

Standard Operating Procedure 3: Sampling Conditions and Times, version 1.0

This SOP outlines time periods and environmental conditions when sampling should occur. Consistency of sampling times and conditions between sampling events is important to minimize seasonal associated effects and error when monitoring fish populations.

Sampling Times

- 1) The field component of the fisheries monitoring program typically begins in early to mid-June and ends by late-July to mid-August. Specific annual starting and ending dates are largely determined by the frequency of rain events, the amount of total rainfall, and associated water levels in streams.
- 2) To facilitate comparisons of density and biomass between years, individual stream sites should be sampled within the same general time period each year. A temporal sampling disparity of two to three weeks between years is acceptable but larger discrepancies between sampling periods should be avoided when possible.

Sampling Conditions

- 1) Optimal conditions for electrofishing include low to average water flows of clear condition. Moderate to high water flows should be avoided due to increased turbidity and riffing which can decrease electrofishing efficiency and fish capture probabilities. Faster flowing water may also require higher electrofishing voltages to improve fish capture (e.g. so they remain stunned as they are quickly swept out of the field)—this voltage increase can lead to higher probabilities of fish injury. High stream flows also increase safety risks by creating more difficult wading conditions.
- 2) All sampling will occur when visibility of stream fishes is maximized. As such, sampling during high turbidity (as noted above) or very early in the morning or late in the afternoon will be avoided when possible. In addition, sampling during rain events when surface disturbance or lighting conditions compromises visibility will not occur. Ultimately, crew leaders will determine when visibility is adequate for efficient electrofishing. During rain events, the crew leader will determine if it is worth waiting out the storm or returning the fish to the stream and reshocking the whole site another day. See the Electrofishing JHA on the Park internet for lightning storm safety (use Google) at: <http://inpshen-cirsc/SHEN/SAFETY/Job%20Hazard%20Analysis/Forms/AllItems.aspx>

SOP Revision History

All protocols, regardless of how sound they are originally, require modification as new and different information becomes available. SOP version numbers increase incrementally by tenths (e.g. version 1.1, version 1.2...etc.) for minor changes. Major revisions should be designated with the next whole number (e.g., version 2.0, 3.0, 4.0 ...). Small changes or additions to

existing methods will be reviewed in-house by Shenandoah or Mid-Atlantic Network staff. However, if a complete change in methods is sought, an outside review is required.

Revision History Log:

Prev. Version #	Revision Date	Author	Changes Made	Reason for Change	New Version #