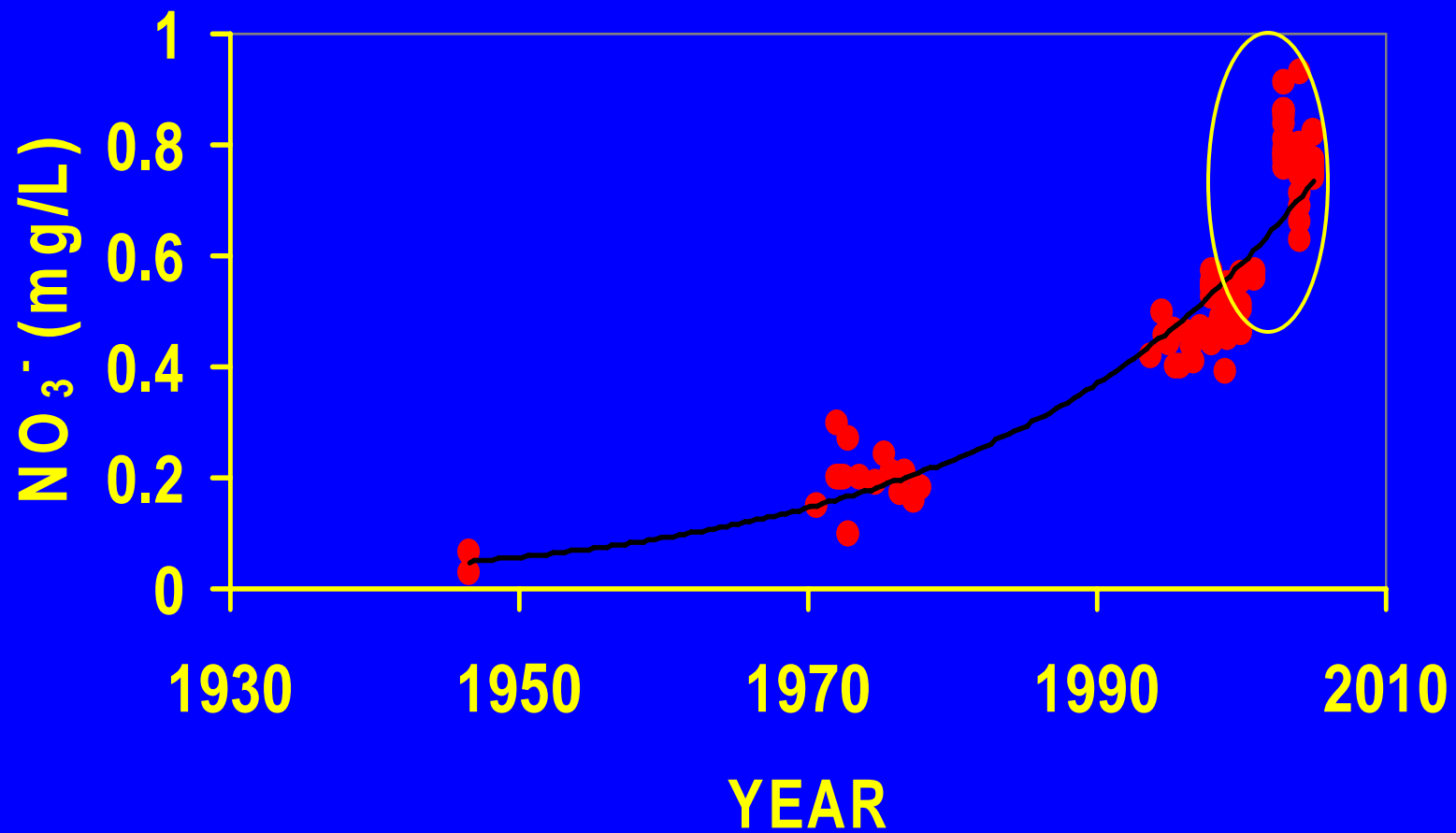
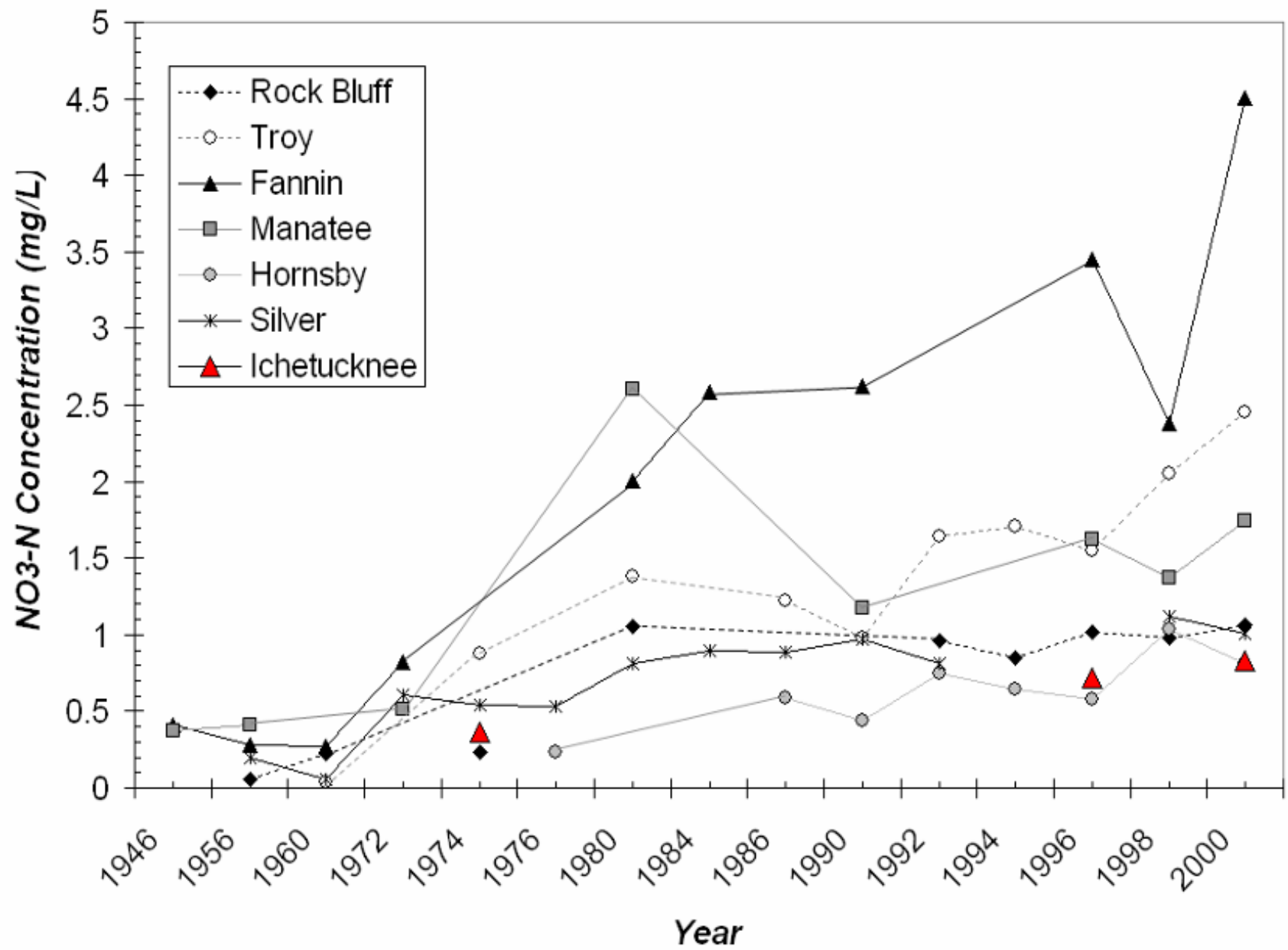


