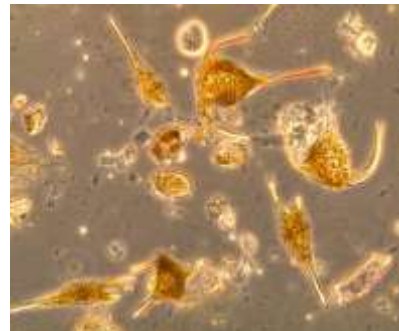


CESAM - Centre for Environmental and Marine Studies

Response of phytoplankton to a changing world

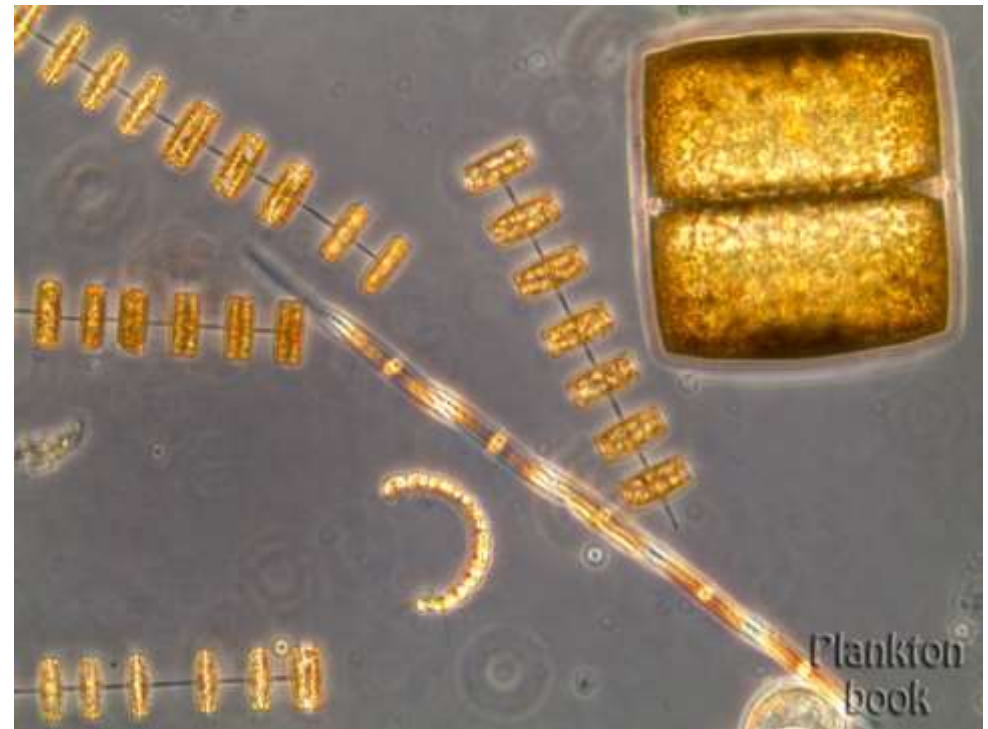
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Henrique Queiroga



