

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 2006 Technical Report No. 06-08

INTRODUCTION:

This report provides a summary of biotoxin activity for the month of January, 2006. 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.

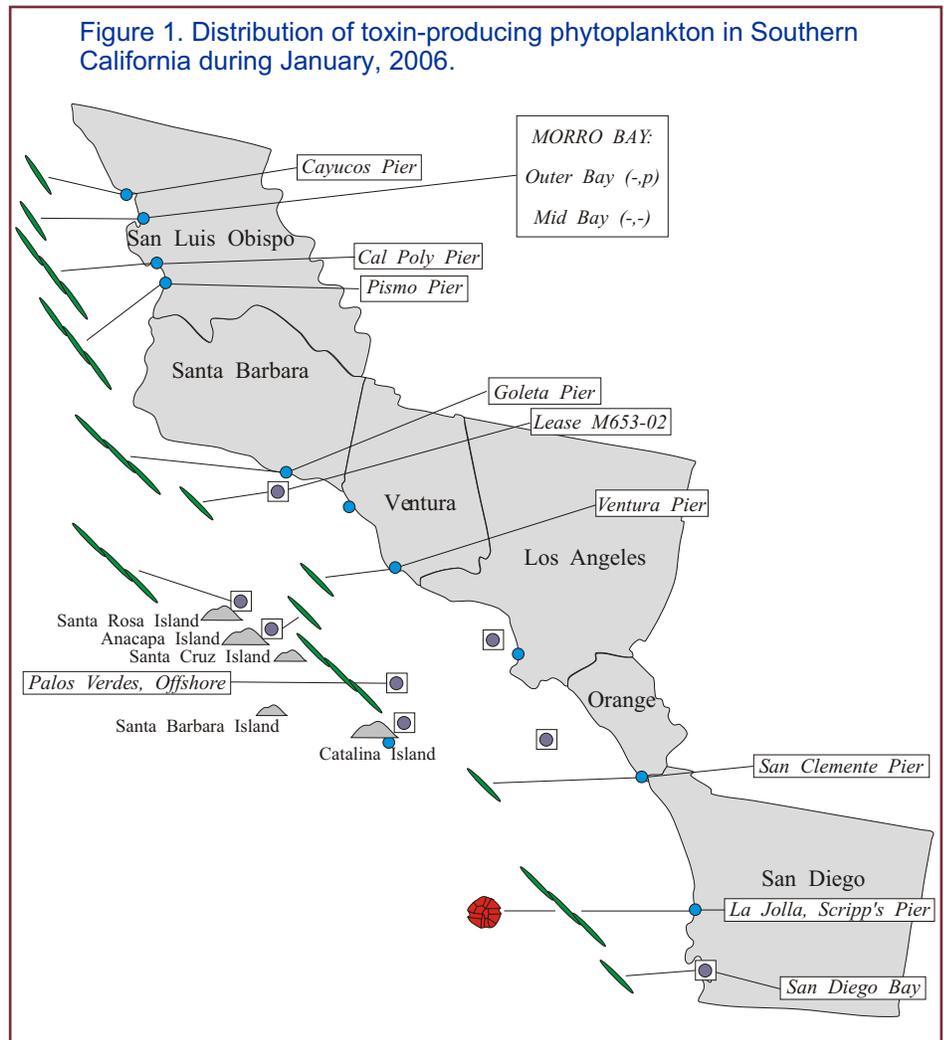
Southern California Summary:

Paralytic Shellfish Poisoning

Alexandrium was observed at only one Southern California site during January (Figure 1). This dinoflagellate was only

(Continued on Page 2)

Figure 1. Distribution of toxin-producing phytoplankton in Southern California during January, 2006.