# WEEKI WACHEE SPRINGS

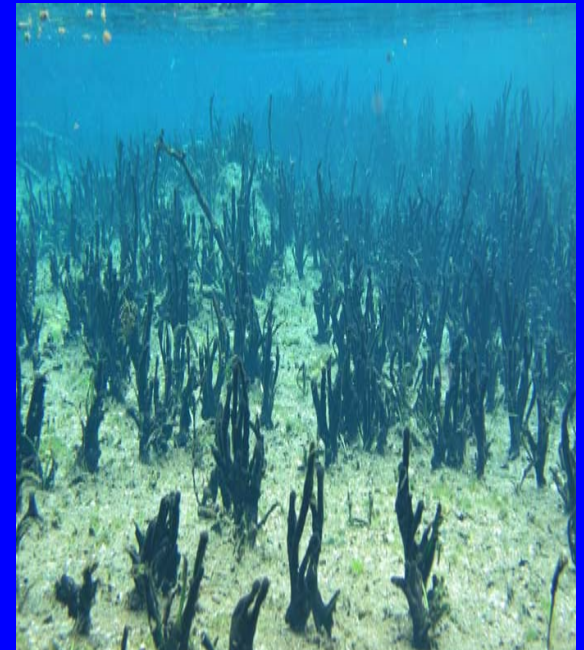


Data provided by the Southwest Florida Water Management District and UF



Data from Hornsby *et al.* 2002, 2003, 2004 and 2005 (slide courtesy of M. Cohen)

# Is increased nutrient delivery compromising the ecological integrity of Florida's spring-fed coastal rivers?

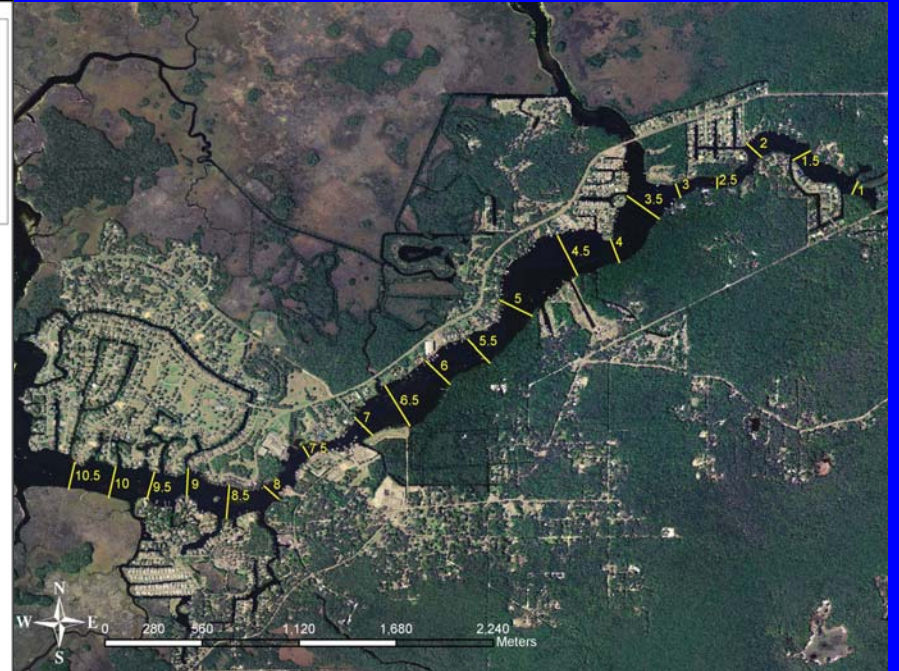
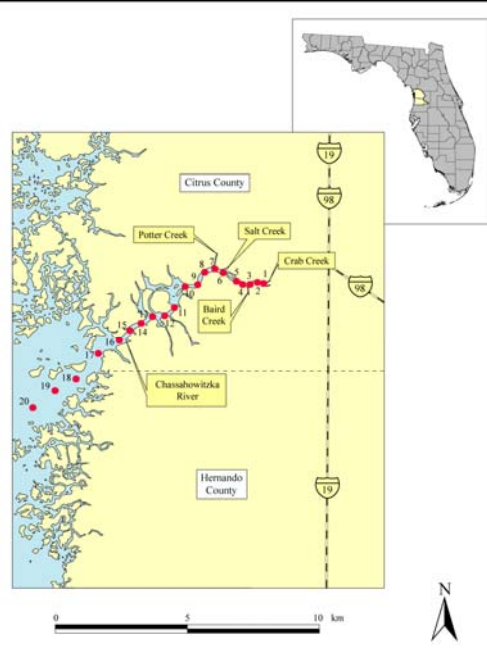


