

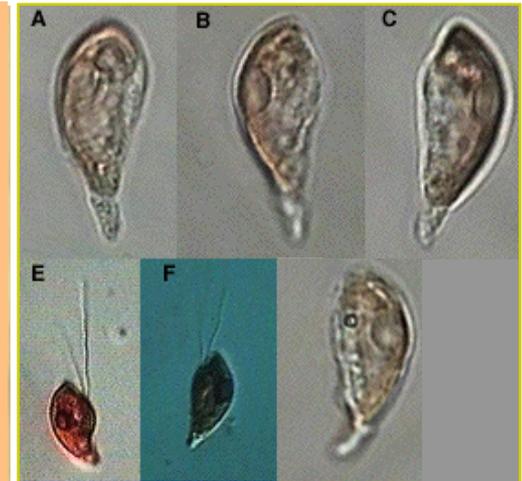
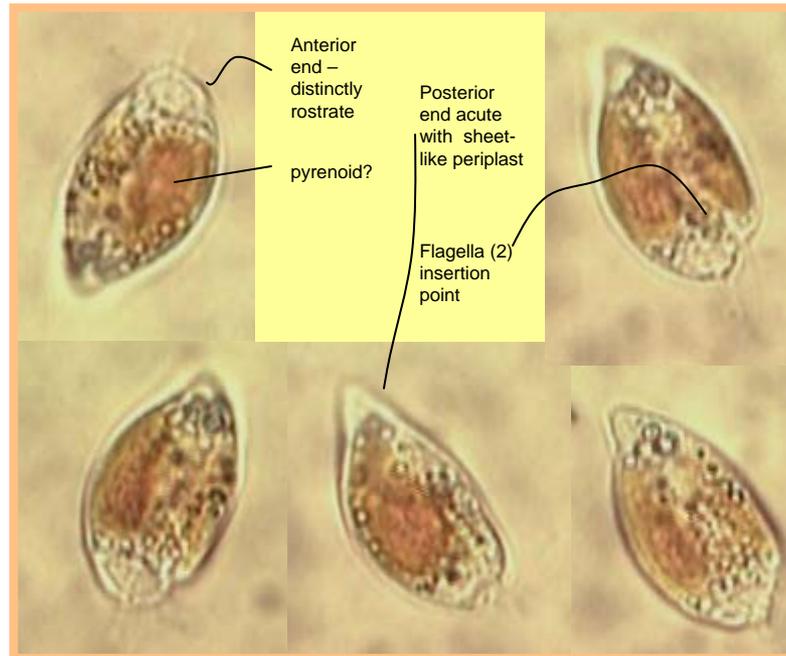


# Cryptophyte: *Teleaulax amphioxeia* (Conrad) Hill 1992 Shrewsbury River and Navesink River May 2007

The phytoflagellate *Teleaulax amphioxeia* (syn *Chroomonas amphioxeia*, *Rhodomonas amphioxeia*) belongs to the Family Cryptomonadaceae, Genus Chroomonas. The earliest NJDEP record of *T. amphioxeia* in the Raritan Bay area was reported in 1984 to be seasonally dominant (NJDEP XXX). In 1988, *T. amphioxeia* was reported in red-tide blooms along with *C. minuta* in the late spring (May 29-June 8<sup>th</sup> 1988) (NJGS 1989). It was reported as dominant or abundant in Raritan Sandy Hook Bay in May 27<sup>th</sup> – June 16<sup>th</sup> 1992 with other flagellates including *Prorocentrum minimum*, and again on May 24<sup>th</sup>, 1993, again in a bloom with *P. minimum* other flagellates – at this time, “red-water” was reported in Western Sandy Hook Bay. In 1994, *C. amphioxeia* (*T. amphioxeia*) was reported to have bloomed in the Northern Raritan Bay in the spring (May 25<sup>th</sup>–June 15<sup>th</sup>) and was reported during the same time period in the Sandy Hook Bay and off the Monmouth County Coast. Additional reporting further into the 1994 summer season reported “*Chroomonas*” off Monmouth County Coast stations in mid-summer (July 13<sup>th</sup>, August 3<sup>rd</sup> 1994) and again in late summer, August 17<sup>th</sup> and September 1<sup>st</sup> 1994). In 1995 *C. amphioxeia* bloomed in the North Raritan Bay in mid-spring (May 24<sup>th</sup> and May 21<sup>st</sup> 1995), in mid-summer (July 26, 1995) in the Sandy Hook Bay and was reported off the MC coast in mid-summer (August 9<sup>th</sup>). In 1999, *Chroomonas amphioxeia* was noted in a NJDEP survey (NJDEP 2000). These recorded blooms are organized in Table 1. On May 2<sup>nd</sup> of 2007, very high chlorophyll *a* values were measured by the NJDEP in both Shrewsbury and Navesink Rivers. *T. amphioxeia* was determined to be co-dominant, again, along with *P. minimum* in the Navesink River. The determination was made by the MCHD Environmental Laboratory and produced the 5 photos (center) as a diagnostic tool for future identifications. (Novarino, G. 2005) reports that very few ecological surveys of marine plankton have attempted to identify cryptomonads down to the genus or species level. Photos (A-G below, right) from <http://www.smhi.se> (SMHI – Sveriges Meteorologiska och Hydrologiska Institute). This genus will be subject to further study in our lab.

**Table 1. Bloom History of *Chroomonas* sp. in Raritan / Sandy Hook Bays and Monmouth Co Coast, NJ.**

Year	Spring	Mid Summer	Late Summer
1984	Raritan and Monmouth Coast	Raritan and Monmouth Coast	
1988		Raritan Bay	
1992	May-June with red tide species		
1993	May with red tide species		
1994	Bloomed Sandy Hook Bay	Sandy Hook Bay	Sandy Hook Bay
1995	Sandy Hook Bay	Sandy Hook Bay	Monmouth Coast
1999	Presence noted on checklist but no information on abundance or distribution		
2007	Shrewsbury /Navesink Early May		



A-D = A living cell; B&C = Dorsal pyrenoid; D = Grain near the cell anterior; E-F = Cells in Lugol, notice pyrenoid and long ventral flagellum. A-D (BF). E-F (DIC)

**Identification:** Although Marshall (1983) describes *Chroomonas amphioxeia* as having 2 equal flagella, it is reported by G. Novarino (2005) that *Teleaulax amphioxeia* can be differentiated from *T. acuta* by its unequal length flagella. The longer one is the ventral flagellum. It is reported by to be 1 to 1.5 times the cell length.. Beware, the acute posterior end of *T. acuta* resembles *T. amphioxeia* by light microscopy although differences may be seen by SEM. Also, *T. acuta* has 2 equal flagella about ¼ to ½ the cell length. The ability to identify this Chroomonad to genus and species using light microscopy is important in routine evaluation of algae blooms that the Health Department responds to. In our photos below, the flagella are slightly visible although, so far, the length has not been determined or shown unequivocally to be of equal or uneven length. Continued study, perhaps with a phase contrast setting, may reveal the lengths.

Novarino, Gianfranco. 2005. Nanoplankton protists from the western Mediterranean Sea. *SCI. MAR.*, 69 (1): 47-74

Marshall HG. 1983. Identification Manual for Phytoplankton of the US Atlantic Coast. EPA-600/4-83-000

New Jersey Geological Survey Technical Memorandum 89-1, Olsen and Kurtz, 1989.

NJDEP 1995 Annual Summary of Phytoplankton Blooms and Related Conditions in NJ Coastal Waters Summer

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