

# 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

October 2005

Technical Report No. 05-23

## INTRODUCTION:

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

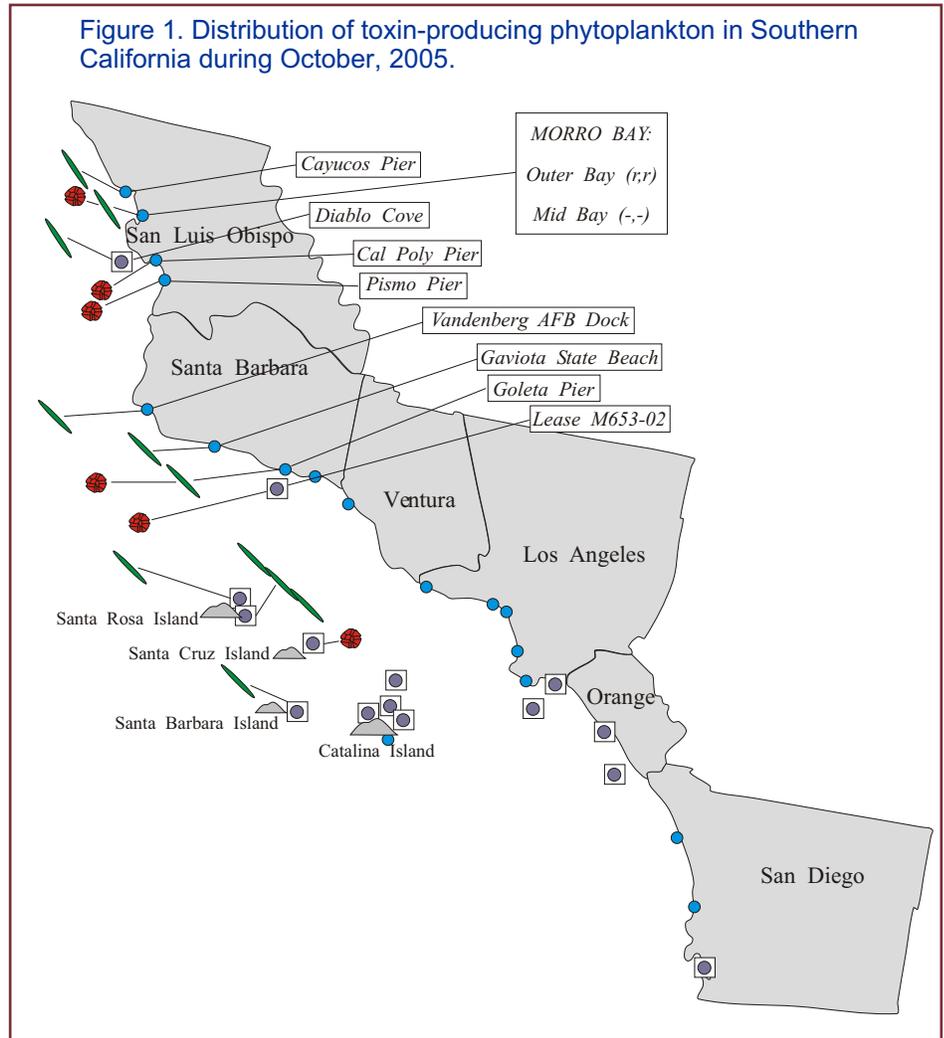
### Southern California Summary:

#### Paralytic Shellfish Poisoning

*Alexandrium* was observed at several Southern California sites during October (Figure 1). The distribution of this toxin-

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Figure 1. Distribution of toxin-producing phytoplankton in Southern California during October, 2005.



