

# 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 2004

Technical Report No. 04-13

## INTRODUCTION:

This report provides a summary of biotoxin activity for the month of February 2004. 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.

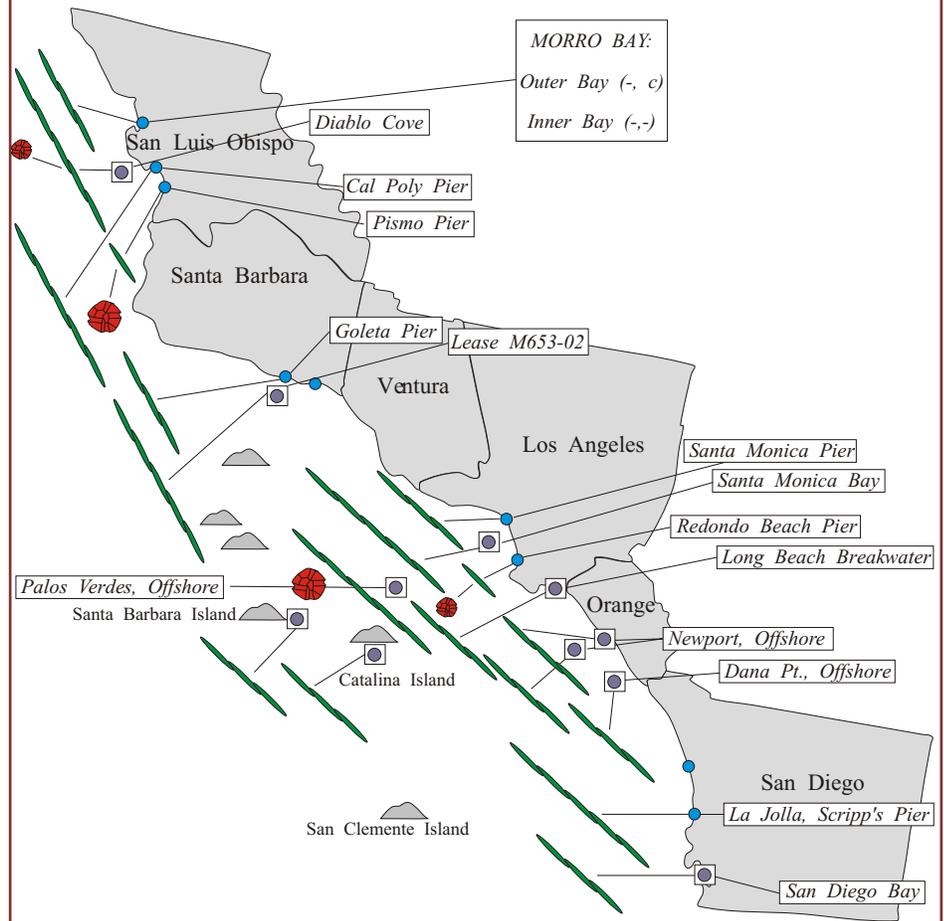
### Southern California Summary:

#### Paralytic Shellfish Poisoning

*Alexandrium* distribution increased slightly in February compared to observations in January (Figure 1). This dinoflagellate species

(Continued on Page 2)

Figure 1. Distribution of toxin-producing phytoplankton in Southern California during February, 2004.



