

M o n i 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 2015 Technical Report No. 15-07

INTRODUCTION:

This report provides a summary of biotoxin activity for the month of January, 2015. 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 not observed at any of the Southern California sites in January (Figure 1). PSP toxins below the alert level were detected in rock scallop viscera from the Santa Barbara Channel during the first week of January and in a single lobster viscera sample

(Continued on Page 2)

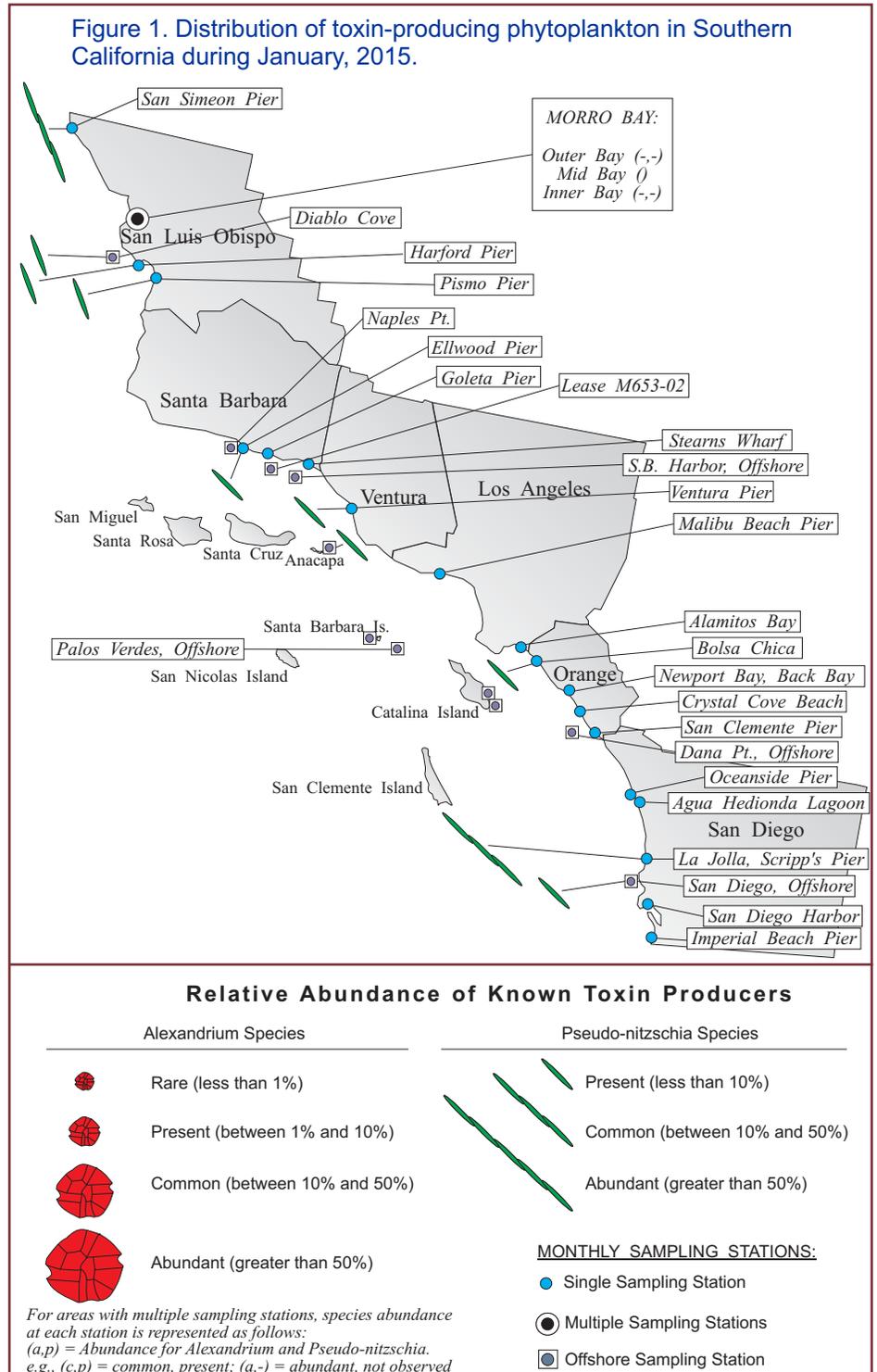
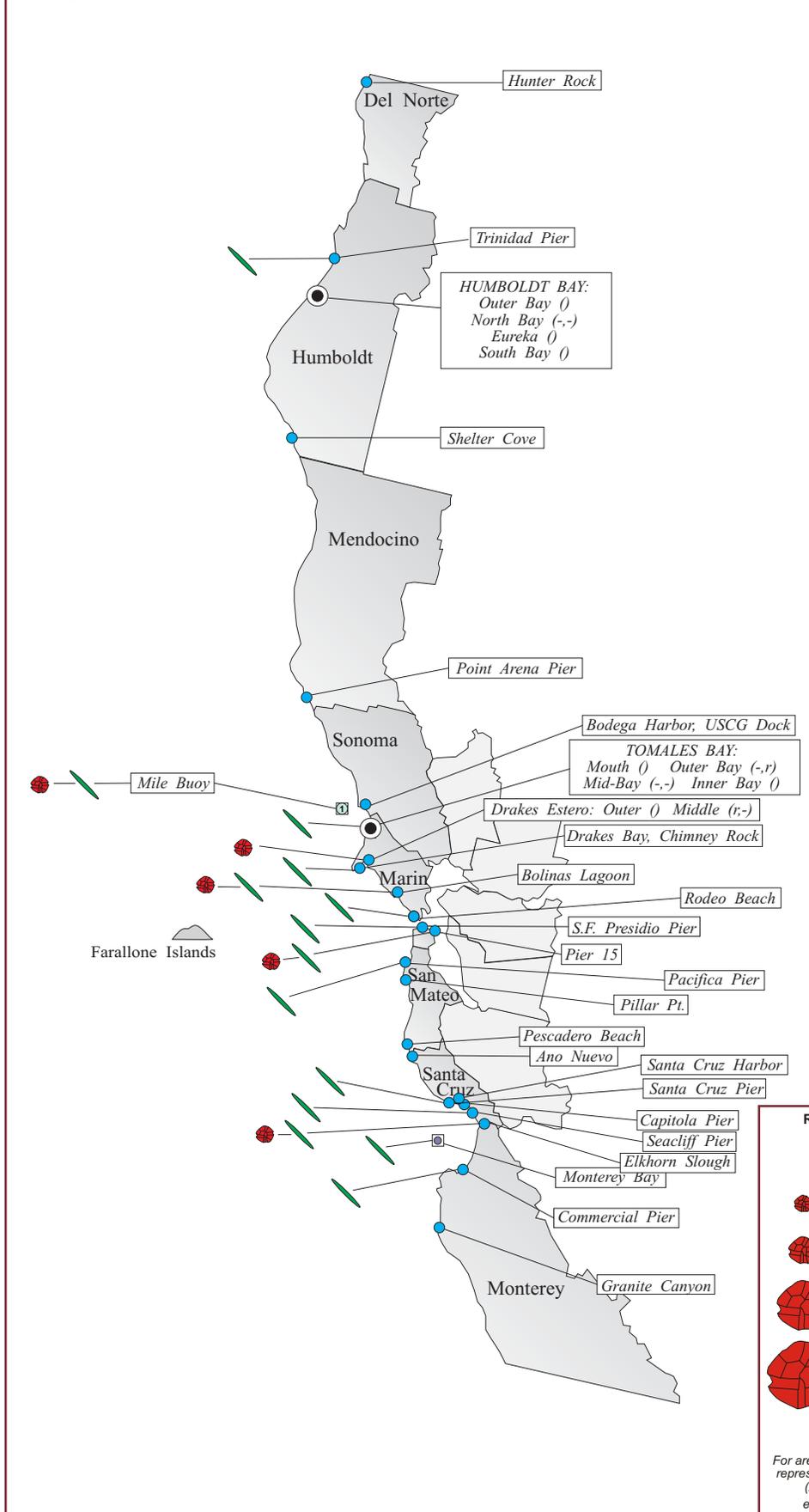


