Evolutionary responses to ocean acidification in free living protists

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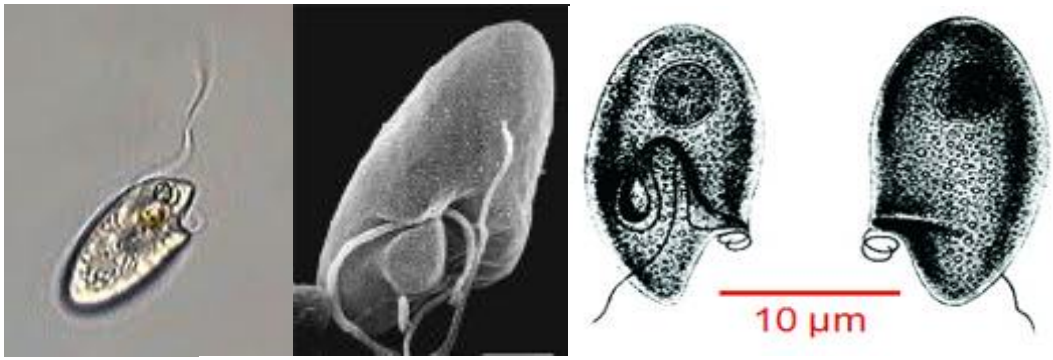
Oxyrrhis marina



Marine heterotrophic flagellate

Cosmopolitan, worldwide distribution

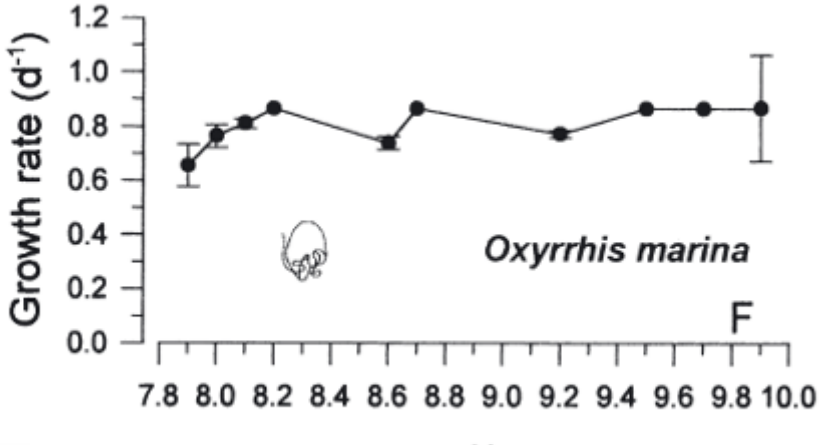
High levels of functional and genetic diversity (Lowe *et al*. 2005)

> 200 distinct geographic isolates

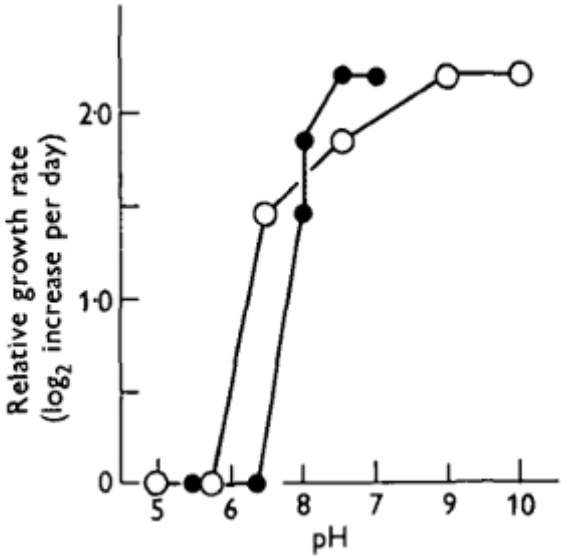
Large quantity of genomic and proteomic data

