

# BCTOX's Marine Biotoxins Surveillance System in BC – Data from CFIA

## Shifting pattern of biotoxins in west coast Canada

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Public health surveillance is “the continuous, systematic collection, analysis and interpretation of health-related data needed for the planning, implementation, and evaluation of public health practice” according to [WHO](#).

BCTOX is hopeful that this initiative will draw attention of public health professionals to changing pattern of marine biotoxins that may cause shellfish poisoning. The graphs could be predictive indices for what are going to come next month!

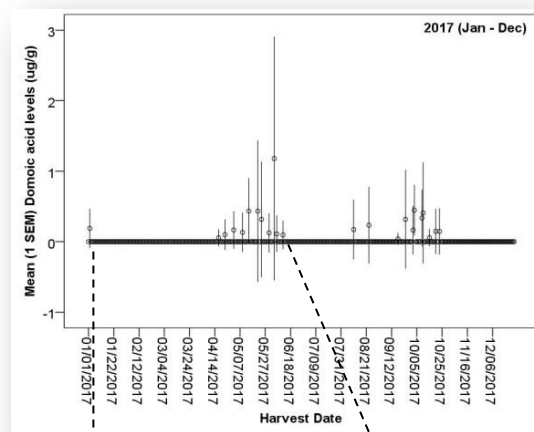
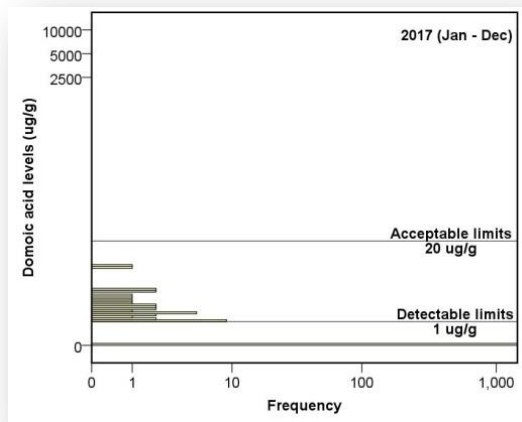
Frequency

Mean (1 SEM) concentrations

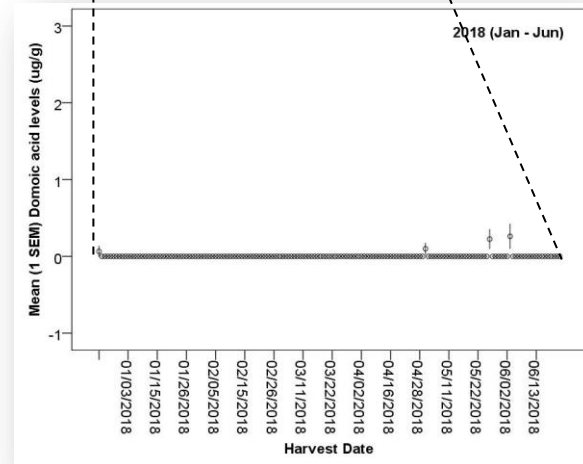
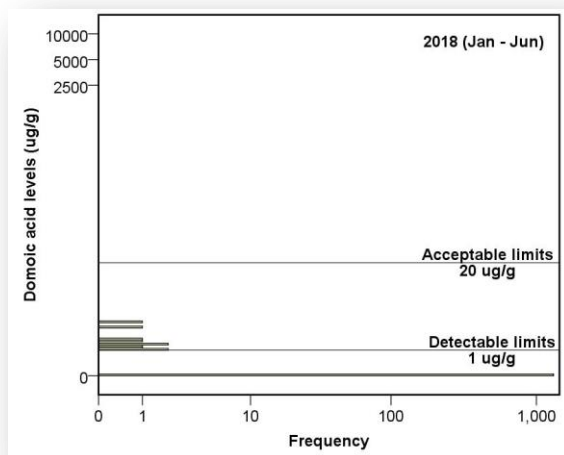
### 1. Domoic acid

Domoic acid (ug/g) (Amnesic shellfish poisoning (ASP)) among detected shellfish samples in BC (January to December 2017) (n=2 positive cases out of 1088 samples) [These graphs are prepared to imply the trend, and it should be interpreted with caution]

#### 2017 (Jan to Dec)



#### 2018 (Jan to Jun)



### Bi weekly marine bio-toxin monitoring in West Coast BC from Jan to May 2018

Below regulatory limits Domoic acid [Amnesic Shellfish Poisoning] are rarely reported. No cases of above regulatory limits were reported. As compared to Jan to May 2017, the values seem to be lower.

