



UNIVERSITÀ  
DEGLI STUDI DELLA  
**Tuscia**

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In collaborazione con il Segretariato Generale della Presidenza della Repubblica

# Long term biodiversity studies foster Virtual Research Environments: the case of the Tarquinia salterns

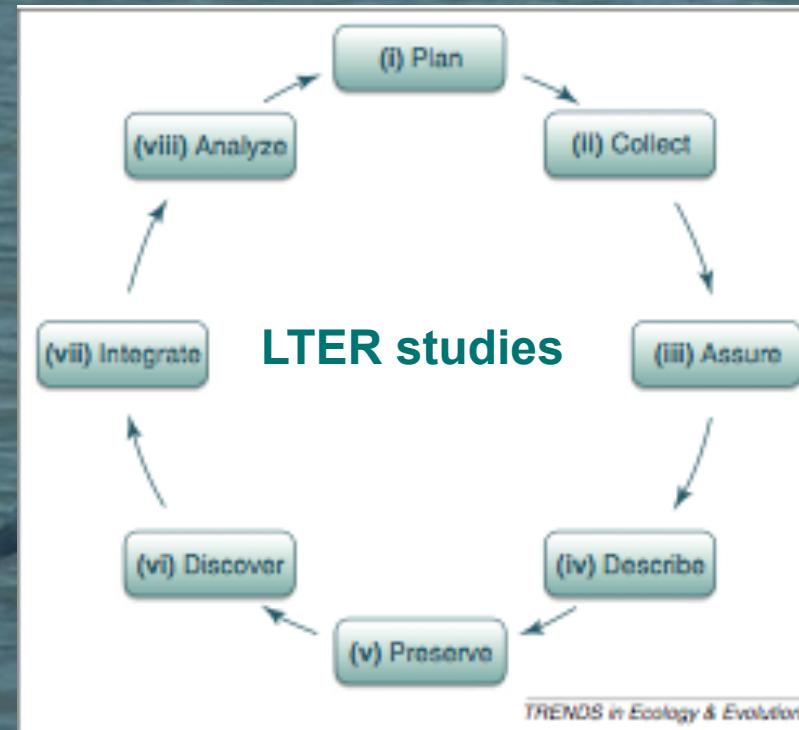
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Department of Ecological and Biological Sciences  
Tuscia University - VITERBO

# Ecology as a data-intensive science



to manage biodiversity studies

to include “citizen science”



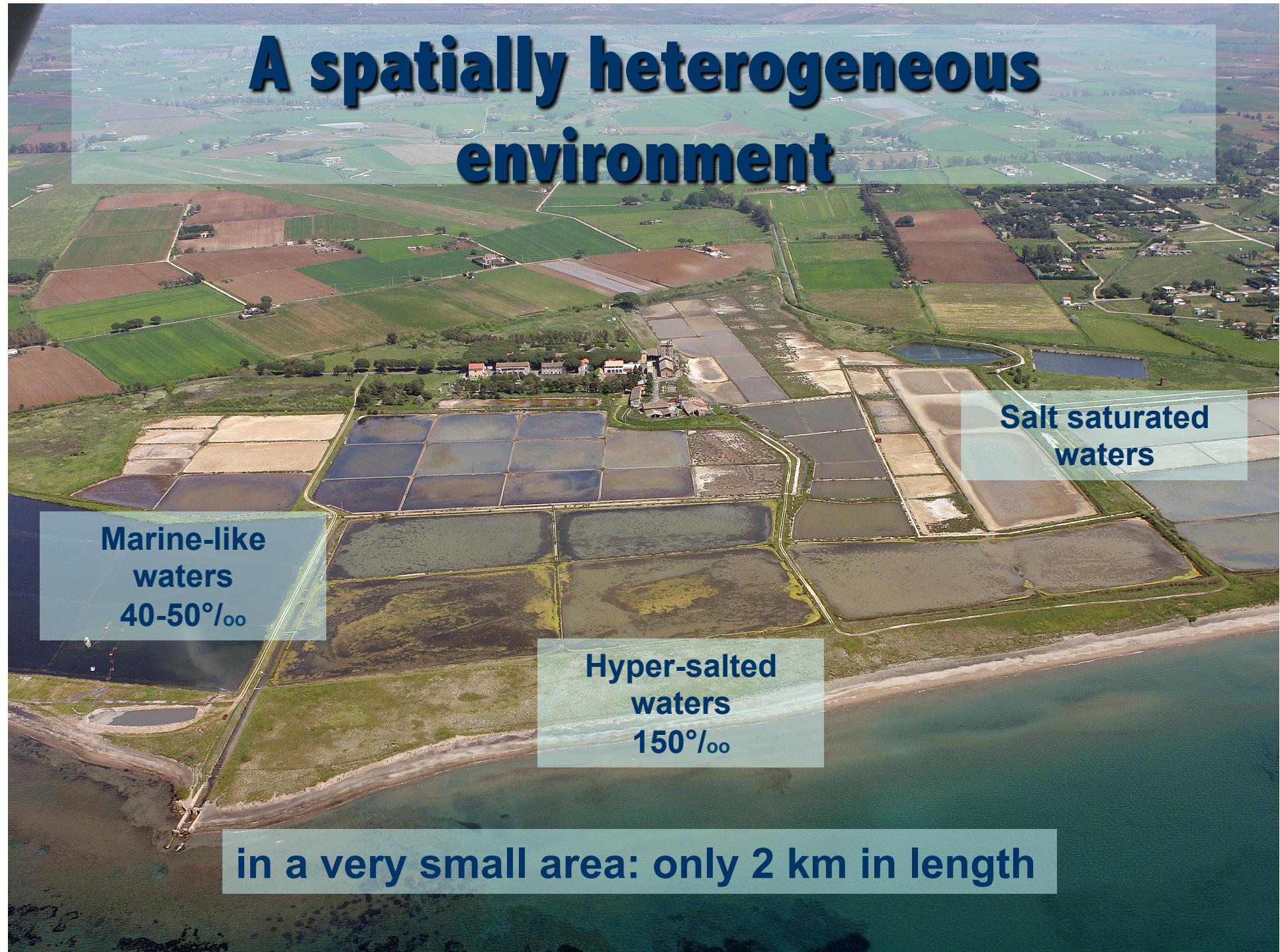
# **Tarquinia Salterns as a LTER case study**

