



# Update on the Edwards Aquifer Habitat Conservation Plan

## Guadalupe River Basin

### 2014 Clean Rivers Program Steering Committee Meeting

March 20, 2014

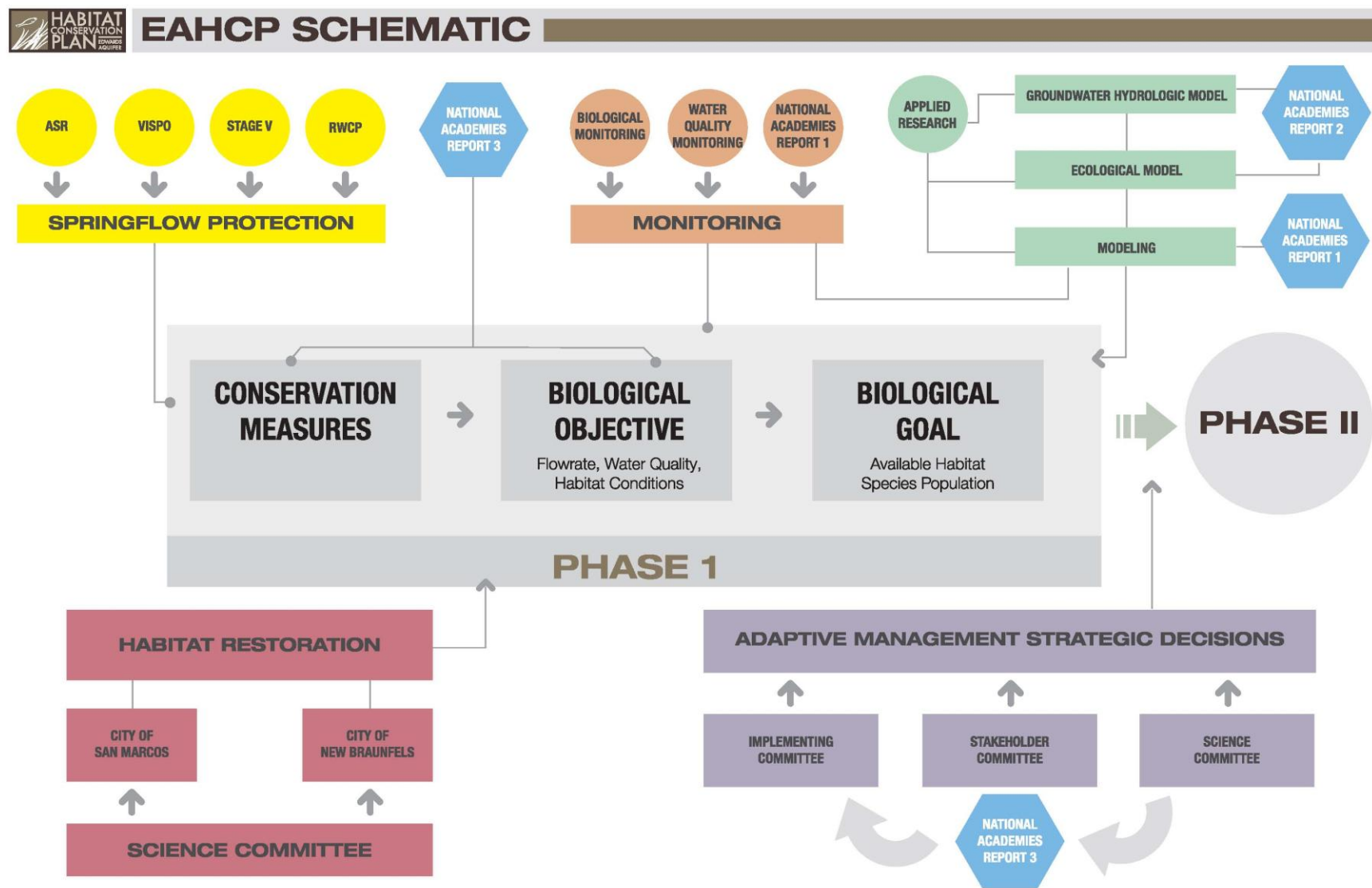
Presented by:  
Alicia Reinmund-Martinez  
Bob Hall  
Edwards Aquifer Authority