### 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

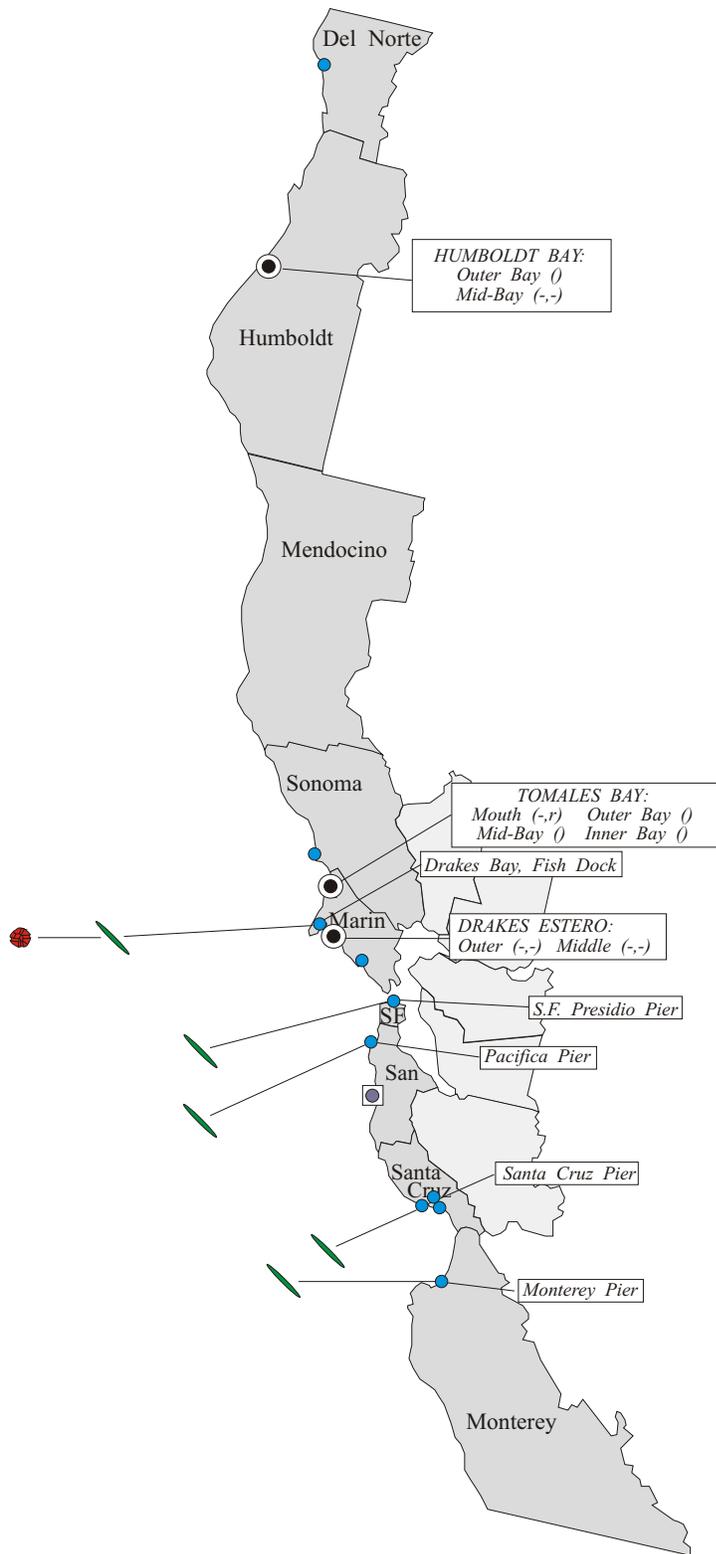
- Present (less than 10%)
- Common (between 10% and 50%)
- Abundant (greater than 50%)

#### 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

Figure 2. Distribution of toxin-producing phytoplankton in Northern California during February, 2004.



(Continued from Page 1)

continued to be observed along the San Luis Obispo coast. In addition *Alexandrium* was observed at the end of the month in samples from Redondo Beach and offshore of Palos Verdes in Los Angeles County.

Low concentrations of PSP toxins were detected in mussels and oysters from Morro Bay. Low levels of these toxins also continued to be detected in mussels from the sentinel station at the Cal Poly Pier in Avila. PSP toxins were not detected in shellfish samples from Los Angeles County, however samples were not available from the two locations where *Alexandrium* was observed.

**Domoic Acid**

*Pseudo-nitzschia* was observed along the entire Southern California coast during February. The relative abundance of *Pseudo-nitzschia* increased slightly at sites along the San Luis Obispo and Santa Barbara coastline. The most dramatic increase in this toxin-producing diatom occurred at sites from Los Angeles through San Diego counties. (Figure 1). The highest relative abundance was observed offshore of Diablo Cove (San Luis Obispo County) during the first two weeks of February.

