BEeS
Heraklion
30 June - 3 July 2025

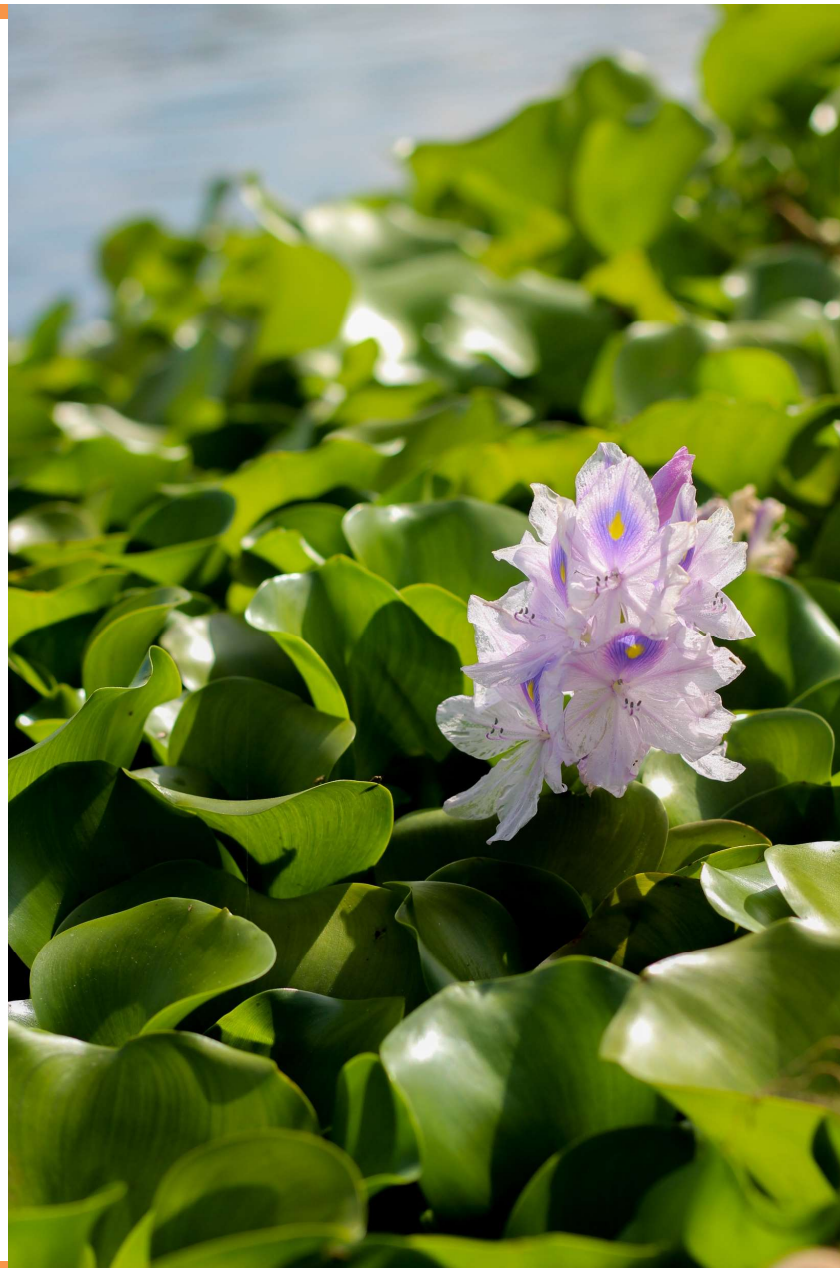
LifeWatch ERIC

hcmr ΕΛΚΕΘΕ

iMBBC ΙΘΑΒΒΥΚ

Session: Ecological Responses to Climate Change

1 July 2025 | 08:30-10:30

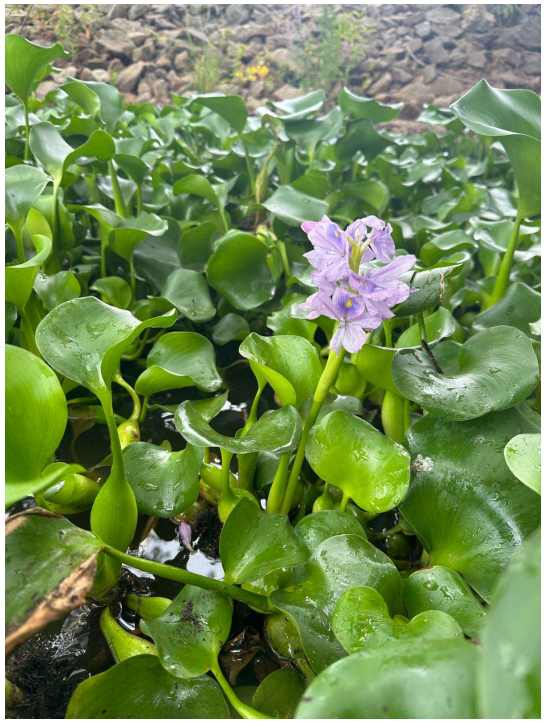


Tracking functional performance of Water hyacinth across aquatic ecotopes

Presenter: Letícia Brito

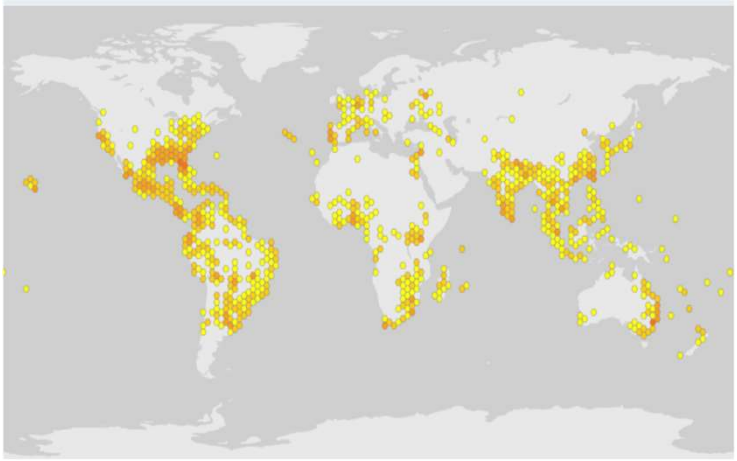
Heliana Teixeira and Ana Lillebø
Biology Doctoral Program
University of Aveiro | Department of Biology | CESAM

Introduction



Pontederia crassipes in Pateira de Fermentelos, Portugal. Source: Leticia Brito

1 Native from South America and one of the worst weeds in the world (IPBES).



