

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 March 2005

Technical Report No. 05-11

INTRODUCTION:

This report provides a summary of biotoxin activity for the month of March 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.

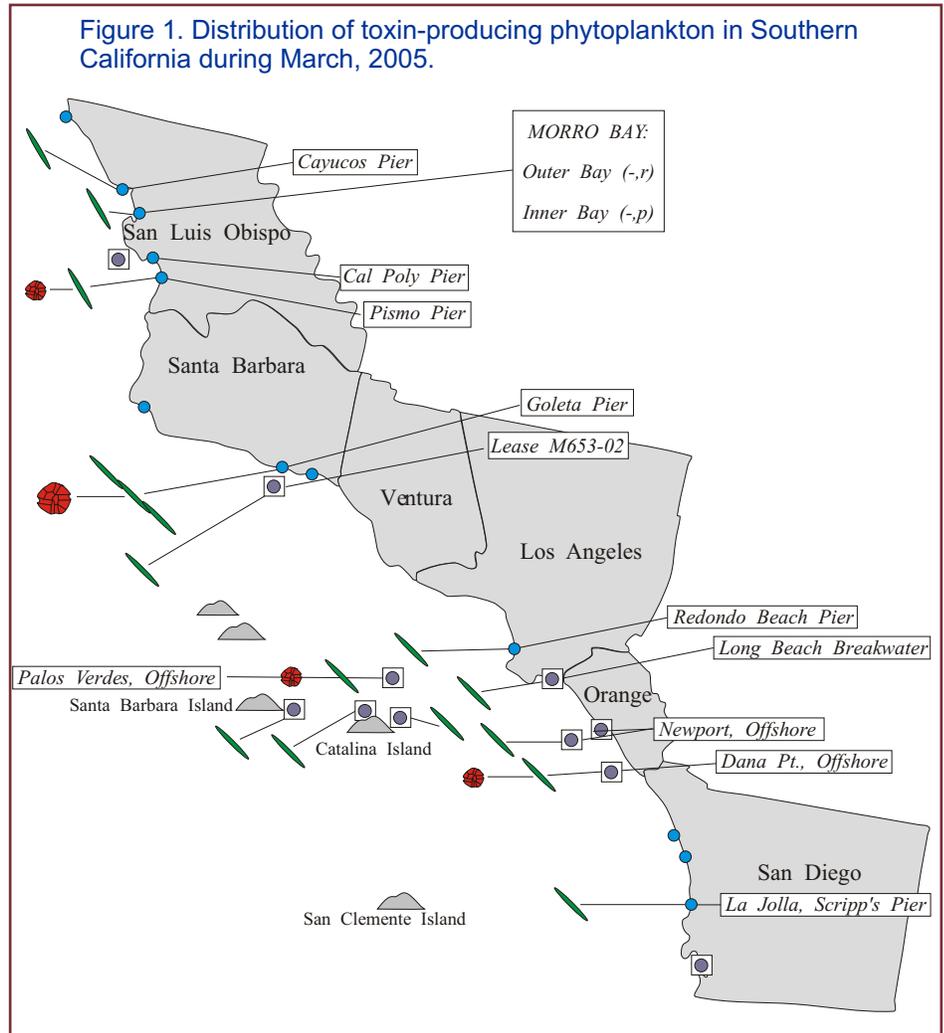
Please note the following conventions for the phytoplankton and shellfish biotoxin distribution maps: (i) All estimates for phytoplankton relative abundance are qualitative, based on sampling effort and percent composition; (ii) All toxin data are for mussel samples, unless otherwise noted; (iii) All 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 several sampling stations during March (Figure 1). The distribution of this toxin-producing

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Relative Abundance of Known Toxin Producers

