CHAPTER 1 INTRODUCTION

2014 Integrated Report

UTAH DIVISION OF WATER QUALITY

ACKNOWLEDGEMENTS

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CHAPTER 1 INTRODUCTION

INTEGRATED REPORT

Utah's Component of the IR

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 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 2009-2010.

What makes up an IR?

USEPA asks states to integrate four components into their reports every two years:

A Water Quality Inventory Report [e.g., the 305(b)]
An Impaired Waterbody List [e.g., the 303(d)]
An electronic copy of the 305(b) [e.g., the Assessment Database (ADB)]
A copy of the State's National Hydrology Dataset (NHD)

Information on the reporting requirements from USEPA 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 Utah's 2012 Integrated Report: Methods for Assessing and Reporting the Conditions of Lakes and Streams.

CWA 305(b) Reporting Requirements

Under the Federal Water Pollution Control Act [e.g., the Clean Water Act (CWA), section 305(b)], States are required to monitor the water quality of its surface and ground waters and report on the status of these waters in a biennial report that is submitted to the USEPA.

Information within these reports must contain at least the following information (as described in the USEPA's Integrated Report Guidance Document):

- 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 two 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.

(BUTTERFLY LAKE)

For More Information

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

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- A rationale for any decision to not use any existing and readily available data and information.
- Any other reasonable information requested by EPA,

(CO-OP CREEK)

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 those lakes which are known not to meet applicable water quality standards or which require implementation of control programs to maintain compliance with applicable standards and 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 but not limited to, 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.

CWA 303(d) Reporting Requirements

Along with the 305(b) report, section 303(d) of the CWA requires states to submit a list biennially to the USEPA that identifies the water bodies within that state that do not meet state's water quality standards. This list is reviewed by USEPA and helps guide the state's Total Maximum Daily Load (TMDL) development process to correct the specified impairment.

As recommended by USPEA in their IR Guidance Document, the following information must be included:

(NAVAJO LAKE)

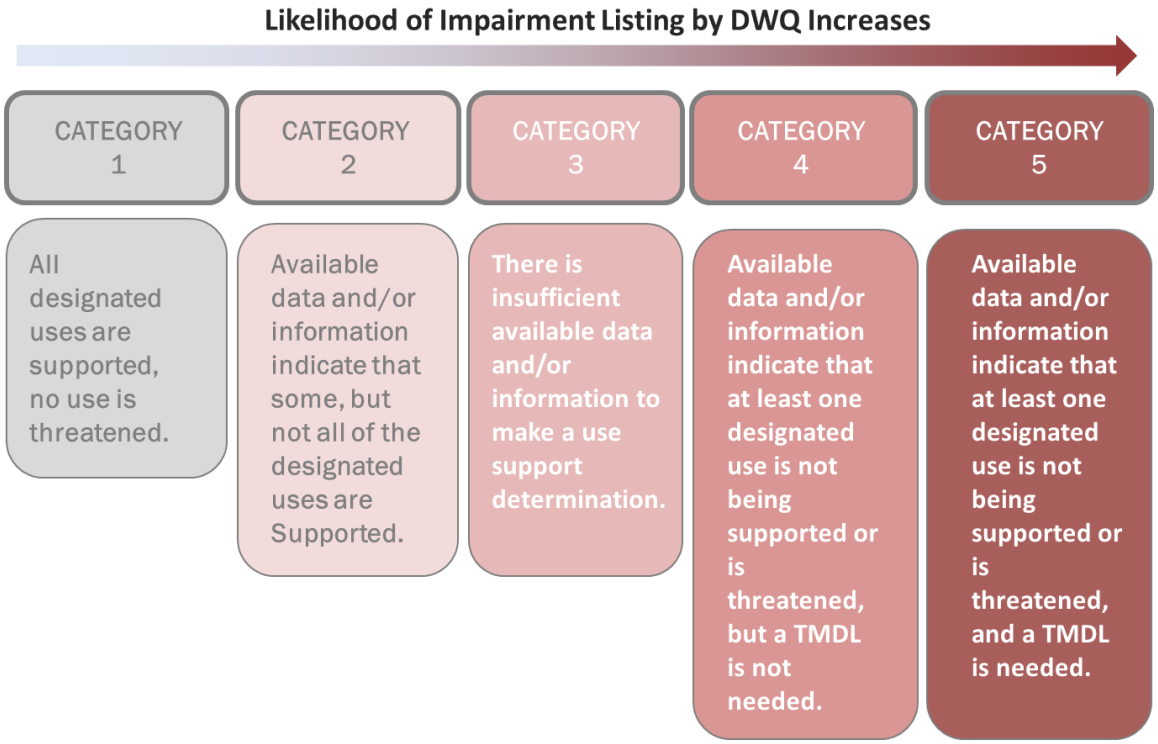
- A list of water quality-limited (impaired and threatened) waters still requiring TMDL(s), pollutants causing the impairment and priority ranking for TMDL development (including waters targeted for TMDL development within the next two years).
- A description of the methodology used to develop the list.
- 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 identifies acceptable loads from the pollutant source.

