

Section 3.3 Monitoring Strategy Runoff Management

Table 22: Runoff Management Monitoring Needs

Study	Purpose: Fish and Aquatic Life Use
Runoff Management	BMP Evaluation Monitoring to evaluate the success of best management practices.
	Nine Key Element Plan Development Monitoring to collect data for the development of a Nine Key Element Plans.
	TMDL Development – Runoff Dominated Monitoring to develop TMDLs for runoff dominated catchments with waters impaired primarily due to diffuse pollutant sources.

Study Descriptions

BMP Evaluation

Monitoring objectives

Monitoring to evaluate the success of best management practices for Section 319 compliance is incorporated into the prescriptive monitoring element of the state's work plan. The objectives are to conduct a basic assessment to identify if improvements or degradation can be ascertained from evaluating best management practices installed in a watershed.

Monitoring design

Intensive monitoring is required to evaluate the effectiveness of BMPs. For WQ10 Performance measures (restoring an impaired waterbody) monitoring could be completed at the reach scale. For WQ-SP12 performance measures a watershed wide (HUC 12) monitoring design would be needed in order to show watershed wide improvements. In either case the best chance of showing improvements would be to identify watersheds where multiple BMPs and multiple landowners have installed practices over a relatively short time period. Gathering data on BMP installation with accurate locational and temporal data is a key element in order to best target monitoring activities in watersheds where there is the best chance of documenting success.

Frequency of measurements for delisting will be based on WisCALM methodologies for delisting requirements for specific pollutants. In order to show load reductions biweekly chemical and flow samples may be required. For more intensive studies spatially intense sampling with continuous flows may need to be captured (USGS flow gauge or pressure transducers) along with event based WQ samples.

Priority watersheds for monitoring would include sites that had pre implementation data and high density BMP installation. Watersheds with approved TMDLs would meet both of these criteria and likely be good candidates. Other watersheds with high densities of BMPs installed that are not in TMDL watersheds could also be good candidates for showing watershed wide improvement and/or delisting. In order to show improvement it is important to select a performance measure(s) and stick to it through time at each location.

Water quality indicators

There are many entities (USGS, UW, etc.) working on showing the efficiency of BMPs with edge of field monitoring. We should be focusing on BMP effectiveness monitoring through in-stream water quality measures. Delisting streams as a result of BMP success is going to depend on the specific pollutant that was initially listed. The most likely pollutants will be total phosphorus and total suspended solids. To show whole watershed improvements, other water quality measures could be used such as biology, load reductions, and sediment metrics within the habitat quality measures.

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Quality Assurance

In order to show load reductions biweekly chemical and flow samples may be required. For more intensive studies spatially intense sampling with continuous flows may need to be captured (USGS flow gauge or pressure transducers) along with event based WQ samples.

Data management

Monitoring would be done by DNR staff but multiple organizations are involved in BMP installation and funding including DNR, DATCP, NRCS, Counties, etc.

Reporting

Reporting will occur both in final reports as well as in data used in the SWIMS data system to evaluation attainment.

Programmatic evaluation

Annual evaluation of data collection and the efficacy of results will be conducted.

Nine Key Element Plan Development

Monitoring objectives

This includes monitoring to collect data for the development of a Nine Key Element Plans.

Monitoring design

Spatially and temporally intense targeted watershed (TWA) monitoring is required for developing Nine Key Element plans. Some measures of frequent flows are needed but can be estimated at the watershed scale so they are not necessary at all locations sampled. Performance of Nine Key Element plans can be measured through modelling the improvements of BMP installation but intensive monitoring at specific locations can be included in order to achieve WQ10 or SP12 performance measures.

Initially targeting of approved TMDL watersheds would lead to the development of Nine Key Element plans that would not require additional data. Secondly, data collection to develop a Nine Key Element plan should be conducted at the HUC 12 level at sites where Counties or other partners have expressed interest in collaborating. Watersheds in Counties with lower interest could still be targeted for developing Plans but would likely be a lower priority. Using 106 monitoring funds for the development of Nine Key Element plans should be prioritized as once Plans are approved those areas are available to receive 319 project funds for future monitoring activities. Currently there are limited watersheds in WI that have approved Plans that are available to use 319 project funds for monitoring activities.

Water quality indicators

Indicators to be monitored would include phosphorus, nitrogen and sediment associated with some in stream flow measurements. Loads can be estimated in order to establish a baseline for Nine Key Element plans so continuous flows may not be necessary in all areas of a watershed. Baseline data on land use is also critical in developing Nine Key Element plans.

Quality Assurance

Monitoring work would be conducted by DNR staff, possibly with the help of volunteers. Collaboration with Counties is critically in determining areas to prioritize for monitoring and Plan development.

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Data management

Monitoring data management work will be conducted by DNR staff.

Reporting

Reporting will occur both in final reports as well as in data used in the SWIMS data system to evaluation attainment.

Programmatic evaluation

Annual evaluation of data collection and the efficacy of results will be conducted.

TMDL Development – Runoff Dominated Watersheds

Monitoring objectives

Monitoring to develop TMDLs for runoff dominated catchments with waters impaired primarily due to diffuse pollutant sources.

Monitoring design

Targeted watershed monitoring is required with a focus at monitoring sites at the pour points of major watersheds, sub-watersheds or tributaries. Scale for monitoring is dependent on scale of the TMDL. Recently TMDLs have been conducted at the HUC 8 scale but the future direction is unknown. Sampling frequency is at minimum biweekly water quality and flow measurements. However, in many situations more frequent monitoring, event based water quality samples or continuous flow monitoring may be necessary.

Water quality indicators

Phosphorus, nitrogen and/or total suspended solids are required along with flow monitoring.

Quality Assurance

DNR and partners are responsible for incorporating appropriate quality assurance measures and ensuring that these elements are adhered to,

Data management

DNR staff along with possible partners would be responsible for data management.

Reporting

Reporting would be through final reports.

Programmatic evaluation

Annual evaluation of data collection and the efficacy of results will be conducted.