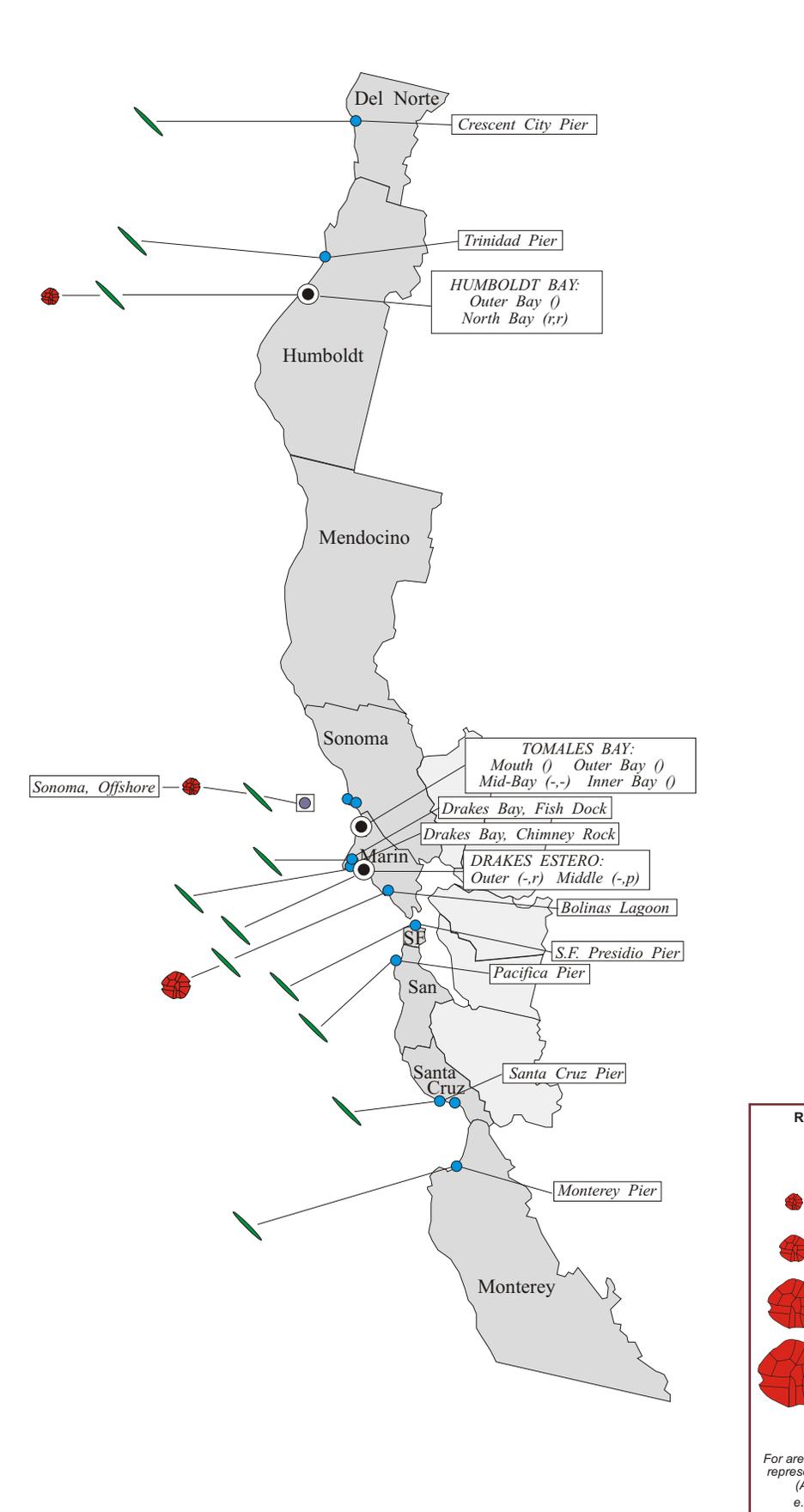
Alexandrium Species	Pseudo-nitzschia Species
 Rare (less than 1%)	 Present (less than 10%)
 Present (between 1% and 10%)	 Common (between 10% and 50%)
 Common (between 10% and 50%)	 Abundant (greater than 50%)
 Abundant (greater than 50%)	

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 March, 2005.



