

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

May 2004

Technical Report No. 04-17

INTRODUCTION:

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

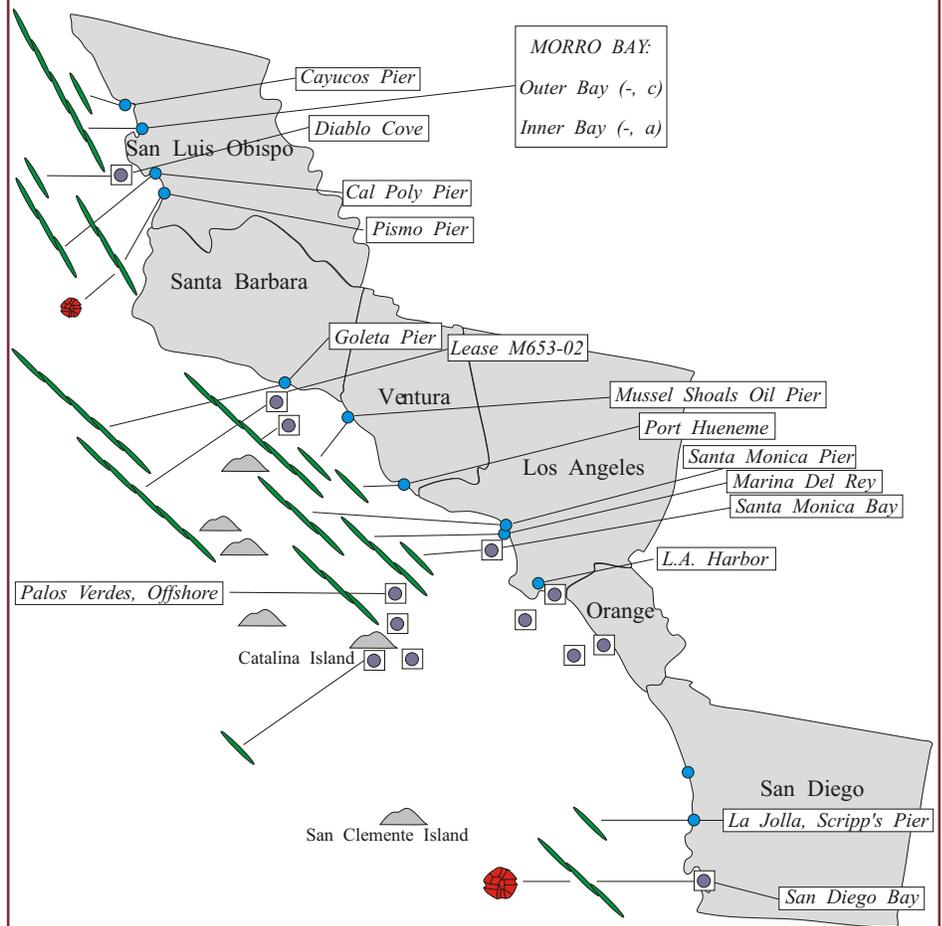
Southern California Summary:

Paralytic Shellfish Poisoning

Alexandrium distribution declined at most Southern California sites in May compared to observations in April (Figure 1). However the

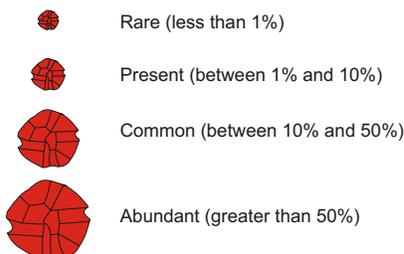
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Figure 1. Distribution of toxin-producing phytoplankton in Southern California during May, 2004.

