

# *Fishes of the Laguna de Santa Rosa*

## *Then, Now, and...Tomorrow?*

**Teejay O'Rear**

**Graduate Group in Ecology**

**Wildlife, Fish, and Conservation Biology**

**U.C. Davis**

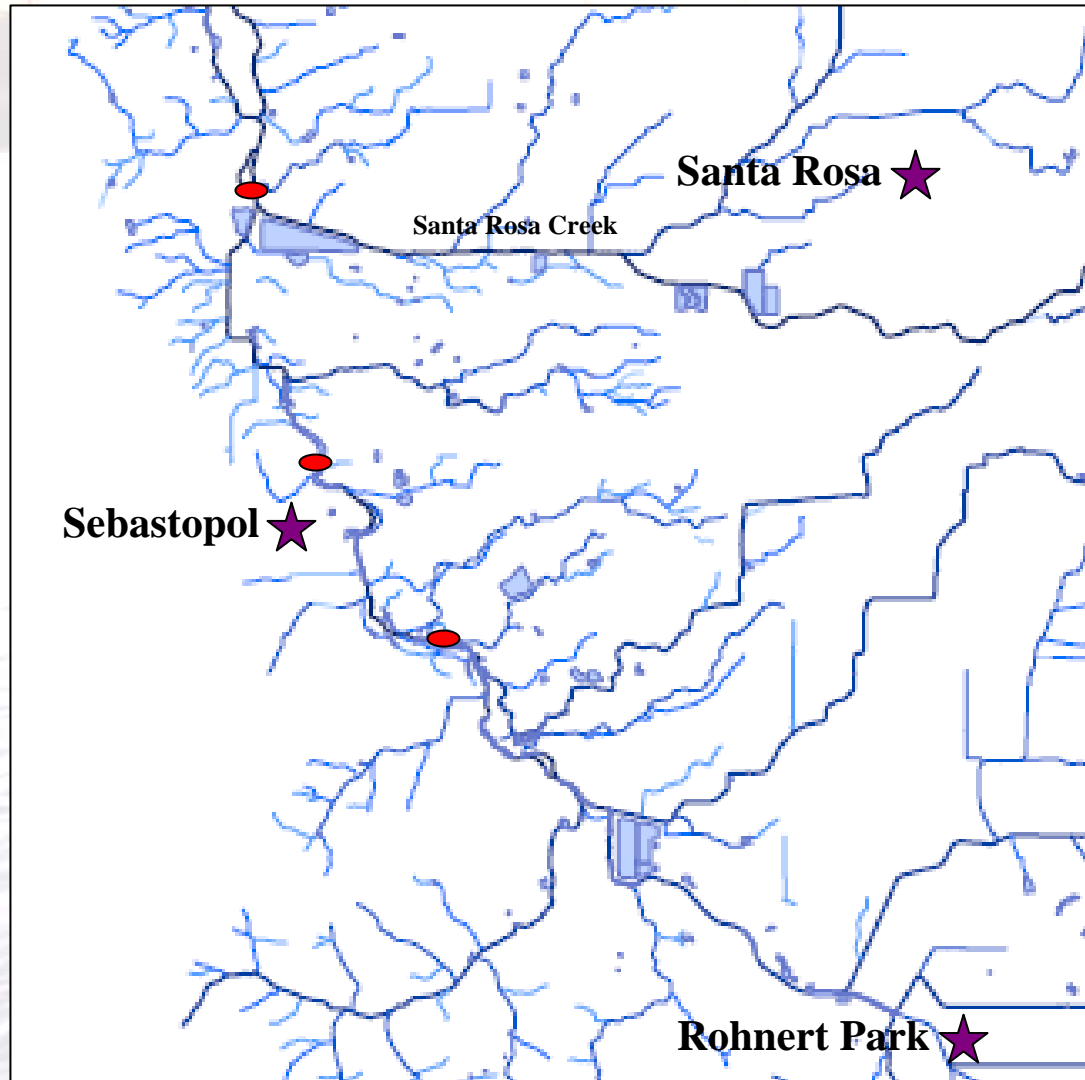
**[taorear@ucdavis.edu](mailto:taorear@ucdavis.edu)**