(Continued from Page 1)

dinoflagellate was similar to observations in February, being detected at sites in San Luis Obispo, Santa Barbara, Los Angeles, and Orange counties.

The elevated levels of PSP toxins detected in late February at sites in San Luis Obispo County declined by the beginning of March. A low concentration of these toxins was detected in the viscera of lobster caught near Anacapa Island on March 12.

Domoic Acid

Pseudo-nitzschia was observed at sites along the entire Southern California coast in March (Figure 1). This distribution was similar to that observed in February. The relative abundance of this diatom increased at the Goleta Pier (Santa Barbara County) sampling site.

Non-toxic Species

Phytoplankton diversity and cell density remained low as a result of winter storm conditions. Species diversity and relative abundance was low at all sites. Of those species present, the diatoms *Bacteriastrium* and *Chaetoceros* were most common.

Northern California Summary:

Paralytic Shellfish Poisoning

Alexandrium distribution and relative

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Relative Abundance of Known Toxin Producers

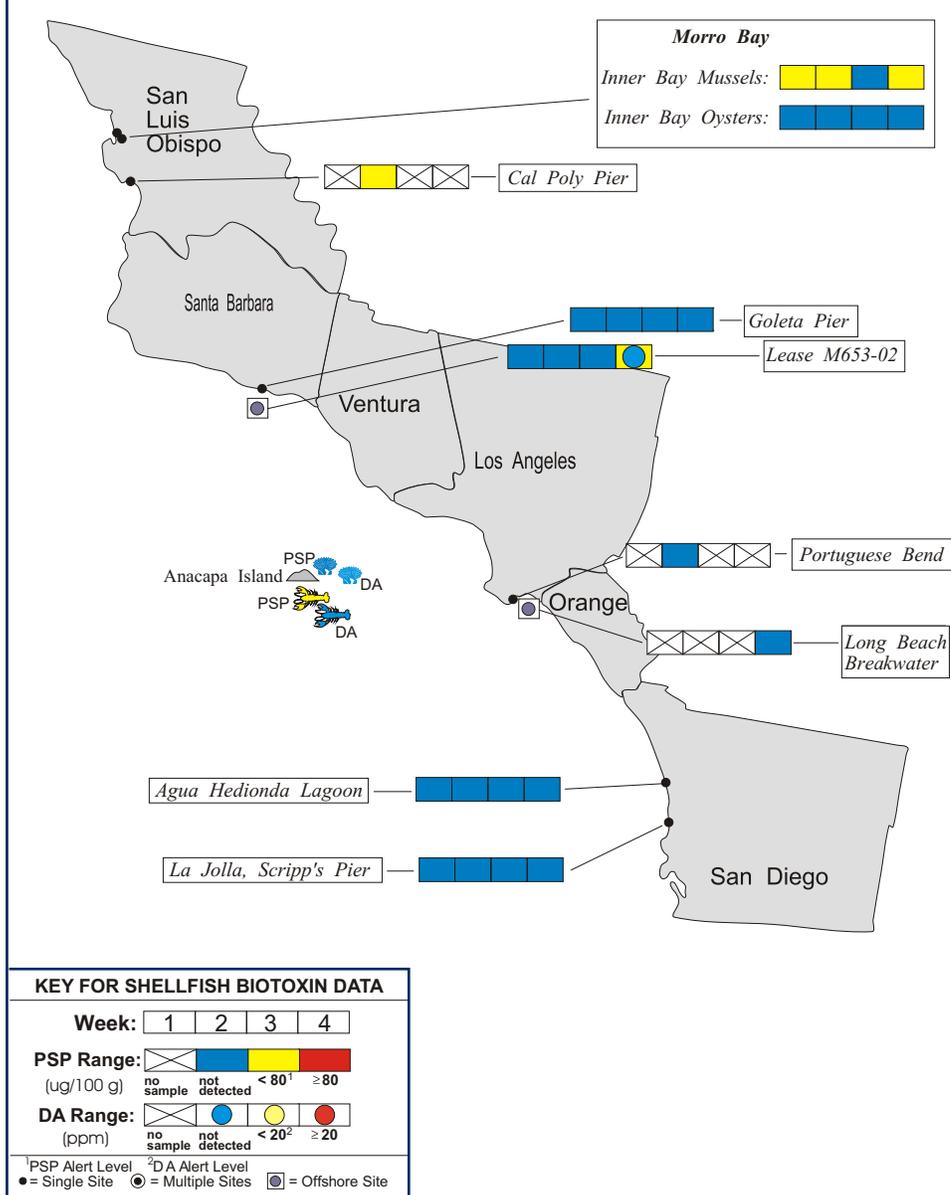
Alexandrium Species		Pseudo-nitzschia Species	
	Rare (less than 1%)		Present (between 1% and 10%)
	Present (between 1% and 10%)		Common (between 10% and 50%)
	Common (between 10% and 50%)		Abundant (greater than 50%)
	Abundant (greater than 50%)		