Relative Abundance of Known Toxin Producers

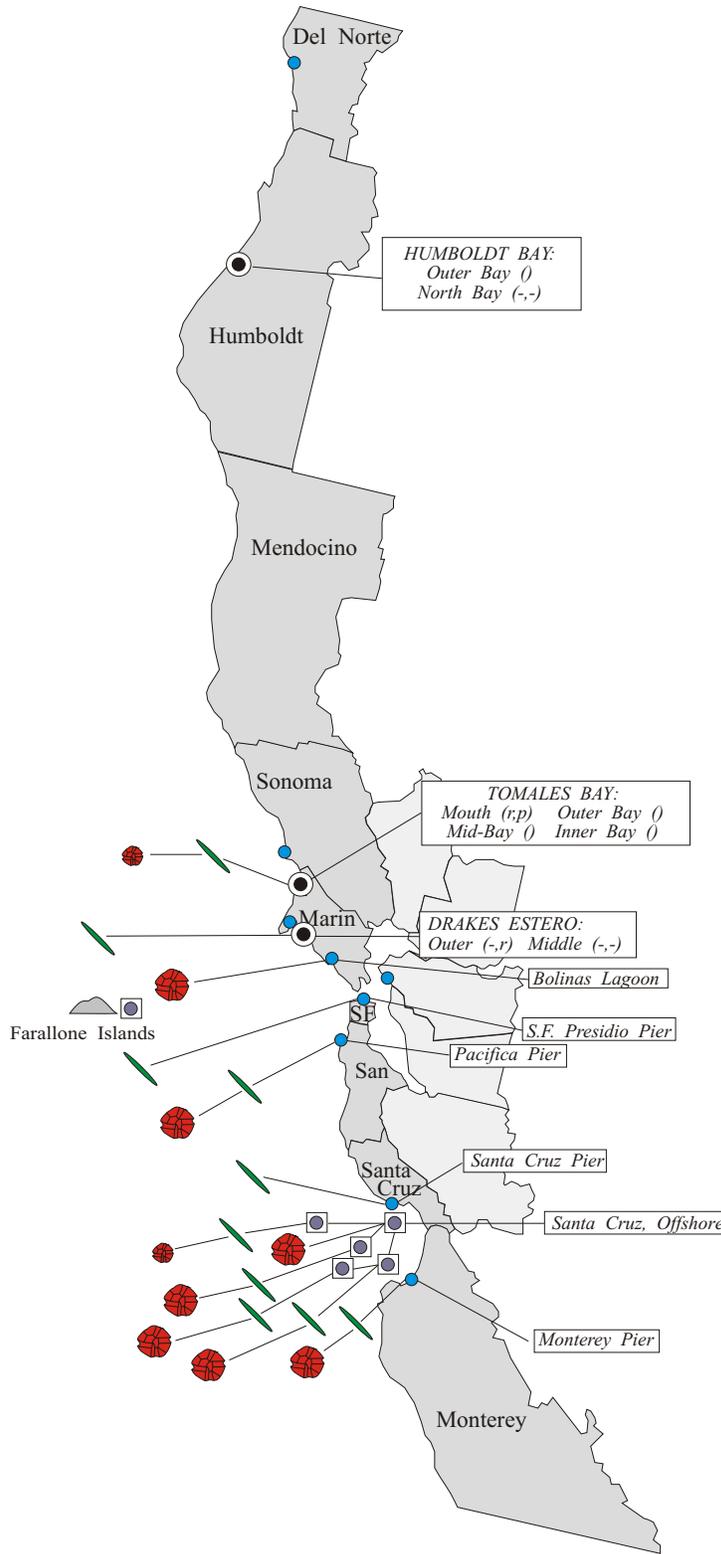
Alexandrium Species	Pseudo-nitzschia Species
 Rare (less than 1%)	 Present (less than 10%)
 Present (between 1% and 10%)	 Common (between 10% and 50%)
 Common (between 10% and 50%)	 Abundant (greater than 50%)
 Abundant (greater than 50%)	

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 2. Distribution of toxin-producing phytoplankton in Northern California during January, 2006.



(Continued from Page 1)

observed in low numbers in a January 30 sample from Scripps Pier in San Diego County. Interestingly, this was the only location where *Alexandrium* was observed in December as well.

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

Domoic Acid

Pseudo-nitzschia was observed at several sites along the Southern California coast in January (Figure 1). The distribution of this diatom was similar to observations in December, however the relative abundance increased noticeably at several locations. Increased numbers of *Pseudo-nitzschia* were observed at sites along the coast of San Luis Obispo, Santa Barbara, Los Angeles (offshore of Palos Verdes), and San Diego counties. This diatom also increased in abundance offshore near Santa Rosa Island.

