

# 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 December 2005

Technical Report No. 05-25

## INTRODUCTION:

This report provides a summary of biotoxin activity for the month of December 2005. 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 site during December (Figure 1). The distribution and relative

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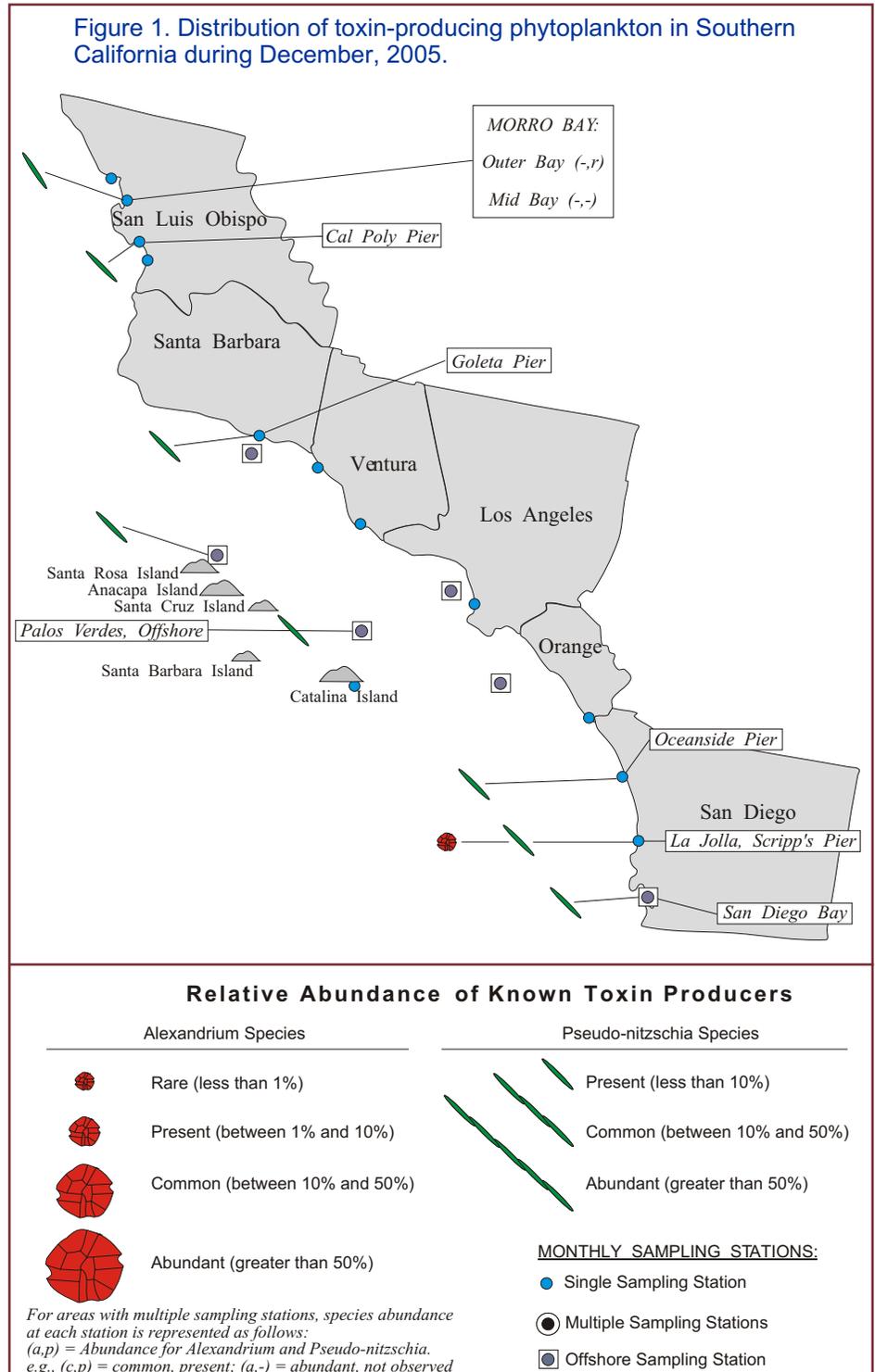
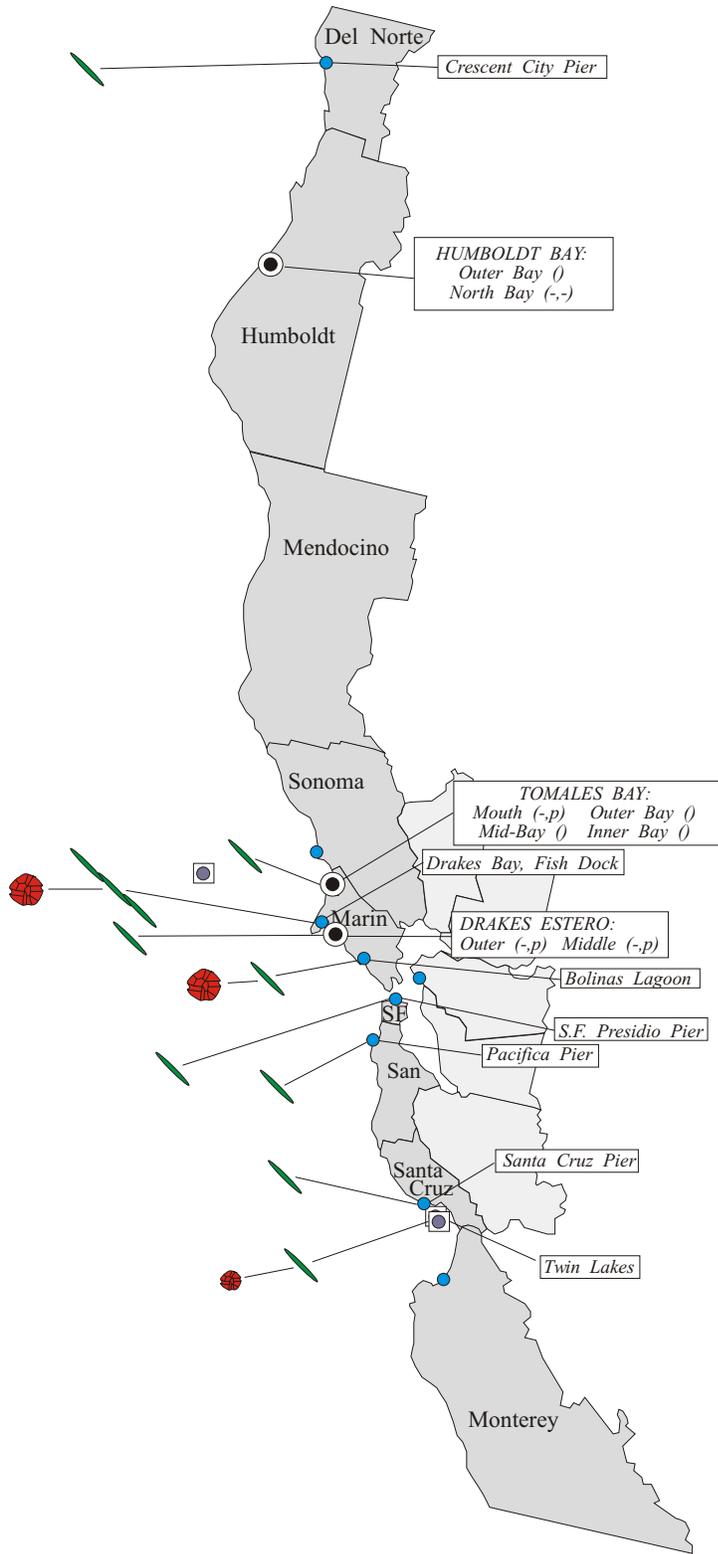


