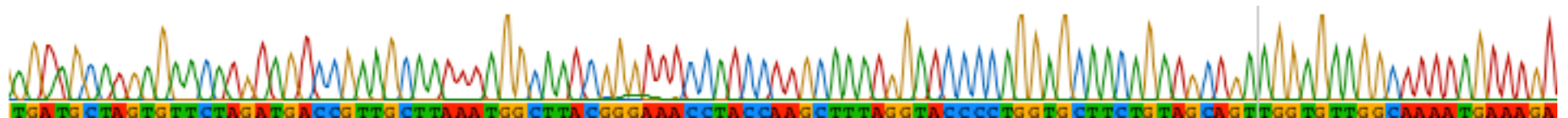


Readiness for timely response to dog poisoning events

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OSU: Toxic algae in Elk Creek killed dog

By KVAL.com staff

Story Published: Sep 10, 2009 at 12:41 PM PST

Summary

Tests confirmed blue green algae killed at least one of the two dogs that died along Elk Creek last month, according to Oregon State University. The two dogs from Eugene died suddenly after visiting Elk Creek near Elkton, Ore., in Douglas County.



Porter Cable (at left) and Kuta Ku (above), victims of an unknown toxin near Elkton. **anatoxin-a**

We know anatoxin-a killed the dogs but don't know the source

Suspected dog cyanopoisoning below Dexter Reservoir, 9 July 2013



Dog Axel was tied on a leash with access to the river. Northside spillway was active with unusual rafts of foamy material in the river. Bloom was active in Dexter, but no known toxins.

Two hours after exposure: vomiting, diarrhea, seizures, collapse and death; abnormal liver noted in biopsy.

Unsuccessful analysis for toxin/cyanobacteria in stomach contents
AnaC (anatoxin biosynthetic gene, *Oscillatoria* type) detected from river sample

Cause of death unexplained mushroom intoxication?

Canine Cyanotoxin Poisonings in the United States (1920s–2012): Review of Suspected and Confirmed Cases from Three Data Sources

Lorraine C. Backer ^{1,*}, Jan H. Landsberg ², Melissa Miller ^{3,4}, Kevin Keel ⁴ and Tegwin K. Taylor ³

Dog illnesses or deaths, attributable to cyanopoisoning in US in last 90 years

# dogs	368 (4/yr)
# dogs, anatoxin exposure	58
# dogs, microcystin exposure	51
# (%) with toxin confirmed	22 (6%)

Wide belief that reported cases are the tip of the iceberg
Why? Cost of vet treatment, postmortem, toxin analyses
Connection to cyano blooms may not always be obvious

Note: Toxic mushrooms can produce similar liver damage as microcystin

River-associated deaths: a big unknown

Dogs can be considered as sentinels for presence of cyanotoxins
Fatal attraction to taste-and-odor compounds?

Recently reported cyanotoxin-suspected dog fatalities in Oregon and Northern California have been associated with rivers

We have no idea what the cyanotoxin source is !!!

Benthic cyanos? Toxin transported in river from lake bloom?

Toxicon. 2010 Apr 1;55(4):897-903. doi: 10.1016/j.toxicon.2009.12.019. Epub 2010 Jan 4.

Identification of a benthic microcystin-producing filamentous cyanobacterium (Oscillatoriales) associated with a dog poisoning in New Zealand.

Wood SA¹, Heath MW, Holland PT, Munday R, McGregor GB, Ryan KG.

Dog died after ingesting benthic cyanomat (*Phormidium*) from Waitaki River, NZ

First report in a river in France of the benthic cyanobacterium
Phormidium favosum producing anatoxin-a associated
with dog neurotoxicosis

Muriel Gugger^{a,*}, Séverine Lenoir^{a,b}, Céline Berger^a, Aurélie Ledreux^a,
Jean-Claude Druart^c, Jean-François Humbert^c, Catherine Guette^a, Cécile Bernard^a

Rapid deaths after drinking from
shoreline of La Loue River, E. France

Toxicon 45 (2005) 919–928

Rapid response to infrequent poisonings

An opportunity to learn about toxin sources

What we need to solve a case

Vomit or diarrhea samples for toxin and genetic analysis
(Part on ice, part frozen, collected by vet)

Rapid mobilization to site of exposure for collection of cyanobacterial
samples
(use of on-site microscopy to help identify cyanobacteria and guide sampling)

In dog death cases suspected to be caused by cyanopoisoning:
Please contact theo.dreher@oregonstate.edu

Spread the word in your local area!