

# M o n t h l y M a r i n e B i o t o x i n R e p o r t January 2008

Technical Report No. 08-09

## INTRODUCTION:

This report provides a summary of biotoxin activity for the month of January, 2008. Ranges of toxin concentrations are provided for the paralytic shellfish poisoning (PSP) toxins and for domoic acid (DA). Estimates are also provided for the distribution and relative abundance of *Alexandrium*, the dinoflagellate that produces PSP toxins, and *Pseudo-nitzschia*, the diatom that produces domoic acid. Summary information is also provided for any quarantine or health advisory that was in effect during the reporting period.

Please note the following conventions for the phytoplankton and shellfish biotoxin distribution maps: (i) All estimates for phytoplankton relative abundance are qualitative, based on sampling effort and percent composition; (ii) All toxin data are for mussel samples, unless otherwise noted; (iii) All samples are assayed for PSP toxins; DA analyses are performed as needed (i.e., on the basis of detected blooms of the diatoms that produce DA); (iv) Please refer to the appropriate figure key for an explanation of the symbols used on the maps.

### Southern California Summary:

#### Paralytic Shellfish Poisoning

*Alexandrium* was observed at sampling stations between San Luis Obispo and San Diego counties during January (Figure 1). The distribution and relative abundance of this dinoflagellate was similar to observations in