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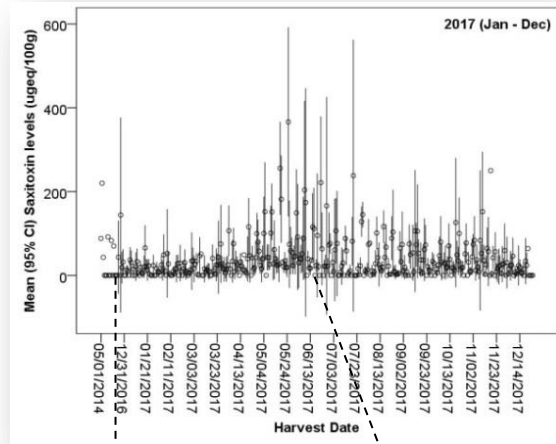
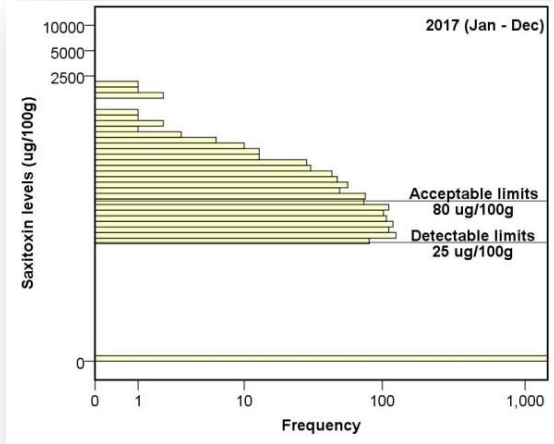
Frequency

Mean (1 SEM) concentrations

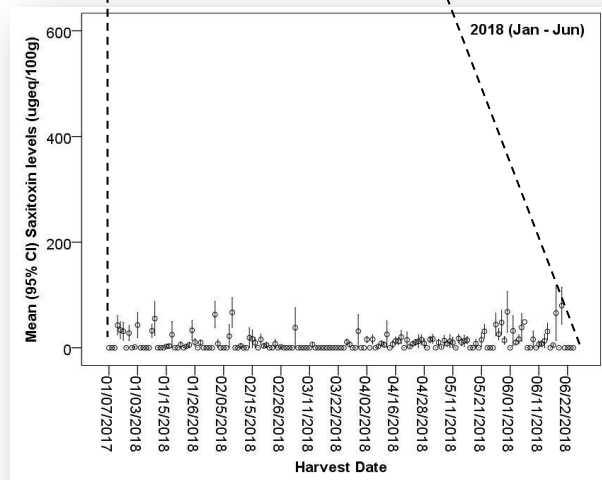
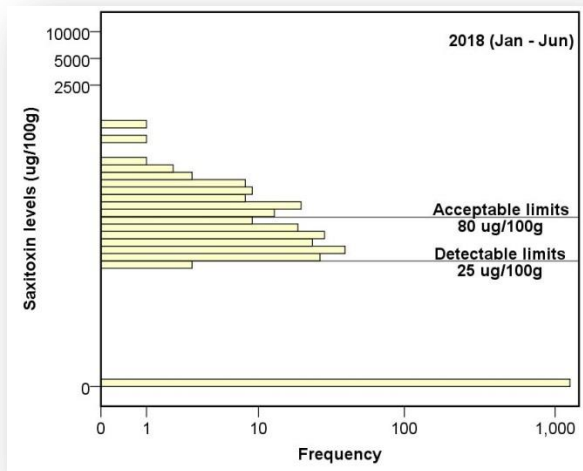
**2. Saxitoxin**