## Presentation Outline

- **HCP Implementation and Water Quality Monitoring**
- **HCP Water Quality Monitoring Program**
  - **Comal Springs System**
  - **San Marcos Springs System**
  - **Summary of Results**

- Water quality data along with biological data will be used to support HCP Biological Goals and Objectives.
- Comal Springs Riffle Beetle:
  - Maintain silt-free habitat conditions via continued springflow, riparian zone and recreation control
  - Maintain populations equal to or greater than historical population densities.
  - Water quality shall not deviate more than 10% from historical water quality conditions.





## HCP Water Quality Monitoring Program

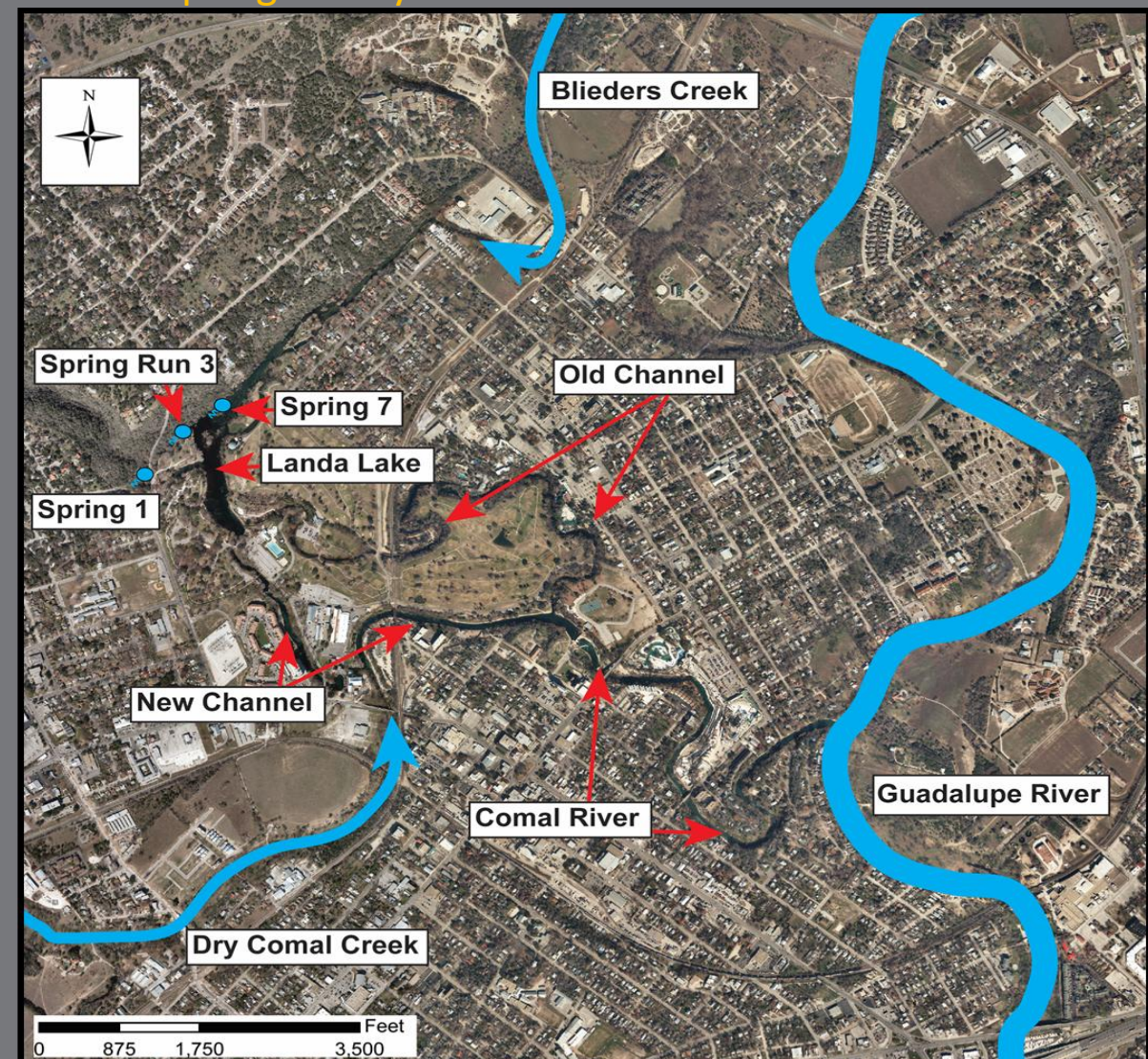
**EAA  
expanded  
historical  
water quality  
monitoring  
with  
additional  
groundwater,  
surface water  
and  
stormwater  
sampling.**

