

BIOTOXIN QUARTERLY REPORT

January - March 2001



BIOTOXIN SUMMARY

The enclosed reports (No. 01-06 through 01-11) provide a summary of biotoxin activity and toxigenic phytoplankton distribution for the months of January through March 2001.

January – There were low numbers of *Alexandrium* and *Pseudo-nitzschia* observed at a number of locations along the California coast. *Alexandrium* was detected along each coastal county south of Point Conception (Santa Barbara). Cell numbers were very low for each observation, however, and PSP toxicity was not detected.

February – The pattern of toxigenic phytoplankton distribution observed in January continued through February. There was a slight increase in the abundance of *Alexandrium* at sites in San Luis Obispo and Ventura, but cell densities remained low. Shellfish samples were unavailable from these areas during February.

March – There was an observed

increase in *Pseudo-nitzschia*, primarily at locations along the southern California coast. As with the observations of *Alexandrium* in previous months, the overall cell densities of *Pseudo-nitzschia* were quite low. The distribution and abundance of *Alexandrium* declined slightly in March.



QUARANTINES

There were no quarantines or health advisories in effect between January and March, 2001. The annual quarantine on sport-harvested mussels occurs each year from May 1 through midnight on October 31. This quarantine applies only to sport-harvested mussels along the entire California coastline, including all bays and estuaries.

How to Contact Us:

The Biotoxin Quarterly Report is prepared and distributed by the California Department of Health Services' Marine Biotoxin Monitoring and Control Program.

For information on our program please call (510) 540-3423, fax us at (510) 540-2716, or send an email to glangloi@ix.netcom.com.

Call our toll-free number for recorded information on shellfish quarantines related to marine biotoxins: (800) 553-4133.



BIOTOXIN EMAIL UPDATES

Shellfish toxicity data is generated on an almost daily basis by our program thanks to the continuing efforts of our program participants. Shellfish samplers brave waves and rocks to collect valuable samples for toxin assay. Volunteer phytoplankton samplers and field observers provide near real time information on the distribution and abundance of plankton species along the entire California coast. Commercial shellfish growers along the coast submit routine samples of shellfish and plankton as well. All of this information is entered into the program database on a daily basis and potential trends are followed with care. The result is a dynamic program that has been very effective at protecting public health.

Another product of our ambitious field samplers' efforts is that we have struggled to keep pace with our reporting. As we have made efforts to improve the appearance and content of our reports, experimenting with more efficient ways to manage and display our data, we have experienced unfortunate delays in getting this information to you. We hope to remedy this situation soon and, in an effort to get information to our program participants more rapidly, we have begun a weekly email update.

To subscribe please send a brief request to glangloi@ix.netcom.com.

Table 1. California Marine Biotoxin Monitoring and Control Program participants submitting shellfish samples during January 2001.

COUNTY	AGENCY	SAMPLES
Del Norte	Del Norte County Health Department	1
Humboldt	Coast Seafood Company	5
Mendocino	None Submitted	
Sonoma	None Submitted	
Marin	Cove Mussel Company	2
	Hog Island Oyster Company	2
	Johnson Oyster Company	20
	Marin Oyster Company	5
San Francisco	San Francisco County Health Department	1
San Mateo	None Submitted	
Santa Cruz	Santa Cruz County Environmental Health Department	1
Monterey	None Submitted	
San Luis Obispo	Williams Shellfish Company	8
Santa Barbara	U.C. Santa Barbara Marine Science Institute	6
Ventura	None Submitted	
Los Angeles	Los Angeles County Health Department	2
Orange	Orange County Health Care Agency	1
	Ecomar, Inc.	3
San Diego	Carlsbad Aquafarms, Inc.	4
	CDHS Volunteer (Paul Sims)	2

Table 2. Agencies and organizations participating in marine phytoplankton sample collection in California during January 2001.

COUNTY	AGENCY	SAMPLES
Del Norte	None Submitted	
Humboldt	Coast Seafood Company	5
	Arcata High School	4
Mendocino	CDHS Volunteer (Amy Johnson)	1
Sonoma	CDHS Volunteer (Cathleen Cannon, Diane Montgomery)	2
	Bodega Marine Lab	1
Marin	CDHS Volunteer (Brent Anderson, Jackie Bertaina)	5
	California Department of Fish and Game	3
	Johnson Oyster Company	20
Alameda	City of Berkeley, Shorebird Nature Center	2
San Francisco	CDHS Volunteer (Eugenia McNaughton)	2
San Mateo	San Mateo County Environmental Health Department	1
Santa Cruz	None Submitted	
Monterey	CDHS Volunteer (Lisa Marrack)	1
	U.C. Reserve System	1
San Luis Obispo	None Submitted	
Santa Barbara	Vandenberg Air Force Base, Environmental Health Services	2
	U.C. Santa Barbara Marine Sciences	5
	California Department of Parks and Recreation	2
Ventura	California Department of Parks and Recreation	1
Los Angeles	Los Angeles County Sanitation District	4
	Los Angeles County Health Department	3
	Roundhouse Lab and Aquarium	1
Orange	Orange County Sanitation District.	1
	Ecomar, Inc.	1
San Diego	CDHS Volunteers (Paul Sims, Randy and Bill Dick, Kai Schumann, Jeff Kermode)	8
	San Diego County Environmental Health Department	4

Table 3. California Marine Biotoxin Monitoring and Control Program participants submitting shellfish samples during February 2001.

COUNTY	AGENCY	SAMPLES
Del Norte	Del Norte County Health Department	1
Humboldt	Coast Seafood Company	4
Mendocino	None Submitted	
Sonoma	None Submitted	
Marin	Cove Mussel Company	1
	Hog Island Oyster Company	1
	Johnson Oyster Company	16
	Marin Oyster Company	4
San Francisco	San Francisco County Health Department	1
San Mateo	San Mateo County Environmental Health Department	1
Santa Cruz	None Submitted	
Monterey	None Submitted	
San Luis Obispo	Williams Shellfish Company	8
Santa Barbara	U.C. Santa Barbara Marine Science Institute	6
Ventura	None Submitted	
Los Angeles	Los Angeles County Health Department	1
Orange	Orange County Health Care Agency	1
	Ecomar, Inc.	2
San Diego	Carlsbad Aquafarms, Inc.	3
	CDHS Volunteer (Paul Sims)	2

Table 4. Agencies and organizations participating in marine phytoplankton sample collection in California during February 2001.

COUNTY	AGENCY	SAMPLES
Del Norte	None Submitted	
Humboldt	Coast Seafood Company	4
	Arcata High School	3
Mendocino	CDHS Volunteer (Amy Johnson)	2
Sonoma	Bodega Marine Lab	2
Marin	CDHS Volunteer (Brent Anderson, Richard Plant, Cal Strobel)	8
	California Department of Fish and Game	3
	Johnson Oyster Company	12
Alameda	City of Berkeley, Shorebird Nature Center	1
San Francisco	CDHS Volunteer (Eugenia McNaughton)	4
	Gulf of the Farallones National Marine Sanctuary	1
San Mateo	San Mateo County Environmental Health Department	1
Santa Cruz	None Submitted	
Monterey	CDHS Volunteer (Lisa Marrack)	1
San Luis Obispo	Tenera Environmental	3
	Williams Shellfish Company	2
	CDHS Volunteer (Renee and Auburn Atkins)	3
Santa Barbara	U.C. Santa Barbara Marine Sciences	6
	California Department of Parks and Recreation	2
	Vandenberg Air Force Base, Environmental Health Services	2
Ventura	California Department of Parks and Recreation	3
Los Angeles	Los Angeles County Sanitation District	3
	Los Angeles County Health Department	2
	Roundhouse Lab and Aquarium	1
Orange	Orange County Sanitation District	5
	Ecomar, Inc.	2
San Diego	CDHS Volunteers (Randy and Bill Dick, Paul Sims, Vicki Ganguli)	4
	San Diego County Environmental Health Department	2

Table 5. California Marine Biotoxin Monitoring and Control Program participants submitting shellfish samples during March 2001.

