

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 2012

Technical Report No. 12-10

INTRODUCTION:

This report provides a summary of biotoxin activity for the month of January, 2012. 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 only one southern California location in January (Figure 1). This dinoflagellate was rare in a January 30 sample from Scripps Pier. PSP toxins were not detected in any bivalve shellfish samples during the month (Figure 3).

(Continued on Page 2)

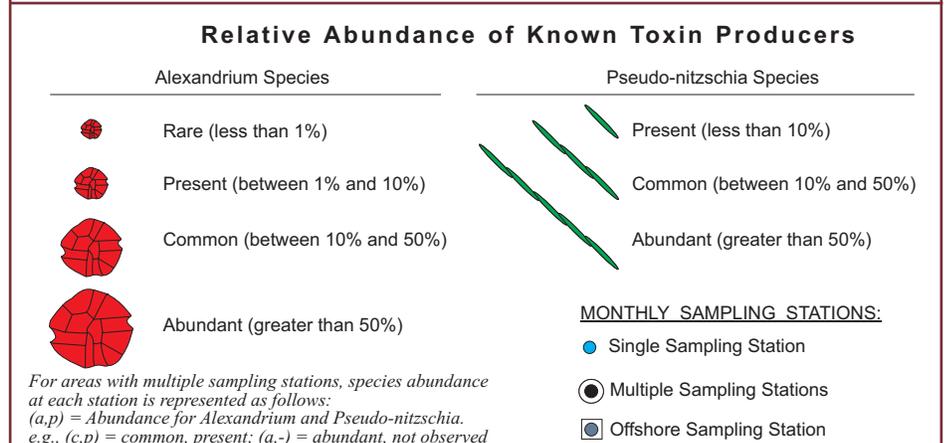
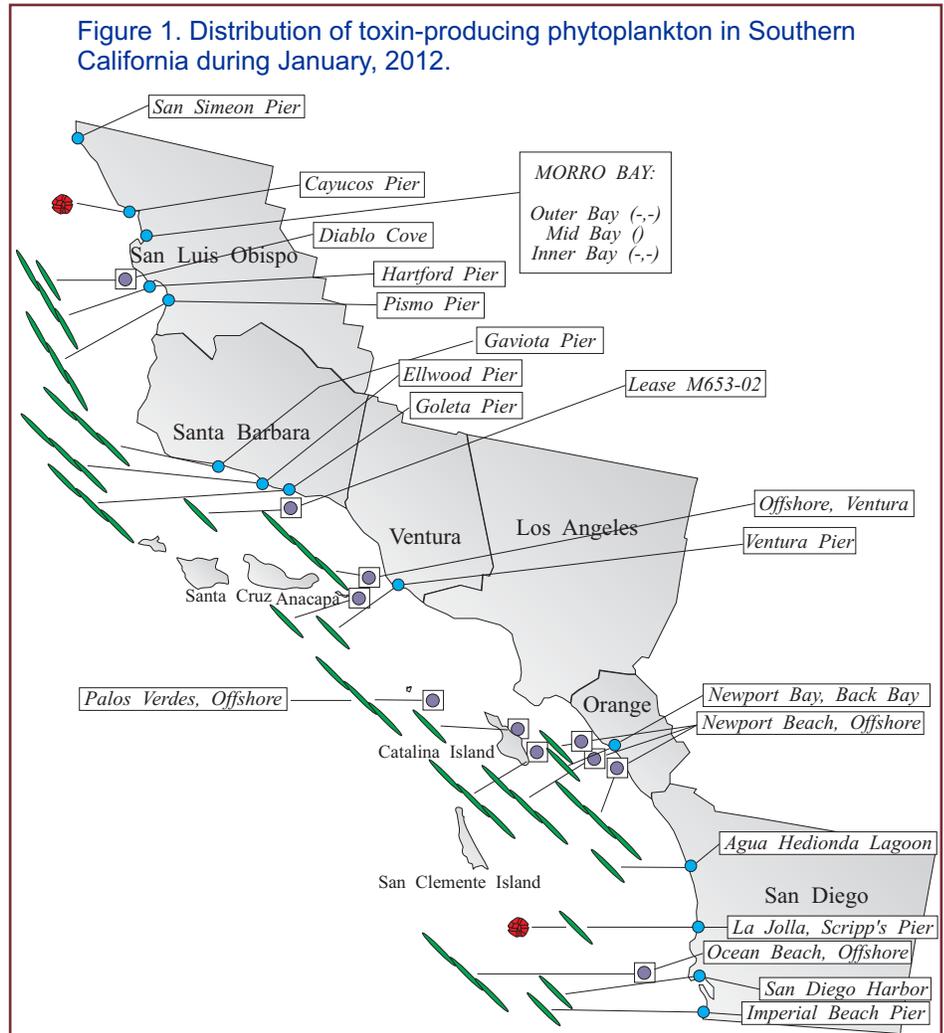
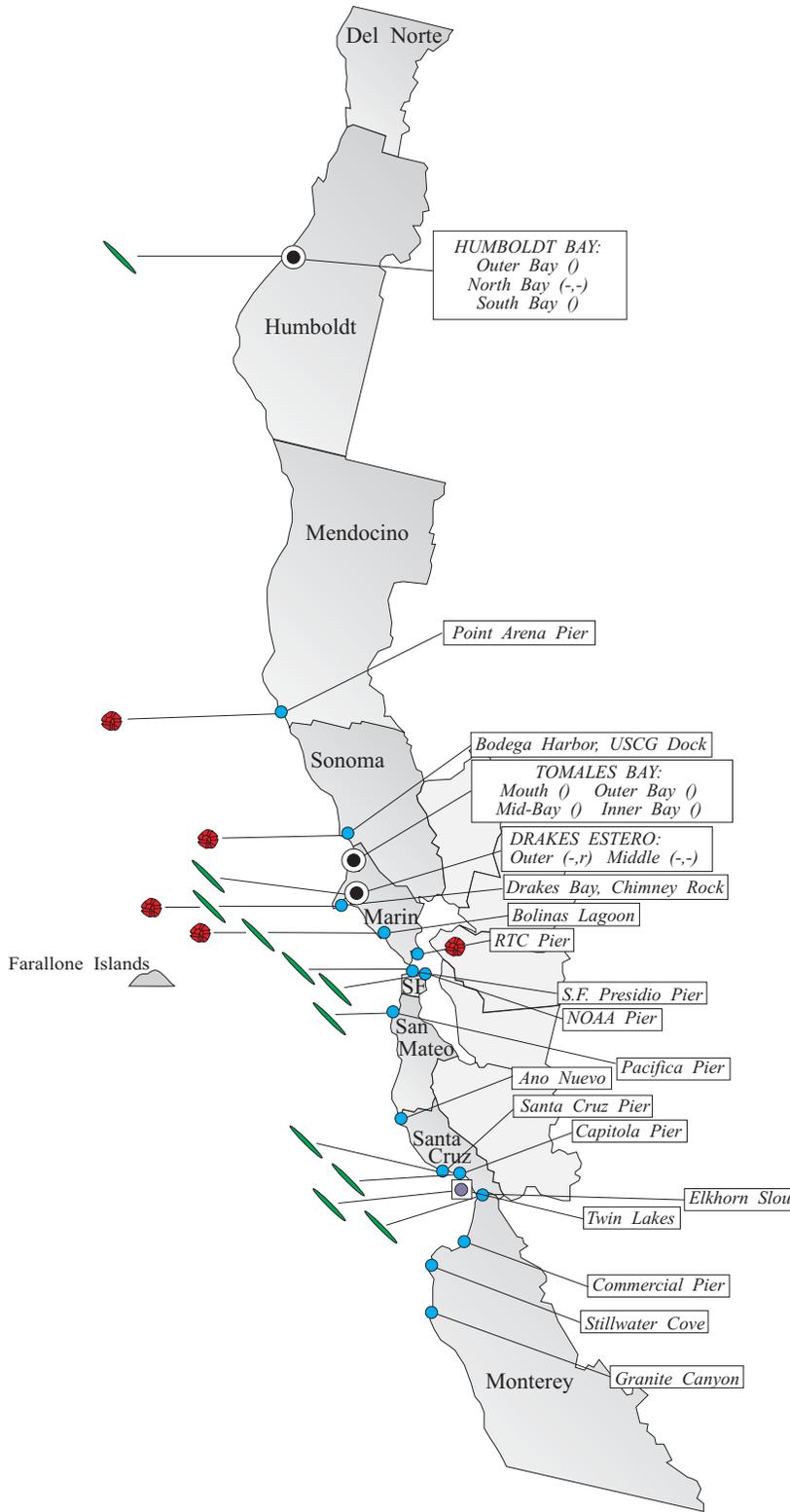


Figure 2. Distribution of toxin-producing phytoplankton in Northern California during January, 2012.



