RESPONDING TO STEERING COMMITTEE MANAGEMENT GOALS QUESTIONS: REVIEW

Utah Lake Water Quality Study
Steering Committee Call
2020-10-21

GOAL

Steering Committee Questions

Set the context

Review the data at hand

Answer the Steering Committee Questions

QUESTIONS

Management Goals
1. Please share your thoughts on the direct relevancy of the Management Goals to the ULWQS purpose of developing in-lake nitrogen and phosphorus criteria.

Measures and Targets

2. Are these measures defensibly responsive to nutrients?
    a. Which of these measures can be readily quantified using existing information?
    b. Which measures and targets will be quantified by ongoing Science Panel analyses or the existing water quality model and therefore available for consideration of nutrient reduction scenarios?
    c. Which of the measures may require additional studies (monitoring, modeling, etc.) and what are the requirements for that?
    d. Of those that might not be quantifiable, are there other approaches (modeling or empirical) by which targets can be derived?

    e. Is there a direct correlation between cyanobacteria cell counts and nutrients?
    f. Is there a relationship between cyanobacteria cell counts and toxins?
        ▪ Specifically, can and how do you predict change in toxin concentrations under different scenarios?
        ▪ The EPA 2019 document (Recommended Human Health Recreational Ambient Water Quality Criteria or Swimming Advisories for Microcystins and Cylindrospermopsin) is read by some to say no relationship between toxins and recreational use, is that your understanding?

Specific Measure Questions

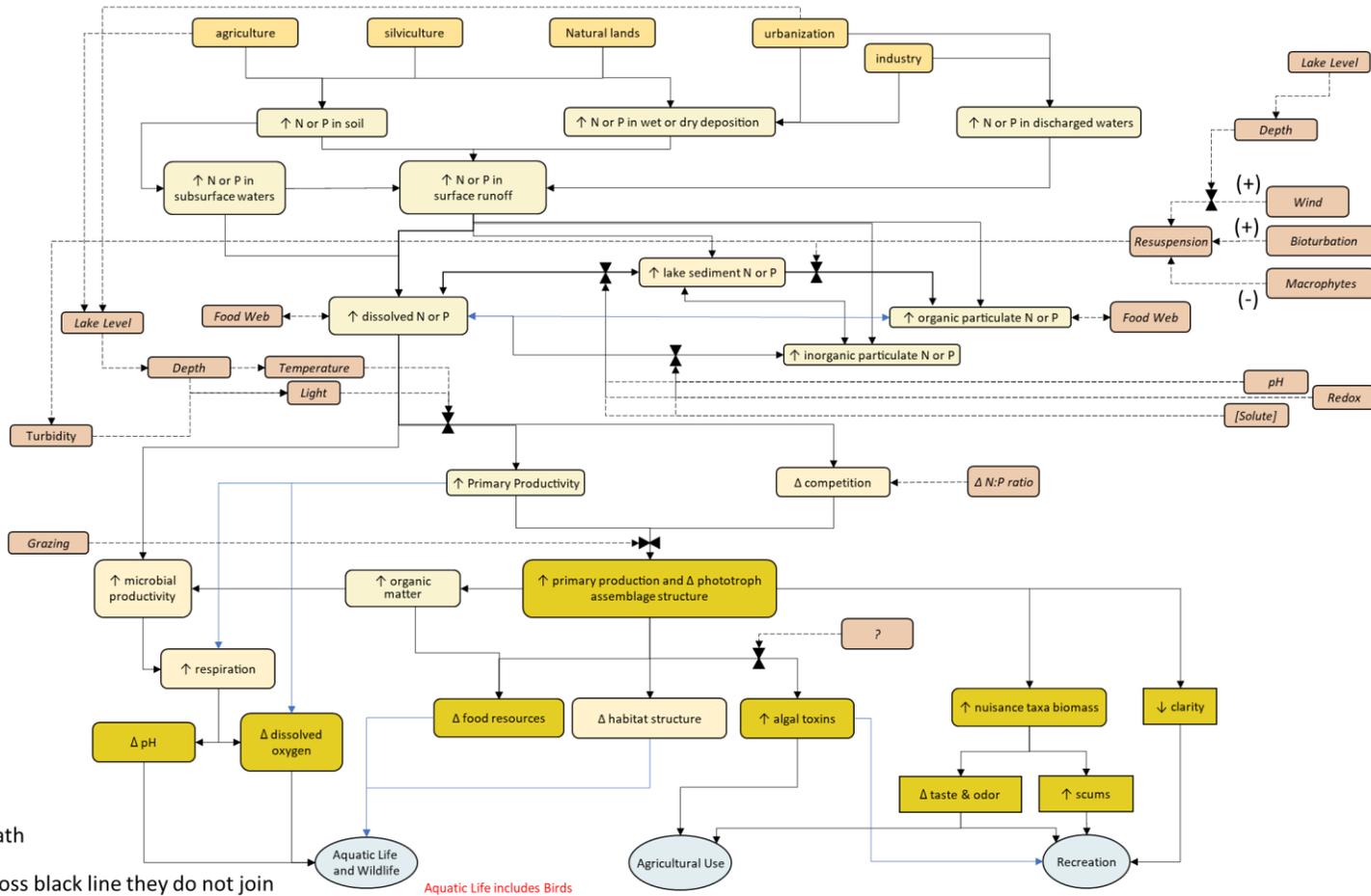# QUESTIONS CONTINUED

Measures and Targets continued

3. Are there measures that will be infeasible to assess or for which target development will be difficult?

4. What methods should be used to calculate current conditions for each measure?

    a. Can these methods be applied using modeling (empirical or mechanistic) to predict change under future scenarios?

