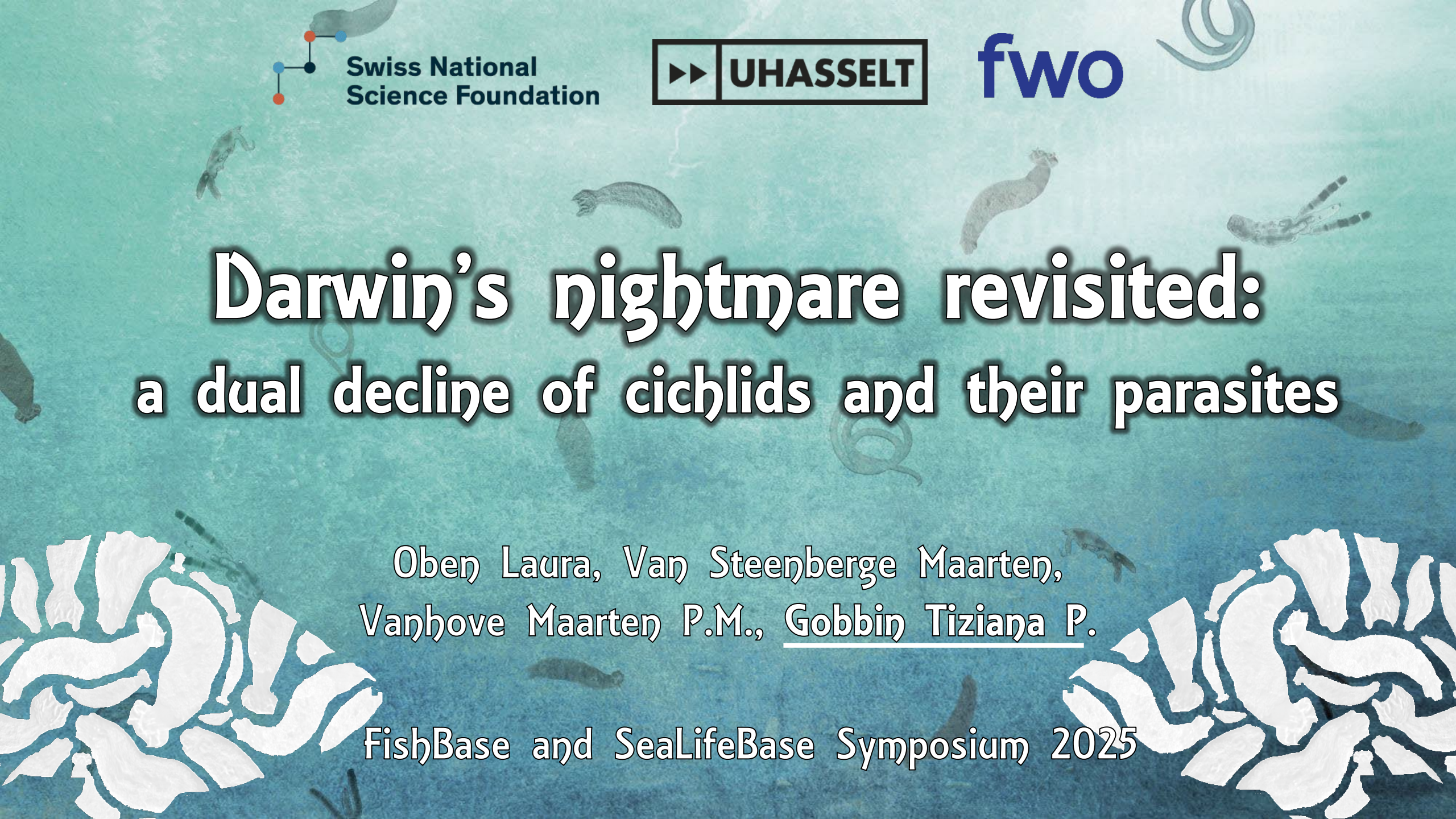




Darwin's nightmare revisited: a dual decline of cichlids and their parasites

Oben Laura, Van Steenberge Maarten,
Vanhove Maarten P.M., Gobbin Tiziana P.