COUNTY	AGENCY	SAMPLES
Del Norte	Del Norte County Health Department	1
Humboldt	Coast Seafood Company	4
	Humboldt County Environmental Health Department	1
Mendocino	None Submitted	
Sonoma	None Submitted	
Marin	Cove Mussel Company	1
	CDHS Marine Biotoxin Program	1
	Hog Island Oyster Company	2
	Johnson Oyster Company	16
	Marin Oyster Company	4
San Francisco	None Submitted	
San Mateo	San Mateo County Environmental Health Department	2
Santa Cruz	Santa Cruz County Environmental Health Department	1
Monterey	None Submitted	
San Luis Obispo	Williams Shellfish Company	8
Santa Barbara	U.C. Santa Barbara Marine Science Institute	4
Ventura	None Submitted	
Los Angeles	Los Angeles County Health Department	1
Orange	Orange County Health Care Agency	1
	Ecomar, Inc.	1
San Diego	Carlsbad Aquafarms, Inc.	4
	CDHS Volunteer (Paul Sims)	2

Table 6. Agencies and organizations participating in marine phytoplankton sample collection in California during March 2001.

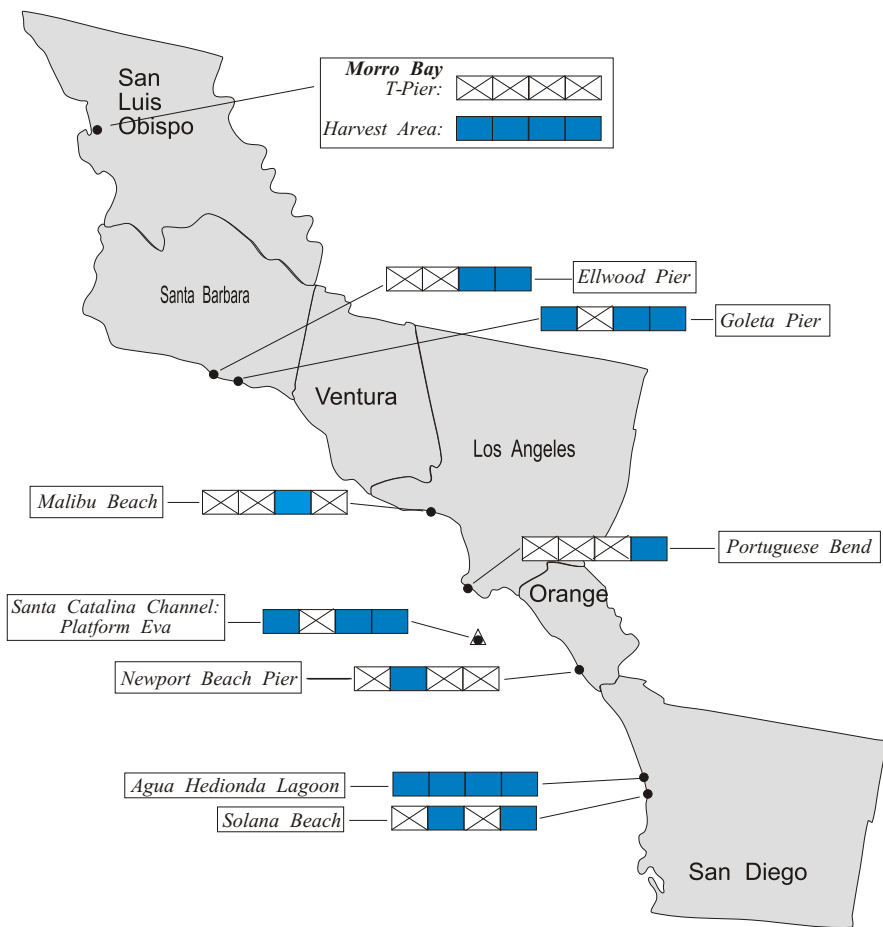
COUNTY	AGENCY	SAMPLES
Del Norte	None Submitted	
Humboldt	Coast Seafood Company	4
	Arcata High School	3
Mendocino	CDHS Volunteer (Amy Johnson, Kim Swenson, Jim Wesley)	4
Sonoma	Bodega Marine Lab	2
	CDHS Volunteer (Cathleen Cannon, Diane Montgomery)	2
Marin	CDHS Volunteer (Brent Anderson, Richard Plant, Cal Strobel)	11
	CDHS Marine Biotxin Program	3
	Johnson Oyster Company	12
	California Department of Fish and Game	2
Alameda	None Submitted	
San Francisco	CDHS Volunteer (Eugenia McNaughton, Jackie Bertaina)	4
San Mateo	San Mateo County Environmental Health Department	2
	CDHS Volunteer (Jackie Bertaina)	1
Santa Cruz	Santa Cruz County Environmental Health Department	3
	San Lorenzo Valley High School	1
Monterey	U.C. Reserve System	1
San Luis Obispo	CDHS Volunteer (Renee and Auburn Atkins)	4
Santa Barbara	California Department of Parks and Recreation	1
	U.C. Santa Barbara Marine Sciences	3
	Vandenberg Air Force Base, Environmental Health Services	2
Ventura	California Department of Parks and Recreation	2
Los Angeles	Los Angeles County Environmental Health Department	3
	Los Angeles County Sanitation District	4
	Roundhouse Lab and Aquarium	2
	Catalina Island Marine Institute	2
Orange	Orange County Sanitation District	6
San Diego	CDHS Volunteer (Kai Schumann, Vicki Ganguli)	7
	San Diego County Environmental Health Department	1

SHELLFISH BIOTOXIN MONTHLY REPORT

January 2001

Technical Report No. 01-06

Distribution of Shellfish Biotoxins Southern California



KEY FOR SHELLFISH BIOTOXIN DATA

Week: 1 2 3 4

PSP Range: (ug/100 g)
 no sample (white) not detected (blue) < 80¹ (yellow) ≥ 80 (red)

DA Range: (ppm)
 no sample (white) not detected (blue) < 20² (yellow) ≥ 20 (red)

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

Source: DHS Marine Biotoxin Monitoring and Control Program, January 2001.

INTRODUCTION:

Please note the following conventions: (i) All data are for mussel samples, unless otherwise noted; (ii) All samples are analyzed for PSP toxins; domoic acid (DA) analyses are performed as needed (i.e., on the basis of detected blooms of the diatoms that produce DA). Please refer to the figure key for an explanation of the symbols used for the time of month of sample collection and the toxicity range.

Southern California Summary:

Paralytic Shellfish Poisoning (PSP): PSP toxins were not detected in shellfish samples from southern California sites in January.

