

Afternoon Breakout

Regulatory / Science

Bob Knight / K. McKee

Establish Thresholds → find testable hypotheses

Nitrate – is there a threshold?

H_0 – no threshold

Not steady state

Wekiva < 0.1 mg/L (background – baseline – historical)

0.45 mg/L – lake # mentioned by FDEP

Not a threshold, but maybe a range that includes a ‘safety factor’

Change effects on

- Microbes
- Algae
- Amphibs

Threshold depends on indicator!

Define different thresholds for different trophic levels? (science)

We’d end up using lowest one (regulatory)

Final whole system measure and only vary nitrate (GPP for example)

More powerful than individual studies.

Mesocosm studies in situ,

- vary the nutrients
- vary the flow

Get to historical level? Not possible.

Precautionary rule?

Once impaired, DEP to show what’s causing – in NO_3 , what’s the level?

How to define impaired? (Dave DeWitt)

- Algal Mats
- Chlorophyll
- Amphibians
- GPP

Research

- How spring ecosys work differently
- From research on setting thresholds

Need Methodology that

- Tests multiple trophic levels
- Controllable in situ system

Different fish (T. Edwards) respond to NO₃ very differently. Thyroid...

Everglades threshold (10) took 10 years to develop; We don't have 10 years for springs.

With mesocosms, can do in 3 years! Would have data in 1 year.

Developing Hypotheses

Thresholds devel. For permitting? Who's applying for permits?

What re potential other contaminants – maybe need other thresholds!

Spring boil water age – consider it for threshold and land management

Important for figuring source loads. What part of water is what age? Big implication for management.

Proxy for age? Emerging contaminants. Sign of young water!

Are regulations set considering restoration or prevention? Different approaches. Someone suggested DEP does with restoration in mind.

What's more of a problem, flow? Or Nutrients??

Should we/ Can we limit recreation? Yosemite max number of vehicles per day = 5000 during summer