

CHAPTER 1

INTRODUCTION



2014

Integrated Report

UTAH DIVISION OF WATER QUALITY

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CHAPTER 1 INTRODUCTION

INTEGRATED REPORT

Utah's Component of the Integrated Report

The Utah Division of Water Quality (DWQ) is responsible for a variety of programs that monitor, assess, and protect the surface and ground waters of the state. Partnering with a range of public and private entities, DWQ combines its data collection efforts with the data collected by identified stakeholders to characterize the surface water quality of the state. This report is the result of that collaborative effort. The 2012-2014 integrated report (IR) contains updates from previous reports (e.g., the 2010 IR) and a comprehensive survey of the water quality of surface waters in the state from 2008 to 2012.

What makes up an IR?

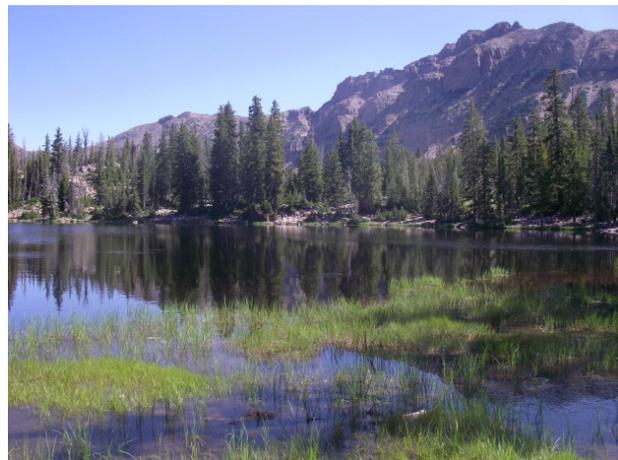
The U.S. Environmental Protection Agency (EPA) asks states to integrate four components into their IRs every 2 years:

1. A water quality inventory report, Chapter 3 of this document
2. An impaired waterbody list, Chapter 5 of this document
3. An electronic copy of the 305(b), e.g., the Assessment Database
4. A copy of the state's National Hydrology Dataset

Information on the reporting requirements from EPA and the different components of the IR are also discussed in this chapter. For details on the assessment methodology used for this IR, please refer to Chapter 2 Assessment Methods.

Clean Water Act 305(b) Reporting Requirements

The Federal Water Pollution Control Act—e.g., the Clean Water Act (CWA), Section 305(b)—requires states to monitor the water quality of their surface and ground waters and report on the status of these waters in a biennial report that is submitted to EPA.



For More Information:

EPA compiles all of the 305(b) data from each state, summarizes the data, and submits their own report to U.S. Congress, who summarizes the status of water quality nationwide.

As recommended by EPA in their IR Guidance Document (EPA, 2005), the following information must be included in the 305(b) report:

- A list of water quality–limited (impaired and threatened) waters still requiring total maximum daily loads (TMDLs), pollutants causing the impairment, and priority ranking for TMDL development (including waters targeted for TMDL development within the next 2 years)
- A description of the methodology used to develop the list
- A description of the data and information used to identify waters, including a description of the existing and readily available data and information used
- A rationale for any decision to not use any existing and readily available data and information
- Any other reasonable information requested by EPA, such as demonstrating good cause for not including a water or waters on the list
- Methods and procedures to mitigate the harmful effects of high acidity, including innovative methods of neutralizing and restoring buffering capacity of lakes and methods of removing from lakes toxic metals and other toxic substances mobilized by high acidity
- A list and description of those publicly owned lakes in such state for which uses are known to be impaired, including 1) those lakes that are known not to meet applicable water quality standards (WQSs) or that require implementation of control programs to maintain compliance with applicable standards and 2) those lakes in which water quality has deteriorated as a result of high acidity that may reasonably be due to acid deposition
- An assessment of the status and trends of water quality in lakes in such state, including the nature and extent of pollution loading from point and nonpoint sources and the extent to which the use of lakes is impaired as a result of such pollution, particularly with respect to toxic pollution



(CO-OP CREEK)

Clean Water Act 303(d) Reporting Requirements

In addition to the 305(b) report, Section 303(d) of the CWA requires states to submit a list biennially to EPA that identifies the waterbodies in that state that do not meet the state's WQSs. This list is reviewed by EPA and helps guide the state's TMDL development process to correct the specified impairment.