Figure 2. Distribution of toxin-producing phytoplankton in Northern California during December, 2005.



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abundance of this toxin-producing dinoflagellate decreased compared to observations in November. The moderate numbers of *Alexandrium* observed along the San Luis Obispo coast in November disappeared by December. This dinoflagellate was only observed in very low numbers in a sample from Scripps Pier in San Diego County.

PSP toxins were not detected in any samples collected in December, including those from Scripps Pier (Figure 3).

**Domoic Acid**

*Pseudo-nitzschia* was observed at several sites along the coast from San Luis Obispo County southward through San Diego and at offshore near Santa Rosa Island (Figure 1). This diatom was observed at fewer sampling stations throughout this range and in very low numbers.

**Non-toxic Species**

Dinoflagellate species continued to dominate the phytoplankton assemblage along the Southern California coast. *Cochlodinium* was common to abundant at various sites along the San Luis Obispo coast through December 20. This unarmored dinoflagellate

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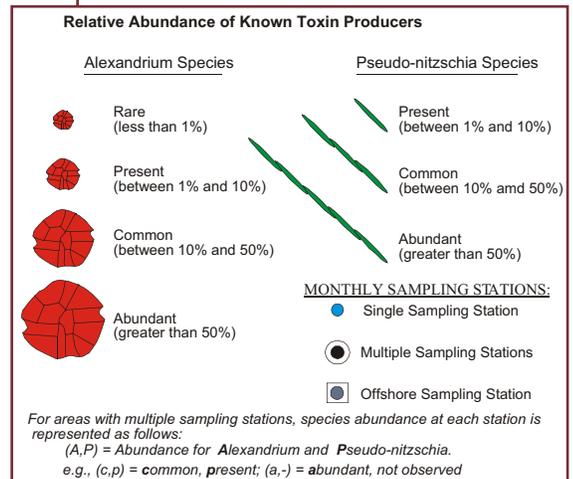
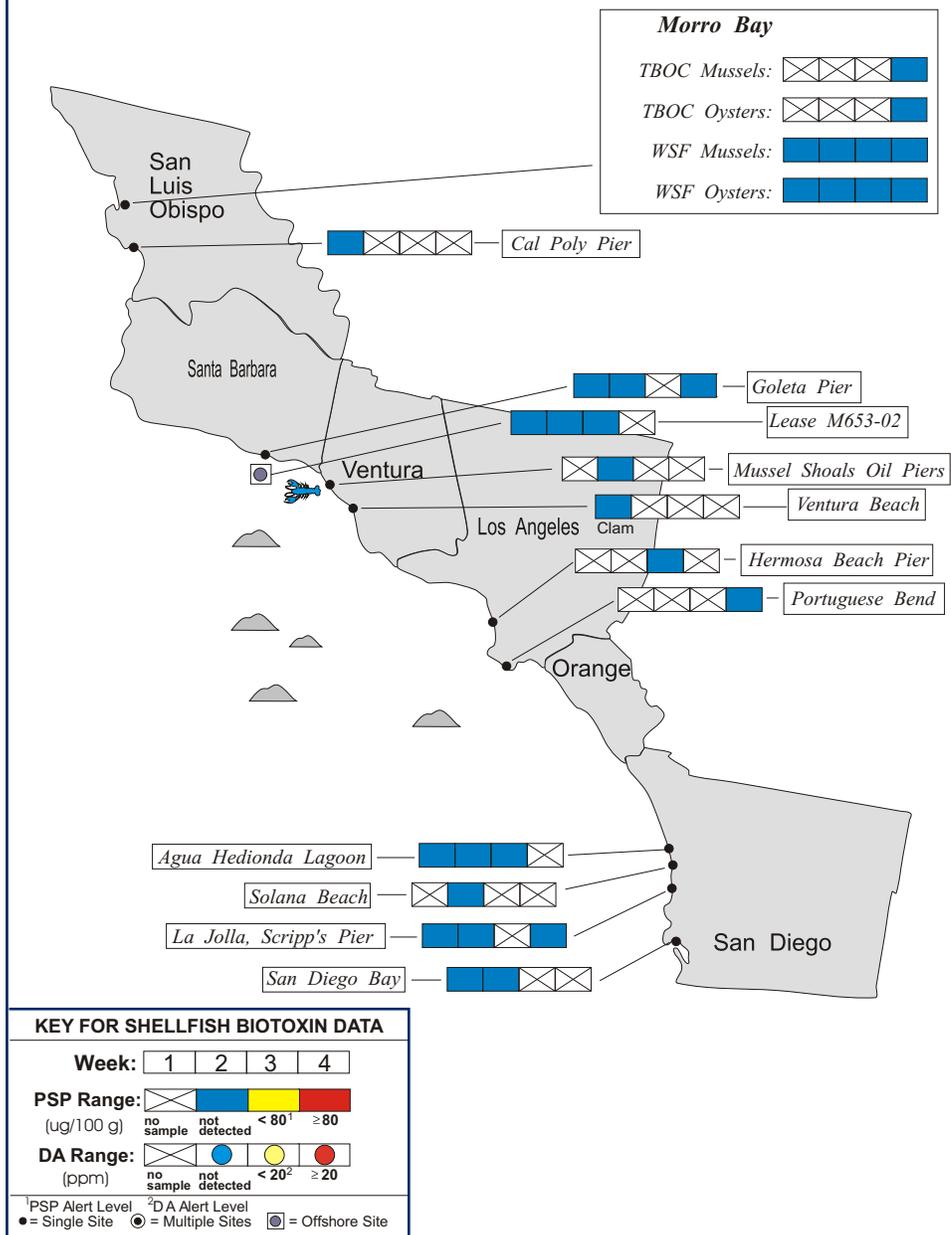


