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Light Trap Deployment and Retrieval

1. SCOPE AND APPLICATION

This procedure details the deployment and retrieval of light traps. Light traps are set out at sampling sites to capture adult aquatic macroinvertebrates, specifically, those in the orders of Ephemeroptera, Plecoptera, and Trichoptera.

2. SUMMARY OF METHOD

The equipment is placed on a level surface. Approximately ¼ to ½ inch of 100% ethanol is poured into a developing tray. A light unit is placed across the tray. The timer is set to turn the light on for 2 hours, beginning at sunset. Everything is connected to a battery. The entire set-up is left overnight and retrieved the next day. Photos are taken.

3. APPARATUS AND EQUIPENT

3.1 ½ gallon SCI jug – label with RQ attached (1 per site)
3.2 White plastic developing tray (1 per site)
3.3 Trash bag
3.4 12-volt UV-light unit: light + ballast + Digital Timer (1 per site)
3.5 12 V rechargeable battery (1 per site)
3.6 Submittal sheet
3.7 Digital camera

4. REAGENTS AND CHEMICALS

4.1 ½ gallon SCI jug filled with 100% Ethanol (1 per site)
4.2 Squirt bottle filled with 100% ETOH

> **Note**: Protective clothing, latex or vinyl gloves, and eye protection should be used when working with ethanol.

5. PROCEDURE

5.1 Deployment (take photos of site)

5.1.1 At the sampling site, place the trash bag on a level surface near the bank. Set the developing tray on top of the bag.

5.1.2. Pour 1/4 – 1/2 inch of 100% ethanol into the tray, approximately 3/4 of a jug. (There should be enough ethanol in the tray to prevent complete evaporation before the sample is retrieved.)

5.1.3 Place the light unit across the developing tray (see Figure 5.1 on the next page.)

5.1.4 Set the timer. Follow the digital timer instruction manual.

5.1.4.1 Make sure the current time is correct! It should be set to Eastern Standard Time and should account for Daylight Savings Time.

5.1.4.2 The timer should be set so the light will come on at sunset and will turn off 2 hours later. Daily sunset times can be found online.

5.1.4.3 Connect the entire unit to a 12 V battery. (If poor weather is expected, such as rain, cover the battery with a tented bag.)

5.1.4.4 Record the start and stop times on the submittal sheet.

5.2 Retrieval (next day; take photos of site)

5.2.1 Carefully, pour the contents of the tray into an empty 1/2-gallon SCI jug. Use a squeeze bottle filled with 100% ethanol to rinse off any bugs that are stuck in the tray.

5.2.2. Bring all equipment back to the Invert lab and submit the samples to Receiving.



Figure 5.1 *Light Trap Deployed in the Field*

6. QUALITY CONTROL AND DOCUMENTATION

6.1 To correct raw data entries, place a single line through the incorrect entry, write the corrected entry near the error, and initial and date the correction. If the correction requires an explanation, write a comment and reference the error.

6.2 If a problem occurs during sample processing, submit a nonconformance report (NCR) describing the problem and the corrective action. To create a NCR, open LIMS and go to Laboratory/Administrative/Non-Conformance Report. For a decision tree regarding issuance of NCR's, refer to SOP LB-002.

7. SAFETY/HAZARDOUS WASTE MANAGEMENT

7.1 Protective clothing, latex or vinyl gloves, and eye protection should be used when working with ethanol.

7.2 Refer to the Material Safety Data Sheet (MSDS) for information about reagents and chemicals in this SOP.

7.3 Refer to the Laboratory Health and Safety Plan.

8. REFERENCES

8.1 DEP Laboratory Health and Safety Plan, https://www.floridadep.net/resources/health-safety-manual

8.1 Digital Timer Manual

8.2 SOP LB-002, *Non-conformance Reporting System*

Appendix of Changes

12/13/2022 SOP created.

07/25/2024 Removed references to specific digital timer brand (JVC); added SOP LB-002 and DEP Laboratory Health and Safety Plan to list of references.

07/07/2025 Added a note to Section 4 about ETOH safety equipment.