**a beautiful Natural Reserve  
with a complicated history and dramatic changes  
in environmental conditions**

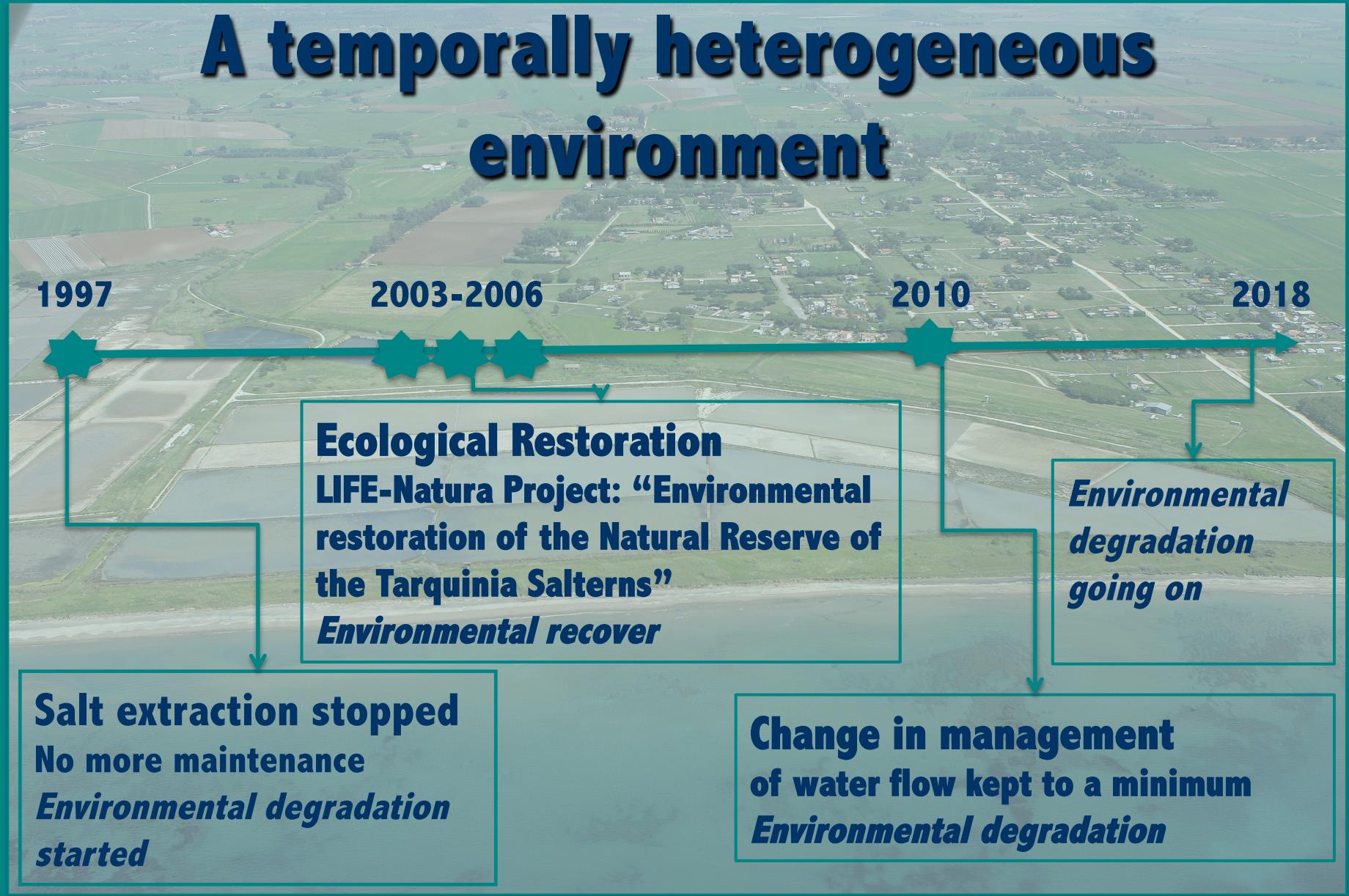
**so**

**an opportunity to study the associated changes  
in  
biodiversity**

