FLOW: Amigos de Bolsa Chica Citizen Science Program

Plankton Collection and Identification Report

Date: 05/31/13 Time: 10:35 AM

Collectors: Dennis P., Jerry G., Chuck D., Nicki B., Joana T.

Tide: ebb (going out)
Secchi: N/A
Temp.: 24°C
Salinity: 35 ppt
pH: 8.2
Nitrates: 0 ppm
Phosphates: 0.25 ppm
Ammonia: 0.125 ppm
Weather/ wind: Cloudy/ overcast; onshore wind (5-7 mph?)

Summary:

We collected plankton at the Tidal Inlet this afternoon following our usual procedures. Back at the Visitor Center, we measured nutrients and pH and observed samples under the microscope: Nicki and Joana were in charge of microscopy; Dennis, Chuck and Jerry measured and recorded the chemical parameters.

Today's sample was remarkably poor both in variety and quantity of organisms. There were very few phytoplankton organisms in the water with a few dinoflagellates and diatoms floating among much detritus and fragments (see complete list at the end of the report).

Nutrients and pH were within expected ranges; this water was collected when the tide is going out so it makes sense to measure nutrients (ammonia, nitrates and phosphates) a little above 0 ppm.

Here are a few species and genera of plankton that we observed, identified and photographed under the microscope today. See complete list of organisms observed at the end.

\n\n*Prorocentrum micans*	*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.\n\nThe concentration of *P. micans* observed in today's sample was low.
\n\n*Ceratium divaricatum* var. *balechii*	Distribution of *Ceratium divaricatum* is wider than previously documented (mainly because of previous misidentifications): the North Pacific Ocean, from British Columbia in Canada to temperate or subtropical waters of Mexico, and then is interrupted to reappear again in coasts of Peru and Chile, and also in coasts of the Benguela area, the South-west Atlantic Ocean. In tropical and equatorial areas of the Pacific Ocean, a more delicate form occurs: *Ceratium divaricatum* var. *balechii*. *C. divaricatum* var. *balechii* may be relatively abundant, even producing non-toxic red tides, in various spots along coasts of the Pacific Ocean (Canada to Mexico). I t appears to be a neritic form, with high sensibility to changes in water temperature, and presumably associated to upwelling areas. *Ceratium divaricatum* was reported as "common to abundant between San Mateo and Sonoma counties by the end of the month of September of 2011.\n\nThe abundance of *C. divaricatum* in today's sample was low.

Plankton ID	
05/31/13	Conc/ Rel. Abundance
Nitzschia spp.	Low
Coscinodiscus spp.	Low
Navicula spp.	Low
Ceratium divaricatum var. balechii	Low
Prorocentrum micans	Low

For those of you interested in reading and learning more about phytoplankton taxonomy and ecology, here are some interesting sites that I'd recommend you to visit and study when you get a chance:

http://oceandatacenter.ucsc.edu/PhytoGallery/index.html
http://www.mbari.org/staff/conn/botany/phytoplankton/DEFAULT.HTM
http://botany.si.edu/references/dinoflag/intro.htm

If you are interested in learning more about eutrophication and the chemical cycles of Nitrogen and Phosphorus (which we measure through our Phosphates, Nitrates and Ammonia tests), read the materials available on the following sites:
http://cfpub.epa.gov/watertrain/pdf/issue1.pdf
http://pubs.usgs.gov/circ/circ1136/
http://www.coastalwiki.org/wiki/eutrophication_in_coastal_environments
http://en.wikipedia.org/wiki/Nitrification