

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 February 2015 Technical Report No. 15-08

INTRODUCTION:

This report provides a summary of biotoxin activity for the month of February, 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 February (Figure 1). PSP toxins below the alert level were detected in rock scallop viscera from the Santa Barbara Channel during the second week of February (Figure 3).

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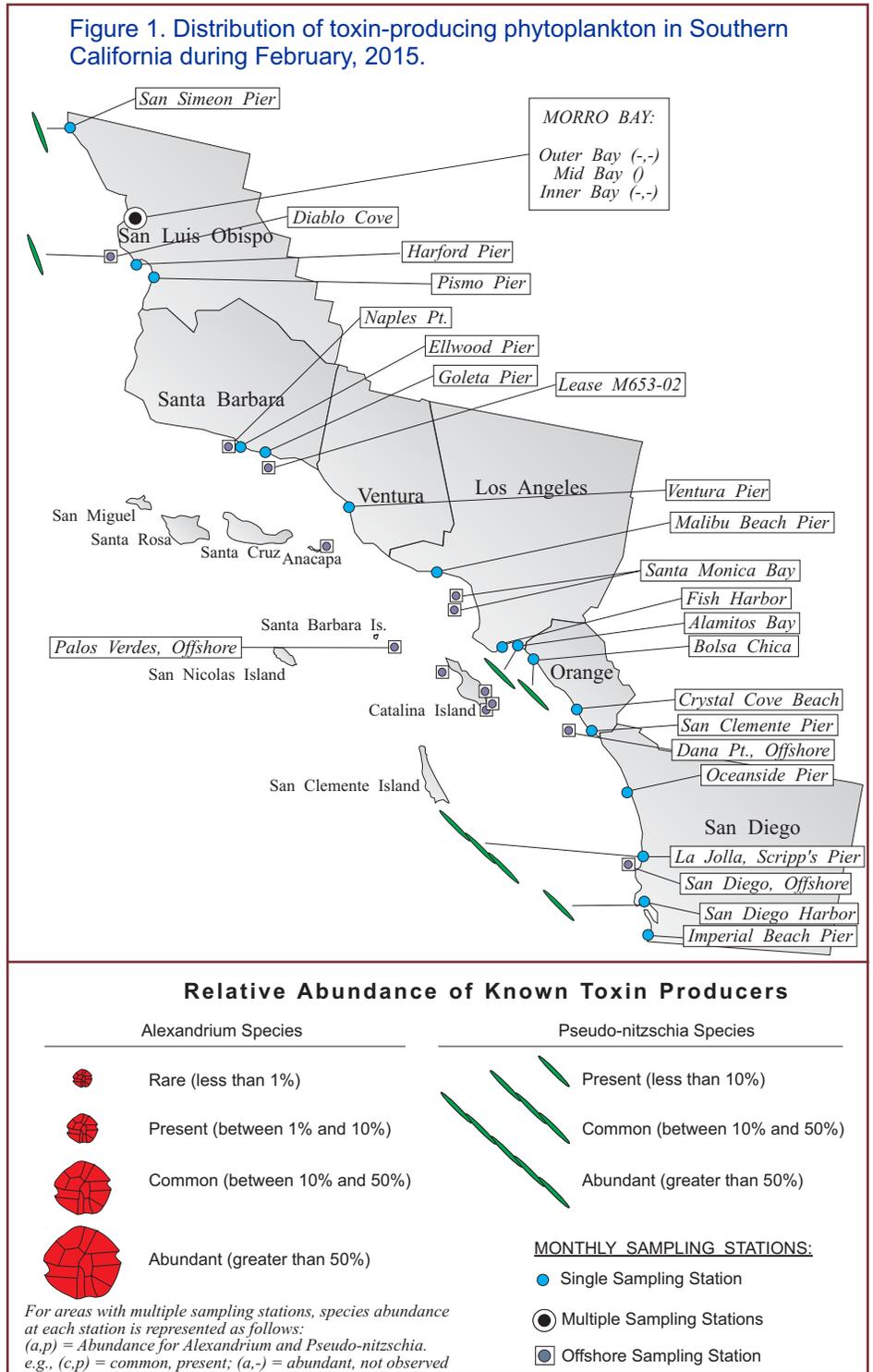
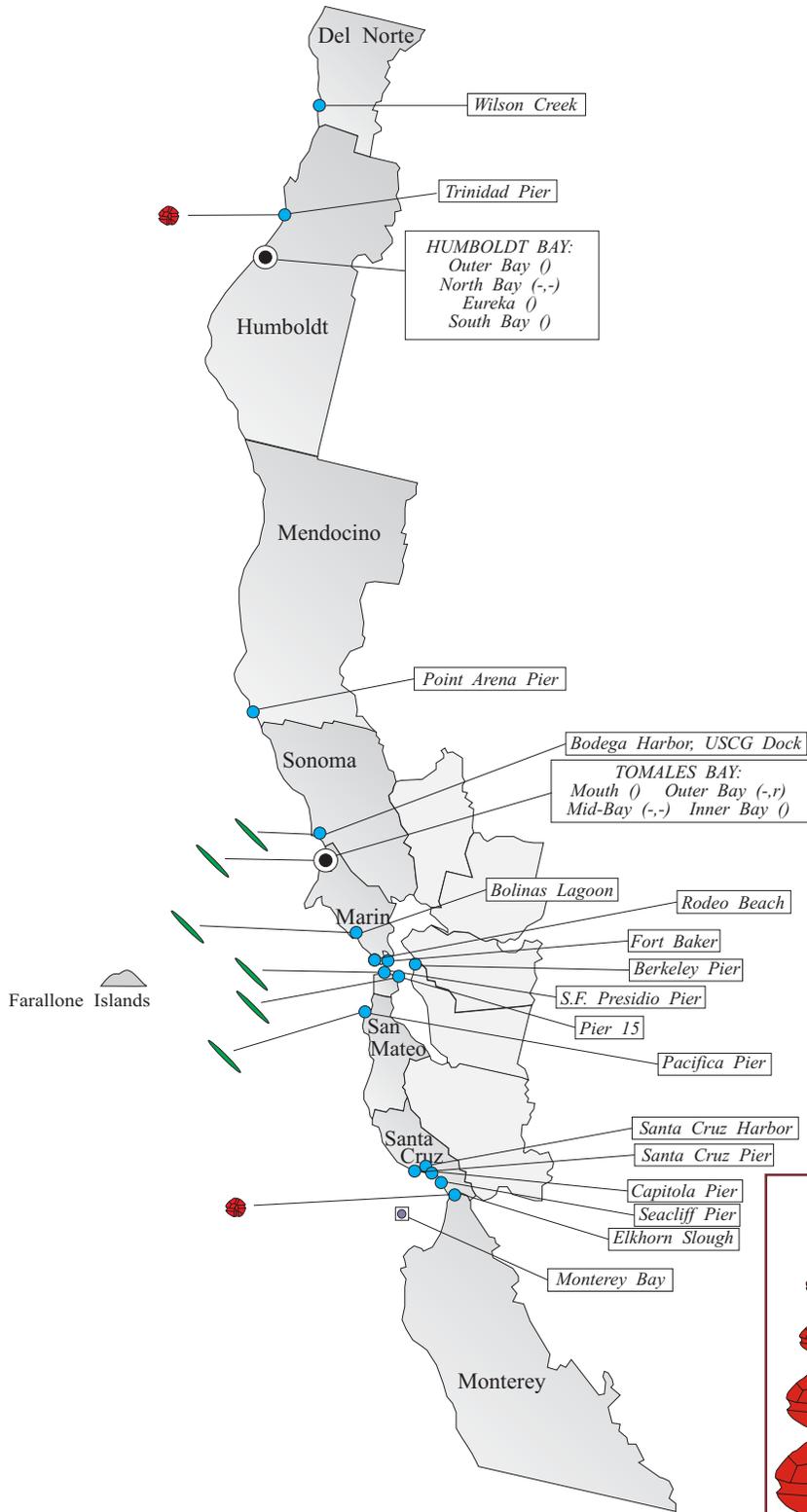


Figure 2. Distribution of toxin-producing phytoplankton in Northern California during February, 2015.



