

2026 Annual Mussel Quarantine

This information is provided for the preparation of press releases, answering inquiries from the public, and other purposes related to shellfish poisoning and the annual mussel quarantine. Questions and requests for additional information about the quarantine may be directed to the California Department of Public Health (CDPH), Environmental Management Branch [Vanessa Zubkousky-White, Marine Biotoxin Monitoring Program, at (510) 412-4635]. Questions about human shellfish poisoning cases may be directed to the Infectious Diseases Branch at (510) 620-3434.

I. Introduction

The annual quarantine on sport-harvested mussels is in effect from May 1 through October 31. Occasionally the annual quarantine or county specific shellfish advisories can be issued sooner than May 1 due to significant increases in toxin levels earlier in the year. Similarly, a biotoxin event may persist beyond the end of October, resulting in an extension of the annual quarantine or shellfish advisories issued for one or more counties. The annual mussel quarantine applies to the entire coastline of California, including all bays, inlets, and harbors.

The main purpose of the quarantine is to protect the public from the toxins that cause paralytic shellfish poisoning (PSP) and domoic acid poisoning, also known as amnesic shellfish poisoning. Both of these syndromes are associated with consumption of bivalve (two-shelled) shellfish, such as mussels, clams, oysters, and scallops, which feed by filtering tiny particles from the water. Domoic acid has also been found at levels of concern in crustaceans like crab and small finfish like anchovies and sardines.

The mussel quarantine restrictions and recommendations apply only to shellfish collected by sport harvesters. Mussels and other bivalve shellfish harvested by state-certified shellfish growers and sold commercially in markets and restaurants are closely monitored and tested. Commercial shellfish harvesters in California are required to submit samples weekly from all commercial harvest areas for PSP testing. Bivalve shellfish imported into California are similarly monitored for biotoxins by the producer states.

Shellfish toxin levels do not have predictable cycles and can increase rapidly. Prevention of human illnesses requires the annual quarantine, combined with year-round surveillance, public education, shellfish advisories and commercial closures as needed.

II. Reporting of Suspected PSP and Domoic Acid Poisoning in Humans

PSP and domoic acid poisoning are immediately reportable to the local health authority (Title 17, California Code of Regulations, Sections 2500). Even suspected cases should be reported immediately by telephone to the local health department and to the nearest poison control center. Local health departments should interview patients regarding shellfish exposure and report these cases promptly to the Infectious Diseases Branch at (510) 620-3434.

III. Paralytic Shellfish Poisoning (PSP)

A. The Ecology and History of PSP in California

The source of the PSP toxins in bivalve shellfish is a naturally occurring dinoflagellate, single-cell marine algae, known as *Alexandrium*. Bivalve shellfish filter-feed on the algae and accumulate the PSP toxins produced by *Alexandrium*.

Because the PSP toxins produced by *Alexandrium* are so potent, it takes very few cells in the water to create a public health risk from shellfish consumption. It is highly unusual to experience a visible bloom or 'red tide' of this dinoflagellate along the California coast. Therefore, visual cues of ocean color are not reliable indicators of safe or unsafe conditions for shellfish harvesting and consumption. Shellfish can develop extremely hazardous levels of toxin within a few days without any visible warning. Conversely, the majority of red tides observed along the California coast are associated with nontoxic species of dinoflagellates.

Elevated levels of the PSP toxins have been detected in mussels, oysters, scallop viscera, clams, abalone jingles, and gooseneck barnacles. Red abalone, crab, and shrimp have not been the source of any cases of PSP in California, although the latter two crustaceans could potentially accumulate PSP toxins in the internal organs. In California, PSP toxins are detected in shellfish most commonly during the warm spring, summer, and early fall months, although episodes of high toxicity in shellfish have occurred during the winter months.

