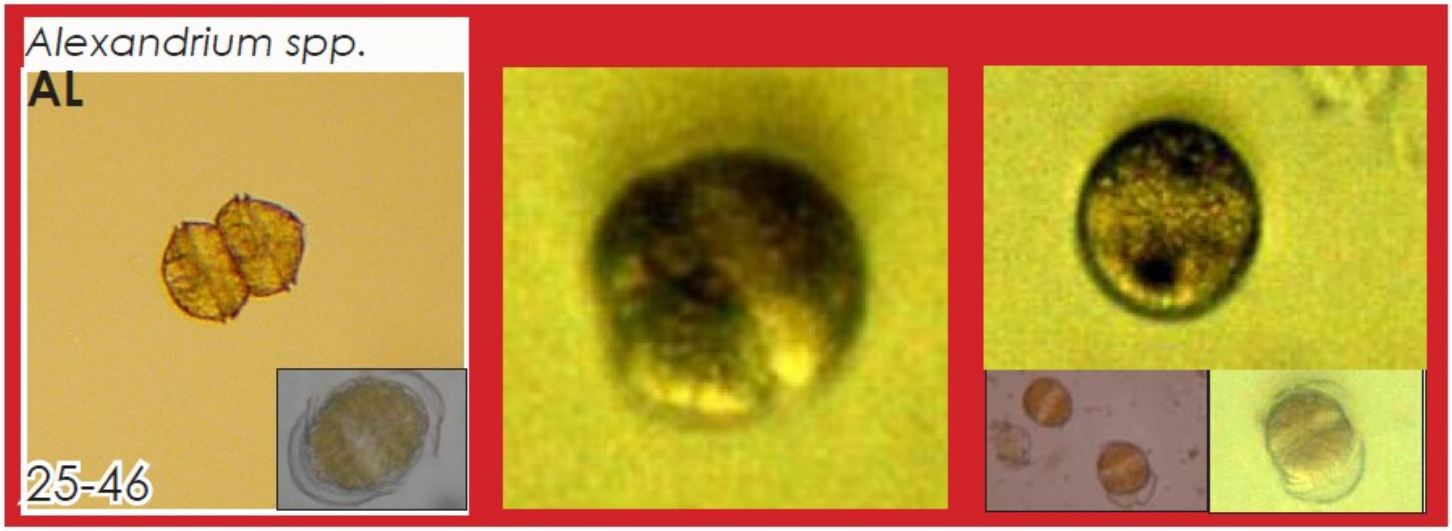
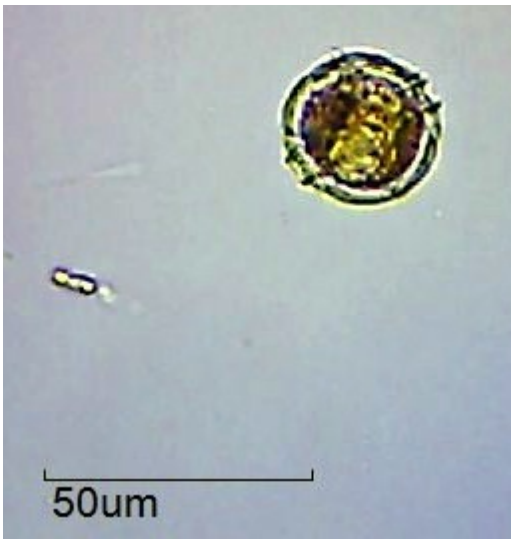
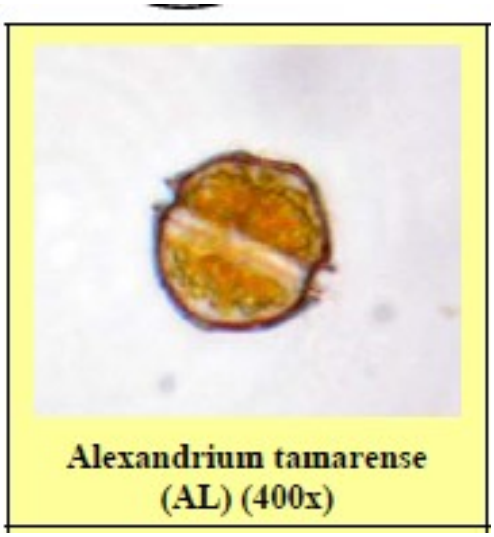
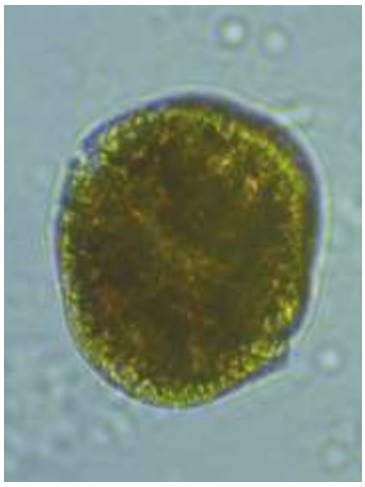
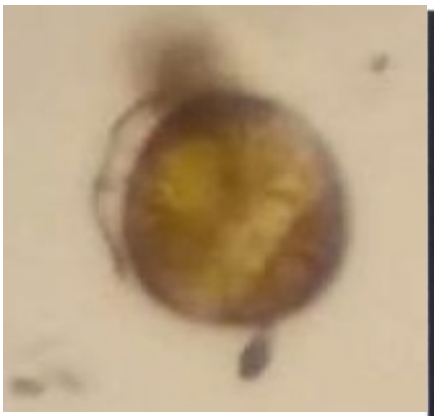
Alexandrium species

