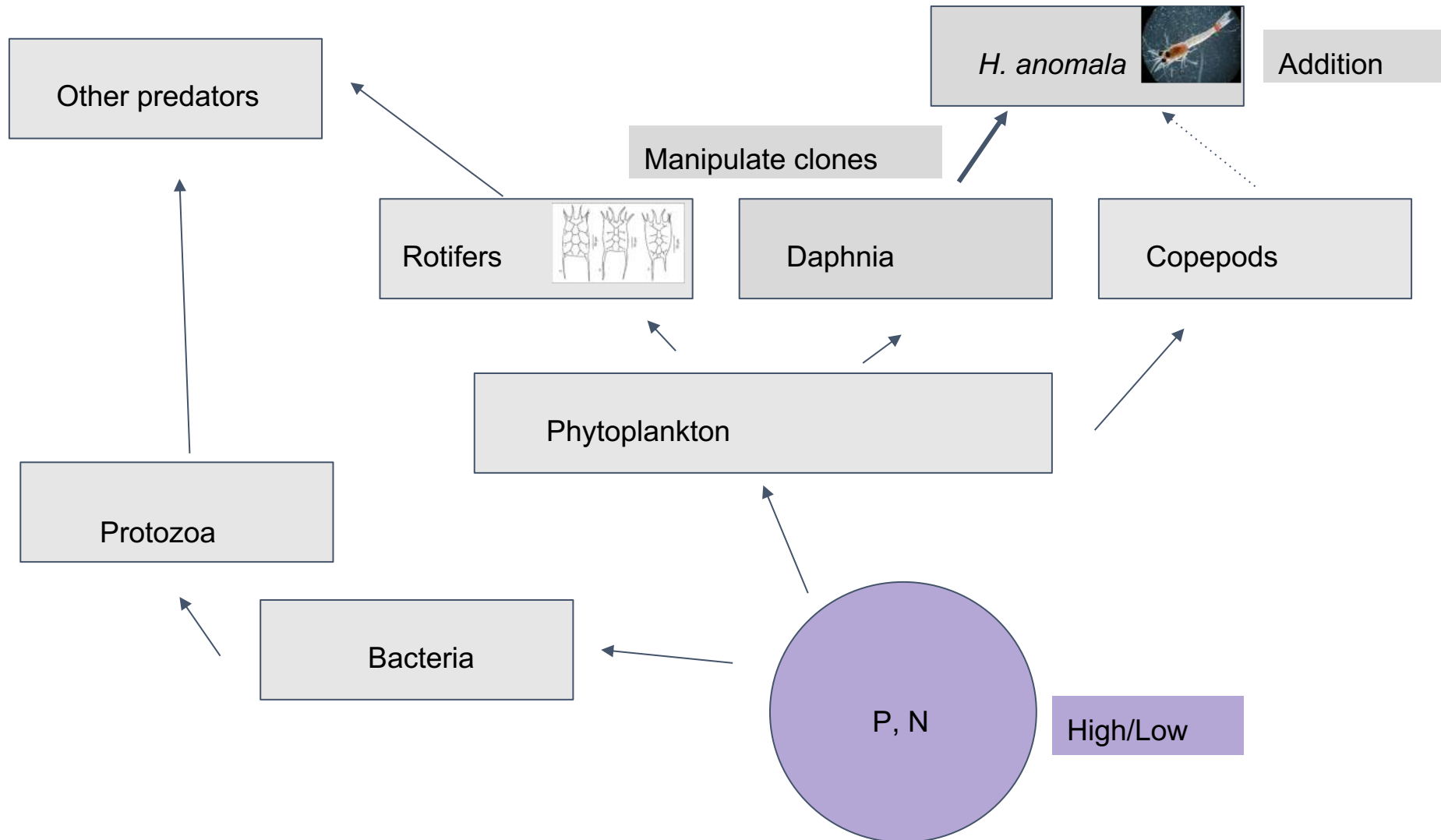