As recommended by EPA in their IR Guidance Document (EPA, 2005), the following information must be included in the 303(d) report:



(NAVAJO LAKE)

- A list of water quality–limited (impaired and threatened) waters still requiring TMDL(s), pollutants causing the impairment, and priority ranking for TMDL development (including waters targeted for TMDL development within the next 2 years)
- A description of the methodology used to develop the list
- A description of the data and information used to identify waters, including a description of the existing and readily available data and information used
- A rationale for any decision to not use any existing and readily available data and information
- Any other reasonable information requested by EPA, such as demonstrating good cause for not including a water or waters on the list

Cleaning up a State's Impaired Waters:

For waterbodies that are listed as impaired, the CWA requires a TMDL to be developed. TMDLs document the nature of the water quality impairment, determine the maximum amount of a pollutant discharge (while still meeting state standards), and identify acceptable loads from the pollutant source.

Integrated Report Classified Use Categories

Utah refers to *designated uses* as the basic unit for reporting water quality and uses EPA-recommended reporting categories to classify segments of waterbodies as meeting or not meeting applicable WQS. These categories are presented in Figure 1-1 and are described in further detail following the figure.

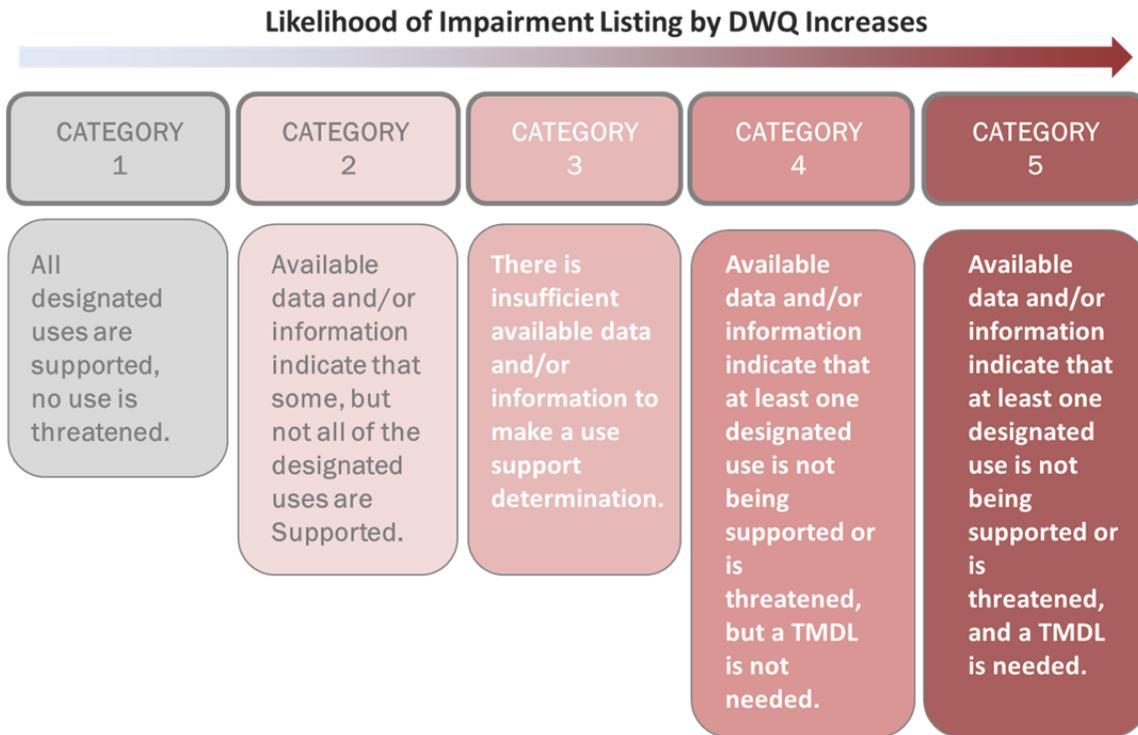


Figure 1-1. EPA’s five-category system for classifying water quality standards for waterbodies.