Figure 2. Distribution of toxin-producing phytoplankton in Northern California during January, 2015.



(Continued from Page 1)

collected offshore of Ventura County during the last week of January (Figure 3).

Domoic Acid

Pseudo-nitzschia was observed at select sampling sites in most counties (Figure 1). The percent composition of this diatom increased at San Simeon Pier (San Luis Obispo) and La Jolla Pier (San Diego) compared to December. The percent composition for the rest of the stations remained low. The cell mass was low at all locations.

Domoic acid was not detected in any bivalve shellfish samples collected in January (Figure 3).

Non-Toxic Species

A mix of diatoms and dinoflagellates were observed along the coast. The dinoflagellate *Ceratium furca* was common to abundant at sites in most counties except Ventura. The highest abundance was detected at Pismo Pier in San Luis Obispo County during the last two weeks of January. The diatom *Guinardia* was common at select sites in Los Angeles, Orange, and San Diego counties. The diatom *Chaetoceros* was common at three San Luis Obispo County sites.

Northern California Summary:

Paralytic Shellfish Poisoning

Alexandrium was observed at several

(Continued on Page 3)

Relative Abundance of Known Toxin Producers

Alexandrium Species

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

Pseudo-nitzschia Species

- Present (between 1% and 10%)
- Common (between 10% and 50%)
- Abundant (greater than 50%)

MONTHLY SAMPLING STATIONS:

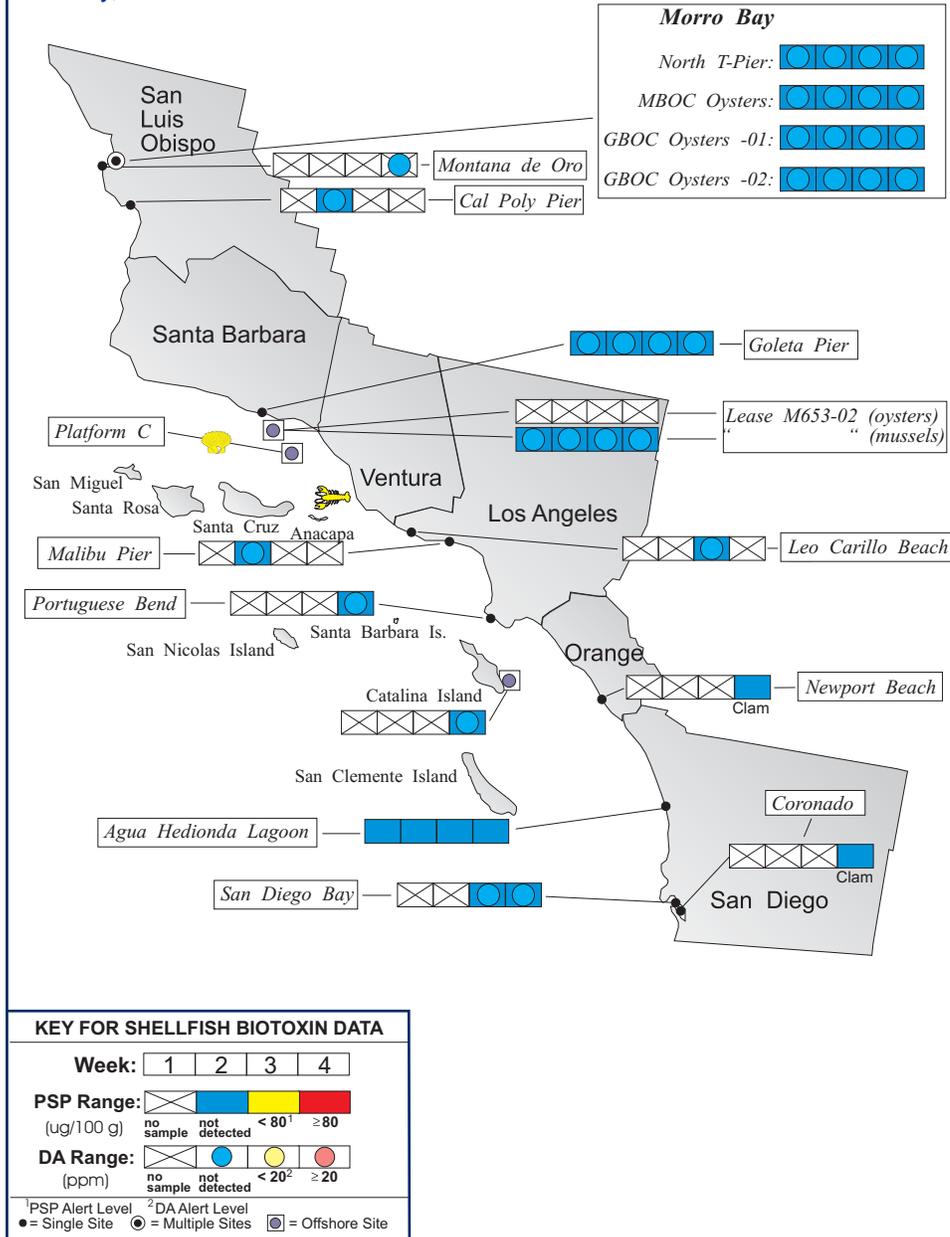
- Single Sampling Station
- Multiple Sampling Stations
- Offshore Sampling Station