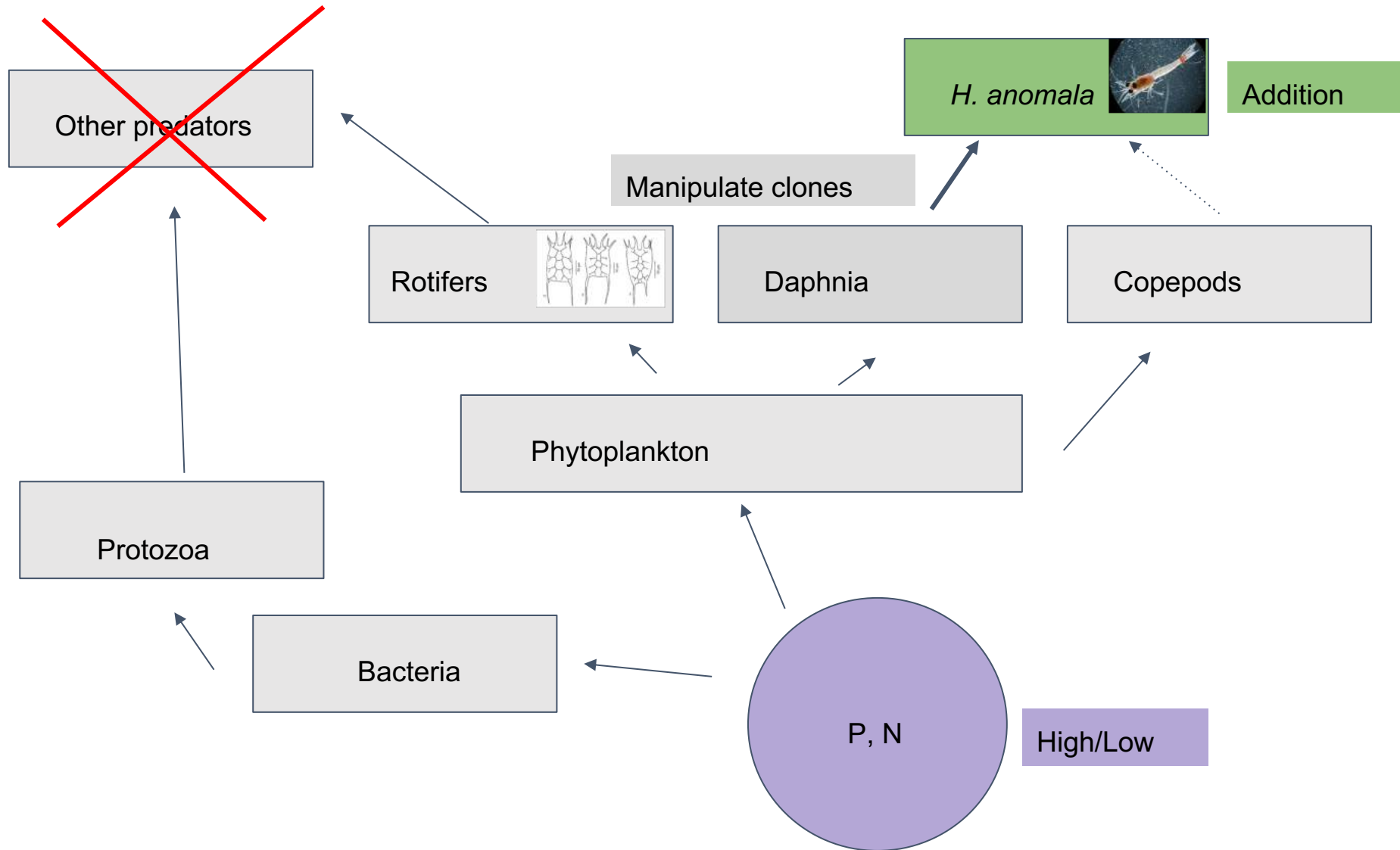# LEAP 2018

