

The following Site Information section should be completed in the office prior to departing for the field as many of the entries require reference materials.

1. Obtain the Lake/Stream ID from the Alt ID in the NRIS-Air database or the Location Identifier (Sta) in the Lake and Stream Chemistry Database (contact Barbara Gauthier at 970-295-6012 or bgauthier@fs.fed.us). To determine a new identifier you will use the decimal degree Longitude and Latitude. It will consist of 13 digits where the first 7 digits are the decimal degree longitude and the last 6 digits will be the decimal degree latitude.
2. Find the common Lake/Stream Name on a Forest or topographic map.
3. Select Latitude and Longitude for the sampling point from a map. Enter in decimal degrees (xxx.xxxx).
4. The Hydrologic Unit Code (HUC) is a watershed coding system that consists of 4 fields containing 8 characters, for example 13 01 02 03. The HUC codes are found on hydrologic unit maps prepared by the U.S. Geological Survey in cooperation with the Water Resource Council (WRC). Expressed numerically the first field (13) is the Water Resources Council Region, the second field (01) is the Water resources Council Subregion, the third field (02) is the Water Resources Council Accounting Unit, and the forth field (03) is the Water Resources Council Cataloging Unit.
5. Find the National Hydrography Data (NHD) Reach Code from the National Hydrography Data web site (<http://nhd.usgs.gov/>) until the reach codes are entered in the NRIS-Air database and the Lake and Stream Chemistry Database (contact Barbara Gauthier at 970-295-6012 or bgauthier@fs.fed.us).
6. Find the National Forest, Ranger District, Wilderness and Other Administrative Name, if one exists, on the appropriate Forest map.
7. Find the Elevation (meter) of the sampling point on a topographic contour map.
8. Estimate Lake Size (hectare) from a topographic map.
9. The Stream Order is determined as follows: Expressed numerically the smallest permanent streams are called "first order" or #1 streams. Two first order streams join to form a larger stream are second order streams or #2 streams; two second order streams join to form a third order stream or #3 streams, and so on. Smaller streams entering a higher-ordered stream do not change its order number.
10. Find the Lithology by consulting with the Regional Geologist or Ecologist.
11. Estimate the average Catchment Slope by dividing the elevational distance by the distance from the water's edge to the top of the farthest catchment ridge.
12. Estimate Catchment Size, that is, the area that forms the watershed for the lake or stream.
13. Use an aerial photo, if available, to estimate the percentage of surface cover that is Trees, Exposed Bedrock, Meadows/Shrubs and Other.

The following Sample Information should be collected in the field.

1. Enter Technician Name and Phone Number. SE
2. Date and Time. Self explanatory (SE).
3. Enter Sample Measurement Location 4-letter code from attached table.
4. Enter Sample Depth Zone 4-letter code from attached table.
5. Enter Latitude and Longitude for the sampling point from a GPS, if available.
6. Circle the Stream Stage. Not applicable (NA) for lakes.
7. Check the Usual Collection Point. If no, briefly mention why.



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8. Circle Observed Water Level.
9. Enter Measurement Sampling Depth to the hundredth of a meter.
10. Enter Sample ID. For example Sample ID 0020302110001-1M would be identified as follows: Julian day (002), Year (03), Region (02), Forest Number (11), Unique number derived from the field unit (0001)-depth from depth profile(1M) (only for depth profile measurements) until bar codes are in place. See Region and Forest Code table for appropriate codes. See Julian day calendar appropriated Julian day.
11. Circle Sampling Method. A Grab sample is taken a selected location, depth and time usually near shore; a Composite sample is made by mixing several discrete samples into one; Shallow samples are made by creating a small dam to create enough depth to get a bottle submerged; a Point (depth) sample is taken at a single depth usually with a special bottle such as a Van Dorn; a Pole sample is taken by attaching a bottle to pole but is otherwise similar to a grab sample; an Auto sample is collected by an autosampler.
12. Circle Type of Sample. A Duplicate sample is collected at some short distance from the regular sample to assess short-range spatial variability; a Triplicate sample has the same objective as a duplicate only with yet a third sample collected at some other point; a Blank is a prepared sample of distilled or deionized water; a Split is a regular sample split into two bottles to evaluate sample homogeneity.
13. Did the Sample Collection Deviate from the WO preferred Protocol? How?
14. Enter Field Notes and Observations. SE
15. Estimate the Snow Cover Percentage, if any, on the water body or in the catchment.

The following Field Measurements to be collected primarily while in the field.

1. Find Water Temperature to tenth of a degree centigrade.
2. Enter Secchi Disk Disappearance, Reappearance, and the Average of the two measurements, to the nearest m.
3. Enter Stage Height to the nearest hundredth of a meter, if available.
4. Estimate of Discharge (flow rate) can be determined many by different methods. A few common ways are by stage height using a predetermined rating equation connected to a surveyed elevation, current meter, weir, if available, to two significant figures of cfs.
5. What Discharge Method/Equipment was used?
6. Enter the water pH by using a probe in the water body to the nearest tenth of a standard unit.
7. What pH Equipment make and model was used, if any?
8. Enter the Specific Conductance by using a probe into the water body to three significant figures of a uS/cm.
9. What Specific Conductance Equipment make and model was used?
10. Enter the Dissolved Oxygen concentration by using a probe into the water body to the nearest tenth of mg/L.
11. What Dissolved Oxygen Equipment make and model was used?