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

(Continued from Page 2)

Figure 3. Distribution of shellfish biotoxins in Southern California during January, 2015.



sampling sites between Sonoma and Santa Cruz counties (Figure 2). Cell numbers were low at all sites.

Low levels of PSP toxins were detected in mussel samples collected during the end of January at Marin and Sonoma County sites. In a razor clam sample collected at Doran Beach (Sonoma County) on January 18, PSP toxins were detected below the alert level in the meat and above the alert level in the viscera (Figure 4).

Domoic Acid

Pseudo-nitzschia was observed at sites between Humboldt and Monterey counties, increasing in range compared to observations in December (Figure 2). The cell mass was low at all locations.

Low levels of domoic acid were detected in razor clam viscera samples from Doran Beach (Sonoma County) (Figure 4).

Non-Toxic Species

The diatoms *Chaetoceros* and *Skeletonema* were common to abundant along the Northern California coast.



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

QUARANTINES:

The annual mussel quarantine ended at midnight on October 31 for all coastal counties except for Ventura county.

On October 10 a health advisory was issued warning consumers not to eat recreationally harvested bivalve shellfish, such as mussels, clams or whole scallops, as well as the internal organs of lobster or crab taken from Ventura county. This alert was issued due to high levels of domoic acid in samples of lobster viscera, also known as lobster "tomalley".

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 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 can produce a tingling around the mouth and fingertips within a few minutes to a few hours after eating toxic shellfish. These symptoms can be 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.

(Continued on Page 5)

Figure 4. Distribution of shellfish biotoxins in Northern California during January, 2015.