FishBase and SeaLifeBase Symposium 2025

Cichlids & parasites

The Good, the Bad and the Ugly



Cichlids & parasites

Parasites play key roles in ecosystems

- Substantial part of the biomass
about 50%
- Link within food webs
75% of the links in a food web
- Regulate host populations
- Reduce impact of toxic pollutants
- Influence competition, invasion
- Increase biodiversity



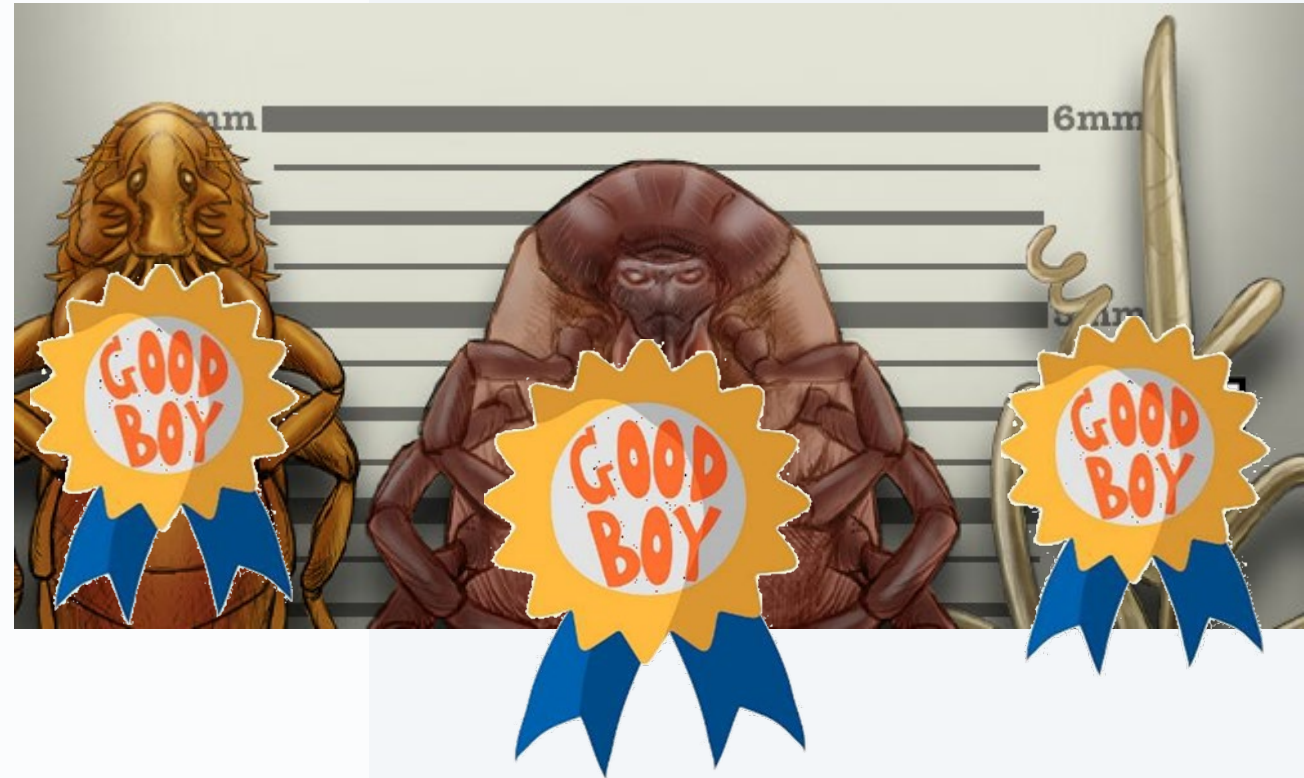
→ A diverse parasite community
reflects a healthy ecosystem

→ Parasites can be used as
indicators of ecosystem health

Cichlids & parasites

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Global change: cichlids & parasites



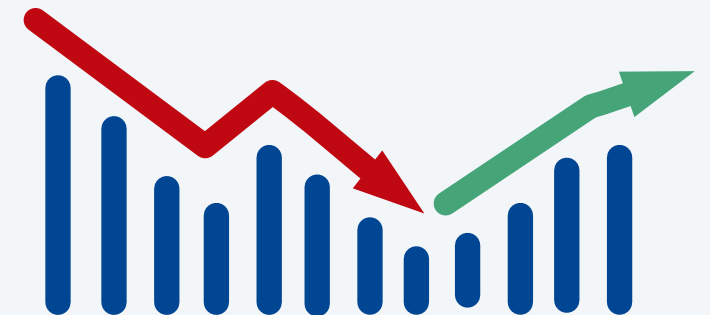
Anthropogenic activities affect biodiversity

Threats to hosts may also constitute threats to parasites.
Or it may constitute an opportunity to thrive and expand.