    b. How should we group monitoring sites in evaluating current and future conditions?
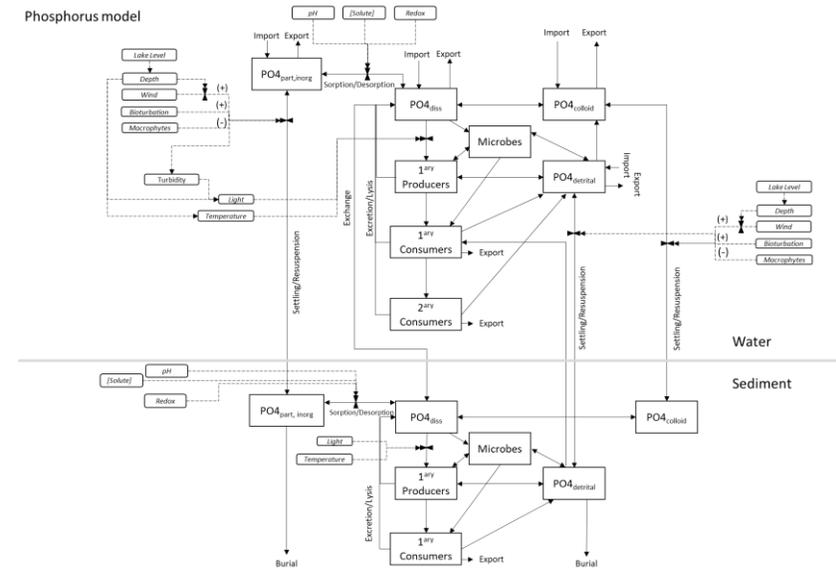
Other considerations

5. Are there potential measures or targets not included that should be considered by the SC?
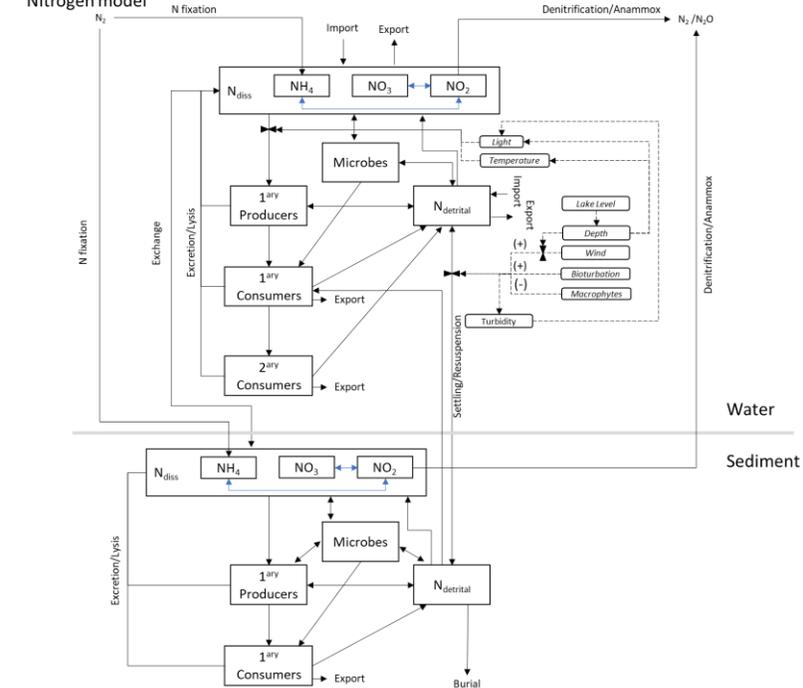
CONTEXT

Causal model

Legend:
- Sources
- Path Steps
- Assessment Endpoints
- Management Goals
- Modifying Factor
- Regulation of a path

Blue lines used to cross black line they do not join

Aquatic Life includes Birds

Phosphorus model

Nitrogen model

METADATA

Toxins:

o Microcystin and Anatoxin data (Multiple locations, HAB program, 100s of samples)

o Cylindrospermopsin – not collected currently

o Fish tissue toxin concentration – not collected

Phytoplankton:

o Assemblage   – HAB monitoring program (Multiple locations, 100s of samples, major groups)

                         – Routine monitoring program (Multiple locations, ~1000 samples, all taxa, paired chem)

o Chl a   – Routine monitoring program (Multiple locations, ~1000 samples, paired chem)

METADATA

Chemistry:

- Buoy sonde data (continuous DO and pH) – 100s of days, 4 stations
- Routine monitoring program (nutrients, etc.) - (Multiple locations, ~1000 samples)

Biological (most all synoptic programs, unknown degree of pairing or station overlap):

- Zooplankton diversity/abundance – June Sucker Recovery program, WFWQMC
- Macroinvertebrate diversity/abundance – June Sucker Recovery program, WFWQMC
- Mollusk diversity/abundance – WFWQMC
- Fish diversity/abundance – June Sucker Recovery program
- Macrophyte cover – June Sucker Recovery program (multiple, targeted sites/surveys)

METADATA

Human:

- Visitation data (Utah Lake State Park)

- Recreational surveys (TBD)

SP RESPONSES

o Work through as much as we can:

o Questions 2a-d, 3-5:
   o Water Quality
   o HABS (Tackle 2 e, f and then 2a-d, 3-5)
   o Biology

o Question 1 for last (because if measures are responsive to nutrients, then 1 becomes easier to answer)

o Given the timeframe, we may seek license to complete the balance and have you all review; but that is for you to grant

TABLE