https://www.gbif.org/species/2765942

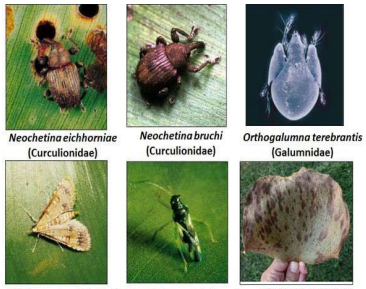
2 Causing ecological, economic and social impact.

Pontederia crassipes in Pateira de Fermentelos and Barra Beach, Portugal. Source: Leticia Brito

3 It can be controlled mechanically, chemically and biologically.

https://doi.org/10.1111/j.1365-2338.2008.01268.x

https://tdppragas.com.br/produto/glifosato-fersol-480-na-herbicida-5-litros/

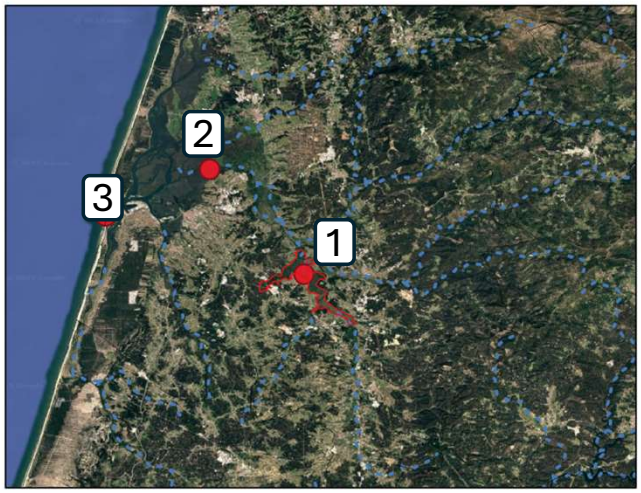


https://doi.org/10.2174/1874294701609010001

Pateira de Fermentelos

Portugal Map and Continum aquatic from Pateira de Fermentelos to the sea

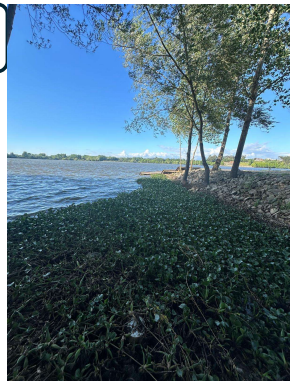
Legend
- Ramsar
- Distrites
- Plant was found



