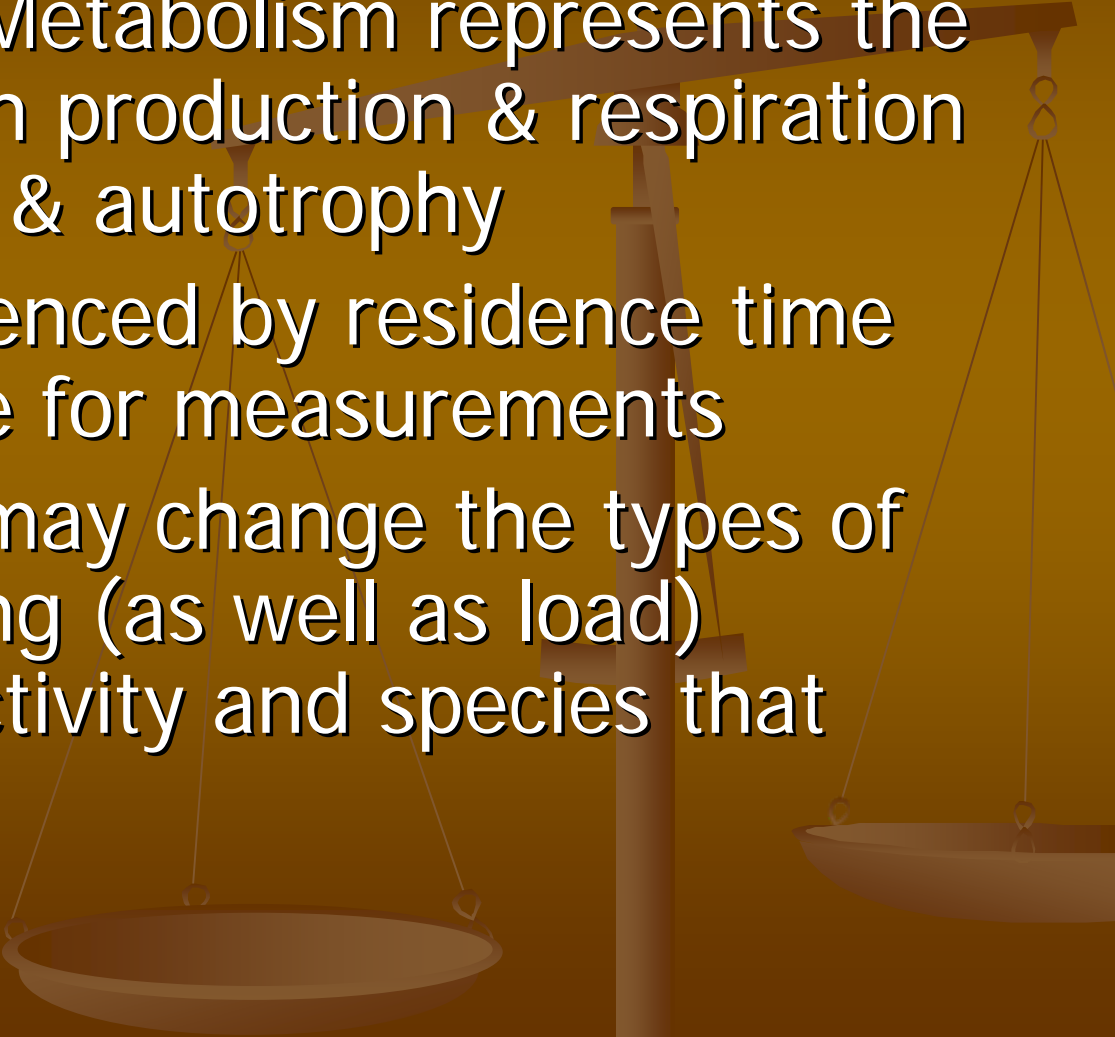


# Net Ecosystem Metabolism

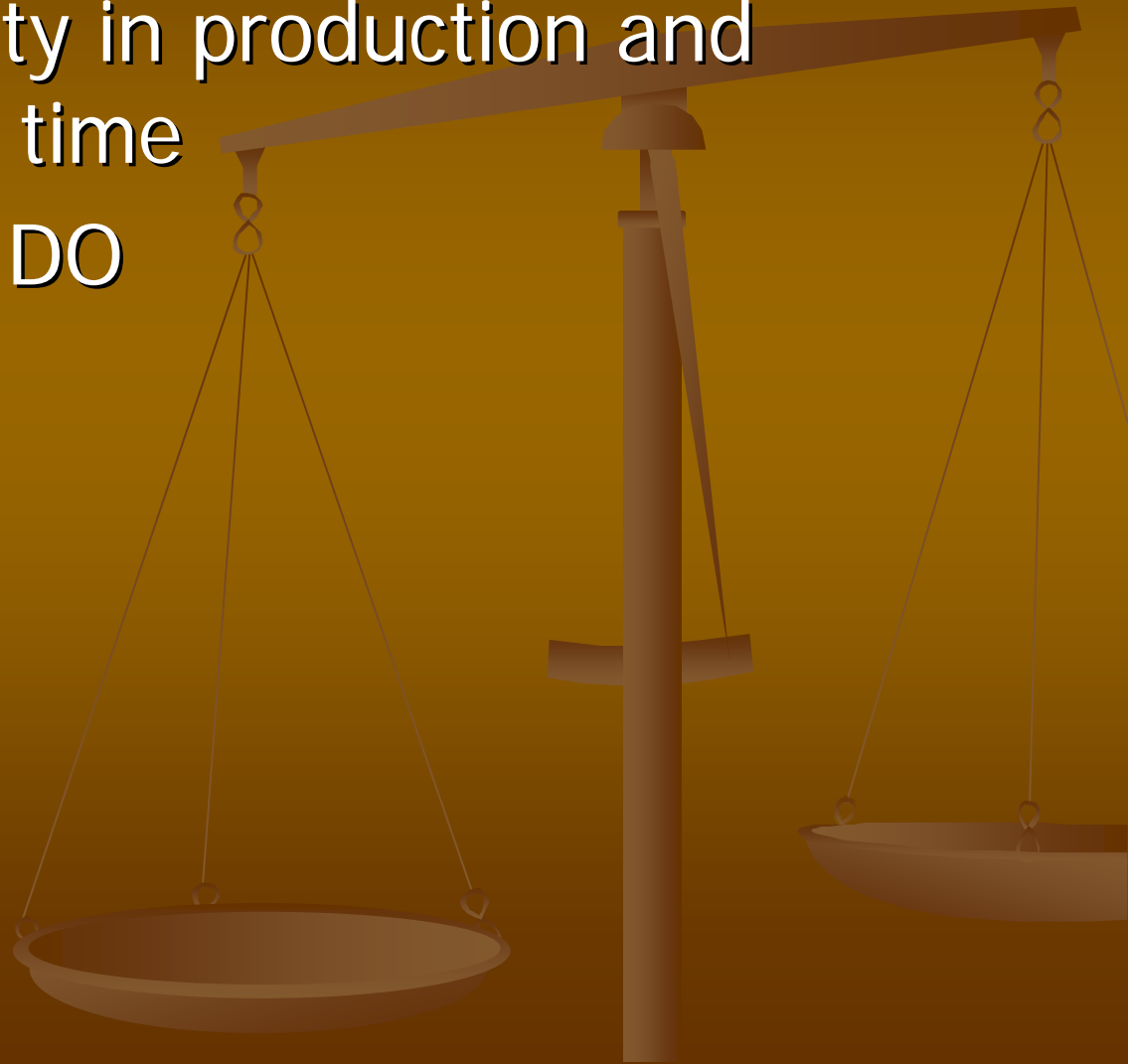


# Endpoint Discussion

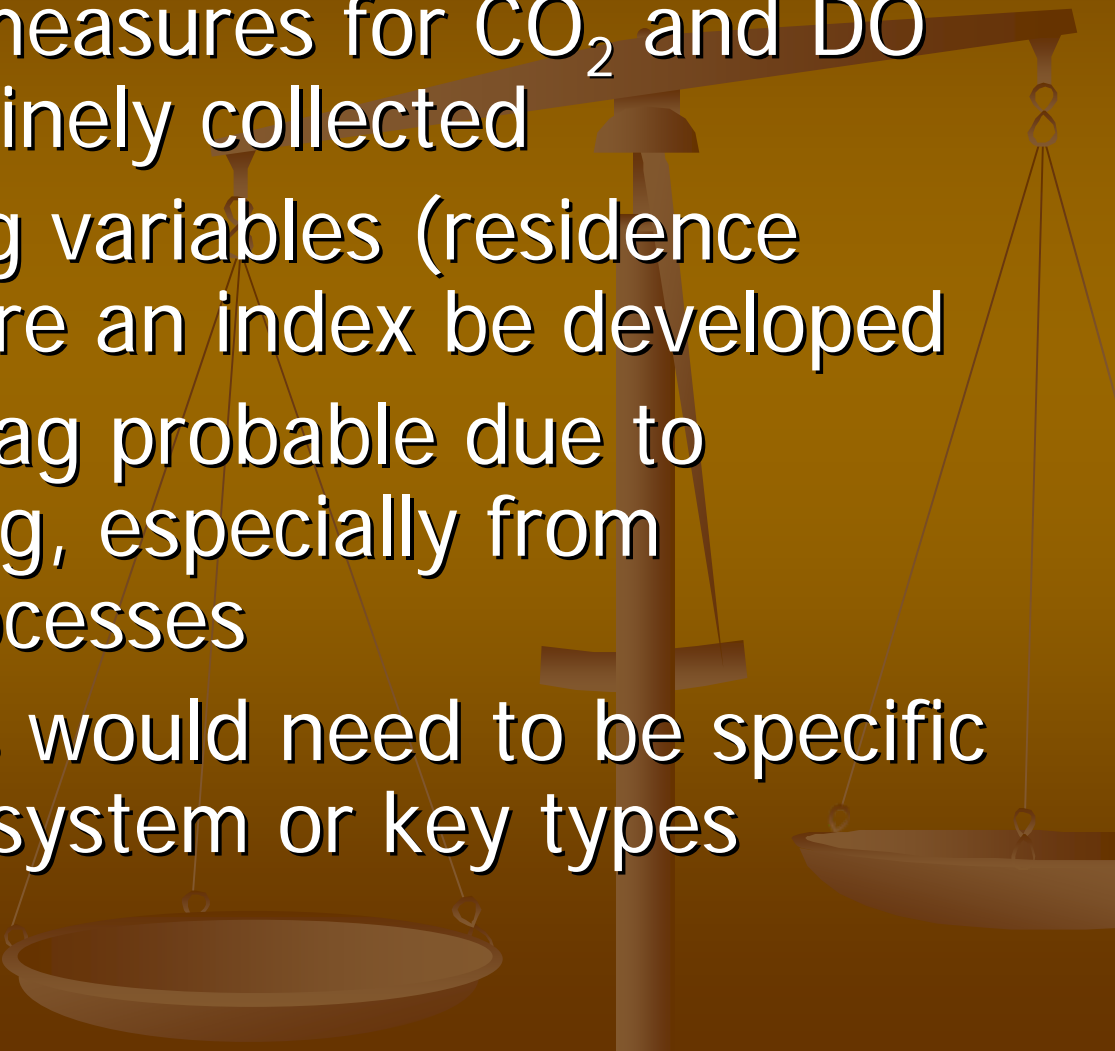
- Net Ecosystem Metabolism represents the balance between production & respiration or heterotrophy & autotrophy
  - It is highly influenced by residence time and spatial scale for measurements
  - Different flows may change the types of nutrients entering (as well as load) affecting productivity and species that bloom
- 

# Indicator: NEM Stability

- System's volatility in production and respiration over time
- Slope of  $\text{CO}_2$  to DO

