

# The benefits of phytoplankton monitoring for aquaculture operations

Lessons learnt from HAMP and the DSP outbreak in 2011

**Nicky Haigh**

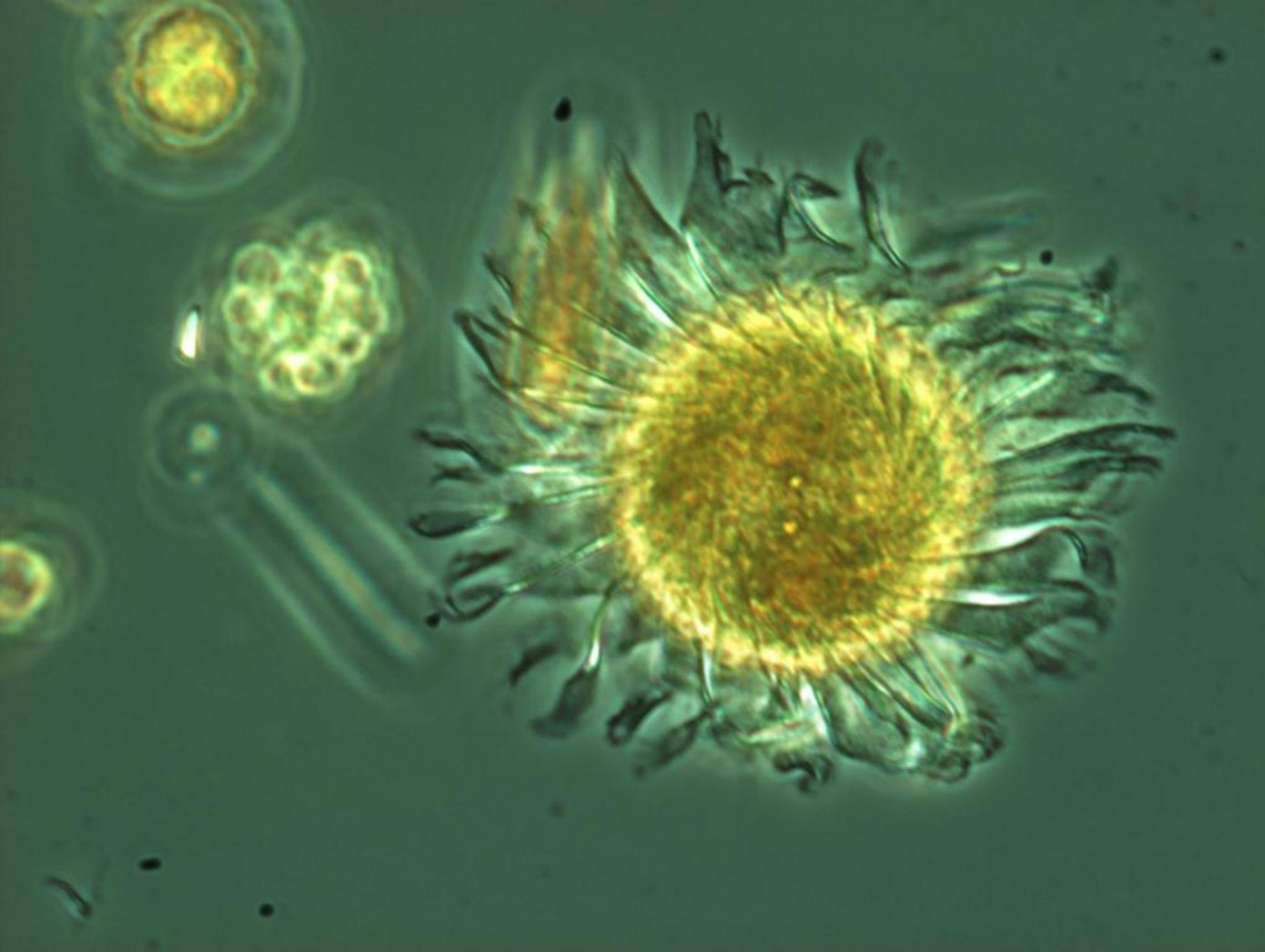
**Harmful Algae Monitoring Program**

Vancouver Island University, Nanaimo, BC