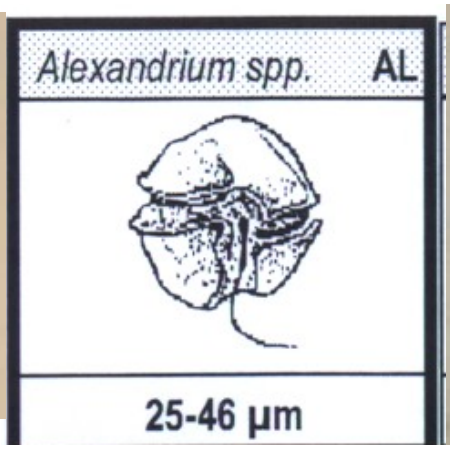


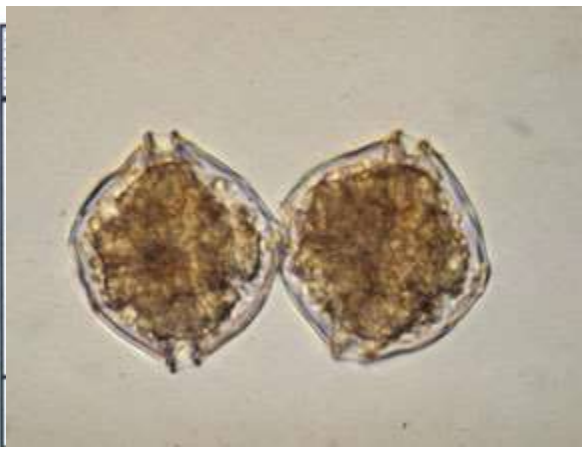






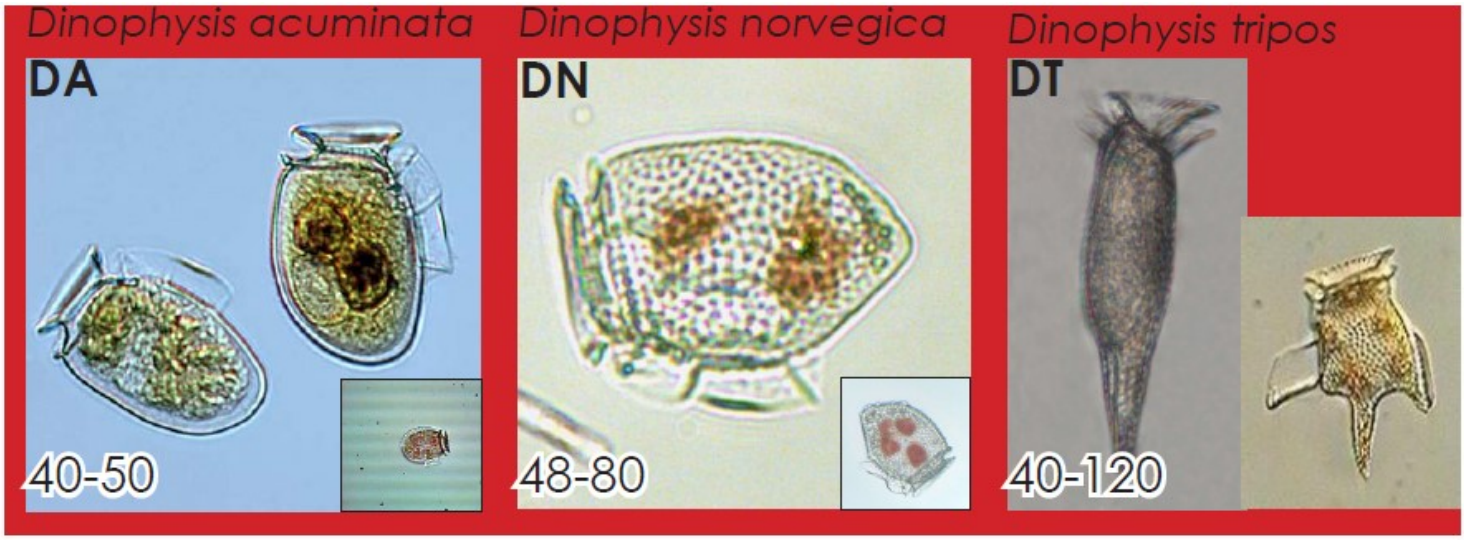


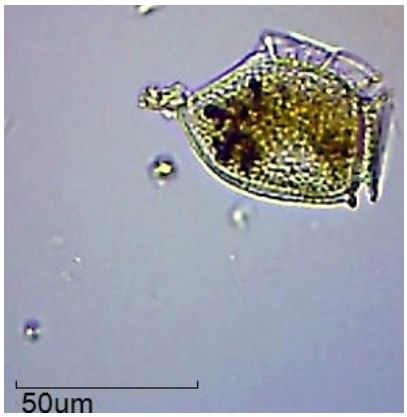


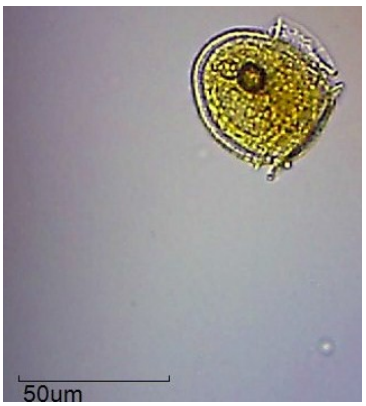


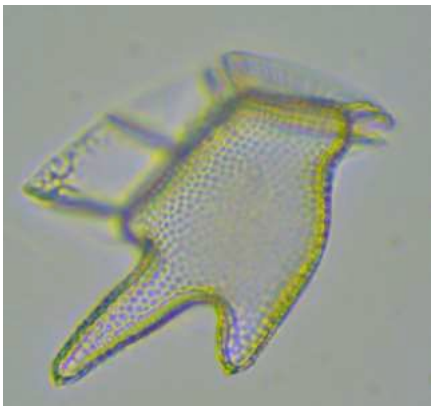
- **Typically uniformly round.**
- **Has a visible girdle.**
- **No projections out of the top or side of the cell.**
- **Similar Species: Scripsiella spp., Thalassiosira spp., Gonyaulax spp., Protoperidinium spp.**