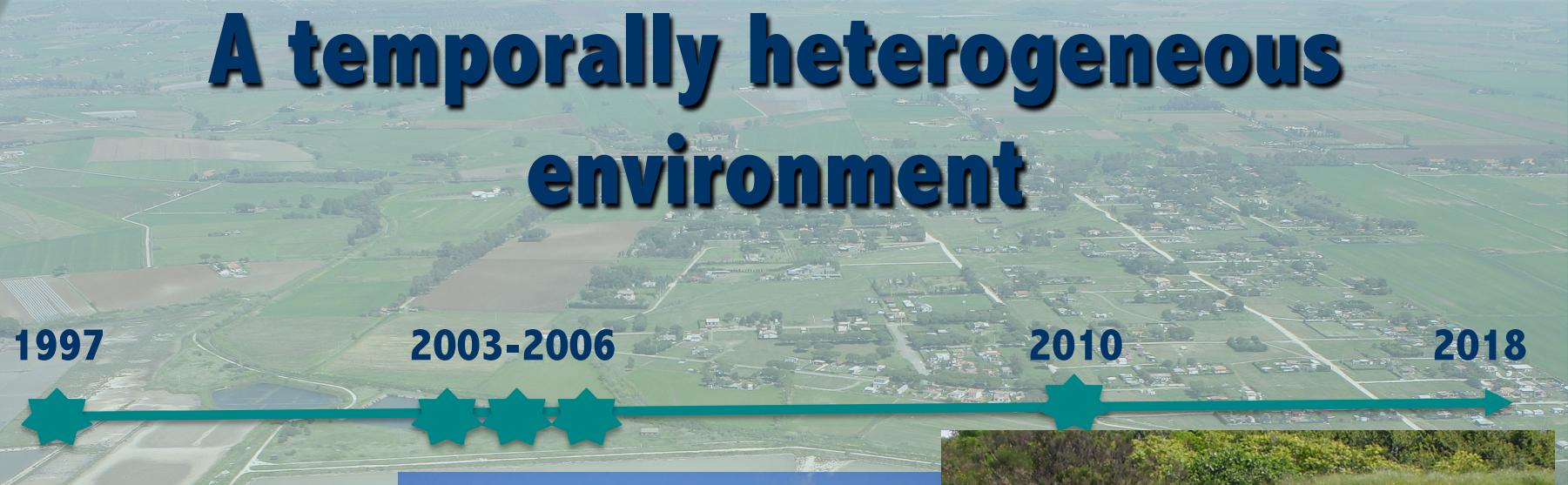




# A temporally heterogeneous environment



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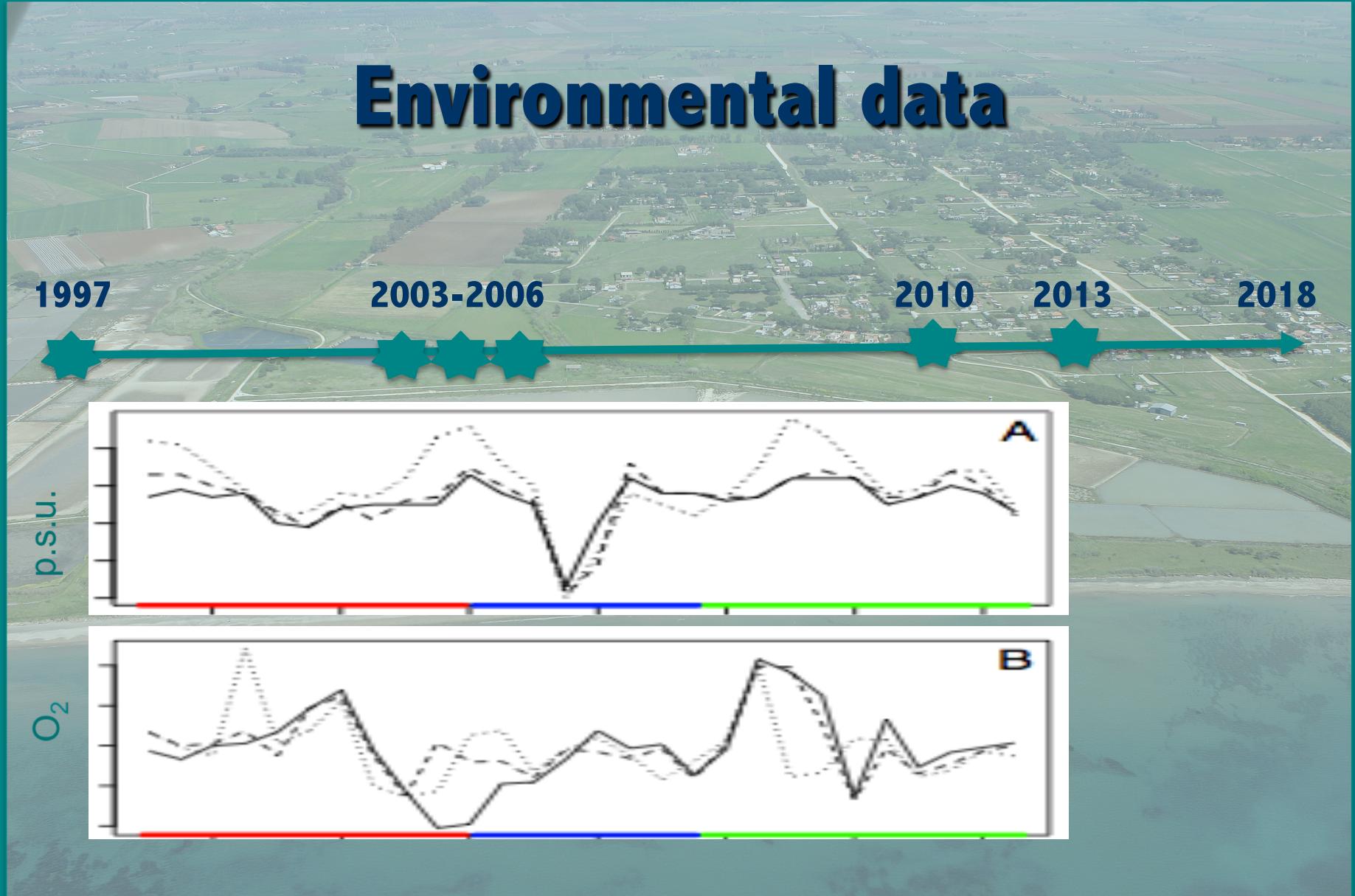
# **Environmental fluctuations reflect on the three levels of biodiversity**