# Phytoplankton monitoring

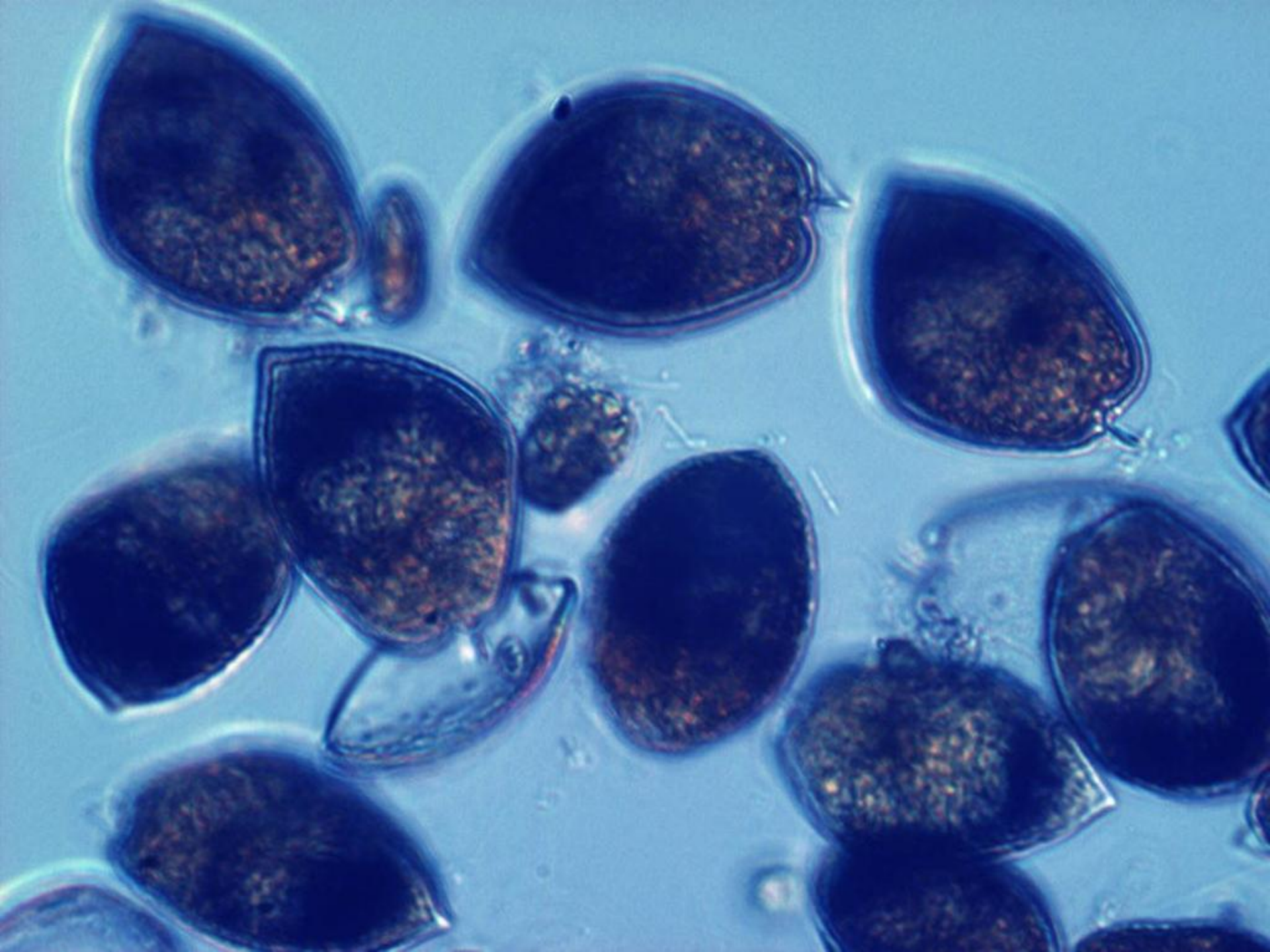
The slide features a solid blue background. At the bottom, there are several overlapping, wavy, light blue shapes that create a sense of movement or water waves.