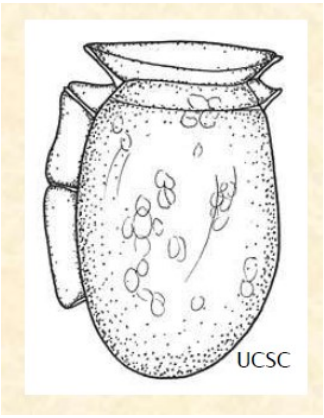
Dinophysis species





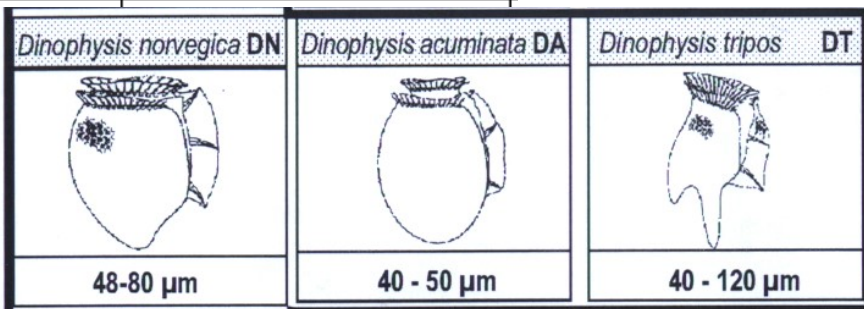






Dinophysis norvegica (DN) (400x)	Dinophysis acuminata (DA) (400x)	Dinophysis tripos (DT)(400x)

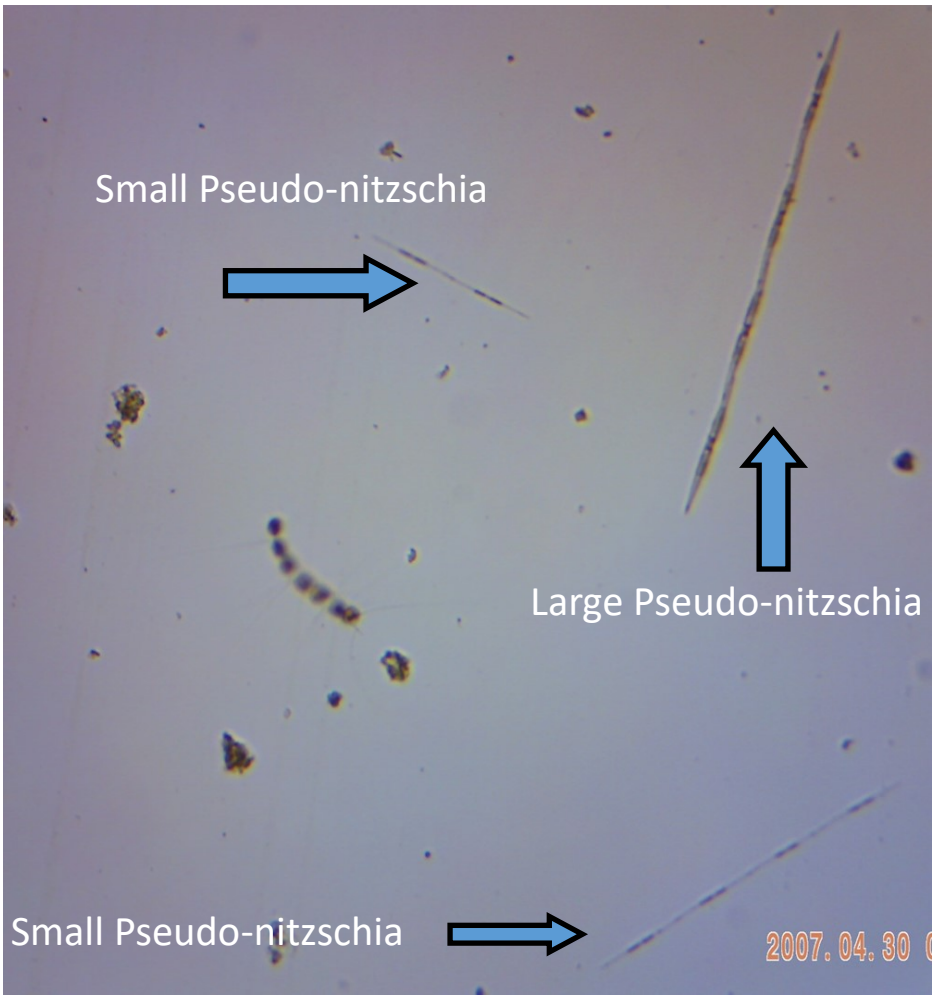
- **Has fins or wing-like projections out of its top or sides (called cingular and sulcal lists).**
- **All three species are counted together.**
- **All species can produce toxin, although toxicity varies.**