Category 1: All designated uses are attained.

Assessment units (AUs) are reported as Category 1 if all beneficial uses have been assessed against one more numeric criterion **and** each use is found to be fully supporting all uses.

Category 2: Some of the designated uses are attained, but there are insufficient data to determine beneficial use support for the remaining designated uses.

AUs are reported as Category 2 if some but not all designated uses have been evaluated, yet those uses that have been assessed are found to be supporting designated uses.

Category 3: There are insufficient data to make a determination, or lakes and reservoirs show indication of impairment for a single monitoring cycle.

For each designated use, AUs are reported as Category 3 if some data and information are available to evaluate one or more of an AU’s designated uses, yet available data are insufficient to make a conclusive assessment determination. Inconclusive decisions result from datasets that fail to meet data quality objectives that DWQ has established for making IR assessment decisions. Examples of situations where AUs are reported as Category 3 include the following: datasets with an insufficient number of samples available for analysis, situations where there were contradictory conclusions from multiple data sources,

or situations where quality assurance/quality control procedures were improper or poorly documented.

By reporting an AU as Category 3, versus simply reporting the AU as not assessed, DWQ is making a commitment to prioritize future monitoring to make a final assessment determination. In part due to this intrinsic commitment to prioritize monitoring, DWQ uses six Category 3 subcategories for planning purposes, which are defined as follows:

- **Category 3A:** AUs are listed in Category 3A if there are insufficient data and information to make an assessment and if the data include violations of water quality criteria. Information on Category 3A waters will be used to guide future monitoring and evaluations.
- **Category 3B:** Lakes and reservoirs that have been assessed as not supporting a beneficial use for one monitoring cycle are included in Category 3B. If a lake or reservoir is assessed as impaired for two consecutive monitoring cycles, it is listed on the 303(d) list.
- **Category 3C:** This category is currently used for Great Salt Lake (Designated Use Class 5). Assessment of this ecosystem with traditional approaches is complicated by the current lack of numeric criteria, with the exception of a selenium standard applicable to bird eggs. Also, the lake is naturally hypersaline, so traditional assessment methods are not appropriate. DWQ is working toward developing both numeric criteria and assessment methods for this ecosystem. In the interim, the IR documents the progress that was made in the most recent 2-year reporting cycle.
- **Category 3D:** Further investigations are required. For example, AUs with potential impairments for nutrients and biochemical oxygen demand were placed in Category 3D until such time that numeric nutrient criteria are developed.
- **Category 3E:** AUs are listed in Category 3E if there are insufficient data and information to make an assessment and if the data do not include violations of water quality criteria.
- **Category 3F:** AUs are listed in Category 3F if an assessment was not performed due to missing use information for the AU. Category 3F waters will be assigned designated uses for the 2016 IR assessment.

Category 4: Impaired for one or more designated uses, but does not require development of a TMDL. For each designated use, AUs are reported as Category 4 if water quality remains insufficient to support the designated use, yet a TMDL is not required.

- **Category 4A: TMDL has been completed for any pollutant:** AUs are listed in this subcategory when any TMDL(s) has been developed and approved by EPA, that when implemented, is expected to result in full support of the water quality standards



or support the designated uses. Where more than one pollutant is associated with the impairment of an AU, the AU and the parameters that have an approved TMDL are listed in this category. If it has other pollutants that need a TMDL, it is also listed in Category 5. Therefore, an AU can be listed in Category 4A and 5.