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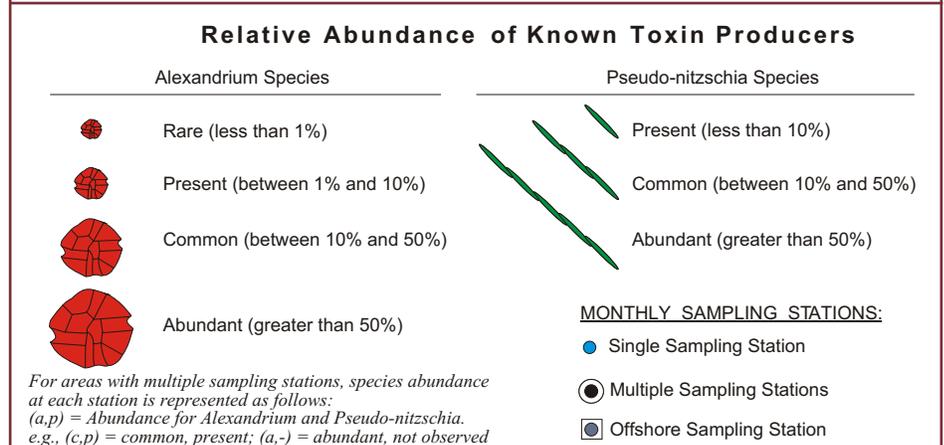