### Relative Abundance of Known Toxin Producers

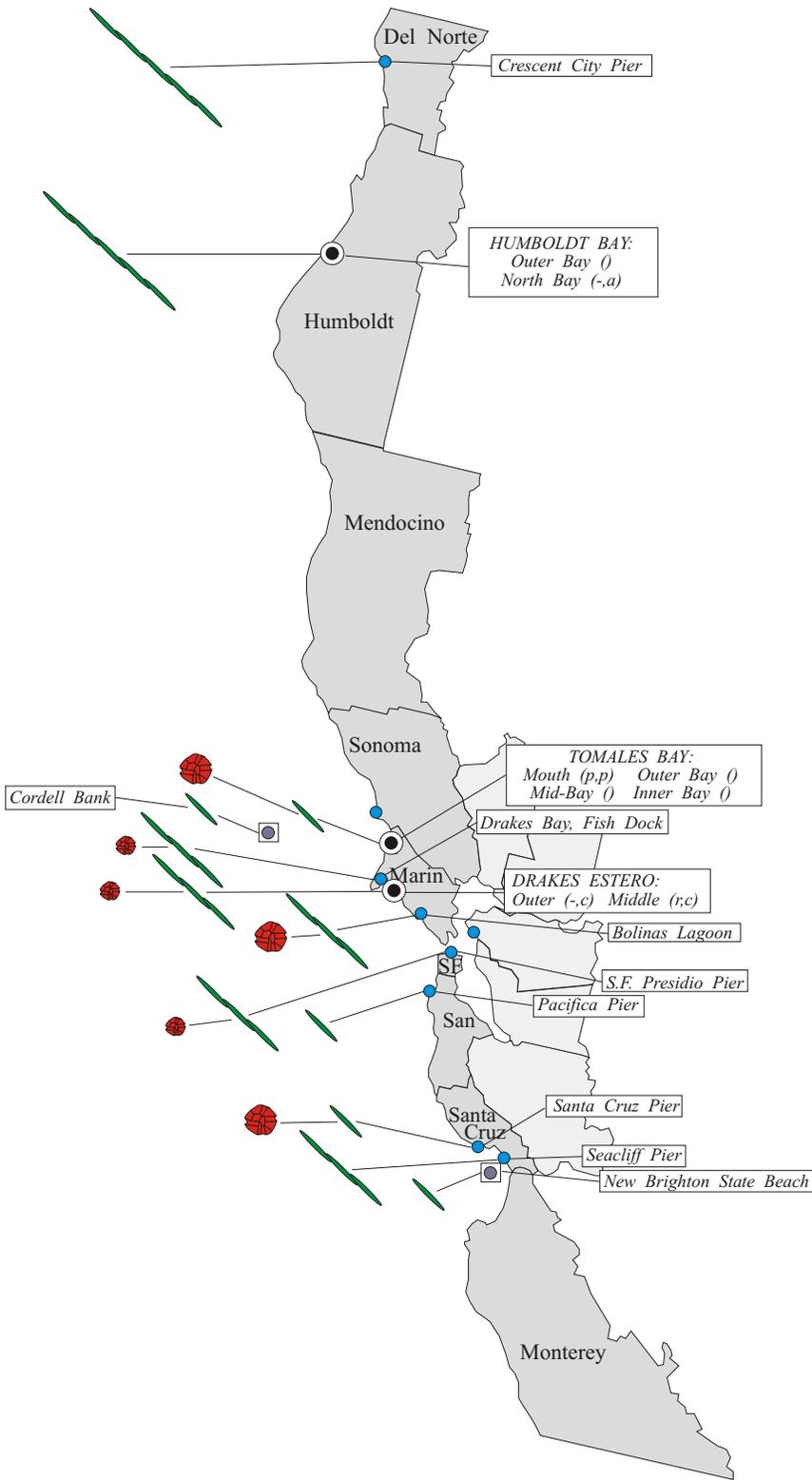
Alexandrium Species	Pseudo-nitzschia Species
 Rare (less than 1%)	 Present (less than 10%)
 Present (between 1% and 10%)	 Common (between 10% and 50%)
 Common (between 10% and 50%)	 Abundant (greater than 50%)
 Abundant (greater than 50%)	

#### 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 October, 2005.



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producing dinoflagellate increased slightly compared to observations in September, although the relative abundance remained the same or declined slightly. Low numbers of *Alexandrium* were observed at sites from San Luis Obispo through Santa Barbara, as well as offshore near Santa Cruz Island.

Low concentrations of PSP toxins were detected at sampling sites in San Luis Obispo and Santa Barbara counties (Figure 3). There was a slight increasing trend in concentrations detected in mussels from Morro Bay, reaching 70 ug by October 30. A mussel sample collected from Vandenberg (Santa Barbara County) on October 1 contained 123 ug of PSP toxins.

**Domoic Acid**

*Pseudo-nitzschia* was observed at several sites along the coast from San Luis Obispo County southward through Santa Barbara and at offshore sites around the Channel Islands (Figure 1). The relative abundance of this diatom decreased at most locations in October. Increased numbers of this diatom were observed offshore of Santa Rosa Island by October 4, decreasing by the end of the month.

High concentrations of domoic acid were detected in lobster viscera samples from

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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





Table 1. California Marine Biotoxin Monitoring Program participants submitting shellfish samples during October, 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	4
	Hog Island Oyster Company	6
	Johnson Oyster Company	20
	Marin Oyster Company	3
	DHS Marine Biotoxin Monitoring Program	4
San Francisco	None Submitted	
San Mateo	San Mateo County Environmental Health Department	1
Santa Cruz	U.C. Santa Cruz	4
Monterey	None Submitted	
San Luis Obispo	Williams Shellfish Company	10
	Tomales Bay Oyster Company	6
	California Polytechnic State University	3
Santa Barbara	Santa Barbara Mariculture Company	8
	U.C. Santa Barbara	4
	Vanderberg AFB	1
Ventura	Ventura County Environmental Health Department	1
	DHS Volunteer (Bill Weinerth)	4
	National Park Service	5
Los Angeles	Los Angeles County Health Department	2
	Aquarium of the Pacific, Long Beach	2
Orange	None Submitted	
San Diego	Carlsbad Aquafarms, Inc.	5
	U.S. Navy	2
	Scripps Institution of Oceanography	5

### 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 went 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. 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.