(Continued from Page 1)

Domoic Acid

Pseudo-nitzschia was observed along the entire southern California coast in January (Figure 1). There was an increase in relative abundance compared to observations in December, however overall cell mass was very low. For those areas where *Pseudo-nitzschia* was common, there appeared to be a mix of toxic (seriata complex) and nontoxic (delicatissima complex) species.

Domoic acid was not detected in any bivalve shellfish samples during January (Figure 3). Samples of rock crab viscera from Santa Rosa Island contained varying levels of this toxin, ranging from 5 to 81 ppm.

Non-toxic Species

Diatoms were dominant along the southern California coast, with *Chaetoceros* the most common genera. *Skeletonema* was also common offshore of Orange County and inside San Diego Bay. The dinoflagellate *Akashiwo* was common at Scripps Pier and offshore of Ocean Beach in San Diego County.

Northern California Summary:

Paralytic Shellfish Poisoning

Alexandrium was observed at a number of locations between Mendocino and Marin

(Continued on Page 3)

Relative Abundance of Known Toxin Producers

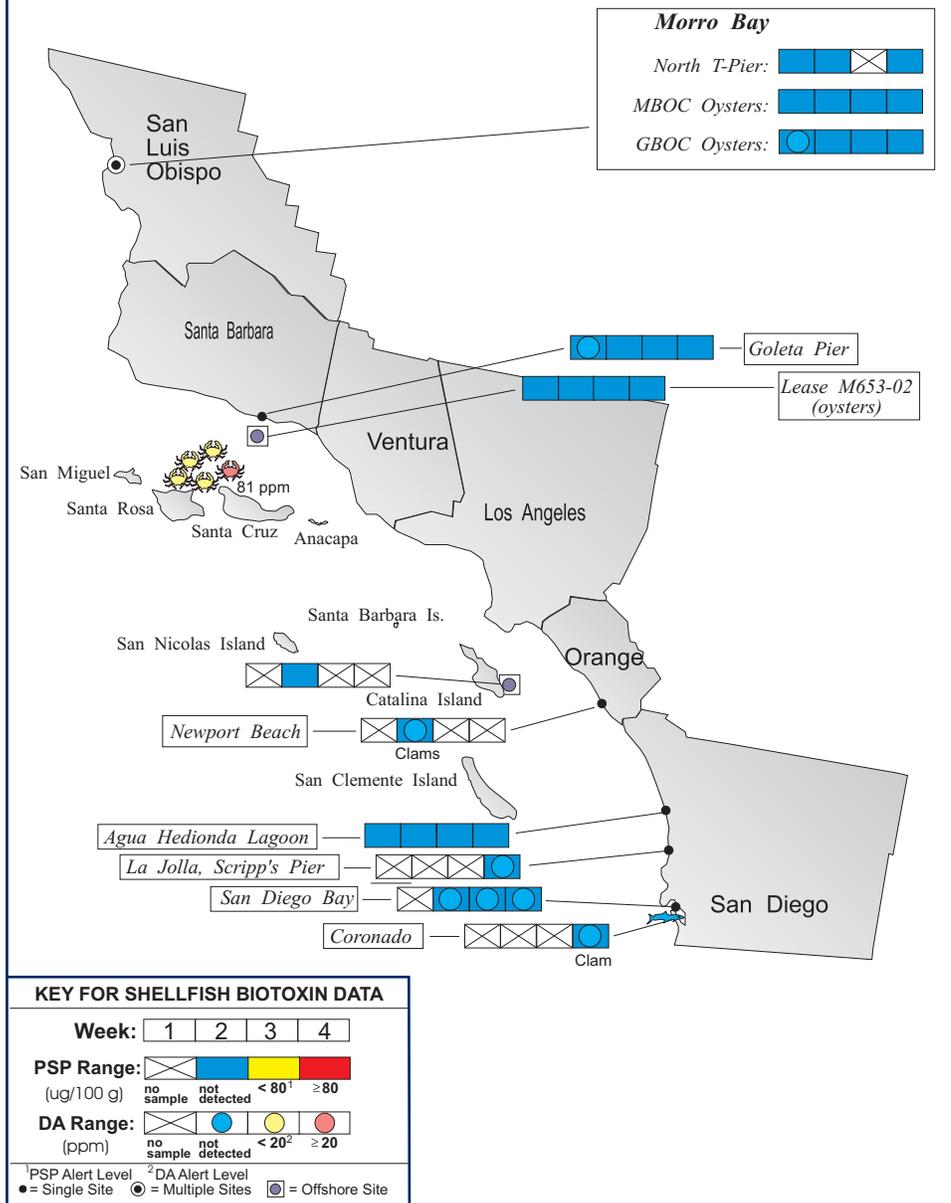
Alexandrium Species		Pseudo-nitzschia Species	
	Rare (less than 1%)		Present (between 1% and 10%)
	Present (between 1% and 10%)		Common (between 10% and 50%)
	Common (between 10% and 50%)		Abundant (greater than 50%)
	Abundant (greater than 50%)		