For Information on our Volunteer Field Sampling Program Please Call:

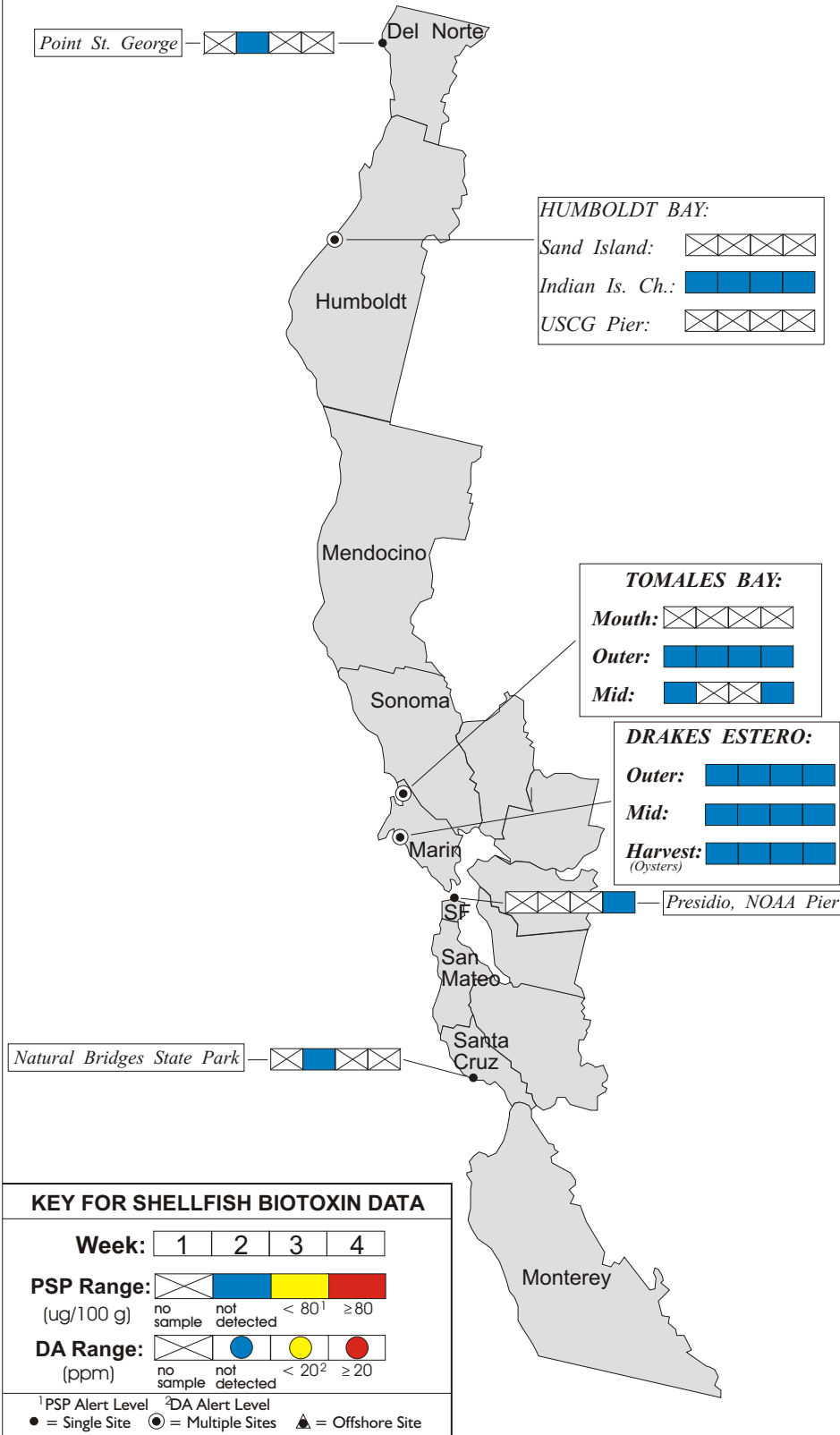
(510) 540-3423

Distribution of Shellfish Biotoxins Northern California

Northern California Summary:

Paralytic Shellfish Poisoning (PSP):

PSP toxicity was not detected at any northern California site during January.



The Marine Biotoxin Monitoring and Control Program 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.

*For More Information Please Call:
(510) 540 - 3423*

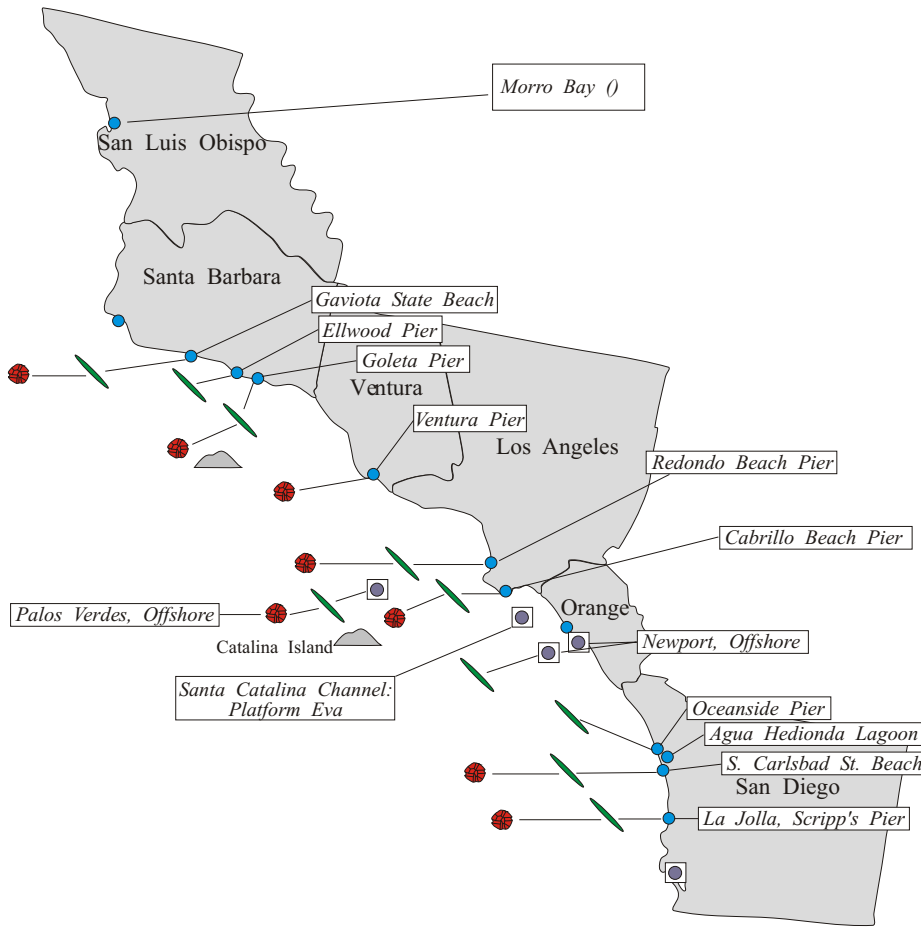
*For Recorded Biotoxin Information Call:
(800) 553 - 4133*

Phytoplankton Monthly Report

January 2001

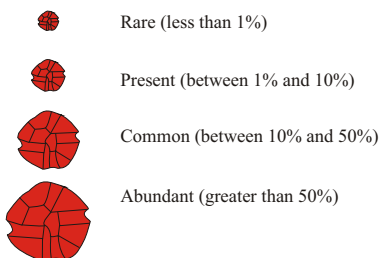
Technical Report No. 01-07

Distribution of Toxin-Producing Phytoplankton Southern California



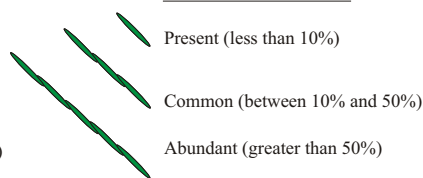
Relative Abundance of Known Toxin Producers

Alexandrium Species



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

Pseudo-nitzschia Species



MONTHLY SAMPLING STATIONS:

- Single Sampling Station
- ⊙ Multiple Sampling Stations
- ⊠ Offshore Sampling Station

Southern California Summary:

Alexandrium catenella (Dinoflagellate that produces paralytic shellfish poisoning (PSP) toxins). Low numbers of *Alexandrium* were observed along much of the southern California coast during January.