# *Fishes of the Laguna de Santa Rosa*

## *Outline*

- Quick Laguna tour
- Then
- Now
- Tomorrow

# *Fishes of the Laguna de Santa Rosa*









# *Fishes of the Laguna de Santa Rosa*

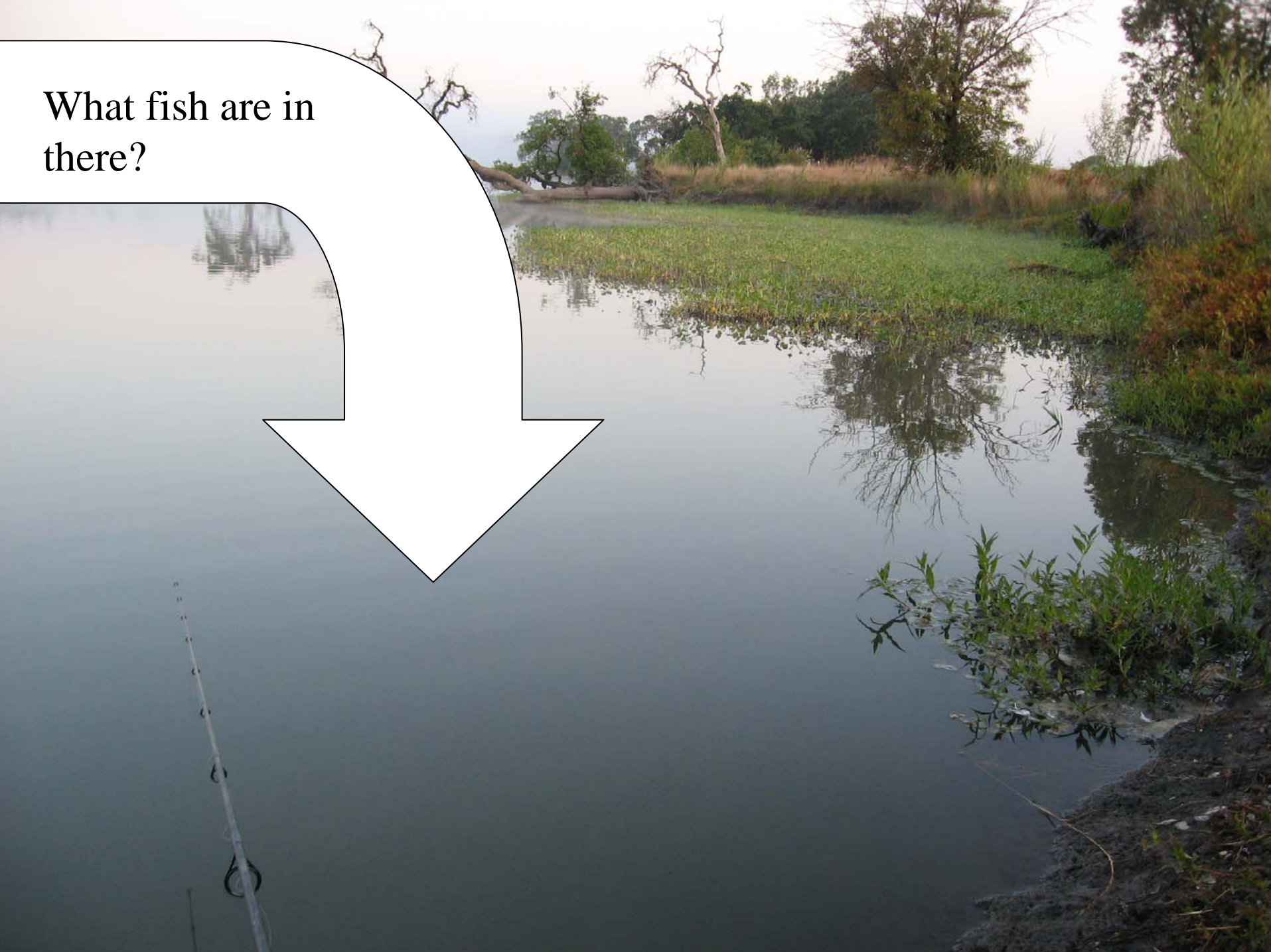
## *Background*

### **Main Points?**

- Pond-like stream
- Very fertile



What fish are in there?