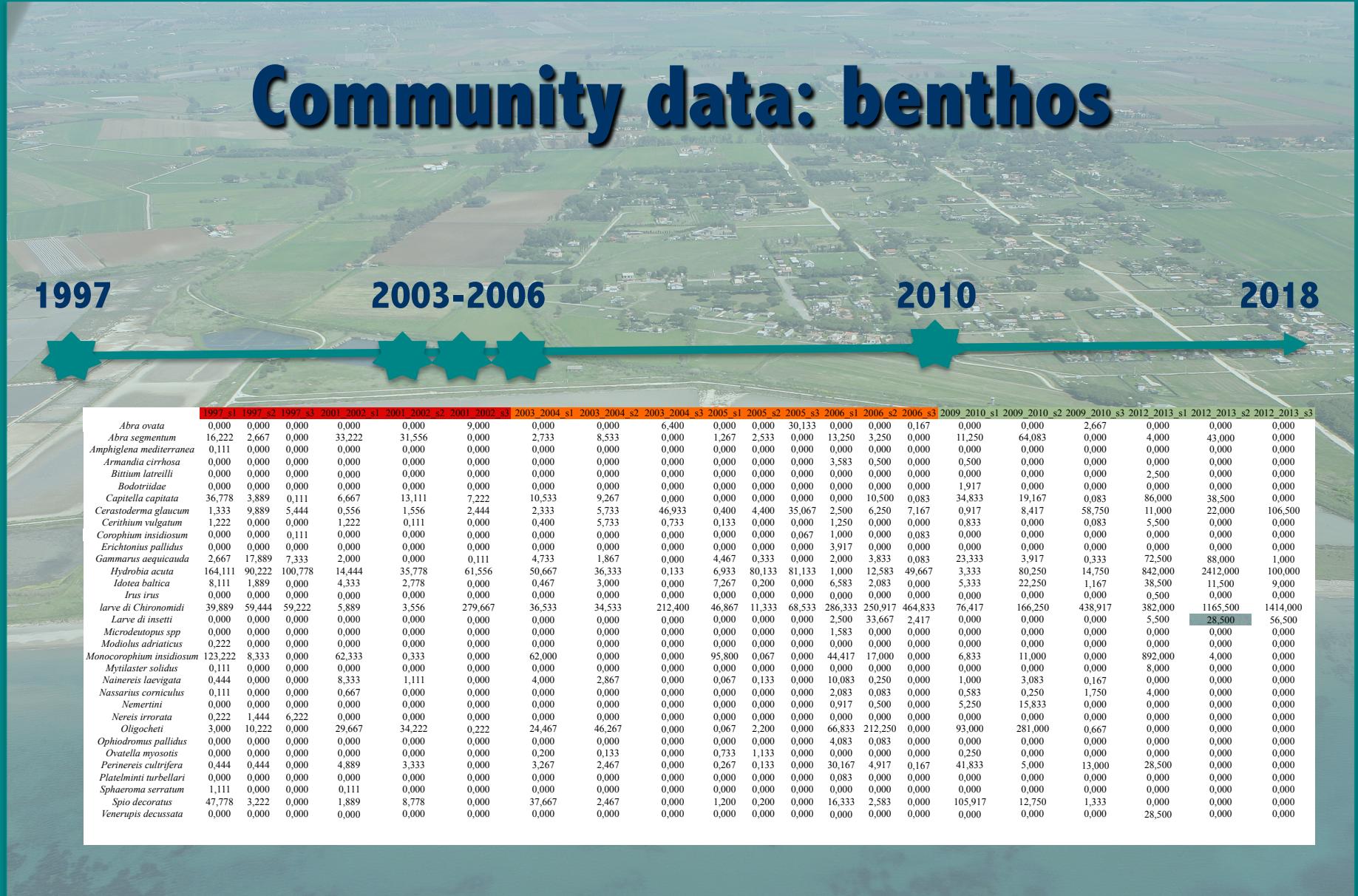
**Community → benthos**

**Population → migratory