IR Classified Use Categories

Utah refers to "designated uses" as the basic unit for reporting water quality and uses the following EPA recommended reporting categories to classify segments of waterbodies as meeting or not meeting applicable Water Quality Standards (WQS):



Or, more specifically,

Category 1: All designated uses are attained.
AUs assessments are reported as Category 1 if all beneficial uses have been assessed against ≥1 numeric criterion ***and*** each uses was found to be fully supporting all uses.

Category 2: Some of the designated uses are attained, but there is insufficient data to determine beneficial use support for the remaining designated uses.
AUs assessments are reported as Category 2 if some but not all designated uses have been evaluated, ***yet*** those uses that have been assessed were found to be supporting designated uses.

Category 3: Insufficient data to make a determination, or lakes and reservoirs that show indication of impairment for a single monitoring cycle.
For each designated use, assessments are reported as Category 3 if some data and information are available to evaluate ≥1 of an AUs 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 (DQOs) that DWQ has established for making IR assessment decisions. Examples of situations where AUs are reported as Category 3 include: datasets with an insufficient number of samples were available for analysis, situations where contradictory conclusions from multiple data sources, or situations where QA/QC 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 three Category 3 sub-categories for planning purposes, which are defined as follows:

- **Category 3A**: Assessment Units are listed in Category 3A if there is assessment insufficient data and information to make an assessment, AND, 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 Integrated Report will document 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 BOD were placed in 3D until such time that numeric nutrient criteria are developed.

- Category 3E: Assessment Units are listed in Category 3E if there is assessment insufficient data and information to make an assessment AND data do not include violations of water quality criteria.

- Category 3F: Assessment Units are listed in Category 3F if an assessment was not performed due to missing use information for the Assessment Unit. 3F waters will be assigned designated uses for the 2016 Integrated Report 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:** Assessment Units are listed in this sub-category when any TMDL(s) has been developed and approved by EPA, that when implemented, are 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 which 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.

(NORTH FORK, CHALK CREEK)

- **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 CFR, 130.7(b)(l) (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:** Assessment units 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/stream or a lake should be put into a category 1, 2, 3, 4, or 5, DWQ must consider: WQS' applied to that segment, designated use assigned to the segment, and numeric criteria applicable to the designated use.

All of these factors help answer, *What does the monitoring data and other information tell us about whether or not this river/stream or lake are meeting WQS'?* 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.

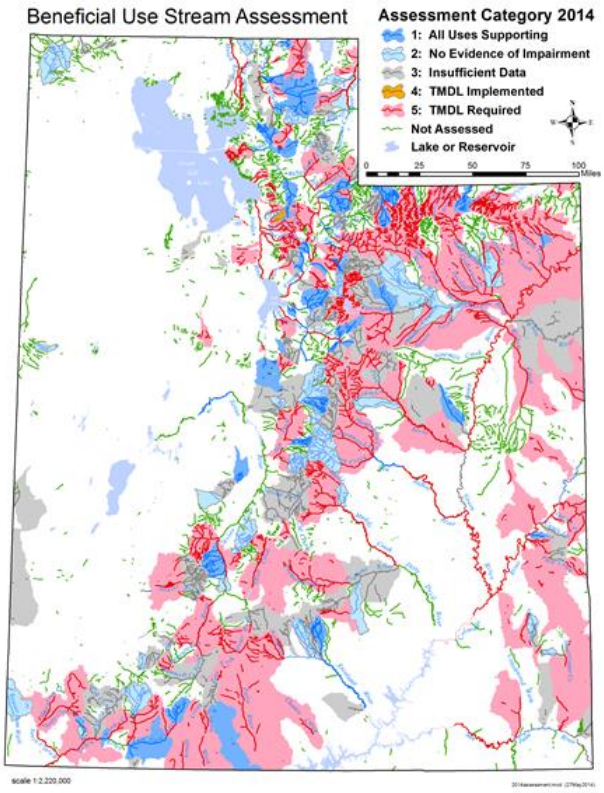
Category 5: The concentration of a pollutant—or several pollutants—exceeds numeric water quality criteria, or quantitative biological assessments indicate that the biological designated uses are not supported (narrative water quality standards are violated).