Legend
- Ramsar
- Distrites
- Plant was found
- Water lines

Google Satellite

1



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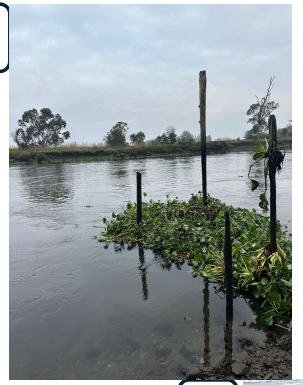

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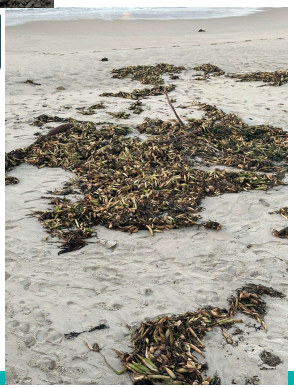
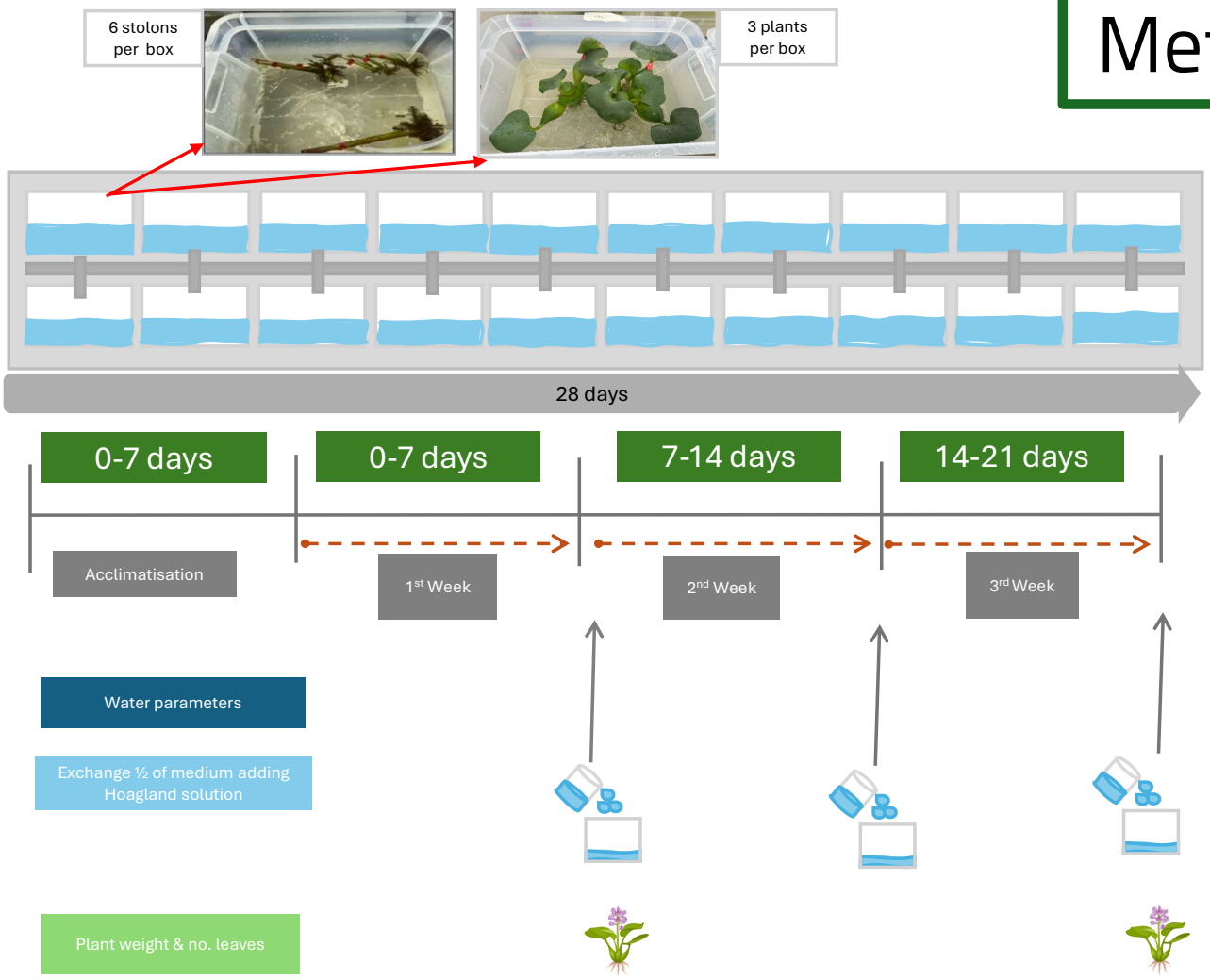


Objective

The aim is to assess the effects of salinity gradients on the growth of different plant organs, including above- and below-ground biomass, and evaluate their impact on nutrient uptake.