- **Category 4B: Other pollution control requirements are reasonably expected to result in attainment of the water quality standard in the near future:** Consistent with the regulation under 40 Code of Federal Regulations 130.7(b)(1) (ii) and (iii), AUs are listed in this subcategory where other pollution control requirements (e.g., best management practices required by local, state, or federal authority) are stringent enough to meet any water quality standard or support any beneficial use applicable to such waters.
- **Category 4C: The impairment is not caused by a pollutant:** AUs are listed in this subcategory if the impairment is not caused by a pollutant (e.g., habitat alteration, hydromodification).

Interpreting a WQS:

When deciding if a segment of a river or stream or a lake or reservoir should be put into a Category 1, 2, 3, 4, or 5, DWQ must consider the following factors: WQSs applied to that segment, the designated use assigned to the segment, and numeric criteria applicable to the designated use.

These factors help answer the following: *What do the monitoring data and other information tell us about whether or not this river/stream or lake is meeting WQSs? For more information on how Utah interprets a WQS, please refer to Utah's 2012 Integrated Report: Methods for Assessing and Reporting the Conditions of Lakes and Streams.*¹

Category 5: The concentration of a pollutant—or several pollutants—exceeds numeric water quality criteria, or quantitative biological assessments indicate that the biological designated uses are not supported (narrative water quality standards are violated).

Waters reported as Category 5 are impaired, which means that they are not meeting their designated uses. The list of Category 5 waters is sometimes called the “303(d) list” in reference to this section of the CWA, which among other things, requires states to identify impaired waters. There are several sources of data and information that are used when making impairment decisions. First, chemical assessments evaluate designated use support for an AU by comparing pollutant concentrations against numeric criteria that have been

¹ http://www.waterquality.utah.gov/WQAssess/documents/IR2010/Part1/2010_Part-1-IR-Final_10Nov2010.pdf

established to protect the use. A designated use of an AU is reported as Category 5 if any of the following apply:

- The concentration of any pollutant exceeds—as defined by the methods described in this document—a numeric water quality criterion.
- Quantitative biological assessment results for streams and rivers are statistically different than the reference site conditions.
- Weight of evidence assessments for lakes and reservoirs indicate that designated uses are not being supported.

The specific methods used by DWQ to make any of the above conclusions are documented in detail in Chapter 2 Assessment Methods. Figure 1-2 summarizes the results of the 2014 303(d) report indicating the number of AUs in each of the five categories and total stream miles and lake acres for each.

Category	Number of Stream Assessment Units	Total (and percent) Perennial Stream Miles	Number of Lake Assessment Units	Total (and percent) Lake Acres
1 (supporting)	83	1,664 (10%)	1	162,700 (34%)
2 (no evidence of impairment)	81	1,917 (12%)	74	154,700 (33%)
3 (insufficient information)	345	5,380 (34%)	37	3,774 (1%)
4 (pollution control in place)	25	668 (4%)	11	29,982 (6%)
5 (not supporting)	221	6,376 (40%)	47	122,709 (26%)

Figure 1-2. Number of AUs assessed and stream miles in each assessment category. Please note that the calculations for the number of perennial stream miles and lake acres are for only defined assessment units within the state of Utah.

Delisting Table

When sites are removed from a 303(d) listing, EPA strongly encourages states to document why sites are moved from a Category 5, 4a, 4b, and 4c to other categories. When a delisting occurs, Utah provides in the 305(b) report a list of the newly delisted site(s) and the following justification(s):



- Utah determines that the water quality standards are being met.
- There were flaws in the original listing.

- Other point source or nonpoint source
- controls are expected to meet water quality standards
- Impairment was due to a nonpollutant.
- EPA approves the TMDL.
- The waterbody is not in the state's jurisdiction.

(MONROE CREEK)

Chapter 5 contains more detailed information regarding the delisting of specific waterbodies which is contained in the Delisting Table section of the 303(d) list.