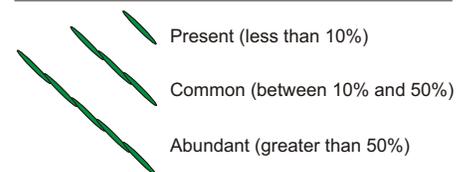


Relative Abundance of Known Toxin Producers

Alexandrium Species



Pseudo-nitzschia Species

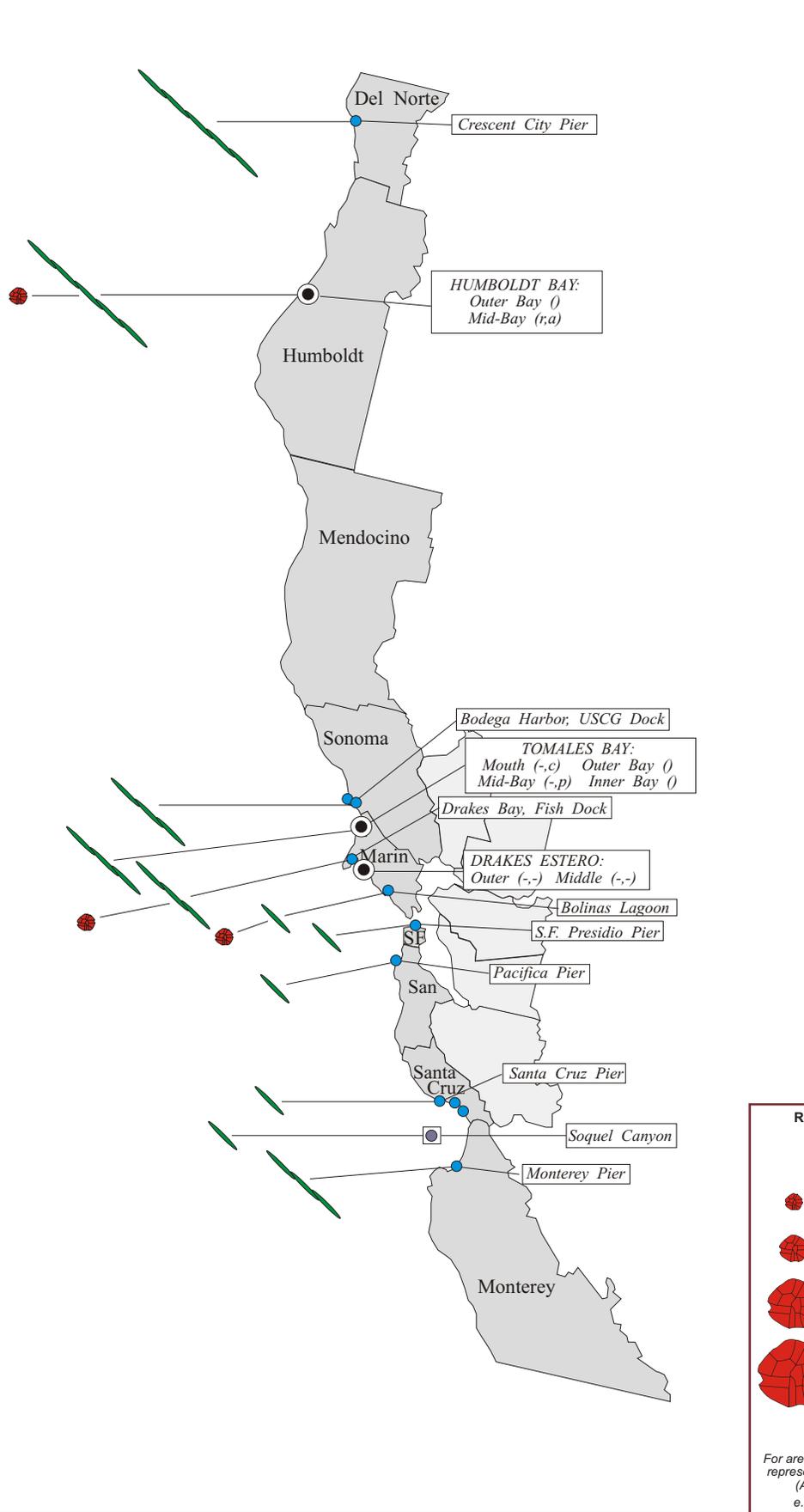


MONTHLY SAMPLING STATIONS:

- 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 May, 2004.



