

Amigos de Bolsa Chica Citizen Science Program

Plankton Collection and Identification

Collectors: Dennis Pope and Joana Tavares

Date: 3/22/13 Time: 11 AM

Tide: going down (Last high at 7AM)

Secchi: 4.5 ft

Temp.: 18C

Salinity: 40-45ppt

pH: 7-8

Nitrates: 0 ppm

Phosphates: 0.25 ppm

Ammonia: 0.25 ppm

Summary:

Dennis and I (Joana) resumed our plankton sampling activities at the Tidal Inlet today and found lots of interesting microalgae in the water. We sampled at the outgoing tide (tide going down). Water conditions (Temp, Salinity, turbidity, nutrients, pH) were within expected ranges. Here are some of the potentially harmful species and genera of plankton that we observed, identified and photographed under the microscope today. (See complete list of organisms observed at the end).



Figure 1. *Dinophysis acuminata*

Dinophysis acuminata is marine, planktonic dinoflagellate species. It is a potentially toxic species that may produce ocaidaic acid and blooms of this species have been associated with DSP events. It is commonly found in coastal waters of the northern Atlantic and Pacific Oceans. The most extensive blooms have been reported from the summer and fall months in many parts of the world.

The concentration observed in today's sample was very low.



Figure 2. *Dinophysis rotundata*

Dinophysis rotundata is a marine, dinoflagellate species. It is a toxic heterotrophic species widely distributed in cold and warm waters.

Dinophysis rotundata is a toxic species producing the diarrhetic shellfish poison (DSP) toxin Dinophysistoxin-1 (DTX1). However, only Japanese strains of this species have been found to produce the toxins; North American strains have proved non-toxic.

The concentration observed in today's sample was very low



P. micans is a marine bloom-forming dinoflagellate. This is a cosmopolitan species in cold temperate to tropical waters. Although *P. micans* is capable of forming extensive blooms, it is usually considered harmless. It may excrete substances that inhibit diatom growth, but apparently these substances do not enter the food chain or affect organisms at higher trophic levels.

The concentration observed in today's sample was very low

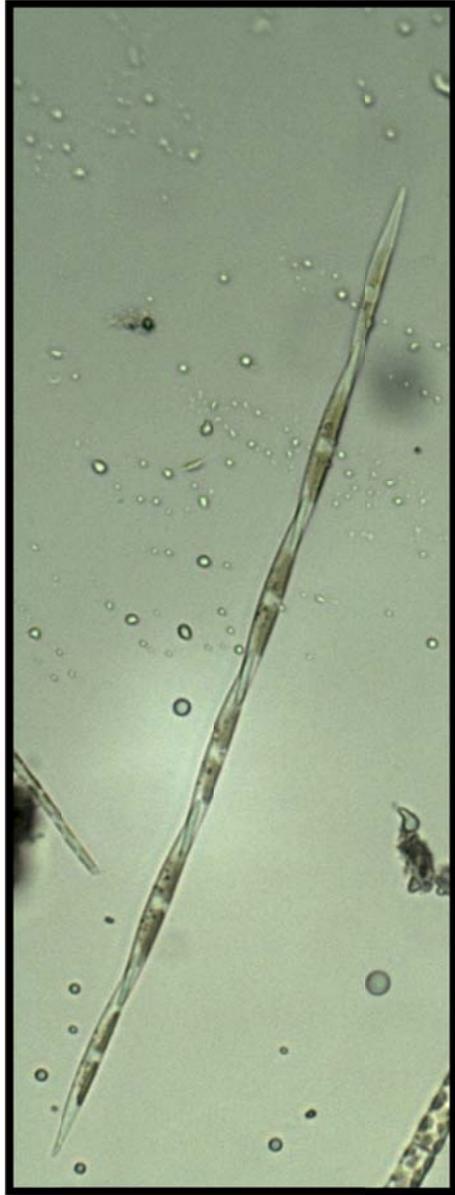


Figure 4 *Pseudo-nitzschia* sp.

The genus *Pseudo-nitzschia* includes several species of marine diatoms known to produce the neurotoxin known as domoic acid, a toxin which is responsible for the human illness called amnesic shellfish poisoning. This genus of phytoplankton is known to form harmful algal blooms in coastal waters of Canada, California, Oregon, Washington state, Europe, Asia, Australia, New Zealand, Central America, and South America.

This photo displays six individuals (the needle-looking cells) connected in a colony. The green areas inside of the cells are chloroplasts (these are photosynthetic organisms).

The concentration of *Pseudo-nitzschia* in the sample analyzed today was extremely high; the genus dominated the plankton (perhaps indicative of a bloom) and there seem to be 2-3 different species of the genus blooming concurrently.

Plankton ID	
3/22/13	Conc
<i>Pseudo-nitzschia</i>	High (dominant)
<i>Ceratium furca</i>	low
<i>Ceratium fusus</i>	low
<i>Dinophysis acuminata</i>	low
<i>Dinophysis rotundata</i>	low
<i>Noctiluca</i> sp.	low
<i>Gonyaulax</i> sp.	low
<i>Prorocentrum micans</i>	low
<i>Chaetoceros</i> spp.	medium
<i>Asterionella</i> spp.	medium
<i>Asterionellopsis</i>	medium-low
<i>Eucampia</i> spp.	medium
<i>Melosira</i> spp.	high
<i>Rhizosolenia</i> spp	medium
<i>Thalassionema</i> spp.	medium- high
<i>Nitzschia</i> spp.	high
<i>Skelotonema</i> spp.	medium
<i>Coscinodiscus</i> sp.	low
<i>Protoperdinium</i> sp.	low-medium