We don't know whether parasite populations are thriving or declining in face of ecosystem change!

How is global change affecting parasites?

- Are wildlife parasites declining?
- If so, can we mitigate this?



Lake Victoria case

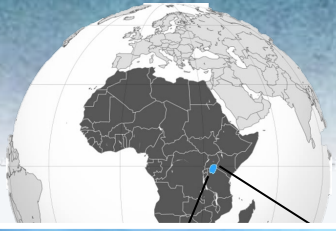


Lake Victoria

- Biodiversity hotspot (especially cichlid fish)
- Drastic anthropogenic changes **since 1980s**:
 - eutrophication
 - multiple invasions (incl. Nile perch)
 - overfishing
 - pollution

(Wagner et al., 2012; Seehausen 2015; Meier et al. 2017)

Lake Victoria case



?

parasites?



Lake Victoria

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Lake Victoria case

(C)



H. heusinkveldi



H. laparogramma



H. piceatus



H. pyrrhocephalus

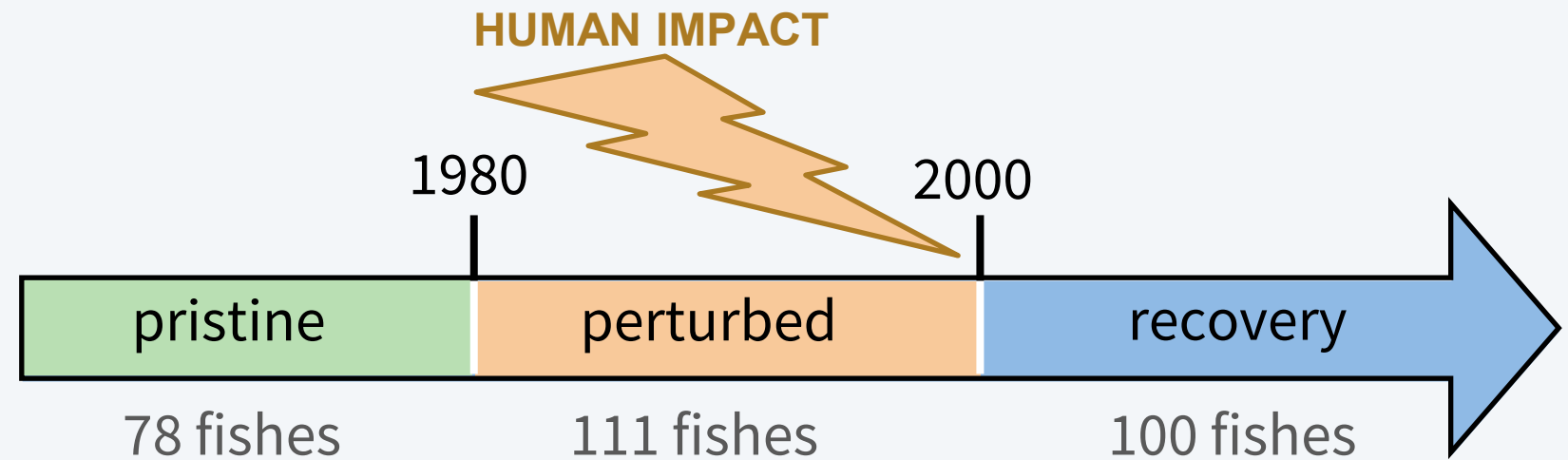


H. tanaos

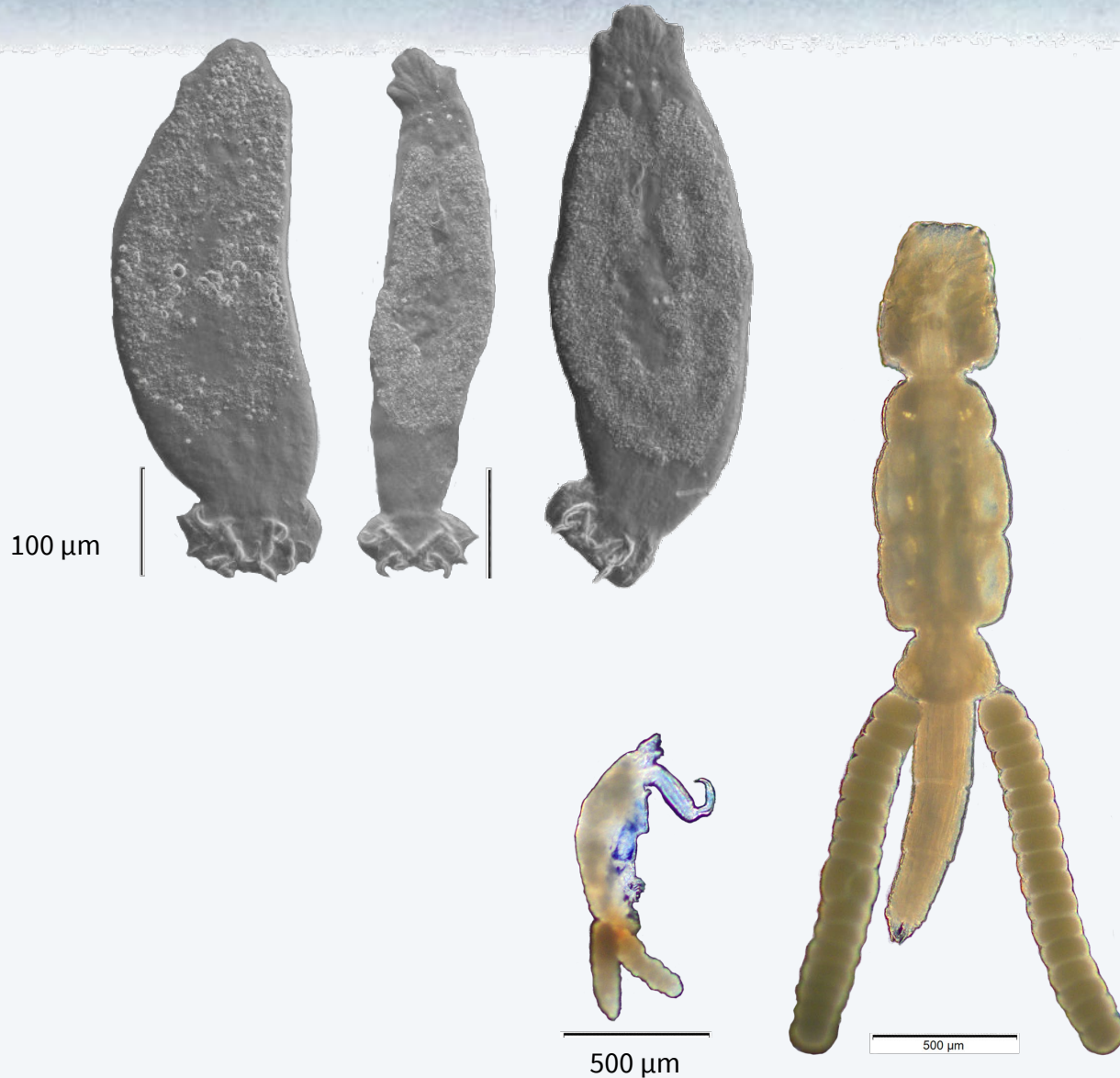


P. degeni

Time series of **6** cichlid species
and their parasite communities



Gill parasites



Flatworms

- *Cichlidogyrus bifurcatus* (2)
- *Cichlidogyrus furu* (15)
- *Cichlidogyrus nyanza* (2)