Public Participation Process

As part of DWQ's ongoing commitment to work with the public to safeguard human health and protect and enhance Utah's waters, DWQ engages its stakeholders from the start. Communities and others affected by the decisions of the 305(b) and 303(d) are asked to participate in the IR process through two opportunities before DWQ submits the IR to EPA. These two opportunities are described below:

1. Publicly Submitted Data Notification

Each IR cycle, DWQ makes a formal public notification—through newspaper ads, website postings, and email list servers—requesting data and information that can be used to inform designated use assessments. Whenever possible, the aim of DWQ is to obtain all data and information with sufficient time to compile the information by April of odd years. This allows DWQ sufficient time to obtain clarification where necessary, ensuring that outside sources of information are used to the greatest extent possible for IR assessments. Following each public notice, interested stakeholders have a minimum of 30 days to submit water quality information to DWQ.

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

At the end of the 305(b) and 303(d) report writing process, DWQ again makes a formal public notification, requesting comments that can be used for considering the placement of AUs in the five categories. Upon receiving comments from the public, DWQ either revises the IR (based on the public's feedback) or addresses the comments in a summary. These comments or comment summaries are then submitted to EPA along with the 305(b) and 303(d) listing decisions.

Role of the Utah Division of Water Quality

To maintain and improve the quality of the waters in the State of Utah, DWQ implements and enforces the CWA under various division programs: the Utah Pollution Discharge Elimination System (UPDES) Engineering, UPDES Permitting, Ground Water Protection, Engineering, Monitoring, Water Quality Management, and TMDL Programs. Collectively, these programs do the following:

- Monitor rivers, streams, lakes, and reservoirs; nonpoint sources; ground water; compliance; and human health.
- Determine waste load allocations.
- Develop standards.
- Assign permits.

To accomplish the division's environmental comments, DWQ partners with local stakeholders and division cooperative monitoring programs.

DWQ's Mission Statement:

Protect, maintain, and enhance the quality of Utah's surface and underground waters for appropriate beneficial uses; and to protect the public health through eliminating and preventing water-related health hazards, which can occur as a result of improper disposal of human, animal, or industrial wastes, while giving reasonable consideration to the economic impact.

Utah Division of Water Quality's Tiered Framework

To integrate the various programmatic data needs within the division, DWQ employs an adaptive approach to its annual monitoring plans, which allows for an efficient and adaptive monitoring and management program.

This tiered adaptive monitoring and management framework for DWQ allows the division to develop robust datasets in 1 year that inform the data collection and assessment decision making in subsequent years (Figure 1-3). In this adaptive program, monitoring continues to iteratively improve the knowledgebase of management, so decision making is based on the best science available. As more information becomes available, the scientific uncertainty about the ecosystem is reduced, and initial actions and management decisions are revisited and refined (see Figure 1-3). During the evaluation process at DWQ, the information that is gathered provides staff with critical input on how to adjust to the next round of monitoring in the three types of monitoring and assessment efforts described below.

