

VPMon Data Sheet Protocols

Most of the information collected each time you visit your adopted vernal pool is recorded on the VPMon Data Sheet. An example of a VPMon data sheet can be found on the very last page of this manual.

Filling out the Data Sheet

POOL & OBSERVER INFO

Date: When is this field visit taking place?

Time: At what time did you begin data collection?

Observer Names: Who is/are collecting the data on this data sheet?

- Be sure observer names are listed in accordance with “Obs. 1” & “Obs. 2” for the egg mass survey.

Pool ID: A code of 3+ letters followed by numbers, which identifies a given vernal pool (e.g. MLS699).

- If the pool was mapped as part of the Vernal Pool Mapping Project, it will already have a Pool ID.
- If this was a previously unmapped pool you will be given an ID by the VPMon Project Coordinator.

Town: In which town is the vernal pool located?

GPS Coordinates: What is the latitude and longitude of the vernal pool?

- *Only fill out this section on Visit 1: Setup, to ensure that you’re at the right location.*
- During future visits the presence of the PVC pipe will indicate that you’re at the correct location.
- For instructions on finding your GPS location with a smartphone, see page 23.

Field Visit: Check whichever of the four VPMon field visits this data sheet describes.

- For an explanation of the four VPMon field visits, see page 6.
- If this is Visit 1: Setup, be sure to deploy the audio recorder and note this date in the Amphibian/Macroinvertebrate Surveys section.
- If this is Visit 3: Late Survey, be sure to collect the audio recorder, and note this date in the Amphibian/Macroinvertebrate Surveys section.

Is Pool Mapped?: Has a Vernal Pool Mapping (VPMMap) data sheet been filled out for this pool?

- Yes, through VPMMap: If the pool was mapped through VPMMap.
- Yes, by VPMon volunteer: If you or another VPMon volunteer have filled out a VPMMap data sheet.
- Not mapped: If the pool hasn’t been mapped, you’ll need to fill out a VPMMap data sheet on Visit 3.
 - See page 22 for instructions on filling out the Vernal Pool Mapping data sheet

Acoustic Monitor: Was the acoustic monitor deployed or collected on this visit?

- Deployed (Visit 1): If you set up the acoustic monitor on this visit.
 - If you’re deploying the acoustic monitor **it is essential to turn all presets ON** (see page 13).
- Already deployed (Visit 2): If the acoustic monitor was set up in the previous visit.
- Collected (Visit 3): If you have collected the acoustic monitor on this visit.
 - If you’re collecting the acoustic monitor remember to turn all presets OFF (see page 13).

HOBO Logger: Have the HOBO Logger and PVC Pipe been set up on this visit?

- Set up on this visit: If you set up the configured HOBO Logger on this visit (likely Visit 1).
- Already in the pool: If the HOBO logger is already collecting data in the pool (likely Visits 2 or 3).
- Reconfigured on this visit: If the HOBO Logger was already in the field, but you reconfigured it on this visit (likely Visit 4).

PHYSICAL PARAMETERS

% Ice-Covered: What percentage of the pool is covered in ice?

- Use the Veg / Ice Percent Cover table at the bottom of the data sheet to estimate this.

Water Level: How high is the water in the vernal pool, according to the PVC pipe?

- If you set up the PVC pipe on this visit, measure water level after having done this.
- If the vernal pool is dry, record 0 cm.

HOBO Water Temperature: Did you download water temperature data from the HOBO logger?

- Except for on Visit 4, downloading HOBO data is not required if you do not have a smartphone.
- For instructions on how to download data from the HOBO Logger see page 12.
- If you have trouble downloading the HOBO logger data, note this in Physical Parameter Notes.

% Vegetation-Covered: What percentage of the pool bottom is covered/shaded by each category?

