

# Okadaic Acid (DSP) in Shellfish



## What is okadaic acid?

Okadaic acid is a naturally occurring marine toxin, called a “biotoxin”, that is produced by microscopic algae, specifically, the dinoflagellate *Dinophysis*. Shellfish eat these algae and can retain the toxin, sometimes at levels that can make people sick. Okadaic acid causes **Diarrhetic Shellfish Poison (DSP)** in humans who eat shellfish contaminated with the toxin.

## What types of shellfish are affected?

All species of shellfish including clams, mussels, oysters, geoduck, and scallops are able to accumulate DSP toxin.

## How do shellfish become contaminated with DSP?

Shellfish are filter feeders. They pump water through their systems, filtering out and eating algae and other food particles. When shellfish eat biotoxin producing algae, the biotoxin can accumulate in their tissue.

## What causes unsafe levels of DSP?

It is normal for biotoxin producing algae to be present in marine water, usually in low numbers that cause no problems. The algae that produces the DSP toxin has been detected in Washington’s marine waters for some time, but has not produced toxin. That changed in June 2011 when the first confirmed DSP illnesses were reported (three people became ill after eating recreationally harvested mussels from Sequim Bay), and testing confirmed shellfish were contaminated with the toxin.

Although DSP has been a problem in European countries for some time, this is an emerging health threat for Washington. New information will be shared as it becomes available.

## Can I tell if the shellfish are toxic by the way they look?

No. Shellfish containing toxic levels of DSP do not look or taste any different from shellfish that are safe to eat. Laboratory testing of shellfish meat is the only known method of detecting DSP.

## What are the symptoms of DSP?

DSP causes nausea, vomiting, abdominal pain, and diarrhea, with diarrhea being the most commonly reported symptom.

## Does cooking the shellfish make it safe to eat?

No, DSP is not destroyed by cooking or freezing.

## How can I protect myself from DSP?

We close areas where toxins are at unsafe levels. Before harvesting any kind of shellfish, check the [Shellfish Safety Bulletin](#), our [Clickable Maps](#), or call the Shellfish Safety Hotline at 1-800-562-5632 to find out what recreational areas are closed due to DSP. Signs are being developed to post at beaches that have DSP closures.

## Who is most at risk?

Anyone who eats DSP contaminated shellfish is at risk for illness. The DSP toxin is non-lethal to humans.

**What should I do if I think I have DSP?**

If symptoms are mild, call your health care provider and your [local public health agency](#). If symptoms are severe, call 911 or have someone take you to your family doctor.

**Are there any other illnesses associated with shellfish?**

Yes. There are other types of marine biotoxins found in the northwest called Paralytic Shellfish Poisoning and Amnesic Shellfish Poisoning. Harmful bacteria and viruses can cause intestinal upset (see [Vibriosis in Shellfish](#)). Some people can have an allergic reaction to shellfish.

**Where can I get more information?****On current closures:**

- visit [www.doh.wa.gov/shellfishsafety.htm](http://www.doh.wa.gov/shellfishsafety.htm) (clickable maps)
- view the [Shellfish Safety Bulletin](#)
- call our recorded biotoxin hotline at 1-800-562-5632
- call the [local health department](#) in the area you plan to harvest
- call our office at 360-236-3330

**On biotoxins:**

- [Paralytic Shellfish Poisoning](#), or "red tide"
- [Domoic Acid \(causes Amnesic Shellfish Poisoning\)](#)
- [Biotoxins: Myths and Misconceptions](#)
- Visit our [Recreational Shellfish Program](#) page
- Northwest Fisheries Science Center's [Harmful Algal Blooms](#) (HABs) site. This web site discusses HABs, what they are, how they happen, and the effects on humans and wildlife.
- [Harmful algal blooms \(HABs\)](#) and their [life cycle](#), from the National Office for Harmful Algal Blooms, is another informative site.

Want more information?

Call the Office of Shellfish and Water Protection at (360) 236-3330.  
Biotoxin Hotline (24-hour) 1-800-562-5632

Online: [www.doh.wa.gov/shellfishsafety.htm](http://www.doh.wa.gov/shellfishsafety.htm) (current closure information)

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