

# Shoal Lake Water Quality Report 1987

## Background

- Commissioned after a concern of blue-green algae
- Supported by both councils and Dept. Environment workplace safety and health

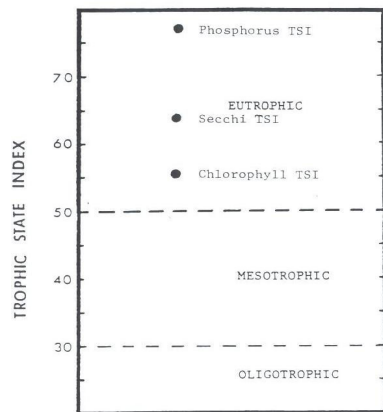
## Objectives

- Report to serve as a baseline reference
  - Identify trophic status
  - Identify problem nutrients
  - Identify source of problem nutrients
  - Quantify problem nutrients

## Trophic levels

- (Eutrophication a term that describes the degree of enrichment or productivity)
- Oligotrophic – lake tahoe- low nutrient levels
- Mesotrophic - more nutrient
- Eutrophic – nutrient rich ( common in prairie waterbodies )

## Identify Trophic statue



Carlson's (1977) trophic state indices (TSI) for Shoal Lake.

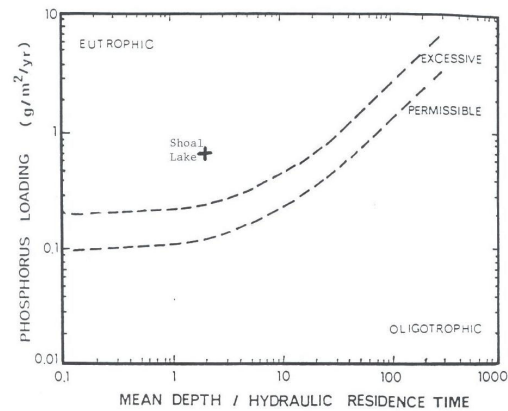


Figure 5: Application of Vollenweider's (1975) trophic state scale to Shoal Lake.

## Determine the cause (the rocket science)

- (Referenced literature) Development along aquatic systems causes nutrient loading
- Excessive phos. Triggers eutrophication
- So.. Rigorous sampling was initiated

## Problem Nutrient ?

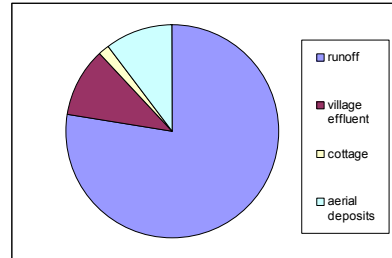
Phosphorus is the nutrient that controls and or limits algae growth

## Identify sources of Phos.

- Sources were itemized and quantified
- Internal recycling of nutrients (sediment release during winter) approx 52% of source
- Remaining sources were external
- Internal nutrient level is a function of annual external inputs.

## External Sources

- Direct basin runoff
- Precipitation, particulates and biological material
- Direct Human inputs (Lagoon cottages)



## Conclusion

- Shoal lake water enhancement corp. was formed
- Projects were undertaken...
- ? Is Shoal Lake water Quality still an Issue?
- ? Are there still action to be taken?
- ?How can we adopt this into our current plan