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Domoic Acid

Pseudo-nitzschia was observed at sampling sites in San Luis Obispo, Los Angeles, Orange and San Diego counties (Figure 1). The percent composition of this diatom decreased at San Simeon Pier (San Luis Obispo) compared to January. 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 February (Figure 3).

Non-Toxic Species

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

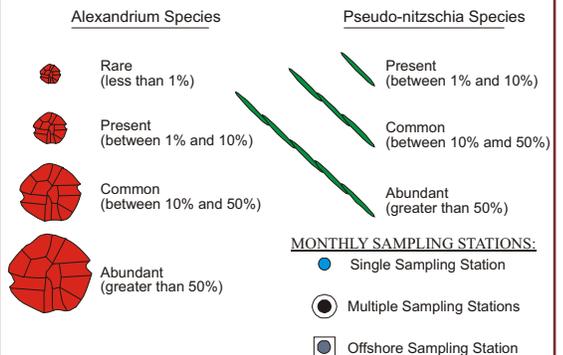
Northern California Summary:

Paralytic Shellfish Poisoning

Alexandrium was observed at two sampling sites, Trinidad Pier (Humboldt County) and Elkhorn Slough (Monterey County) (Figure 2). Cell numbers were low at all sites.

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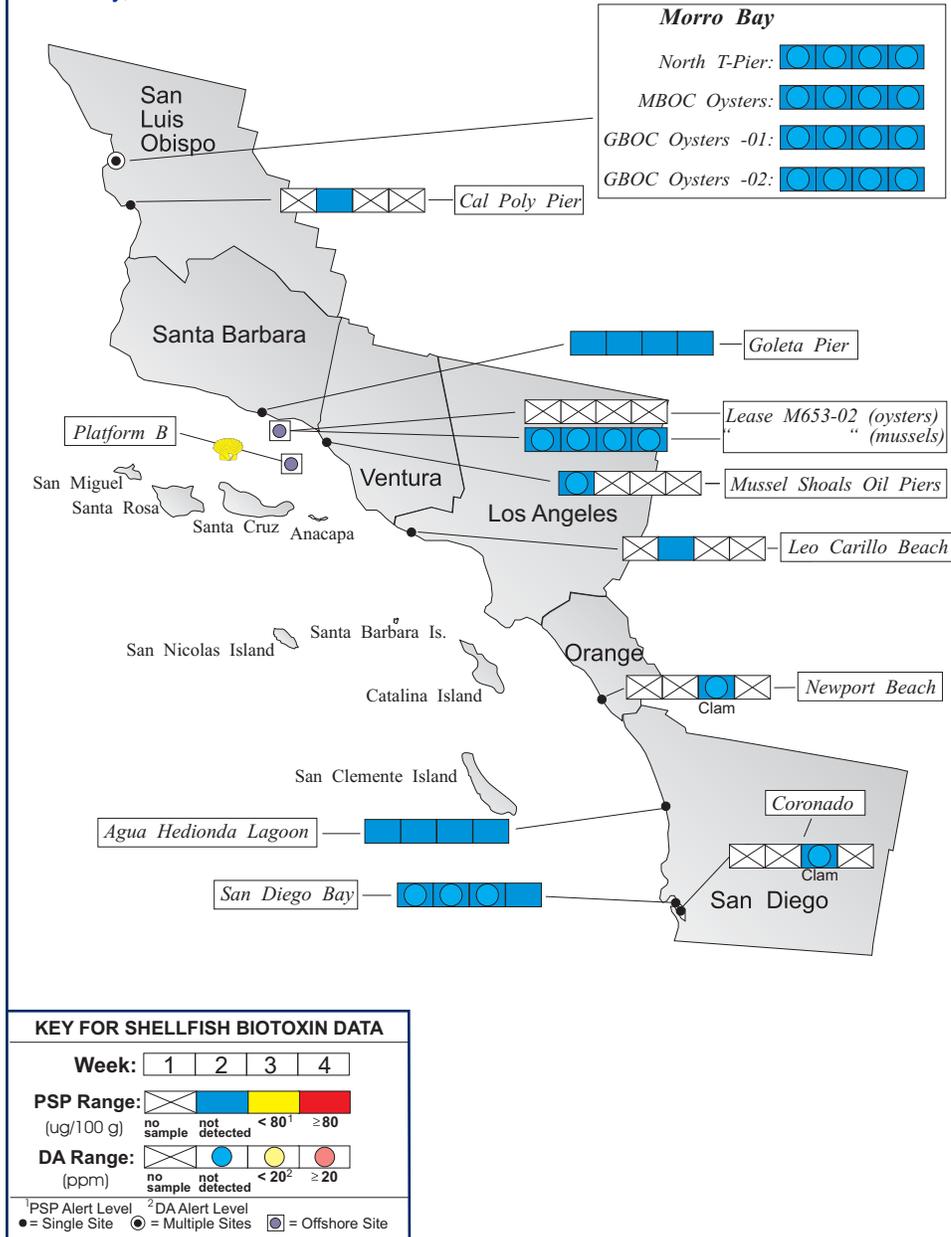
Relative Abundance of Known Toxin Producers