# *Fishes of the Laguna de Santa Rosa*

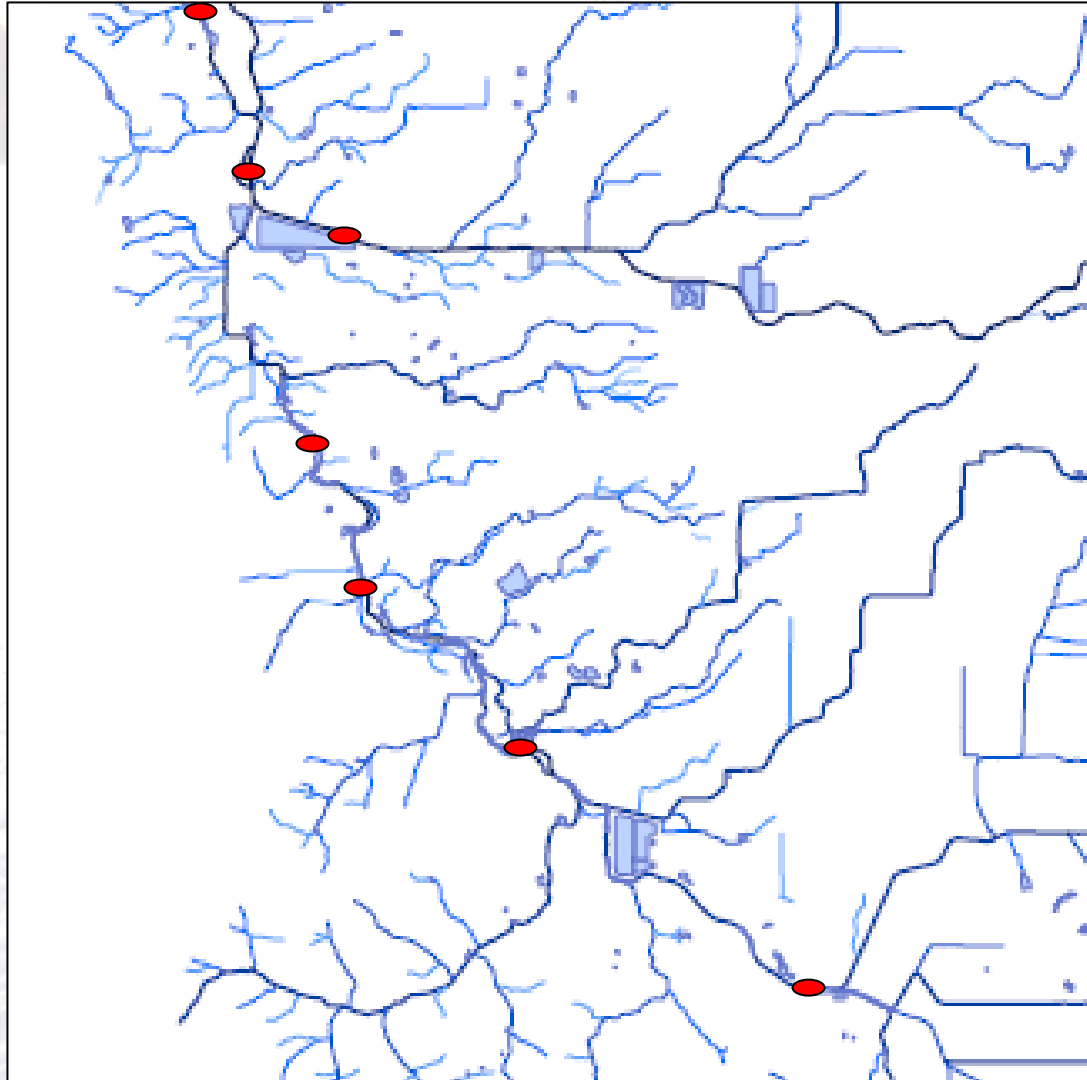
## *Then (1988)*

- Only one known study of the Laguna's aquatic community
- CH2MHill – **1988**
  - 7 reaches
  - Spring, summer, autumn
  - Gillnets and seines
  - Zooplankton, invertebrates, water quality