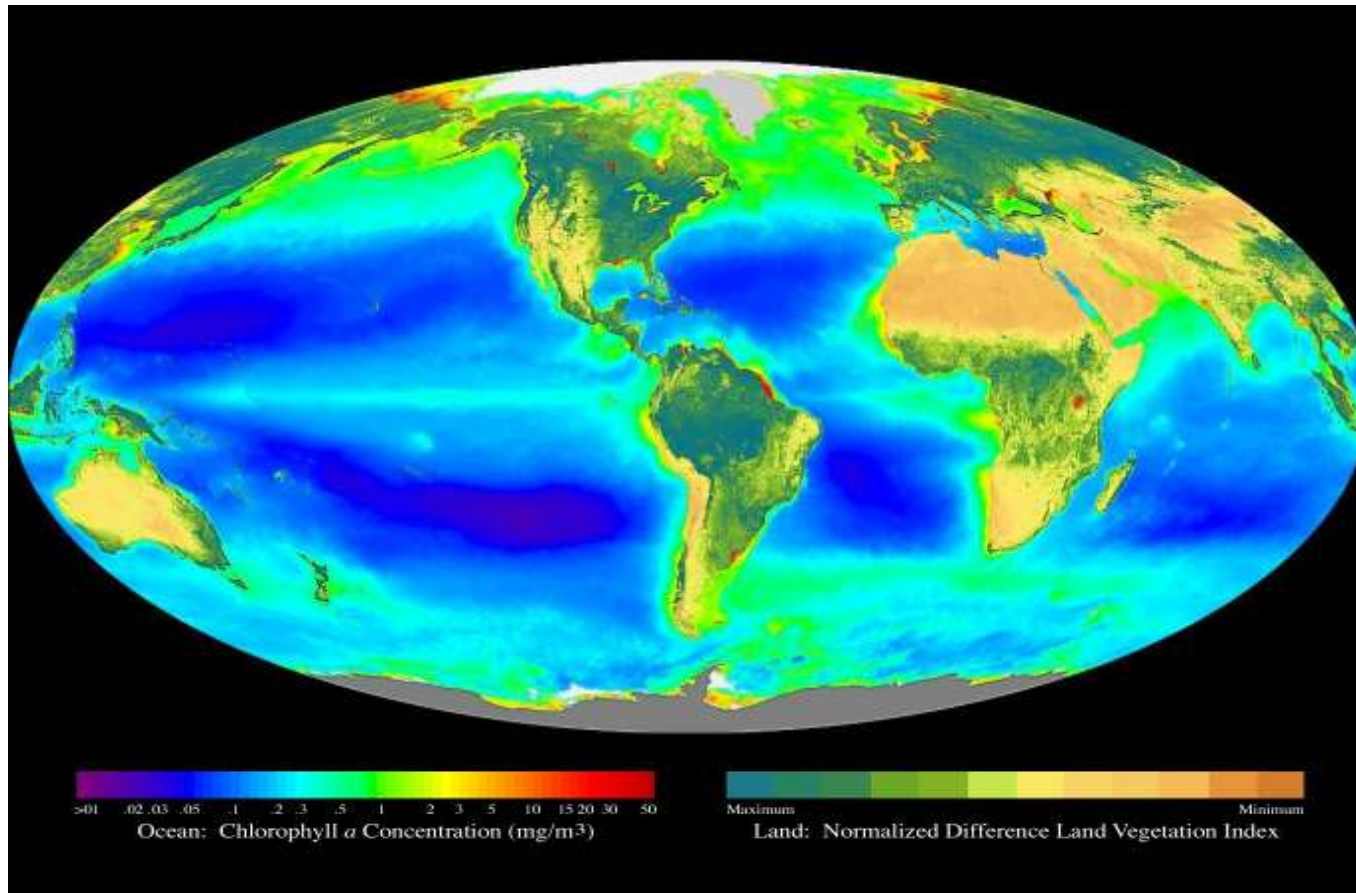
Phytoplankton

Autotrophic component of the plankton

- live in the water column, wherever sunlight reaches**
- drift with water masses**
- high taxonomic diversity**
- most are microscopic and unicellular organisms (but can join to form cell chains)**



**Responsible for
~ 50% of global primary
production**



Distribution and growth:

