

ACKNOWLEDGEMENTS

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1.0 SCOPE AND APPLICABILITY

This document presents the North Dakota Department of Environmental Quality, Division of Water Quality's (DWQ) Standard Operating Procedure (SOP) for performing photo point monitoring in lakes, reservoirs, rivers, streams, and wetlands. This SOP applies to all DWQ field staff, non-DWQ cooperators, and citizen volunteers. Photo point monitoring is a method of recording changes to vegetation and the ecosystem over time. Photographs are taken of the same area with the same field of view at different points in time for comparison, based on a stationary marker as a point of reference.

2.0 SUMMARY OF METHOD

Photographs will be taken using the same Global Positioning System (GPS) coordinates and the same camera settings, including zoom. A meter stick will be used to track growth in vegetation, as well as reference point(s) for all photos.

3.0 HEALTH AND SAFETY WARNING

Field personnel should take appropriate precautions when operating watercraft and working on, in, or around water. All boats should be equipped with safety equipment such as personal flotation devices (PFD's), oars, air horn, etc. North Dakota's boating laws and rules shall be followed by all field personnel.

Field personnel should be aware that hazardous conditions potentially exist at every waterbody. If unfavorable conditions are present at the time of sampling, and/or photo point monitoring visit should be rescheduled. If hazardous weather conditions arise during sampling, such as lightning or high winds, personnel should cease sampling and move to a safe location.

Field personnel should also be aware of wildlife, insects, and plants that could be harmful as well as heat stroke and hypothermia. A first aid kit should be accessible for any potential cuts, stings, bites, or contact with poisonous plants. Ensure there is access to water, sunscreen, insect repellent, and extra clothing.

4.0 CAUTIONS

When choosing the site for your stationary marker make sure it is accessible during all seasons and that the marker will not be covered by growing vegetation.

5.0 INTERFERENCES

Weather conditions can affect the quality of the photos. Ideally the photographs should be taken after sunrise and before sunset, when it is not raining or snowing, and when cloud cover is less than 70%. If the weather is poor, the photo should be taken at a later date. Weather conditions should be recorded in the logbook.

6.0 PERSONNEL QUALIFICATIONS/RESPONSIBILITIES

All personnel taking photos for photo point monitoring must read this SOP annually and acknowledge they have done so via a signature page (see Appendix B). New field personnel must also demonstrate successful performance of the method. The signature page will be signed by both trainee and trainer to confirm that training was successfully completed and that the new personnel is competent in carrying out this SOP. The signature page will be kept on-file at DWQ along with the official hard copy of this SOP.

7.0 EQUIPMENT AND SUPPLIES

- Meter stick or measured marker that can stay at the site
- Identification information marker (Appendix A)
- GPS unit
- Camera
- Batteries or charger
- Copy of this SOP
- Pens or pencils
- Log book/ forms (Appendix A)

8.0 PROCEDURE

Photo point monitoring will occur a minimum of three times during the sampling season [spring following ice-off (first sampling trip), mid-summer, and fall (last sampling trip)]. Additional photos may be taken at the sampler's discretion.

During First Setup

1. Choose location that gives an accurate representation of the site and addresses the objectives of the project.
2. Choose a reference point(s) that will lie within the camera view (Tree, fence post, building, etc.).
3. Post measured marker and information marker within the camera view.
4. Use the GPS unit to log the coordinates of the markers.
5. Stand back to where you can get the reference points and markers into the camera view and log your GPS coordinates.
6. Choose camera settings that will best represent the site and log into logbook.
7. Take photographs.
8. Record any comments and weather in logbook.

During Follow-up Photos

1. Locate GPS coordinates and post meter marker and information marker at coordinates.
2. Locate GPS coordinates of where to stand.
3. Locate reference point(s).
4. Ensure all camera setting are the same.
5. Take photographs.
6. Record any comments and weather in logbook.

9.0 DATA AND RECORDS MANAGEMENT

Photo point GPS locations and any comments will be recorded on the field form (Appendix A). Once personnel reach the office, data recorded on the field form are entered into the DWQ Sample Identification Database (SID). Field notes should be used to record any quality control activity performed such as photos taken by more than one sampler, or to record any sampling conditions that may have interfered with the photos such as high winds, fog, rain, etc. Field forms, notes, and pictures should be stored in the appropriate project folder at DWQ.

10.0 QUALITY ASSURANCE AND QUALITY CONTROL

There are limited Quality Assurance and Quality Control (QA/QC) procedures for photo point monitoring. Duplicate photos may be performed at sites where duplicates samples are to be collected. For quality control, photos should ideally be taken by one person for an entire sampling trip. For long-term monitoring stations, all photos at the same location should ideally be taken by one person. A project-specific Sampling and Analysis Plan (SAP) may require additional quality control activities.

11.0 REFERENCES

Forest Service, USDA. Photo Point Monitoring. USDA Forest Service, www.fs.fed.us/eng/rsac/invasivespecies/documents/Photopoint_monitoring.pdf.

Hall, Fredrick C. Photo Point Monitoring Handbook: Part A-Field Procedures. USDA Forest Service, Mar. 2002, www.fs.fed.us/pnw/pubs/pnw_gtr526.pdf

APPENDIX A
Field Reporting Form

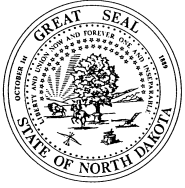


Photo Point Monitoring Site Identification Form
North Dakota Department of Environmental Quality
Division of Water Quality – Watershed Management
Telephone: 701-328-6140
Fax: 701-328-6280

Site ID and Name: _____

Date and Time: _____

Photo Number: _____

Photographer: _____

Camera Settings/Type: _____

APPENDIX B
SOP Acknowledgement and Training Form