Pseudo-nitzschia species small (width < 3 µm)

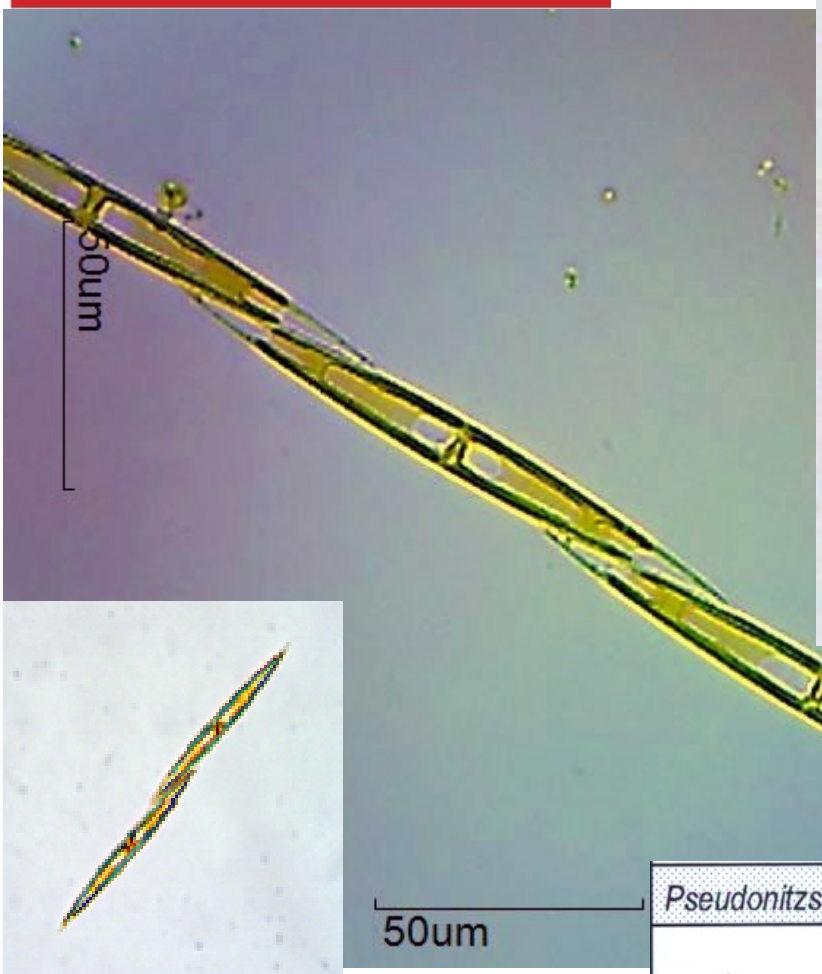
- They are long and narrow with pointed ends.
- The body tapers gradually from the middle to the end.
- They often form chains, and when counting, you should count each cell in a chain.
- There are many species in the Gulf of Maine that are hard to tell apart, so we will just be classifying by size.
- Small cells have a width of <3µm. (group is called delicatissima)
- This species is a type of phytoplankton called a diatom, and they make cell wall out of silica.