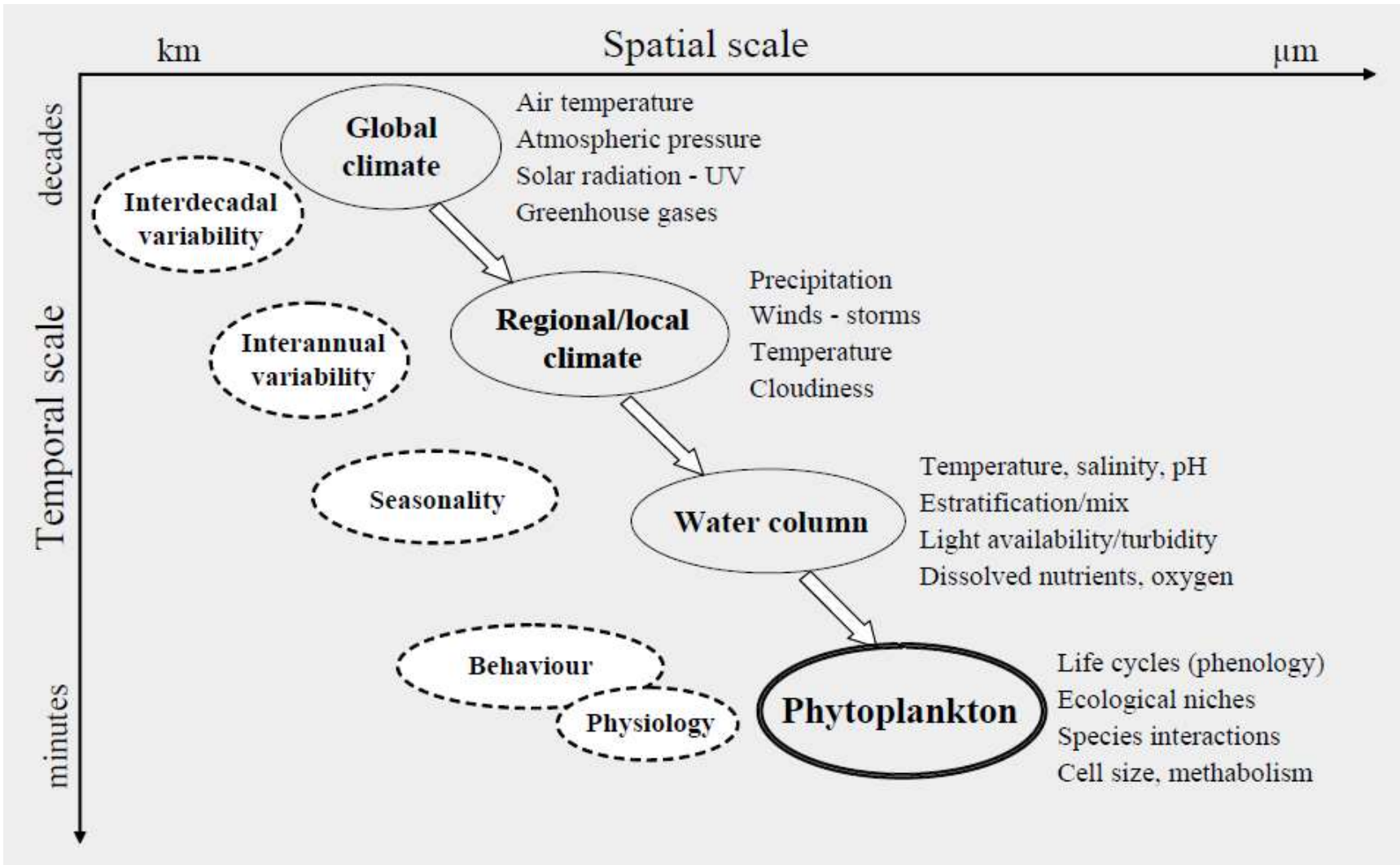
Physical factors (ex. sunlight, turbulence, stratification)

Chemical factors (ex. nutrients)

Biological factors (ex. grazers)

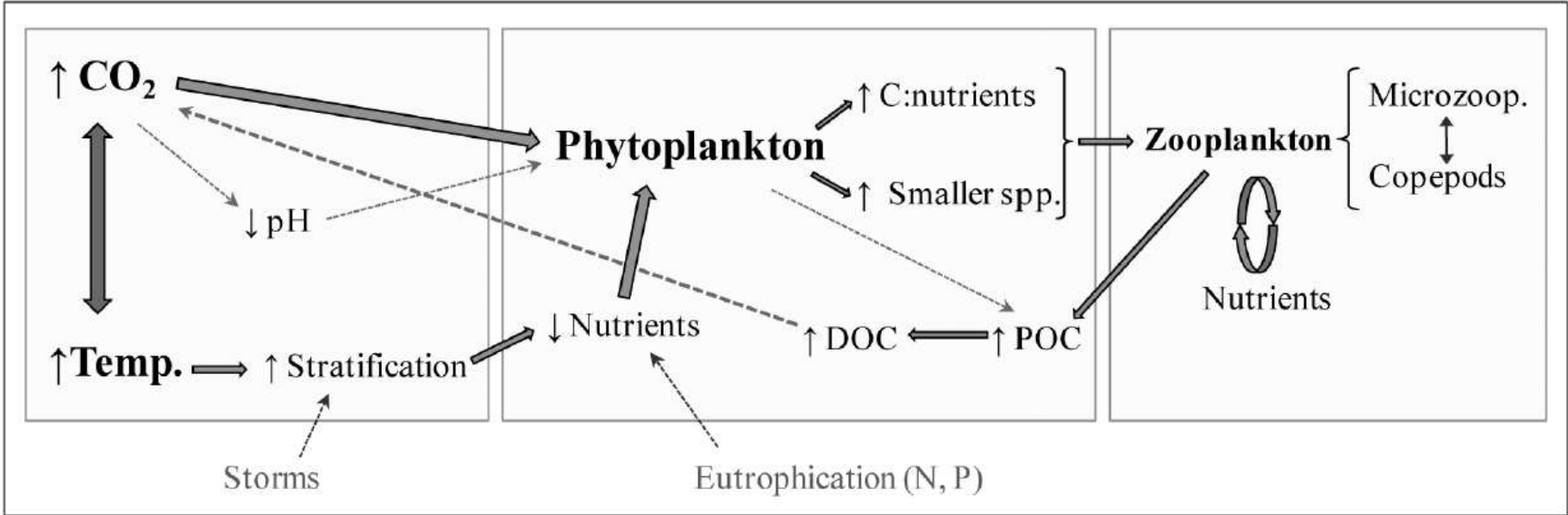
Response of phytoplankton to a changing world

