DIATOM LIFE CYCLES - HOW FAR BACK CAN WE TRACE THEM?

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There has been a large increase in the number of recorded species of diatoms since the early Cretaceous, from about 50 to over 100,000 at present. One of the adaptations that contributed to this success was the 'sex clock', which permits timing of life cycles longer than one year. However, we only know how sexual reproduction is incorporated into the life history strategies of a handful of species. Part of the reason for this is that sexual reproduction has evolved in a way that does not usually interfere with the increase in cell numbers by asexual reproduction. As a result, it is often overlooked or considered unimportant. Results will be presented to show that the diatom sex clock was already present in the earliest known siliceous fossils from the Lower Cretaceous over 100 million years ago. The community includes both resting stages and vegetative forms from a marine habitat. Also, comparative morphological studies with extant populations have been used to investigate other aspects of the probable life history strategies of selected fossil species found in both the Lower and Upper Cretaceous.

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