Mesa de debate

La cantidad y calidad del agua, necesidad clave para la supervivencia de los humedales

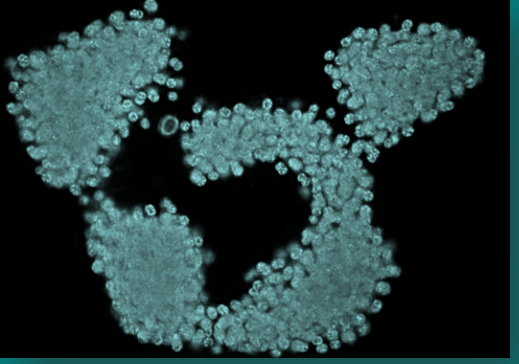
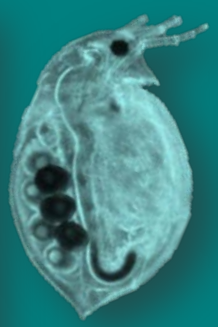
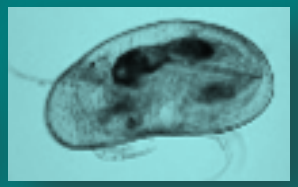
Los humedales son zonas en donde el agua es el principal factor que controla el ambiente, así como la vegetación y fauna asociada.

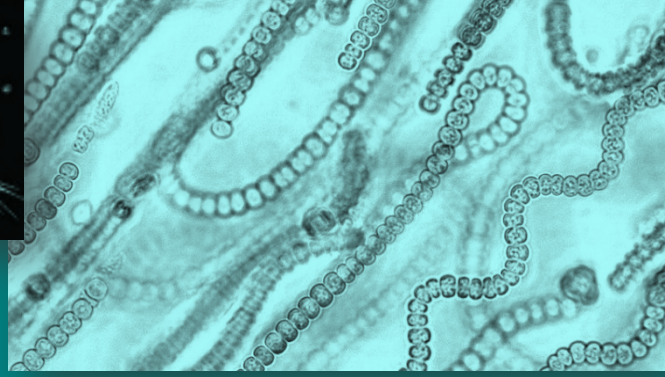
Mesa de debate

La cantidad y calidad del agua, necesidad clave para la supervivencia de los humedales

- Estamos en un país semiárido
- El agua tiene muchos “novios”
- Poca agua
- ¿De calidad suficiente?

-La mejora de calidad del agua que proporcionan los HHAA (en sus aspectos F-Q y biológicos).
-Empleo de HHAA en la regeneración de aguas con fines ambientales.
-Función de los HHAA como captadores de sedimentos.



Plankton contribution to eutrophication reduction: the case study of three constructed wetlands within *Albufera de València* Natural Park

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Integrative Ecology Group-e³

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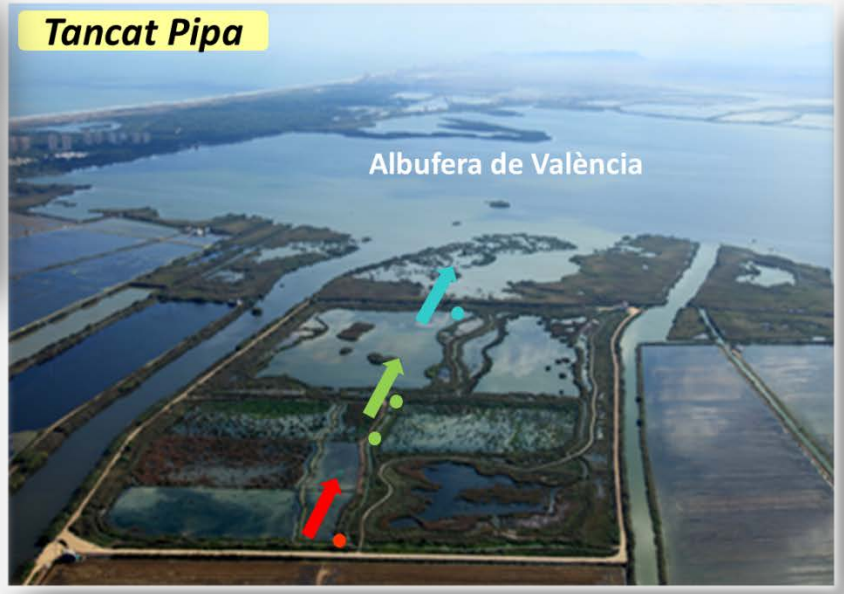
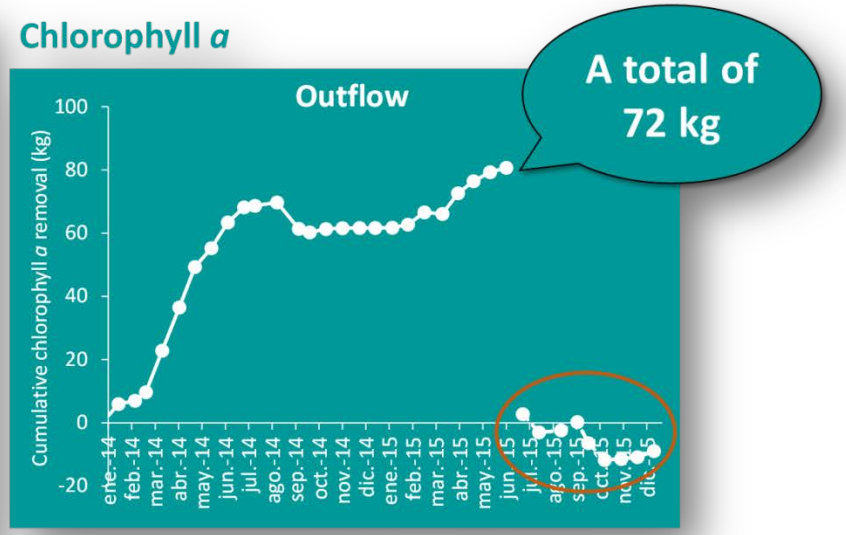
Life Albufera