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Henrique Queiroga



Guinder & Molinero 2013

KNOWLEDGE

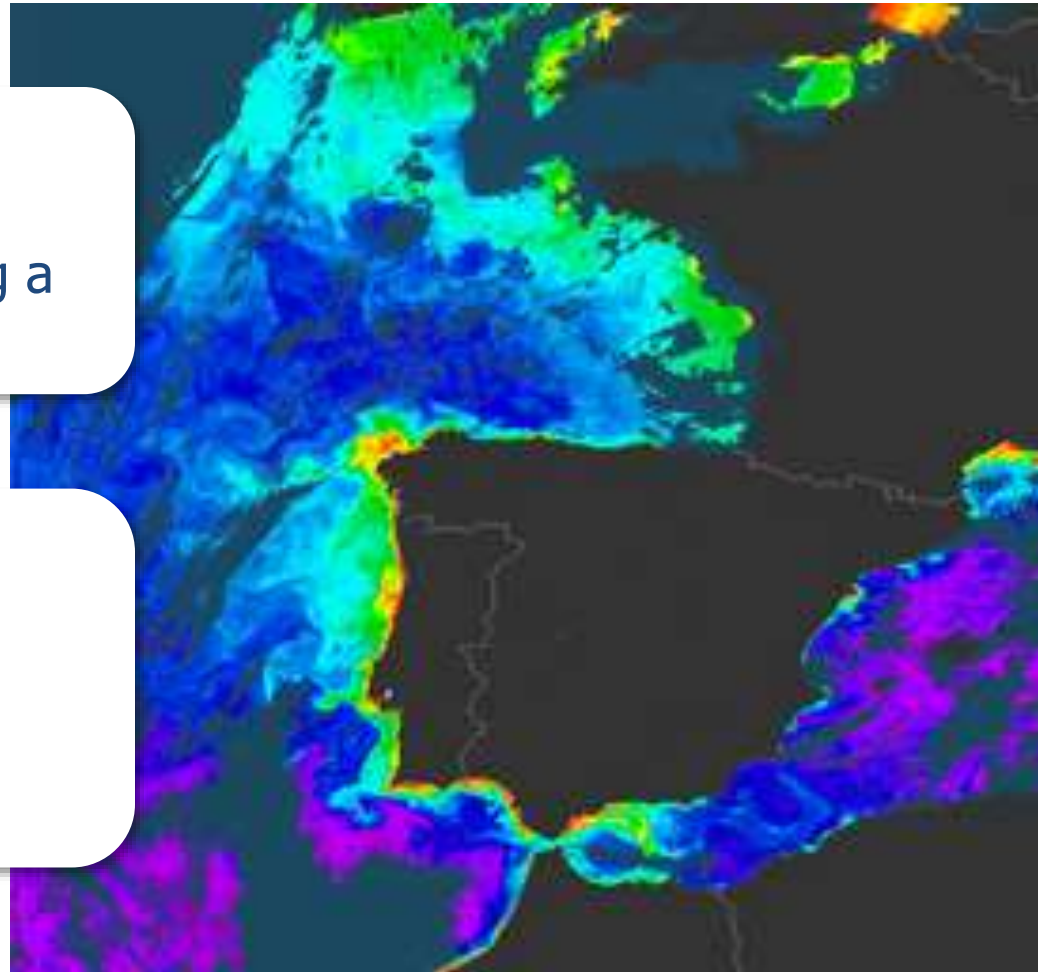
PREDICTION

Mitigation plans

Phytoplankton in the NW Iberian upwelling system

Hydrographic
variability:
Is there occurring a
change?

Phytoplankton
communities:
Are these
communities
changing?



