

Standard Operating Procedure 4: Digital Photography and Photo Points (Version 1.0)

Summary

This Standard Operating Procedure includes instructions for digital photography associated with ERMN Benthic Macroinvertebrate monitoring and is based primarily on procedures outlined by the Klamath Network (Dinger et al. 2013).

Revision Log

Original Version #	Date of Revision	Revised By	Changes	Justification	New Version #
NA	4/28/2016	C. Tzilkowski	NA	Protocol Implementation Plan publication	1.0

Overview

This SOP is based primarily on procedures outlined by the Klamath Network (Dinger et al. 2013) and includes instructions for digital photography associated with ERMN Benthic Macroinvertebrate monitoring. Photographic documentation of the sampling reach, sampling activities, and organisms (collected and incidental observations) is an important component of data collection. Photos may provide information on the variation of stream characteristics between sampling events that may not be obvious elsewhere within the tabular dataset. It is vital to know the content of each photograph taken and to maintain a standard order in which photos are taken so that they can be saved to the ERMN server.

Always attempt to make each photo as clear, focused, and informative as possible. *Check each photo after it has been taken to ensure its quality.* Erase poor (e.g., blurry) photos from the camera's memory and recapture a better image when needed.

In this protocol, we use the term photo points for a standardized set of photos to document the conditions of the reach, particularly the downstream and upstream bounds. However, *no permanent markers are utilized*. Instead, crews that conduct subsequent sampling will have data sheets that include photo points from previous years so that the photographer can repeat the photo as closely as possible. It is not our intent to use photo points in quantitative analyses, but rather to track gross change over time, as it occurs.

Prior to taking photographs, it is important to verify that the date and time on the camera are set properly. Photographs retain many attributes associated with the camera, including the camera model and the date photos are taken.

Initial Photo Points

Photos should be taken of the upstream and downstream ends of the sampling reach. Initially, transect photos should have transect flagging (brightly colored cable ties) in the photo. Consider this when placing cable ties during initial reach layout. Upon the first revisit, cable ties should be removed and semi-permanent landscape markers (e.g., large boulders, trees) should be used to orient photos. Always take photos facing in an upstream direction while standing in the middle of the stream channel unless it is unsafe to do so. Immediately record the camera-generated file name (usually a number) on the datasheet so that it can be referred to later in the day/evening when photos are transferred and named on a computer.

Subsequent Photo Points

Photo points in following years should be taken in the same manner as initial site photos, but the photographer should refer to photo points from previous years on the data sheet to verify location. Photo points are recorded, in part, so that flagging is not needed to mark reach bounds; consequently, it is imperative that photo points are printed on the data sheets. Care should be taken so that the “composition” of previous photos is recreated as closely as possible in subsequent years.

Additional/Incidental Photos

Photos should be taken of any feature within the stream reach that seems out of the ordinary. These may include, but are not limited to, human influences and unique stream features such as large logjams, waterfalls, tributaries, or subterranean flows. If you question yourself as to whether or not something is unusual enough to warrant a photo, take one. Take photos to document field crew activities during sampling and site set up. Human interest, methodological, and aesthetic photos are encouraged but not required.

If images are of extraordinary findings (e.g., invasive species, fossils, rare plants or animals, etc.), record the coordinates using a GPS device, especially if the sighting and photo occurred away from the sampling site (e.g., on the hike in or out).

Photo Naming and Storage

As soon as possible, typically at the end of the day, photos should be transferred to a computer and renamed so that photo contents can be identified for future use. All photos will ultimately be stored on the ERMN server. Digital image file names should contain, at a minimum, the year, park, and brief description of the image contents.

Most images are of reach bounds and should be named as in this example:

DEWA.3005.DunnfieldCreek03.UP.2014.jpg

Where *DEWA.3005* denotes the unique site identifier, *DunnfieldCreek03*, denotes a more descriptive reach identifier, *UP* indicates that the photo was taken at the upstream reach bound, and *2014* indicates the year the photo was taken.

Literature Cited

Dinger, E. C., D. A. Sarr, S. R. Mohren, K. M. Irvine, and C. E. Stanley. 2013. Integrated aquatic community and water quality monitoring of wadeable streams in the Klamath Network: Narrative and standard operating procedures. Natural Resource Report NPS/KLMN/NRR—2013/669. National Park Service, Fort Collins, Colorado.