B. PSP in Humans

Symptoms of PSP poisoning can occur within a few minutes to a few hours of consumption of contaminated seafood. Symptoms may begin with tingling and numbness of the lips, tongue, and fingertips, followed by slurred speech, difficulty in swallowing, disturbed balance, and lack of muscular coordination. Respiratory failure and death may occur without proper medical care. Treatment is supportive, including mechanical ventilation for severe cases; there is no known antidote to the toxin. Symptoms tend to resolve completely within a few days. Diagnosis is based on clinical presentation, compatible food history, and detection of elevated saxitoxin from the suspected seafood. Persons experiencing PSP symptoms should immediately seek medical treatment.

PSP was made a reportable disease in 1927. There is some limited information about cases prior to 1927 although there could be underreporting during this time. Since 1903, 587 illnesses due to PSP have been reported in California; 39 patients have died. Over 99 percent of these illnesses have occurred during the months of May through October. The last major PSP outbreak in California occurred in July 1980 with 98 illnesses and 2 deaths. In August 1991, 11 non-fatal illnesses due to PSP, including 3 hospitalizations, were reported in persons who had eaten mussels they had collected in northern Sonoma County. In March 2018, 1 non-fatal illness due to PSP resulting in hospitalization occurred in a patient who ate mussels collected in northern Marin County. In 2025-2026, there have been multiple probable non-fatal PSP cases reported. In August 2025, 3 probable PSP cases were reported in out of state residents after eating shellfish likely collected in Del Norte County. In March 2026, 1 PSP-like illness occurred in a patient who ate mussels collected in northern Santa Cruz County. In April 2026, 1 probable PSP case was reported in a patient who ate mussels collected in Sonoma County.

C. PSP Toxins in 2025

Alexandrium was observed at sites along all coastal counties during 2025, except Monterey where there were limited phytoplankton samples. This dinoflagellate was observed during all months in 2025, and it occurred at multiple sites along the California coast sporadically throughout the year. The highest percent composition was observed in May at Santa Cruz Wharf.

Measurable concentrations of PSP toxins were found in 215 shellfish samples from all coastal counties. Detection of measurable PSP toxins occurred during every month of 2025. Concentrations of PSP toxins greater than or equal to the alert level (80 µg/100 g of tissue) were detected in samples from Del Norte, Sonoma, Marin, Santa Cruz, San Luis Obispo, Santa Barbara, Los Angeles, Orange, and San Diego counties. The highest concentration detected was in a mussel sample was 1,518 µg/100 g PSP toxins collected April 14 at an aquaculture site offshore of Santa Barbara.

D. PSP Toxins in Early 2026

Measurable concentrations of PSP toxins were found in shellfish samples from the following coastal counties: Del Norte, Humboldt, Sonoma, Marin, San Francisco, San Mateo, Santa Cruz, and Monterey. Detection of measurable PSP toxins occurred during the months of February through April. Concentrations of PSP toxins greater than or equal to the alert level (80 µg/100 g of tissue) were detected in samples from Sonoma, Marin, and San Mateo counties. The highest concentration detected was in a mussel sample was 502 µg/100 g PSP toxins collected March 24 at Drakes Bay, Point Reyes in Marin County.

IV. Domoic Acid

A. The Ecology and History of Domoic Acid in California

The source of the domoic acid is a diatom known as *Pseudo-nitzschia*. This single-celled marine algae is a natural food source for filter-feeding animals. Detection of domoic acid in certain seafood generally follows a bloom of *Pseudo-nitzschia*.

Domoic acid could be found in bivalve shellfish, like mussels, clams, scallops, and oysters, as well as crabs, spiny lobsters, sardines and anchovies. Domoic acid events have been documented to cause illness and death in sea birds, sea lions, and dolphins that feed on anchovies and sardines that have concentrated domoic acid.

Persistent elevated levels of domoic acid have been detected in razor clam meat from Humboldt and Del Norte counties since 2015. Razor clams are known to retain domoic acid in their meat and tissues much longer than other species of bivalve shellfish.

The seasonality and distribution of *Pseudo-nitzschia* and detected domoic acid concentrations in seafood have changed over time. This reinforces the need for a rigorous monitoring program throughout the year to ensure public health protection. Extensive phytoplankton sampling is being conducted to investigate the spatial and temporal distribution of the diatoms associated with domoic acid production. Extensive blooms of the diatoms that produce domoic acid have been detected and followed along most coastal counties since this monitoring program began.