The majority of shellfish samples analyzed in February did not contain a detectable level of

(Continued on Page 3)

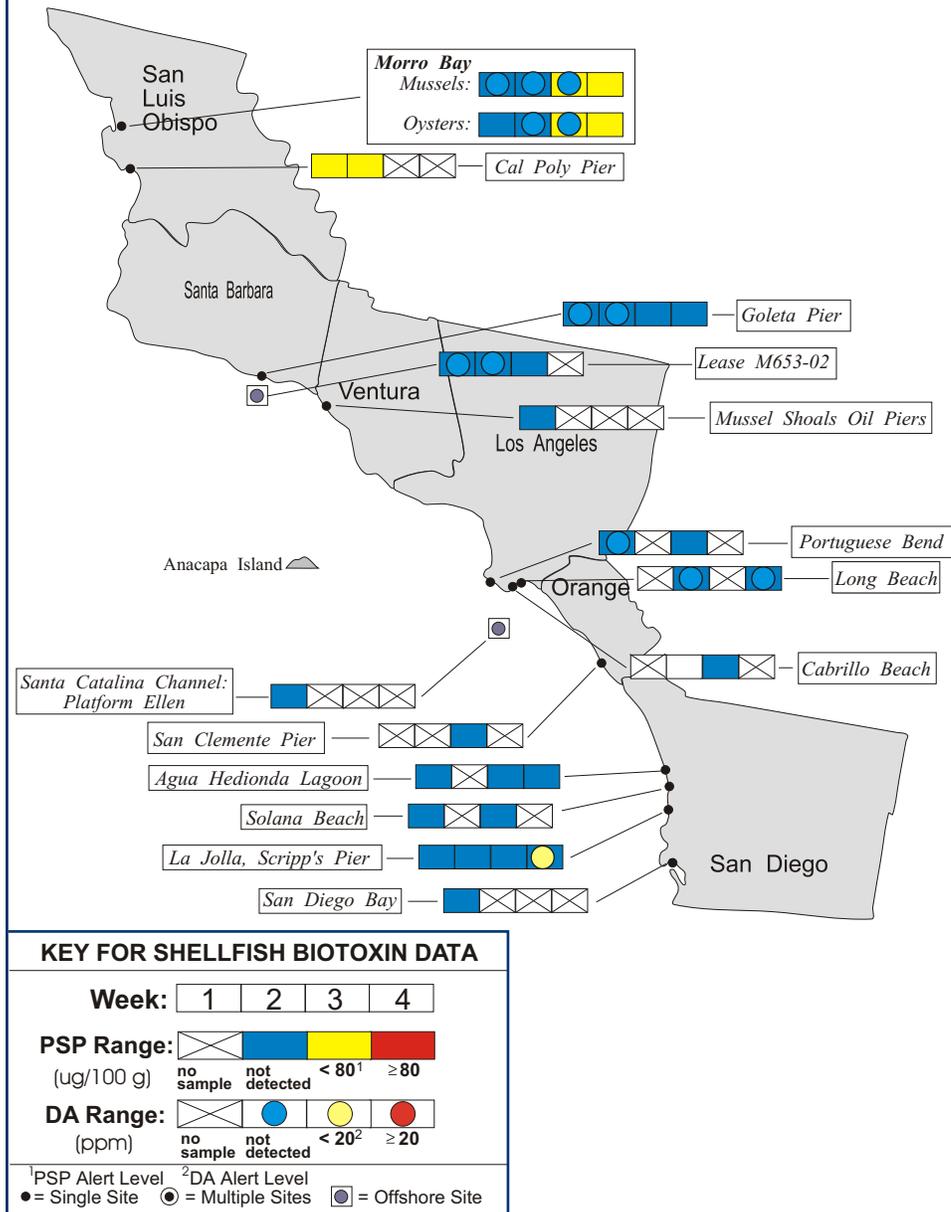
**Relative Abundance of Known Toxin Producers**

Alexandrium Species	Pseudo-nitzschia Species
<ul style="list-style-type: none"> <li> Rare (less than 1%)</li> <li> Present (between 1% and 10%)</li> <li> Common (between 10% and 50%)</li> <li> Abundant (greater than 50%)</li> </ul>	<ul style="list-style-type: none"> <li> Present (between 1% and 10%)</li> <li> Common (between 10% and 50%)</li> <li> Abundant (greater than 50%)</li> </ul>

**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 February, 2004.



(Continued from Page 2)

domoic acid (Figure 3). A low concentration (5.8 ppm) of domoic acid was detected in a shellfish sample from Scripps Pier (San Diego County) on February 25.