Design & Time line

Does the likelihood of community evolutionary rescue depend upon food web structure and the interaction with stressors?
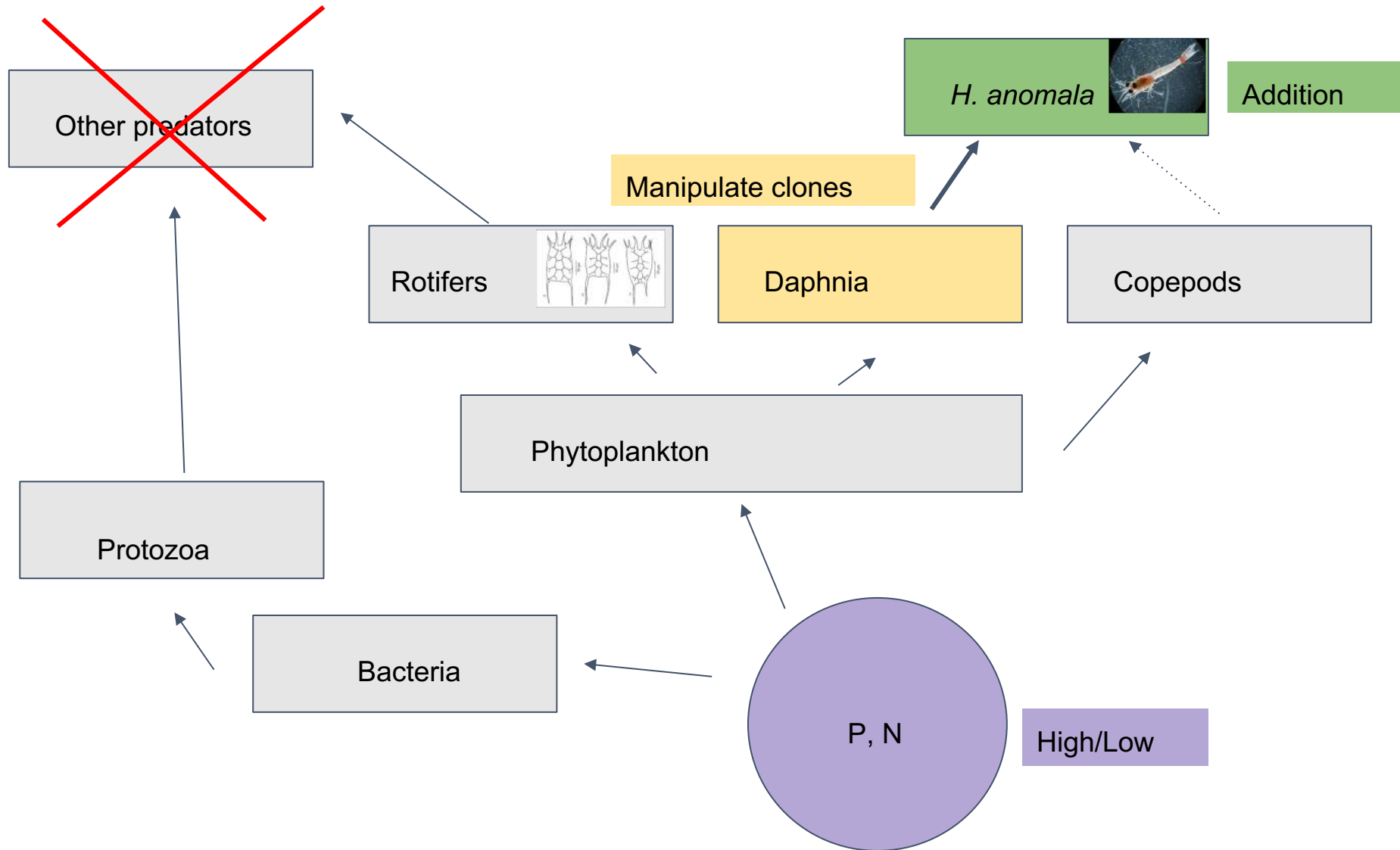
Food web manipulation of top predators and *Daphnia pulex* clonal diversity

Food web manipulation of top predators and *Daphnia pulex* clonal diversity

Food web manipulation of top predators and *Daphnia pulex* clonal diversity

Old: Timeline LEAP 2018

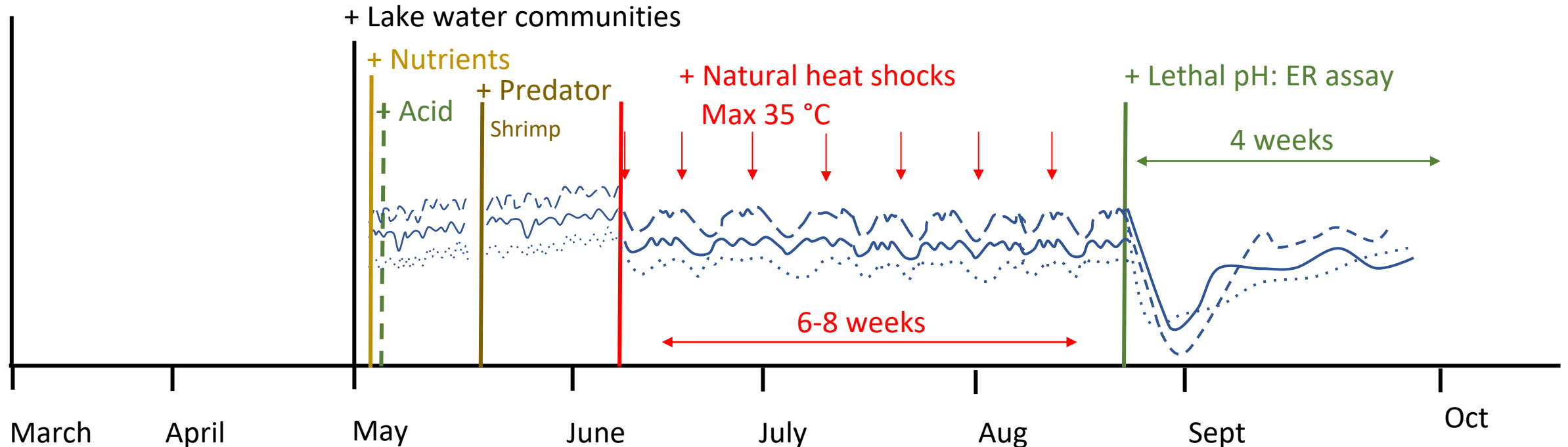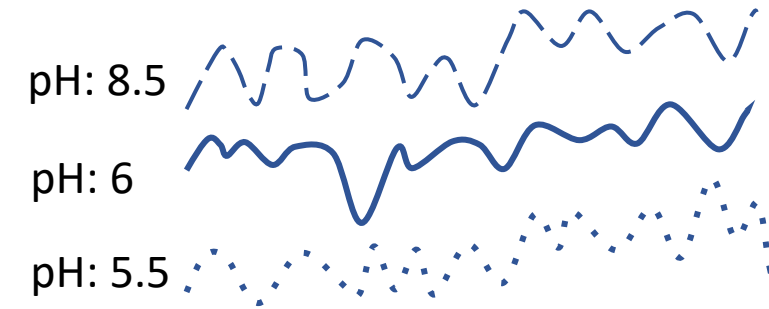pH: 8.5

