

How Environment and Climate Change Canada tests for toxicity to fish



Follow along as enforcement officer, Nicky, collects and submits a water sample to our laboratory for testing. This test will help her determine if there is a potential offense under the pollution prevention provisions of the *Fisheries Act*.

STEP 1 - Collection

Nicky collects water samples from the source of possible pollution and in the body of water that is of interest and catalogues the sample for storage and future testing.



STEP 2 - Submission

Nicky submits the sample to her scientist colleague, Charlie, for testing at one of our accredited labs.

STEP 3 - Testing

Charlie begins testing the water sample by exposing either Rainbow trout or water fleas to the sample.

Rainbow trout and water fleas are common freshwater species native to North America. During testing, Rainbow trout are exposed to the sample for a 96-hour period and water fleas for a 48-hour period.

Charlie begins testing the water sample by exposing either Rainbow trout or water fleas to the sample.



STEP 4 - Analysis

When the testing period is complete, Charlie returns to complete the sample analysis. If more than 50% of the fish or water fleas have died, the sample is considered toxic to fish and is also deleterious.

A substance does not have to kill fish to be deleterious. A deleterious substance is any substance that when added to water degrades or alters water quality enough that it could harm fish or their habitat.

STEP 5 - Quality Assurance and Control

Ali reviews the data gathered by Charlie to ensure its quality and accuracy. He does this by checking to make sure the fish or flea samples were healthy before testing. He also has to ensure the quality of the control. This process takes time to ensure the validity of the testing and results.

Each sample that is tested has a corresponding control set-up. This is a secondary tank that uses clean lab water as opposed to the sample submitted by the officer.



STEP 6 - Report

Ali gives Charlie the final report. Charlie must share this report directly with Nicky.

STEP 7 - Evaluation

Nicky will document and evaluate the results and determine next steps based on legal requirements.

IS THERE A POTENTIAL CONTRAVENTION OF THE FISHERIES ACT?