Waters reported as Category 5 are impaired which means that they are not meeting their designated uses. The list of Category 5 waters if 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 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**

The following is a summary of the results of the 303(d) report indicating the number of AUs in each of the 5 categories and total stream miles for each.



No. of AUs	Stream miles	Category
81	1784	1 (Supporting)
53	1452	2 (No evidence of Impairment)
143	3449	3 (Insufficient Data)
4	22	4 (Pollution Control in Place)
253	7752	5 (Not Supporting)

Delisting Table

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


(MONROE CREEK)

- Utah determines water quality standards are being met
- Flaws in the original listing
- Other point source or nonpoint source controls are expected to meet water quality standards
- Impairment due to non-pollutant
- EPA approval of TMDL
- Waterbody not in state's jurisdiction
- Other

Proposed Delisting Table of AUs Fully Supporting Uses

ASSESSMENT UNIT	ASSESSMENT UNIT LOCATION	PARAMETER
UT14030005-013	ONION CREEK AND TRIBUTARIES ABOVE STINKING SPRINGS TO HEADWATERS	**Total Dissolved Solids**
UT14060003-006	DUCHESNE RIVER FROM MYTON TO STRAWBERRY RIVER CONFLUENCE	**OE Score Bioassessment**
UT16020102-005	OGDEN RIVER FROM CONFLUENCE WITH WEBER RIVER TO PINEVIEW RESERVOIR	**OE Score Bioassessment**
UT16020202-022	THISTLE CREEK FROM CONFLUENCE WITH SOLDIER CREEK TO CONFLUENCE WITH LITTLE CLEAR CREEK	**OE Score Bioassessment**
UT16020203-013	PROVO DEER CREEK FROM CONFLUENCE WITH PROVO RIVER TO HEADWATERS	**E. coli**
UT16030004-009	SAN PITCH RIVER FROM U-132 TO PLEASANT CREEK CONFLUENCE	**OE Score Bioassessment**
UT16030001-013	PIUTE RESERVOIR TRIBUTARIES BELOW USFS BOUNDARY	**OE Score Bioassessment**

Public Participation Process

As part of DWQ's ongoing commitment work with the public to safeguard human health and protect and enhance the environment, 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: (1) submitting data and (2) commenting on the report and listing decisions prior to submitting the IR to the USEPA. These opportunities are described below:

1. **Publicly Submitted Data Notification**

   Each IR cycle DWQ makes a formal public notification—through newspaper ads, website postings, and e-mail 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 waters 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 the EPA along with the 305(b) and 303(d) listing decisions.

Role of DEQ

To maintain and improve the quality of the waters within the State of Utah, the Division of Water Quality implements and enforces the Clean Water Act 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:

- Monitor rivers/streams, lakes/reservoirs, non point sources, ground water, compliance, and human health monitoring;
- Determine waste load allocations;
- Develop standards; and
- Assign permits