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The following Weather Conditions to be entered while in the field.

1. Enter the estimated Wind Speed to the nearest whole m/s using the attached table.
2. Estimate the nearest cardinal Wind Direction from which the wind is blowing using a compass.
3. Was it Precipitating During the Data Collection?
4. Estimate the Cloud Cover to the nearest tenth of the sky dome.
5. Enter the Barometric Pressure (not sea level pressure or altimeter setting) to the nearest hundredth of a mm of Hg.
6. Enter the Air Temperature to the nearest of a whole centigrade degree.

The following Surface Water Depth Profile Measurements should be collected in the field.

1. Transfer the Lake ID from the Surface Water Chemistry Long-Term Monitoring Record or obtain the Lake ID from the Alt_ID in the NRIS-Air database or the Location Identifier (Sta) in the Lake and Stream Chemistry Database (contact Barbara Gauthier at 970-295-6012 or bgauthier@fs.fed.us). To determine a new identifier you will use the decimal degree Longitude and Latitude. It will consist of 13 digits where the first 7 digits are the decimal degree longitude and the last 6 digits will be the decimal degree latitude.
2. Transfer the Lake Name from the Surface Water Chemistry Long-Term Monitoring Record or find the common Lake Name on a Forest or topographic map.
3. Transfer the Latitude and Longitude from the Surface Water Chemistry Long-Term Monitoring Record or select Latitude and Longitude for the sampling point from a map. Enter in decimal degrees (xxx.xxxx).
4. Find the National Forest, Ranger District, Wilderness and Other Administrative Name, if one exists, on the appropriate Forest map.
5. Date. SE
6. Enter Sample ID. For example Sample ID 0020302110001-1M would be identified as follows: Julian day (002), Year (03), Region (02), Forest Number (11), Unique number derived from the field unit (0001)-depth from depth profile(1M) (only for depth profile measurements) until bar codes are in place. See Region and Forest Code table for appropriate codes. See Julian day calendar appropriated Julian day.
7. Enter Measurement Sampling Depth to nearest the nearest tenth of a meter.
8. Time. SE
9. Find Water Temperature to nearest tenth of a degree centigrade.
10. Enter the Dissolved Oxygen concentration by using a probe into the water body to the nearest tenth of mg/L.
11. Enter the water pH by using a probe in the water body to the nearest tenth of a standard unit.
12. Enter the Specific Conductance by using a probe into the water body to three significant figures of a uS/cm.
13. Other. Specify measurements and units taken.



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Wind Speed Scale

Mean Speed (m/s)	Description	Land Specifications Use at streams	Water Specifications Use at lakes
0	Calm	No leaf movement	Water like glass
0.8	Light air	Leaves quiver	Water ripples
2.4	Light breeze	Leaves rustle	Small wavelets: crests have glassy appearance
4.3	Gentle breeze	Leaves and small twigs in constant motion	Large wavelets: crests begin to break
6.7	Moderate breeze	Small braches move	Small waves: frequently white caps
9.3	Fresh breeze	Small leafed trees sway	Moderate waves: Many white caps
12.3	Strong breeze	Large branches move	Large waves: spray off white caps
15.5	Near gale	Whole trees sway	White foam blown from breaking waves
> 18.9	Gale or stronger	Twigs break of trees	Very high waves

Sample Measurement Location Type Table

Type	Description
BANK	Bank – Stream waters edge
CENT	Lake centroid – Center of the Lake
CHLC	Channel center- Center of a stream channel
DEEP	Over deepest spot of the Lake or Stream
INLT	Inlet - A stream flowing into a lake or pond
OUTL	Outlet - A stream flowing out of a lake or pond
POOL	Stream Pool - An area of the stream with greater than average depth and slower than average flow. Pools typically occur where the river bends or meanders.
RIFL	Stream Riffle - A raised area of the active channel that results in an increase in flow velocity. Riffle areas are typically preceded by pools and represent the fastest current in a given river or stream.
SHOR	Shore – Lake waters edge
UNKN	Unknown

Sample Depth Zone Type Table

Type	Description
EPLZ	Epilimnion - The layer of water in a thermally stratified lake that lies above the thermocline, is circulating, and remains perpetually warm.
HYPZ	Hypolimnion – The layer of water in a thermally stratified lake that lies below the thermocline, is noncirculating, and remains perpetually cold.
TERZ	Thermocline Zone - The zone where the temperature change marks the transition between warm surface water (Epilimnion) and the cold deep water (Hypolimnion).
TLWG	Thalweg - The line defining the lowest points along the length of a stream bed.
WTRS	Lake/Stream Water surface
WUBT	Lake/Stream Water bottom
UNKN	Unknown



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