Life



Arrows show the water flow; points show sampled stations:
Red: inflow; **Green: central area**; **Blue: outflow.**

Chlorophyll *a*



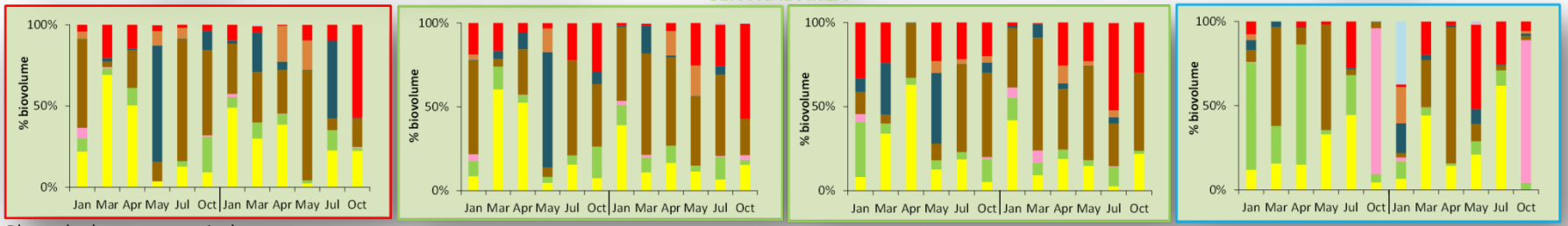
A total of 72 kg

- Chlorophyll reduction in 80% of cases
- Mean removal rate: 0.7 ± 0.1 mg Chl*a*/m²·d

Samples taken in other area of *Tancat Pipa*

INFLOW | **CENTRAL AREA** | **OUTFLOW**

Phytoplankton



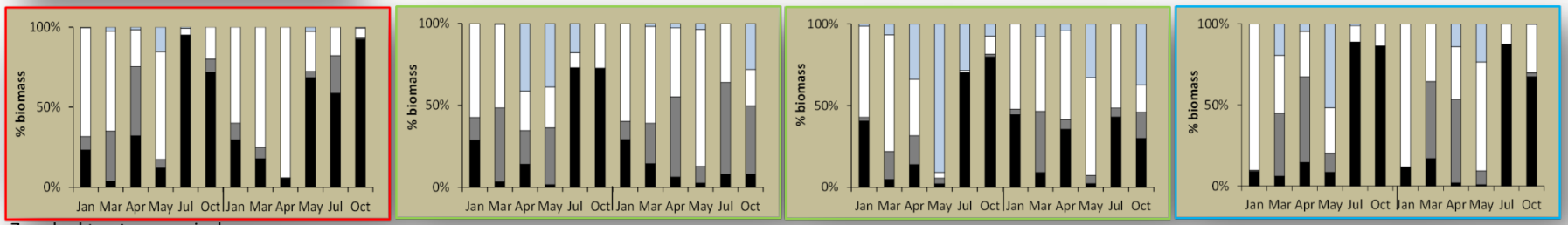
Phytoplankton taxonomical groups

BACILLARIOPHYCEAE | CHLOROPHYCEAE | CHRYSOPHYCEAE | CRYPTOPHYCEAE | CYANOPHYCEAE | DINOPHYCEAE | EUGLENOPHYCEAE | XANTOPHYCEAE | HAPTOPHYCEAE

