Stakeholder Committee Meeting

Program Manager Update
EAHCP Staff
February 8, 2018
Central Texas Drought Intensity - January 30, 2018

Drought Intensity:
- Abnormally Dry
- Moderate Drought
- Severe Drought

*National Drought Mitigation Center
January 3-5 meeting:
- Toured Comal system restoration sites and SMARC Refugia building
- Statistical evaluation of long-term EAHCP Biomonitring data
- Hydrological Model presentation
- Water Quality Protection Implementation presentation
- Aquifer Storage and Recovery optimization presentation

Report 3 will be completed by Fall 2018
Nov 17: Partners submitted required sections to EAHCP staff
Jan 12 - 26: Committees review & comment on 1st draft
Feb 9 - 23: Committees review & comment on 2nd draft
Mar 16: Final draft posted for review
Mar 22: Implementing Committee approves submission
Mar 26: Final report submitted
2018-2019 Sessom Creek Project

- Received 4 proposals
- Texas State University and TAMU AgriLife are selected contractors
- Technical quality was the predominant ranking criteria
- 5/6 Science Committee members chose this group as the winning bid during the redacted review
2018-2019 Sessom Creek Project

**Scope of Work**

- Collect data on sediment/constituent loading
- Calculate sediment/constituent loading curves
- Data analysis and examination of the factors that contribute to sediment exports
- Project will support recently adopted Adaptive Management utilizing low impact development Best Management Practices in priority San Marcos watersheds to minimize sediment inputs to the river.
Comal Springs Riffle Beetle Work Group
BACKGROUND

- A CSRB distribution and abundance study was suggested by the Science Committee as part of the 2018-2019 Applied Research schedule.

- EAHCP staff met with TPWD staff and agreed additional monitoring through the Biomonitoring program would be the most practical approach.

- EAHCP staff suggested some potential locales to conduct additional sampling based on Science Committee input.
Long-term biological monitoring and proposed sampling reaches for the Comal Springs riffle beetle. Also shown are spring point features from Norris and Gibson (unpublished) 2012 mapping effort.
CSRB WORK GROUP

After developing a draft revised sampling plan, EAHCP staff felt there were a number of areas that needed attention:

- How can the existing data inform changes?
  - 1200 cotton lures have been set as part of the Biomonitoring program since 2004.
  - Approximately 150 cotton lures were used last year as part of Refugia collections.

- What are the stated goals driving additional sampling?

- How should sampling efforts and data streams between Biomonitoring and Refugia efforts be coordinated?

- Are the population LTBGs appropriate? How should habitat LTBGs be quantified?

- What components to the biomonitoring program should be dropped to incorporate the financial burden of additional sampling?

- Is the cotton lure methodology appropriate?

- How should repeated sampling and spring identification be handled?

- Are we disturbing the system too much?
CSRB Work Group

Mean densities of adult Comal Springs riffle beetles sampled during the Spring and Fall seasons of 2017 at Spring Island, Spring Run 3, and Western Shoreline of the Comal Spring system. Long-term (2004-2017) mean densities are given to the right of the 2017 means. Error bars represent the standard deviation of the mean.

<table>
<thead>
<tr>
<th>Location</th>
<th>Spring 2017</th>
<th>Spring Average</th>
<th>Low-flow Average</th>
<th>Fall 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring Island</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spring Run 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Western Shoreline</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Spring**
- **2017**: Blue bars
- **Spring Average**: Orange bars
- **Low-flow Average**: Red bars

**Fall**
- **2017**: Blue bars
- **Fall Average**: Orange bars
- **Low-flow Average**: Red bars
CSRB WORK GROUP – PROPOSED NEXT STEPS

- February 2018
  - Develop clear goals and committee charge with pertinent Science Committee members and Stakeholders.
  - Identify and communicate with potential CSRB WG members
- Meeting 1
  - Discuss goals of workgroup, examine current methodology, examine existing data, and formalize data requests
- Meeting 2
  - Discuss data requests, make any additional data requests, discuss potential changes to Refugia collections/ Biomonitoring program and other workgroup goals
- Meeting 3
  - Discuss data requests, formalize changes to Refugia collection/ monitoring programs, present and finalize SOPs
Incidental Take Permit
2017 Report
INCIDENTAL TAKE PERMIT ASSESSMENTS FOR ANNUAL REPORT

- **Review and Methods**
  - Required at conclusion of every year by ITP; same methodology used since 2013.
  - Document baseline area of occupied habitat for the covered species.

- **HCP Mitigation and Restoration**
  - Determine how much occupied area was disturbed during 2017.
  - No more than 10% of the covered species occupied habitat can be affected by HCP mitigation and restoration activities.

- **HCP Measures/Drought/Flood**
  - Determine how much occupied area was disturbed during 2017.