Phytoplankton in the NW Iberian upwelling system

Studies in two main regions

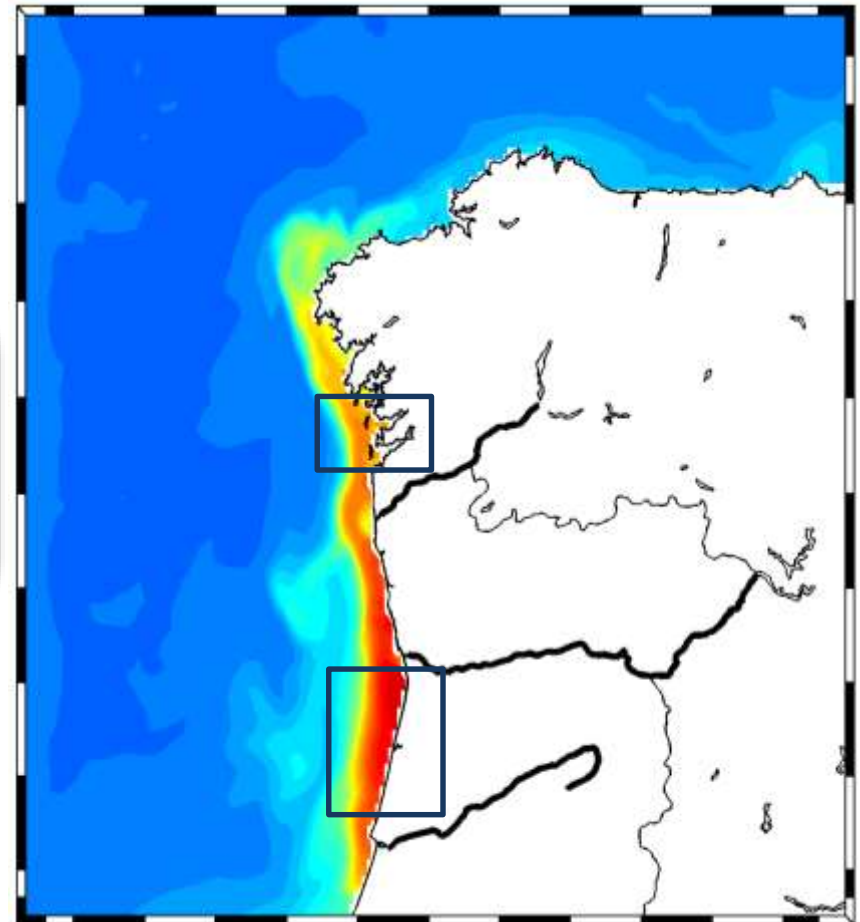
Seasonal and interannual variability

Phytoplankton species
identification and
abundance

Microscopy
Flow cytometry
NGS – next
generation
sequencing

Oceanographic conditions

- Upwelling/Downwelling cycles
- Stratification / Mixing
- Increase in nutrients due to human activity



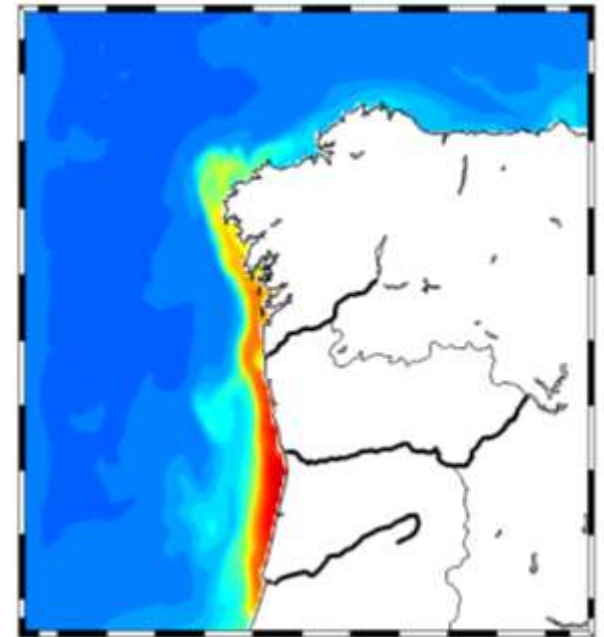
Phytoplankton in the NW Iberian upwelling system

?

Changes in the structure of
phytoplankton communities

Changes in species interactions and in the
structure of food webs

Increase in harmful algal blooms



THANK YOU FOR YOUR ATTENTION!