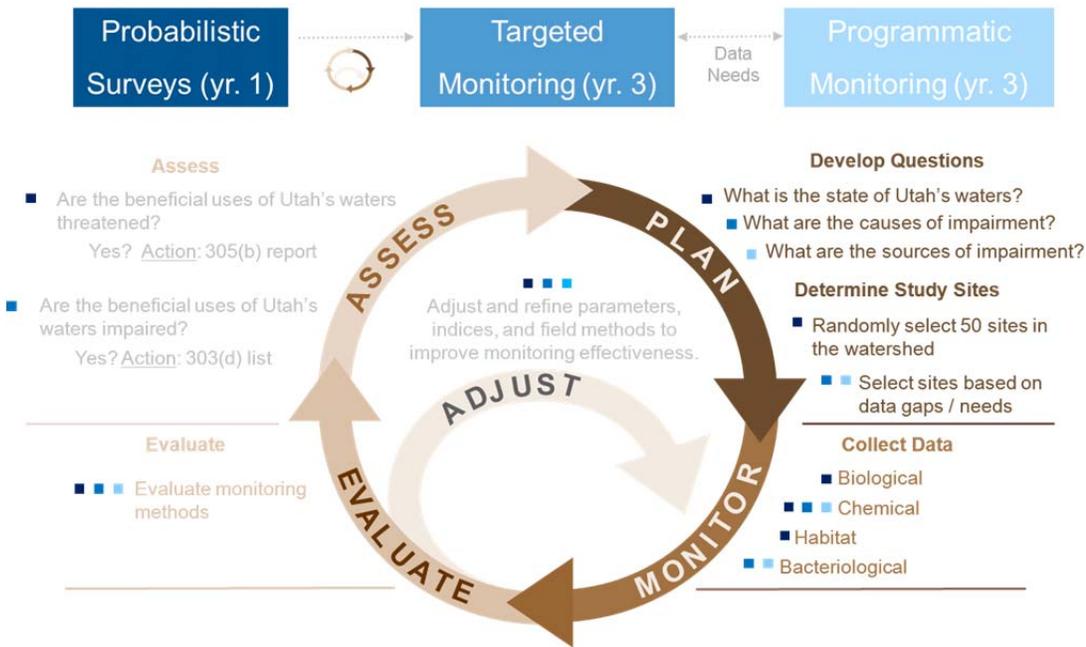


Figure 1-3. DWQ's adaptive monitoring approach.

- **Probabilistic Surveys:** Designed to meet the reporting requirements of the 305(b), probabilistic surveys assess all waters of the state by randomly selecting and monitoring different waterbodies within one of the seven major watersheds in Utah (see Table 1-2 for the proposed rotating basin schedule over the next 8 years). The information collected from the environmental surveys is used to 1) assess the attainment of various designated uses (e.g., aquatic life and contact recreational uses) and 2) better understand the significant causes of pollution throughout Utah.
- **Targeted Monitoring:** Environmental surveys within this monitoring effort are performed annually to develop the 303(d) impairment status reports. Using the water quality concerns that are highlighted during probabilistic surveys as a guide, site-specific monitoring plans during targeted monitoring efforts are used to assess the biological and chemical conditions of a specific stream (see Figure 1-3). These more intensive surveys allow DWQ to more fully understand the scope and extent of water quality problems in the state.
- **Programmatic Monitoring:** Surveys within this monitoring effort are performed annually, alongside targeted monitoring efforts. This is done to maximize division resources in the targeted watershed. During these programmatic monitoring efforts, the data needs of the division are met; these needs include TMDL development, evaluation of nonpoint source (NPS) project effectiveness, development or refinement of numeric water quality criteria, and a variety of compliance monitoring programs.

Rotating Basin Schedule

To implement the monitoring and assessment efforts described above, DWQ developed a 6-year rotating basin monitoring schedule to ensure that 1) staff has sufficient data to determine if a waterbody is impaired

and 2) DWQ can work toward its goal of assessing all 12,000 miles of wadeable rivers and streams and 137 lakes and reservoirs in the state.

By focusing the division’s monitoring efforts on a couple of river basins each year (versus the whole state), DWQ is able to concentrate its monitoring efforts on a smaller geographical area and collect more water quality samples from numerous waterbodies within a watershed management unit during a single sampling season. Using this rotating sampling structure allows DWQ staff to make more accurate assessments and informed 303(d) listing decisions by having a more robust dataset to work with.

Table 1-2. Summary of DWQ's 6-year rotating basin monitoring schedule.

Watershed Management Unit	YEAR							
	2009	2010	2011	2012	2013	2014	2015	2016
Jordan-Utah Lake	■	■		■			■	
Colorado		■			■			■
Sevier, Cedar, Beaver			■			■		
Great Salt Lake, W. Desert				■			■	
Bear River				■		■		
Weber River					■		■	
Uinta Basin		■				■		■
	Targeted			Probabilistic				

Integrating the proposed tiered monitoring framework into current division and programmatic needs and constraints requires targeted and programmatic monitoring efforts to follow the probabilistic surveys (1–2 years later) and focus on ongoing TMDL needs around the state until the initial round of probabilistic surveys is assessed.

LITERATURE CITED

EPA. 2005. *Guidance for 2006 assessment, listing and reporting requirements pursuant to Sections 303(d) and 305(b) of the Clean Water Act*. Available at: <http://www.epa.gov/owow/tmdl/2006IRG/report/2006irg-report.pdf>. Accessed September 19, 2014.