

ATTACHMENT 9

MONITORING TYPES¹

1. **Implementation Monitoring** is used to determine whether activities are carried out as planned. Implementation Monitoring may be applied at a range of spatial scales, focusing on specific management measures or rule sets for multiple years. Examples of Implementation Monitoring include:

- Determine whether specific prescriptions in a harvest plan document are being properly applied and maintained during the life of the plan.
- Determine whether applicable Forest Practice Rules are being properly implemented during the life of the plan on a programmatic basis.
- Determine whether waiver conditions or waste discharge requirements (WDRs) provisions are being properly met during the terms over which such waivers or WDRs apply.
- Inform prescription development, rule making, and adaptive management processes in order to maximize implementation success.

Implementation Monitoring is more informative when combined with Effectiveness or Water Quality Compliance Monitoring.

2. **Forensic Monitoring** is used to detect significant pollutant sources (e.g., failed management measures) in the field for purposes of timely remedial action. Forensic Monitoring is typically applied at a sub-watershed or project scale, focusing specifically on stream conditions and sensitive receptors downstream of potential pollutant sources. Examples of Forensic Monitoring objectives include:

- Locate sources of sediment production in a timely manner for rapid corrective action.
- Determine, where feasible, cause/effect relationships between hillslope activities, hydrologic triggers and instream conditions.

Forensic Monitoring is most successful when criteria such as storm events of particular size or instream sampling results are used to trigger field investigations allowing for timely detection and repair of controllable pollutant sources.

3. **Effectiveness Monitoring** is used to determine whether particular land management prescriptions (e.g., erosion control measures, riparian buffers) are effective at achieving desired results. Effectiveness Monitoring may be applied at a range of spatial scales, focusing on specific management measures for multiple episodic events or multiple years. Examples of *Hillslope* Effectiveness Monitoring objectives include:

- Determine whether prescribed measures applied during harvest plan operations are resulting in the intended hillslope conditions.
- Determine whether applicable Forest Practice Rules are producing, on a programmatic scale, the hillslope conditions they were designed to produce.
- Inform prescription development, rule making, and adaptive management processes in order to improve the performance of prescribed measures.

¹ Monitoring types were defined by the State Monitoring MOU Workgroup.

Examples of *Instream* Effectiveness Monitoring objectives include:

- Determine whether hillslope conditions created by harvest plan operations are resulting in the intended instream conditions.
- Given hillslope effectiveness monitoring data, determine whether applicable Forest Practice Rules, on a programmatic scale, are adequately protecting instream aquatic resources and meeting Basin Plan standards.
- Inform prescription development, rule making, and adaptive management processes in order to minimize adverse impacts to aquatic resources and achieve compliance with Basin Plan standards.

Effectiveness Monitoring is most successful when instream and hillslope components are linked.

4. **Water Quality Compliance Monitoring** is used to determine whether pollutant discharges from land use activities are in compliance with water quality standards. Water Quality Compliance Monitoring is typically applied at a sub-watershed or project scale, focusing on the combined effects of a single project for some number of years greater than the active life of the project. Examples of Water Quality Compliance Monitoring objectives include:

- Isolate and quantify pollutant discharges to waters of the State from timber harvesting and related activities.
- Determine whether discharges from timber harvesting and related activities meet Basin Plan water quality objectives, including objectives for temperature, turbidity and sediment.
- Determine whether discharges from timber harvesting and related activities meet applicable TMDL, waiver, or permitting requirements.

In most instances, it is necessary to collect pre-project data to make Water Quality Compliance Monitoring successful.

5. **Assessment Monitoring** is used to characterize existing water quality conditions, usually as a “snapshot” in time. Assessment Monitoring is typically applied at a watershed scale, focusing on water quality and related conditions at a discrete instant or over a defined time period. Examples of Assessment Monitoring objectives include:

- Characterize conditions in a particular waterbody to use as a reference, or baseline, in future comparisons.
- Determine the presence and/or current condition of the beneficial uses of water in a particular waterbody.
- Assess relative differences between water quality conditions in multiple watersheds or subwatersheds during a specified event.
- Inform cumulative watershed effects analyses in order to develop appropriate mitigation measures for THPs or other projects.
- Inform site selection processes for restoration and/or remedial work in order to maximize benefits to water quality.

6. **Trend Monitoring** is used to characterize water quality conditions over time. Trend Monitoring is typically applied at a watershed scale, focusing on the combined effects of all past and present watershed management activities for multiple years. Examples of Trend Monitoring objectives include:

- Characterize watershed conditions resulting from combined effects of land use activities over time.
- Determine whether the beneficial uses of water remain consistently healthy (in non-impaired watersheds) or are on a consistent trajectory toward recovery (in impaired watersheds).
- Determine whether nuisance conditions (e.g., flooding) in the watershed are created or abated over time.
- Determine whether Basin Plan water quality standards are achieved and maintained over time.
- Inform site selection processes for restoration and/or remedial work in order to maximize benefits to water quality.