- *Only fill out this section on Visit 2: Early Survey and Visit 3: Late Survey*
- Use the Veg / Ice Percent Cover Table at the bottom of the data sheet to estimate this.
- The vegetation categories are:
 - Submerged Aquatic ○ Floating Aquatic ○ Emergent ○ Shrubs ○ Trees
 - Emergent is defined as vegetation that emerges out of the vernal pool.
- Percent cover should account for any vegetation that covers or shades the pool (including tree canopy), regardless of whether the vegetation emerges from the pool itself.
- If trees and other vegetation aren't fully leafed out, don't attempt to predict percent cover under full leaf out. Instead, just report the actual, current percent cover.

Physical Parameter Notes: Any additional notes on the physical parameters of the vernal pool.

- This may also include any trouble you had connecting to the submerged HOBO Logger or any physical changes that have occurred at the vernal pool since the VPM data sheet was filled out.

WEATHER

Air Temperature: What is the air temperature at the vernal pool?

- Place the ThermoPro Indoor Humidity & Temperature Monitor in a shaded location within 1 m of the edge of the vernal pool and leave it for at least one minute before recording the humidity.

Relative Humidity: What is the humidity at the vernal pool?

- Place the ThermoPro Indoor Humidity & Temperature Monitor in a shaded location within 1 m of the edge of the vernal pool and leave it for at least one minute before recording the temperature.

Wind (Beaufort Force): What is the wind speed at the vernal pool?

- Use the Wind: Beaufort Scale table at the bottom of the data sheet to estimate this.

Conditions: Which option best describes the weather conditions at the time of data collection?

Weather Notes: Any additional notes on the weather conditions at the vernal pool.

AMPHIBIAN & MACROINVERTEBRATE SURVEYS

Egg Mass Survey: Survey the vernal pool for egg masses using the protocols described on page 16.

- Only fill out this section on Visit 2: Early Survey and Visit 3: Late Survey
 - And on Visit 1: Setup (if there is at least 1 m² of open water)
- The Egg Mass Survey is broken up into two sections:
 - The **Edge Survey**, in which all water within 1 m of the pool's edge is surveyed.
 - The **Interior Survey**, in which all water more than 1 m from the pool's edge is surveyed.
- This survey follows a double-observer independent protocol, so while "Obs. 1" conducts their survey, "Obs. 2" should not be paying attention.
- Each acronym refers to a vernal pool-indicator amphibian:
 - **WOFR**: Wood Frog
 - **JESA**: Jefferson Salamander
 - **SPSA**: Spotted Salamander
 - **BLSP**: Blue-Spotted Salamander
- Remember to take photos and submit them to the VPMon iNaturalist Project (see page 32).

Macroinvertebrate Survey: For instructions on how to conduct this survey, see page 18.

- Only fill out this section on Visit 2: Early Survey and Visit 3: Late Survey
 - And on Visit 1: Setup (if there is at least 1 m² of open water)
- Remember to take photos and submit them to the VPMon iNaturalist Project (see page 32).

Spermatophores Found?: Did you notice any spermatophores in the vernal pool?

- Remember to take photos and submit them to the VPMon iNaturalist Project (see page 32).

Amphibian/Macroinvertebrate Notes: Record any additional notes or observations from the surveys.

- Did you notice any sign of amphibian disease? See page 17 for the Amphibian Disease table.
 - If you did see signs of amphibian disease, contact the VPMon Project Coordinator immediately and submit photos to the VPMon iNaturalist Project (see page 32).
- Are there other, non-contiguous vernal pools within 20 meters of your adopted pool, and if so did you notice any egg masses in them? Roughly how many?

Visual Impairment: What proportions of the search areas are visually impaired (See page 17)?

- Use the Visual Impairment table at the bottom of the data sheet to estimate this.
- Make a separate estimate for the Egg Mass Edge Survey search area (all water within 1 m of the pool's edge) and the Interior Survey search area (all water more than 1 m from the pool's edge).
- Impairment may be due to water depth, surface reflection, particulate matter, algae, etc.
 - But do not consider areas of the pool obstructed by ice.
- Use polarized glasses to estimate the Visual Impairment Level if you will also be using them for the Egg Mass Survey.
 - If so, be sure to check the "Yes" box for "Did you use polarized lenses?"