Saxitoxin (ug/100g) (Paralytic shellfish poisoning (PSP) among detected shellfish samples in BC (January to December 2017) (n=154 detected and 20 above the regulatory limit out of 1181 samples) [These graphs are prepared to imply the trend, and it should be interpreted with caution]

**2017 (Jan to Dec)**



**2018 (Jan to Jun)**



**Bi weekly marine bio-toxin monitoring in West Coast BC from Jan to May 2018**

✓ **Above** regulatory limits of Saxitoxin [Paralytic shellfish poisoning] concentrations were reported in 2018. The extent of the problem seems to be lower than 2017.

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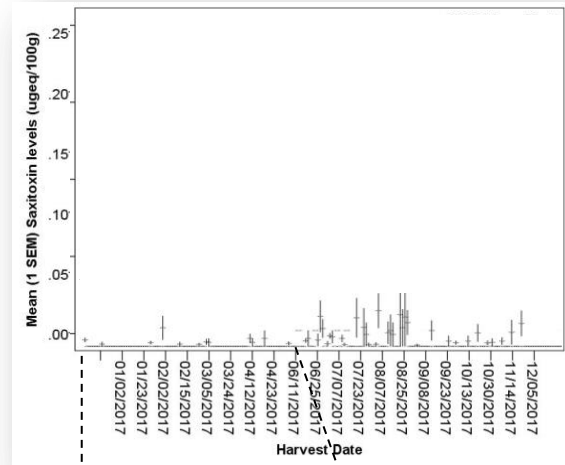
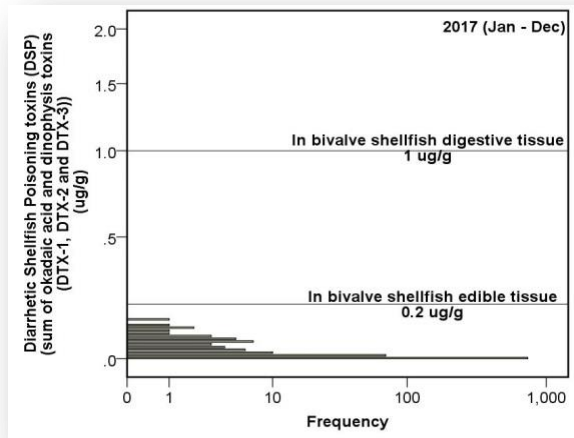
Frequency

Mean (1 SEM) concentrations

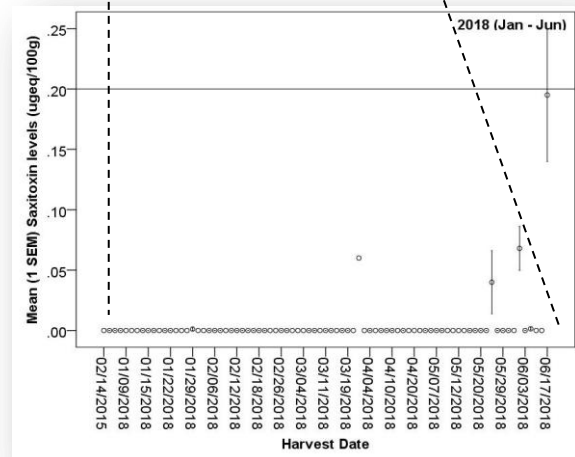
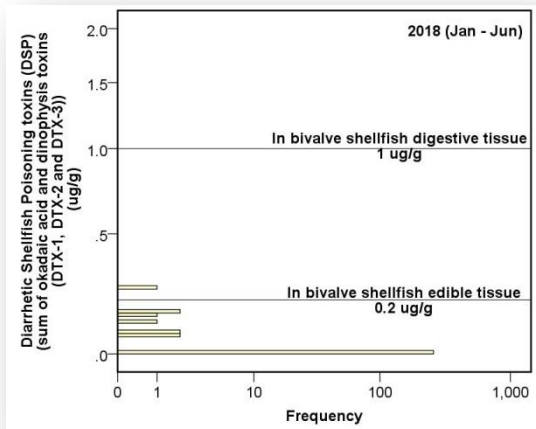
**3. Okadaic acid**