- **Incidental Take Assessment**
  - Calculate incidental take of covered species.
### Species in the Incidental Take Permit

**Authorized for Take**

1. Fountain darter
2. Comal Springs riffle beetle
3. Comal Springs dryopid beetle
4. Peck’s cave amphipod
5. San Marcos salamander
6. Texas blind salamander

**Take does not apply at this time**

1. Texas cave diving beetle (NL)
2. Texas troglobitic water slater (NL)
3. Comal Springs salamander (NL)
4. San Marcos gambusia (most likely extinct)
5. Texas wild-rice (plant)

NL = Not listed at this time.
## EAHCP Incidental Take 2013-2017

<table>
<thead>
<tr>
<th>System</th>
<th>Species</th>
<th>2017 Take</th>
<th>Total taken (2013-2017)</th>
<th>ITP Take limit</th>
<th>Remaining ITP Take</th>
<th>% Remaining ITP take</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comal</td>
<td>Fountain darter</td>
<td>4,620</td>
<td>53,234</td>
<td>797,000</td>
<td>743,766</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>Comal Springs riffle beetle</td>
<td>46</td>
<td>2,292</td>
<td>11,179</td>
<td>8,887</td>
<td>79</td>
</tr>
<tr>
<td></td>
<td>Comal Springs dryopid beetle</td>
<td>1</td>
<td>16</td>
<td>1,543</td>
<td>1,527</td>
<td>99</td>
</tr>
<tr>
<td></td>
<td>Peck’s Cave amphipod</td>
<td>3</td>
<td>167</td>
<td>18,224</td>
<td>18,057</td>
<td>99</td>
</tr>
<tr>
<td>San Marcos</td>
<td>Fountain darter</td>
<td>10,239</td>
<td>63,178</td>
<td>549,129</td>
<td>485,951</td>
<td>88</td>
</tr>
<tr>
<td></td>
<td>San Marcos salamander</td>
<td>36</td>
<td>2,569</td>
<td>263,857</td>
<td>261,288</td>
<td>99</td>
</tr>
<tr>
<td></td>
<td>Texas blind salamander</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>10</td>
<td>100</td>
</tr>
</tbody>
</table>
Conclusions

- 2017 EAHCP mitigation and minimization activities did not exceed the 10% habitat disturbance rule on either system.
- Incidental take of fountain darters in both systems was less in 2017 than 2016 due to no major disturbance events impacting the habitat.
- EAHCP mitigation measures and habitat restoration caused a limited amount of EAHCP incidental take of covered invertebrates in the Comal system and San Marcos salamanders in the San Marcos system.
- Overall, the EAHCP is in good standing relative to the Incidental Take Permit.
Use of the SAWS ASR for Springflow Protection

Optimization through Proposed Adaptive Management
leasing 16,667 acre-feet of groundwater for storage in the SAWS ASR immediately;

leasing an additional 16,667 acre-feet of groundwater through a lease option that is called when the Ten-year Rolling Average of the Estimated Annual Recharge to the Aquifer falls below 572,000 acre-feet per annum; and

leasing a final 16,667 acre-feet of groundwater through a lease option that is called when the Ten-year Rolling Average of the Estimated Annual Recharge to the Aquifer falls below 472,000 acre-feet per annum.)
Proposed Program Amendments
(Long-term leases and forbearance)

Three tiers will be replaced by two tiers;

The first tier will be outright leases in a sliding scale from 16,667 AF/yr to 10,000 AF/yr over the duration of the ITP;

The second tier will be forbearance agreements on a “sliding scale” from 33,333 AF/yr to 40,000 AF/yr over the duration of the ITP – dependent upon the amount of water contained in the tier one leases; and

Forbearance will be required in the Calendar Year following the year in which the EAA receives the Estimated Annual Recharge to the Aquifer and the Ten-year Rolling Average is ≤ 500,000 AF.
# Trigger Analysis

<table>
<thead>
<tr>
<th>FORBEARANCE TRIGGERS</th>
<th>SPRINGFLOW ACHIEVED (CFS) AT COMAL SPRINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current EAHCP triggers (three-tiered system):</td>
<td></td>
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<tr>
<td>10-year rolling recharge average of 572,000 A/F per year;</td>
<td>29.71</td>
</tr>
<tr>
<td>and</td>
<td></td>
</tr>
<tr>
<td>10-year rolling recharge average of 472,000 A/F per year</td>
<td></td>
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<tr>
<td>Proposed 10-year rolling recharge average of 500,000 A/F per year (two-tiered system)</td>
<td>29.80</td>
</tr>
</tbody>
</table>
While not perfect, the proposed amendment provides:

1. Slightly greater springflow protection *during a repeat of the drought of record* – which is the intent behind this particular springflow protection measure;

2. Is intended to achieve long-term protection – which is currently lacking in the program and necessary for compliance with the Incidental Take Permit.