Non-toxic Species

The Southern California coast contained a mix of dinoflagellate and diatoms species, with each group dominant at several locations. The diatoms *Chaetoceros*, *Skeletonema*, and *Coscinodiscus* were common at sites in San Luis Obispo, Santa

(Continued on Page 3)

Relative Abundance of Known Toxin Producers

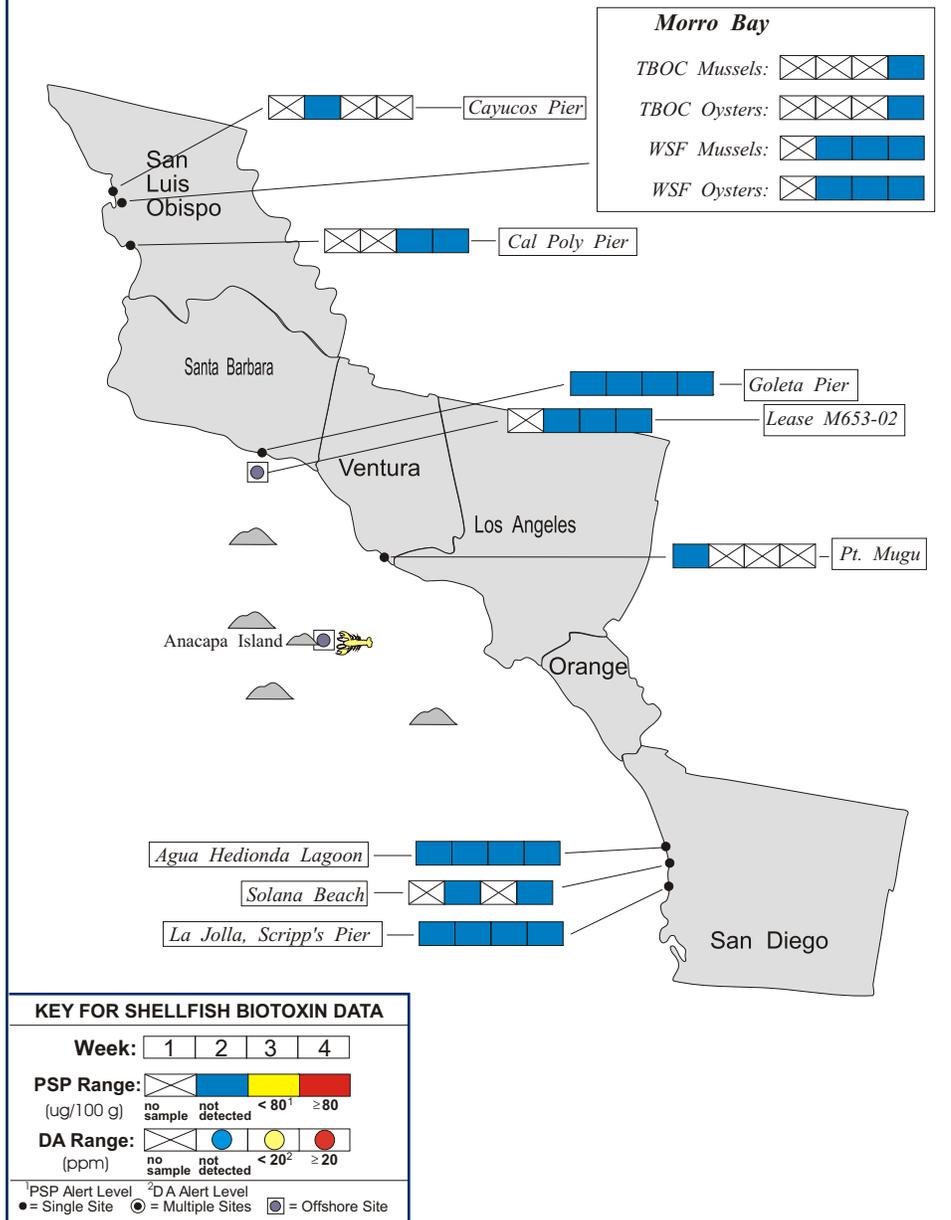
Alexandrium Species		Pseudo-nitzschia Species	
	Rare (less than 1%)		Present (between 1% and 10%)
	Present (between 1% and 10%)		Common (between 10% and 50%)
	Common (between 10% and 50%)		Abundant (greater than 50%)
	Abundant (greater than 50%)		

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, 2006.