pH: 6

pH: 5.5

pH same as in 2017!!

Preparation

- Daphnia cultures
- Predator cultures
- Aquarium heaters
- Netting

Start

- Add physical stress: let the communities settle
- Add Predator: let settle

+ Lake water communities

+ Nutrients

+ Acid

+ Predator

Shrimp

+ Natural heat shocks
Max 35 °C

+ Lethal pH: ER assay

4 weeks

6-8 weeks

March   April   May   June   July   Aug   Sept   Oct

Timeline updated
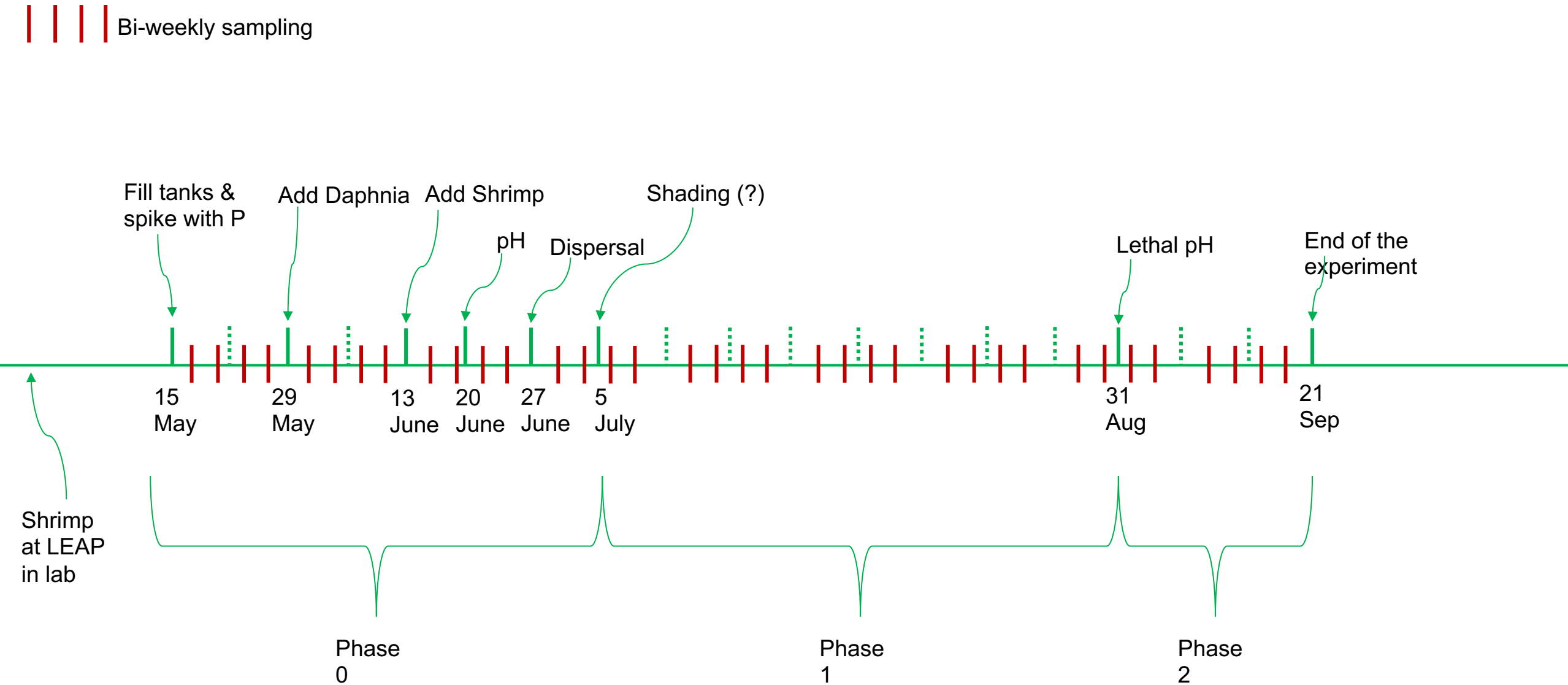
New: May 2018

Lab

Gate

Shaded

Non-shaded

pH

H	5.5
C	8.5
L	6

- PREDATOR

+ PREDATOR
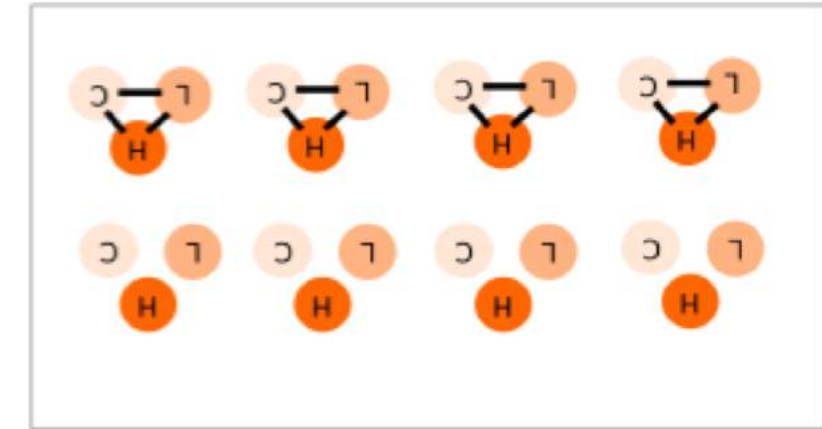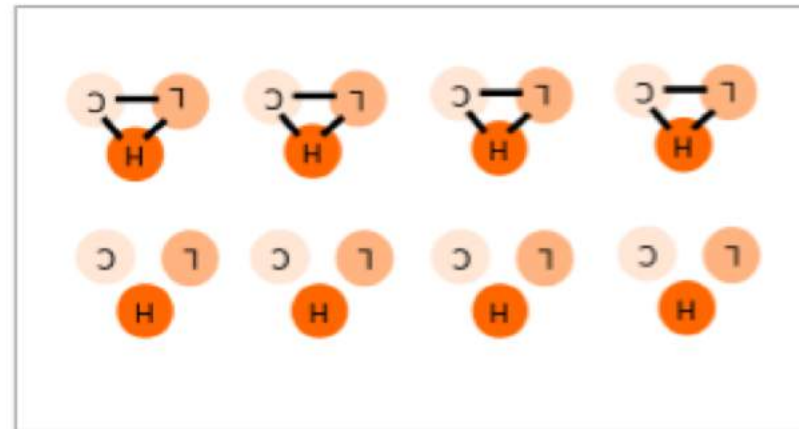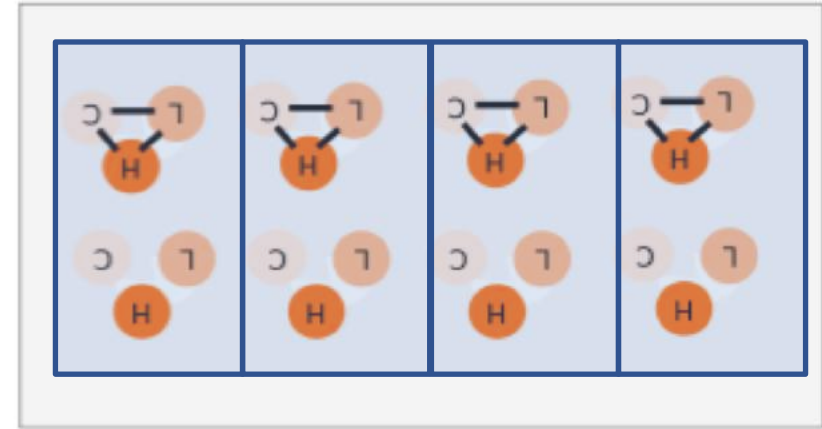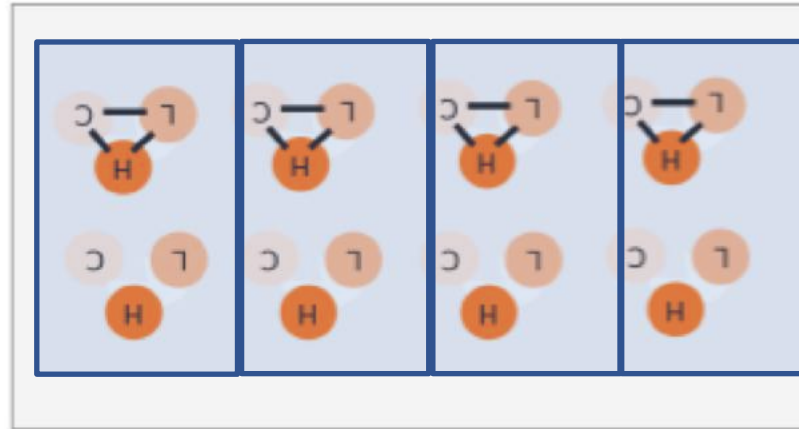
+ Dispersal
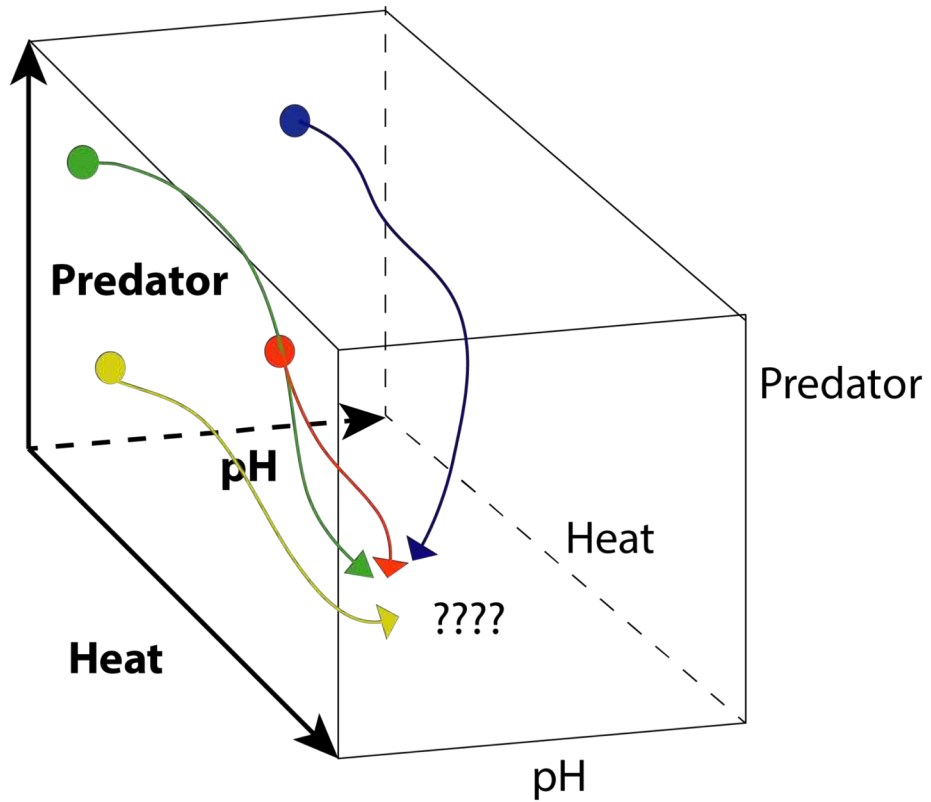
Predator