# Study Rivers

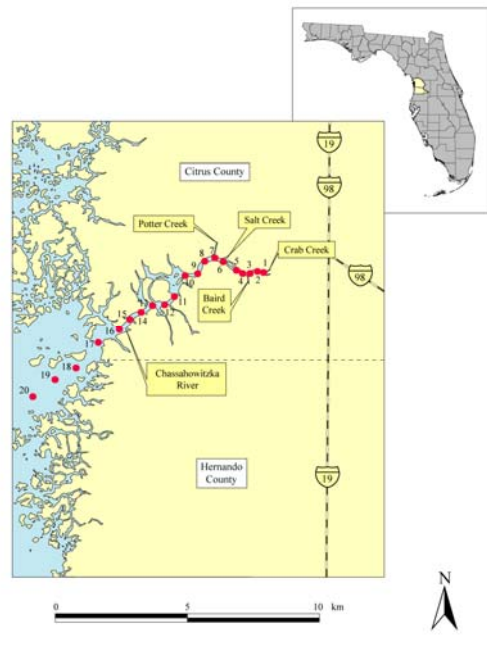


Image credit: Google Earth®

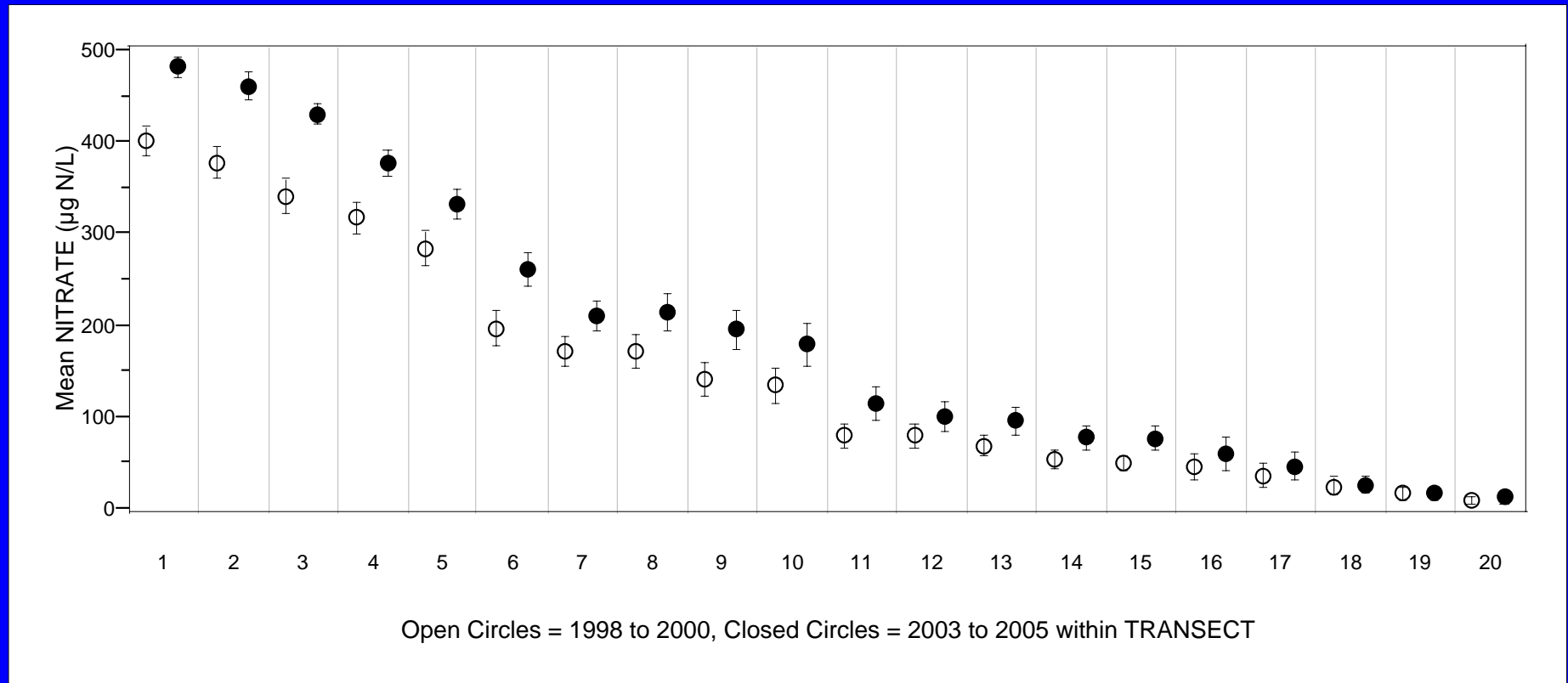
# Homosassa River



# Chassahowitzka River



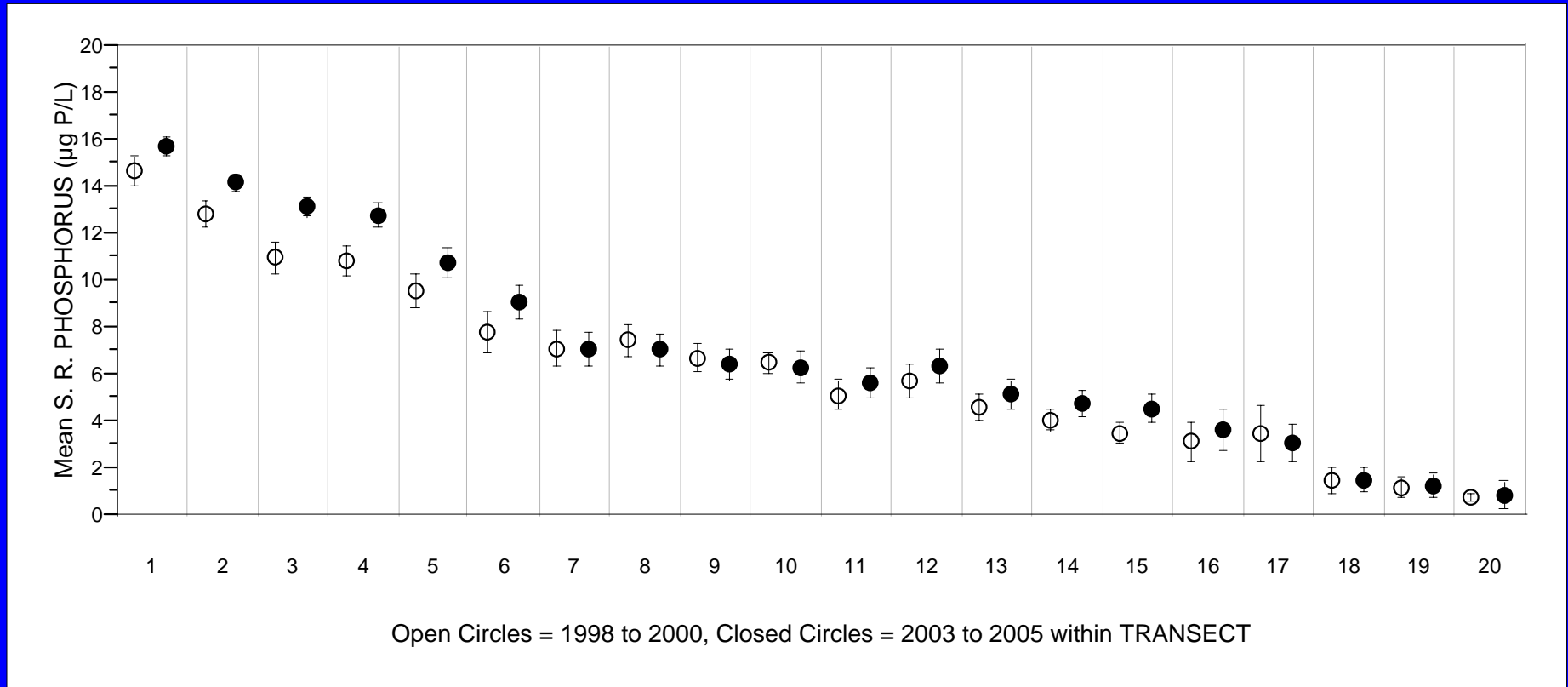
# Chassahowitzka River – Nitrate



**Nitrate concentration has increased by 20%**

**Nitrate loading in the headwater region