Figure 3. Distribution of shellfish biotoxins in Southern California during December, 2005.



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was also common in Ventura at the beginning of the month. *Lingulodinium polyedrum* and *Ceratium furca* were ubiquitous along much of the Southern California coast. The highest relative abundances were observed in Santa Barbara (*C. furca*), Ventura (*C. furca*), and offshore of Palos Verdes (*L. polyedrum*). The diatom *Chaetoceros* was common offshore near Santa Rosa Island and onshore at Goleta Pier (Santa Barbara).

**Northern California Summary:**

**Paralytic Shellfish Poisoning**

The distribution of *Alexandrium* in December was very similar to observations in November (Figure 2). There was a decline in relative abundance of this dinoflagellate, particularly at sites in Santa Cruz. Significant numbers of this dinoflagellate were observed at sites in Drakes Bay and Bolinas Lagoon (Marin County).

PSP toxins were not detected in any shellfish samples during December.

**Domoic Acid**

*Pseudo-nitzschia* was observed at most sampling stations along the Northern

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The Marine Biotoxin Monitoring and Control Program, managed by the California Department of Health Services, 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 program 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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California coast in December (Figure 2). The relative abundance of *Pseudo-nitzschia* decreased at many sites, most notably at Crescent City (Del Norte County) where this diatom had been abundant the previous month. This diatom was common inside Drakes Bay relative to other species, but the cell density was quite low.

**Non-toxic Species**

Dinoflagellates continued to be dominant at most locations along the Northern California coast. Common species included *Ceratium furca*, *Prorocentrum micans*, and *Gymnodinium sanguineum*. Diatoms, most notably *Chaetoceros* and *Thalassiosira*, were observed at a small number of locations along the coast, including Drakes Bay and Bolinas Lagoon in Marin County and Pacifica Pier in San Mateo County.