**Environmental Reports**

The California Marine Mammal Stranding Network<sup>1</sup> reported seven adult California sea lion strandings over the weekend of February 14 that appeared to be related to domoic acid. The stranding sites ranged from Los Angeles through Orange counties.

On February 28 Reuters news agency reported the stranding of 128 seals, nine dolphins, and nine pelicans in San Jorge Bay in the Sea of Cortez. A plausible explanation for the deaths was not reported.

**Nontoxic Events**

The phytoplankton assemblage along the Southern California coast consisted of a variety of diatoms (*Chaetoceros*, *Coscinodiscus*) and dinoflagellates (*Ceratium furca*, *Gymnodinium sanguineum*, *Protoperidinium spp.*, and *Lingulodinium polyedrum*). Samples from offshore (Palos Verdes, Catalina Island) contained a greater diversity of

(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)

species.

**Northern California Summary:**

**Paralytic Shellfish Poisoning**

The distribution of *Alexandrium* was further reduced in February, with only one observation along the Northern California coast. A small number of this dinoflagellate was observed in a sample collected in Drakes Bay on February 11.

PSP toxins were only detected in one sample along the Northern California coast in February. Mussels from Natural Bridges State Park (Santa Cruz County) contained 40 ug per 100 g of tissue on February 18 (Figure 4).