birds**

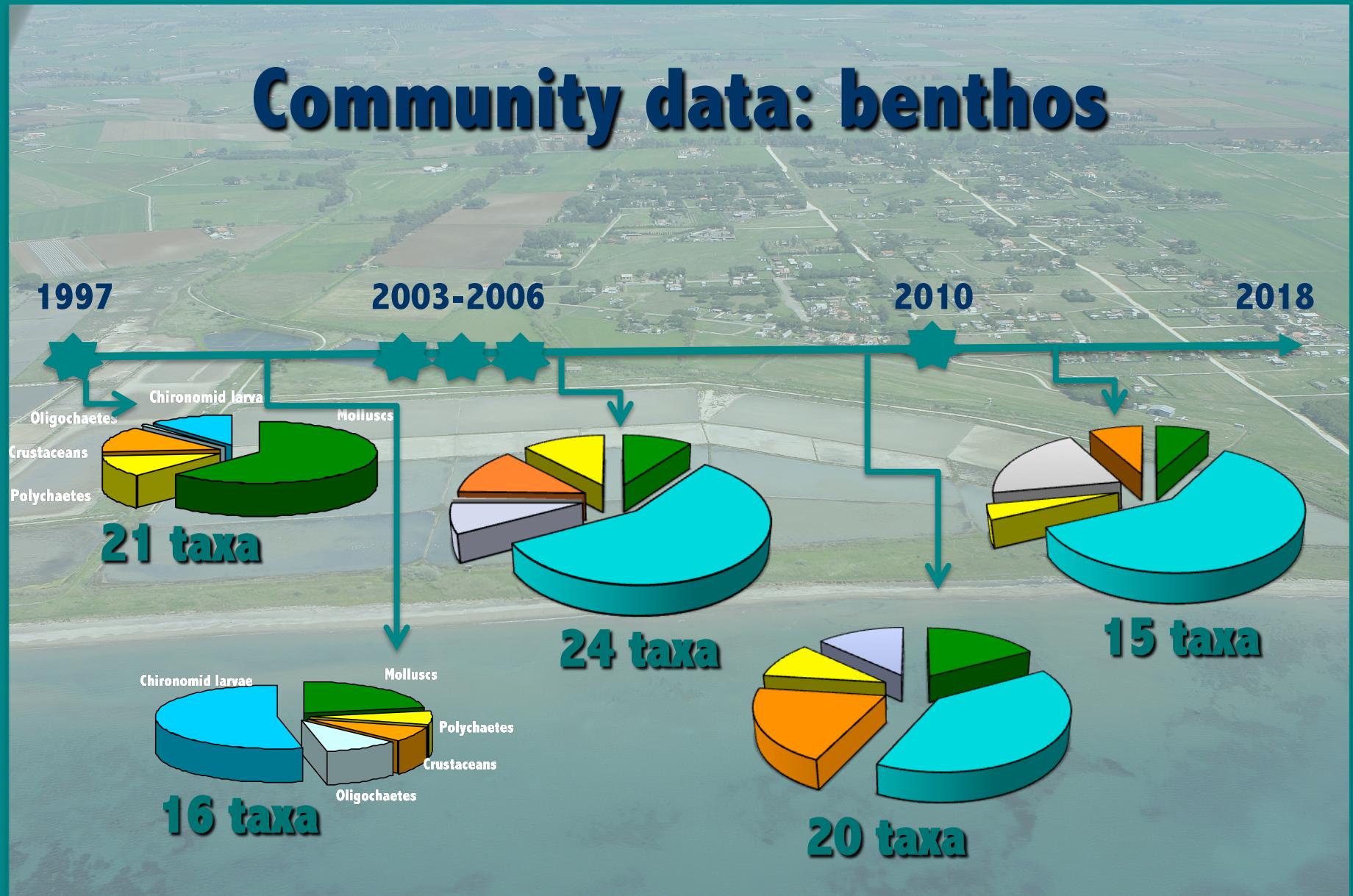
**Genetic → killifish *Aphanius fasciatus***