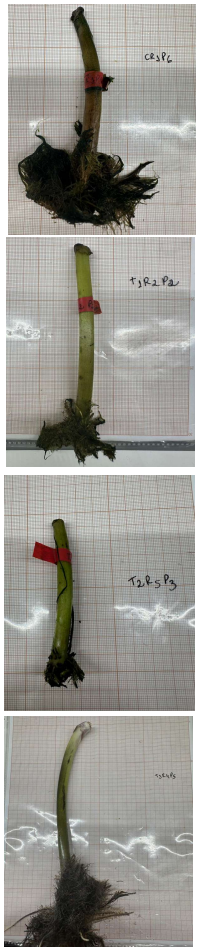
Methodology

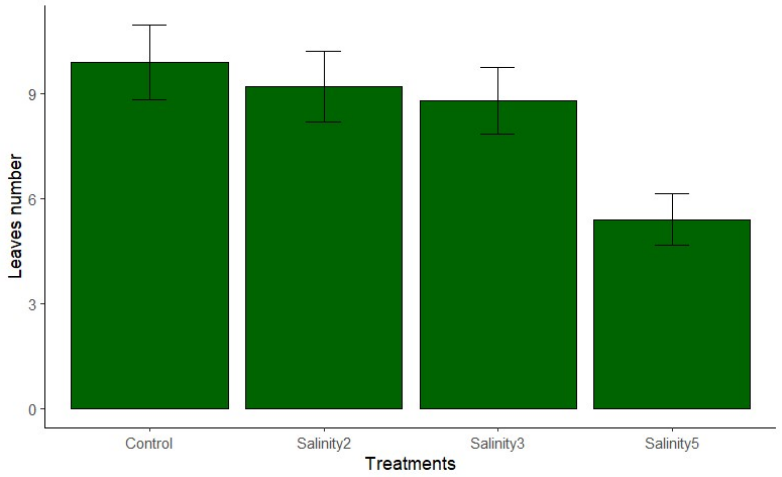


Results

BEFORE

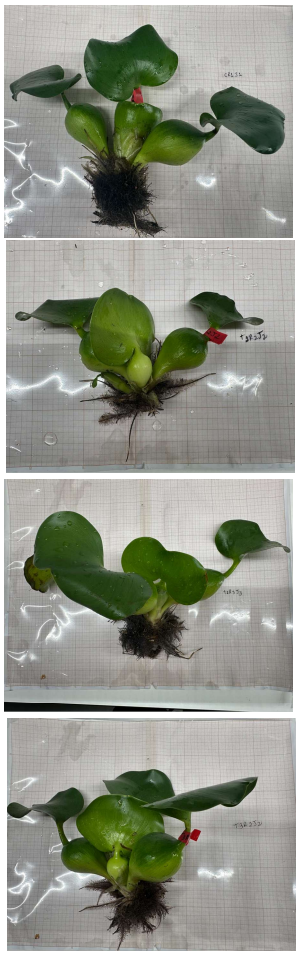
AFTER





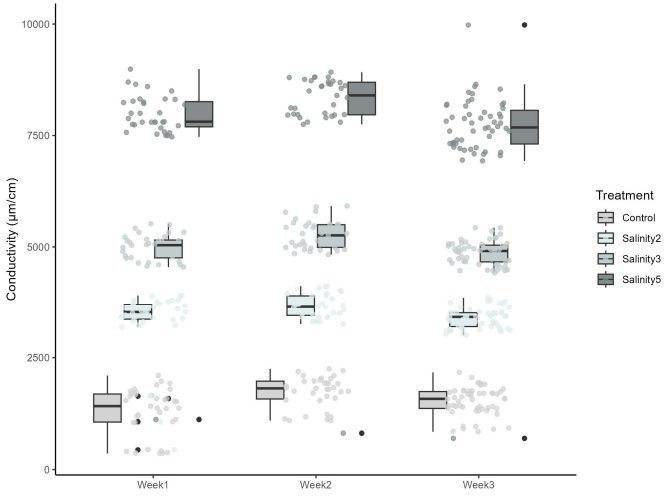

```
  Tukey multiple comparisons of means
    95% family-wise confidence level

Fit: aov(formula = leafIncrease ~ treatment, data = leaves_plant)

$treatment
                      diff       lwr        upr     p adj
Salinity2-Control    -0.7 -4.304969  2.9049695 0.9530019
Salinity3-Control    -1.1 -4.704969  2.5049695 0.8437750
Salinity5-Control    -4.5 -8.104969 -0.8950305 0.0095451
Salinity3-Salinity2  -0.4 -4.004969  3.2049695 0.9905636
Salinity5-Salinity2  -3.8 -7.404969 -0.1950305 0.0355734
Salinity5-Salinity3  -3.4 -7.004969  0.2049695 0.0704942
```

