

## Downloading Logger Data using HOBO Waterproof Shuttle

**Note:** Water level loggers running at an interval of every 15 minutes have the memory capacity to run for ~220 days, so data should be collected at least every 6-7 months

There are two methods to gather data from HOBO loggers using the HOBO waterproof shuttle. The first method involves downloading all logger data onto the shuttle then offloading all data from shuttle onto field laptop. The second involves downloading logger data directly onto field laptop. There are slight differences in how to relaunch the loggers depending on the method used.

**Method One:** Downloading logger data to shuttle, then offloading to field laptop

Launching the waterproof shuttle from a field laptop

1. Open HOBOWare on field laptop
2. Unscrew the waterproof cap on the end of the shuttle, use the USB cord to plug the shuttle into the laptop
3. Click Launch device, this will clear all data currently on the shuttle, so make sure that the data is backed up first
4. Unplug the shuttle and screw the waterproof cap back on tightly. The shuttle is now ready to use

Downloading logger data:

1. Attach the appropriate connector to the shuttle (U22/U24 for water level loggers)
2. Unscrew well cap and lift, put finger through fishing line loop to keep it from slipping off the eye hook
  - a. The caps on the wider wells pull off instead of screwing. They tend to be stuck on tight, so you might need to use a mallet and/or wedge to loosen it
3. Carefully pull logger out of well
4. Unscrew logger from cap
5. Dry off the logger's connection point
6. Insert logger into the HOBO's docking point, line up the ridge on the logger with the notch on the shuttle, keep out of direct sunlight, squeeze trigger
7. The light will flash yellow several times, then green if the offloading is successful a. If the light flashes red instead of green, make sure the connection points are dry, the logger is out of the sunlight, and it is properly lined up
  - b. Offloading this way will automatically clear the logger's memory bank and set a delayed relaunch
8. Carefully return logger to well

Offloading data from the shuttle:

1. Plug the shuttle into the field laptop
2. Open the Readout device window, all data currently on the shuttle will be offloaded

- (this does not mean it is deleted from the shuttle)
3. Select the desired save location for the data, make sure all of the files you wish to save are checked, then click Save Checked
  4. Open and plot the individual data files in HOBOWare to make sure everything looks okay. Pay close attention that the dates are correct. It may be necessary to manually relaunch a logger if its internal clock is out of sync

### **METHOD TWO: Downloading logger data directly to field laptop**

1. Open HOBOWare
2. Unscrew the waterproof cap on the end of the shuttle, use the USB cord to plug the shuttle into the laptop (keep it plugged in)
3. Attach the appropriate connector to the shuttle (U22/U24 for water level loggers)
4. Unscrew well cap and lift, put finger through fishing line loop to keep it from slipping off the eye hook
  - a. The caps on the wider wells pull off instead of screwing. They tend to be stuck on tight, so you might need to use a mallet and/or wedge to loosen it
5. Carefully pull logger out of well
6. Unscrew logger from cap
7. Dry off the logger's connection point
8. Insert logger into the HOBOWare's docking point, line up the ridge on the logger with the notch on the shuttle, keep out of direct sunlight, squeeze trigger
9. The light will flash yellow, then green if the logger is successfully connected
  - a. If the light flashes red instead of green, make sure the connection points are dry, the logger is out of the sunlight, and it is properly lined up
10. In HOBOWare, click Readout Device, offload and save the data
  - a. If a dialogue pops up asking if you wish to stop logging, select Stop
11. Open and plot the data file in HOBOWare to make sure everything looks okay
12. Click Launch Device, there are three options for relaunching, either Delayed Launch or Launch at Interval is fine (launching the logger will clear its memory banks, so double check that the data is saved)
  - a. Make sure the logging interval stays at 15 minutes
13. Optional: While the logger is still attached, you can open the Device Status window to check its battery level, memory capacity, and launch status
14. Carefully return logger to well