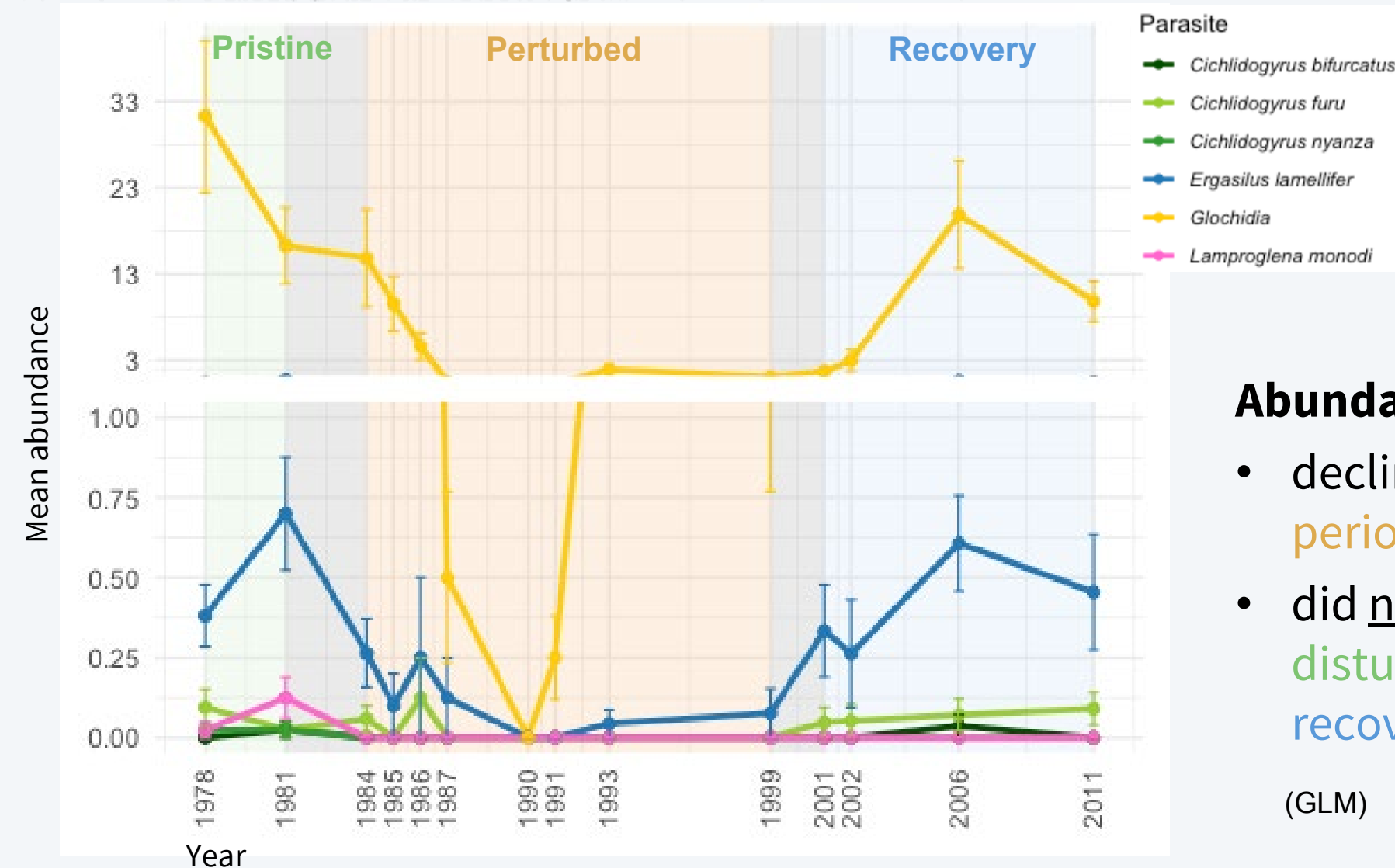
Copepods

- *Ergasilus lamellifer* (103)
- *Lamproglena monodi* (6)

Mollusc larvae

- Glochidia (3645)