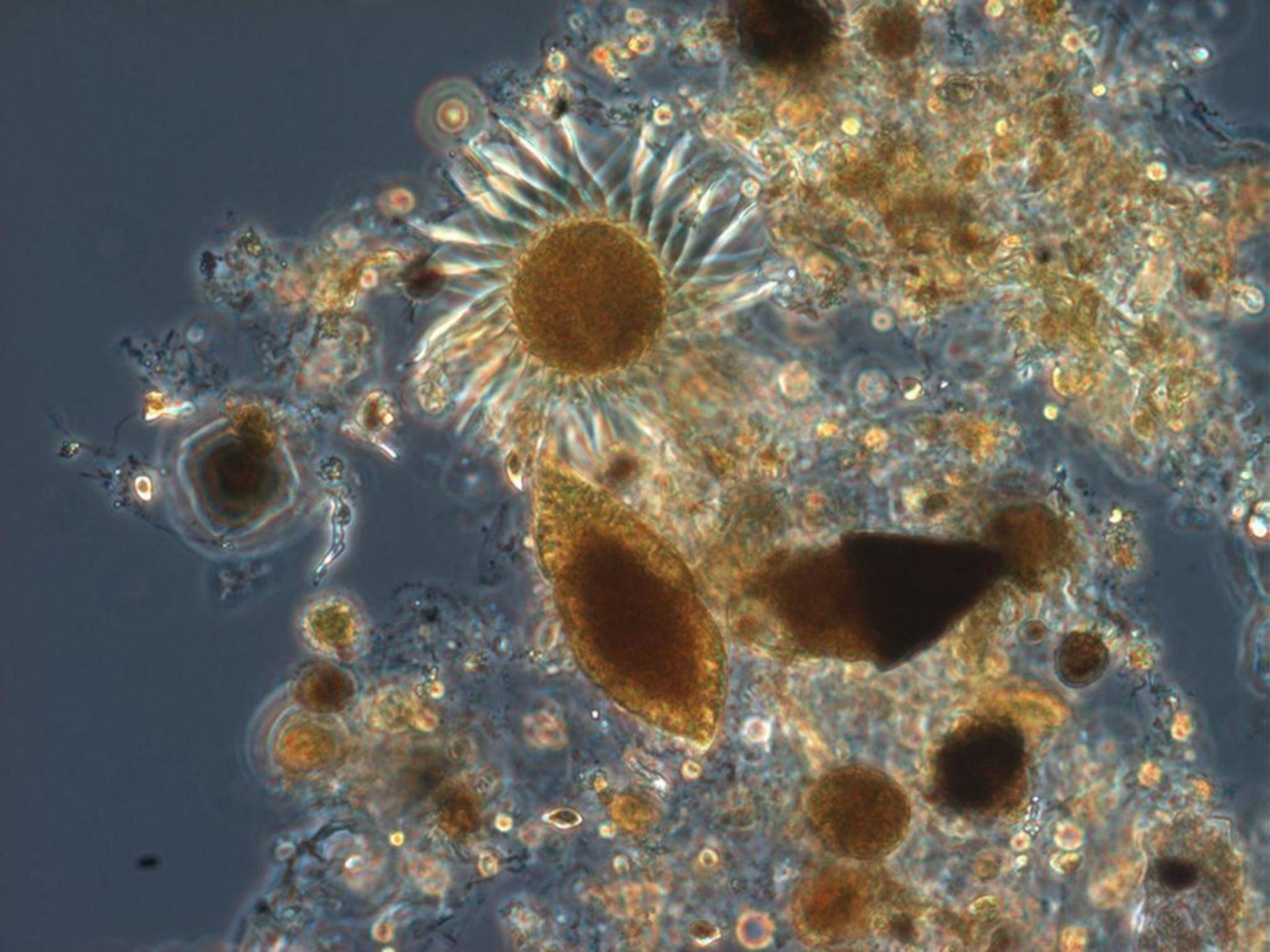










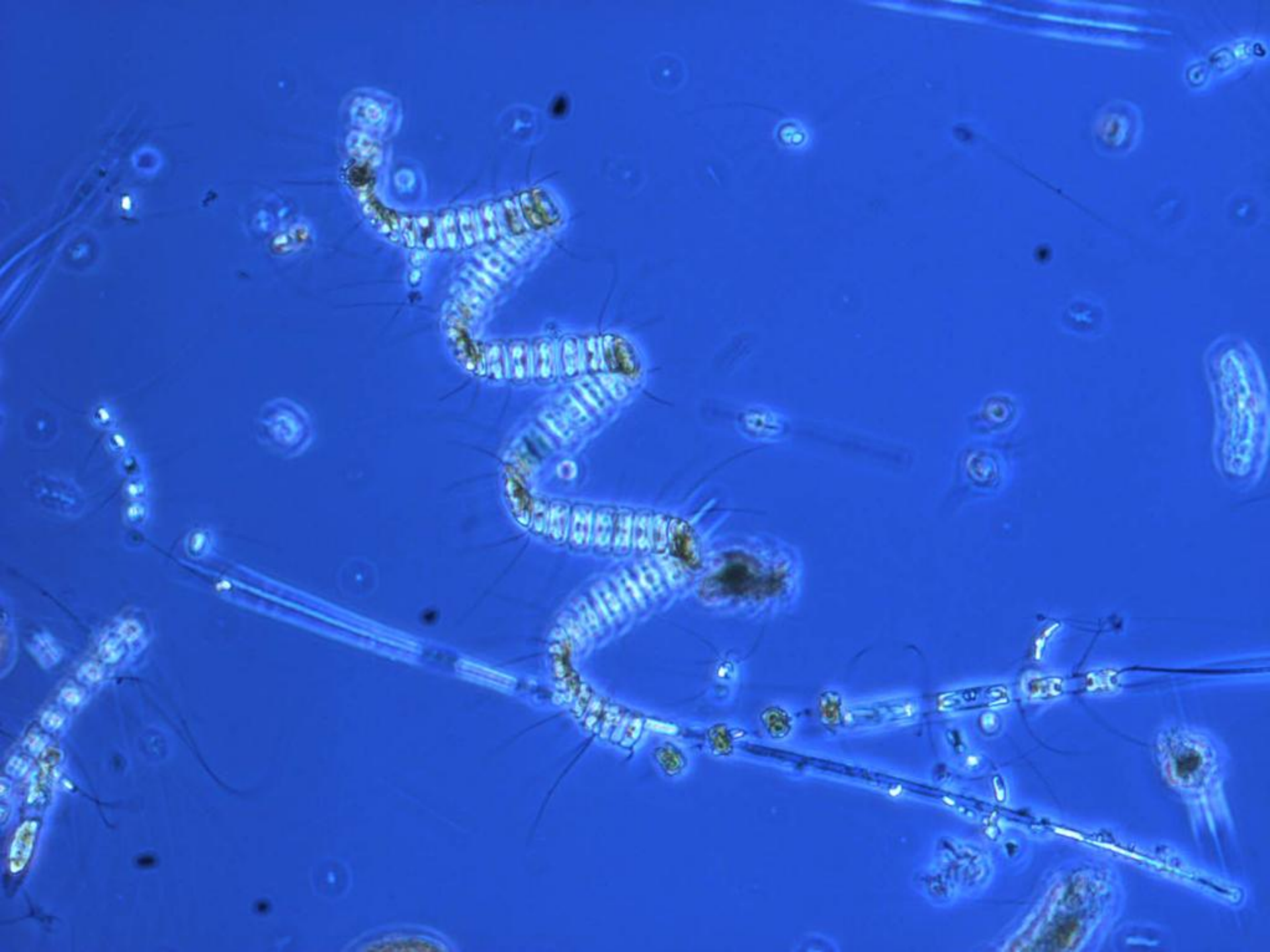


