**Frequently Asked Questions:**

**Domoic Acid and Razor Clam Closures**

Oregon Department of Fish and Wildlife, March 2021

**When is razor clamming reopening on Clatsop Beach?**

Once two consecutive samples show domoic acid under the closure threshold. Samples are collected every low tide series as conditions allow.

However, razor clams are often slow to clear toxins from their tissues and an extended closure could occur. Domoic acid levels in Dec. 2020 were twice what they were in Dec. 2016 and that season did not reopen until October 2017.

**What caused the high domoic acid level in Clatsop Beach razor clams?**

A mix of harmful algal blooms (HABs), weather, ocean currents, the clams’ own physiology, and a lack of available food for the clams (common in fall and winter).

A late September “stall” in ocean current and winds caused an offshore HAB. The stall happened when the coastal current remained southward instead of transitioning northward (the fall transition), and predominant winds were from the north rather than the south.

That stall continued into October, pushing the HAB to the shoreline where Clatsop Beach clams were feeding much more than other populations along the coast.

**What is a HAB and is it still active?**

A HAB is colonies of phytoplankton that grow out of control and produce toxins, like domoic acid that accumulates in the shellfish.

The HAB broke up in November when the fall transition began.

**If the HAB broke up, why are domoic acid levels still high in the clams?**

Clatsop Beach razor clams currently have the highest domoic acid levels in Oregon. The clams were actively feeding when the HAB came to shore and domoic acid rapidly built up in their tissues.

With a lack of food during the fall and winter, which is not uncommon, the clams use their energy reserves and their body size shrinks. Domoic acid is monitored in parts per million, so the smaller the clams become, the more domoic acid is concentrated in their tissues.

**We’ve never had these closures before, why so many now?**

Domoic acid was first detected in shellfish in the Pacific Northwest in 1991 and resulted in the first domoic acid closure to razor clam harvesting that year. The phytoplankton that produces domoic acid (Pseudo-nitzschia) is not new and has been observed in historic phytoplankton water samples over 100 years ago.

It appears a shift in ocean conditions sometime in the late 1970s or 1980s produced ocean conditions and an environment favorable to Pseudo-nitzschia. As the conditions continued in that trajectory, HABs of the Pseudo-nitzschia have become more frequent and severe.

Recent closures can be attributed to marine heat waves (The Blob) which have appeared off the Oregon coast in 2014, 2015, 2017, and 2019. Warm water and high nutrient loads have the potential to create conditions that produce HABs on the West Coast that can last for months, closing razor clam harvesting in Oregon, Washington and California.

**Why isn’t mussel harvesting closed? Don’t they eat the same thing?**

Mussels do feed on phytoplankton like razor clams and can accumulate domoic acid but it is rare as they are more apt to accumulate the saxitoxin responsible for paralytic shellfish poisoning (PSP).

Due to their metabolism, mussels flush toxins very fast compared to razor clams. While it takes razor clams weeks or months to flush the toxins, mussels flush it from their tissue in days or within a week or two.

If you see test results with toxins in mussels, it means the testing was at the exact right time to detect the toxin and there was more than likely a lot of the toxin in the seawater that the mussels were exposed to.

**Why are the razor clam domoic acid levels different between Clatsop and Long Beach, WA?**

Domoic acid levels remain high coastwide in both Oregon and Washington. Both states and California follow the same U.S. FDA protocols to monitor and test shellfish for biotoxins.

Washington razor clam populations were not feeding as actively as Clatsop Beach clams during the HAB. As a result, the Washington razor clams did not accumulate near the domoic acid that Clatsop Beach clams did.

**Why is there an annual razor clam closure on Clatsop Beach?**

Razor clams are normally closed July 15 – Sept. 30 on Clatsop Beach to prevent disturbing the young razor clams and give them a chance to establish themselves on the beach during summer. This increases the chance for good recruitment and improves future razor clam harvesting.

The annual conservation closure has been in place since 1967.

**Do offshore earthquakes cause HABs?**

No, HABs are caused by phytoplankton colonies that grow out of control and produce toxins.

**Did radiation from Fukushima cause the October HAB?**

No, HABs are caused by phytoplankton colonies that grow out of control and produce toxins.

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