MONTHLY SAMPLING STATIONS:

- Single Sampling Station
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- 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 March, 2005.



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abundance were greatly reduced from observations in February. Low numbers of this dinoflagellate were detected at sites in Humboldt, Sonoma, and Marin counties (Figure 2).

Low concentrations of PSP toxins were detected at locations in Marin and Santa Cruz counties (Figure 4). The previous persistent low levels of these toxins at the Santa Cruz pier finally disappeared by the beginning of March.

Domoic Acid

Pseudo-nitzschia was observed along most of the Northern California coast in March (Figure 2). The relative abundance of this diatom decreased significantly at sites from Marin through Santa Cruz counties relative to observations in February.

Non-toxic Species

Phytoplankton diversity and abundance remained very low throughout March due to winter storm activity. Diatoms were occasionally observed in low numbers and included *Chaetoceros* and *Biddulphia*.



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

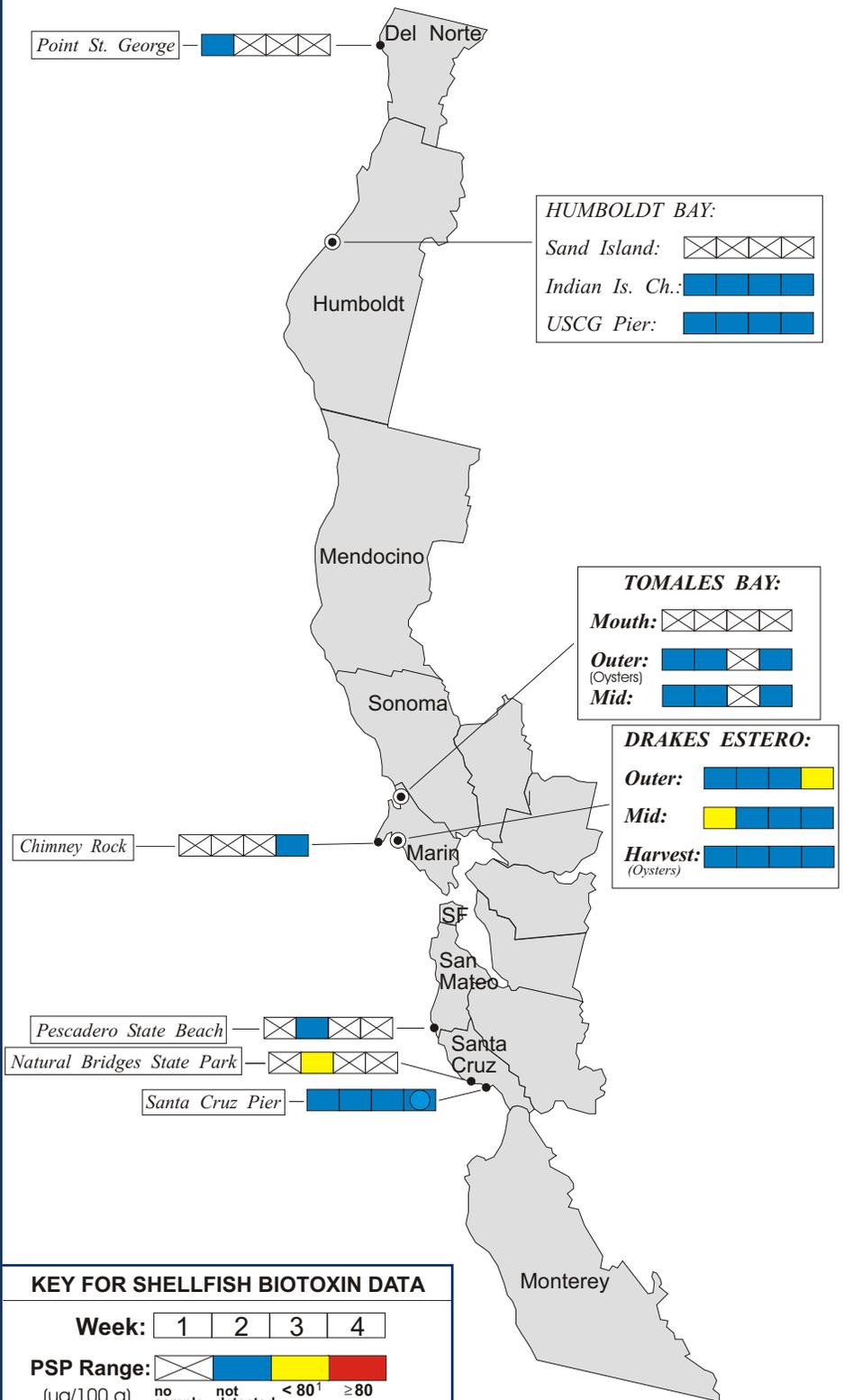
For Recorded Biotoxin Information Call:
 (800) 553 - 4133

QUARANTINES:

The health advisory issued on June 10 remained in effect. This advisory warned consumers to avoid eating sport-harvested shellfish from Humboldt and Del Norte counties and was the result of dangerous levels of domoic acid in razor clams collected from this region. Some shellfish species such as mussels may eliminate the toxin relatively quickly once the toxin-producing diatoms are gone. Razor clams, however, retain the toxin in the edible tissue for considerable periods of time and represent a unique public health threat.

The annual quarantine on the sport-harvesting of mussels is scheduled to go into effect on May 1 and will continue through October 31. The annual mussel quarantine applies only to sport-harvested mussels along the entire California coastline, including all bays and estuaries. Routine biotoxin monitoring is maintained throughout this period. If elevated levels of the PSP toxins or domoic acid are detected in mussels then additional species may be added to the monitoring effort. If toxin levels increase quickly then additional health advisories will be issued for all shellfish species in the affected region. 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 stringent monitoring for the occurrence of any toxin. Harvesting closures are imposed if toxin

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



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Table 1. California Marine Biotoxin Monitoring Program participants submitting shellfish samples during March, 2005.