(Continued from Page 2)

Barbara, and San Diego counties. The dinoflagellates *Gymnodinium*, *Ceratium*, and *Lingulodinium* were common at sites in Santa Barbara, Ventura, Los Angeles, and San Diego counties. *Cochlodinium* was common inside Morro Bay (January 4) and at San Clemente Pier (January 26).

Northern California Summary:

Paralytic Shellfish Poisoning

Alexandrium was observed at numerous locations along the Northern California coast during January (Figure 2). The distribution was similar to observations in December, however the relative abundance increased south of San Francisco at Pacifica Pier (January 25) and in Monterey Bay. Samples collected by the Marine Mammal Center of Marin, in cooperation with the Wind to Whales program at U.C. Santa Cruz, detected this toxic dinoflagellate at five different sampling locations in Monterey Bay.

Despite the presence of *Alexandrium* in Monterey Bay, PSP toxins were not detected in any shellfish samples at a nearshore monitoring station at the Santa Cruz Pier. PSP toxins were detected in Drakes Estero (Marin County) by the last

(Continued on Page 4)

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

(Continued from Page 3)

week of January, exceeding the alert level in sentinel mussels in the main channel. This period was characterized by persistent rains with detritus and very few phytoplankton cells observed in samples from this area.

Domoic Acid

Pseudo-nitzschia was observed at several sampling stations along the Northern California coast in January (Figure 2). The distribution and relative abundance of *Pseudo-nitzschia* declined slightly compared to observations in December.

Non-toxic Species

Diatoms (*Chaetoceros*, *Skeletonema*, *Biddulphia*, *Thalassiosira*) dominated offshore sites near the Farallone Islands and in Monterey Bay and were also common at some nearshore sites. A mix of diatoms and dinoflagellates (*Ceratium*, *Prorocentrum*) were common at other locations.



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

(Continued on Page 5)

Figure 4. Distribution of shellfish biotoxins in Northern California during January, 2006.