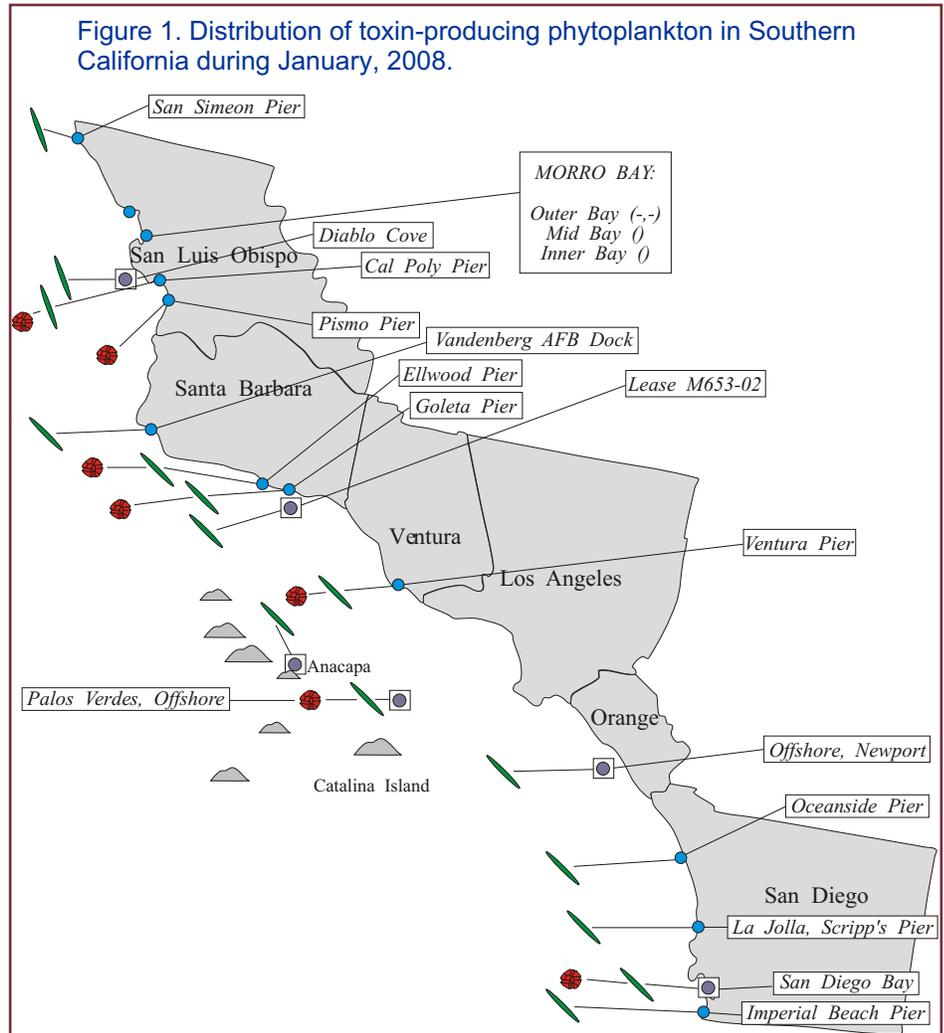
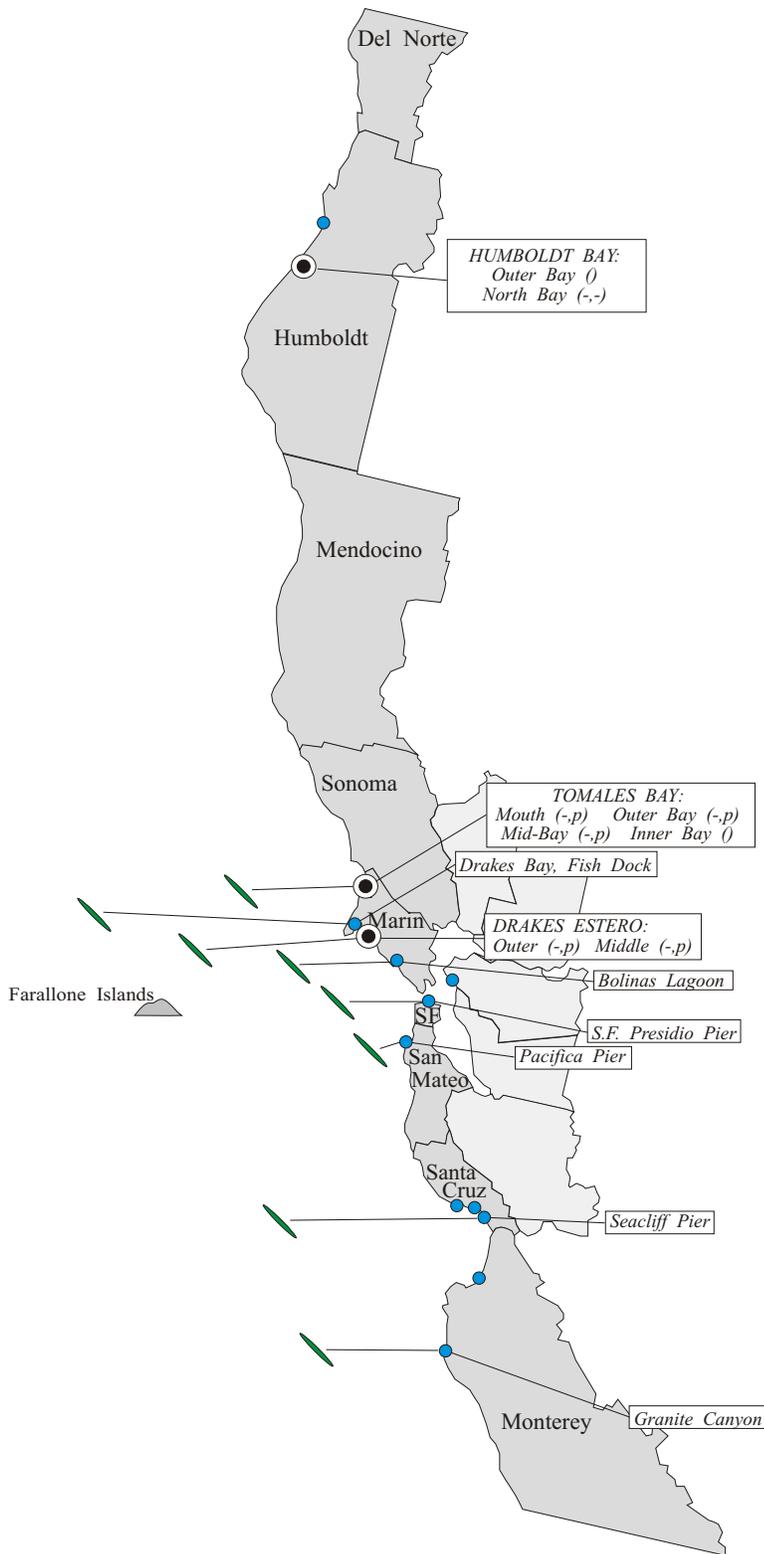