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relative abundance of this dinoflagellate species increased inside San Diego Bay.

Low concentrations of PSP toxins were detected in mussels from offshore of Santa Barbara, in rock scallop viscera from the Long Beach breakwater, and in mussels from San Diego Bay (Figure 3).

Domoic Acid

Pseudo-nitzschia was observed along the entire Southern California coast during May. The high relative abundance of *Pseudo-nitzschia* observed in April continued through the beginning of May, declining to very low levels in most areas by mid-month (Figure 1). The relative abundance of this diatom did increase, however, at several locations along the San Luis Obispo coast.

The low levels of domoic acid detected in Santa Barbara County at the end of April increased above the alert level by the first week of May. Mussels from an offshore oil platform contained 27 ppm of domoic acid and oysters from an aquaculture lease less than one mile offshore contained 23 ppm. Lower levels of this toxin were also detected in mussels onshore at Goleta Pier and further downcoast at sites in Ventura and Los Angeles counties.

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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 (between 1% and 10%)
- Common (between 10% and 50%)
- Abundant (greater than 50%)

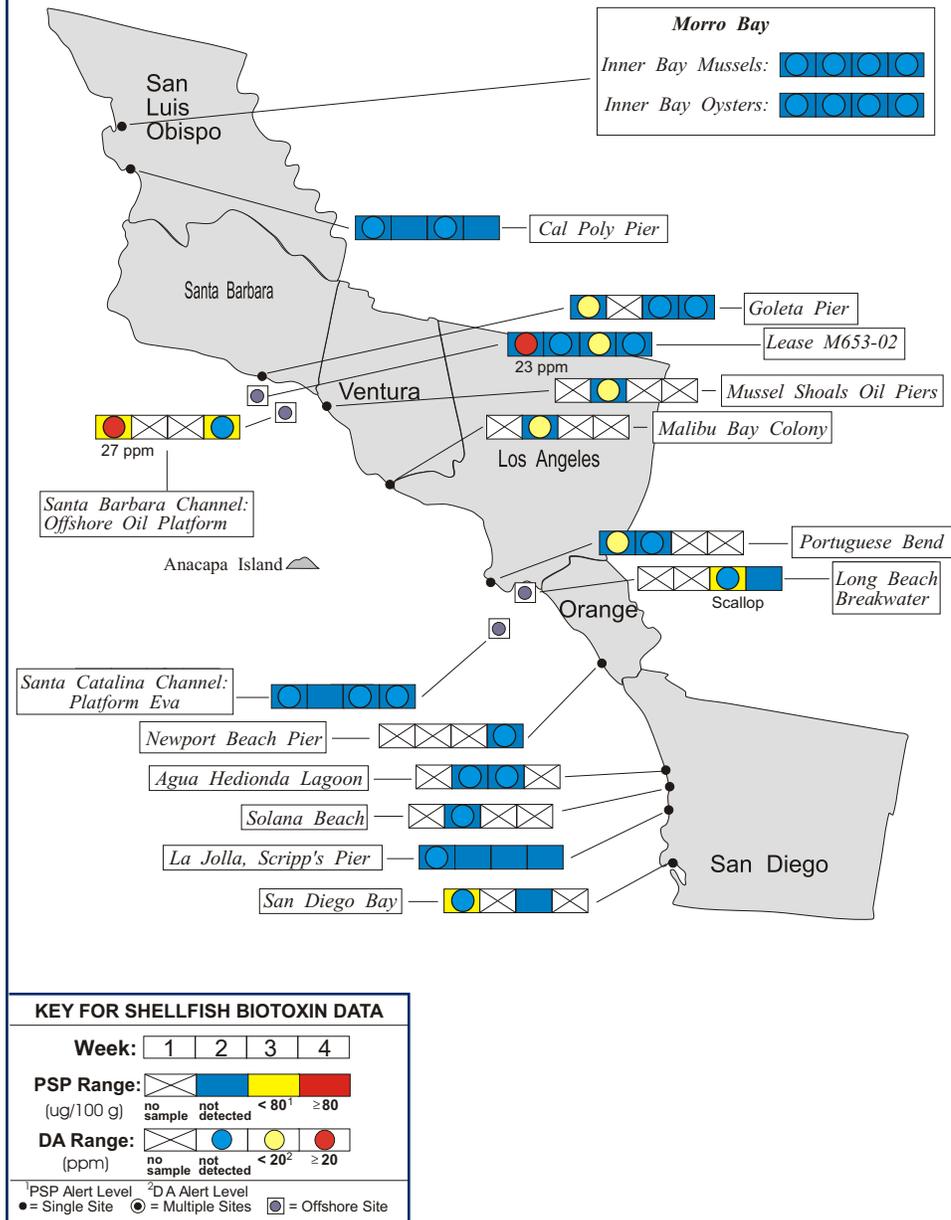
MONTHLY SAMPLING STATIONS:

- 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 3. Distribution of shellfish biotoxins in Southern California during May, 2004.



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Northern California Summary:

Paralytic Shellfish Poisoning

Alexandrium increased slightly in May compared to observations in April. Low numbers of this dinoflagellate occurred in Humboldt Bay, Drakes Bay, and Bolinas Lagoon (Figure 2). PSP toxins were detected in sentinel mussels from inside Humboldt Bay during the last two weeks of May.

Domoic Acid

Pseudo-nitzschia distribution and relative abundance increased at several locations north of San Francisco but decreased at locations south of the Golden Gate (Figure 2). The greatest increases in this diatom were observed at Crescent City (Del Norte County) and inside Humboldt Bay.

Increasing numbers of this diatom were observed in Humboldt Bay by the end of the month.

A low level of domoic acid (8 ppm) was detected in mussels from Point St. George (Del Norte County) on May 19 and the toxin level in razor clams from just north of this site exceeded the alert level, reaching 33 ppm on May 20. A low

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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

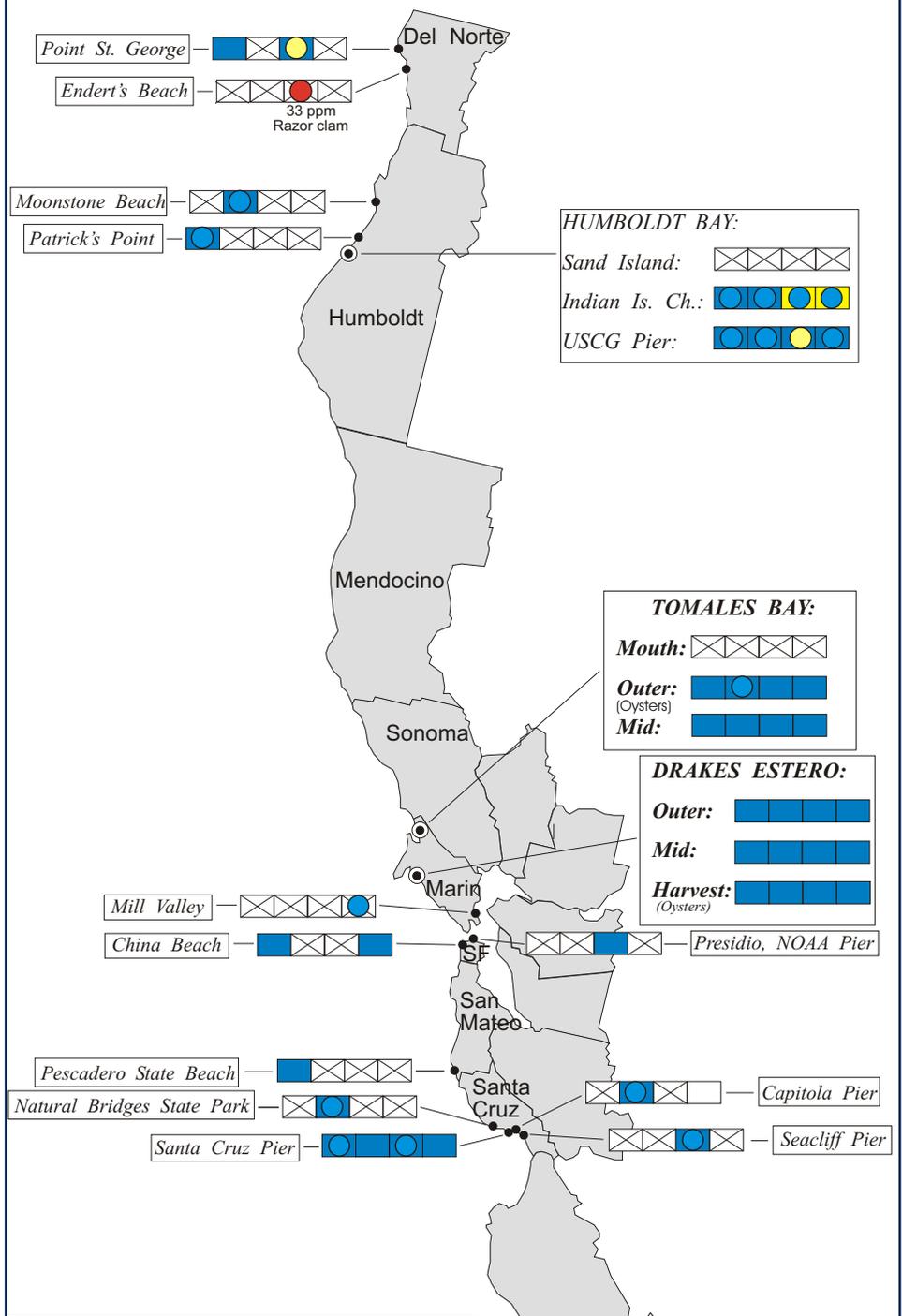
For Recorded Biotoxin Information Call:
 (800) 553-4133