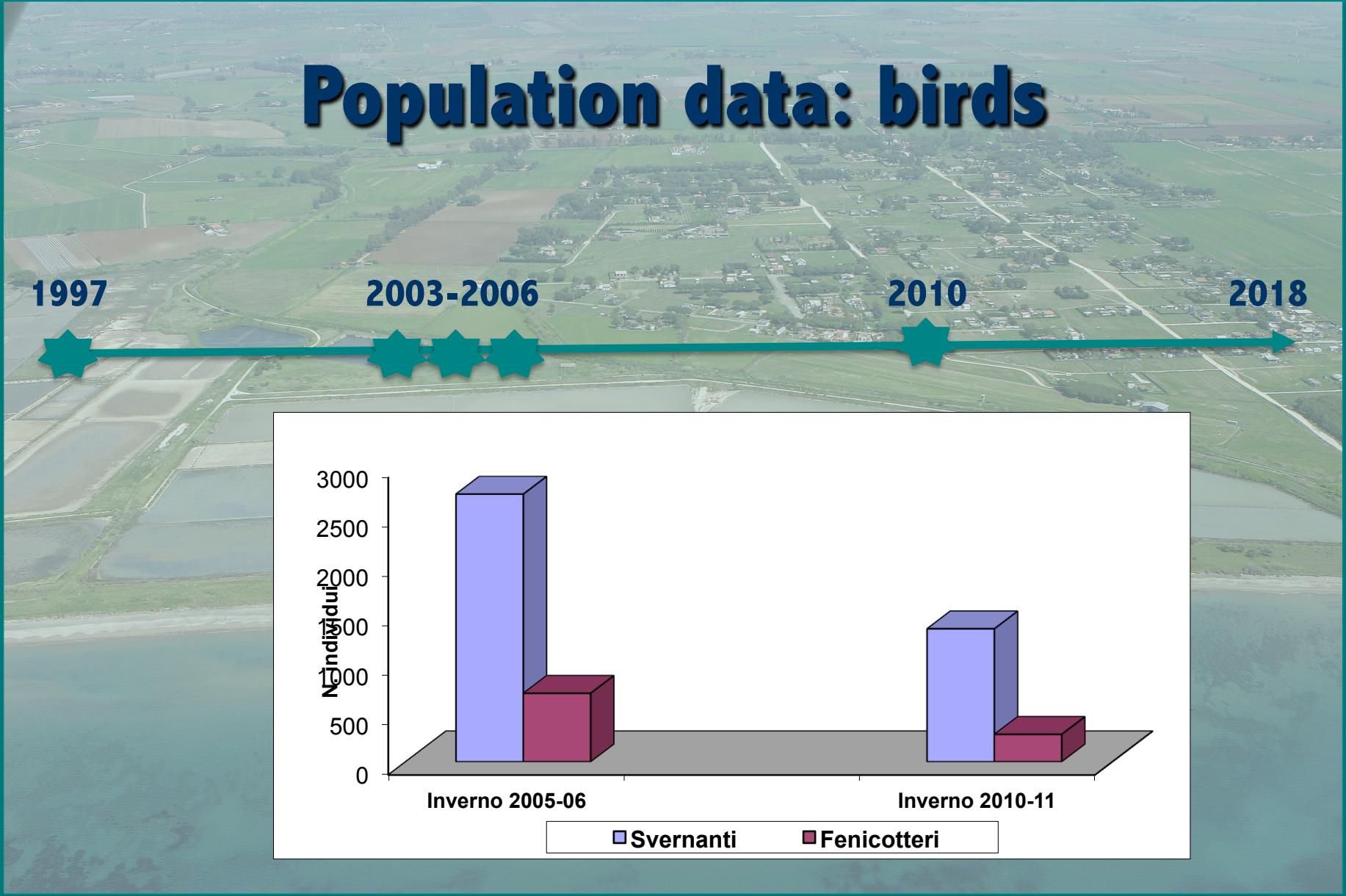


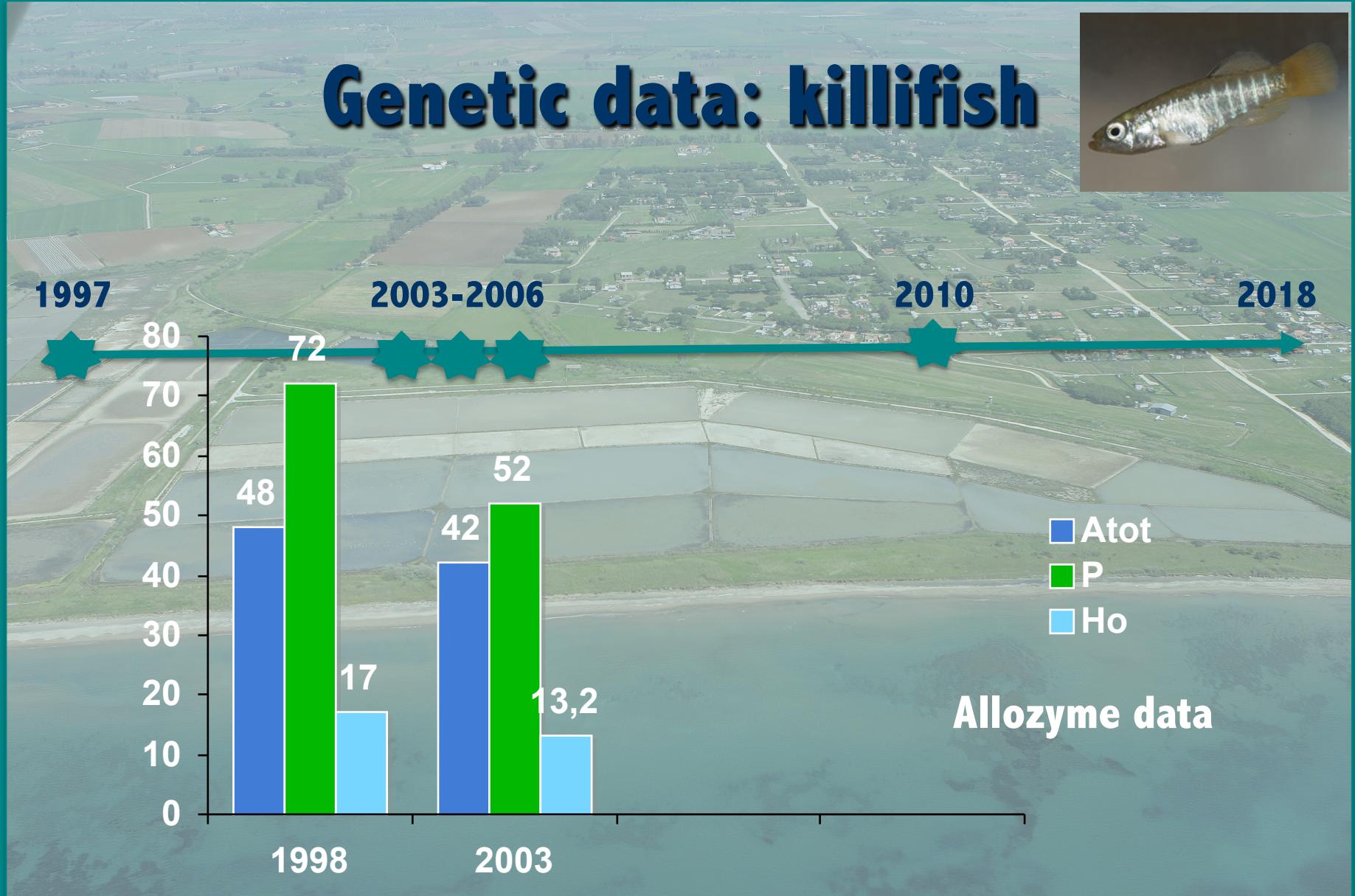




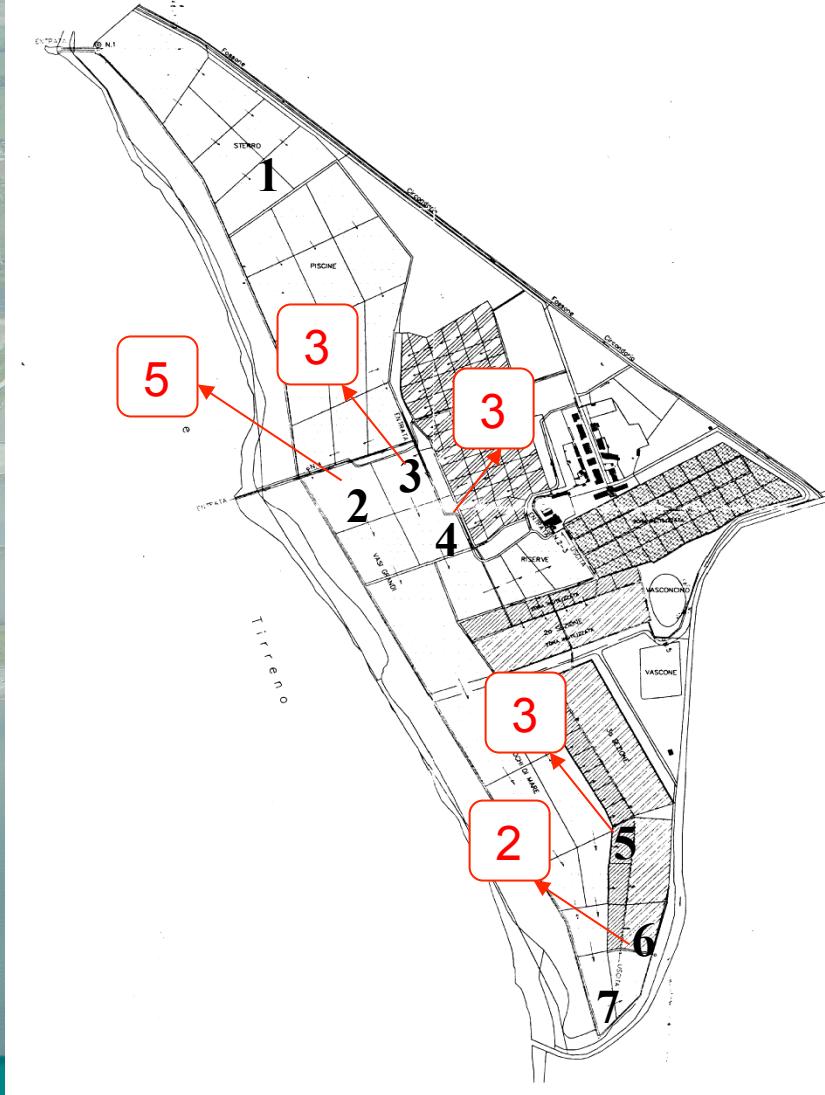
# Community data: benthos





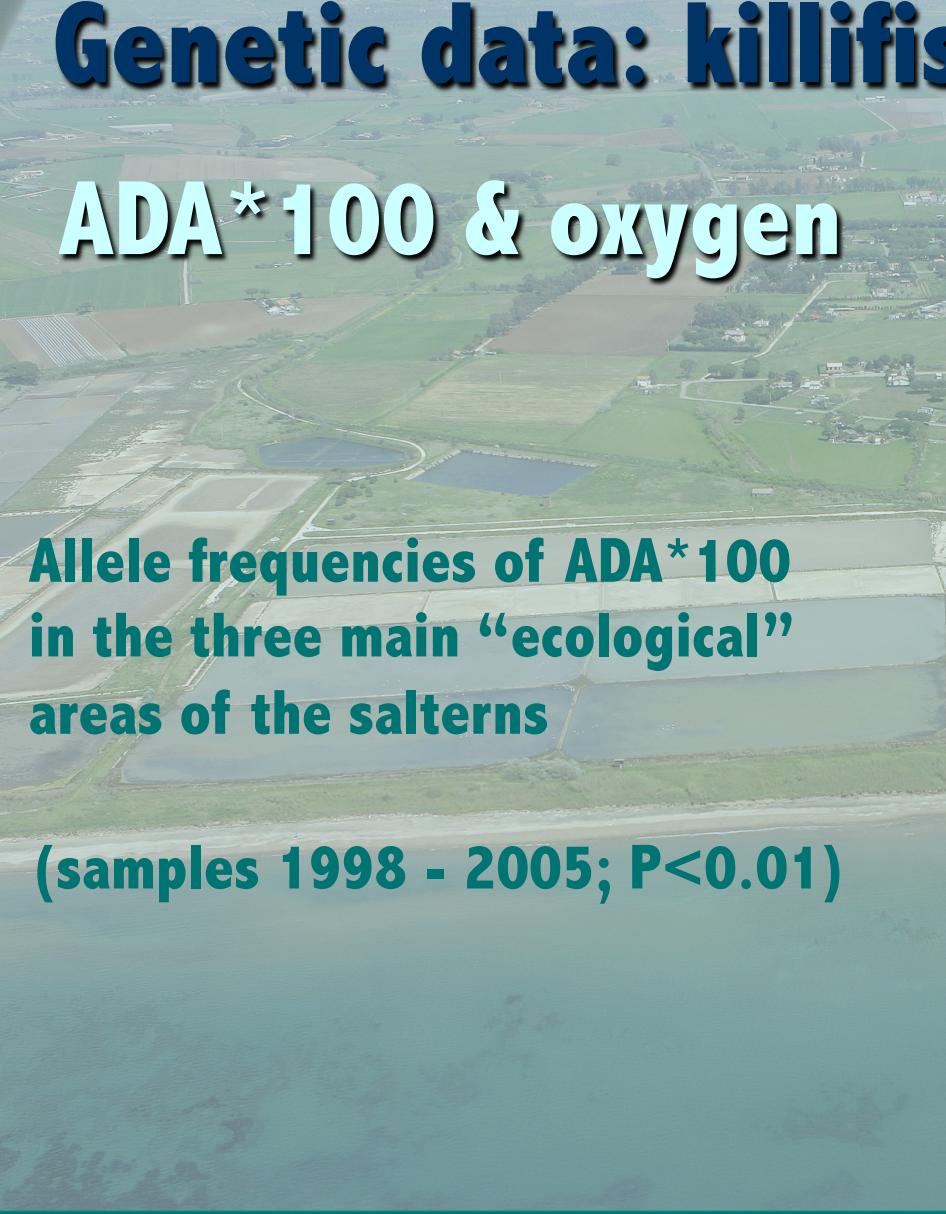