has increased by 43%**

# Chassahowitzka River – Soluble Reactive Phosphorus



**SRP concentration has increased by 19%**

**SRP loading in the headwater region has increased by 44%**

## Effect of Nutrient Addition on Periphyton - Chassahowitzka River

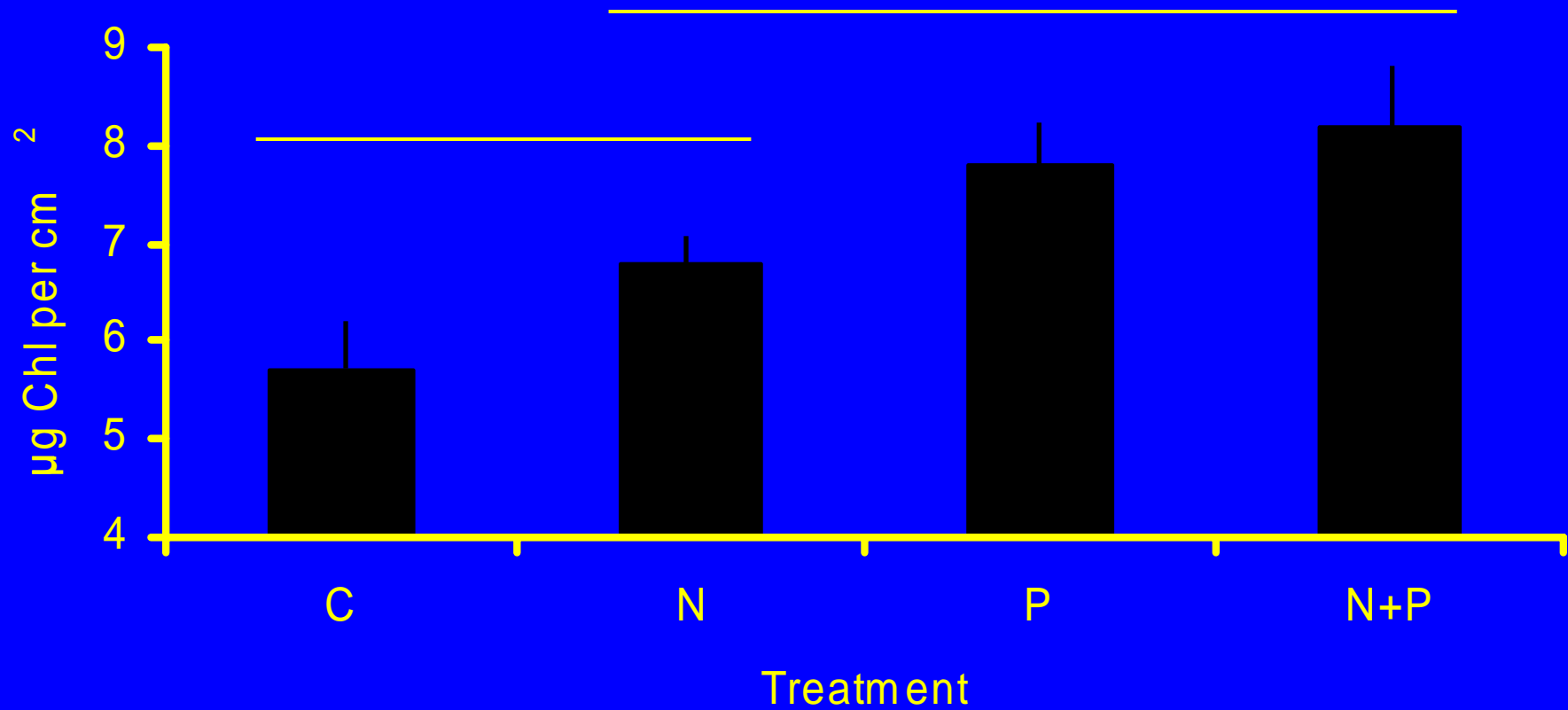
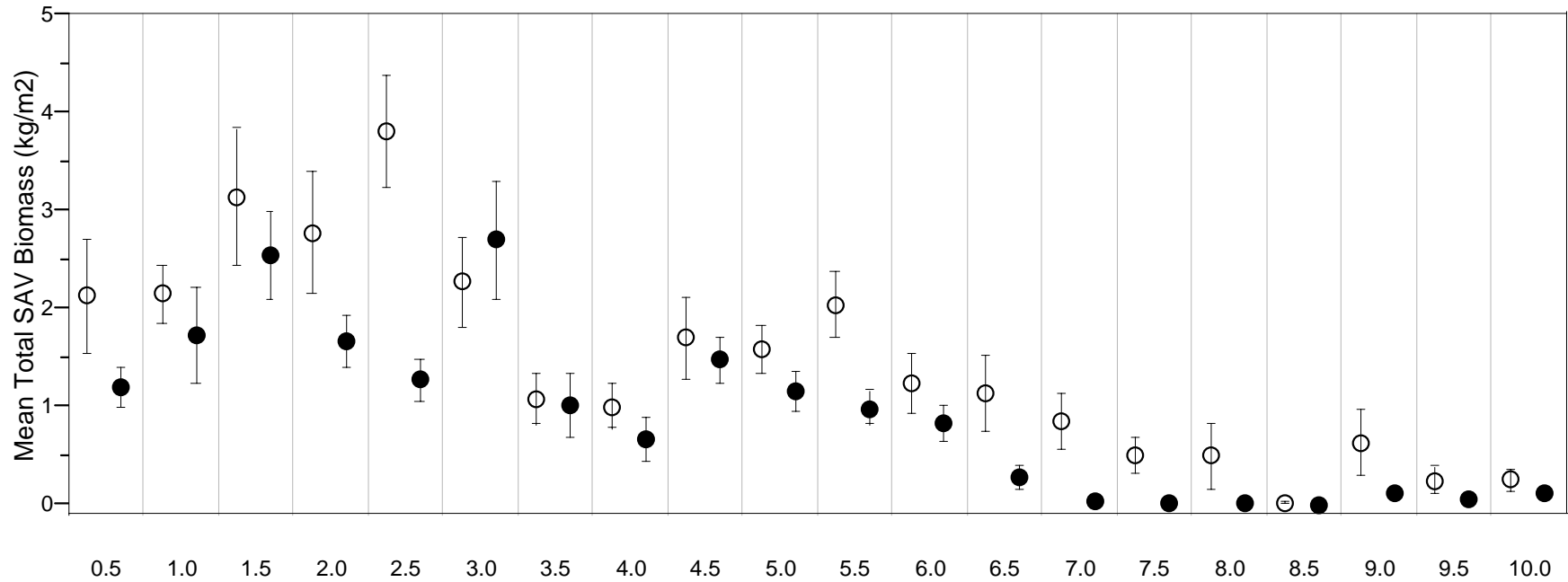