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

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



PSP toxins were not detected in any bivalve shellfish samples collected in February (Figure 4).

Domoic Acid

Pseudo-nitzschia was observed at sites between Sonoma and San Mateo counties, decreasing in range compared to observations in January (Figure 2). The cell mass was low at all locations.

Domoic acid was not detected in any bivalve shellfish samples collected in February (Figure 4).

Non-Toxic Species

The diatom *Chaetoceros* was common to abundant along the Northern California coast. The diatom *Skeletonema* was common at sites in Humboldt and Sonoma counties. The dinoflagellate *Certium furca* was abundant at an offshore site in Monterey Bay during the end of February.



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.

In February, the health advisory issued October 10th for Ventura County was removed. This health advisory warned 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. The alert was issued in October 2014 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

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

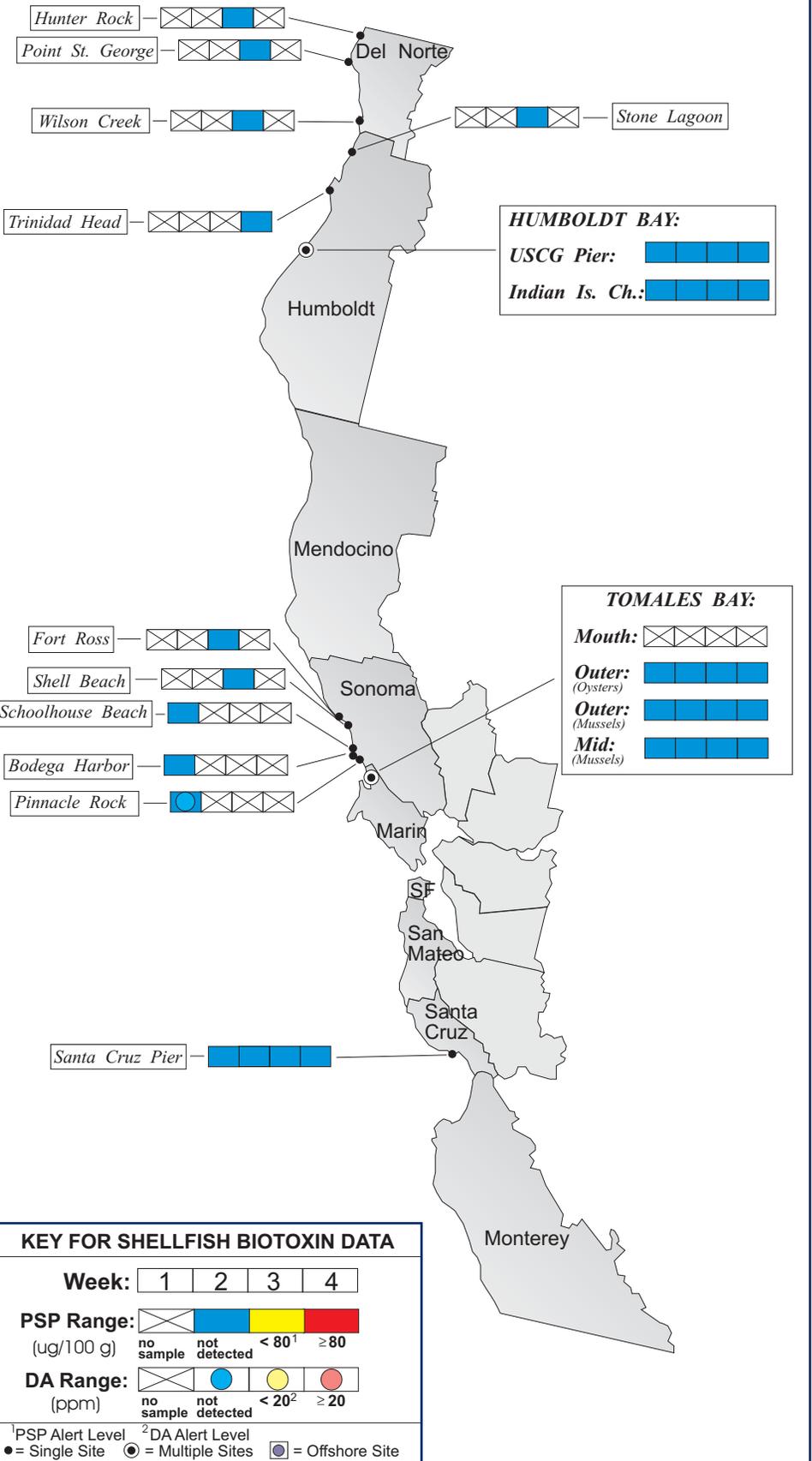


Table 1. Program participants collecting phytoplankton samples during February, 2015.

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AGENCY	#	AGENCY	#
DEL NORTE COUNTY		Yurok Tribe Environmental Program	1
HUMBOLDT COUNTY			
Coast Seafood Company	4	Humboldt State University Marine Lab	2
MENDOCINO COUNTY		CDPH Volunteer (<i>Marie DeSantis</i>)	1
SONOMA COUNTY		CDPH Marine Biotoxin Program	1