MONTHLY SAMPLING STATIONS:

- Single Sampling Station
- Multiple Sampling Stations
- Offshore Sampling Station

For areas with multiple sampling stations, species abundance at each station is represented as follows:
 (A,P) = Abundance for *Alexandrium* and *Pseudo-nitzschia*.
 e.g., (c,p) = common, present; (a,-) = abundant, not observed

Figure 3. Distribution of shellfish biotoxins in Southern California during January, 2012.



(Continued from Page 2)

counties during January (Figure 2). There was a notable decrease in the distribution and relative abundance of this toxin producer compared to observations in December.

PSP toxins were detected at several locations during January (Figure 4). The elevated toxin concentrations present in Drakes Estero in December continued in January in sentinel mussels in the outer and mid-Estero. PSP toxicity decreased below the alert level by the third week of the month. Low concentrations of PSP toxins were also detected at sentinel mussel sites in Bodega Harbor (Sonoma County) and at the Santa Cruz Pier.

Domoic Acid

Pseudo-nitzschia was observed at many sites along the northern California coast during January (Figure 2). There was a significant decline in relative abundance compared to observations in December, particularly at sites in Santa Cruz and Monterey.

Non-toxic Species

Overall cell densities of nontoxic species remained very low during January. The only significant numbers of cells occurred in outer Drakes Estero, where diatoms were

(Continued on Page 4)

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

(Continued from Page 3)

common through mid-month. *Chaetoceros*, *Skeletonema* and *Rhizosolenia* were the most common genera observed.



