

Dr. Lawrence J. Gray
SOPs for Analysis of Aquatic Macroinvertebrate Samples collected from the Great Salt Lake freshwater wetlands
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Contact Information

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Sample Analysis

In the laboratory, macroinvertebrate samples are washed with tap water on a 500 μm -mesh brass sieve to remove the preservative and finer debris. The remaining material is placed in a white enamel pan for separating animals from larger debris. In any sample, if there are relatively few animals (1-50) of a particular taxon, all animals of that taxon are picked. If a taxon is abundant, a random subsample of 10-50% of the individuals of that taxon is picked with the goal of obtaining at least 30 individuals. Picked animals are placed in vials with 70% alcohol following separation from the debris for counting and identification. Identifications are based on keys given below in the Taxonomic References and on reference specimens previously collected from the sampling sites. Collected specimens are retained in ethanol at the lab for future reference.

Data Reporting

The report for a sample or set of samples includes a list of taxa collected (by taxonomic name and Utah State University Buglab code), number of individuals of each taxon collected in each sample (given in spreadsheets showing lists by site and date and in DWQ/STORET format), and other calculated metrics depending upon the workplan. Taxonomic resolution is to the level for each taxon generally used by the USU Buglab (see below). Data are submitted in both hardcopy and electronic formats.

Quality Assurance

Samples of specific macroinvertebrate taxa that I have identified are checked by North American Benthological Society-certified taxonomists at Chadwick and Associates, Denver, Colorado. Letters of identification verification are on file.

Taxonomic Resolution of individual Taxa

Note: In the listing below, the primary taxonomic level represents the default. The secondary level may be possible, depending upon the condition and life stage of the specimen.

Taxon	Primary Level	Secondary Level
1. Aquatic Insects		
a. Ephemeroptera (mayflies)	genus	species
b. Trichoptera (caddisflies)	genus	
c. Coleoptera (beetles)	genus	species
d. Odonata (dragonflies and damselflies)	genus	species
e. Hemiptera (true bugs)	genus	species
f. Diptera (true flies)		
1. Chironomidae	subfamily	genus
2. Tipulidae	family	genus
3. Simuliidae	family	genus
4. Other	family	genus
2. Mollusca (snails, fingernail clams)	genus	
3. Annelida (worms and leeches)	subclass	species
4. Platyhelminthes (flatworms)	order	species
5. Crustacea (amphipods, isopods, fairy shrimp)	genus	species
6. Ostracoda (seed shrimp)	phylum	
7. Acari (water mites)	order	

Taxonomic References for the Great Salt Lake Wetlands

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