Figure 2. Distribution of toxin-producing phytoplankton in Northern California during January, 2008.



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the latter part of December.

There was a dramatic increase in the PSP toxin concentration in mussels from a site offshore of Santa Barbara. The low levels of PSP toxins in December had persisted into January at this site, then increased quickly from 72 ug/100 g on January 2 to 283 ug/100 g on January 7 (Figure 3). PSP toxicity declined to 70 ug by January 14 and remained below the alert level for the remainder of the month. Low levels of PSP toxins were also detected in San Luis Obispo and Ventura counties.

**Domoic Acid**

*Pseudo-nitzschia* was detected along much of the Southern California coast in January (Figure 1). The distribution and relative abundance of this diatom were similar to observations in December.

Domoic acid was not detected in any shellfish samples collected in January. A sample of lobster viscera from offshore of Ventura County was found to contain a low level of domoic acid.

**Non-toxic Species**

Winter conditions prevailed, with small numbers of phytoplankton mixed with lots of sand and detritus. Of the cells present, diatoms were dominant along the San Luis

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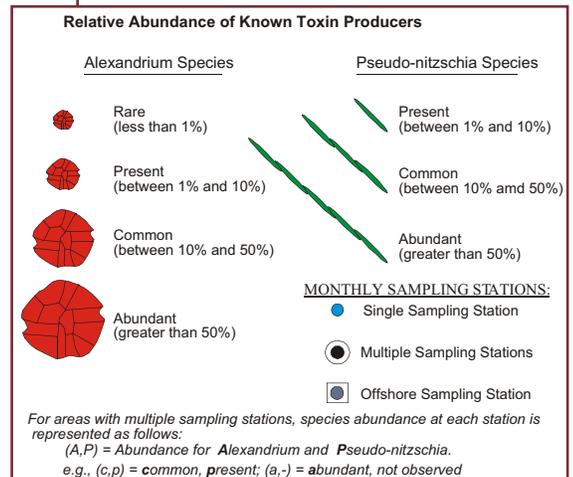
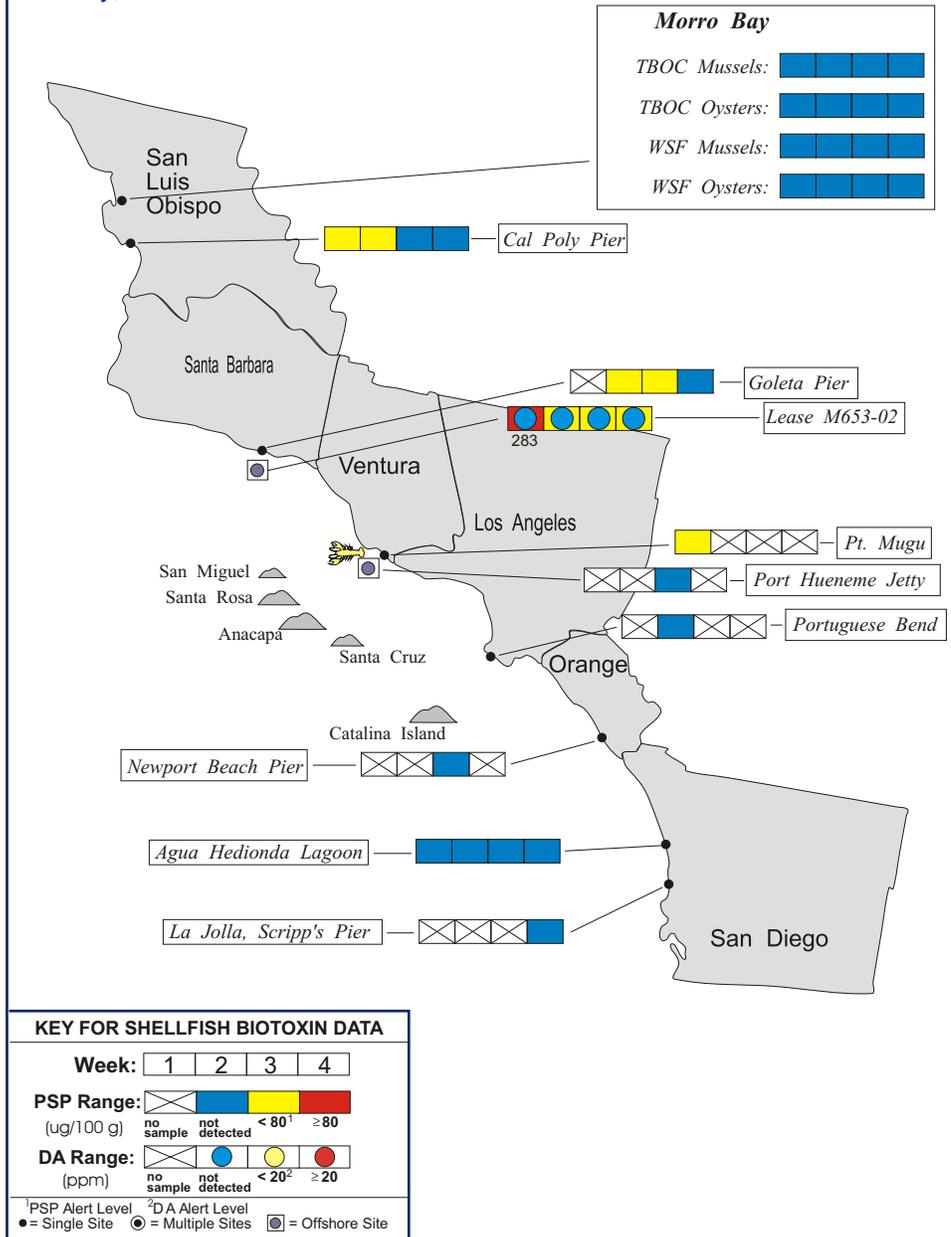


Figure 3. Distribution of shellfish biotoxins in Southern California during January, 2008.



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Obispo coast, with *Chaetoceros* and *Thalassiosira* the most common genera observed. There was a mix of diatoms and dinoflagellates along the remainder of the Southern California coast, the latter group represented by *Akashiwo*, *Ceratium*, and *Prorocentrum*.

**Northern California Summary:**

**Paralytic Shellfish Poisoning**

*Alexandrium* was not observed at any sampling sites in Northern California during January (Figure 2). PSP toxicity was not detected in any shellfish samples from this region during the month (Figure 4).

**Domoic Acid**

*Pseudo-nitzschia* was observed in very low numbers at sites between Marin and Monterey counties (Figure 2). The distribution and relative abundance of this diatom were somewhat reduced from observations in December. Domoic acid was not detected in any shellfish samples analyzed in January.

**Non-toxic Species**

As expected, the frequent winter storms contributed a lot of detritus and sediment in the month's phytoplankton samples. There were exceptions, the most notable of which

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The Marine Biotoxin Monitoring and Control Program, managed by the California Department of Public Health, is a state-wide effort involving a consortium of volunteer participants. The shellfish sampling and analysis element of this program is intended to provide an early warning of shellfish toxicity by routinely assessing coastal resources for the presence of paralytic shellfish poisoning (PSP) toxins and domoic acid.

