



Update on the Edwards Aquifer Habitat Conservation Plan

Guadalupe River Basin
2015 Clean Rivers Program Steering Committee Meeting
March 26, 2015

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Edwards Aquifer Authority



Brief Summary:

- March 2013- U.S. Fish and Wildlife Service (USFWS) approved the Edwards Aquifer Habitat Conservation Plan (EAHCP) and provided an Incidental Take Permit (ITP) to the permittees.
 - The Edwards Aquifer Recovery and Implementation Program (EARIP) became the EAHCP.
- January 2014- Department of the Interior presented the EARIP the Partners and Conservation Award.

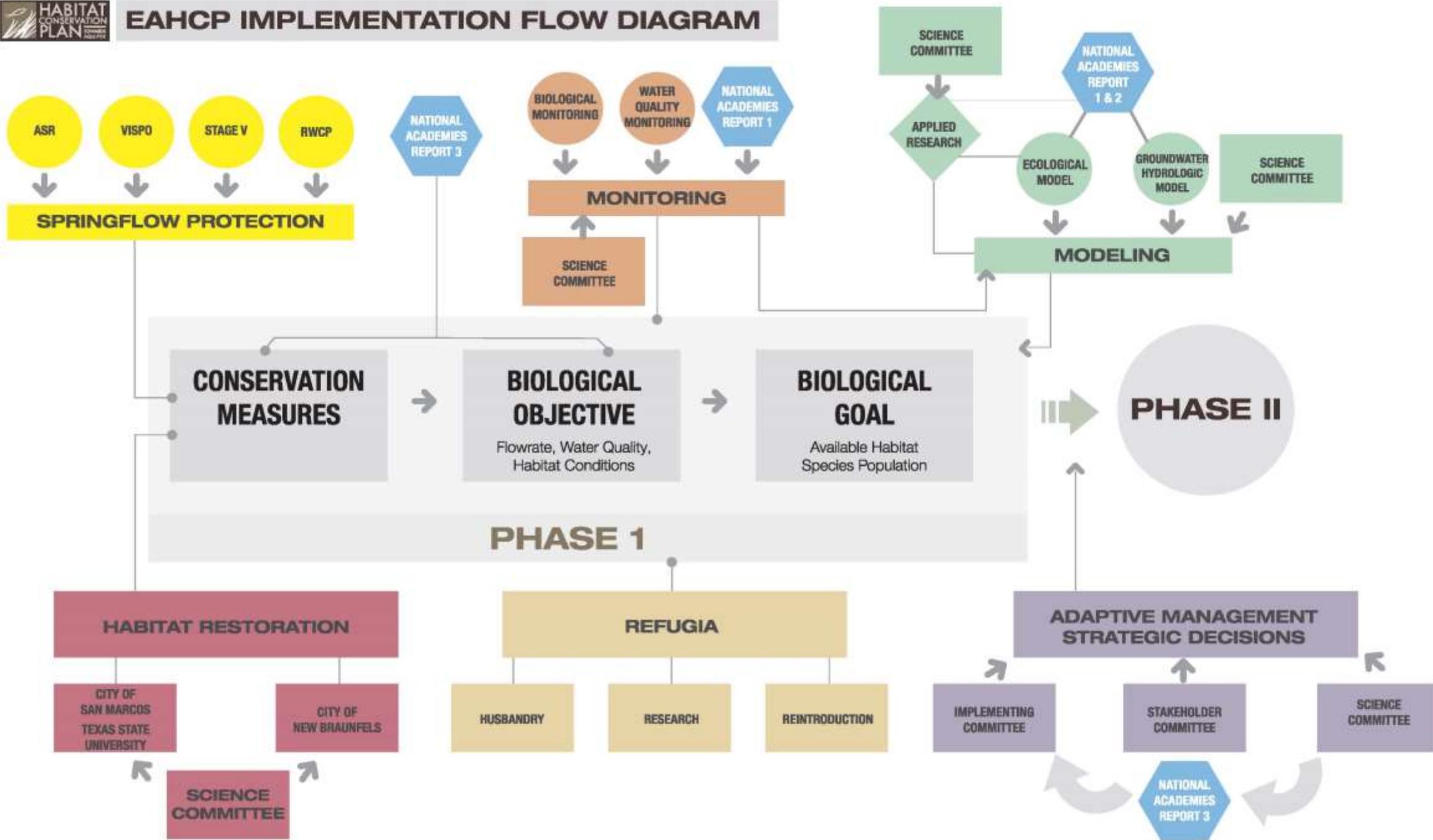




2014 Work



EAHCP IMPLEMENTATION FLOW DIAGRAM



Springflow Protection Measures



VISPO: The Voluntary Irrigation Suspension Program Option provides incentives to irrigators to forebear irrigation for one year.