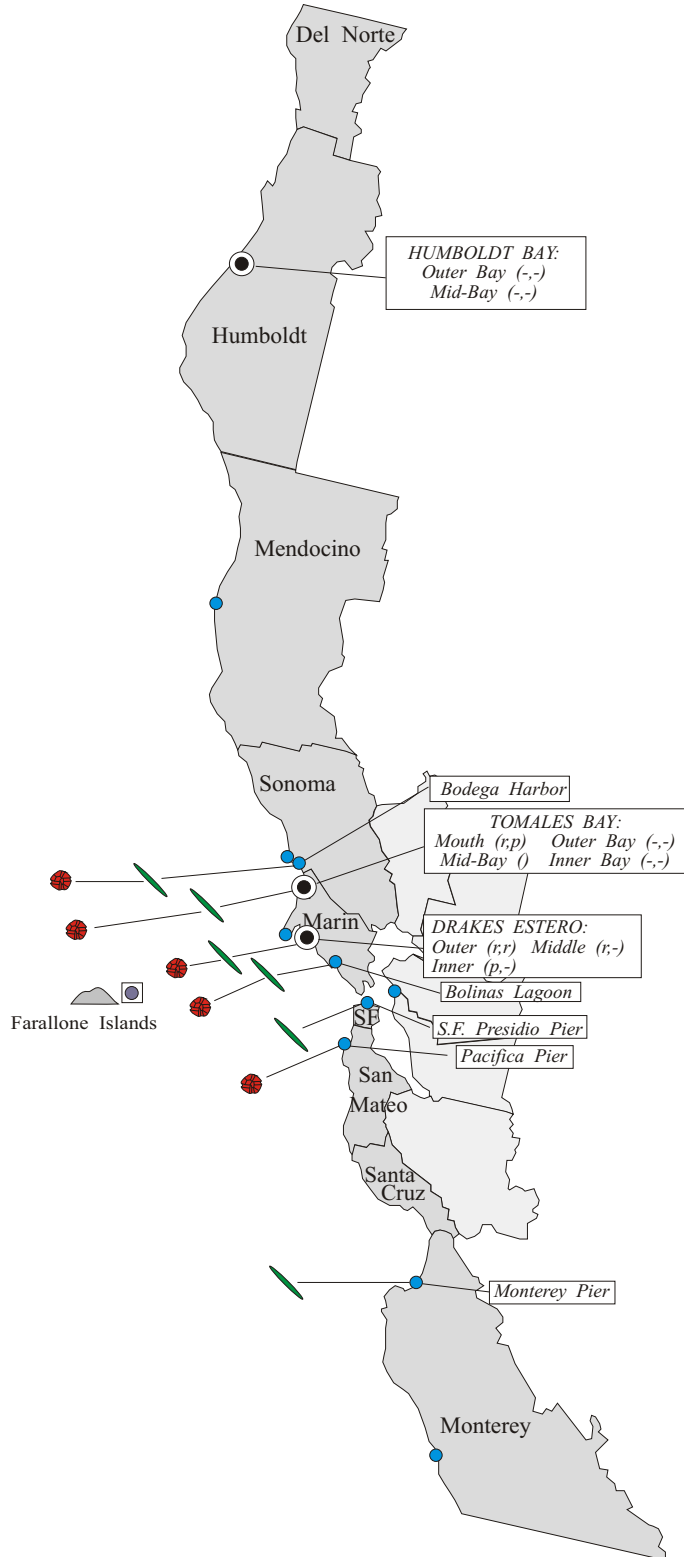
Pseudo-nitzschia species (includes all known potential domoic acid producing diatoms). *Pseudo-nitzschia* was observed along most southern California coastal counties. In general the relative abundances of this diatom were reduced from December's observations.

The Phytoplankton Monitoring Program, managed by the California Department of Health Services, is a state-wide program designed to detect toxin producing species of phytoplankton in ocean water before they impact California's valuable shellfish resources or become a threat to consumer safety.

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Distribution of Toxin-Producing Phytoplankton Northern California



Northern California Summary:

Alexandrium catenella (Dinoflagellate that produces paralytic shellfish poisoning (PSP) toxins). *Alexandrium* was identified at several sites along the northern California coast during January, however the distribution was limited to the coastline of Sonoma and Marin counties. The relative abundance and cell numbers were low for all observations.

Pseudo-nitzschia species (includes all known potential domoic acid producing diatoms). Low numbers of *Pseudo-nitzschia* were observed at several sites along the northern California coast in January.

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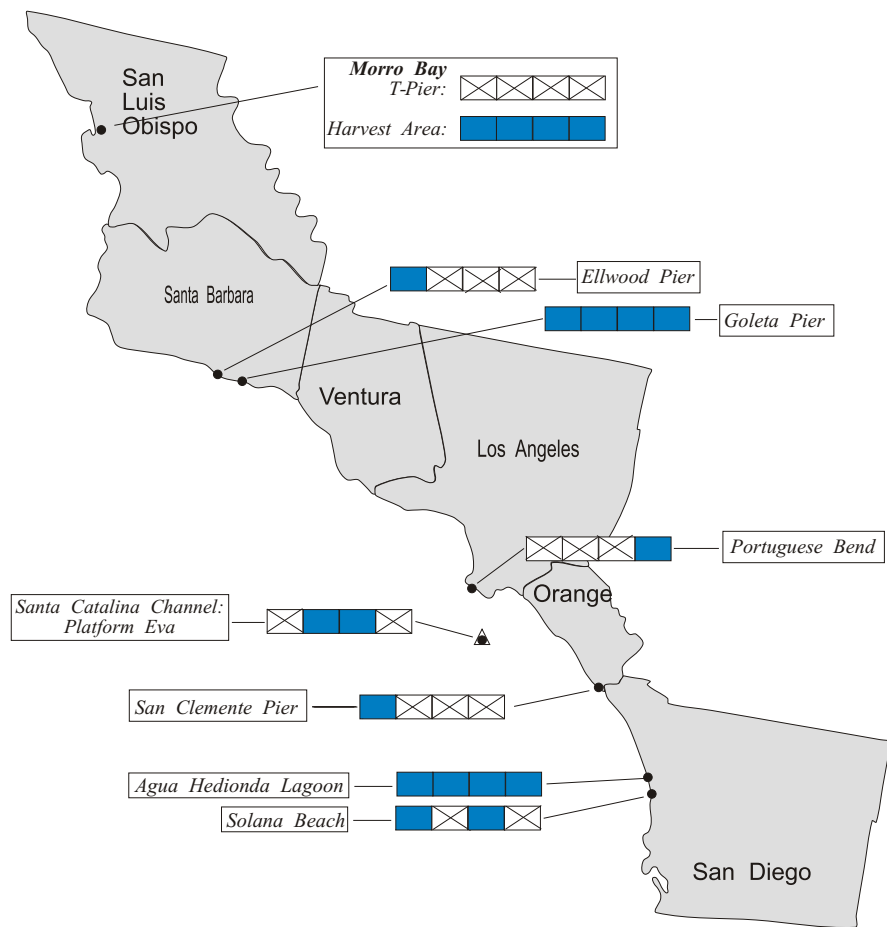
For Recorded Biotoxin Information Call:
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SHELLFISH BIOTOXIN MONTHLY REPORT

February 2001

Technical Report No. 01-08

Distribution of Shellfish Biotoxins Southern California



KEY FOR SHELLFISH BIOTOXIN DATA

Week: 1 2 3 4

PSP Range: (ug/100 g) no sample not detected < 80¹ ≥ 80

DA Range: (ppm) no sample not detected < 20² ≥ 20

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

Source: DHS Marine Biotoxin Monitoring and Control Program, February 2001.