# *Fishes of the Laguna de Santa Rosa*

*Then (1988)*



# *Fishes of the Laguna de Santa Rosa*

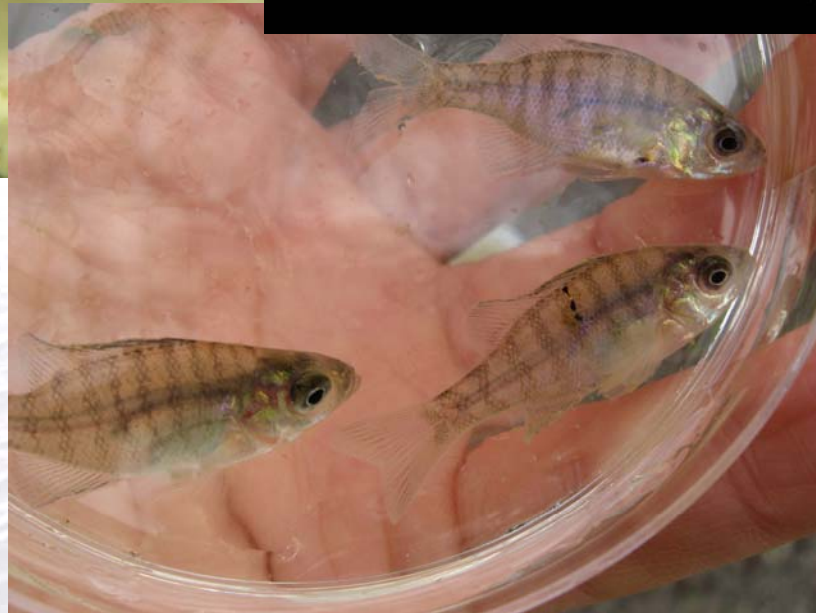
## *Then (1988): Gillnets*





# *Fishes of the Laguna de Santa Rosa*

## *Then (1988): Seines*





# *Fishes of the Laguna de Santa Rosa*

*Then (1988)*

**Main point? Fish community dominated by species that are tolerant of**

- Low dissolved oxygen
- High water temperatures
- Still water

# *Fishes of the Laguna de Santa Rosa*

## *2008 Aquatic Community Survey*

### **Purposes**

- See if the fish community has changed since 1988
- Determine environmental factors affecting the fish community
- To provide baseline data for management activities

