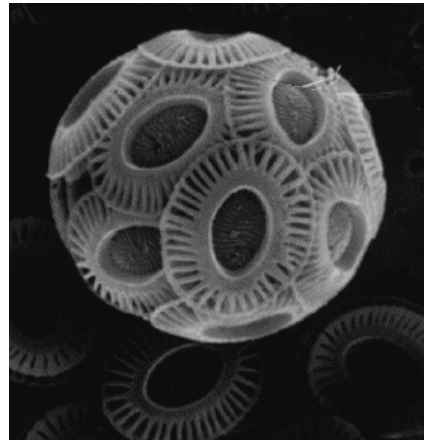


Harmful algal blooms endanger human lives and impact mariculture production

Mariculture, or ocean farming, is an increasingly important source of protein in diets around the world, as fishing reduces natural ocean stocks. FAO estimates that more than half of all fish will be cultured by 2030. Caged fish and attached species like oysters and mussels are exposed to whatever ocean currents and land runoff brings their way. Impact ranges from multi-million dollar kills from temperature effects on Australian tuna ranches to human deaths from consumption of Canadian mussels that collected toxins during 'red-tides'. *In situ* monitoring is required to distinguish non-toxic blooms, like the one shown below, from toxic ones, although species identification from space may eventually be possible.

Satellites can already predict encounters with lethal conditions for cultured species by tracking water temperatures, but coastal zones are less predictable than the open ocean. Permanent monitoring arrays and more complex models like those used for weather forecasting can increase understanding of how chemicals released on land interact with ocean waters. This will lead to better management, reduced health risks and increased value of coastal zones for food production.



This 1999 bloom in an English Channel satellite image was positively identified as *Emiliana huxleyi* shown on the right. <http://www.soes.soton.ac.uk/staff/tt/eh/index.html>