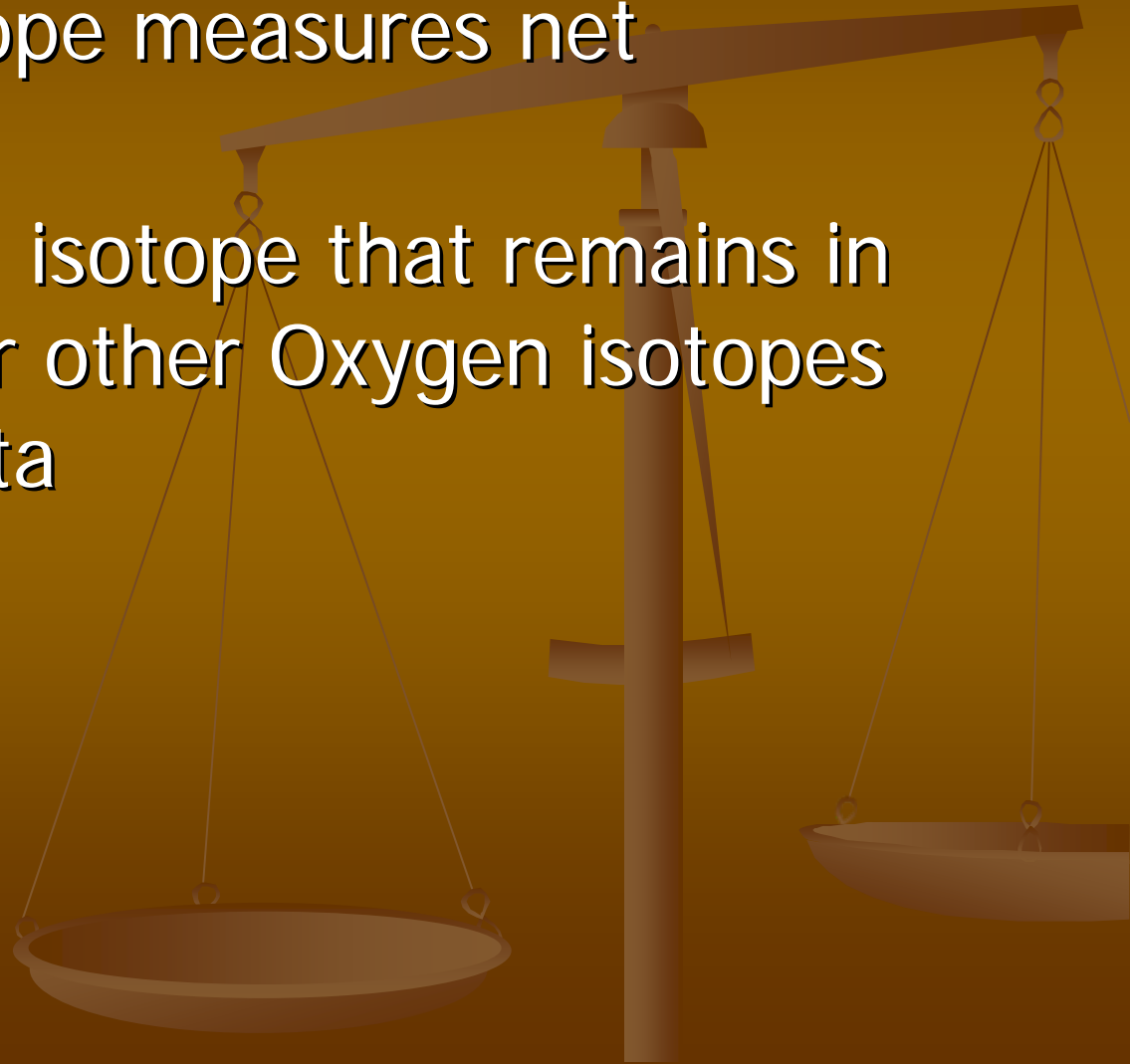


# Stability Indicator Discussion

- Instantaneous measures for CO<sub>2</sub> and DO that can be routinely collected
  - Other controlling variables (residence time) may require an index be developed
  - Response time lag probable due to nutrient recycling, especially from sedimentary processes
  - Threshold levels would need to be specific to either an ecosystem or key types
- 