# *Fishes of the Laguna de Santa Rosa*

*Now (2008)*

## **Surveyed**

- 3 sites in 2 reaches
- On 2 days in August

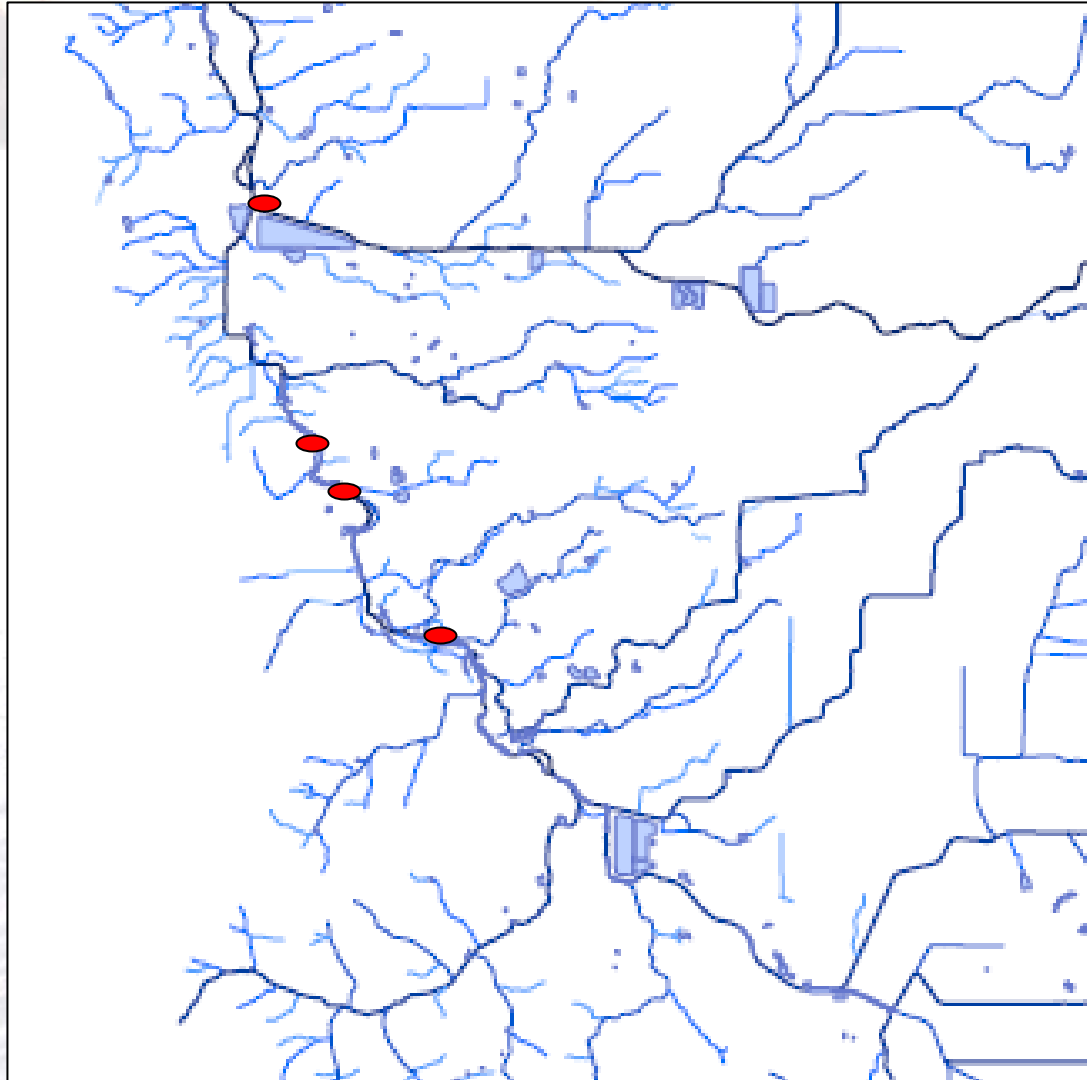
## **Collected**

- Water-quality data
- Invertebrates via net sweeps
- Fishes via gillnets and seines
- Fishes for gut-content analyses