Submitting your Data Sheet

1. **Scan the data sheet to your computer or make a copy of it soon after returning from the field.**

- The file should be saved as "Pool ID_Your Last Name & First Initial_Year_Visit Number."
Example for Visit 1: MLS699_DarwinC_2019_1

2a. **Email this file to vpmondata@vtecostudies.org**

- The subject line of the email should be the same as the file name.

2b. **If you cannot email the data sheet, mail a copy to this address:**

Vermont Center for Ecostudies
Attn: Vernal Pool Monitoring Project
P.O. Box 420
Norwich, VT 05055

Vermont Vernal Pool Monitoring Project

Vernal Pool Monitoring Data Sheet



POOL & OBSERVER INFO		Field Visit:	Acoustic Monitor:
Date: _____	Pool ID: _____	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	<input type="checkbox"/> Deployed (Visit 1) <input type="checkbox"/> Already deployed (Visit 2) <input type="checkbox"/> Collected (Visit 3)
Time: _____	Town: _____	Is Pool Mapped? <input type="checkbox"/> Yes, through VPMon <input type="checkbox"/> Yes, by VPMon volunteer <input type="checkbox"/> Not mapped	HOBO Logger: <input type="checkbox"/> Set up on this visit <input type="checkbox"/> Already in the pool <input type="checkbox"/> Reconfigured on this visit
Observer Names: 1 _____ 2 _____	GPS Coordinates: Lat: _____ Long: _____		

PHYSICAL PARAMETERS		WEATHER	
% Ice-Covered: _____	% Vegetation-Covered: Submerged Aquatic: _____ Floating Aquatic: _____ Emergent: _____ Shrubs: _____ Trees: _____	Air Temperature (°F): _____	Wind (Beaufort Force): <input type="checkbox"/> 1 <input type="checkbox"/> 3 <input type="checkbox"/> 5 <input type="checkbox"/> 2 <input type="checkbox"/> 4 <input type="checkbox"/> 6
Water Level: _____		Relative Humidity: _____	
HOBO Water Temperature: <input type="checkbox"/> Data Downloaded <input type="checkbox"/> Did Not Download Data		Conditions: <input type="checkbox"/> Sunny <input type="checkbox"/> Partly Cloudy <input type="checkbox"/> Overcast <input type="checkbox"/> Hail <input type="checkbox"/> Graupel <input type="checkbox"/> Rain <input type="checkbox"/> Sleet <input type="checkbox"/> Snow	
Physical Parameter Notes:		Weather Notes:	

Amphibian & Macroinvertebrate Survey					Spermatophores Found? Yes <input type="checkbox"/> No <input type="checkbox"/>		
Egg Mass Survey	Edge Survey		Interior Survey		Macroinvertebrate Survey		Amphibian/Macroinvertebrate Notes:
	Obs 1	Obs 2	Obs 1	Obs 2	Fairy Shrimp	Caddisfly Larvae	
Start Time					N. Square		
WOFR					E. Square		
SPSA					S. Square		
JESA					W. Square		
BLSA					Total		
Visual Impairment: Edge Survey Area: _____ Interior Survey Area: _____ Did you use polarized glasses? <input type="checkbox"/> Yes <input type="checkbox"/> No							

Code	% Cover
0	0 %
1	1-10 %
2	11-25 %
3	26-50 %
4	51-75 %
5	≥76 %

Level	Conditions
0	Calm, smoke rises vertically.
1	Light air, rising smoke drifts.
2	Light Breeze, leaves rustle and wind can be felt on face.
3	Gentle Breeze.
4	Wind raises dust and loose paper; small branches move.
5	Small trees sway; waves form on lakes,
6	Large branches move.

Code	Description
0	Survey area not visually impaired.
1	Less than 25% of survey area visually impaired.
2	25-50% of survey area visually impaired.
3	More than 50% survey area visually impaired.

Egg Mass Species Codes
WOFR: Wood Frog
SPSA: Spotted Salamander
BLSA: Blue-Spotted Salamander
JESA: Jefferson Salamander