BEFORE

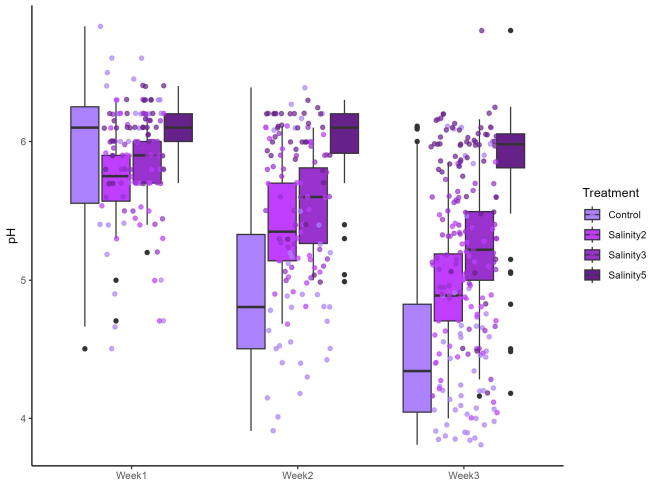


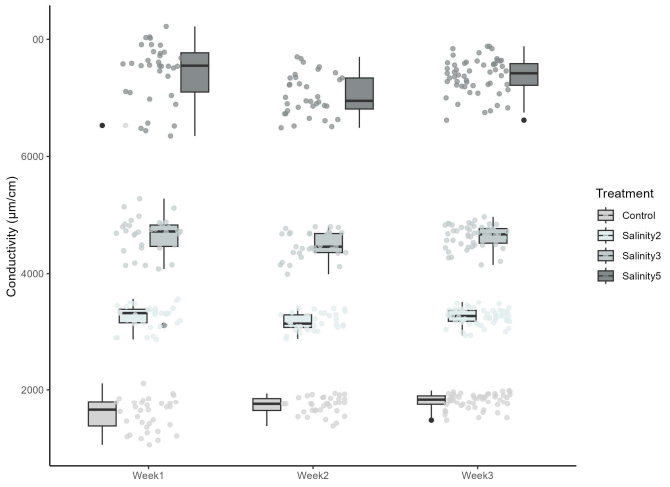
AFTER

Results

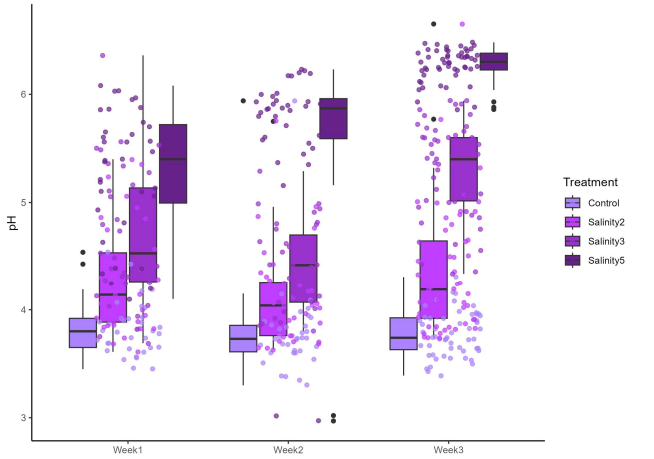


The organism is more efficient in terms of water parameters when exposed to high levels of conductivity under saline conditions than when exposed to the same conditions in the stolon.