MARIN COUNTY			
CDPH Marine Biotoxin Program	1	CDPH Volunteer (<i>Anderson, Clyde</i>)	5
NatureBridge	1	Hog Island Oyster Company	3
ALAMEDA COUNTY		City of Berkeley	1
SAN FRANCISCO COUNTY			
CDPH Volunteer (<i>Eugenia McNaughton</i>)	2	Exploratorium	3
SAN MATEO COUNTY		The Marine Mammal Center (<i>Stan Jensen</i>)	4
SANTA CRUZ COUNTY		Santa Cruz County Envir. Health Department	3
U.C. Santa Cruz	4	San Lorenzo Valley High School	1
MONTEREY COUNTY			
Marine Life Studies	2	Friends of the Sea Otter (<i>Janis Chaffin</i>)	3
SAN LUIS OBISPO COUNTY			
Morro Bay National Estuary Program	1	Morro Bay Oyster Company	4
Coastal Discovery Center, San Simeon	4	Tenera Environmental	4
Friends of the Sea Otter (<i>Cherry</i>)	4	CDPH Volunteer (<i>Al Guild</i>)	4
SANTA BARBARA COUNTY			
CDPH Volunteer (<i>Sylvia Short</i>)	2	U.C. Santa Barbara	4
Santa Barbara Channel Keeper	1	Santa Barbara Mariculture Company	4
VENTURA COUNTY		CIHS	1
National Park Service	1	CDPH Volunteer (<i>Fred Burgess</i>)	3
LOS ANGELES COUNTY		Catalina Island Marine Institute	3
Los Angeles County Sanitation District	2	CDPH Volunteers (<i>Cal Parsons</i>)	4
Los Angeles County Health Department	1	Long Beach Marine Institute	2
City of Los Angeles Envir. Monitoring Division	3	Southern California Marine Institute	1
ORANGE COUNTY			
CDPH Volunteer (<i>Truong Nguyen</i>)	3	Amigos de Bolsa Chica	4
Crystal Cove Alliance	3	Ocean Institute	1
SAN DIEGO COUNTY		Scripps Institute of Oceanography	4
U.S. Navy Marine Mammal Program	4	Tijuana River National Estuary Research	4
Sea Camp/HABNet	1	CDPH Volunteer (<i>Cynthia Hall</i>)	1