Euglenophyceae increase in the central area of the system

Cyanobacteria biovolume reduction

Zooplankton

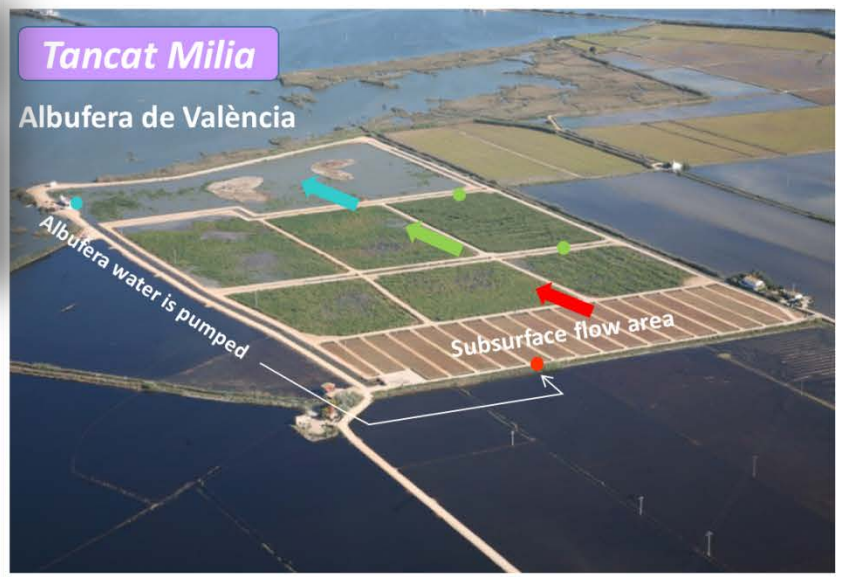


Zooplankton taxonomical groups

ROTIFERA | CLADOCERA | COPEPODA | OSTRACODA

Increase of Cladocera and Ostracoda biomass in the outflow

Ostracoda cumulative production  **55 Kg**



Arrows show the water flow; points show sampled stations:
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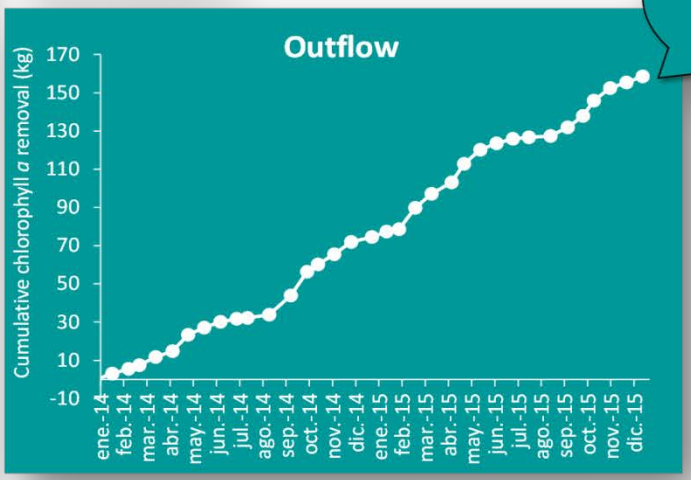
Chlorophyll *a*

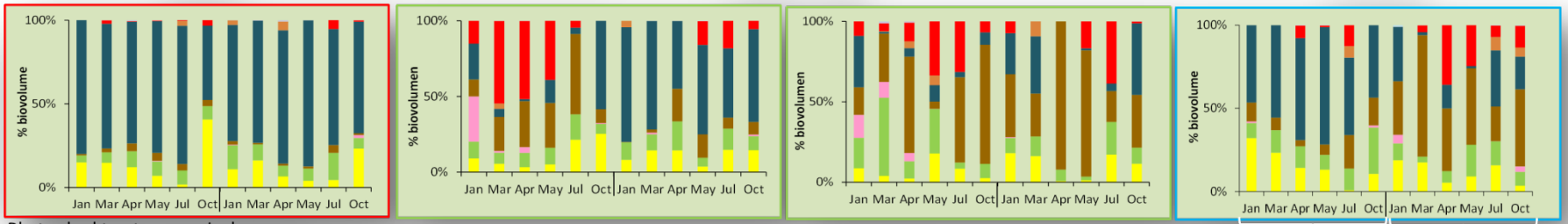


A total of 159 kg

- Constant chlorophylla *a* reduction
- Mean removal rate: 1.3 ± 0.9 mg Chl*a*/m²·d