Figure from Notestein et al. 2003



# Chassahowitzka River – Submersed Aquatic Vegetation

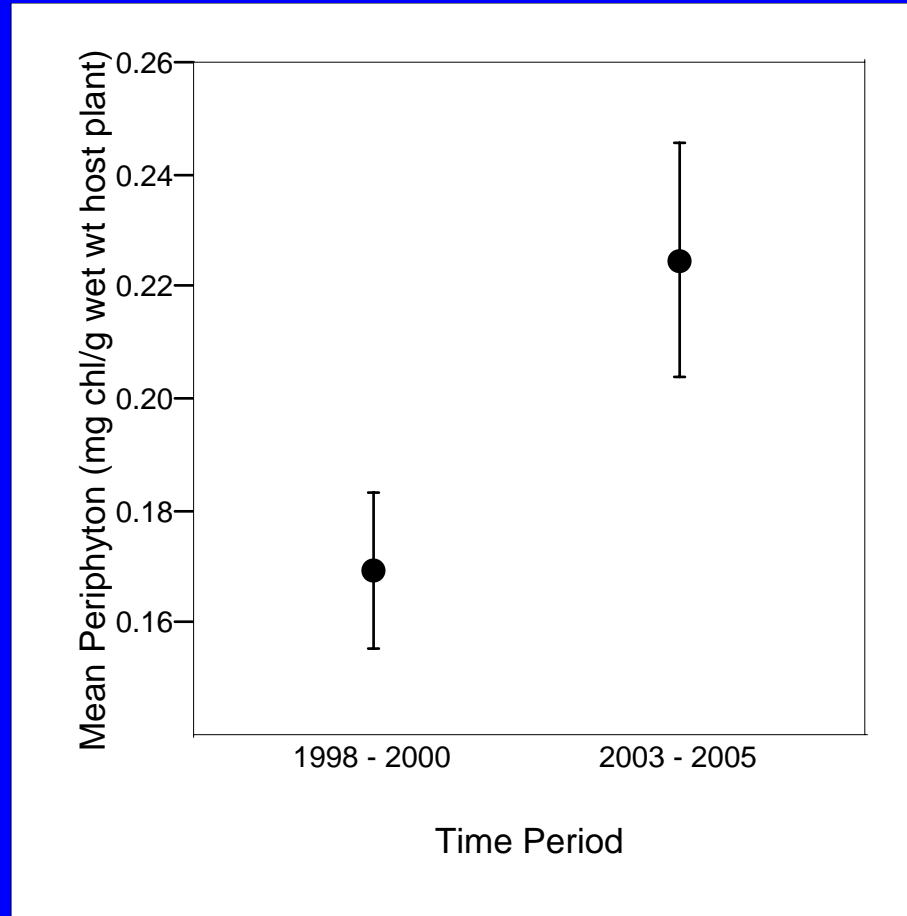


Open Circles = 1998 to 2000, Closed Circles = 2003 to 2005 within TRANSECT

**Total SAV biomass has decreased by 31%**

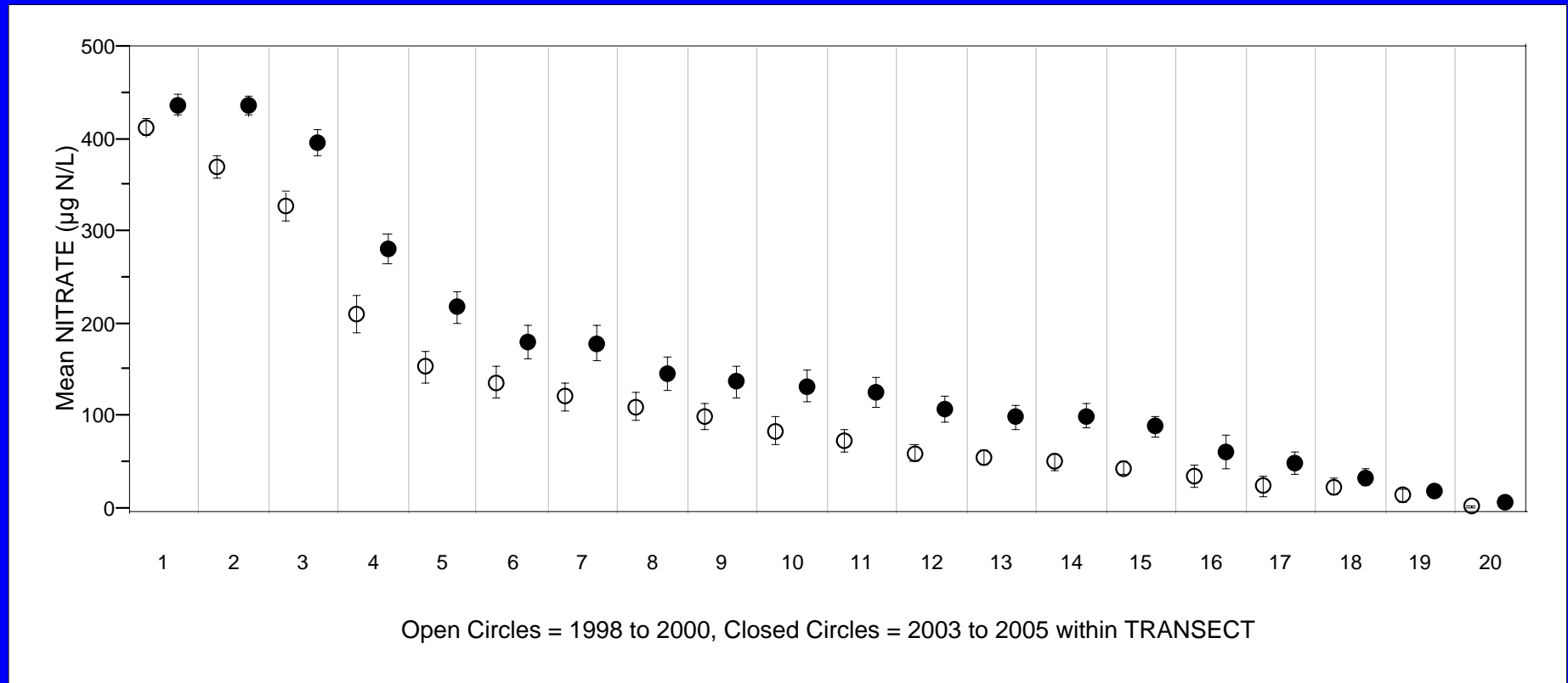
**Rooted vascular plants have declined by 20%**