INTRODUCTION:

Please note the following conventions: (i) All data are for mussel samples, unless otherwise noted; (ii) All samples are analyzed for PSP toxins; domoic acid (DA) analyses are performed as needed (i.e., on the basis of detected blooms of the diatoms that produce DA). Please refer to the figure key for an explanation of the symbols used for the time of month of sample collection and the toxicity range.

Southern California Summary:

Paralytic Shellfish Poisoning (PSP): PSP toxins were not detected in shellfish samples from southern California sites in February.

For Information on our Volunteer Field Sampling Program Please Call:

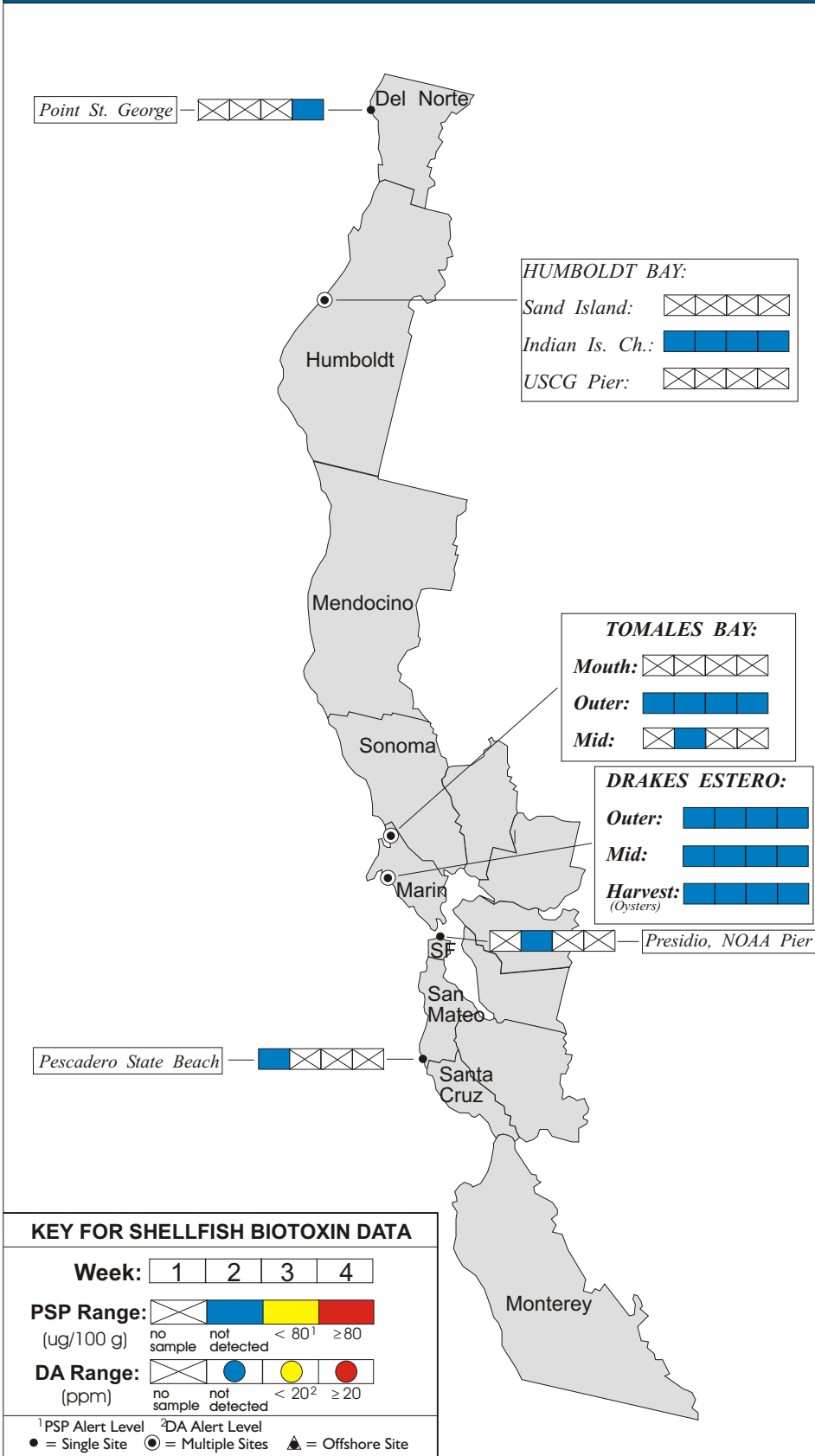
(510) 540-3423

Distribution of Shellfish Biotoxins Northern California

Northern California Summary:

Paralytic Shellfish Poisoning (PSP):

PSP toxicity was not detected at any northern California site during February.



The Marine Biotoxin Monitoring and Control Program 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.

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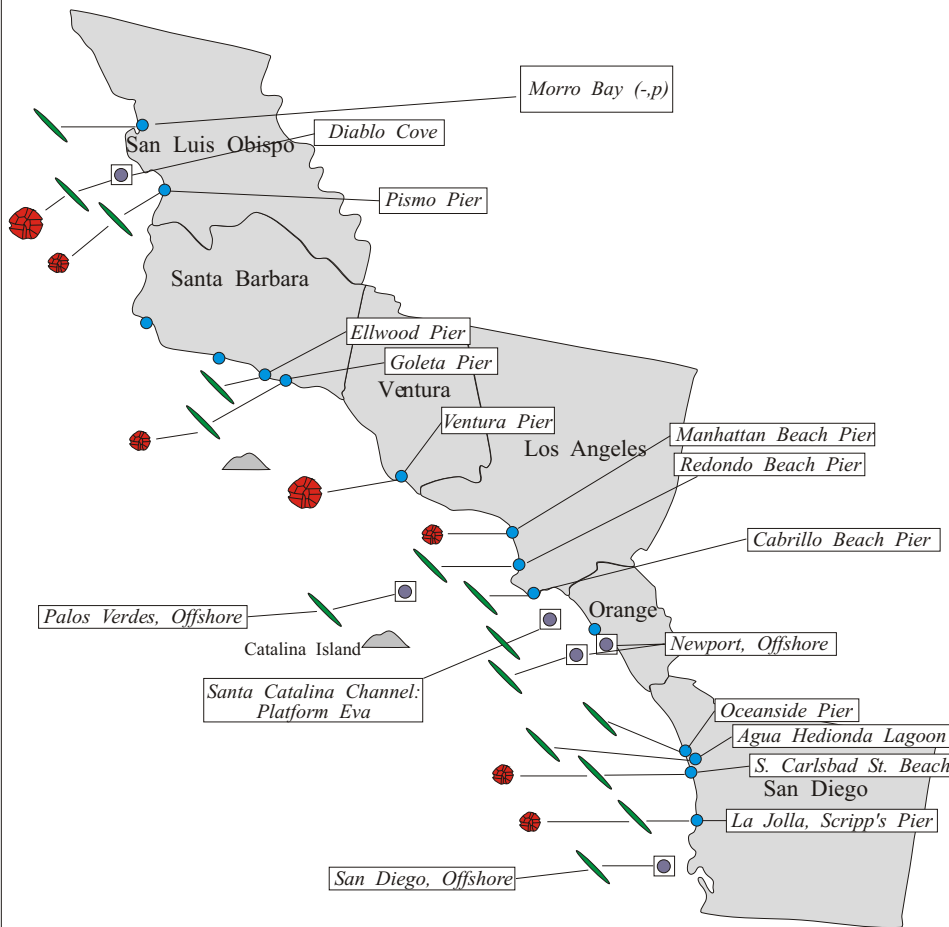
*For Recorded Biotoxin Information Call:
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Phytoplankton Monthly Report