COUNTY	AGENCY	# SAMPLES
Del Norte	Del Norte County Health Department	1
Humboldt	Coast Seafood Company	8
Mendocino	None Submitted	
Sonoma	None Submitted	
Marin	Cove Mussel Company	3
	Hog Island Oyster Company	3
	Johnson Oyster Company	20
	Marin Oyster Company	1
	DHS Marine Biotoxin Monitoring Program	1
San Francisco	None Submitted	
San Mateo	San Mateo County Environmental Health Department	1
Santa Cruz	U.C. Santa Cruz	5
	Santa Cruz County Environmental Health Department	1
Monterey	None Submitted	
San Luis Obispo	Williams Shellfish Company	8
	U.C. Santa Barbara Marine Science Institute	1
Santa Barbara	Santa Barbara Mariculture Company	10
	U.C. Santa Barbara Marine Science Institute	5
Ventura	CDHS Volunteer (Bill Weinerth)	2
Los Angeles	Aquarium of the Pacific Long Beach	1
	Los Angeles County Health Department	1
Orange	None Submitted	
San Diego	Carlsbad Aquafarms, Inc.	4
	Scripps Institute of Oceanography	5

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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 domoic acid in the edible white meat. High levels of toxicity can linger in razor clams for very long periods of time.

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 or (510) 412-4643 for a current update on marine biotoxin activity prior to gathering and consuming shellfish.



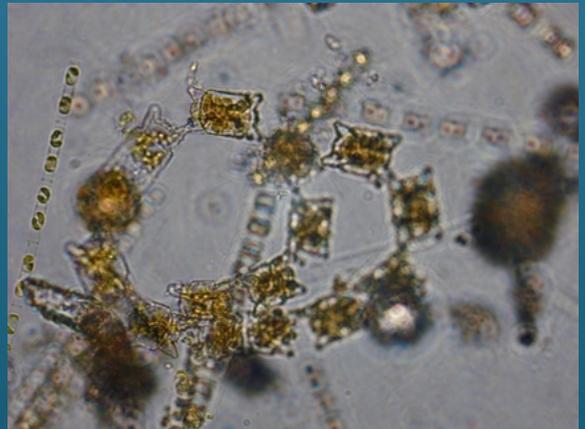
Table 2. Agencies, organizations and volunteers participating in marine phytoplankton sample collection during March, 2005.

COUNTY	AGENCY	# SAMPLES
Del Norte	Del Norte County Health Department	4
Humboldt	Coast Seafood Company	4
	DHS Volunteer (Jacki Riley)	1
Mendocino	None Submitted	
Sonoma	Cordell Banks National Marine Sanctuary	1
Marin	CDHS Volunteers (Brent Anderson, Mary Von Tölkendorf, Marjorie Siegel)	5
	Tomales Bay Association	1
	DHS Marine Biotoxin Monitoring Program	1
	Johnson Oyster Company	8
Contra Costa	DHS Marine Biotoxin Monitoring Program	1
San Francisco	CDHS Volunteer (Eugenia McNaughton)	2
San Mateo	San Mateo County Environmental Health Department	1
Santa Cruz	U.C Santa Cruz	4
	Santa Cruz County Environmental Health Department	2
Monterey	CDHS Volunteer (Jerry Norton)	1
San Luis Obispo	CDHS Volunteers (Reree and Auburn Atkins, Bill Schwebel)	3
	Morro Bay National Estuary Program	2
	DHS Marine Biotoxin Monitoring Program	2
	Morro Bay Natural History Museum	1
Santa Barbara	U.C. Santa Barbara Marine Science Institute	2
	Santa Barbara Mariculture Company	5
	Catalina Tall Ships Expeditions	1
Ventura	None Submitted	
Los Angeles	University of Southern California	2
	Los Angeles County Sanitation District	3
	Catalina Tall Ships Expeditions	8
	Aquarium of the Pacific Long Beach	1
Orange	Ocean Institute	1
	CDHS Volunteer (Dennis Kelly)	1
San Diego	CDHS Volunteer (Paul Sims)	1
	Scripps Institute of Oceanography	4

PHYTOPLANKTON GALLERY



The diatom Chaetoceros was observed in low numbers along the California coast.



Chains of the diatom Biddulphia were observed in low numbers at some sites along the Northern California coast.



Another example of the diatom Biddulphia, observed in Del Norte County.