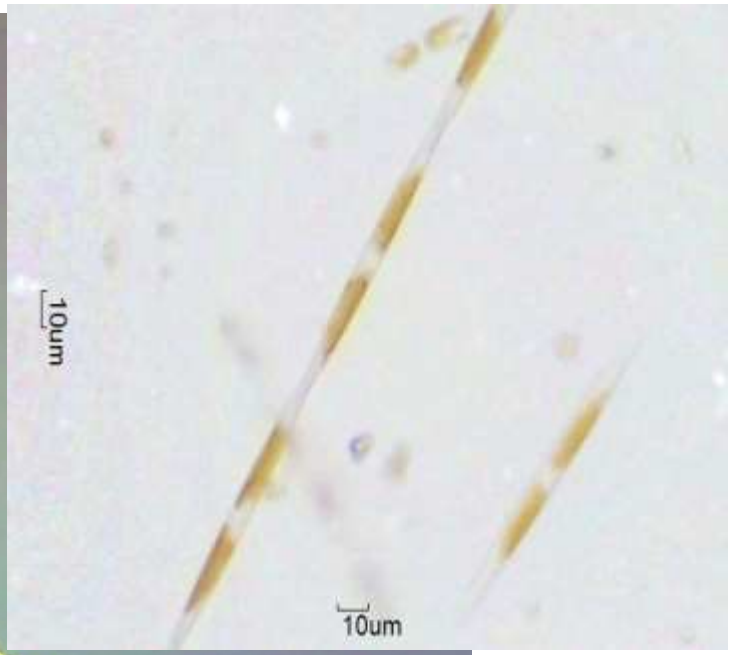
Pseudonitzschia delicatissima (PS) (400x)



Pseudo-nitzschia species large (width > 3 µm)

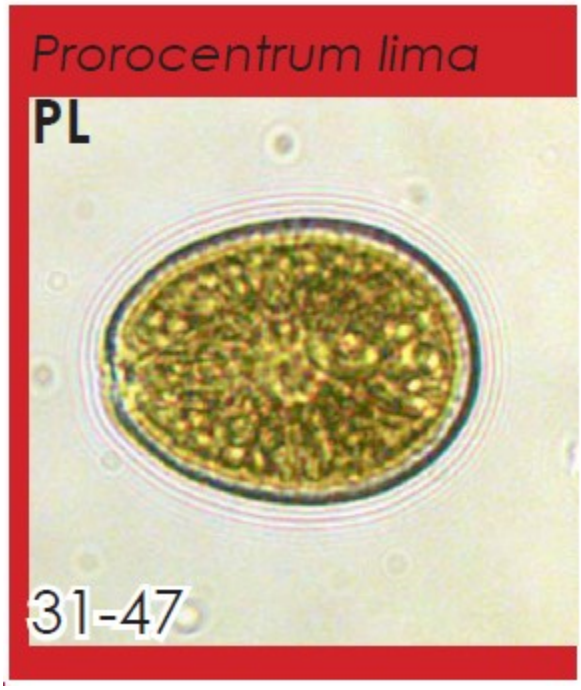
- They are long and narrow with pointed ends.
- The body tapers gradually from the middle to the end.
- They often form chains, and when counting, you should count each cell in a chain.
- There are many species in the Gulf of Maine that are hard to tell apart, so we will just be classifying by size.
- Large cells have a width of >3µm. (group is called seriata)
- This species is a type of phytoplankton called a diatom, and they make cell wall out of silica.



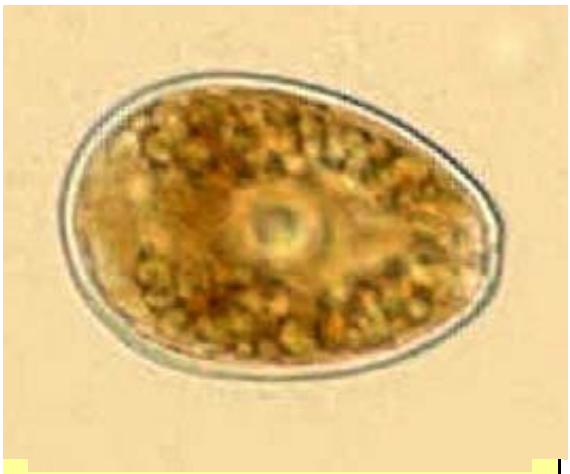


Pseudonitzschia sp (PS)
(100x)