Parasite abundance

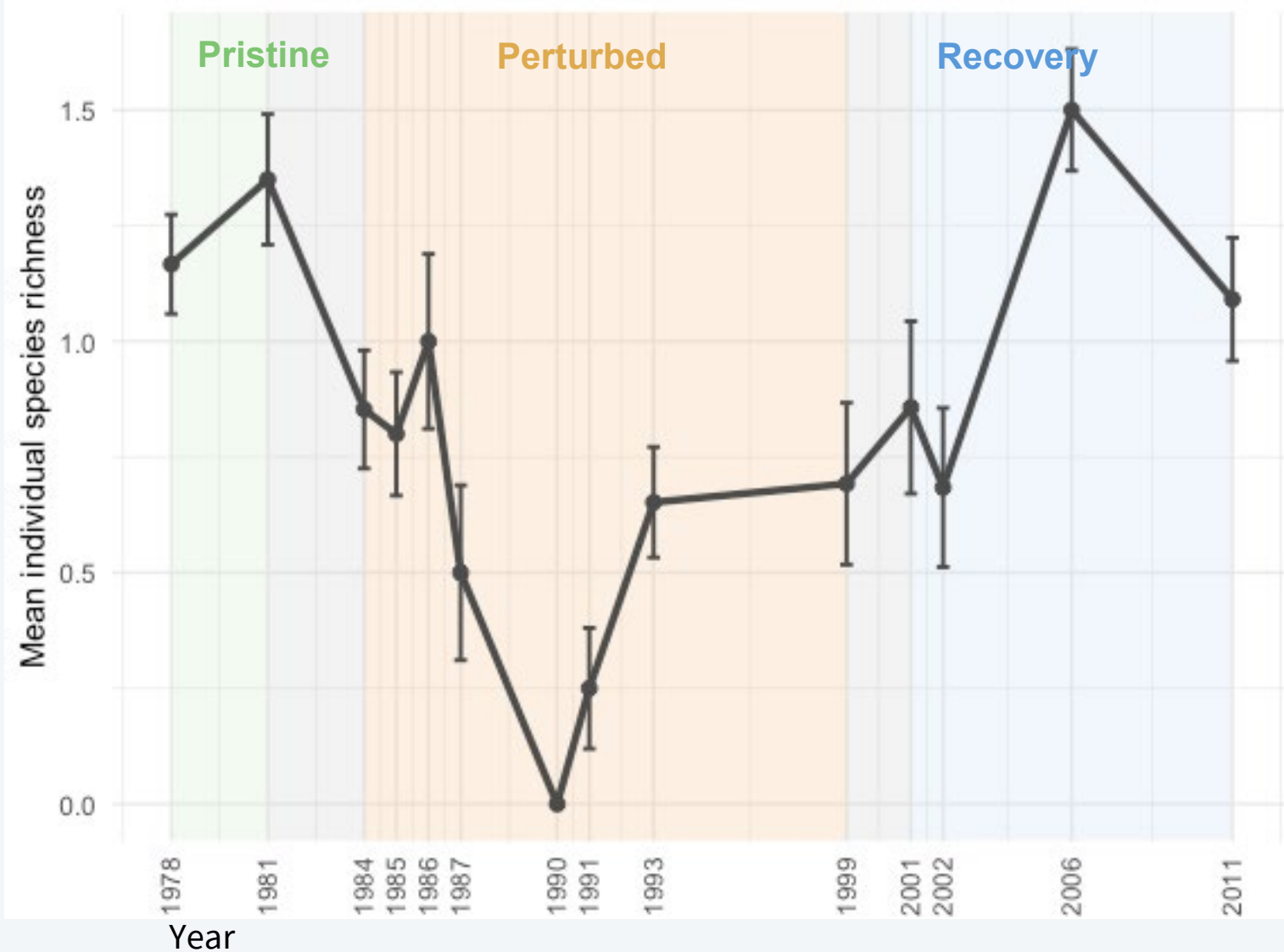


Abundance of all parasite species:

- declined in the **perturbed period**
- did not recover to **pre-disturbance levels** in the **recovery period**

(GLM)

Individual parasite species richness



Parasite **species richness** per fish individual:

- declined in the **perturbed period**
- Recovered to **pre-disturbance levels** in the **recovery period**

(GLM)

Conclusions

Parasite populations declined in response to environmental changes, and began to recover as those changes diminished

- **Indicators of ecosystem health**
- Need **long-term studies** on parasites (historical collections effective method)
- Need for **parasite conservation** strategies to prevent further losses in parasite biodiversity and the ecological functions they support





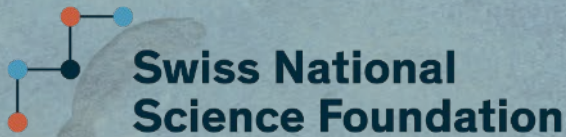
Laura Oben

Thank you

Aquatic Biodiversity group @ Hasselt University (B)

Naturalis Biodiversity Center (NL)

EAWAG, Swiss Federal Institute of Aquatic Science and Technology (CH)



tiziana.gobbin@uhasselt.be

<https://tizianapaolagobbin.wordpress.com>



tinyurl.com/wasp-parasite

WASP-P

Survey on
perception of
wildlife parasites