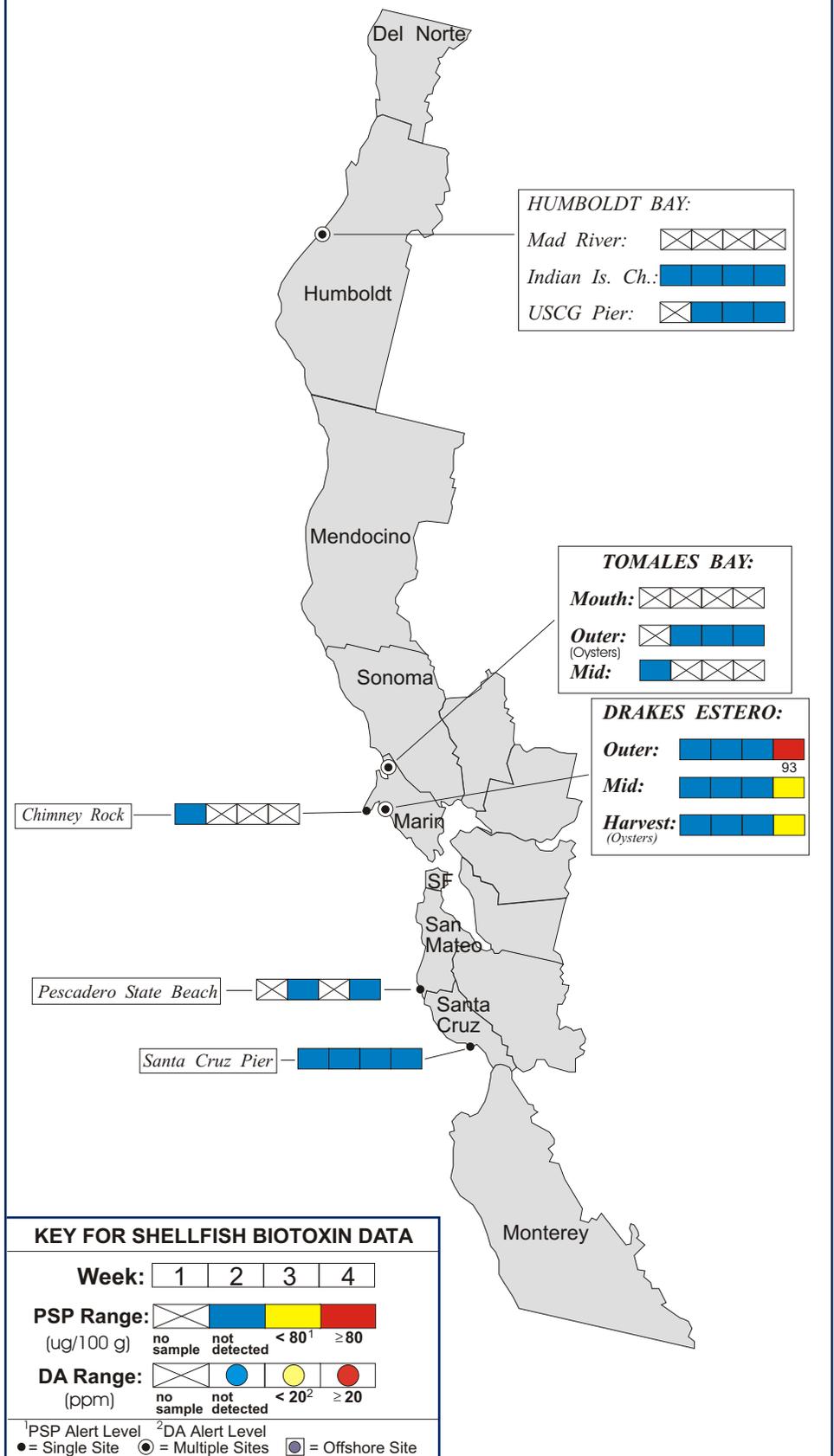


Table 1. California Marine Biotoxin Monitoring Program participants submitting shellfish samples during January, 2006.

COUNTY	AGENCY	# SAMPLES
Del Norte	None Submitted	
Humboldt	Coast Seafood Company	8
Mendocino	None Submitted	
Sonoma	None Submitted	
Marin	Cove Mussel Company	1
	Hog Island Oyster Company	4
	Drakes Bay Oyster Company	20
	Marin Oyster Company	1
San Francisco	None Submitted	
San Mateo	San Mateo County Environmental Health Department	2
Santa Cruz	U.C. Santa Cruz	4
Monterey	None Submitted	
San Luis Obispo	Williams Shellfish Company	8
	Tomales Bay Oyster Company	2
	California Polytechnic State University	2
	DHS Volunteer (Otto Schmidt)	1
Santa Barbara	Santa Barbara Mariculture Company	6
	U.C. Santa Barbara	4
Ventura	DHS Volunteer (Bill Weinerh)	2
	Naval Air Station	1
Los Angeles	None Submitted	
Orange	None Submitted	
San Diego	Carlsbad Aquafarms, Inc.	4
	DHS Volunteer (Paul Sims)	2
	Scripps Institute of Oceanography	5

(Continued from Page 4)

sport-harvested mussels along the entire California coastline, including all bays and estuaries. Routine biotoxin monitoring is maintained throughout this period. The annual quarantine does not affect the certified commercial shellfish growing areas in California. All commercial shellfish growers certified by the State of California are required to submit routine samples for biotoxin analysis, allowing us to closely monitor for the occurrence of any toxin. Harvesting closures are imposed if toxin levels reach the federal alert level.

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.