## Chassahowitzka River – Periphyton



**Periphyton associated with macrophytes has increased by 30%**

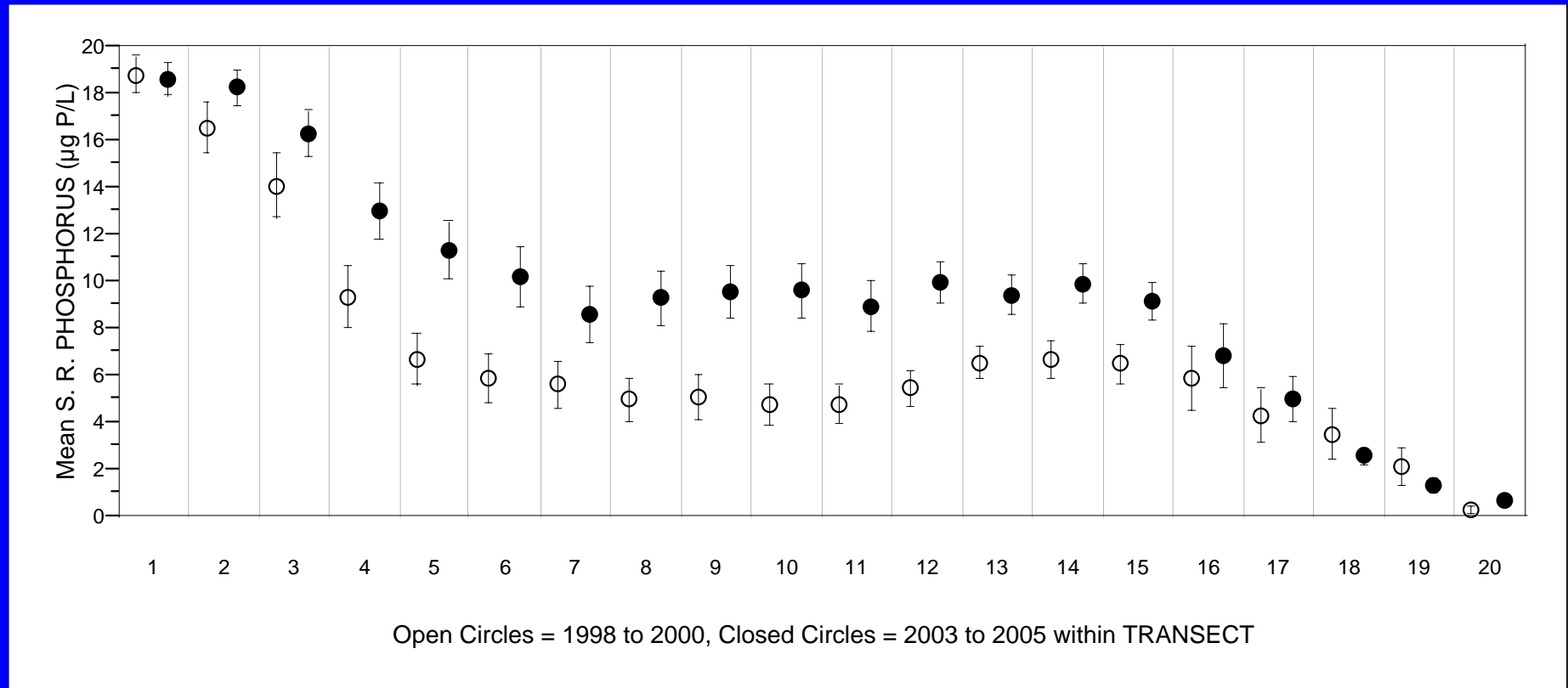
# Homosassa River – Nitrate



**Nitrate concentration has increased by 6%**

**Nitrate loading in the headwater region has increased by 56%**

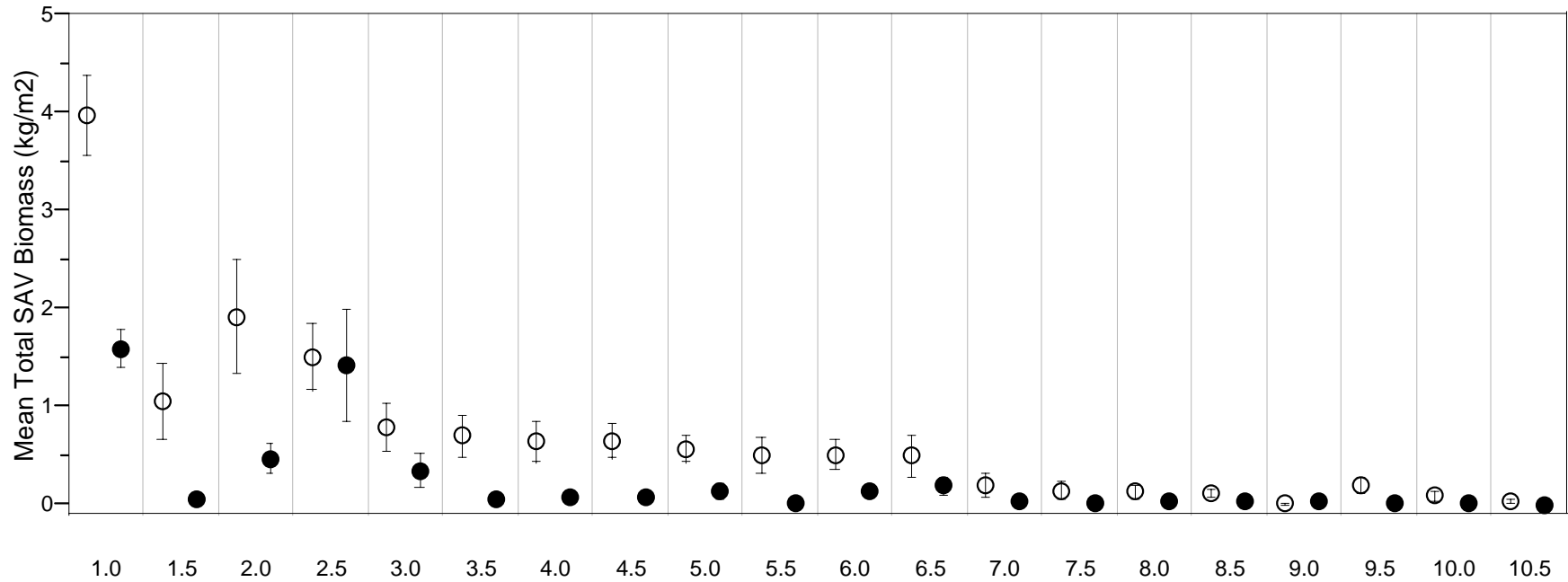
# Homosassa River – Soluble Reactive Phosphorus