- Purpose
  - Gather baseline water quality data about the ecosystems,
  - Assess the effectiveness and efficiency of the Conservation Measures,
  - Identify any impairments or concerns,
  - Support Adaptive Management decisions.



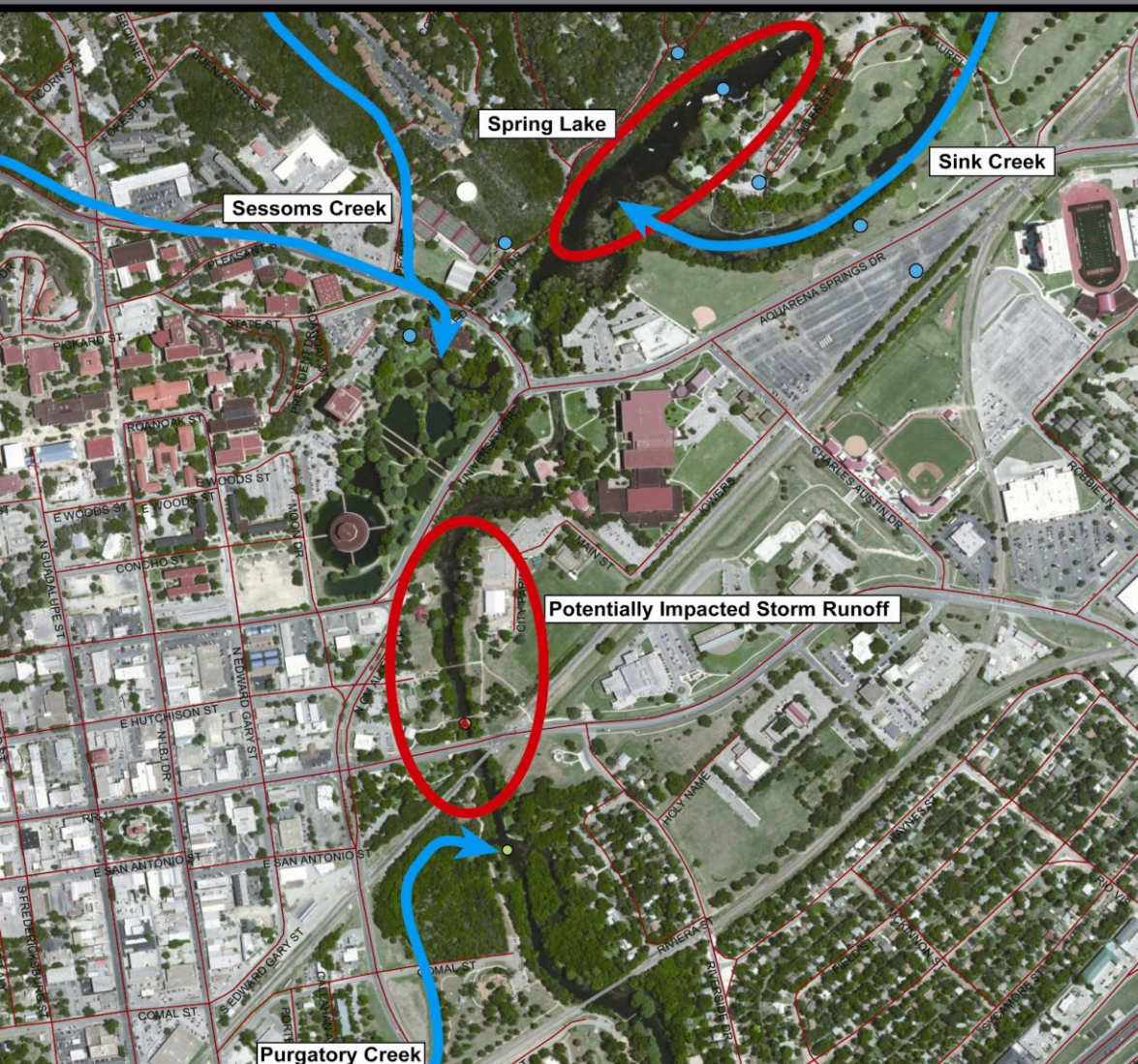


# Comal Springs Study Area





# San Marcos Springs Study Area







## 2013 Sampling Program

- Real Time (15-minute reporting) for DO, Turbidity, Conductivity, Temperature and pH.
- Surface water (base flow sampling) twice annually
  - April and October
- Sediment sampling annually
  - June
- Storm water sampling twice annually
  - Comal Springs: July 15 and October 13
  - San Marcos Springs: August 15-16 and October 31-November 1

Sample parameters included:

VOCs, SVOCs, herbicides, pesticides, PCBs, TOC, DOC, metals, anions, TSS, TDS, bacteria (E. Coli).





# Summary of Results

## Comal Springs Study Area

### Real Time (Site 3)

- Dissolved Oxygen (May –July): Average 7.99 mg/L, Minimum 5.55 mg/L.

