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Protocol status: Working

ISCO Collection - AOC Project

PLOS Medicine

Hayley Templar¹, Sandra McLellan¹

¹University of Wisconsin-Milwaukee

Sandra McLellan

ABSTRACT

A-2. ISCO Sampling Protocol

River and estuary samples will be collected using an automated ISCO sampler using the following protocol:

- **Sampler Description:**
 - A Teledyne ISCO 3700 full size portable sequential sampler is used for sampling.
 - ISCO sampler consists of a rosette of 24, one-liter polypropylene bottles in which samples are collected at regular intervals.
 - Includes a pump, which pumps water through a ¼-inch, flexible sample line into sample bottles. Sample line is automatically rinsed before each new sample is collected.
 - Controller on ISCO sampler allows for sample programming.
- **Sampler Installation:**
 - The ISCO samplers are installed within a sturdy, locked enclosure that is protected from damage due to tampering and environmental hazards (usually installed within a U.S. Geological Survey gaging station).
 - ISCO samplers are installed by extending the ¼-inch suction line from the sampler into the water body being sampled.
 - Sample line is secured using PVC pipe attached to a permanent structure, such as a river wall or concrete river bed.
 - A Campbell® Scientific CR1000 datalogger and AirLink® LS300 Raven cell modem is installed to communicate with the ISCO, allowing for remote control and monitoring of the sampler.
 - ISCO samplers are generally programmed to collect 250 mL every 15 minutes for up to 24 hours (each bottle represents a composite, one-hour sample).
- **Field Collection:**
 - ISCO samplers are turned on remotely using the Campbell® Scientific LoggerLink mobile application, which communicates with the datalogger.
 - Sampler is filled with ice to ensure sample preservation and ice is replaced once per day while the sampler is running.

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- When samples are collected, if ice is melted, the temperature of the melted ice water is recorded on a field sheet.
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- Water samples are collected in two-liter plastic Nalgene bottles, which are sanitized with dish soap after each use.
- A small quantity of sample water from each sample bottle is poured into a Nalgene bottle, capped, shaken, and dumped to remove any soap residue from the bottle before the sample is collected (x3).
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- During and within 24 hours of an event, two ISCO sample bottles are combined into one, two-liter Nalgene bottle when the samples are collected (results in a two hour composite sample).
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- 24 hours after an event, four ISCO sample bottles are combined into one, two-liter Nalgene bottle when the samples are collected (results in a four hour composite sample).
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- Samples are immediately placed on ice and taken back to the lab for filtering.
-
- One-liter ISCO sample bottles are rinsed with deionized water (x3) and replaced in the sampler after each sample is removed.
- Bottle blanks are collected once per event at each site by collecting a sample of deionized water using the same procedure that a field sample would be collected.

ISCO Sampler Description:

- 1
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- 2
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3

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