# Genetic data: killifish



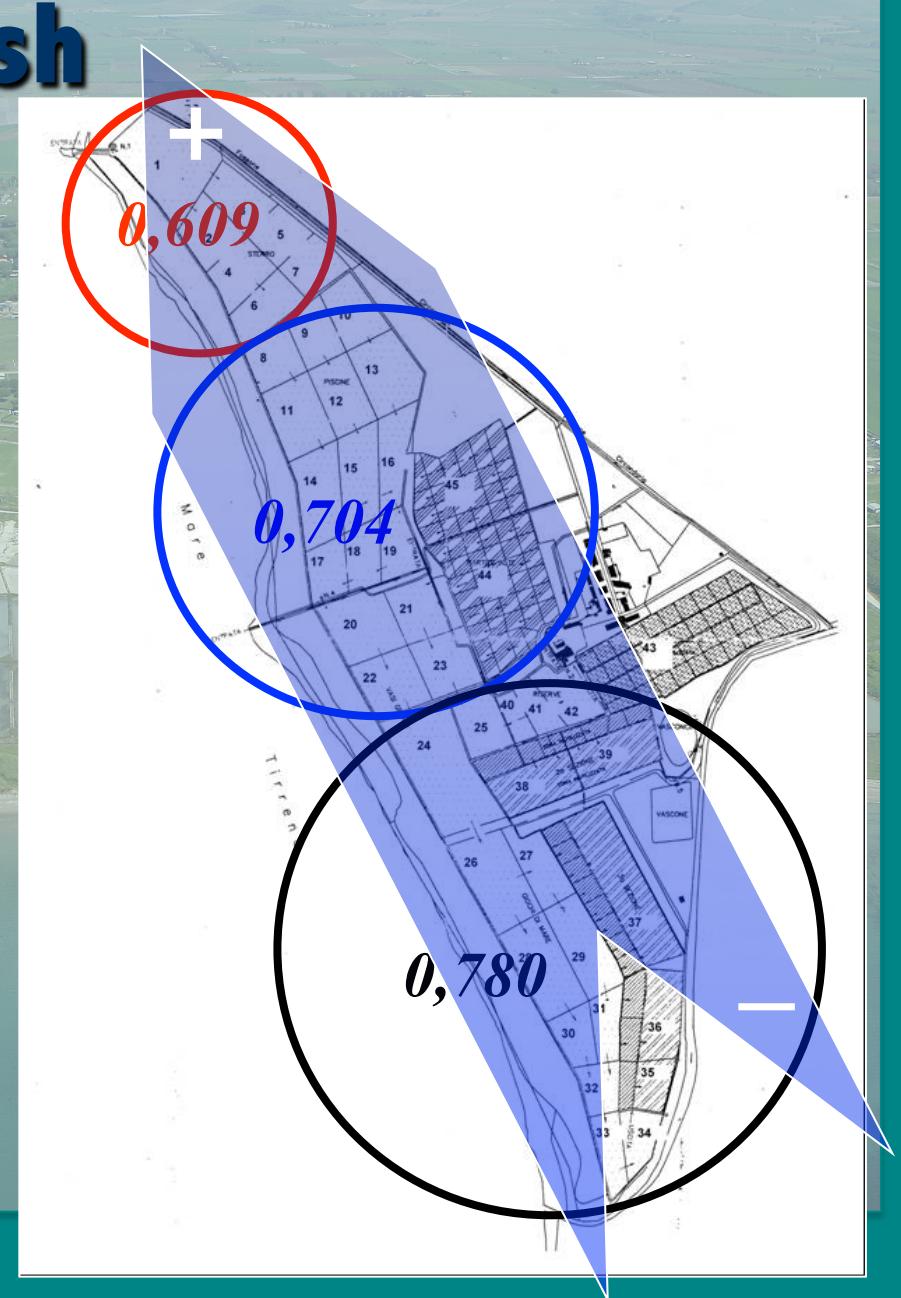
# Genetic data: killifish

ADA\*100 & oxygen



Allele frequencies of ADA\*100  
in the three main “ecological”  
areas of the salterns

(samples 1998 - 2005; P<0.01)



# Conclusion

VRE needed to keep together very different kind of data,  
necessary to understand biodiversity maintenance  
mechanisms

