ISCO Collection - AOC Project

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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.
When samples are collected, if ice is melted, the temperature of the melted ice water is recorded on a field sheet.
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).
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).
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).
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.

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Protocol

ISCO Sampler Description:

Step 1.

- 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.

ISCO Sampler Installation:

Step 2.

- 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).

ISCO Field Collection:

Step 3.

- 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.
  - When samples are collected, if ice is melted, the temperature of the melted ice water is recorded on a field sheet.
- 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).
    - 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).
    - 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).
    - 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.