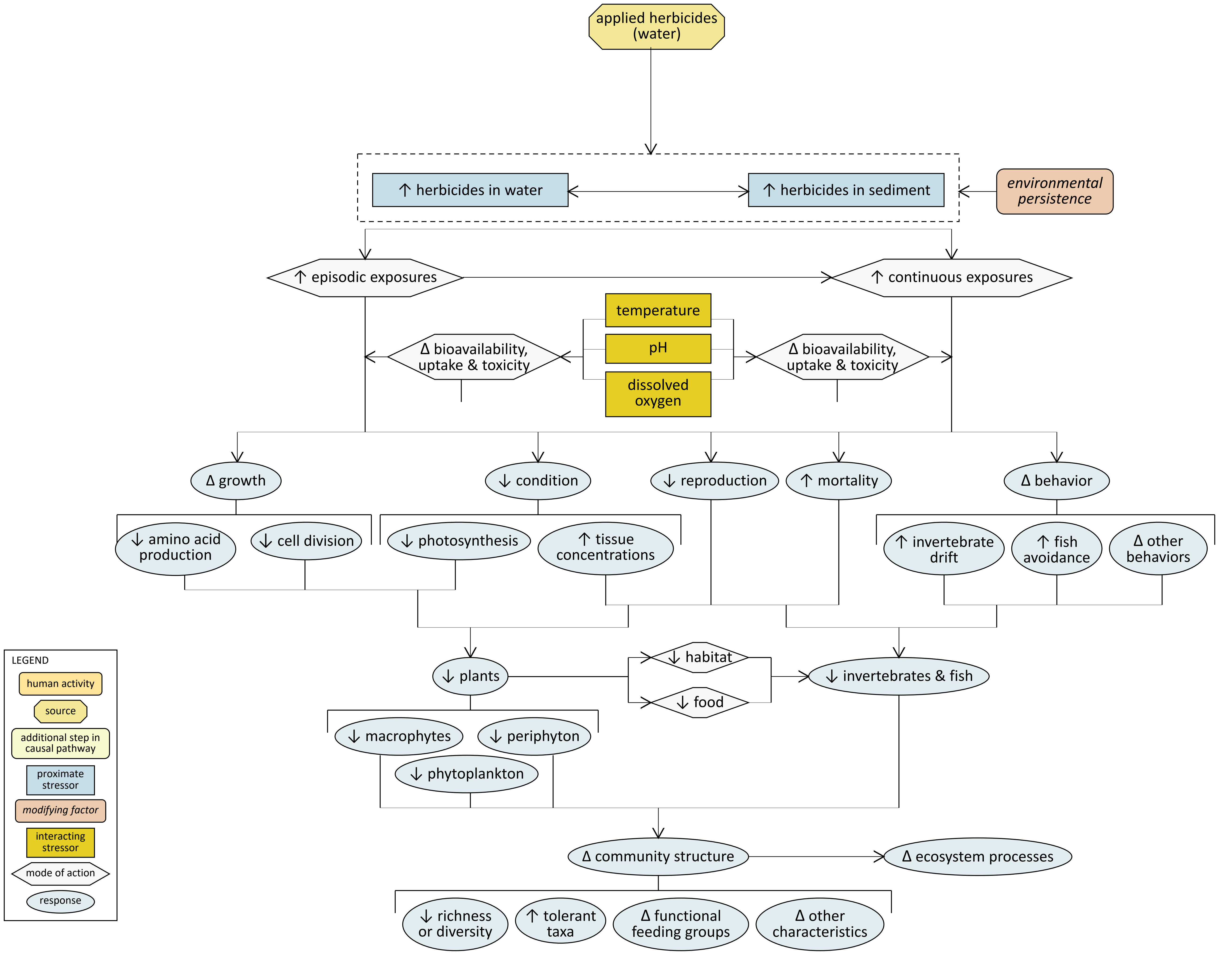
Due to their long evolutionary history, cyanobacteria are highly adaptive to changes, both natural and anthropogenic. They have demonstrated the capability to adapt to modifications to aquatic ecosystems including nutrient over-enrichments, hydrologic alteration and climate change effects, such as more intense and frequent storms and droughts (Huisman et al 2005; Paerl and Otten, 2013). Cyanobacteria are controlled by dynamic biological, chemical and physical processes, including nutrient inputs, light, hydrodynamics, and biological interactions. Mitigation techniques generally attempt to manipulate those processes through physical, chemical or biological controls. While chemical controls such as algaecides may temporarily reduce cyanobacteria blooms, it is essential to also address drivers of blooms such as nutrient reductions and hydrologic alteration (Paerl et al, 2016). Algaecides may prevent the bloom from expanding or producing more toxins; however, they may make the toxins already present more bioavailable by lysing the cells and releasing toxins into the water column. Evaluating cyanotoxin concentrations prior to and/or after treatment may inform water body management decisions.

Moreover, it is important to consider potential impacts to both cultural uses and ecosystem processes (Figure 1, adapted from USEPA CADDIS herbicide conceptual model available at: https://www.epa.gov/caddis-vol2/caddis-volume-2-sources-stressors-responses-herbicides#detailed).



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