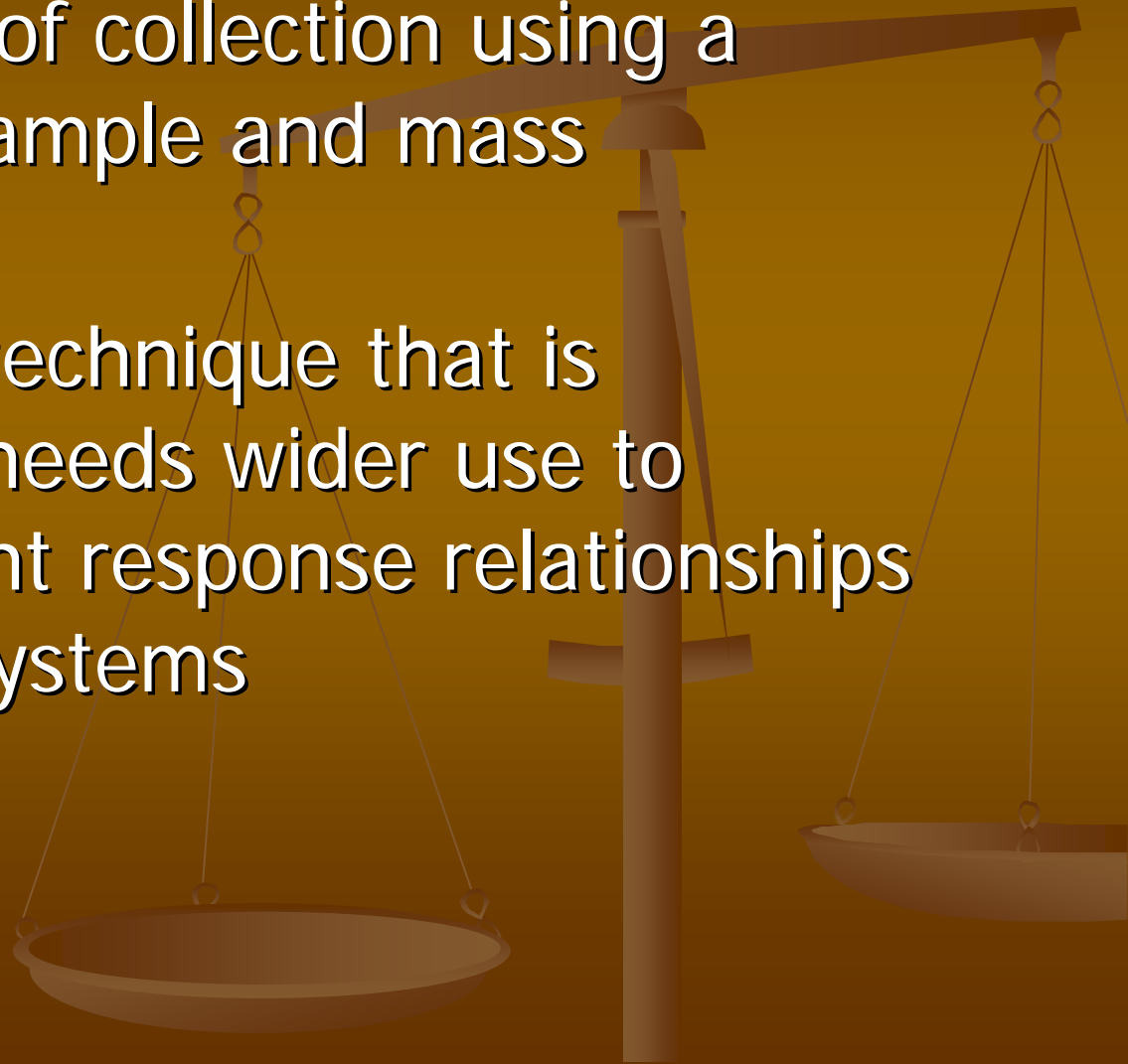
# Indicator: Net P:R

- Oxygen 18 isotope measures net productivity
- $^{18}\text{O}$  is a natural isotope that remains in the system after other Oxygen isotopes are used by biota



# Net P:R Indicator Discussion

- Simple method of collection using a treated water sample and mass spectrometer
- Relatively new technique that is promising, but needs wider use to establish nutrient response relationships for a range of systems



# Additional Questions

- What is the best spatial scale for sampling?
- Can isotopes be related to remote sensing parameters?
- Can volatility be related directly to nutrient input changes?