February 2001

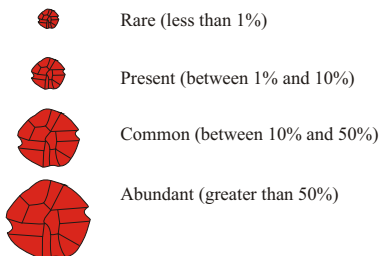
Technical Report No. 01-09

Distribution of Toxin-Producing Phytoplankton Southern California

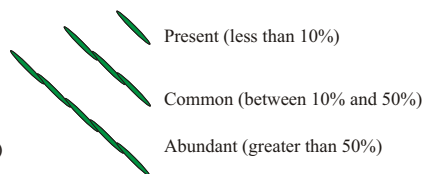


Relative Abundance of Known Toxin Producers

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

Southern California Summary:

Alexandrium catenella (Dinoflagellate that produces paralytic shellfish poisoning (PSP) toxins). Low numbers of *Alexandrium* were observed along much of the southern California coast during February. The highest relative abundances were observed offshore of San Luis Obispo County (Diablo Cove) and at the Ventura Pier.

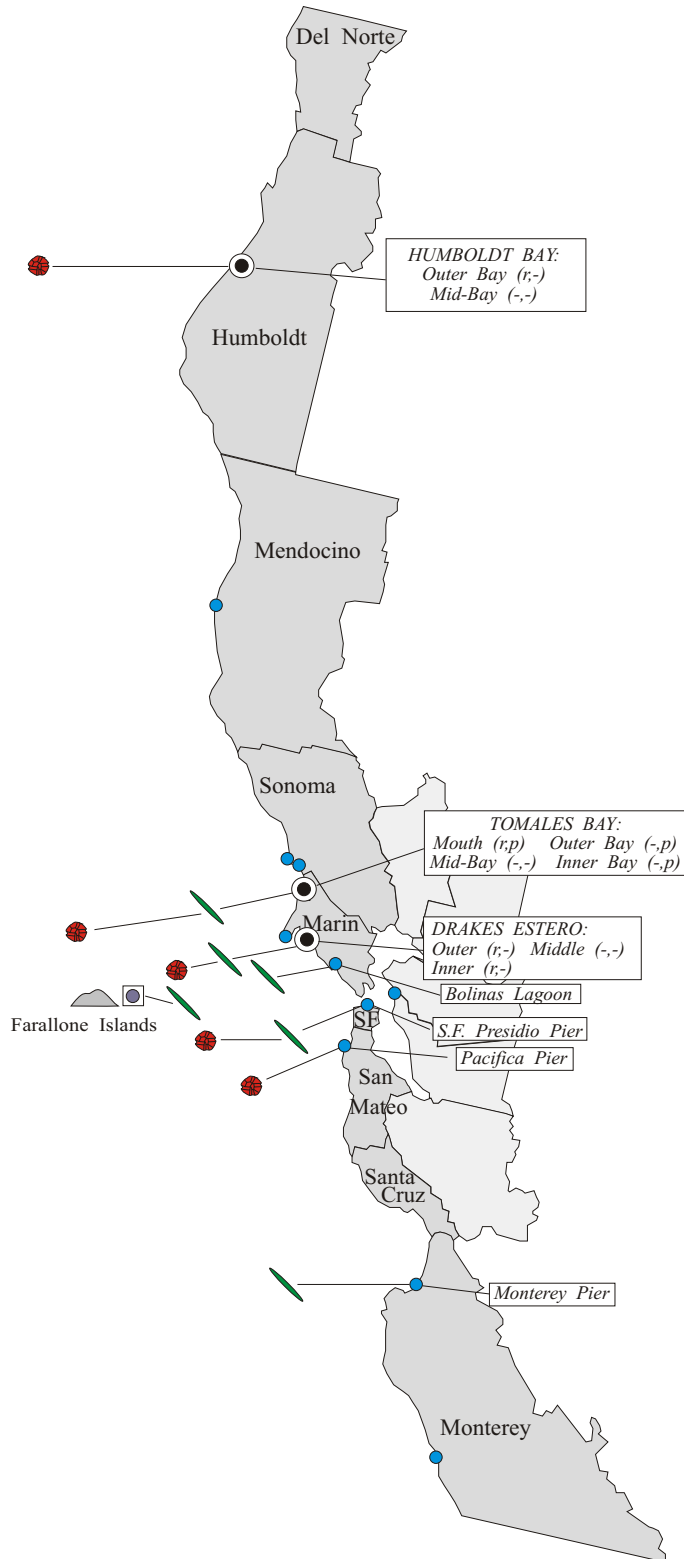
Pseudo-nitzschia species (includes all known potential domoic acid producing diatoms). Low numbers of *Pseudo-nitzschia* were observed along most southern California coastal counties in February.

The Phytoplankton Monitoring Program, managed by the California Department of Health Services, is a state-wide program designed to detect toxin producing species of phytoplankton in ocean water before they impact California's valuable shellfish resources or become a threat to consumer safety.

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Distribution of Toxin-Producing Phytoplankton Northern California



Northern California Summary:

Alexandrium catenella (Dinoflagellate that produces paralytic shellfish poisoning (PSP) toxins). *Alexandrium* was identified at several sites along the northern California coast during February. The distribution of this toxin producer was similar to January's observations with the inclusion of Humboldt Bay in this month's observations.

Pseudo-nitzschia species (includes all known potential domoic acid producing diatoms). Low numbers of *Pseudo-nitzschia* were observed at several sites along the northern California coast in February.