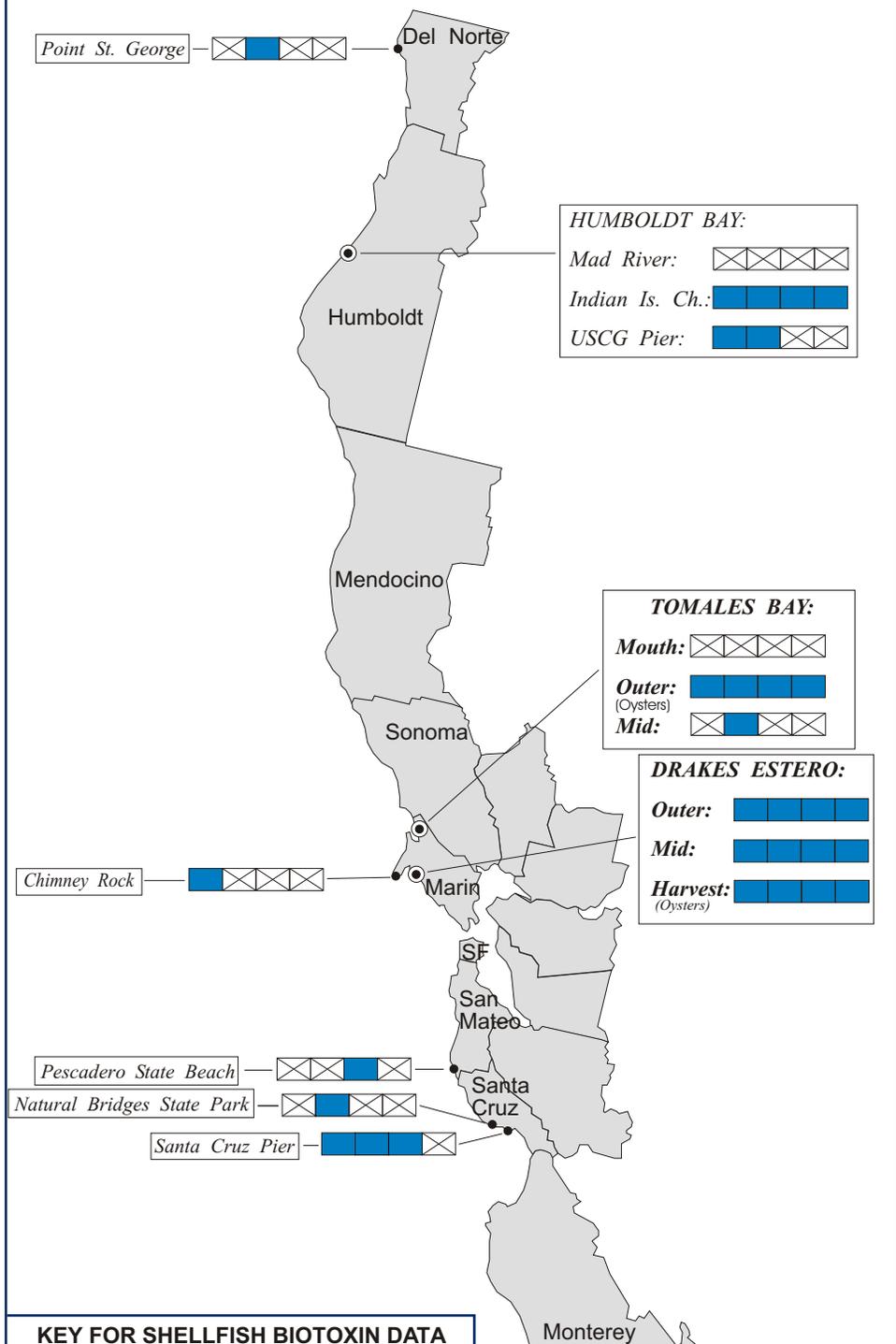
**QUARANTINES:**

The June 24 health advisory remained in effect, warning the public not to eat mussels or the viscera of sardines, anchovies, lobster (also known as lobster “tomale”), and crab (sometimes called crab “butter”) from Ventura County. This advisory was issued after dangerous levels of domoic acid were detected from this region.

The annual quarantine on the sport-harvesting of mussels was rescinded as scheduled at midnight on October 31. The annual mussel quarantine applies only to sport-harvested mussels along the entire California coastline, including all bays

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Figure 4. Distribution of shellfish biotoxins in Northern California during December, 2005.



**KEY FOR SHELLFISH BIOTOXIN DATA**

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

**PSP Range:** [X][█][█][█]  
 (ug/100 g) no sample not detected < 80<sup>1</sup> ≥ 80

**DA Range:** [X][█][█][█]  
 (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 December, 2005.

COUNTY	AGENCY	# SAMPLES
<b>Del Norte</b>	Del Norte County Health Department	1
<b>Humboldt</b>	Coast Seafood Company	6
<b>Mendocino</b>	None Submitted	
<b>Sonoma</b>	None Submitted	
<b>Marin</b>	Cove Mussel Company	1
	Hog Island Oyster Company	4
	Drakes Bay Oyster Company	16
	DHS Marine Biotoxin Monitoring Program	1
	Marin Oyster Company	2
<b>San Francisco</b>	None Submitted	
<b>San Mateo</b>	San Mateo County Environmental Health Department	1
<b>Santa Cruz</b>	U.C. Santa Cruz	3
	Santa Cruz County Environmental Health Department	1
<b>Monterey</b>	None Submitted	
<b>San Luis Obispo</b>	Williams Shellfish Company	10
	Tomales Bay Oyster Company	2
	California Polytechnic State University	1
<b>Santa Barbara</b>	Santa Barbara Mariculture Company	6
	U.C. Santa Barbara	3
<b>Ventura</b>	DHS Volunteer (Bill Weinerth)	2
<b>Los Angeles</b>	Los Angeles County Health Department	2
<b>Orange</b>	None Submitted	
<b>San Diego</b>	Carlsbad Aquafarms, Inc.	3
	DHS Volunteer (Paul Sims)	1
	U.S. Navy	2
	Scripps Institute of Oceanography	3

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and estuaries. Routine biotoxin monitoring is maintained throughout this period. The annual quarantine does not affect the certified commercial shellfish growing areas in California.