The Phytoplankton Monitoring Program is a state-wide effort designed to detect toxin producing species of phytoplankton in ocean water before they impact the public. The phytoplankton monitoring and observation effort can provide an advanced warning of a potential toxic bloom, allowing us to focus sampling efforts in the affected area before California's valuable shellfish resources or the public health is threatened.

For More Information Please Call:  
(510) 412-4635

For Recorded Biotoxin Information Call:  
(800) 553 - 4133

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were the common occurrences of the diatoms *Chaetoceros* at Pacifica Pier (January 15) and *Odontella* in Drakes Bay (January 14).



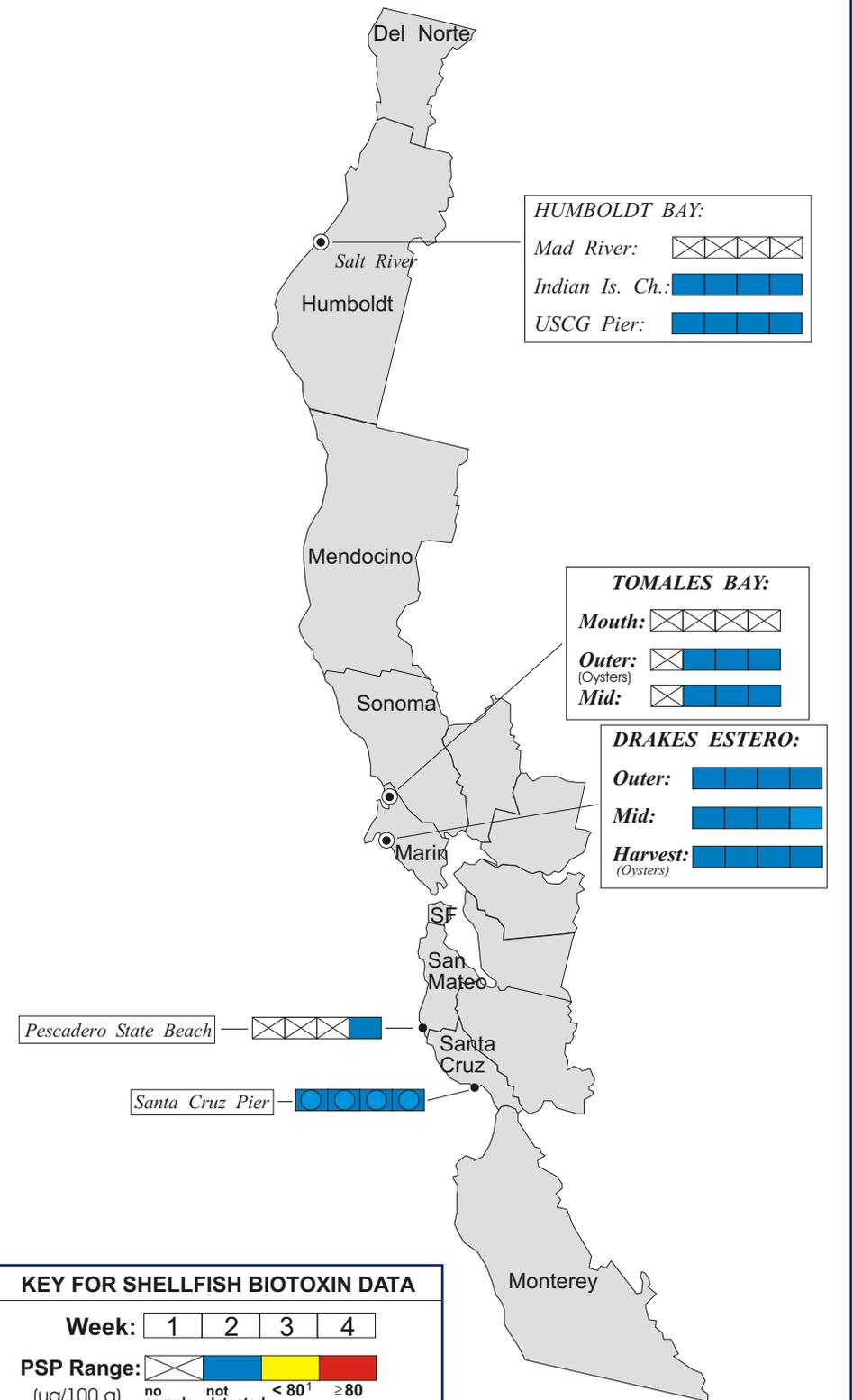
**QUARANTINES:**

The annual mussel quarantine was rescinded on schedule at midnight, October 31. The annual quarantine, which normally goes into effect on May 1 of each year, applies specifically to sport-harvested mussels and is in effect for the entire California coastline, including all bays and estuaries. Routine phytoplankton and biotoxin monitoring is maintained throughout the year, not just within the quarantine period. This allows the detection of unexpected increases in biotoxin activity outside of the routine quarantine period. The annual quarantine does not apply to the certified commercial shellfish growing areas in California, which are monitored intensively. All certified shellfish growers are required to submit at least weekly samples of shellfish for toxin monitoring. Harvest restrictions or closures are implemented as needed to protect the public's health.

Consumers of Washington clams, also known as butter clams (*Saxidomus nuttalli*), are cautioned to eat only the white meat. Washington clams can concentrate the PSP toxins in the viscera and in the dark parts of the siphon and can remain toxic for a long period of time. Persons taking scallops or clams, with the exception of razor clams, are advised to remove and discard the dark parts (i.e., the digestive organs or viscera). Razor

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Figure 4. Distribution of shellfish biotoxins in Northern California during January, 2008.