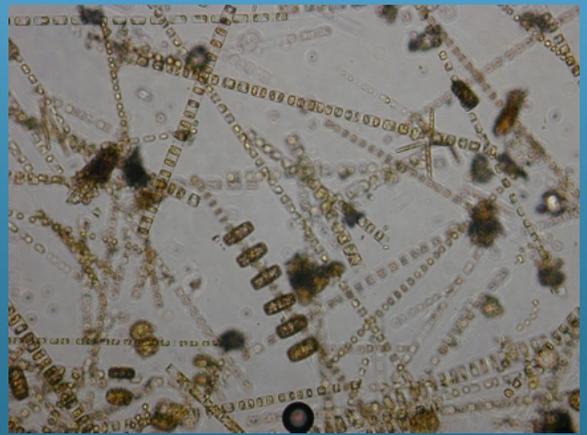
Consumers are also advised that cooking does not eliminate the toxins from the shellfish tissue. Sport harvesters are encouraged to contact the "Biotoxin Information Line" at 1-800-553-4133 for a current update on marine biotoxin activity prior to gathering and consuming shellfish.



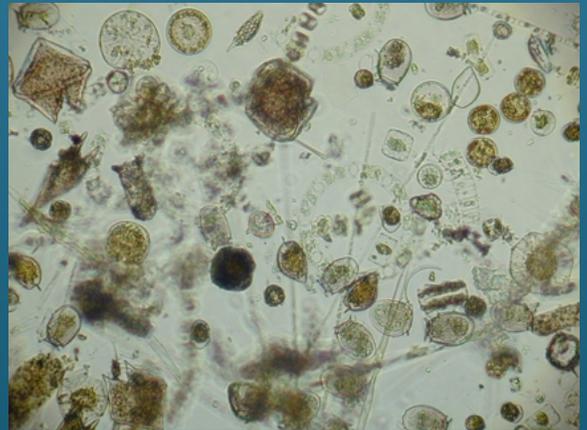
Table 2. Agencies, organizations and volunteers participating in marine phytoplankton sample collection during January, 2006.

COUNTY	AGENCY	# SAMPLES
Del Norte	Del Norte County Health Department	1
Humboldt	Coast Seafood Company	5
Mendocino	None Submitted	
Sonoma	None Submitted	
Marin	DHS Volunteers (Brent Anderson, Mary Von Tolksdorf, Cal Strobel)	7
	Drakes Bay Oyster Company	10
Contra Costa	None Submitted	1
San Francisco	DHS Volunteer (Eugenia McNaughbn)	2
	Gulf of the Farallones National Marine Sanctuary	1
San Mateo	San Mateo County Environmental Health Department	2
Santa Cruz	U.C Santa Cruz	3
	The Marine Mammal Center	5
Monterey	DHS Volunteer (Jerry Norton)	1
San Luis Obispo	DHS Volunteers (Renee and Auburn Atkins)	2
	Morro Bay National Estuary Program	2
	California Polytechnic State University	2
Santa Barbara	U.C. Santa Barbara	4
	Santa Barbara Mariculture Company	4
	National Park Service	2
Ventura	DHS Volunteer (Fred Burgess)	4
	National Park Service	4
Los Angeles	Los Angeles County Sanitation District	2
	Catalina Island Marine Institute	2
Orange	DHS Volunteer (Debbie Karimoto)	1
San Diego	Scripps Institute of Oceanography	4
	DHS Volunteer (Paul Sims)	2

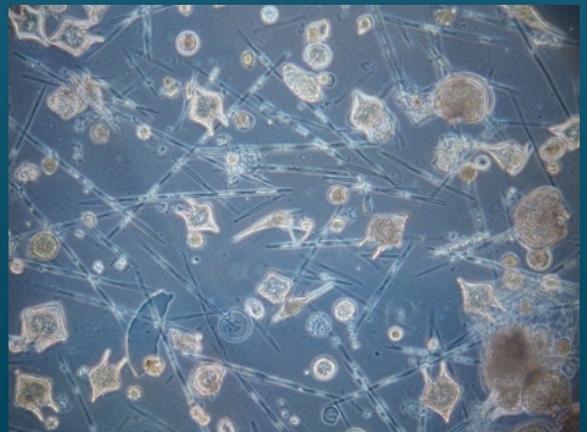
PHYTOPLANKTON GALLERY



A mix of diatom species occurred along the California coast in January.



A diversity of diatom and dinoflagellate species was observed at numerous sites.



Pseudo-nitzschia increased at a number of sites in January and co-occurred with a variety of other species.