Mussels: little shellfish with an often-deadly punch

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Mussels found along the California coastline may not look like deadly chemical weapons.

But they could be.

A powerful nerve poison, one of the most potent toxins known, can concentrate in the shellfish and cause paralysis or death to human consumers.

That's why the California Health Services Department bans the sport harvesting of the shellfish from May 1 to Oct. 31 each year along the state's entire coastline.

According to health services records, 32 people died and 508 became ill in California from paralytic shellfish poisoning from 1927 to present.

Twenty-five of those deaths were from poisonous mussels and the remainder from other shellfish. Two people died from the poisoning in 1980, the most recent deaths and the first since 1948.

Ray Talley, director of the Santa Cruz County Environmental Health Department, said he is aware of no shellfish poisoning cases or deaths in Santa Cruz. Sonoma and Marin counties were the areas affected in recent cases. Although no poisoning cases have been reported here, contaminated mussel samples have been taken from Santa Cruz waters, said Douglas Price, a shellfish specialist with the state Health Service Department.

Mussels become poisonous when they feed on tiny, one-celled organisms that become numerous at certain times of the year. Although the mussels are rarely harmed by the toxin, they concentrate it and pass it on to their predators.

In March, clams, scallops and mussels were quarantined against sport harvesting along the coast from Santa Cruz to Sonoma counties because samples in those areas were poisonous.

Clams and scallops were removed from the quarantine in April and the annual mussel quarantine went into effect soon after.

Government officials keep tabs on shellfish poisoning by taking coastal samples and testing them in the state's laboratory in Berkeley.

Talley said the Santa Cruz County Health Department at least once a month, year-round, sends local mussel tissue to the state laboratory.

If high levels of the poison are found in the samples, the public is alerted and testing is expanded to other shellfish to determine if they should be added to the mussel quarantine. "If we start getting it (poison) in the mussels, then we'll start testing in the vicinity" for other shellfish contamination, Price said.

Mussels are tested regularly instead of other shellfish because they build up toxic levels faster and at higher levels than oysters, clams and scallops.

Because the California coastline is so long, however, it is impossible to know when every outbreak may occur, so the state bans sport harvesting of mussels during the time when contamination is most likely, as a preventive measure.

Commercial harvesters are required by state law to test their harvest every week in an effort to detect poisoning. If toxin levels are considered unsafe, commercial harvesting is prohibited until safe levels resume.

The federal government oversees the state program regulating commercial harvesters as a condition of interstate shipping of shellfish.

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Mammals such as sea otters that eat the contaminated mussels also become ill, but Price said no studies have been conducted measuring the number of animals affected.

The shellfish poison is in the same class as strychnine and a few milligrams can be fatal. No known antidote exists.

Consumers of the poisoned shellfish may die within 12 hours of consumption from paralysis of the respiratory system unless they are put on artificial respirators.

The Health Department has made special efforts to inform the Filipino and Asian communities of the dangers of shellfish poisoning.

When a large outbreak of poisoning occurred in 1980, California's Filipino and Southeast Asian communities represented 75 percent of the almost 100 cases, according to a 1981 state Health Department report.

The report attributed the large percentage of Asian victims to language problems making it difficult for them to be aware of the situation, and unfamiliarity with the poison, because such contamination does not exist in Asian countries.

Price said the organisms that cause the poison do not grow in significant numbers in tropical waters because of the warmer temperatures.

In California, the poisoning is a problem mostly off of Northern California's coast because of the cooler temperatures. It is not a problem in Southern California.

Talley said the Health Department recommends that individuals harvesting clams not eat the dark part of those shellfish because of the possibility of poisoning.

Contaminated mussels eventually purge themselves of the poison in water free of the poison-producing organisms, but cooking poisonous shellfish does not destroy the toxin.