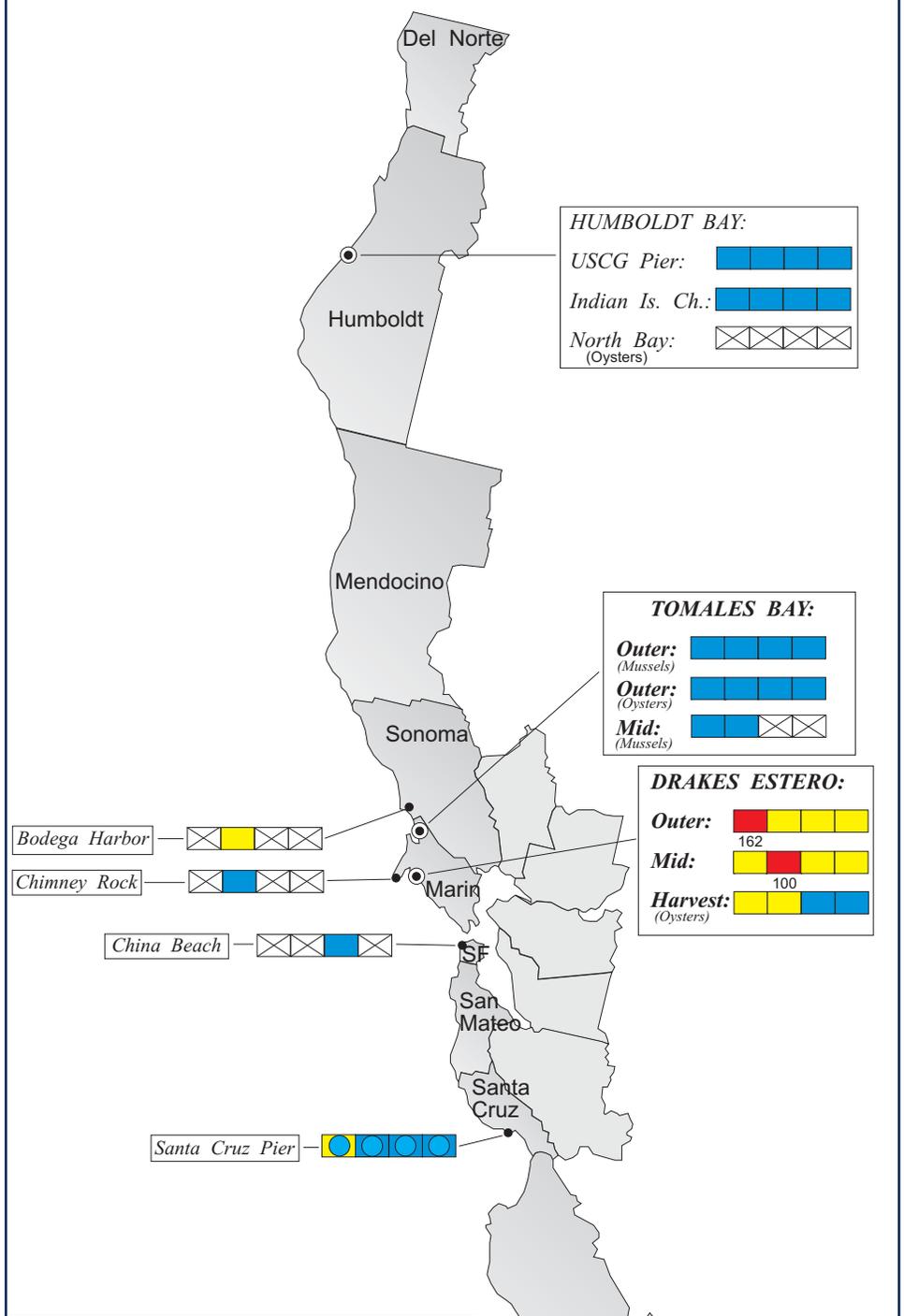
QUARANTINES:

The October 16 health advisory remained in effect, warning consumers not to eat sport-harvested shellfish or the internal organs of crustaceans and small finfish from the Channel Islands.

The 2011 annual mussel quarantine ended at midnight on October 31. When in effect this quarantine prohibits the sport-harvesting of mussels along the entire California coastline, including all bays and estuaries. The annual quarantine does not apply to the certified commercial shellfish growing areas in California, which are monitored

(Continued on Page 5)

Figure 4. Distribution of shellfish biotoxins in Northern California during January, 2012.



KEY FOR SHELLFISH BIOTOXIN DATA

Week: 1 2 3 4

PSP Range: (ug/100 g) no sample not detected < 80¹ ≥ 80

DA Range: (ppm) no sample not detected < 20² ≥ 20

¹PSP Alert Level ²DA Alert Level
 ● = Single Site ○ = Multiple Sites ◐ = Offshore Site

HUMBOLDT BAY:

USCG Pier: [4 blue boxes]

Indian Is. Ch.: [4 blue boxes]

North Bay: (Oysters) [4 crossed boxes]

TOMALES BAY:

Outer: (Mussels) [4 blue boxes]

Outer: (Oysters) [4 blue boxes]

Mid: (Mussels) [2 blue boxes, 2 crossed boxes]

DRAKES ESTERO:

Outer: [2 yellow, 2 red boxes] 162

Mid: [2 yellow, 2 red boxes] 100

Harvest: (Oysters) [2 yellow, 2 blue boxes]

Table 1. California Marine Biotoxin Monitoring Program participants submitting shellfish samples during January, 2012.