INFLOW **CENTRAL AREA** **OUTFLOW**

Phytoplankton

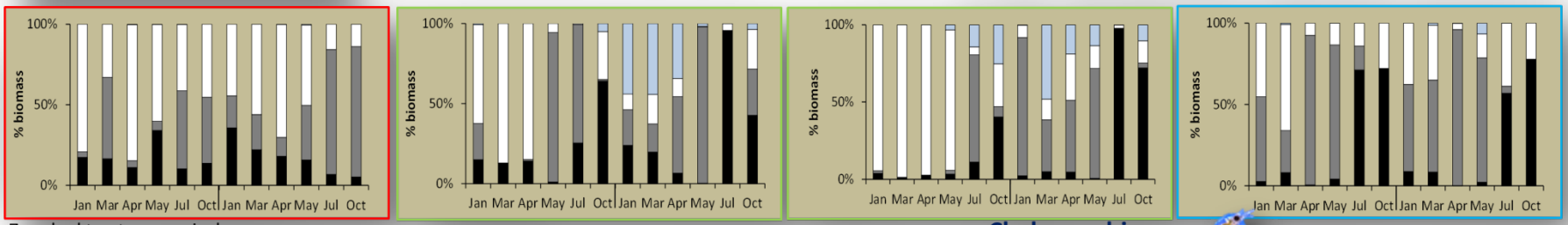


Phytoplankton taxonomical groups

BACILLARIOPHYCEAE · CHLOROPHYCEAE · CHRYSOPHYCEAE · CRYPTOPHYCEAE · CYANOPHYCEAE · DINOPHYCEAE · EUGLENOPHYCEAE · XANTOPHYCEAE · HAPTOPHYCEAE

Inflow: Cyanobacteria dominance → → → outflow: 1st year: high Cyanobacteria reduction.
2nd year: Cyanobacteria is replaced by Cryptophyceae

Zooplankton

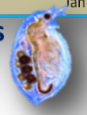


Zooplankton taxonomical groups

ROTIFERA · CLADOCERA · COPEPODA · OSTRACODA

Relevant representation of Ostracoda in the central area

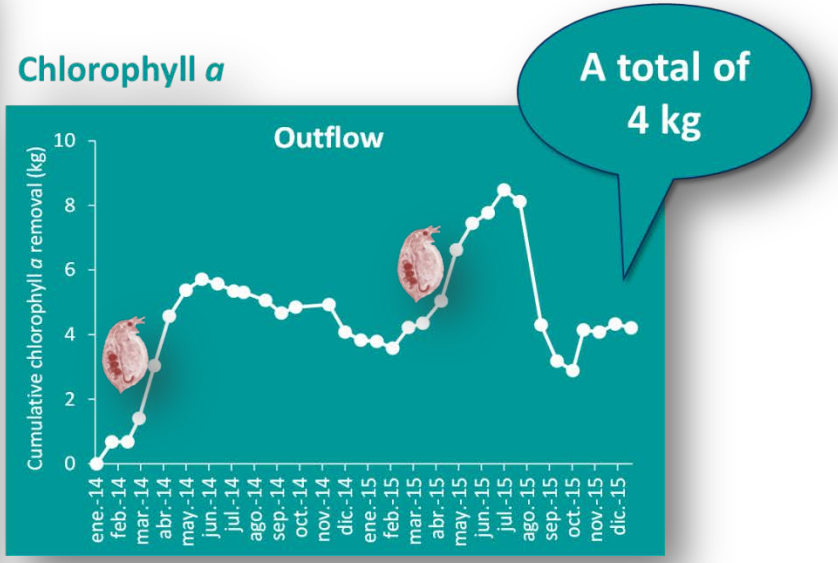
Cladocera biomass increased in the outflow