**HUMBOLDT BAY:**

Mad River: [X][X][X][X][X]

Indian Is. Ch.: [Blue][Blue][Blue][Blue][Blue]

USCG Pier: [Blue][Blue][Blue][Blue][Blue]

**TOMALES BAY:**

Mouth: [X][X][X][X][X]

Outer: (Oysters) [Blue][Blue][Blue][Blue][Blue]

Mid: [Blue][Blue][Blue][Blue][Blue]

**DRAKES ESTERO:**

Outer: [Blue][Blue][Blue][Blue][Blue]

Mid: [Blue][Blue][Blue][Blue][Blue]

Harvest: (Oysters) [Blue][Blue][Blue][Blue][Blue]

Pescadero State Beach: [X][X][X][X][Blue]

Santa Cruz Pier: [Blue][Blue][Blue][Blue][Blue]

**KEY FOR SHELLFISH BIOTOXIN DATA**

**Week:** [1] [2] [3] [4]

**PSP Range:** [X] [Blue] [Yellow] [Red]

(ug/100 g) no sample not detected < 80<sup>1</sup> ≥ 80

**DA Range:** [X] [Blue] [Yellow] [Red]

(ppm) no sample not detected < 20<sup>2</sup> ≥ 20

<sup>1</sup>PSP Alert Level <sup>2</sup>DA Alert Level

● = Single Site ● = Multiple Sites ◐ = Offshore Site

Table 1. California Marine Biotoxin Monitoring Program participants submitting shellfish samples during January, 2008.

COUNTY	AGENCY	# SAMPLES
Del Norte	None Submitted	
Humboldt	Coast Seafood Company	9
Mendocino	None Submitted	
Sonoma	None Submitted	
Marin	Cove Mussel Company	3
	Drakes Bay Oyster Company	20
	Hog Island Oyster Company	3
	Marin Oyster Company	4
San Francisco	None Submitted	
San Mateo	San Mateo County Environmental Health Department	1
Santa Cruz	U.C. Santa Cruz	4
Monterey	None Submitted	
San Luis Obispo	Cal Poly	4
	Tomales Bay Oyster Company	10
	Williams Shellfish Farms	10
Santa Barbara	Santa Barbara Mariculture Company	13
	U.C. Santa Barbara	3
Ventura	CDPH Volunteer (Bill Weinerth)	1
	Pt. Mugu NAS	1
Los Angeles	None Submitted	
Orange	Orange County Health Care Agency	1
San Diego	Carlsbad Aquafarms, Inc.	5
	Scripps Institute of Oceanography	1

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clams (*Siliqua patula*) are an exception to this general guidance due to their ability to concentrate and retain domoic acid in the edible white meat as well as in the viscera. These toxins may also accumulate in the viscera of other seafood species such as crab, lobster, and small finfish like sardines and anchovies.