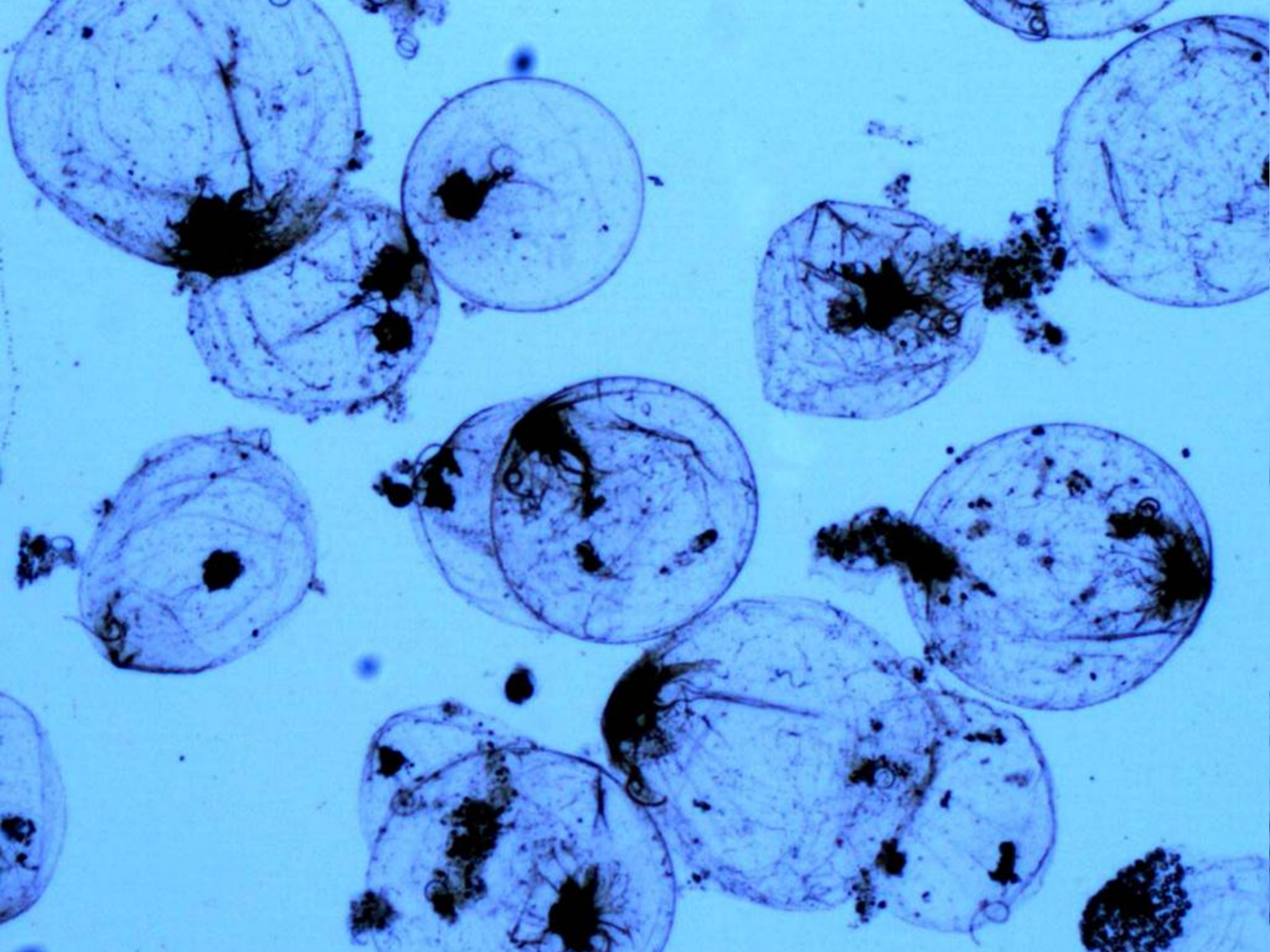


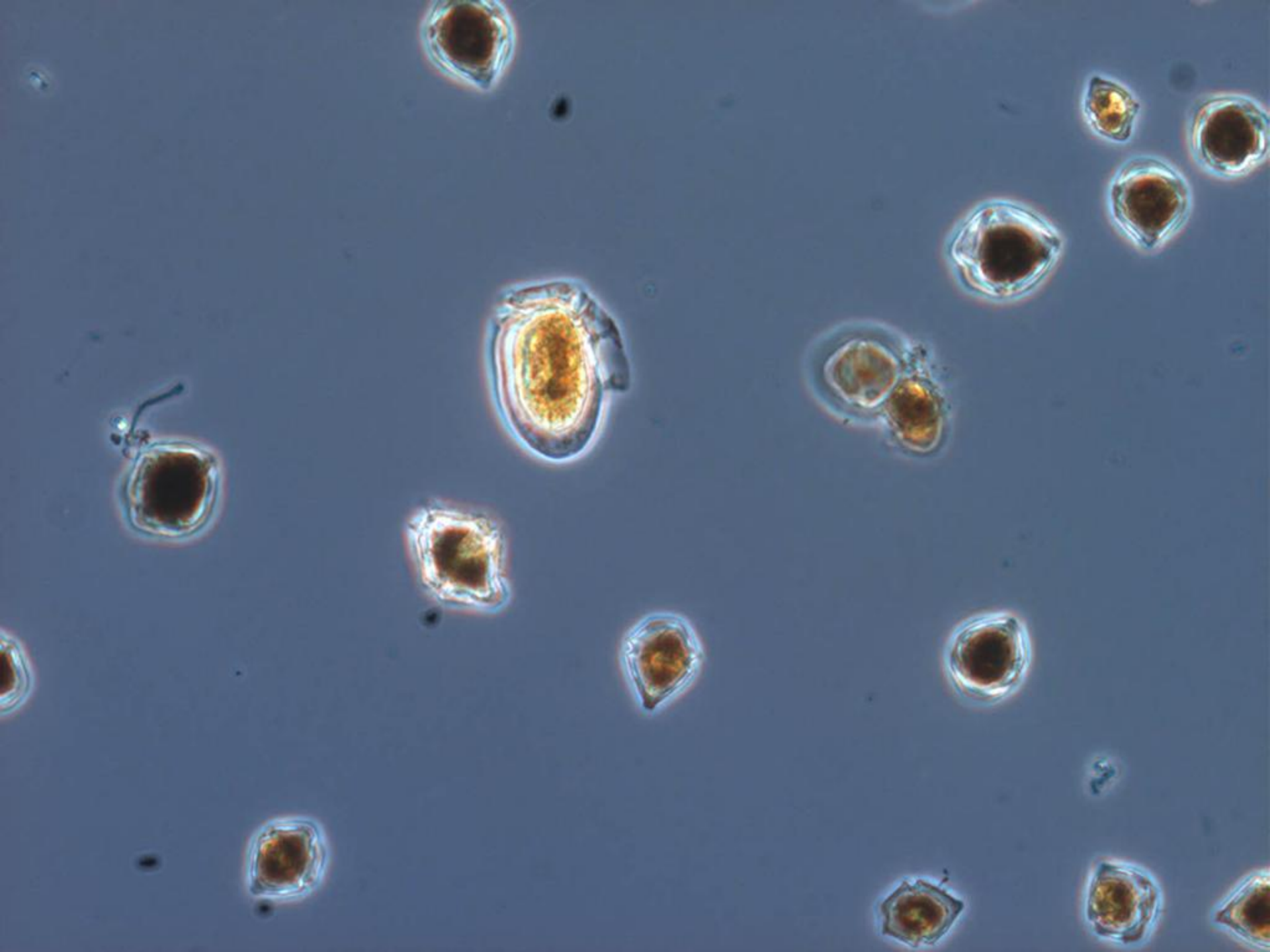


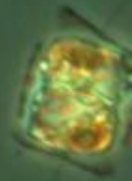
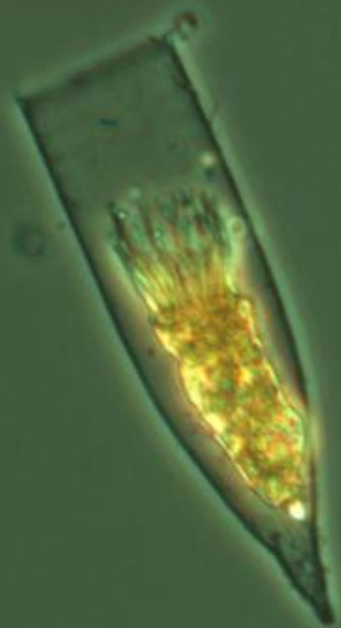