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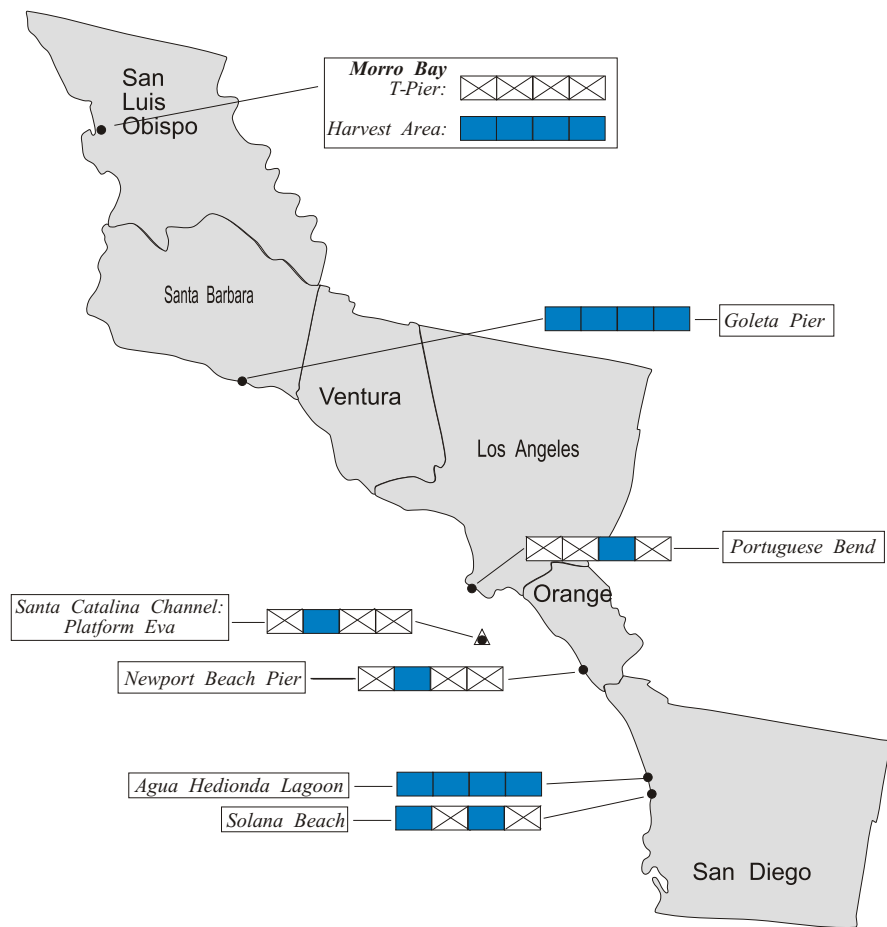
For Recorded Biotoxin Information Call:
(800) 553 - 4133

SHELLFISH BIOTOXIN MONTHLY REPORT

March 2001

Technical Report No. 01-10

Distribution of Shellfish Biotoxins Southern California



KEY FOR SHELLFISH BIOTOXIN DATA

Week: 1 2 3 4

PSP Range: (ug/100 g)
 no sample (white box) not detected (blue box) < 80¹ (yellow box) ≥ 80 (red box)

DA Range: (ppm)
 no sample (white box) not detected (blue box) < 20² (yellow box) ≥ 20 (red box)

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

Source: DHS Marine Biotoxin Monitoring and Control Program, March 2001.

INTRODUCTION:

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Southern California Summary:

Paralytic Shellfish Poisoning (PSP): PSP toxins were not detected in shellfish samples from southern California sites in March.

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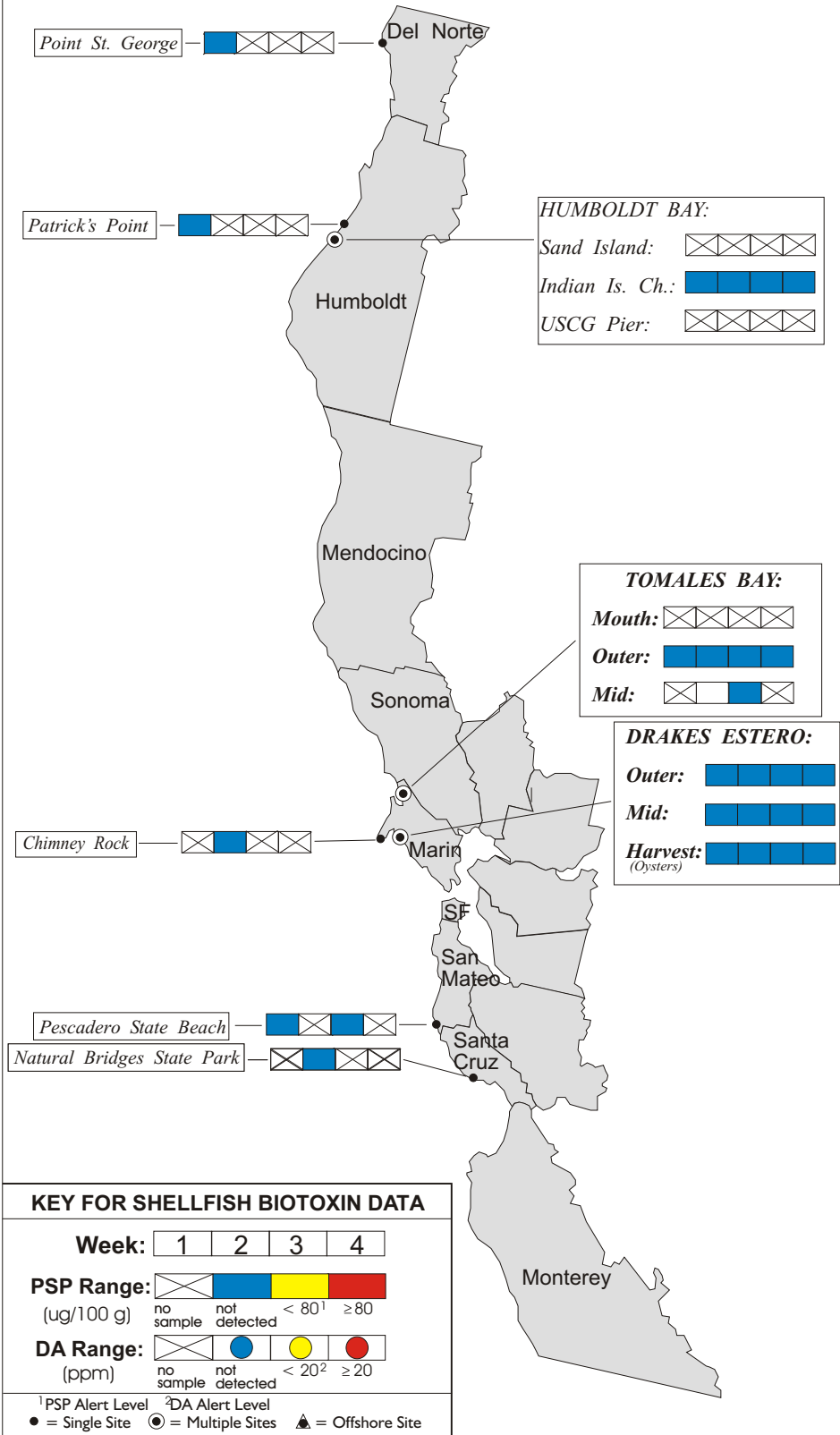
(510) 540-3423

Distribution of Shellfish Biotoxins Northern California

Northern California Summary:

Paralytic Shellfish Poisoning (PSP):

PSP toxicity was not detected at any northern California site during March.



The Marine Biotoxin Monitoring and Control Program 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.