B. Domoic Acid Poisoning (Amnesic Shellfish Poisoning) in Humans

Within 24 hours of eating contaminated shellfish, patients develop gastrointestinal symptoms such as diarrhea, vomiting, and abdominal pain, followed by headache, memory loss, and disorientation. In severe cases, domoic acid poisoning can cause cardiovascular instability, seizures, coma, and death. Survivors may experience anterograde short-term memory loss (i.e., inability to recall the recent past). Diagnosis is based on clinical presentation, compatible food history, and detection of domoic acid from the suspected seafood. Medical therapy consists of supportive care; there is no known antidote to the toxin, and people experiencing symptoms should receive immediate medical attention.

Domoic acid poisoning in humans associated with the consumption of shellfish harvested in California has not been reported.

C. Domoic Acid in 2025

Pseudo-nitzschia was observed at sites along all coastal counties during 2025. This diatom was observed during every month in 2025. Elevated percent composition of *Pseudo-nitzschia* was observed during March and April in Santa Barbara, Ventura, Los Angeles, and Orange counties, May in Santa Cruz County, and August in Del Norte,

San Luis Obispo, and Santa Barbara counties.

Measurable concentrations of domoic acid were found in 30 shellfish samples, not including razor clam samples. These were from Humboldt, Mendocino, San Mateo, Santa Cruz, Monterey, San Luis Obispo, Santa Barbara, Los Angeles, Orange, and San Diego counties collected between March and September. Concentrations of domoic acid greater than or equal to the alert level (20 µg/g of shellfish meat, or 20 parts per million [ppm]) were detected in samples from Humboldt, Santa Barbara, Los Angeles, Santa Barbara, Orange, and San Diego counties. The highest concentration detected was 140 ppm domoic acid in a mussel sample collected April 21 at Portuguese Bend in Los Angeles County.

Razor clam samples from Del Norte and Humboldt counties had measurable concentrations of domoic acid throughout 2025. Concentrations of domoic acid above the alert level (20 µg/g of shellfish meat, or 20 parts per million [ppm]) reached 280 ppm in razor clams from Humboldt County in January. Razor clam samples from Humboldt County contained domoic acid above the alert level all through 2025. Concentrations of domoic acid in razor clam samples from Del Norte County decreased below the alert level by mid-June and remained below the alert level through December.

More information on crab monitoring data from 2025 and associated health advisories is available at the following link:

<https://www.cdph.ca.gov/Programs/CEH/DFDCS/Pages/FDBPrograms/FoodSafetyProgram/DomoicAcid.aspx>

D. Domoic Acid in Early 2026

A measurable concentration of domoic acid was found in a shellfish sample, not including razor clam samples, from San Luis Obispo County collected in March 2025.

Razor clam samples from Humboldt County had concentrations of domoic acid above the alert level (20 µg/g of shellfish meat, or 20 parts per million [ppm]) in February and March. The highest concentration detected was 47 ppm in razor clams from Humboldt County in March.

V. Special Risks from Various Kinds of Seafood

The greatest hazard for PSP and domoic acid poisoning is from the consumption of mussels (see also discussion below on razor clams) because: (1) they concentrate the toxins more quickly and to higher levels than do other shellfish, (2) they generally occur along the open coast where they are directly affected by oceanic blooms, and (3) they are eaten whole without removal of digestive organs. The digestive organs of crustaceans such as lobster and crab, as well as of small finfish like sardine and anchovy, can also contain dangerous levels of domoic acid, as can the flesh. Other contaminants can also be concentrated in the viscera, so the public is advised to avoid consuming the internal organs of any seafood species.

The consumer cannot distinguish toxic mussels from harmless ones. Moreover, cooking cannot be relied upon to destroy the toxins because they are relatively heat stable.

The safest guideline for consumers is: Do not eat mussels taken by recreational sport-harvesters from California coastal waters during the annual quarantine months of May through October. During other months, visit the CDPH website for a map of the current recreational bivalve shellfish health advisories (<https://experience.arcgis.com/experience/394836318cfe4f7494e1c09097a43559/>) or call the CDPH "Biotxin Information Line" at 1-800-553-4133 for an up-to-date, recorded message of any special health advisories.