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 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.



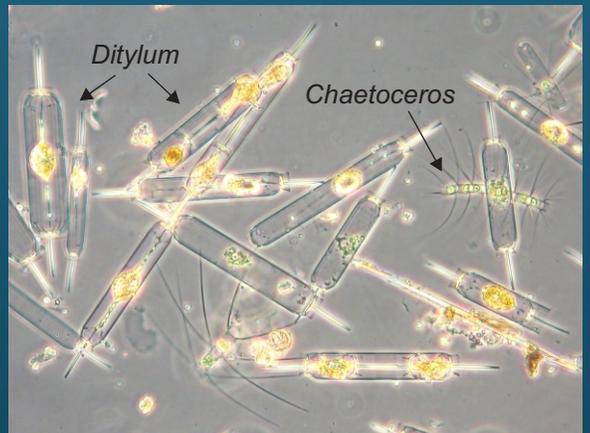
Table 2. CDPH program participants submitting shellfish samples during February, 2015.

COUNTY	AGENCY	#
Del Norte	Smith River Rancheria	1
	Yurok Tribe Environmental Program	2
	Del Norte County Health Department	1
Humboldt	Coast Seafood Company	8
	CDPH Volunteer (Georgianna Wood)	1
	Yurok Tribe Environmental Program	1
Mendocino	None Submitted	
	CDPH Marine Biotoxin Program	3
	CDPH Volunteer (<i>James Sanders</i>)	1
Marin	Cove Mussel Company	4
	Hog Island Oyster Company	7
	Tomales Bay Oyster Company	1
San Francisco	None Submitted	
San Mateo	None Submitted	
Santa Cruz	U.C. Santa Cruz	4
Monterey	None Submitted	
San Luis Obispo	Grassy Bar Oyster Co.	10
	Morro Bay Oyster Company	7
	CDPH Marine Biotoxin Program	1
Santa Barbara	Santa Barbara Mariculture Company	4
	U.C. Santa Barbara	5
Ventura	Ventura County Environmental Health Department	1
Los Angeles	Los Angeles County Health Department Burke	1
Orange	CDPH Volunteer (<i>Steve Crooke</i>)	1
San Diego	Carlsbad Aquafarms, Inc.	4
	U.S. Navy Marine Mammal Program	4
	CDPH Volunteer (<i>Steve Crooke</i>)	1

PHYTOPLANKTON GALLERY



An example of the ubiquitous chain diatom *Chaetoceros*. Each cell has four spines, or setae, that link the cells together.



The diatom *Ditylum* has elongated cells that are solitary. A few sections of the chain diatom *Chaetoceros* are present.



A chain of the dinoflagellate species *Ceratium candelabrum*. The main body of this *Ceratium* species is wide along the central groove, or cingulum, and short in height.