- J-17 at 635 on October 1st
- 40,000 acre-feet

ASR: The Aquifer Storage and Recovery (ASR) program uses the SAWS ASR facility to store water for the EAHCP.

- 6,000 acre-feet enrolled



Habitat Restoration Effort



Comal Springs

- Flow-Split Management
- Old Channel Restoration
- Invasive Species Removal



San Marcos Springs

- Texas wild-rice Enhancement and State Scientific Areas (SSA)
- Riparian Restoration
- Invasive Species Removal



Monitoring Effort



Water Quality Monitoring-

- SWCA
- San Marcos and Comal



Biological Monitoring:

- BIO-WEST Inc.
- Critical Period Monitoring



Modeling and Research Effort



Ecological Modeling and Hydrological Modeling:

- MODFLOW and Finite Element
- Eco Model Team

$$\Delta W = W_s P - W(R_m + M) \quad (T) = \frac{1.35 \cdot T^3}{T^3 + 14^3}$$

$$R_m = r_{20} \cdot Q_{10}^{((T-20)/10)} \quad N_j = \frac{a_j \cdot B}{b_j}$$

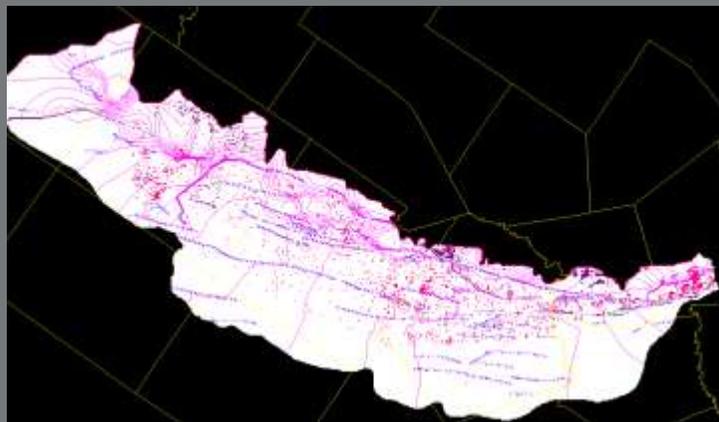
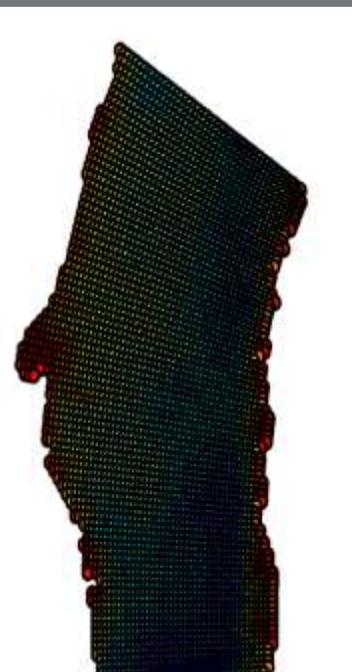
$$P = P_{max} \cdot \frac{i}{1+H_i} \cdot \frac{S \cdot T^m}{T^m + H_T^m} \cdot \frac{H_D}{D+H_D} \quad C_c(t) = \frac{A_c \cdot C_{c0} \cdot \exp[-k_c \cdot 0.5(1+i) \cdot L \cdot t]}{A_c \cdot C_{c0} \cdot \exp[-k_c \cdot 0.5(1+i) \cdot L \cdot t] + A_c \cdot C_{c0}}$$

$$I_{z,t} = I_0 \cdot e^{-K_d - K_p + b_z} \cdot t$$

$$I_{z,t} = I_0 \cdot e^{-K_d \cdot t}$$

Applied Research:

- 7 Research Projects in 2014
- Freeman Aquatic Building





National Academy of Sciences (NAS)

- Report 1 Recommendations

Regional Water Conservation Program

- Work Group Recommendations

Habitat Restoration

- Comal and San Marcos Springs

Applied Research and Model Verification

Refugia

- Salvage Stock
- Long Term Refugia
- Research



Questions?