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concentration of domoic acid (4 ppm) was also detected in sentinel mussels from Humboldt Bay on May 18.



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



QUARANTINES:

On May 7 the State Health Director issued a health advisory for Monterey Bay, warning consumers to avoid eating sport-harvested sardines, anchovies, or the viscera of crab and lobster from this region, which incorporates portions of Santa Cruz and Monterey counties. This advisory was the result of increasing levels of domoic acid in these finfish species from this region.

KEY FOR SHELLFISH BIOTOXIN DATA

Week: 1 2 3 4

PSP Range: [X][Blue][Yellow][Red]
 (ug/100 g) no sample not detected < 80¹ ≥ 80

DA Range: [X][Blue][Yellow][Red]
 (ppm) no sample not detected < 20² ≥ 20

¹PSP Alert Level ²DA Alert Level
 ● = Single Site ● = Multiple Sites ◐ = Offshore Site

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

COUNTY	AGENCY	# SAMPLES
Del Norte	Del Norte County Health Department	2
	CDHS Marine Biotoxin Program Volunteer (Jim Waldsvogel)	1
Humboldt	Coast Seafood Company	8
	Humboldt County Environmental Health Department	2
Mendocino	None Submitted	
Sonoma	None Submitted	
Marin	Hog Island Oyster Company	5
	Johnson Oyster Company	16
	Marin Oyster Company	3
	Cove Mussel Company	4
	CDHS Marine Biotoxin Program Volunteer (Majorie Siegal)	1
San Francisco	San Francisco County Health Department	2
San Mateo	San Mateo County Environmental Health Department	1
Santa Cruz	U.C. Santa Cruz	4
	Santa Cruz County Environmental Health Department	3
Monterey	CDHS Marine Biotoxin Program Volunteer (Art Seavey)	1
San Luis Obispo	Williams Shellfish Company	10
	U.C. Santa Barbara Marine Science Institute	4
Santa Barbara	Santa Barbara Mariculture Company	8
	U.C. Santa Barbara Marine Science Institute	6
	Vanderberg Air Force Base	1
Ventura	Ventura County Environmental Health Department	2
Los Angeles	Los Angeles County Health Department	2
	Aquarium of the Pacific Long Beach	5
Orange	CDHS Marine Biotoxin Program Volunteer (Mike Fennessey)	1
	Ecomar, Inc.	6
San Diego	Carlsbad Aquafarms, Inc.	2
	Scripps Institute for Oceanography	4
	U.S. Navy	1
	CDHS Marine Biotoxin Program Volunteer (Paul Sims)	1

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The annual quarantine on the sport-harvesting of mussels went into effect on April 23, one week ahead of the normal May 1 start date. This action was taken as a result of elevated levels of domoic acid in Santa Cruz County and, subsequently, along the Santa Barbara coast.

