Sierra Nevada Network Lake Monitoring Protocol
Standard Operating Procedure 9. Sample Handling, Storage, and Shipping

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Revision History Log

Previous Version #	Revision Date	Author	Changes Made	Reason for Change	New Version #

Overview

This SOP describes procedures for handling, storing, and shipping samples. All staff who handle samples are required to adhere to quality control and chain-of-custody procedures to ensure sample integrity is tracked and maintained. Samples should be kept as cool as possible while in the field—for example, store in the shade. Once samples reach the trailhead, they should be stored in a cooler with ice as soon as possible and delivered to the Yosemite or Sequoia water lab (or other designated processing facility).

Samples are temporarily stored in the refrigerator or freezer at the water lab until they are shipped to the laboratory. Storage and holding time requirements are listed in Table SOP 9.1.

Table SOP 9.1. Storage and holding time requirements.

Measure	Field Method	Container Type	Storage	Max holding time
Core parameters				
Temperature	YSI-thermistor	n/a	4°C refrigeration	n/a
Specific Conductance- fld	YSI-conductivity meter	n/a	n/a	n/a
Specific Conductance- lab	unfiltered	125 ml HDPE Bottle	4°C refrigeration	48 hours
pH	unfiltered	125 ml HDPE Bottle	4°C refrigeration	48 hours
Dissolved oxygen-fld	YSI-DO	n/a	n/a	n/a
Dissolved oxygen-lab	n/a	n/a	n/a	n/a
Nitrogen				
Dissolved inorganic N	1 µm polycarbonate filter	125 ml HDPE Bottle	4°C refrigeration	3 months
Dissolved organic nitrogen	1 µm polycarbonate filter	60 ml HDPE Bottle	"-20 °C freezer	6 months
Total dissolved nitrogen	1 µm polycarbonate filter	60 ml HDPE Bottle	"-20 °C freezer	6 months
Particulate nitrogen	vacuum filtration	47 mm Pall A/E Filter	"-20 °C freezer	6 months
Phosphorus				
Total dissolved phosphorus	1 µm polycarbonate filter	60 ml HDPE Bottle	"-20 °C freezer	6 months
Particulate phosphorus	vacuum filtration	47 mm Pall A/E Filter	"-20 °C freezer	6 months
Carbon				
Particulate carbon	vacuum filtration	47 mm Pall A/E Filter	"-20 °C freezer	6 months
Major Ions				
Calcium	1 µm polycarbonate filter	125 ml HDPE Bottle	4°C refrigeration	60 days
Sodium	1 µm polycarbonate filter	125 ml HDPE Bottle	4°C refrigeration	60 days
Magnesium	1 µm polycarbonate filter	125 ml HDPE Bottle	4°C refrigeration	60 days
Potassium	1 µm polycarbonate filter	125 ml HDPE Bottle	4°C refrigeration	60 days
Chloride	1 µm polycarbonate filter	125 ml HDPE Bottle	4°C refrigeration	30 days
Sulfate	1 µm polycarbonate filter	125 ml HDPE Bottle	4°C refrigeration	30 days
ANC	unfiltered	125 ml HDPE Bottle	4°C refrigeration	1 week

Shipping Procedures

1. Contact laboratory and let them know you will be sending samples this week.
2. Pack sample bottles in Ziploc bags and place in cooler.
3. Put the original chain-of-custody form in a Ziploc bag and place in the cooler.
4. Pack cooler liberally with blue ice.
5. Seal and wrap cooler with strapping tape.
6. Ship the sample coolers to the lab overnight via Federal Express. They should be shipped early in the week (Mon-Wed) to ensure they arrive at the lab before the weekend. Samples should be packed the same day they are picked up by Fed-Ex (i.e. they should not sit overnight at the park warehouse).
7. Document which samples were shipped in the Sample Tracking log book.