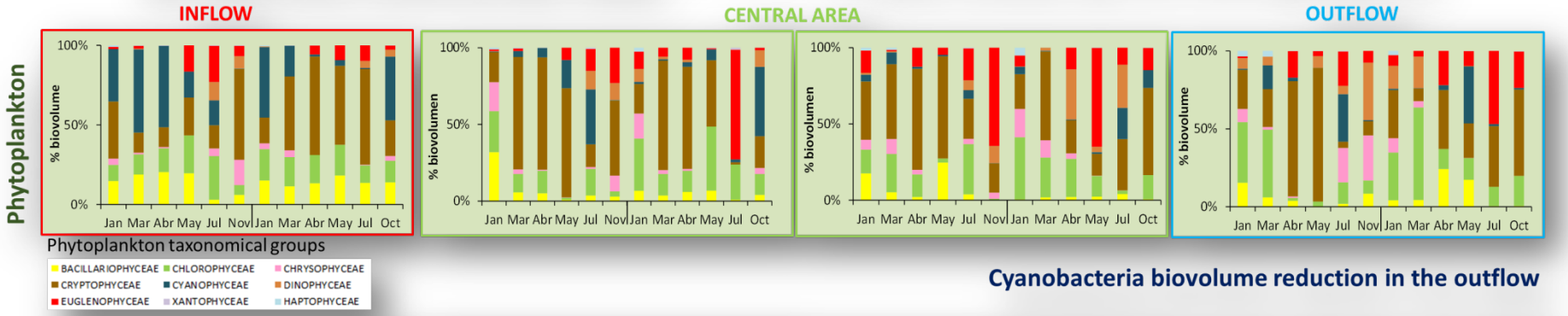
Cladocera cumulative production 185 Kg

Arrows show the water flow; points show sampled stations:
Red: inflow; **Green: central area**; **Blue: outflow.**

Chlorophyll *a*



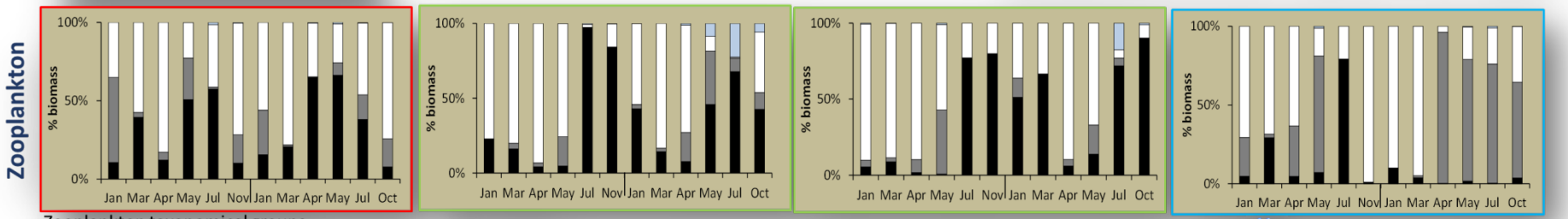
- Chlorophylla reduction in 52% of cases
- Mean removal rate: 0.1 ± 0.5 mg Chl*a*/m²·d



Phytoplankton taxonomical groups

BACILLARIOPHYCEAE · CHLOROPHYCEAE · CHRYSOPHYCEAE · CRYPTOPHYCEAE · CYANOPHYCEAE · DINOPHYCEAE · EUGLENOPHYCEAE · XANTOPHYCEAE · HAPTOPHYCEAE

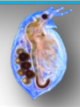
Cyanobacteria biovolume reduction in the outflow



Zooplankton taxonomical groups

ROTIFERA · CLADOCERA · COPEPODA · OSTRACODA

Increase of Cladocera and Copepoda biomass in the outflow
Higher production during the 2nd year



Cladocera cumulative production 230 Kg

Conclusions

- ✓ We corroborate how microalgal biomass is reduced after passing through the three constructed wetlands. *Tancat Mília* is the most efficient thanks to the area of subsurface flow.
- ✓ The role of large zooplankton was relevant in water clearing, particularly during the spring.
- ✓ Shifts in plankton communities are produced within the systems:
  - a) reduction of Cyanobacteria biovolume and production of edible green algae, Cryptophytes and Diatoms.
  - b) considerable reduction of Rotifera biomass and increase of Cladocera, Ostracoda and/or Copepoda biomass.
- ✓ Therefore, *Albufera* lagoon is receiving water with an improved planktonic concentration and composition, after passing through these constructed wetlands.
- ✓ These *Tancats* revealed as key systems in microalgal reductions and favourable shifts in plankton community structures in the effluents. They can be considered as acceptable eco-technological tools to reduce eutrophication in protected areas.