On April 30 an additional health advisory was issued for Ventura, Los Angeles, and Orange counties. This advisory warned the public to avoid eating any species of sport-harvested bivalve shellfish, as well as sardines, anchovies, or the viscera of sport-harvested or commercially sold lobster and crab. This action was taken because elevated levels of domoic acid had been detected in this region.

The annual mussel quarantine, which normally is in effect through October 31, 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 "Biotoxin Information Line" at 1-800-553-4133 or (510) 412-4643 for a current update on marine biotoxin activity.



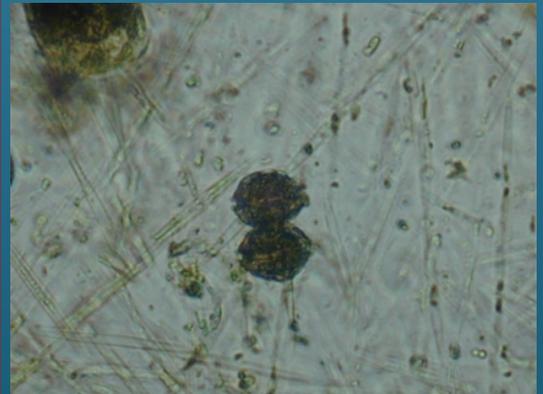
Table 2. Agencies, organizations and volunteers participating in marine phytoplankton sample collection during May, 2004.

COUNTY	AGENCY	# SAMPLES
Del Norte	Del Norte County Health Department	2
Humboldt	Coast Seafood Company	4
Mendocino	None Submitted	
Sonoma	Bodega Marine Lab	1
	CDHS Volunteer (CatHeen Camon)	1
Marin	CDHS Volunteers (Bret Anderson, Richard Plant, Marjorie Siegel, Mary Von Tolksdorf)	11
	Johnson Oyster Company	8
Contra Costa	None Submitted	
San Francisco	CDHS Volunteer (Eugeria Mcnaughton)	3
San Mateo	San Mateo County Environmental Health Department	2
Santa Cruz	Santa Cruz Environmental Health Department	3
Monterey	CDHS Volunteer (Jerry Norbn)	2
	Pacific Cetacean Group	1
San Luis Obispo	CDHS Volunteers (Reree and Auburn Atkins)	4
	Morro Bay National Estuary Program	3
	Tenera Environmental	1
	U.C. Santa Barbara Marine Science Institute	4
	Morro Bay Natural History Museum	2
Santa Barbara	U.C. Santa Barbara Marine Science Institute	6
	Santa Barbara Mariculture Company	5
Ventura	Ventura County Environmental Health Department	2
Los Angeles	Catalina Tall Ships Expeditions	6
	Catalina Island Marine Institute	1
	Aquarium of the Pacific, Long Beach	2
	Los Angeles County Sanitation District	4
	Los Angeles County Health Department	12
	City of Los Angeles Environmental Monitoring Division	3
	CDHS Volunteer (Richard Weaver)	1
Orange	Orange County Sanitation District	3
San Diego	San Diego County Environmental Health Department	2
	CDHS Volunteer (Paul Sims, Randy Dick)	3
	Scripps Institute for Oceanography	4

PHYTOPLANKTON GALLERY



Pseudo-nitzschia increased dramatically in Del Norte County, resulting in dangerous levels of domoic acid in razor clams.



A small number of *Alexandrium* were observed along with an increasing concentration of *Pseudo-nitzschia* inside Humboldt Bay.



A variety of diatoms and dinoflagellates were observed along the San Luis Obispo coast in May.