pH

Heat

Heat

pH

Predator

????

Measure of community composition ●
- Phytoplankton composition ●
- Daphnia clonal composition ●
 ●

- Dispersal
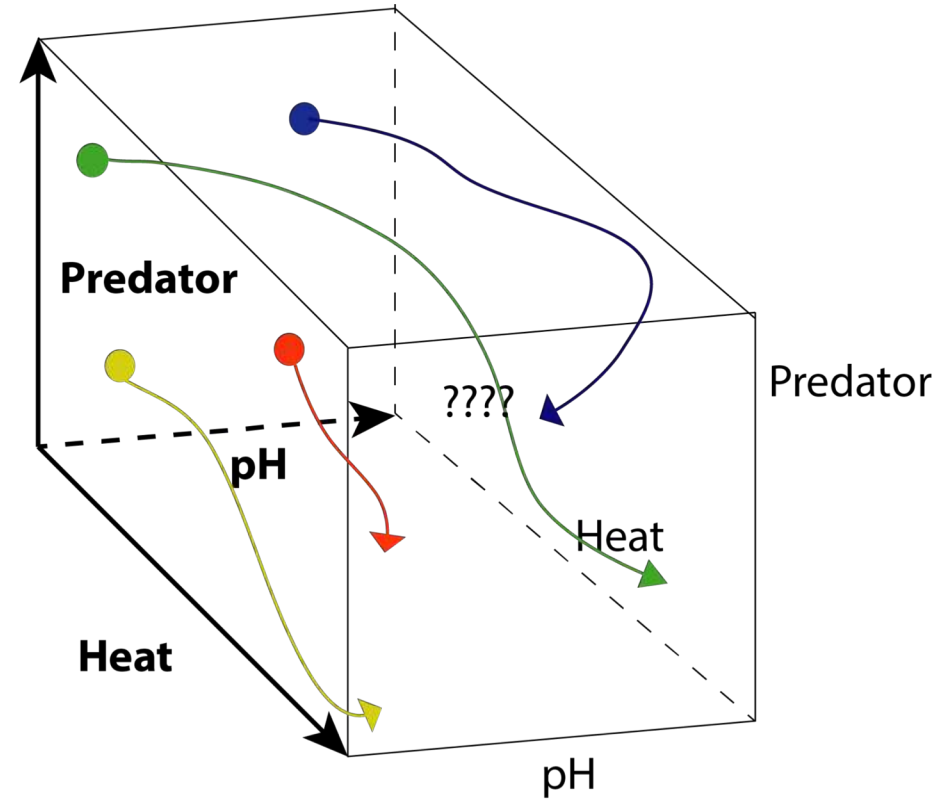
Predator

pH

Heat

????