**SRP concentration has increased by 15%**

**SRP loading in the headwater region has increased by 46%**

# Homosassa River – Submersed Aquatic Vegetation

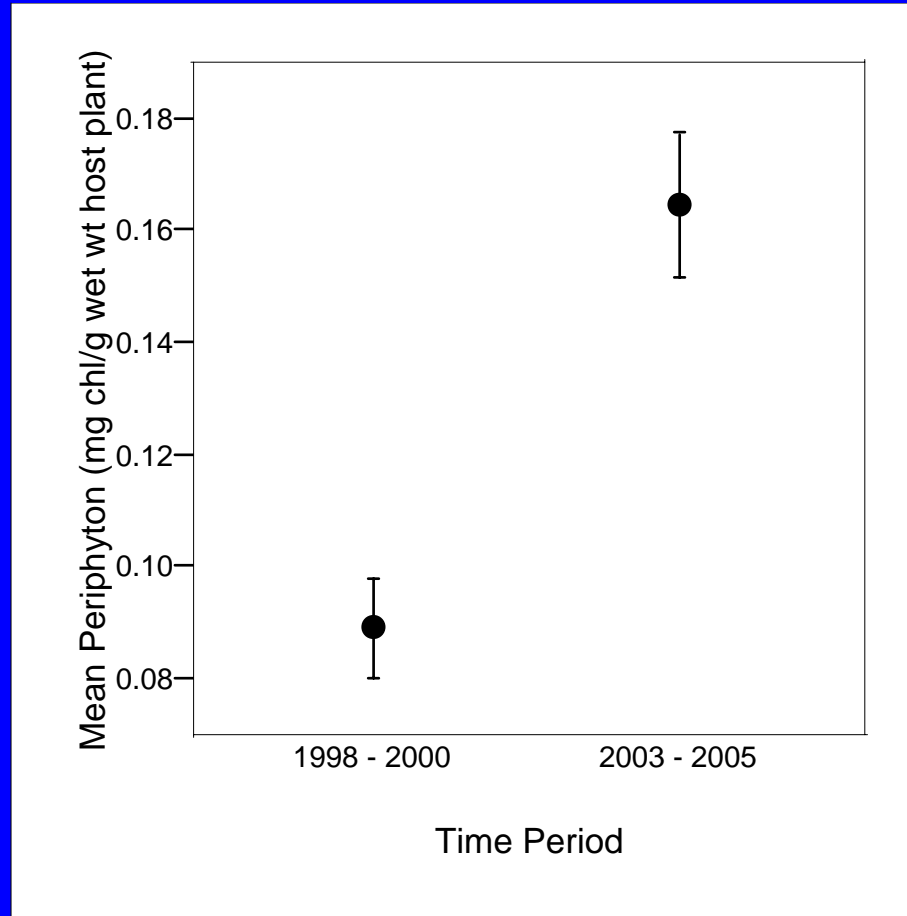


Open Circles = 1998 to 2000, Closed Circles = 2003 to 2005 within TRANSECT

**Total SAV biomass has decreased by 67%**

**Rooted vascular plants have declined by 80%**

## Homosassa River – Periphyton



**Periphyton associated with macrophytes has increased by 85%**

# HOMOSASSA RIVER



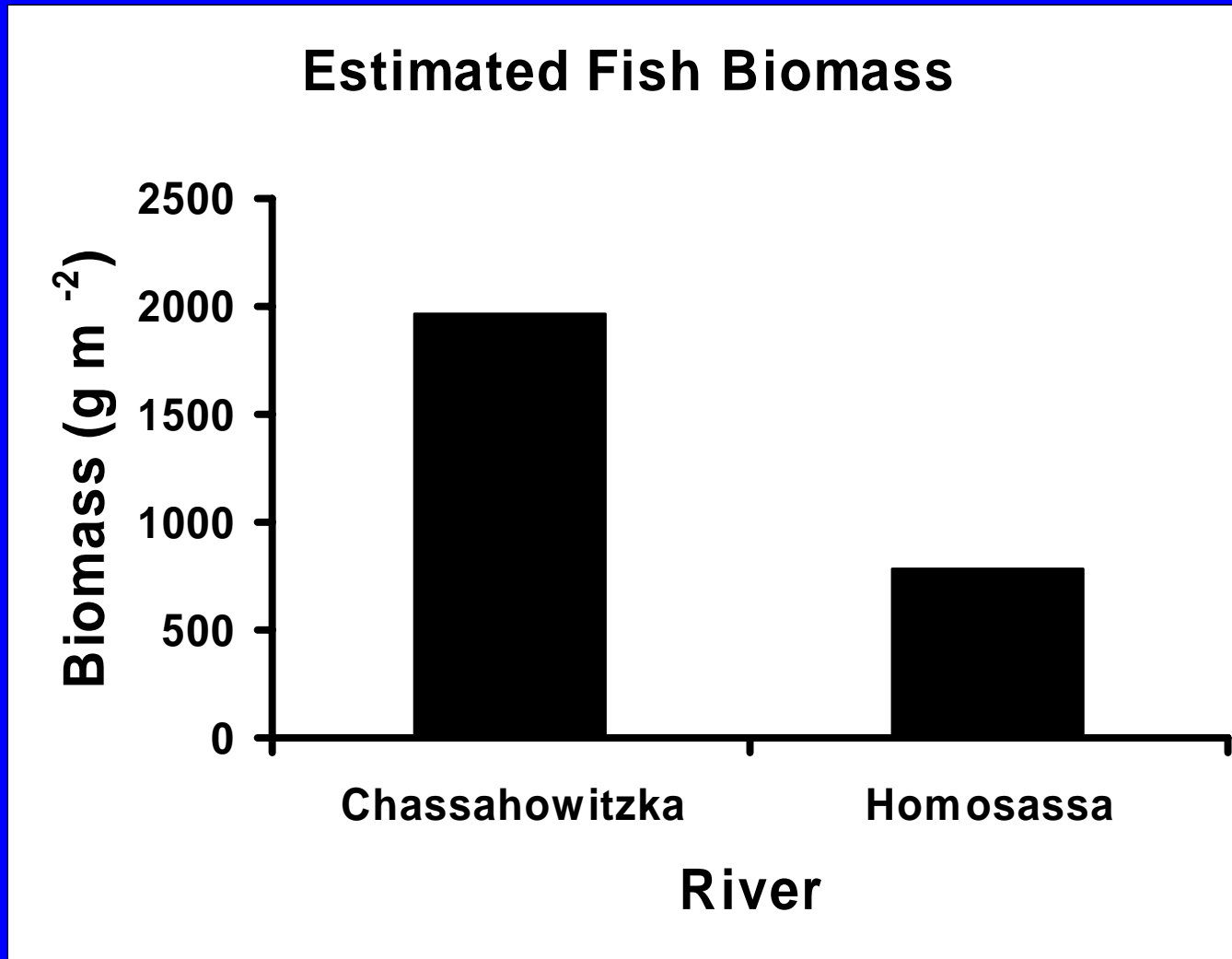