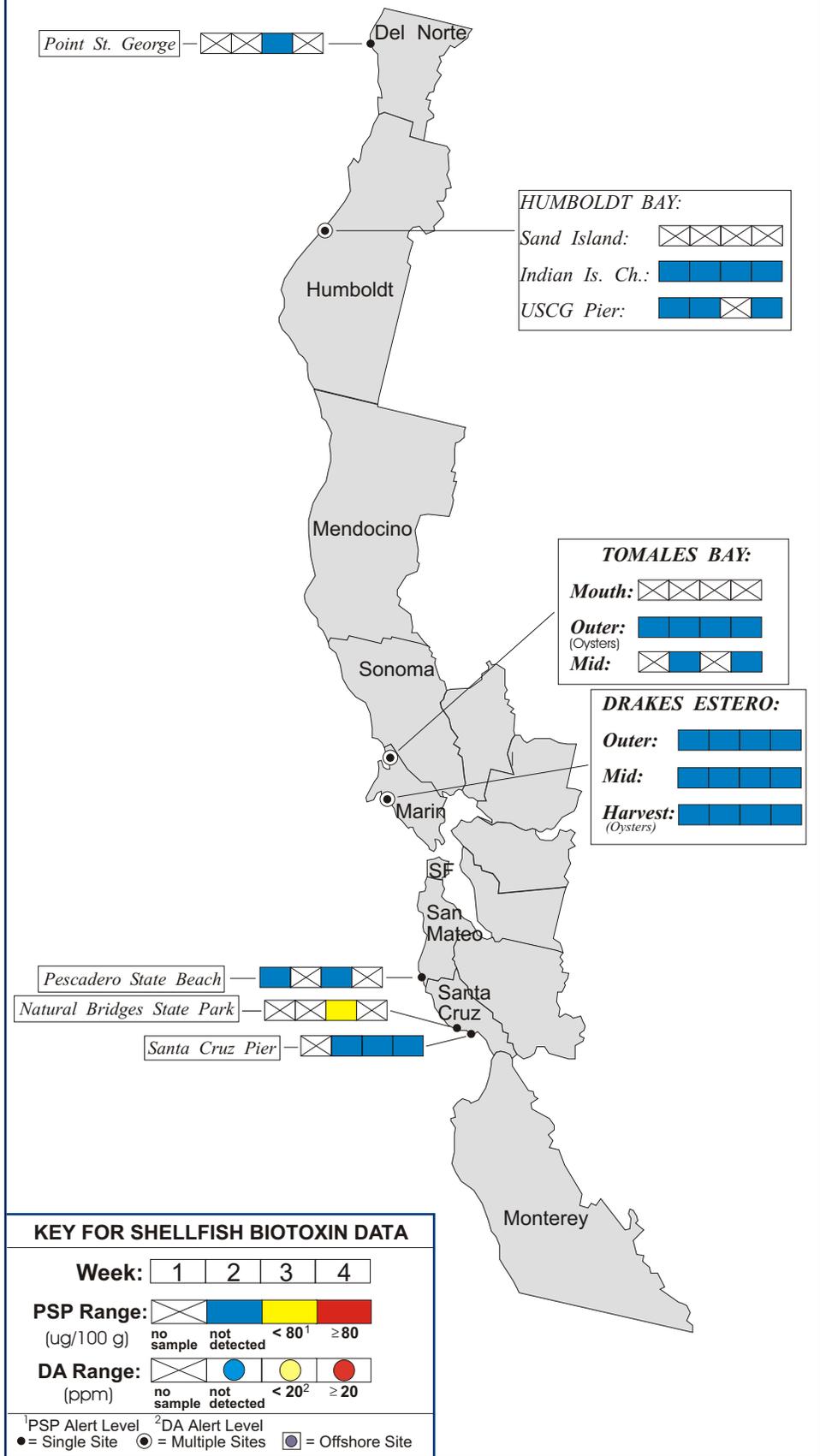
**Domoic Acid**

*Pseudo-nitzschia* distribution and relative abundance remained very similar to January's observations. Low numbers of this diatom were observed at several sites from Marin through Monterey counties (Figure 2).

**Nontoxic Events**

Diatoms dominated the phytoplankton assemblage along the Northern California coast in February. A greater diversity of genera was evident compared to January's observations, and included *Chaetoceros*, *Skeletonema*, *Coscinodiscus*, *Thalassionema*, *Thalassiosira*, *Biddulphia* and *Ditylum*. Cell mass remained low along the coast however.

Figure 4. Distribution of shellfish biotoxins in Northern California during February, 2004.



<sup>1</sup> U.S. Department of Commerce, NOAA/National Marine Fisheries Service, Southwest Region, California Marine Mammal Stranding Network database.



Table 1. California Marine Biotoxin Monitoring Program participants submitting shellfish samples during February, 2004.

COUNTY	AGENCY	# SAMPLES
<b>Del Norte</b>	Del Norte County Health Department	1
<b>Humboldt</b>	Coast Seafood Company	7
<b>Mendocino</b>	None Submitted	
<b>Sonoma</b>	None Submitted	
<b>Marin</b>	Hog Island Oyster Company	4
	Johnson Oyster Company	16
	Marin Oyster Company	2
	Cove Mussel Company	2
<b>San Francisco</b>	None Submitted	
<b>San Mateo</b>	San Mateo County Environmental Health Department	2
<b>Santa Cruz</b>	U.C. Santa Cruz	4
	Santa Cruz County Environmental Health Department	1
<b>Monterey</b>	None Submitted	
<b>San Luis Obispo</b>	Williams Shellfish Company	8
	U.C. Santa Barbara Marine Science Institute	2
<b>Santa Barbara</b>	Santa Barbara Mariculture Company	3
	U.C. Santa Barbara Marine Science Institute	4
<b>Ventura</b>	Ventura County Environmental Health Department	1
<b>Los Angeles</b>	Los Angeles County Health Department	3
	Aquarium of the Pacific Long Beach	3
<b>Orange</b>	Ecomar, Inc.	1
	Orange County Health Care Agency	1
<b>San Diego</b>	Carlsbad Aquafarms, Inc.	3
	Scripps Institute for Oceanography	4
	U.S. Navy	1
	CDHS Marine Biotoxin Program Volunteer (Paul Sims)	2

### QUARANTINES:

There were no special quarantines or health advisories issued in February. The annual quarantine on the sport-harvesting of mussels normally goes into effect each year on May 1st and ends at midnight on October 31st. This annual quarantine applies only to sport-harvested mussels along the entire California coastline, including all bays and estuaries. This quarantine does not affect the 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. Persons taking any clams or scallops are advised to remove and discard the dark parts (i.e., the digestive organs or viscera).