Okadaic acid (sum of okadaic acid and dinophysis toxins (DTX-1, DTX-2 and DTX-3) (Diarrhetic Shellfish Poisoning toxins (DSP)) among shellfish samples in BC (January to December 2017) (n=114 detected out of 735 sample) [These graphs are prepared to imply the trend, and it should be interpreted with caution]

**2017 (Jan to Dec)**



**2018 (Jan to Jun)**



**Bi weekly marine bio-toxin monitoring in West Coast BC from Jan to May 2018**

✓ **Above** regulatory limits of Okadaic acid and dinophysis toxins [Diarrhetic Shellfish Poisoning] were reported a couple of times. The extent is clearly higher than the last year.

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Frequency

Mean (1 SEM) concentrations

## 4. Other Marine Biotoxins

### Cyanobacterial toxins

No report of cyanobacterial toxins were detected in media until 29<sup>th</sup> of June 2018 in BC.

### BCTOXScope (CYANOScope)

BCTOX publishes your pictures of cyanobacteria found in BC your sample with your name.

Take and email your image(s) to [BCTOX@yahoo.com](mailto:BCTOX@yahoo.com)

--- If not sure that it is cyanobacteria, it is ok, upload it please!

Make sure to write date, geographical area and other relevant information.

Examples



[Photo](#)



[Photo](#)

Decision Tree for Drinking Water: Cyanobacterial Toxins – Step Descriptions (No information is available online from BC)

STEP A: STEP A: Initial screening for suspected blooms: Examine the water for one or more of total nitrogen and phosphorus. Check for bloom formation.

STEP B: If yes to any of: nitrogen (N)>658 µg/L; phosphorus (P)> 26µg/L; an N:P ratio < 23; changes in secchi depth; or blooms observed, go to Step C. If no, return to Step A.

STEP C: Sample the raw water. Use a portable field kit to test for the presence of microcystins.

STEP D: If the presence of microcystins is detected (>1.0µg/L) with a field test kit, go to step E, and alert the health authority of a potential issue. If microcystins are absent, return to step A.

STEP E: Use a portable test kit to test the treated water supply for microcystins.

STEP F: If the portable test kit indicates microcystins are present (>1.0µg/L) in the treated water, send a sample to the lab for confirmation and immediately notify the health authority.

STEP G: If the lab results indicate the seasonal MAC of 1.5µg/L has been exceeded, immediately contact the health authority for consultation and decision making.

**Azaspiracid and analogues** (No information is available online from BC)

**Brevetoxin and analogues** (No information is available online from BC)

**Cyclic imines** (No information is available online from BC)

**Palytoxin and analogues** (No information is available online from BC)

**Pectenotoxin** (No information is available online from BC)

**Tetrodotoxin and analogues** (No information is available online from BC)

**Yessotoxin and analogues** (No information is available online from BC)

## **Others**

### **Coral**

--- Toxic coral in aquarium sends Quebec family to hospital - Zoanthid corals can be toxic, be aware when handling them. ([Global News](#))<sup>1</sup>



Zoanthid coral, the green type seen in this photo, is a common feature of saltwater aquariums. But these organisms can also contain palytoxin, which a Gatineau, Que., family blame for a sudden wave of illness that swept their home on the weekend. (Stu Mills) (Picture adopted from [CBCNews](#))<sup>2</sup>

## **References:**

1. GlobalNews. Toxic coral in aquarium sends Quebec family to hospital. <https://globalnews.ca/video/4175960/toxic-coral-in-aquarium-sends-quebec-family-to-hospital> 2018-04-29.
2. CBCNews-2018-04-25. Toxic coral in home aquarium blamed for making Gatineau family sick. <http://www.cbc.ca/news/canada/ottawa/toxic-coral-blamed-for-sickening-gatineau-family-1.4633810>.