Consumers of Washington clams, also known as butter clams, 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 are an exception to this general guidance due to their ability to concentrate and retain domoic acid in the edible white meat.

Consumers are also advised that cooking does not eliminate the 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.



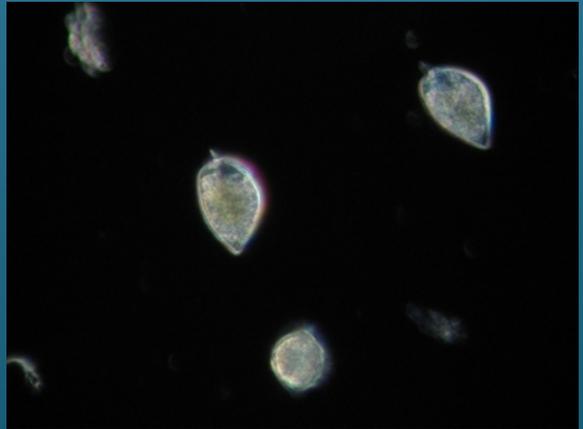
Table 2. Agencies, organizations and volunteers participating in marine phytoplankton sample collection during December, 2005.

COUNTY	AGENCY	# SAMPLES
Del Norte	Del Norte County Health Department	2
Humboldt	Coast Seafood Company	4
Mendocino	None Submitted	
Sonoma	Cordell Bank National Marine Sanctuary	1
Marin	DHS Volunteers (Brent Anderson, Mary Von Tolksdorf, Cal Strobel)	6
	DHS Marine Biotoxin Monitoring Program	1
	Drakes Bay Oyster Company	8
Contra Costa	None Submitted	
San Francisco	DHS Volunteer (Eugenia McNaughton)	1
San Mateo	San Mateo County Environmental Health Department	1
Santa Cruz	U.C. Santa Cruz	4
	California Department of Parks and Recreation	2
Monterey	DHS Volunteer (Jerry Norton)	1
San Luis Obispo	DHS Volunteers (Renee and Auburn Atkins)	1
	Morro Bay National Estuary Program	2
	California Polytechnic State University	1
Santa Barbara	U.C. Santa Barbara	4
	Santa Barbara Mariculture Company	3
	National Park Service	1
Ventura	DHS Volunteer (Fred Burgess)	3
Los Angeles	Los Angeles County Sanitation District	5
Orange	DHS Volunteer (Debbie Karimoto)	1
San Diego	Scripps Institute of Oceanography	5
	DHS Volunteers (Paul Sims, Jeff Kermode)	2

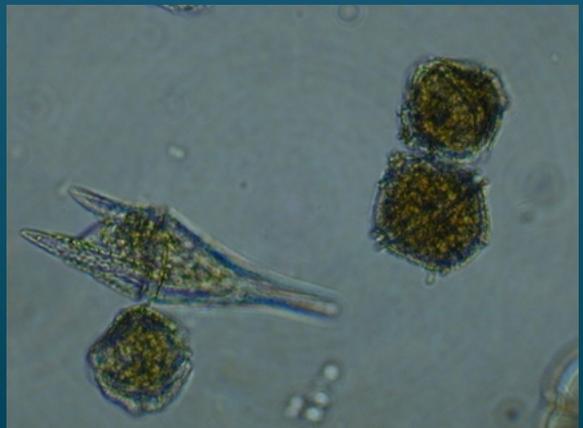
## PHYTOPLANKTON GALLERY



*The diatom Thalassiosira was common at a few locations in Northern California.*



*Prorocentrum, a leaf-shaped dinoflagellate, was common at a number of sites during December.*



*Lingulodinium and Ceratium were the most common dinoflagellate species along much of the California coast.*