An estimate of the time needed to meet all applicable water quality standards.
3. A schedule for implementation of the necessary pollution controls.
4. A schedule for tracking progress, including a description of milestones.
5. A commitment from the demonstration plan proponent to revise the implementation strategy and pollution controls if progress toward meeting all applicable water quality standards is not shown.

Timing for proposal submittal and acceptance by DWQ and EPA

- Category 4B demonstration plans should be submitted to DWQ by July 1 of even numbered years, in order for DWQ to submit the plan to EPA by September 1 of even numbered years. Parties are encouraged to work with DWQ before this date as states are the entity required to submit these plans to EPA.

- Acceptance from EPA must be obtained by October 31 of even numbered years; otherwise, DWQ will continue to propose that the segment in question is included on the current cycle's 303(d) list.
- If EPA and DWQ accept the Category 4B plan, DWQ will notify the Water Quality Board and the public through proposed statement of basis and purpose language in its proposal that a Category 4B demonstration plan is accepted and is appropriate for this segment.

EPA has several documents that contain additional information on Category 4B demonstration requirements, including: "2006 Integrated Report Guidance"; and "Information Concerning 2008 Clean Water Act Sections 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions".

Appendix 6

Guidelines for Delisting

Does the AU/AU-parameter combination warrant further investigation? (See 303(d) Assessment Methods for more details).

What was the original cause of impairment for the AU?

What IR assessment cycle was the AU and parameter first listed?

- What datasets were used for that listing (e.g., the agency/sample collector)?
- What was the period of record? (If unknown, use the longer period of record).
- What MLIDs are in the AU?

For impairments listed in the previous assessment cycle, compile the data. (Query data for all MLIDs in the AU. Ignore waterbody types).

- What MLID has > = 1 exceedances?
- For MLIDs with impairments/exceedances and not assessed in the current IR cycle: why did DWQ (or someone else) not resample? (Provide documentation as to why resampling was not done and why (by not re-sampling) the site should meet water quality standards. Please refer to the good cause descriptions in the 303(d) methods. Check for good cause. If it is a reason other than good cause, the documentation will need to be EPA-approved).
- Where all MLIDs with exceedances are assessed in the current IR cycle: (1) For MLIDs with impairments/exceedances and the current parameter assessment for the MLID is not 1, 2, or 3 no exceedances –> no delisting or (2) is the current parameter Category 1, 2, or 3 no exceedances? Was there a secondary review applied to this parameter (e.g., an assessment category overwrite for the whole):

    a. Parameter? If the secondary review created a Category 1, 2, or 3 no exceedances, the secondary review justification will need to be EPA-approved if it is considered to be a delisting. Check for good cause.
    b. MLID? If the secondary review created a Category 1, 2, or 3 no exceedances, the secondary review justification will need to be EPA-approved if it is considered to be a delisting. Check for good cause.
    c. AU? If the secondary review created a Category 1, 2, or 3 no exceedances, the secondary review justification will need to be EPA-approved if it is considered to be a delisting. Check for good cause.

- Is the current parameter Category 1, 2, or 3 no exceedances? (No secondary review applied to this parameter) → Check for good cause.

Note: Need to confirm that if no new data are collected, the new assessment analysis is not a Category 1,2, or 3 no exceedances, because the exceedances are out of the period of record for assessment analysis (i.e., not a delisting).

Double check before delisting:

- If the current Parameter Category 1, 2, or 3 no exceedances – what is the oldest date in that period of record for that MLID/Parameter combo in the current assessment cycle?
- For every MLID in the AU (ignore waterbody types), compile all data for that parameter between the max date from the cycle the parameter was first listed and the oldest date in that period of record for that MLID/Parameter combo in the current assessment cycle?

- What MLID has > = 1 exceedances
- For MLIDs with impairments/exceedances and not assessed in the current IR cycle: why did DWQ (or someone else) not resample? (Provide documentation as to why resampling was not done and why (by not re-sampling) the site should meet water quality standards. Please refer to the good cause descriptions in the 303(d) methods. If it is a reason other than good cause, the documentation will need to be EPA-approved). Check for good cause.
- Where all MLIDs with exceedance are assessed in the current IR cycle: (1) for MLIDs with impairments/exceedances and the current parameter assessment for the MLID is not 1, 2, or 3 no exceedances –> no delisting or (2) is the current parameter Category 1, 2, or 3 no exceedances? Was there a secondary review applied to this parameter (e.g., an assessment category overwrite for the whole):

    d. Parameter? If the secondary review created a Category 1, 2, or 3 no exceedances, the secondary review justification will need to be EPA-approved if it is considered to be a delisting. Check for good cause.
    e. MLID? If the secondary review created a Category 1, 2, or 3 no exceedances, the secondary review justification will need to be EPA-approved if it is considered to be a delisting. Check for good cause.
    f. AU? If the secondary review created a Category 1, 2, or 3 no exceedances, the secondary review justification will need to be EPA-approved if it is considered to be a delisting. Check for good cause.

- Is the current parameter Category 1, 2, or 3 no exceedances? (No secondary review applied to this parameter) →Check for good cause

Note: Need to confirm that if no new data are collected, the new assessment analysis is not a Category 1,2, or 3 no exceedances, because the exceedances are out of the period of record for assessment analysis.

EPA Delisting Codes

Delisting Reason Code	Comment
WQS_NO_LONGER_THREATENED	Applicable WQS attained; threatened water no longer threatened
WQS_NEW_ASMT_METHOD	Applicable WQS attained, according to new assessment method
DELISTING_4C	Not caused by a pollutant (4c)
DELISTING_WQS_NOT_APPLICABLE	WQS no longer applicable
DELISTING_4B	Other pollution control requirements (4b)
DELISTING_4A	TMDL Approved or established by EPA (4a)
WQS_NEW_DATA	Applicable WQS attained; based on new data
WQS_LISTING_INCORRECT	Applicable WQS attained; original basis for listing was incorrect
REFINEMENT	Clarification of listing cause
WQS_RESTORATION_ACTIVITIES	Applicable WQS attained, due to restoration activities
WQS_RECOVERY_UNSPECIFIED	Applicable WQS attained; reason for recovery unspecified
DELISTING_NOT_IN_JURISDICTION	Listed water not in state's jurisdiction
WQS_STANDARDS_CHANGED	Applicable WQS attained, due to change in WQS
NOT_SPECIFIED	Not specified
DELISTING_NOT_WATER_OF_STATE	Water determined to not be a water of the state
DELISTING_ORIG_INCORRECT	Data and/or information lacking to determine WQ status; original basis for listing was incorrect

Appendix 7

TMDL Prioritization Process

The Clean Water Act (CWA) requires total maximum daily loads (TMDLs) be developed for all impaired waterbodies on the 303(d) list. The CWA recognizes the many limitations in data, time, and staff resources to accomplish this, so the statute also requires states to prioritize where they will dedicate resources toward TMDL development. However, defining an impaired waterbody as high priority does not necessarily mean that a TMDL will be developed before lower priority segments Development of some high-priority TMDLs ,may take considerably longer due to data collection, stakeholder involvement, and other factors.

DWQ prioritizes impairments to human and ecological health as described in the Division of Water Quality's (DWQ) 303(d) vision document. These priorities translate into the protection and restoration of waters designated for culinary, recreational, and aquatic life uses. Considerations for TMDL prioritization in Utah also include the level of partner agency and stakeholder involvement and potential for restoration as defined by the Recovery Potential Screening tool. Other factors considered in setting TMDL priorities include programmatic needs such as permitting and addressing watershed-wide water quality issues.

Appendix 8

Response to Comments