### Base Flow

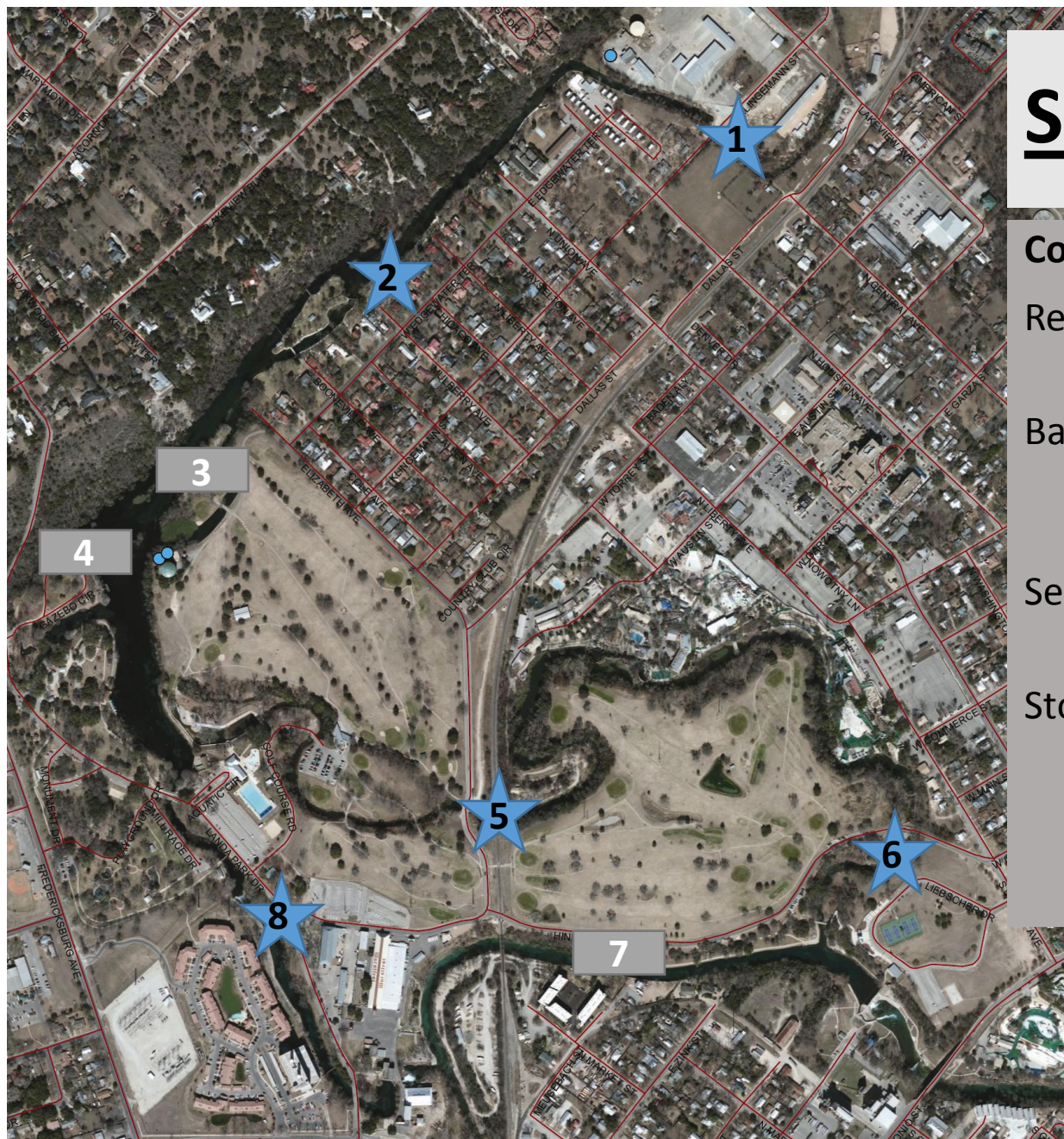
- E.Coli: 26-1,900 MPN/100ml (Highest levels measured at Site 1).
- VOCs detected at Site 1.

### Sediment

- Cadmium (12.2mg/kg) and Nickel (27.1 mg/kg) at Site 5.

### Stormwater

- July event - E.Coli: 5,800 to 82,000 MPN/100mL
- October event – E.Coli : 98-20,000 MPN/100mL







# Summary of Results

## San Marcos Springs Study Area

### Base Flow

- E.Coli: 2 - 150 MPN/100ml (Highest levels measured at Site 3).

### Sediment

- Copper (37.2 mg/kg) at Site 2.
- Second highest total PAH concentration measured at Site 3.

### Stormwater

- August event - E.Coli: 150 to 20,000 MPN/100mL
- October 31 event – E.Coli : 110-240,000 MPN/100mL