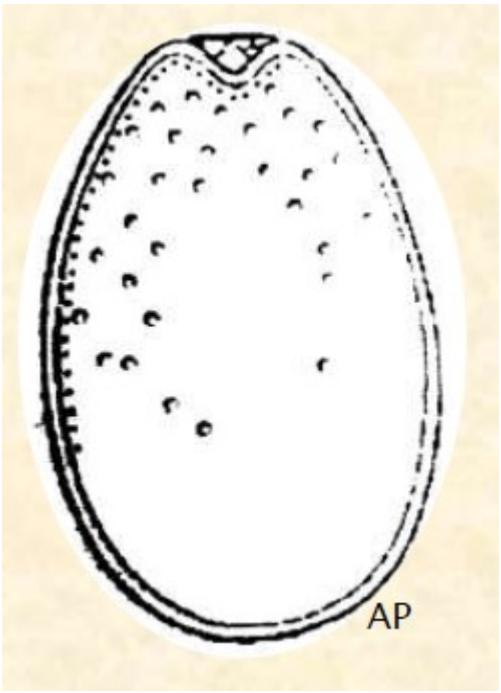
Prorocentrum lima

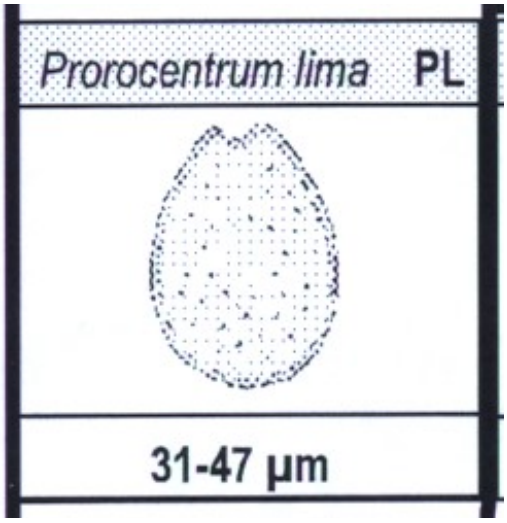


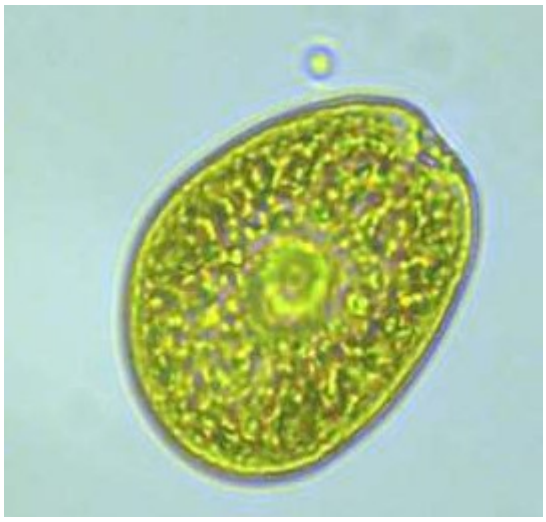
- **Oval shaped cell.**
- **There is an indent on one end of the oval.**
- **There is a large central organ visible in the middle of the cell that is not present in other oval species.**
- **Similar species: Thalassiosira, other Prorocentrum species.**



Prorocentrum lima (PL)
(400x)