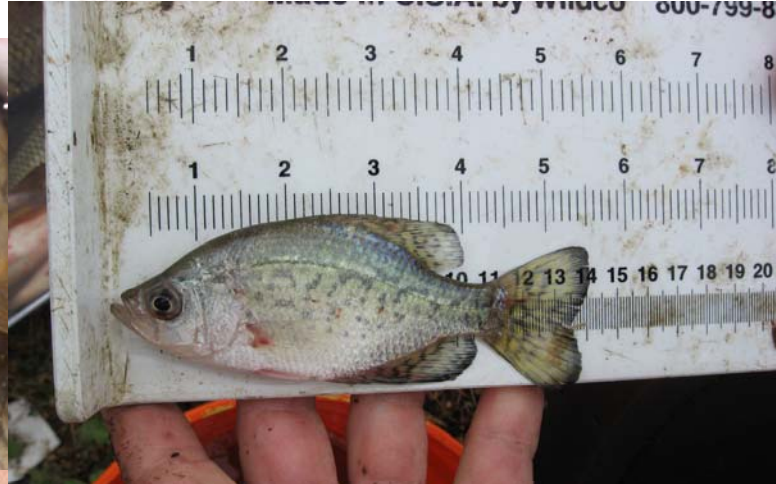
# *Fishes of the Laguna de Santa Rosa*

*Now (2008)*



# *Fishes of the Laguna de Santa Rosa*

## *Now (2008): Gillnets*





# *Fishes of the Laguna de Santa Rosa*

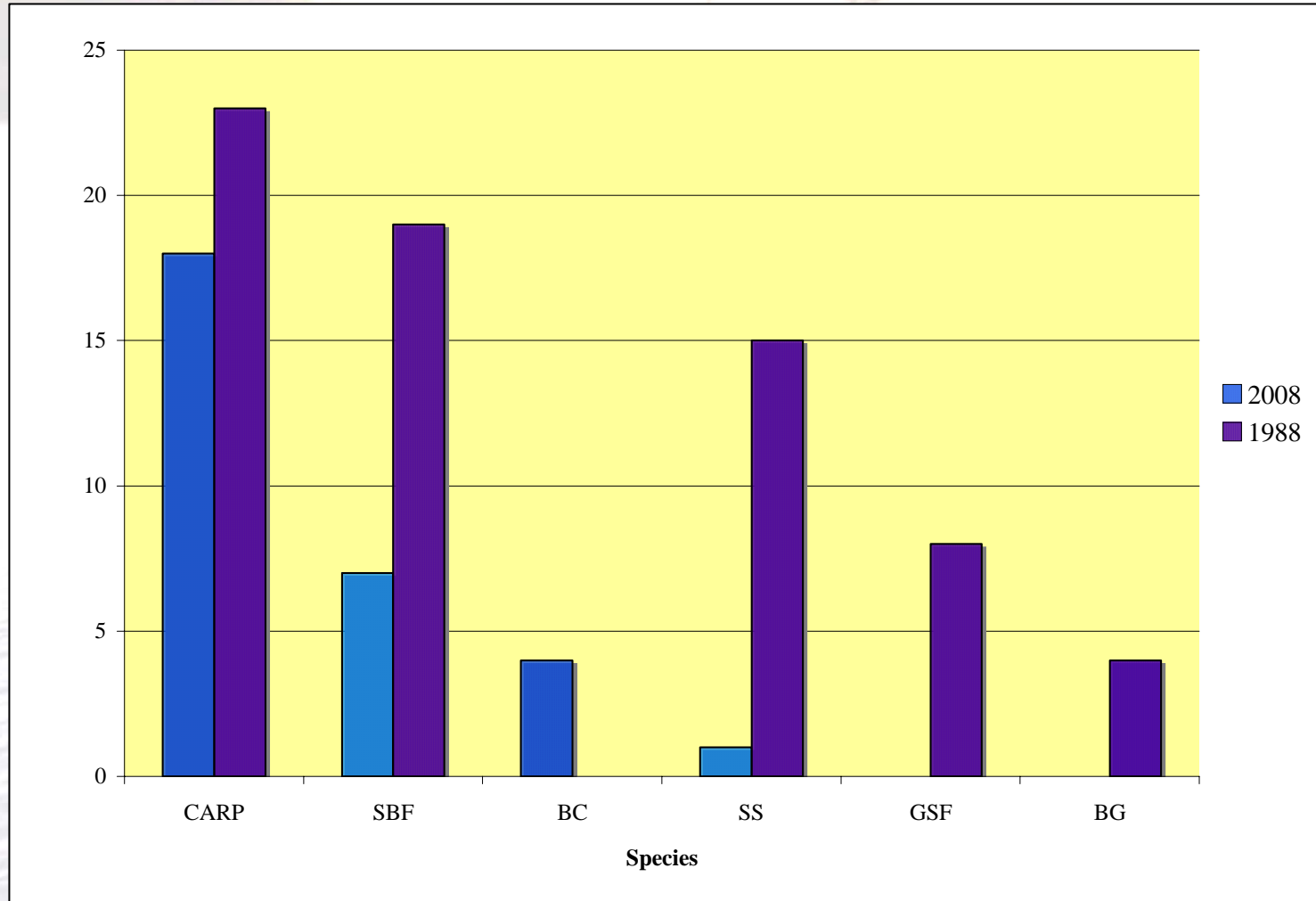
*Now (2008): Seines*





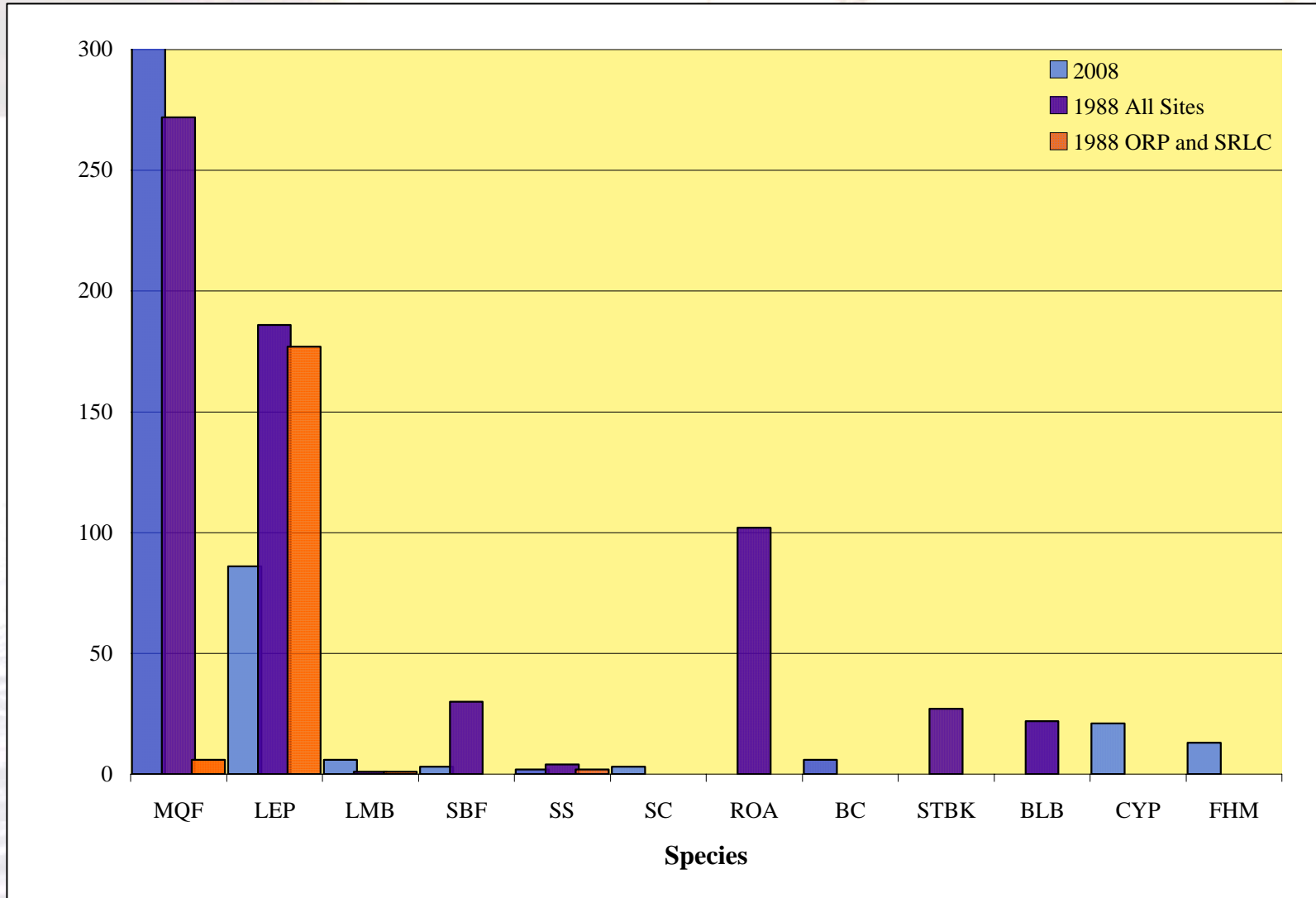
# *Fishes of the Laguna de Santa Rosa*

## *Then and Now: Gillnets*



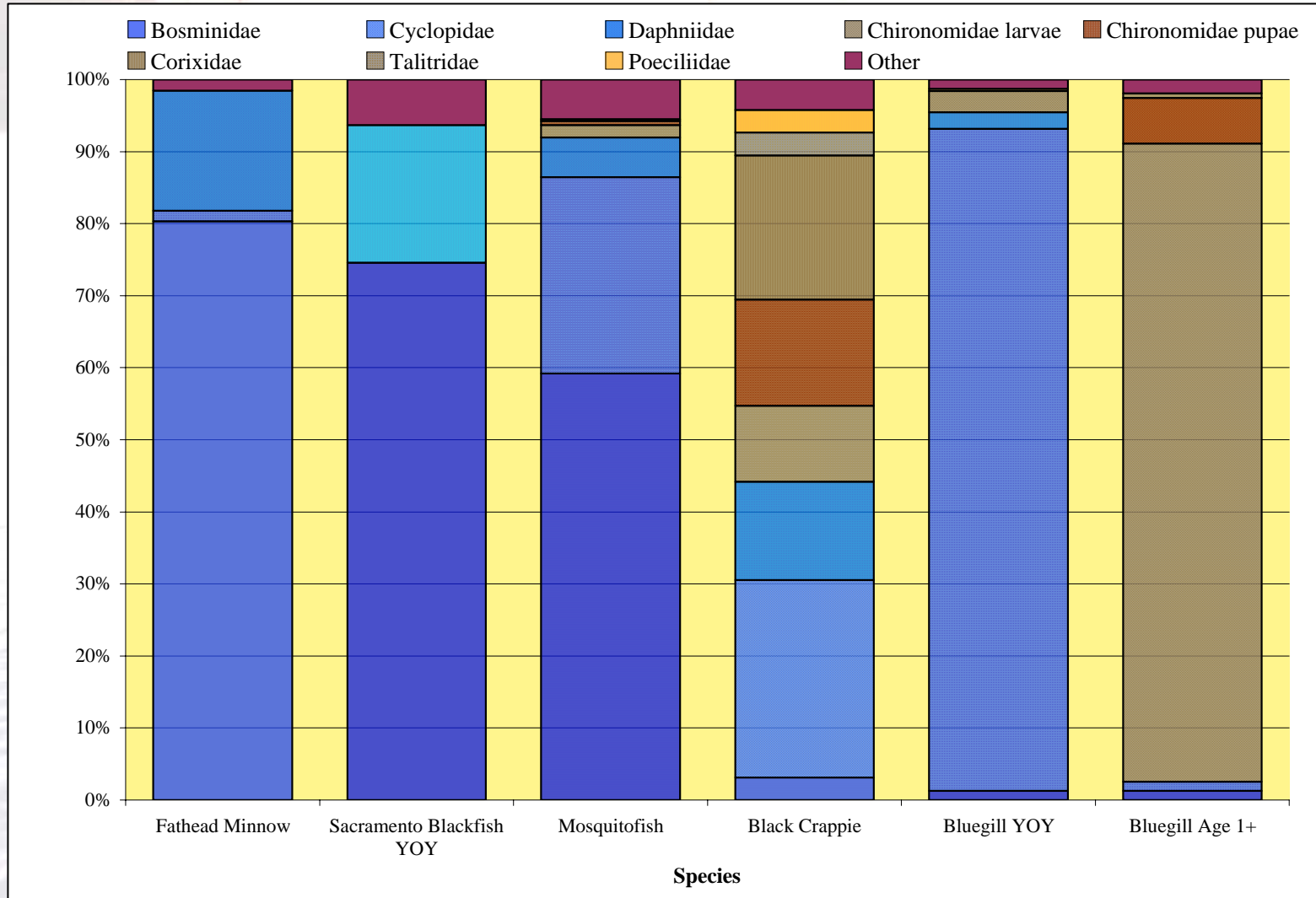
# *Fishes of the Laguna de Santa Rosa*

## *Then and Now: Seines*



# *Fishes of the Laguna de Santa Rosa*

## *Now (2008): Gut Content Analyses*





# *Fishes of the Laguna de Santa Rosa*

*Now (2008)*

## **Main points?**

- Fish community – changed little
- Like 1988, dominated by hardy fishes
  - Low DO
  - Warm, still water
  - Spawn in/on vegetation
- Young/small fishes – feed on zooplankton
- Larger fishes – feed on aquatic insects

# *Fishes of the Laguna de Santa Rosa*

*Now (2008)*

## **Factors structuring fish community**

- Low dissolved oxygen
- High water temperatures
- Lack of spawning riffles

# *Fishes of the Laguna de Santa Rosa*

## *Tomorrow?*

- A little warmer?
- More *Ludwigia* BHM?
- No restoration?





# *Fishes of the Laguna de Santa Rosa*

## *Tomorrow?*

- A little warmer?
- Less *Ludwigia*?
- Better water quality?





# *Fishes of the Laguna de Santa Rosa*

## *Big-Time Thanks*



Bill Cox



Jason Moore



Amber Manfree