Large amount of eco-physiological data

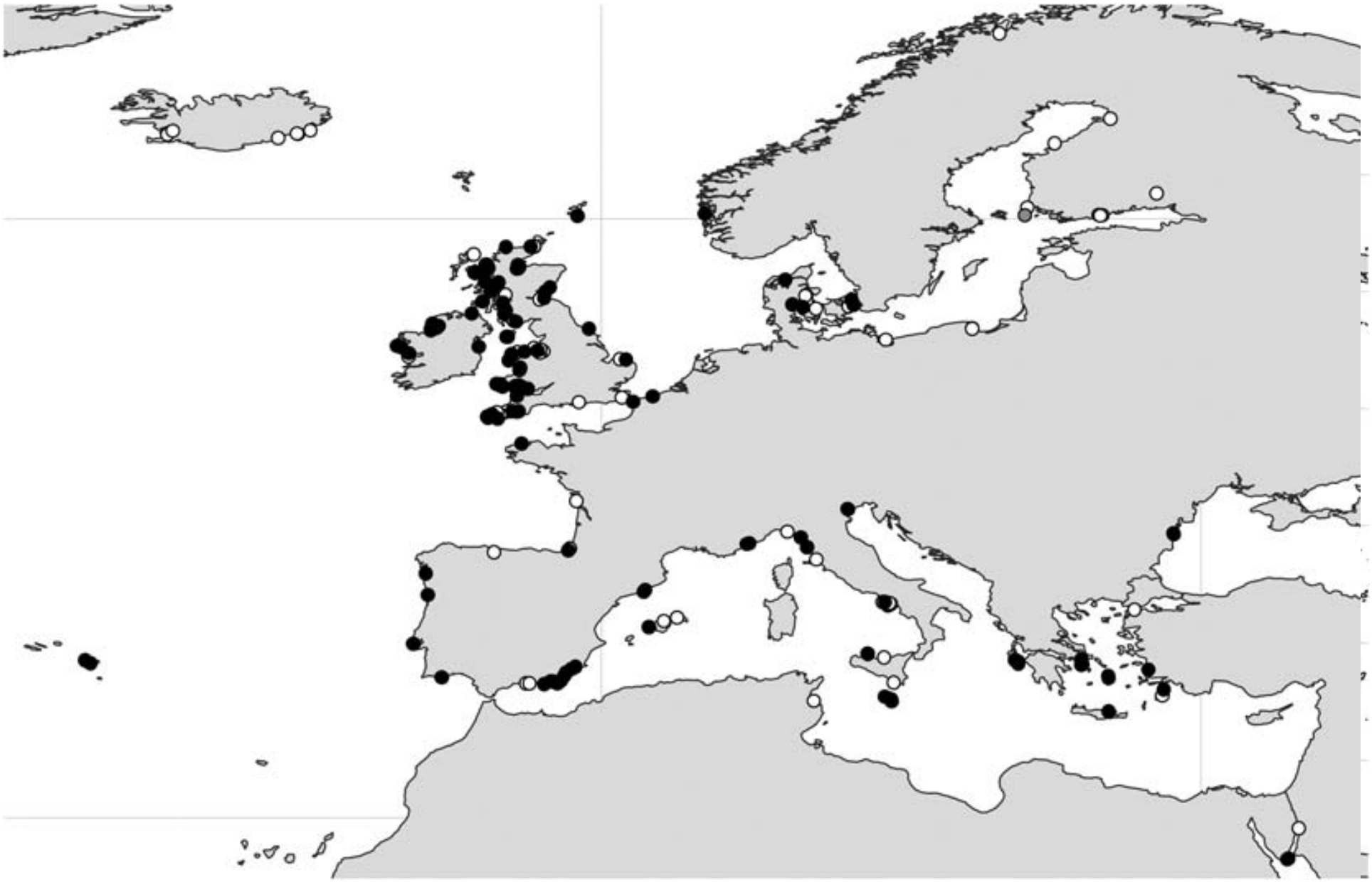
Model free living protist (JPR Special Issue)



Pedersen & Hansen (2003)



Droop (1959)



***O. Marina* European distribution**

Open circles= No isolates found
Closed circles= Isolate in culture
Grey circles= Found in the past

Aims

• How much eco-physiological variation to ocean acidification is there in *Oxyrrhis marina*?

• Is the outcome of intra-specific competition and evolution predictable from the eco-physiological profiles of the strains?

•How does standing genetic variation affect adaptation to environmental change such as ocean acidification?

• Do strains from some geographic areas of European seas have a selective advantage in adapting to ocean acidification?

•Does the rate of acidification affect the ability of *Oxyrrhis marina* to acclimate and thus impact on the outcome of evolution?