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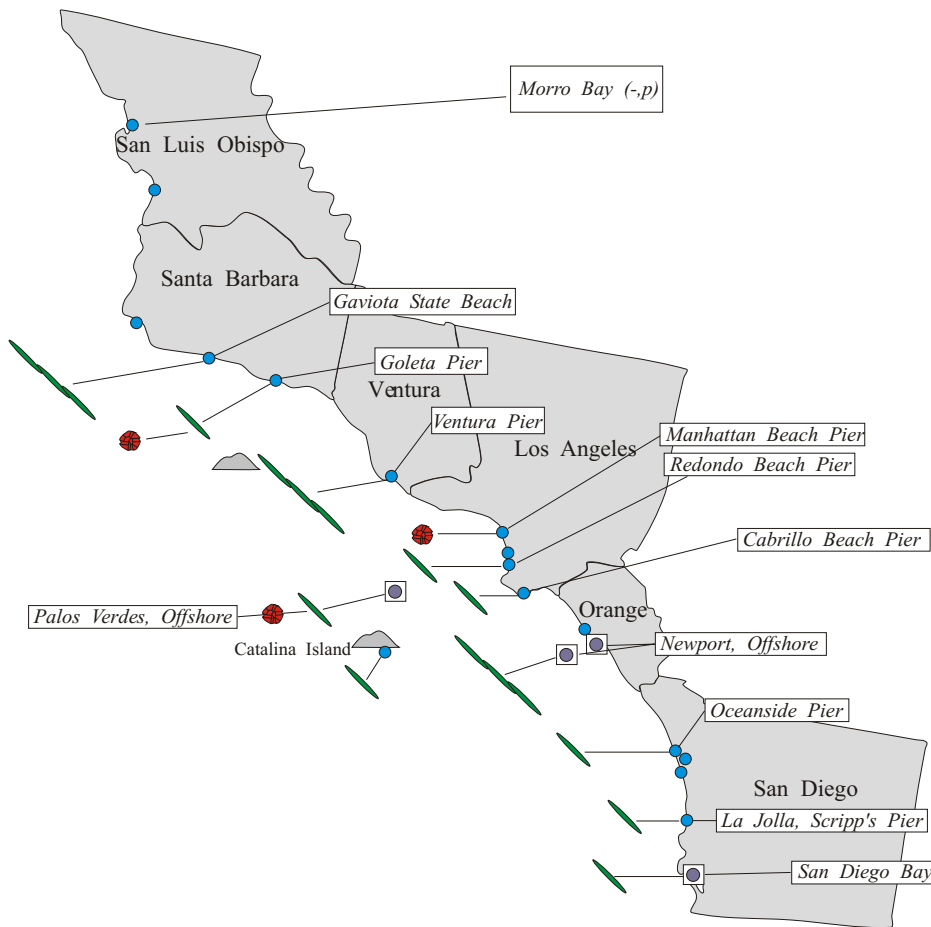
For Recorded Biotoxin Information Call:
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Phytoplankton Monthly Report

March 2001

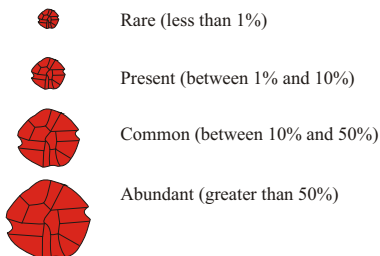
Technical Report No. 01-11

Distribution of Toxin-Producing Phytoplankton Southern California

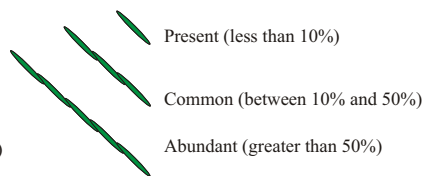


Relative Abundance of Known Toxin Producers

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

Southern California Summary:

Alexandrium catenella (Dinoflagellate that produces paralytic shellfish poisoning (PSP) toxins). Low numbers of *Alexandrium* were observed at only one southern California location, offshore of Palos Verdes, during March.

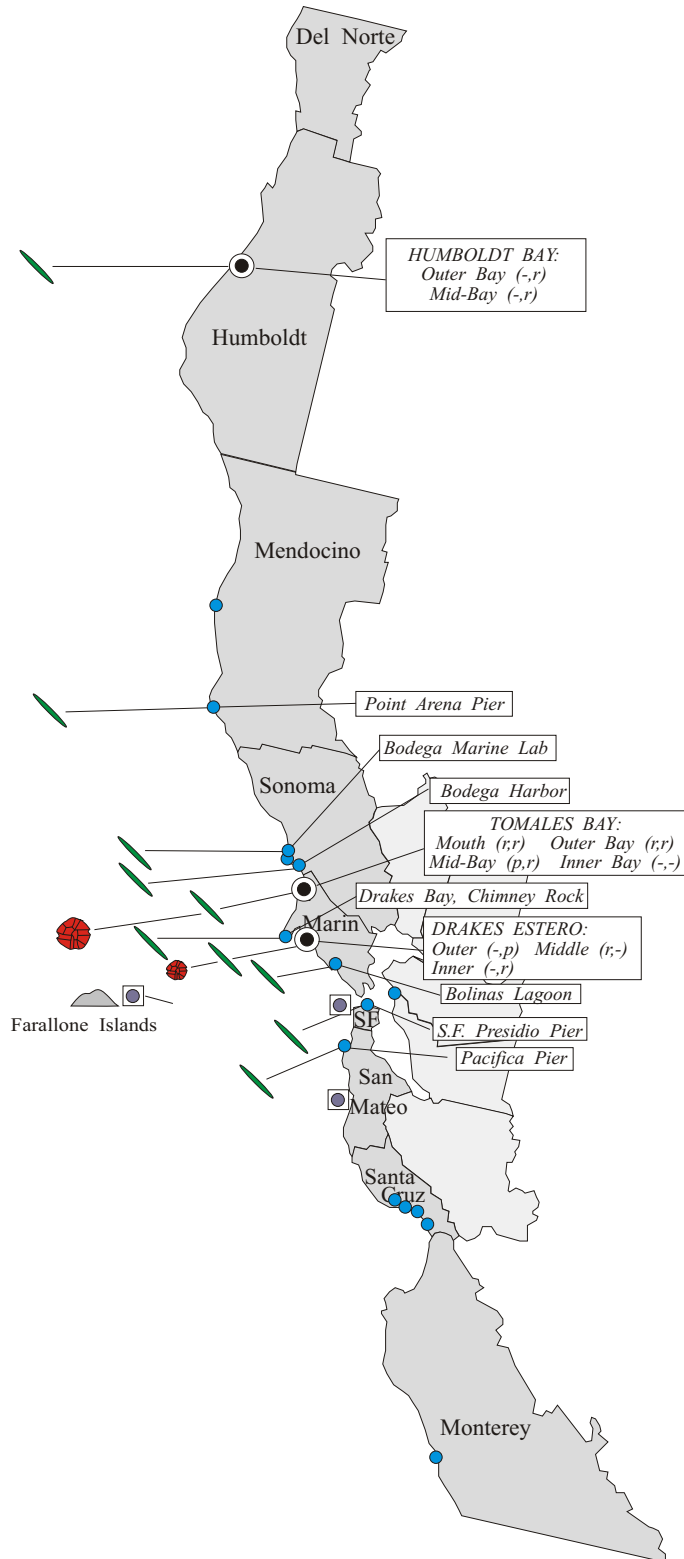
Pseudo-nitzschia species (includes all known potential domoic acid producing diatoms). *Pseudo-nitzschia* was observed along most southern California coastal counties in March. The relative abundance of this diatom increased at locations along the coast of Santa Barbara, Ventura, and Orange counties compared to February's observations.

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Distribution of Toxin-Producing Phytoplankton Northern California



Northern California Summary:

Alexandrium catenella (Dinoflagellate that produces paralytic shellfish poisoning (PSP) toxins). *Alexandrium* was identified at only two sites along the northern California coast during March. .

Pseudo-nitzschia species (includes all known potential domoic acid producing diatoms). Low numbers of *Pseudo-nitzschia* were observed at several sites along the northern California coast in March.

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