# CHASSAHOWITZKA RIVER



Images created in ArcMap®

# Fish biomass in the Chassahowitzka and Homosassa Rivers

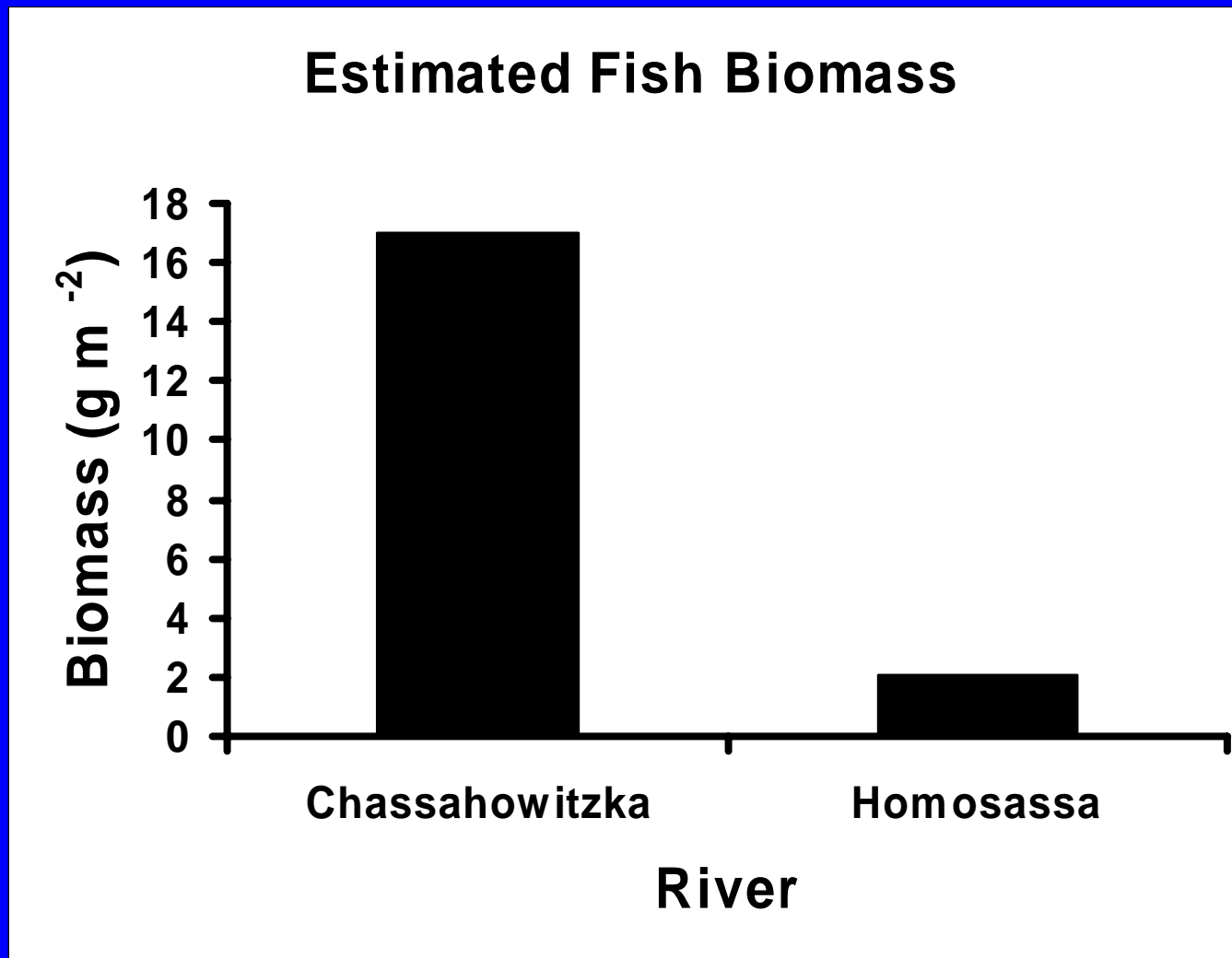
- Seine Collections -



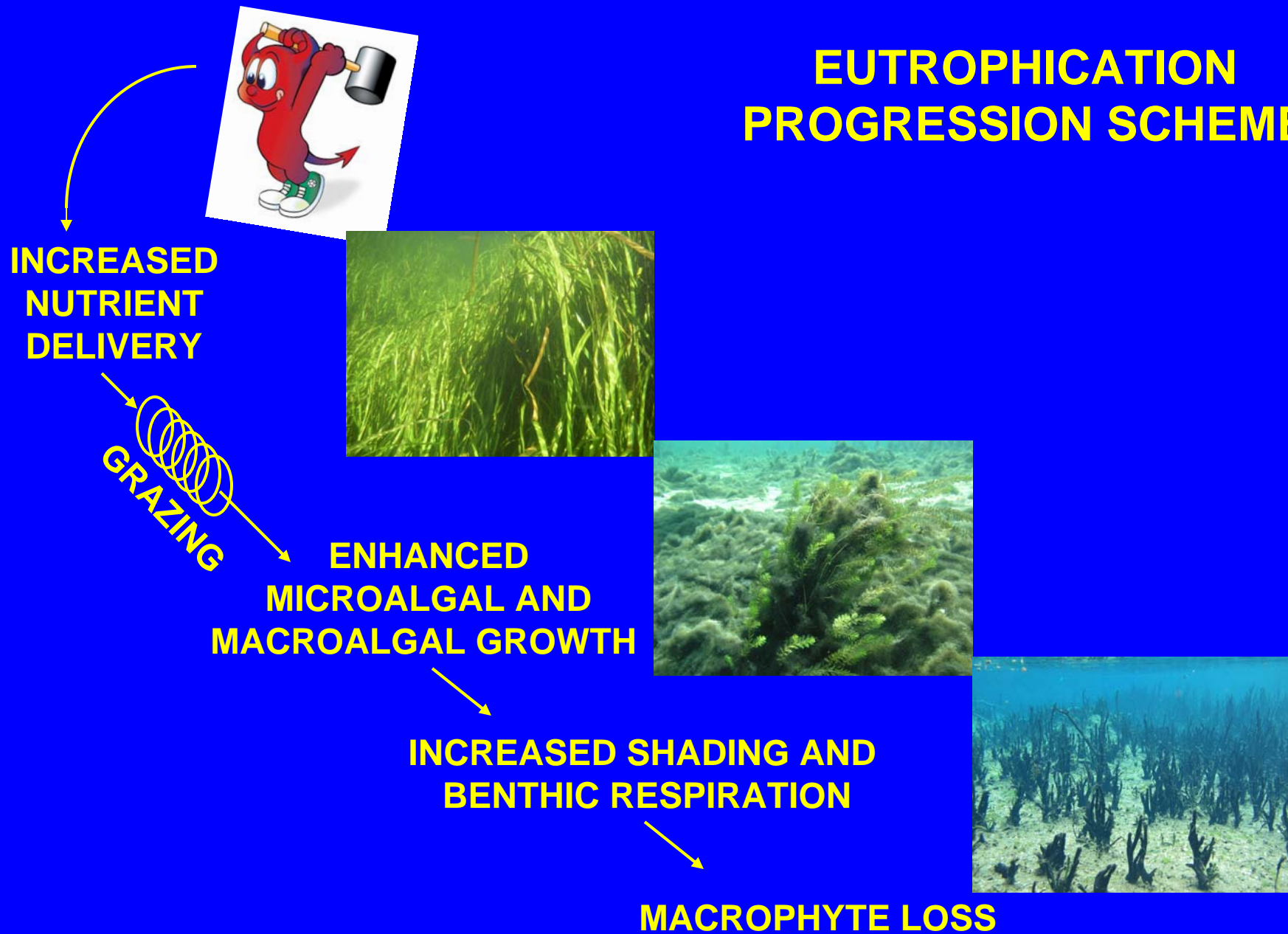


# Fish biomass in the Chassahowitzka and Homosassa Rivers

- Electroshocking -



# EUTROPHICATION PROGRESSION SCHEME



Adapted from C.M.Duarte (1995)

# Acknowledgments