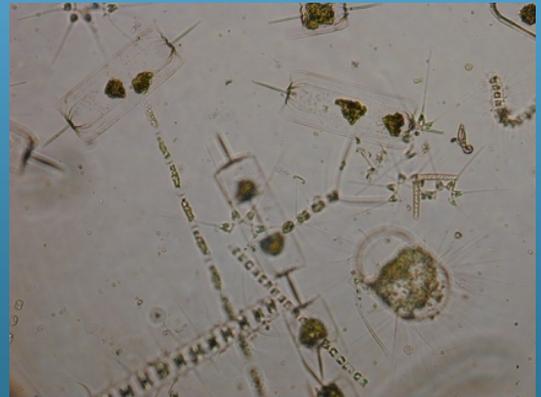
Contact the Department's "Shellfish Information Line" at 1-800-553-4133 or (510) 412-4643 for a current update on marine biotoxin activity.



Table 2. Agencies, organizations and volunteers participating in marine phytoplankton sample collection during February, 2004.

COUNTY	AGENCY	# SAMPLES
Del Norte	Del Norte County Health Department	1
Humboldt	Coast Seafood Company	4
Mendocino	None Submitted	
Sonoma	None Submitted	
Marin	CDHS Volunteers (Brent Anderson, Marjorie Siegel, Mary Von Tolksdorf)	5
	Johnson Oyster Company	8
Contra Costa	None Submitted	
San Francisco	CDHS Volunteer (Eugenia McNaughton)	3
	Gulf of the Farallones National Marine Sanctuary	1
San Mateo	San Mateo County Environmental Health Department	2
	CDHS Volunteer (Sandy Emerson)	1
Santa Cruz	Santa Cruz Environmental Health Department	2
	San Lorenzo Valley High School	1
Monterey	CDHS Volunteer (Jerry Norbn)	2
San Luis Obispo	CDHS Volunteers (Rene and Auburn Atkins, Bill Schwebel)	4
	Morro Bay National Estuary Program	2
	Tenera Environmental	3
	U.C. Santa Barbara Marine Science Institute	2
Santa Barbara	U.C. Santa Barbara Marine Science Institute	4
	Santa Barbara Mariculture Company	2
	Santa Barbara City College	1
Ventura	None Submitted	
Los Angeles	Aquarium of the Pacific Long Beach	2
	City of Los Angeles Environmental Monitoring Division	3
	Los Angeles County Sanitation District	4
	Los Angeles County Health Department	2
	Catalina Tall Ships Expeditions	4
Orange	Orange County Sanitation District	4
	Ocean Institute	1
San Diego	San Diego County Environmental Health Department	1
	CDHS Volunteer (Paul Sims)	3
	Scripps Institute for Oceanography	4

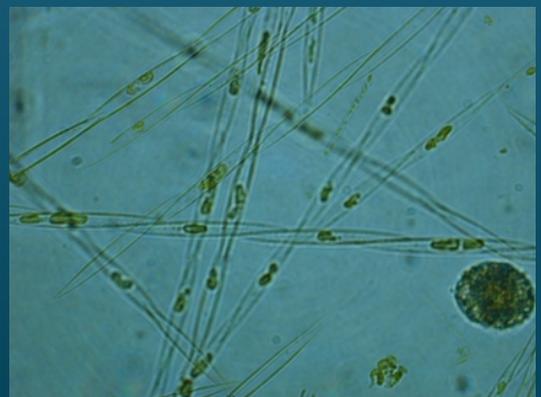
## PHYTOPLANKTON GALLERY



A variety of diatom species were observed along the California coast in February.



A number of *Biddulphia* species were present along the coast in February, including *B. longicuris* shown above.



*Pseudo-nitzschia* numbers began increasing at many Southern California sites in February.