Heat

pH

Predator
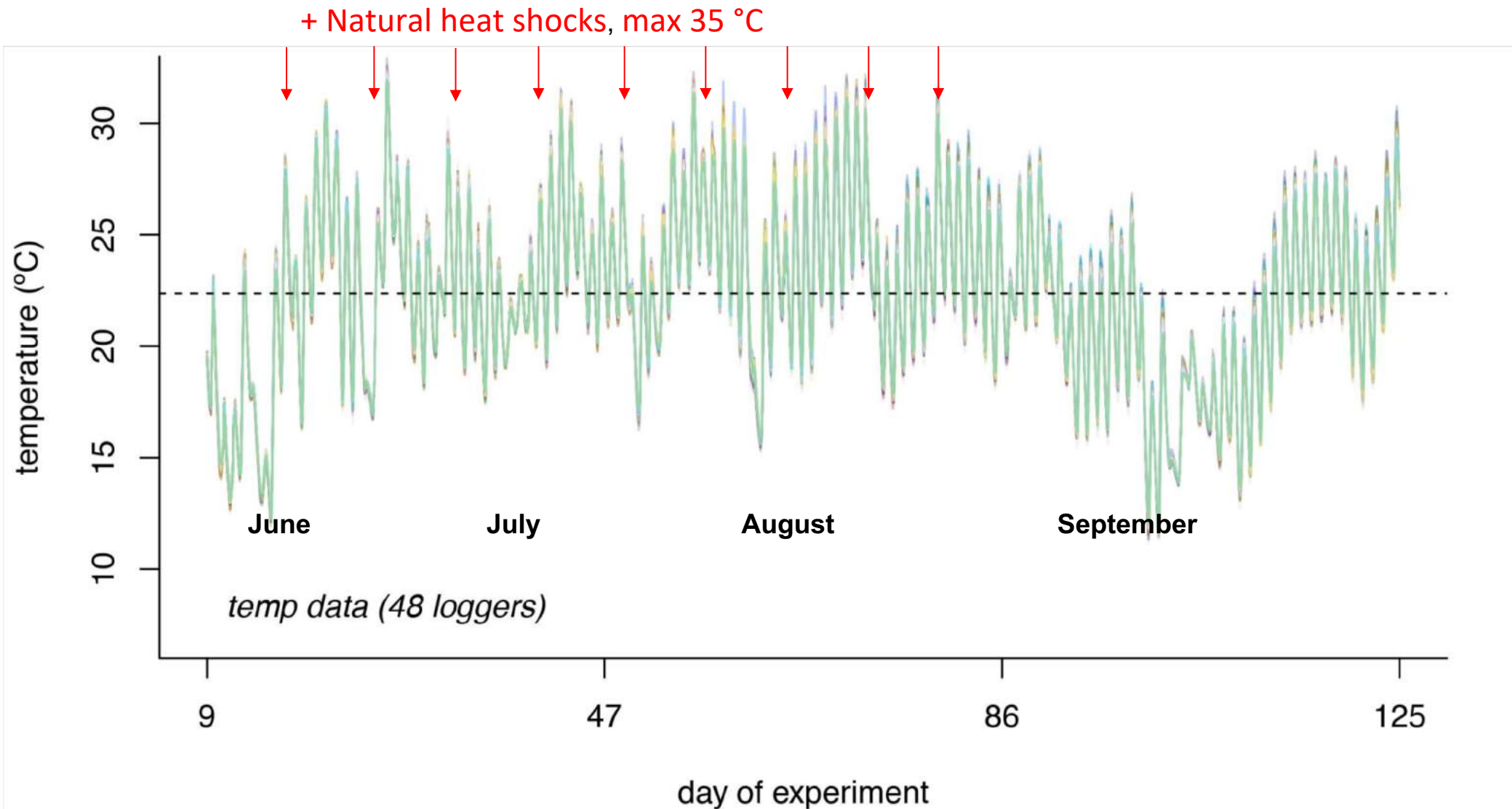
Measure of community composition ●
- Phytoplankton composition ●
- Daphnia clonal composition ●
 ●