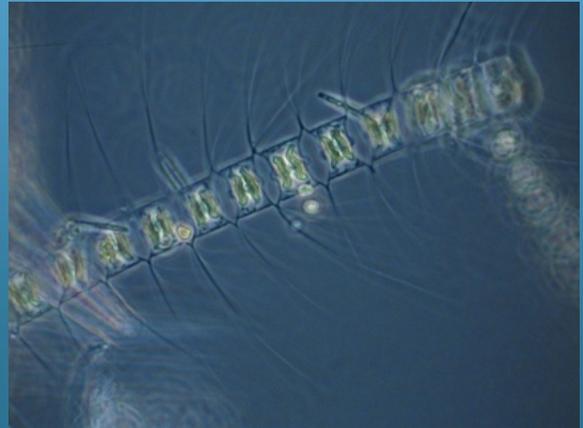
Sport harvesters are encouraged to contact the "Biotoxin Information Line" at 1-800-553-4133 for a current update on marine biotoxin activity prior to gathering and consuming shellfish.



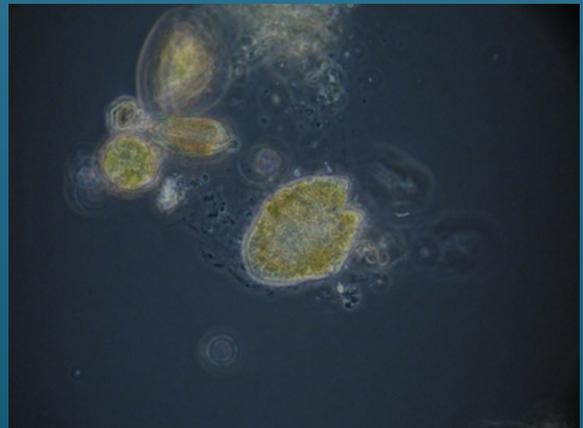
Table 2. Agencies, organizations and volunteers participating in marine phytoplankton sample collection during October, 2005.

COUNTY	AGENCY	# SAMPLES
<b>Del Norte</b>	Del Norte County Health Department	3
<b>Humboldt</b>	Coast Seafood Company	5
<b>Mendocino</b>	None Submitted	
<b>Sonoma</b>	Bodega Marine Lab	1
	Cordell Bank Marine Sanctuary	1
<b>Marin</b>	DHS Volunteers (Brent Anderson, Mary Von Tolksdorf, Marjorie Siegel, Richard Plant, Cal Strobel)	11
	DHS Marine Biotoxin Monitoring Program	4
	Johnson Oyster Company	9
<b>Contra Costa</b>	None Submitted	
<b>San Francisco</b>	DHS Volunteer (Eugenia McNaughton)	3
<b>San Mateo</b>	San Mateo County Environmental Health Department	1
<b>Santa Cruz</b>	U.C. Santa Cruz	3
	California Department of Parks and Recreation	2
<b>Monterey</b>	None Submitted	
<b>San Luis Obispo</b>	DHS Volunteers (Renee and Auburn Atkins)	2
	Morro Bay National Estuary Program	3
	California Polytechnic State University	4
	Tenera Environmental	1
<b>Santa Barbara</b>	U.C. Santa Barbara	4
	Santa Barbara Mariculture Company	4
	Santa Barbara City College	1
	Vanderberg AFB	1
	Catalina Tall Ships Expeditions	2
<b>Ventura</b>	Ventura County Environmental Health Department	1
	National Park Service	3
<b>Los Angeles</b>	Aquarium of the Pacific Long Beach	2
	Los Angeles County Health Department	6
	Los Angeles County Sanitation District	5
	Catalina Tall Ships Expeditions	7
	Catalina Island Marine Institute	2
<b>Orange</b>	None Submitted	
<b>San Diego</b>	Scripps Institute of Oceanography	5
	DHS Volunteers (Paul Sims, Randy Dick, Jeff Kermode)	4

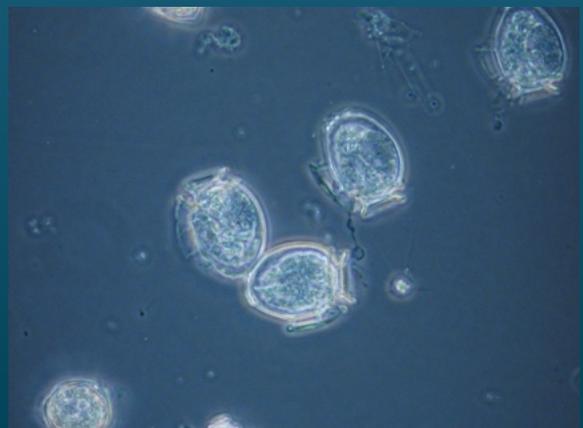
## PHYTOPLANKTON GALLERY



*Chaetoceros* was common along much of the California coast.



The dinoflagellate *Gymnodinium* continued to be common to abundant during October.



*Dinophysis* was observed near Catalina Island in October.