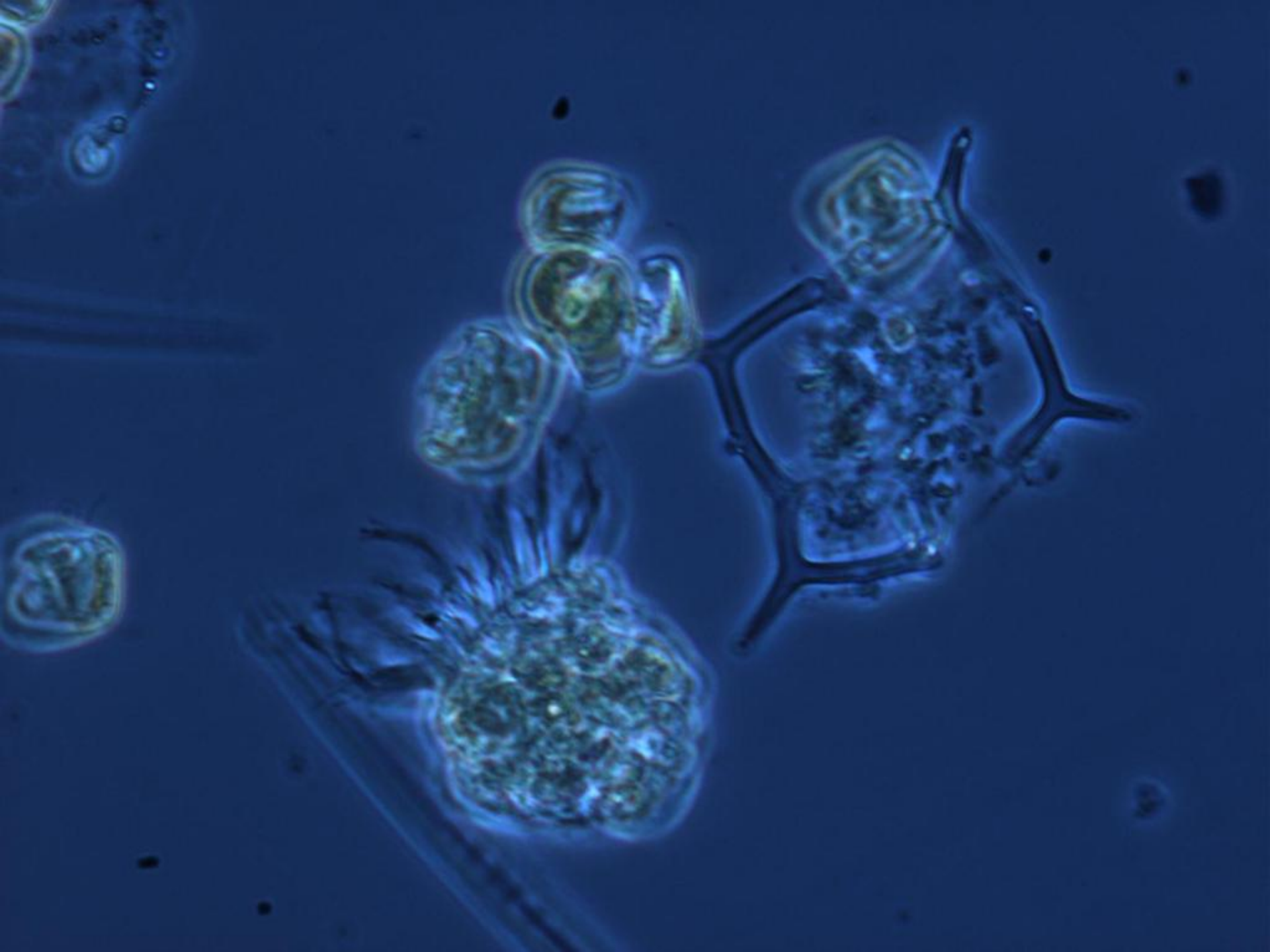




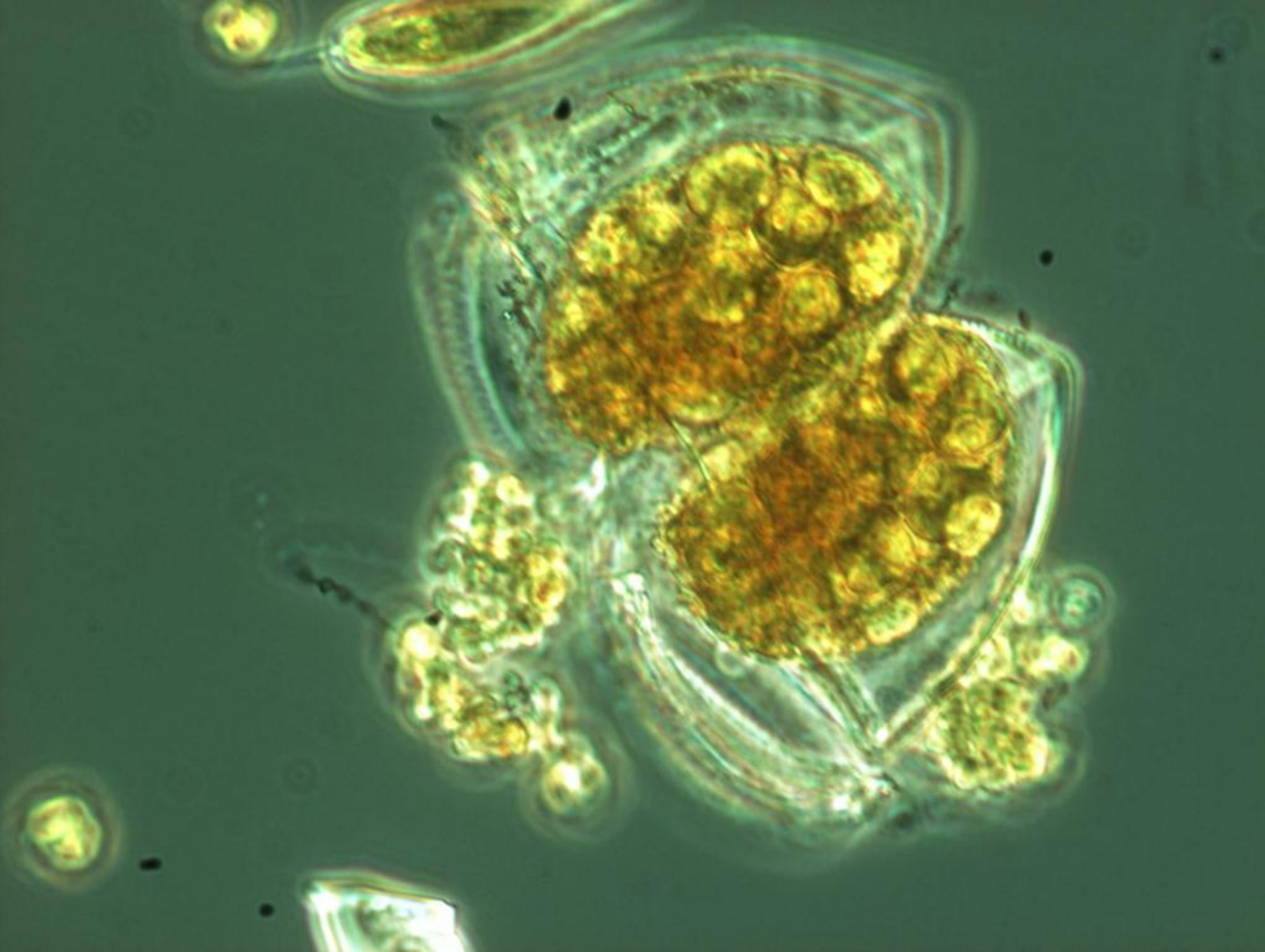












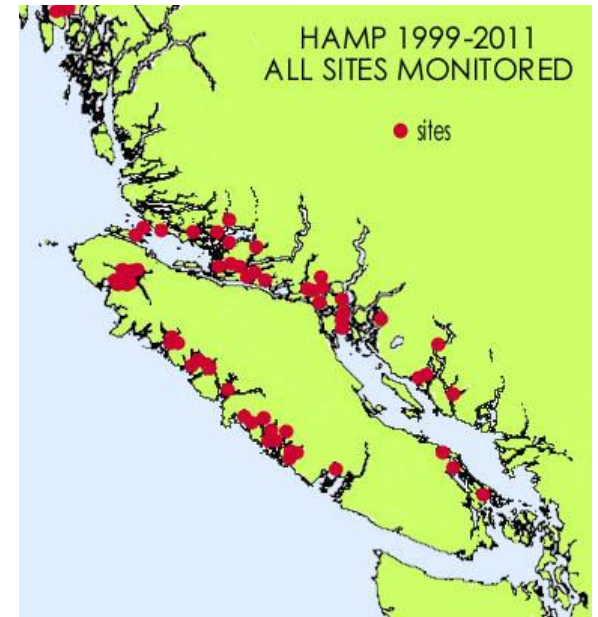


# Overview

- \* The Harmful Algae Monitoring Program (HAMP)
- \* What we saw in the DSP 2011 event
- \* The benefits of phytoplankton monitoring to shellfish growers

# The Harmful Algae Monitoring Program (HAMP)

- \* Work with salmon farmers on HABs
- \* Since 1999 (14 years and counting)
- \* Monitor 12 – 28 sites around Vancouver Island and Central Coast
- \* Weekly phytoplankton samples
- \* Consult during blooms
- \* Train farmers to ID plankton

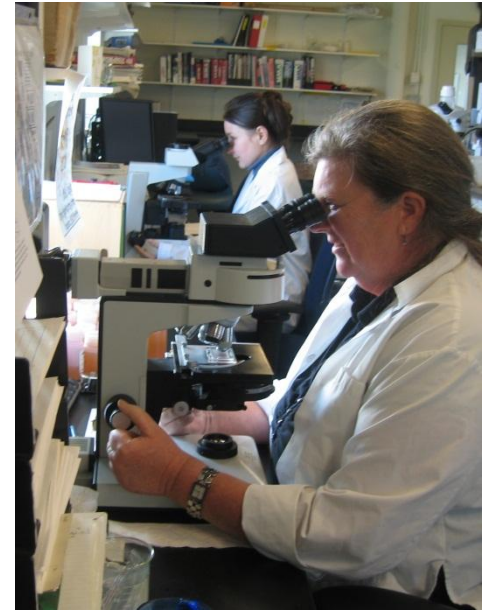