2017 temperature hourly readings of 4 LEAP ponds

Decision tree

Research topics

Predator
- *H. anomala*
- Other
  - Collection
  - Stocking
  - Initial densities

Daphnia
- Manipulate clonal diversity
- Add many clones & track
  - Which clones?
  - Stocking
  - Initial densities

Dispersal /Metacommunity theory
- Include dispersal
- Exclude dispersal

Stressors
- pH, nutrients & heat shocks
- other…?
  - Heating method
  - Nutrient concentrations
  - pH levels (same as 2017)
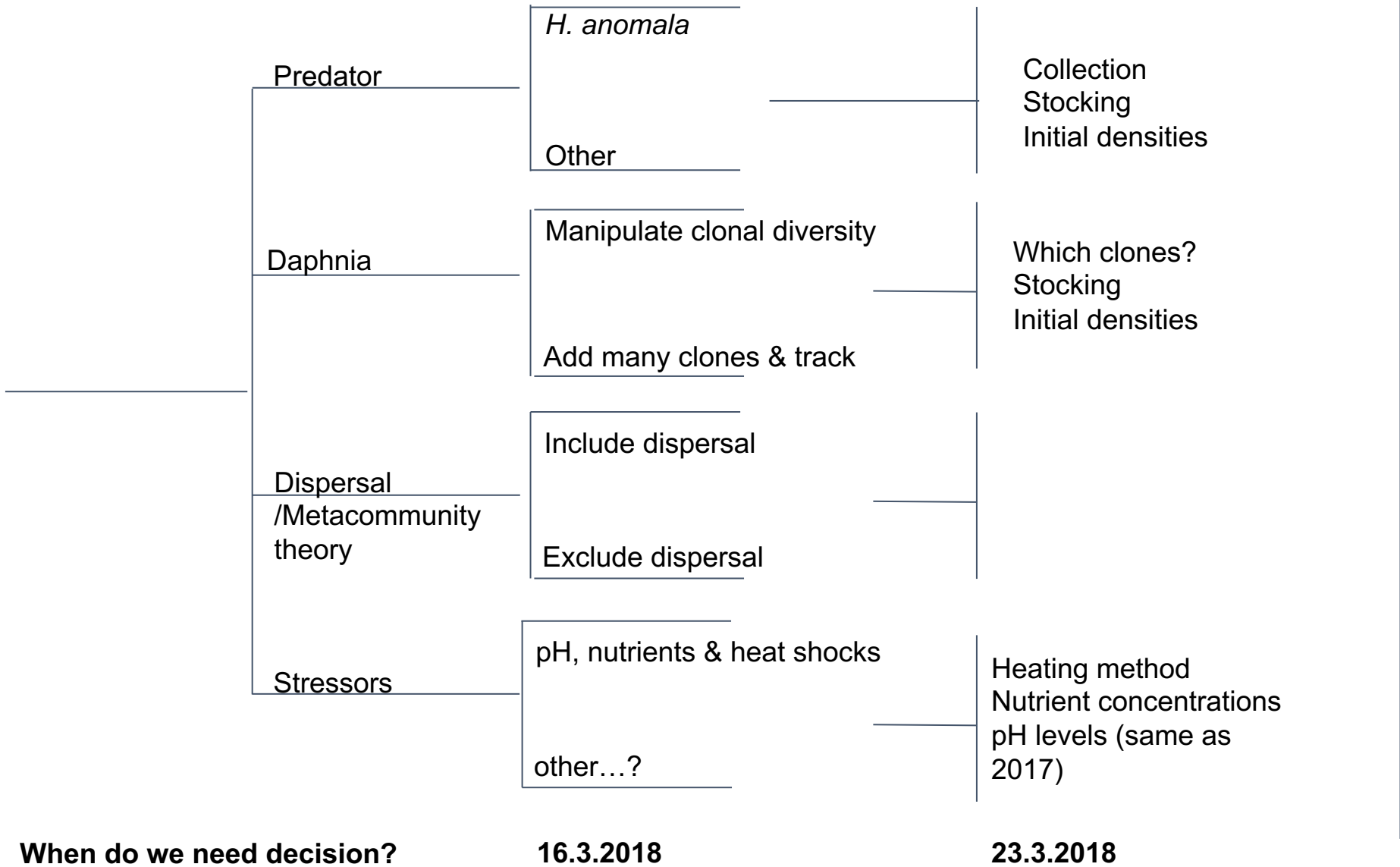
Biotic stress /
Cascading top-down effects
Synchrony and stability of food webs
Consumer vs. predator abundance
Invasion (non-native predator)

Genetics /
Gene flow
Selection
Founder effects

Metacommunities /
Local versus regional processes
Compensatory dynamics
Overall species abundance

Abiotic stress /
Bottom-up effects
Stress synergies and trade-offs

When do we need decision?   **16.3.2018**   **23.3.2018**