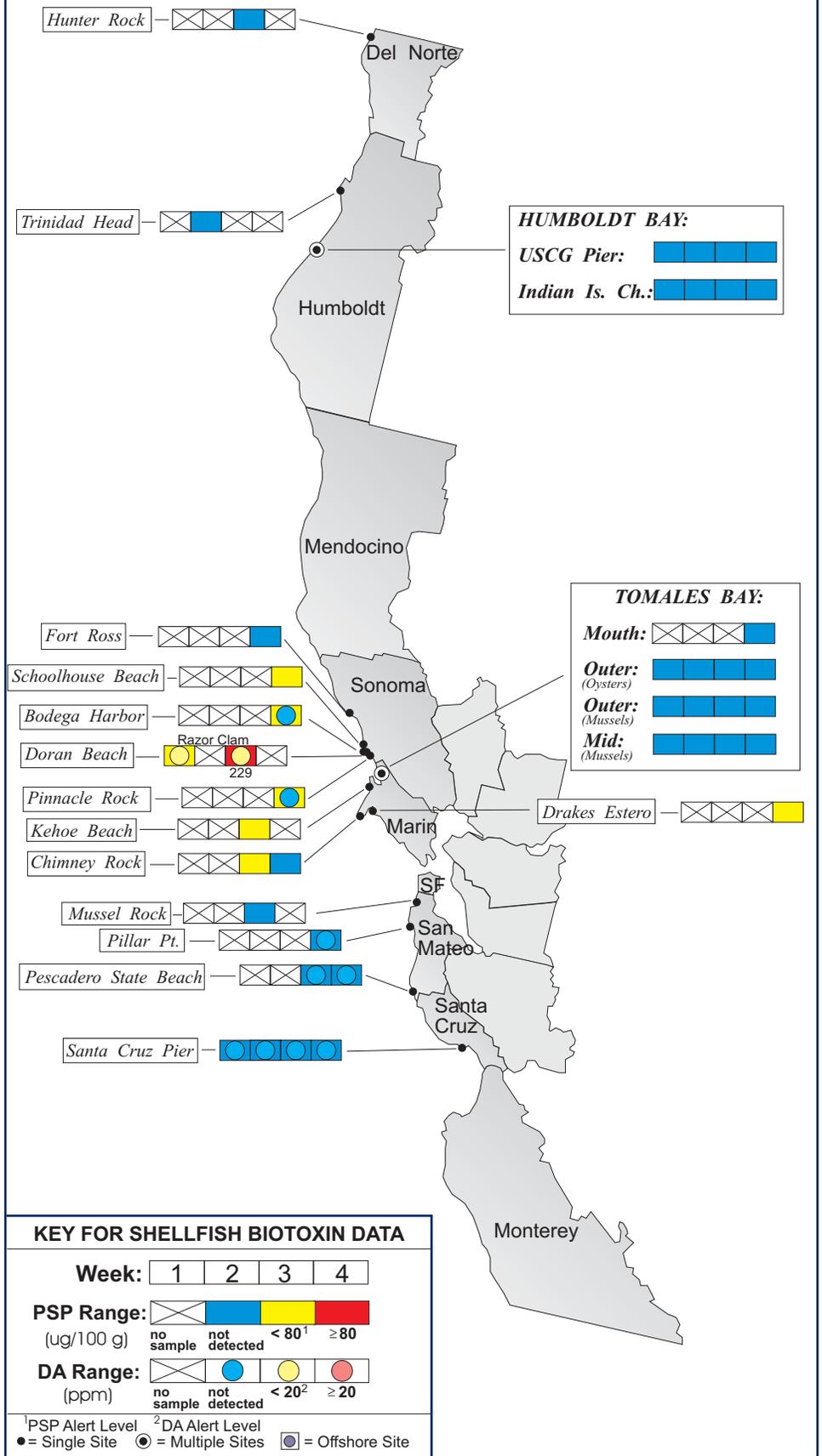


Table 1. Program participants collecting phytoplankton samples during January, 2015.

(Continued from Page 4)

AGENCY	#	AGENCY	#
DEL NORTE COUNTY		Smith River Rancheria	1
HUMBOLDT COUNTY		Bureau of Land Management	2
Coast Seafood Company	4	Humboldt State University Marine Lab	2
MENDOCINO COUNTY		CDPH Volunteer (<i>Marie DeSantis</i>)	3
SONOMA COUNTY			
CDPH Marine Biotoxin Program	1	Bodega Marine Lab & Farallone Institute	2
MARIN COUNTY			
CDPH Marine Biotoxin Program	2	CDPH Volunteer (<i>Anderson, Clyde</i>)	6
Golden Gate National Rec. Area	1	Hog Island Oyster Company	4
SAN FRANCISCO COUNTY			
CDPH Volunteer (<i>Eugenia McNaughton</i>)	2	Exploratorium	5
SAN MATEO COUNTY		U.C. Santa Cruz - Ano Nuevo	2
San Mateo County Environmental Health Dept.	8	The Marine Mammal Center (<i>Stan Jensen</i>)	3
SANTA CRUZ COUNTY		Santa Cruz County Envir. Health Department	3
U.C. Santa Cruz	4	San Lorenzo Valley High School	2
MONTEREY COUNTY			
Monterey Abalone Company	2	Friends of the Sea Otter (<i>Janis Chaffin</i>)	2
Marine Pollution Studies Laboratory	3	Marine Life Studies	1
SAN LUIS OBISPO COUNTY			
Morro Bay National Estuary Program	3	Morro Bay Oyster Company	4
Coastal Discovery Center, San Simeon	4	Tenera Environmental	3
Friends of the Sea Otter (<i>Cherry</i>)	4	CDPH Volunteer (<i>Shay, Guild</i>)	4
SANTA BARBARA COUNTY		National Park Service	1
CDPH Volunteer (<i>Sylvia Short</i>)	4	U.C. Santa Barbara	4
Santa Barbara Channel Keeper	4	Santa Barbara Mariculture Company	4
VENTURA COUNTY			
National Park Service	1	CDPH Volunteer (<i>Fred Burgess</i>)	5
LOS ANGELES COUNTY		Catalina Island Marine Institute	4
Los Angeles County Sanitation District	2	CDPH Volunteers (<i>Cal Parsons</i>)	2
Los Angeles County Health Department	1	Long Beach Marine Institute	1
ORANGE COUNTY		CDPH Volunteer (<i>Truong Nguyen</i>)	3
California Department of Fish and Wildlife	1	Amigos de Bolsa Chica	5
Crystal Cove Alliance	1	Ocean Institute	5
SAN DIEGO COUNTY			
Scripps Institute of Oceanography	4	Carlsbad Aquafarms, Inc.	1
U.S. Navy Marine Mammal Program	4	Tijuana River National Estuary Research	4
Sea Camp/HABNet	1	CDPH Volunteer (<i>Cynthia Hall</i>)	2

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.