For more information on HAMP:

[http://www.verney.ca/assets/SSEC\\_Presentations/Session%2010/10A\\_NickyHaigh\\_Abstract.pdf](http://www.verney.ca/assets/SSEC_Presentations/Session%2010/10A_NickyHaigh_Abstract.pdf)

# Weekly Plankton Sample Analysis

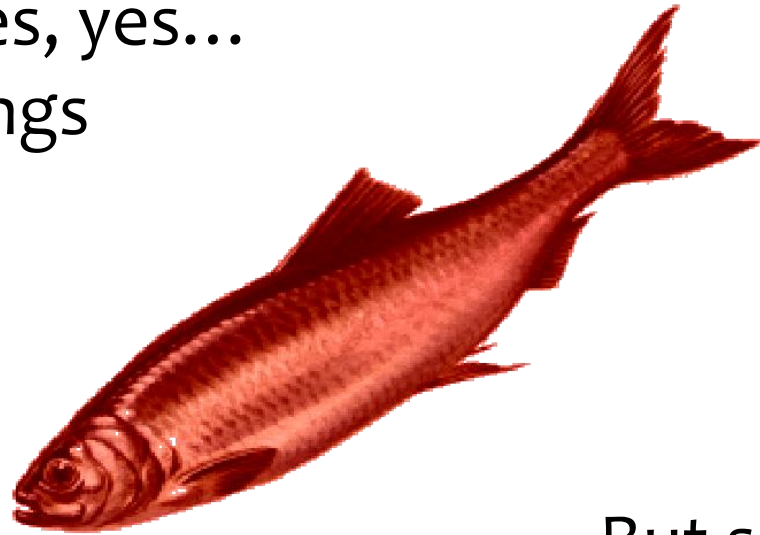
- \* Known and suspect HAB (to fish) species – ID and count
- \* Dominant phytoplankton species or group – ID and count
- \* Other phytoplankton species “to lowest practicable level”
- \* Sample biomass (rough scale 1 – 5)
- \* Biomass percent constituent: diatoms, dinoflagellates, raphidophytes, other flagellates, microzooplankton.
- \* Comments...