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

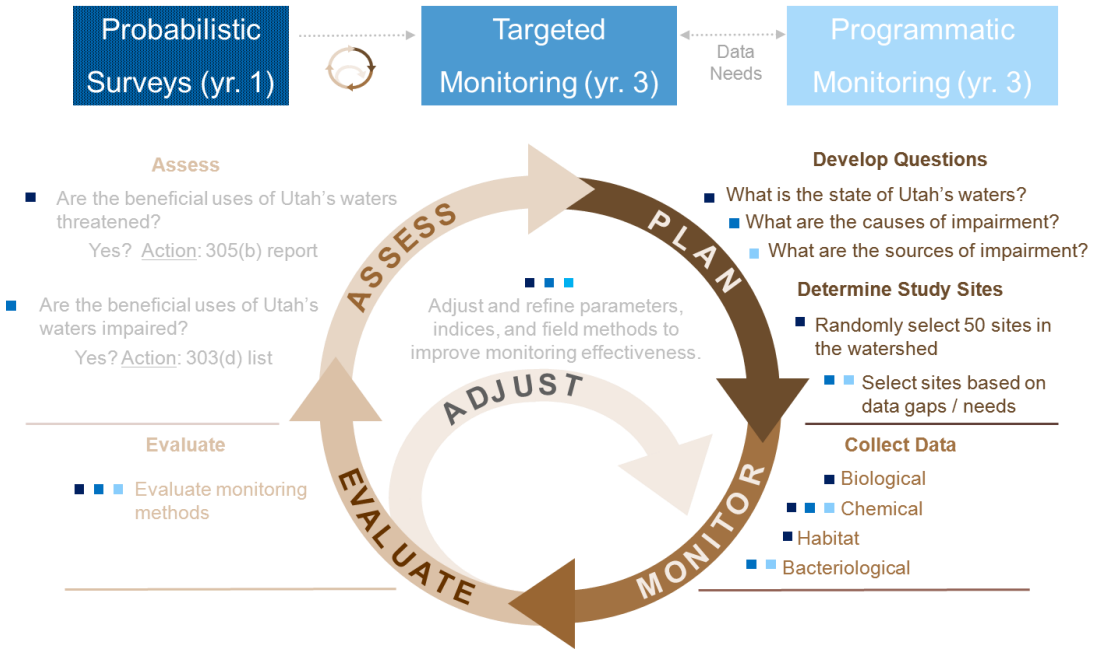
Mission Statement:

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.

DWQ'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 data sets in one year that informs the data collection and assessment decision making in subsequent years (Figure X). In this adaptive program, monitoring continues to iteratively improve the knowledge base of management, so decision making is based on the best science available (Ringold et al., 1996). As more information becomes available, the scientific uncertainty about the ecosystem is reduced, and initial actions and management decisions are revisited and refined (Figure X). During the evaluation process at DWQ the information that is gathered provides staff with critical input on how to adjust the next round of monitoring in the three types of monitoring and assessment efforts described below.



- 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 water bodies within one of the seven major watersheds in Utah (see Table X for the proposed rotating basin schedule over the next eight years). The information collected from the environmental surveys are 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 (Figure X). These more intensive surveys allow DWQ to more fully understand the scope and extent of water quality problems within 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 management unit (WMU). During these programmatic monitoring efforts, the data needs of the Division, including TMDL development, evaluation of Non Point Source (NPS) project effectiveness, development or refinement of numeric water quality criteria, and a variety of compliance monitoring programs are met.

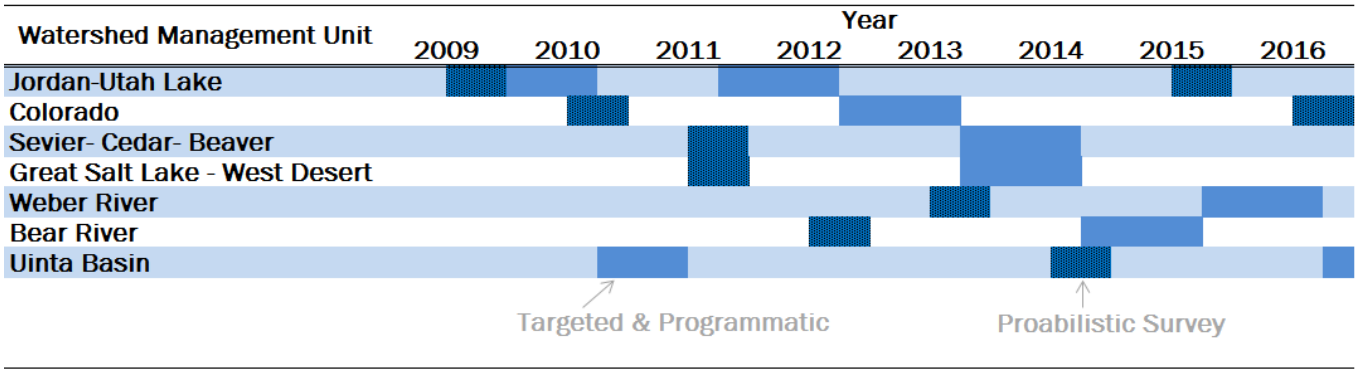
Rotating Basin Schedule

To implement the monitoring and assessment plan described above, DEQ developed a 6-year rotating basin monitoring schedule to ensure:

- Staff has sufficient data to determine if a water body is impaired, and that
- DWQ can work towards its goal of assessing all 12,000 miles of wade able 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 water bodies 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.

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



Integrating the proposed tiered monitoring approach 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 are assessed.