



# Amnesic Shellfish Poisoning (ASP)

## Fact Sheet

### What is Amnesic Shellfish Poisoning?

Amnesic Shellfish Poisoning (ASP) is caused by a naturally occurring toxin, domoic acid, which is produced by microscopic marine algae. Human illness can occur by consuming seafood contaminated with domoic acid. Domoic acid may be produced by several species of diatom algae, most often from the genus *Pseudo-nitzschia*. Filter-feeding shellfish accumulate the algae during normal feeding and if the algae contain domoic acid, then the toxin is accumulated as well. Domoic acid produced a large number of human illnesses in Prince Edward Island (PEI) in 1987 before its toxic potential was understood. ASP may also be known in some cases as Domoic Acid Poisoning (DAP).

### What are the Symptoms of ASP?

Gastrointestinal symptoms usually develop within 24 hours and include nausea, vomiting, and diarrhea. Serious neurological symptoms may develop afterwards and can include headache, confusion, dizziness, loss of short term memory, seizures, coma and possible death.

- **Treatment:** NO treatment or antidote, only supportive care of symptoms.
- **Cooking:** NO, the toxin is NOT destroyed by cooking OR freezing.

### Is this new to MA?

Species of algae capable of producing domoic acid, such as *Pseudo-nitzschia*, have been reported in MA waters for several decades and occur throughout marine waters worldwide. However, these algae do not always produce domoic acid when present; certain conditions seem to promote production of the toxin. To our knowledge, toxic events in MA waters related to domoic acid have not been previously reported.

### Why now?

The conditions that promote the presence of *Pseudo-nitzschia* species are still being studied but current monitoring suggests that falling temperatures and photoperiods consistent with autumn are most often associated with *Pseudo-nitzschia* blooms. The large event from PEI occurred in autumn following a prolonged dry summer not unlike the summer of 2016 in MA. A combination of meteorological and oceanographic conditions may have created a favorable environment for this species. In addition, there are some links to nutrient conditions influenced by upwelling or turnover of waterbodies as well as recent rainfall and storm events that may have played a role in feeding a *Pseudo-nitzschia* bloom.

### Does domoic acid hurt the shellfish waiting for harvest?

There is very little evidence that bivalve shellfish themselves are affected by algal species such as *Pseudo-nitzschia*, regardless of domoic acid levels. Though there are a number of species of algae capable of producing domoic acid, in general, bivalves appear to be unaffected by domoic acid presence. However, species with more developed nervous systems such as fish, birds, and mammals have been affected in certain cases of *Pseudo-nitzschia* blooms associated with domoic acid entering the food web.

### What's being done?

Monitoring oversight of our shellfish supply is conducted by health officials and the MA Division of Marine Fisheries. When monitoring results detect harmful algal blooms or other pathogens of concern in either water or shellfish, appropriate health advisories and closures are issued. Because of this oversight, shellfish in the marketplace at either retail establishments or restaurants is from approved sources and is safe to consume.

### Need more information?

CCCE: <http://www.capecodextension.org/marine-programs/>

CDC: <http://www.cdc.gov/habs/illness-symptoms-marine.html>

WHOI: <https://www.whoi.edu/redtide/human-health/amnesic-shellfish-poisoning>