While clams can develop hazardous levels of PSP toxin, they are placed under a shellfish advisory only in localized areas when tests reveal the presence of elevated toxin levels in mussels in the vicinity of clam beds or in clams themselves. In clams, the toxin is concentrated primarily in the digestive organs (dark meat), hence, these portions from all types of clams should always be discarded; only the white meat should be eaten.

A special hazard is presented by the Washington or butter clam (*Saxidomus* spp.). They may concentrate the PSP toxins in the neck or siphon (the tube-like part of the clam that sticks out between the shells). It has been found that PSP toxin in the necks of Washington clams may persist for a year or more after a PSP toxin event.

Northern razor clams (*Siliqua patula*) have been found to present a special risk for domoic acid poisoning because they concentrate this toxin in the white meat of the foot and siphon, parts that normally are preferred for human consumption. Razor clams are able to retain this toxin for extended periods, just as the Washington clam retains the PSP toxins.

Scallops from California waters may also become toxic. This is true for both the adductor muscles (the "scallop" or white meat that is ordinarily eaten) and the digestive organs (the darkish soft tissue of a scallop left after the white adductor muscle has been removed). In August 1980, a man died of PSP after eating only the digestive organs of a single rock scallop (*Hinnites giganteus*) taken by a sport-diver on the Sonoma County coast. Subsequent investigations revealed that a lower, but still hazardous, concentration of the toxin also may occur in scallop adductor muscles during a PSP episode. The digestive organs of scallops should never be eaten as they may remain toxic year-round. It is unknown how long PSP toxins may persist in the white meat of scallop adductor muscles.

VI. Groups at Special Risk of Shellfish Poisoning

In addition to recreational harvesters, immigrants from countries with no history of marine toxins, as well as people from areas with no routine toxin monitoring, are particularly at risk of consuming toxic shellfish. This risk is magnified when there is a cultural history of harvesting shellfish for subsistence or ceremonial purposes. CDPH has a number of alternative language quarantine signs available to county health departments and community-based outreach organizations.

<https://cdphdata.maps.arcgis.com/sharing/rest/content/items/28d01a8b6dc44e59abb719c91c6c02d5/data>

VIII. Infectious Disease Hazards

Bivalve shellfish should never be taken from waters contaminated by sewage or other pollutants because they also can concentrate disease-producing bacteria and enteroviruses, such as Hepatitis A virus.

IX. Public Information Available

CDPH has developed a "Frequently Asked Questions" (FAQ) for the annual mussel quarantine that can be found online at:

<https://www.cdph.ca.gov/Programs/CEH/DRSEM/Pages/EMB/Shellfish/Annual-Mussel-Quarantine.aspx>

EMB maintains a toll-free "Biotxin Information Line" with recorded updates on shellfish biotoxins and quarantines at 1-800-553-4133.

EMB also maintains an interactive map of the recreational bivalve shellfish health advisories and links to recent biotoxin data PDFs.

<https://experience.arcgis.com/experience/394836318cfe4f7494e1c09097a43559/>

An information leaflet entitled "Natural Marine Toxins" is produced by CDPH and the University of California Cooperative Extension. This leaflet is available at the following web site:

https://www.cdph.ca.gov/Programs/CEH/DRSEM/CDPH%20Document%20Library/EMB/Shellfish/Natural_Marine_Toxins.pdf

Press releases are prepared by CDPH to announce the annual mussel quarantine and any health advisories issued. These can be found online at:

<https://www.cdph.ca.gov/Programs/OPA/Pages/Shellfish-Advisories.aspx>

Monthly reports issued by CDPH are available that include summary information and maps of PSP toxicity and toxigenic phytoplankton distributions along the coast. The monthly and annual reports can be found online at the link below or by contacting redtide@cdph.ca.gov:

<https://www.cdph.ca.gov/Programs/CEH/DRSEM/Pages/EMB/Shellfish/Marine-Biotoxin-Monitoring-Program.aspx>