COUNTY	AGENCY	#
Del Norte	None Submitted	
Humboldt	Coast Seafood Company	10
Mendocino	None Submitted	
Sonoma	CDPH Marine Biotoxin Program	1
Marin	Cove Mussel Company	2
	Drakes Bay Oyster Company	32
	Hog Island Oyster Company	4
	Marin Oyster Company	4
	CDPH Marine Biotoxin Program	1
San Francisco	San Francisco Health Department	1
San Mateo	None Submitted	
Santa Cruz	U.C. Santa Cruz	4
Monterey	None Submitted	
San Luis Obispo	Grassy Bar Oyster Co.	8
	Morro Bay Oyster Company	5
Santa Barbara	Santa Barbara Mariculture Company	10
	U.C. Santa Barbara	4
Ventura	CDPH Volunteer (<i>Bill Weinerth</i>)	1
Los Angeles	CDPH Volunteer (<i>Cal Parsons</i>)	1
Orange	CDPH Volunteer (<i>Steve Crooke</i>)	1
San Diego	Carlsbad Aquafarms, Inc.	4
	CDPH Volunteer (<i>Steve Crooke</i>)	1
	Scripps Institute of Oceanography	1
	U.S. Navy Marine Mammal Program	3

this general guidance due to their ability to concentrate and retain domoic acid in the edible white meat as well as in the viscera.

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. These toxins may also accumulate in the viscera of other seafood species such as crab, lobster, and small finfish like sardines and anchovies, therefore these tissues should not be consumed. Contact the "Biotoxin Information Line" at 1-800-553-4133 for a current update on marine biotoxin activity prior to gathering and consuming shellfish.



(Continued from Page 4)

intensively throughout the year. In addition, routine coastal phytoplankton and biotoxin monitoring is maintained throughout the quarantine period. Special quarantines or health advisories may be issued for additional seafood species as warranted by increasing toxin levels.

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 clams (*Siliqua patula*) are an exception to

Table 2. Agencies, organizations and volunteers participating in marine phytoplankton sample collection during January, 2012.

COUNTY	AGENCY	#
Del Norte	None Submitted	
Humboldt	Coast Seafood Company	5
Mendocino	CDPH Volunteer (<i>Marie de Santis</i>)	3
Sonoma	CDPH Volunteer (<i>Cathleen Cannon</i>)	1
	CDPH Marine Biotoxin Program	1
Marin	Drakes Bay Oyster Company	20
	CDPH Volunteer (<i>Brent Anderson</i>)	5
	SFSU, Romberg Tiburon Center	2
	CDPH Marine Biotoxin Program	1
Contra Costa	None Submitted	
Alameda	None Submitted	
San Francisco	CDPH Volunteer (<i>Eugenia McNaughton</i>)	1
	Exploratorium	3
San Mateo	The Marine Mammal Center (<i>Stan Jensen</i>)	5
	U.C. Santa Cruz	2
Santa Cruz	California Department of Parks and Recreation	1
	Santa Cruz County Environmental Health Department	1
	U.C. Santa Cruz	4
Monterey	Friends of the Sea Otter (<i>Janis Chaffin</i>)	4
	Marine Pollution Studies Laboratory	1
San Luis Obispo	Friends of the Sea Otter (<i>Kelly Cherry</i>)	5
	Grassy Bar Oyster Company	5
	Morro Bay National Estuary Program	1
	Monterey Bay National Marine Sanctuary	4
	Tenera Environmental	3
Santa Barbara	The Marine Mammal Center (<i>P.J. Webb, Tim Lytsell</i>)	4
	CDPH Volunteer (<i>Sylvia Short</i>)	5
	Santa Barbara Mariculture Company	5
Ventura	U.C. Santa Barbara	4
	CDPH Volunteer (<i>Fred Burgess</i>)	3
	Channel Island National Marine Sanctuary	1
Los Angeles	National Park Service	2
	Los Angeles County Sanitation District	5
	Catalina Island Marine Institute	2
Orange	CDPH Volunteer (<i>Cal Parsons</i>)	1
	Orange County Sanitation District	3
San Diego	California Department of Fish and Game	2
	Carlsbad Aquafarms, Inc.	2
	Scripps Institute of Oceanography	5
	San Diego Whale Watch	3
	Tijuana River National Estuary Research Reserve	3
	U.S. Navy Marine Mammal Program	3

PHYTOPLANKTON GALLERY



Chains of the PSP-producing dinoflagellate *Alexandrium* were observed in Bolinas Lagoon.



Centric diatoms have remained present in low numbers through the winter months.



Two of a variety of *Odontella* species observed in California coastal waters.