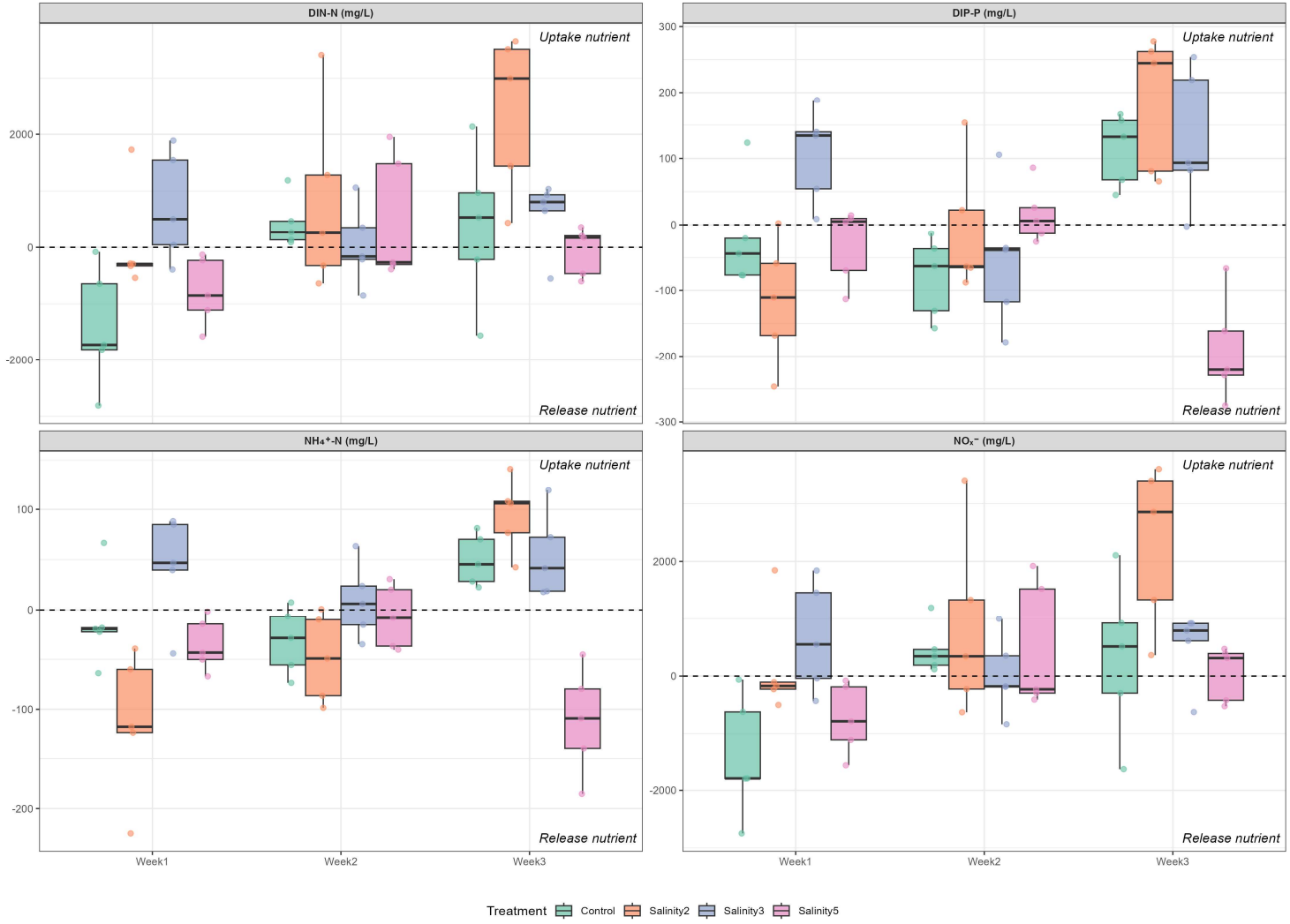




Increasing salinity appears to create a less acidic environment, with a higher pH, particularly at higher levels.



Results



The plant experiment revealed significant nutrient values, which varied depending on the treatment applied throughout the week.

Positive values were present in the nutrient-less orthophosphate from the second week onwards.

Conclusion

- This study contributes to a deeper understanding of ecological dynamics of *Pontederia crassipes* in aquatic continuum.
- Emphasise the importance of evidence-based strategies for accurately mapping the impact of *Pontederia crassipes* (water hyacinth) in freshwater and estuarine transitional ecosystems.
- Consider the context of climate change predictions, paying particular attention to the synergy between these changes and the predicted increase in salinisation of coastal environments.

Thank you!

BEeS

The LifeWatch ERIC Biodiversity & Ecosystem eScience Conference

Heraklion, 30 June - 3 July 2025

Questions?
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