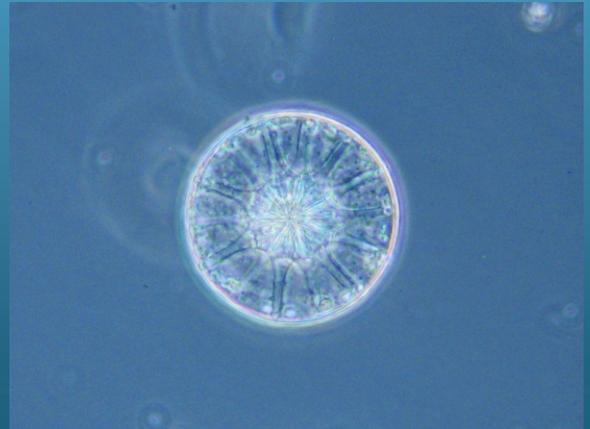
Any person experiencing any of these symptoms should seek immediate medical care. Consumers are also advised that neither cooking or freezing eliminates domoic acid or the PSP toxins from the shellfish tissue. These toxins may also accumulate in the viscera of seafood species such as crab, lobster, and 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.



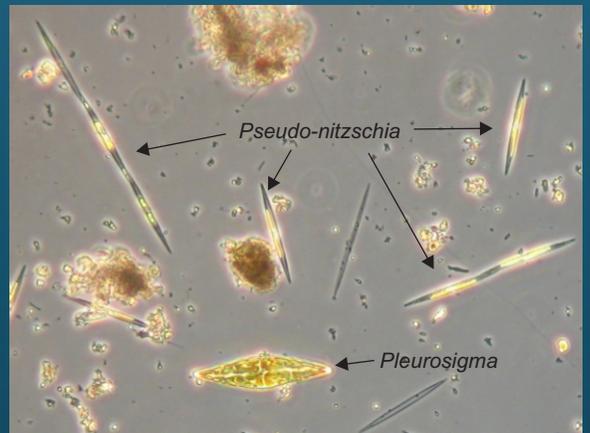
Table 2. CDPH program participants submitting shellfish samples during January, 2015.

COUNTY	AGENCY	#
Del Norte	Smith River Rancheria	1
Humboldt	Coast Seafood Company	8
	CDPH Volunteer (Georgianna Wood)	1
Mendocino	None Submitted	
Sonoma	CDPH Marine Biotoxin Program	3
	CDPH Volunteer (Charles Horn)	3
	CDPH Volunteer (John Morozumi)	1
Marin	Cove Mussel Company	4
	CDPH Marine Biotoxin Program	4
	Hog Island Oyster Company	4
	Tomales Bay Oyster Company	5
	Starbird Mariculture	1
San Francisco	None Submitted	
San Mateo	San Mateo County Environmental Health Department	3
	CDPH Volunteer (Gary Della Maggiora)	1
Santa Cruz	U.C. Santa Cruz	4
Monterey	None Submitted	
San Luis Obispo	Grassy Bar Oyster Co.	10
	Morro Bay Oyster Company	6
	CDPH Volunteer (Ellen Lennon)	1
	CDPH Marine Biotoxin Program	1
Santa Barbara	Santa Barbara Mariculture Company	4
	U.C. Santa Barbara	5
Ventura	CDPH Volunteer (Bill Weinerth)	1
Los Angeles	Los Angeles County Health Department	1
	Los Angeles County Health Department Burke	1
	CDPH Volunteers (Steven Field)	1
Orange	CDPH Volunteer (Steve Crooke)	1
San Diego	Carlsbad Aquafarms, Inc.	4
	U.S. Navy Marine Mammal Program	2
	CDPH Volunteer (Steve Crooke)	1

PHYTOPLANKTON GALLERY



The centric diatom *Asterolampra*. A rare sighting in Southern California for this usually tropical diatom. .



The chain diatom *Pseudo-nitzschia* and the singular diatom *Pleurosigma*. Some of the *Pseudo-notzschia* cells are not connected in chains in this sample.



A rarely seen species of the dinoflagellate *Ornithocercus*.