

PET/LIVESTOCK INTOXICATION EVENTS

What to do when you think a pet or livestock has succumbed to intoxication from a harmful algal bloom

SUMMARY

If you suspect poisoning due to harmful algae or cyanobacteria, save the **source** and any **stomach contents/vomit**. This can be used to look for intact cyanobacteria (microscopy), confirm exposure, and narrow down toxin testing. The next specimen to collect is the **urine**. Urine can be used to test for elimination post exposure. Lastly, bile, blood, and organs (kidneys, liver, brain) can be tested, but this would be more research-based testing and not for the sole purpose of confirming intoxication.

To request a price sheet with turn-around-times, please contact us:

PHONE:
(386) 328-0882

EMAIL:
info@greenwaterlab.com

ALL SAMPLES

- 1) After collection, double bag samples to prevent cross-contamination
- 2) Download and fill out our COC: <https://greenwaterlab.com/serviceguidestform.pdf>
- 3) Ship samples
 - a) Pack samples (tightly sealed and individually packed) on ice packs in a cooler
 - b) Make sure samples are labeled with the patient ID and type of sample (e.g. urine)
 - c) Put the filled out COC in a plastic bag in the cooler with samples
 - d) Ship overnight to GreenWater Laboratories

WHICH SAMPLES DO YOU COLLECT?

SOURCE

If at all possible, get the source of intoxication (e.g. lake water, surface scum). Do not freeze source water: keep refrigerated (< 1 week; 100 – 250 mL in a plastic bottle). For longer hold times (≤ 6 months) an aliquot (~10 mL) can be preserved (1:1 of 10% formalin; 5% final) and the remaining sample frozen. If the source is another animal (e.g. dead fish), freeze the specimen.

ANTEMORTEM SAMPLES

Vomit

- If the animal vomits, collect all contents in a bag/bottle and refrigerate
- To increase hold times, follow source water instructions

Urine

- Collect any urine (0.5 – 50 mL) after exposure and freeze (-20 °C)

POSTMORTEM SAMPLES

Stomach contents

- If available, collect and store as described for vomitus

Urine

- If urine is present, collect (0.5 – 50 mL) and freeze (-20 °C)

Bile or Blood/Plasma/Serum (optional, research based)

- Collect 0.5 – 10 mL and freeze (-20 °C)

Organs (optional, research based)

- Excise organs, subsample if needed to acquire 1 – 10 grams
- Individually package each specimen (plastic bags, bottles)
- In order of importance, collect the kidney, liver, and brain
- Freeze organs (-20 °C) immediately after collection

WHICH TEST DO YOU CHOOSE?

For stomach contents (or **source water** if available/accessible):

- Check “**PTOX cyanobacteria screen**” on the COC, which is a microscopy-based test used to identify cyanobacteria/algae
- This sample should be analyzed first so that toxin analysis recommendations can be made and to cut down on toxin testing costs. In the event this specimen is not available, or algae have degraded, 'blind' toxin testing can be conducted.

All specimens - toxins listed in order of importance for 'Blind Testing'. Clinical signs and exposure history may also help determine initial choice of toxin test.

Toxin	Method	Detection Limit	Hold Time (-20°C)
Microcystins/Nodularins	MMPB	≤ 5 ng/g	≥ 1 year
Anatoxin-a/Homoanatoxin-a	LC-MS/MS	≤ 50 ng/g	≤ 1 month ^a
Saxitoxins ^c	ELISA	≤ 50 ng/g	≥ 6 months ^b
Cylindrospermopsin	LC-MS/MS	≤ 50 ng/g	≥ 6 months
Guanitoxin (anatoxin-a(s))	ELISA	Qualitative	≤ 1 month ^a
Brevetoxins ^c	ELISA	≤ 250 ng/g	≥ 6 months

^a = Little is known regarding the holding times of these analytes in animal specimens

^b = Interconversions may occur

^c = Predominantly a marine source of intoxication

Ship Samples to: **GreenWater Laboratories/CyanoLab**
205 Zeagler Drive, Suite 302
Palatka, FL 32177