# Comments... or “Things that make you go ‘hmmm...’”

- \* Unusual species
- \* Sub-dominant species
- \* High levels of other species of interest

Sometimes, yes...  
Red herrings



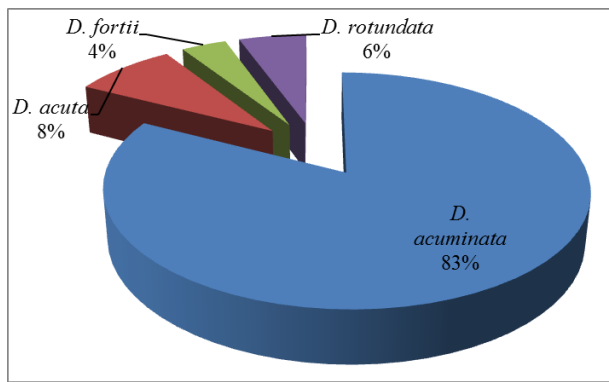
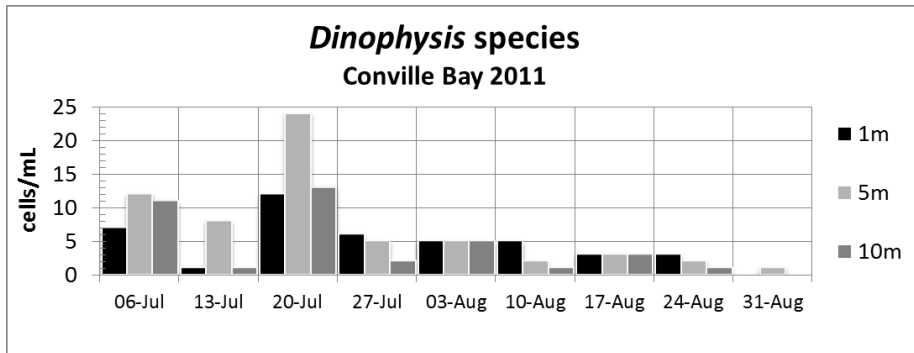
But sometimes...

# DSP in 2011, as seen in HAMP samples

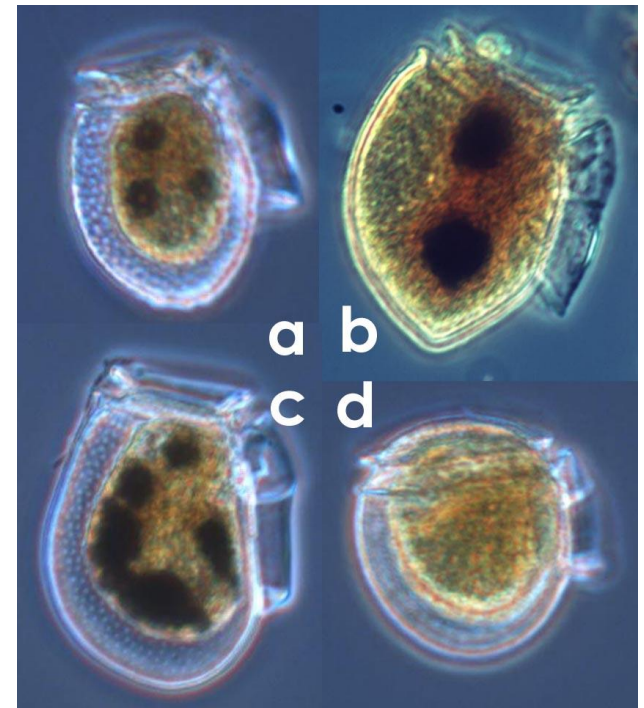
- \* Notable levels of *Dinophysis* species at some HAMP monitoring sites
- \* Counted in HAMP samples from early July



# Dinophysis in Conville Bay samples



Percentage of different *Dinophysis* species in Conville Bay samples from July 6 to August 31, 2011.



*Dinophysis* species in Conville Bay samples: a) *D. acuminata*, b) *D. acuta*, c) *D. fortii*, d) *D. rotundata*

# Benefits of phytoplankton monitoring to shellfish growers

- \* EARLY WARNING
  - \* Presence of toxic species (unmarketable product)
  - \* Possible harmful species to shellfish (product loss)
  - \* Low biomass or nutrition value (poor production)
- \* Cost effective

# Summary

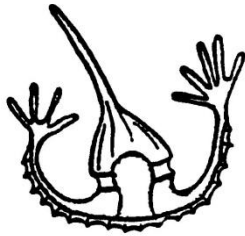
- \* HAMP has been efficiently and effectively monitoring plankton in BC since 1999
- \* In 2011 we saw elevated levels of *Dinophysis* species in water samples before toxic event
- \* Phytoplankton monitoring can be a cost-effective tool for shellfish growers

# Thanks to:

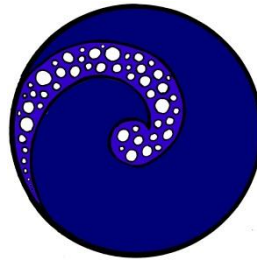
- \* HAMP participants:
  - \* Marine Harvest Canada
  - \* Mainstream Canada
  - \* Grieg Seafood BC Ltd
  - \* Creative Salmon
- \* HAMPsters past and present
- \* BC Centre for Disease Control



And thank you for your attention!



HAMP



*Microthalassia Consultants Inc*



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