PSP toxins affect the human central nervous system, producing a tingling around the mouth and fingertips within a few minutes to a few hours after eating toxic shellfish. These symptoms typically are followed by disturbed balance, lack of muscular coordination, slurred speech and difficulty swallowing. In severe poisonings, complete muscular paralysis and death from asphyxiation can occur.

Symptoms of domoic acid poisoning can occur within 30 minutes to 24 hours after eating toxic seafood. In mild cases, symptoms of exposure to this nerve toxin may include vomiting, diarrhea, abdominal cramps, headache and dizziness. These symptoms disappear completely within several days. In severe cases, the victim may experience excessive bronchial secretions, difficulty breathing, confusion, disorientation, cardiovascular instability, seizures, permanent loss of short-term memory, coma and death.

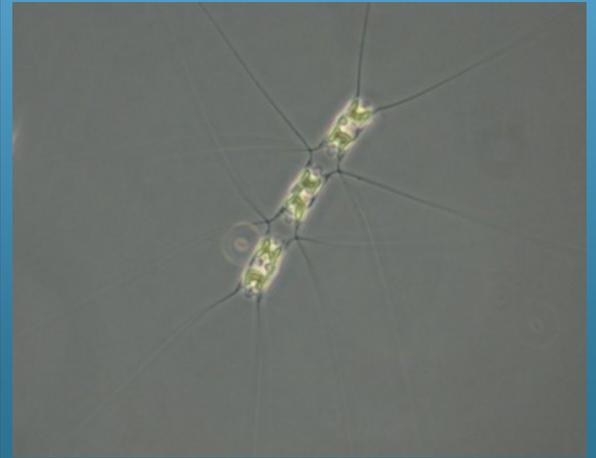
Any person experiencing any of these symptoms should seek immediate medical care. Consumers are also advised that neither cooking or freezing eliminates domoic acid or the PSP toxins from the shellfish tissue. Sport harvesters are encouraged to contact the "Biotoxin Information Line" at 1-800-553-4133 for a current update on marine biotoxin activity prior to gathering and consuming shellfish.



Table 2. Agencies, organizations and volunteers participating in marine phytoplankton sample collection during January, 2008.

COUNTY	AGENCY	# SAMPLES
Del Norte	None Submitted	
Humboldt	Coast Seafood Company	5
	California Department of Fish and Game	1
Mendocino	None Submitted	
Sonoma	None Submitted	
Marin	CDPH Volunteers ( <i>Brent Anderson, Richard Plant,</i> <i>Mary Von Tolksdorf</i> )	9
	Drakes Bay Oyster Company	8
	None Submitted	
Contra Costa	None Submitted	
San Francisco	CDPH Volunteer ( <i>Eugenia McNaughton</i> )	4
San Mateo	The Marine Mammal Center ( <i>Stan Jensen</i> )	4
Santa Cruz	Santa Cruz County Environmental Health Dept.	4
	U.C. Santa Cruz	3
Monterey	Monterey Abalone Company	4
	Marine Pollution Studies Laboratory	2
	CDPH Volunteer ( <i>Jeff Kermode</i> )	1
San Luis Obispo	Morro Bay National Estuary Program	2
	CDPH Volunteer ( <i>Renee and Auburn Atkins</i> )	1
	Tenera Environmental	2
	Cal Poly	9
Santa Barbara	Monterey Bay National Marine Sanctuary	3
	CDPH Volunteer ( <i>Sylvia Short</i> )	5
	U.C. Santa Barbara	4
Ventura	National Park Service	1
	Santa Barbara Mariculture Company	5
	CDPH Volunteer ( <i>Fred Burgess</i> )	3
Los Angeles	National Park Service	1
	Los Angeles County Sanitation District	5
Orange	Orange County Health Care Agency	1
San Diego	Avian Research Associates	2
	Scripps Institute of Oceanography	3
	CDPH Volunteer ( <i>Paul Sims, Jeff Kermode</i> )	3

## PHYTOPLANKTON GALLERY



*The diatom Chaetoceros was common at several sites along the California coast.*



*Corethron was observed at a number of sampling sites in January.*



*The diatom Lithodesmium was present in samples from Southern California.*