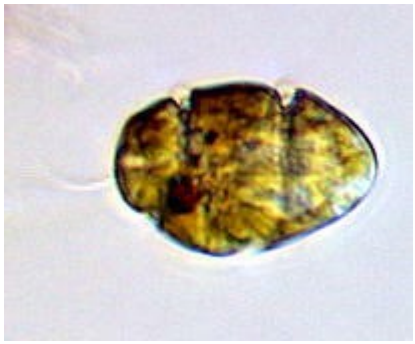


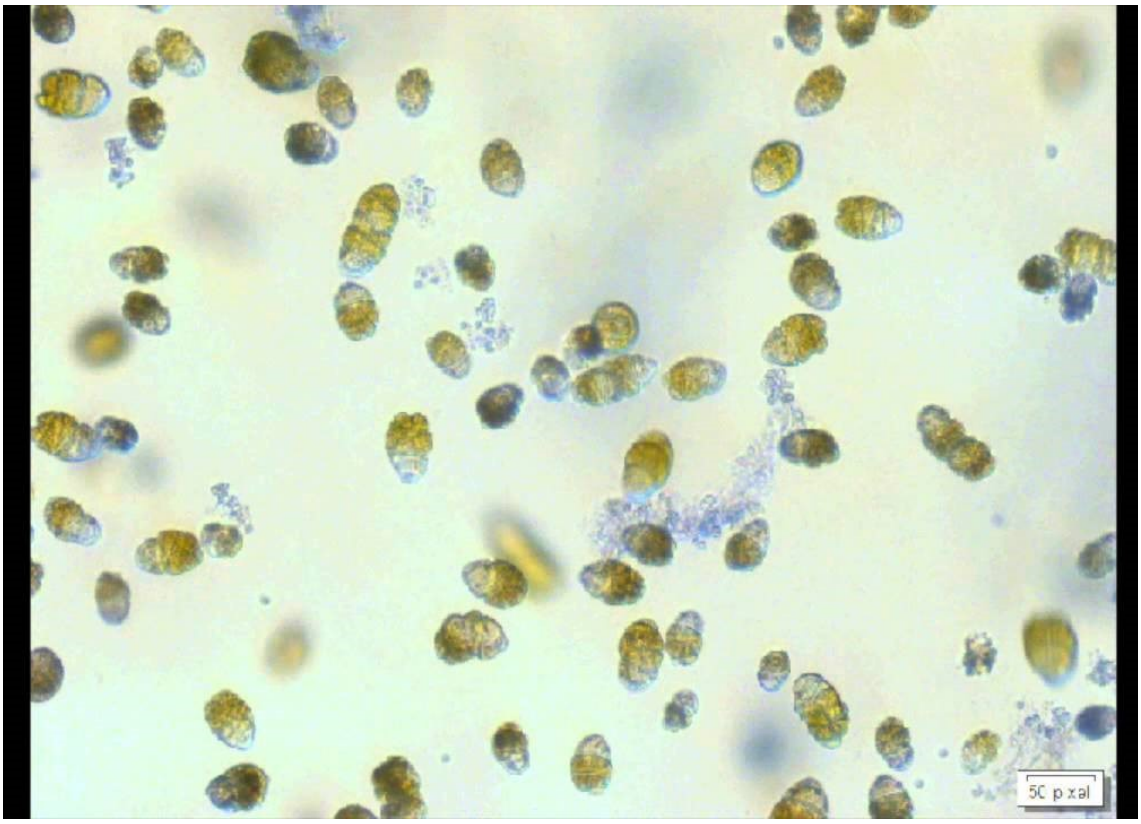


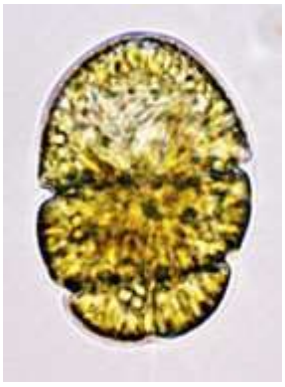


Cochlodinium polykrikoides

- **Has a twisted groove around the middle.**
- **Non toxic.**
- **Responsible for “Rust tides.”**
- **High biomoss during blooms can cause shellfish and fish kills (Anoxia).**
- **A type of dinoflagellate.**







Another Species to Look Out For… Karenia mikimotoi

- **Looks like a small four leaf clover.**
- **It has bloomed in September in the past.**
- **It's an unarmored dinoflagellate.**