# Summary of Results

## San Marcos Springs Study Area

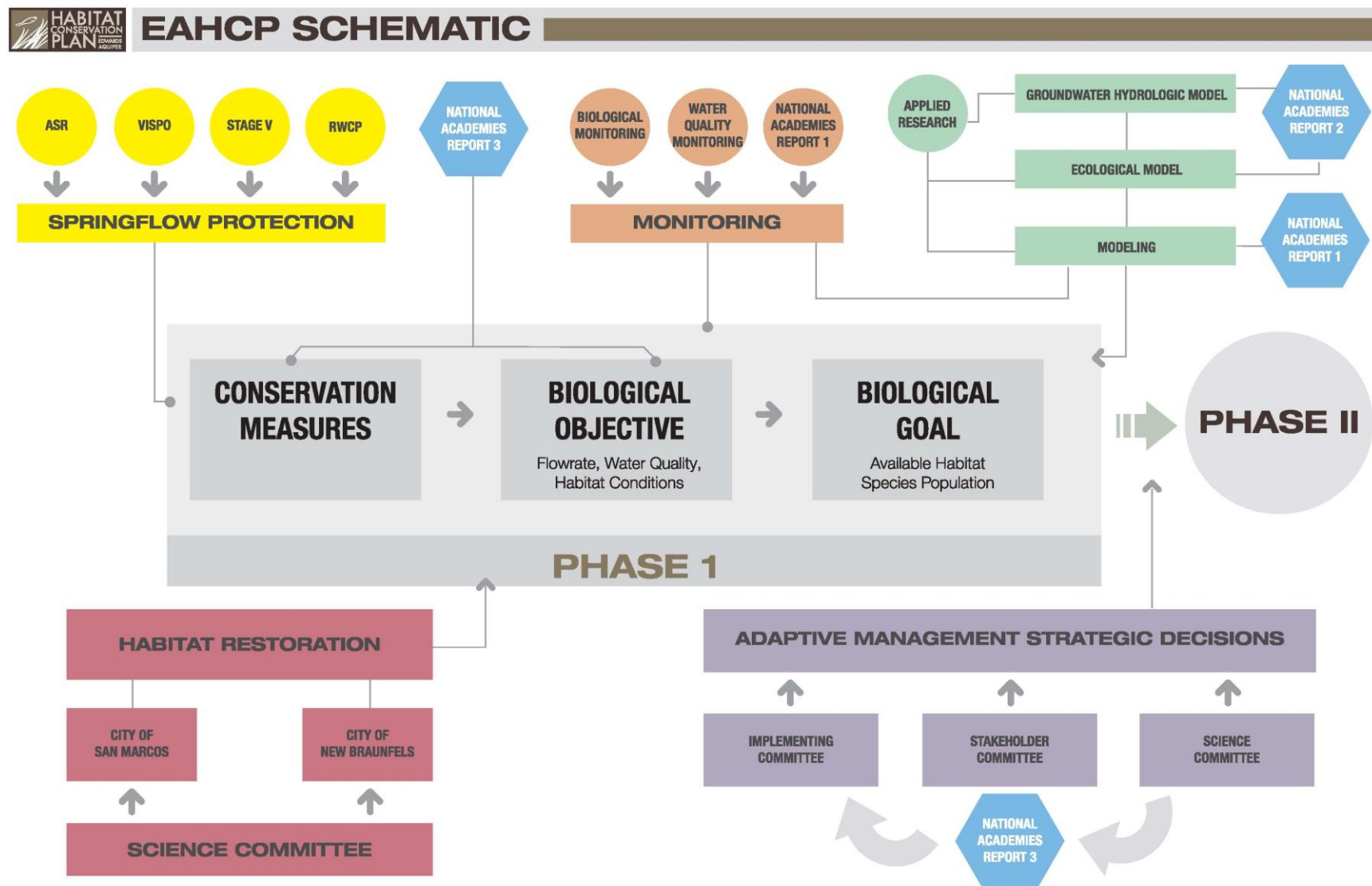
### Sediment

- Chlordane (72.7 mg/kg) at Site 6.
- Highest total PAH concentrations measured at Site 6.





- Comal Springs Riffle Beetle:
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  - Water quality shall not deviate more than 10% from historical water quality conditions.







# Edwards Aquifer Habitat Conservation Program 2013 Annual Report

[http://www.eahcp.org/index.php/documents\\_publications/2013\\_eahcp\\_annual\\_report](http://www.eahcp.org/index.php/documents_publications/2013_eahcp_annual_report)

Appendix P: EAHCP Expanded Water Quality Monitoring Report