Additional “dual” or “either or” triggers were analyzed (comal springs cfs; J-17 levels); however, no reasonably marketable scenario provided additional springflow protection *during a repeat of the drought of record.*
## Bottom-Up Analyses Results for ASR Lease Trigger Scenarios

<table>
<thead>
<tr>
<th>Year</th>
<th>Original HDR Assumptions</th>
<th>J-17 &lt; 635 ft on Aug. 1 prior year</th>
<th>J-17 &lt; 636 ft on Aug. 1 prior year</th>
<th>J-17 &lt; 637 ft on Aug. 1 prior year</th>
<th>J-17 &lt; 641 ft on Aug. 1 prior year</th>
<th>10-yr Avg Rechg &lt; 500k Acre-feet two years prior</th>
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<tbody>
<tr>
<td>1947</td>
<td>ASR2</td>
<td>VC</td>
<td>VC</td>
<td>VC</td>
<td>VC</td>
<td>VC</td>
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<tr>
<td>1948</td>
<td>ASR2</td>
<td>VC</td>
<td>VC</td>
<td>VC</td>
<td>ASR3</td>
<td>ASR3</td>
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<tr>
<td>1949</td>
<td>ASR3</td>
<td>ASR3</td>
<td>ASR3</td>
<td>ASR3</td>
<td>ASR3</td>
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<tr>
<td>1950</td>
<td>ASR2</td>
<td>VC</td>
<td>ASR3</td>
<td>ASR3</td>
<td>ASR3</td>
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<tr>
<td>1951</td>
<td>ASR3</td>
<td>ASR3</td>
<td>ASR3</td>
<td>ASR3</td>
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<tr>
<td>1952</td>
<td>ASR3</td>
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<td>1954</td>
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<td>1955</td>
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<td>1956</td>
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<td>1957</td>
<td>ASR3</td>
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<tr>
<td>1958</td>
<td>ASR3</td>
<td>VC</td>
<td>VC</td>
<td>ASR3</td>
<td>ASR3</td>
<td>ASR3</td>
</tr>
<tr>
<td></td>
<td>Comal Min. Flow 8/31/1956</td>
<td>29.71</td>
<td>28.64 cfs</td>
<td>29.32 cfs</td>
<td>29.32 cfs</td>
<td>29.8 cfs</td>
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<tr>
<td></td>
<td>San Marcos Min. Flow 8/31/1956</td>
<td>48.11</td>
<td>47.84 cfs</td>
<td>47.95 cfs</td>
<td>47.95 cfs</td>
<td>48.03 cfs</td>
</tr>
</tbody>
</table>

VC = VISPO and Conservation implemented in addition to critical period reductions
ASR2 = ASR tiers 1 and 2 triggered in addition to VC and critical period reductions
ASR3 = ASR Tiers 1-3 triggered in addition to VC and critical period reductions
Budget

Budgetary Implications:
The ASR Program will no longer be “reserve dependent” – meaning that additional money will not be spent following a “trigger year.”

Fiscal Impact:
It is anticipated that the program will require the use of most of the annual HCP budget for this mitigation measure through 2027; however, the program will live within the total Table 7.1 estimated budget of $71,385,000 and should realize a slight amount of savings.

The overall EAHCP budget’s reserve “floor” will not be impacted.
Total Estimated Budget: $71,385,000

- Spent to Date: $11,567,370
- Obligated to Date: $24,195,115
- Remaining $ for Forbearance Option: $35,622,514
- Total Spent & Obligated to Date: $35,762,485
TOTAL ESTIMATED BUDGET: $71,385,000

- Maximum Forbearance Option: $33,188,000
- Total Spent & Obligated to Date: $35,762,485
- Obligated to Date: $24,195,115
- Spent to Date: $11,567,370
- Total Amount available for Forbearance Option: $35,622,514
- Remaining Balance / Potential Savings: $2,434,514
Questions?
Assumptions:
Table 7.1 values used for ASR Leasing & ASR O&M Costs
No injection costs for ASR O&M after 2019
ASR Leasing & ASR O&M costs, combined, result in a net budget decrease.
Assumptions:

Table 7.1 values used for ASR Leasing & ASR O&M Costs
No injection costs for ASR O&M after 2019
ASR Leasing & ASR O&M costs, combined, result in a net budget decrease.
1. Overview
2. Summary of Proposal
3. Summary of Discussion
4. Recommendation
5. References
Stakeholder Report Process

Expedited process:
• Prep final report,
• Obtain Chair & Vice-Chair review and approval,
• Submit Report to Implementing Committee on February 8.

Action:
To approve a process to develop, approve, and submit the Stakeholder Committee Report to the Implementing Committee.
2018 Work Plan
Amendments
2018 Work Plan Amendments

- Biological Monitoring
  - Addition of full system aquatic vegetation mapping
  - Zebra Mussel monitoring

- Applied Research
  - Sessom Creek contract scope of work
2018 Work Plan Amendments

- Refugia
  - 2018 budget
  - Species census
  - TWR collection locations
  - Macroinvertebrate collections
  - Chytrid testing in batch
  - Construction plan
  - Research projects
2018 Amended EAHCP Funding Application for the Edwards Aquifer Authority

Implementing Committee
February 8, 2018
AMOUNT OF PROGRAM FUNDING.

The total amount of Program Funding requested to implement the Conservation Measures or other Program activities for the fiscal year for which Program Funding is sought:

**$17,680,444 $21,199,871** as specifically depicted in Table 1 below:

<table>
<thead>
<tr>
<th>EAHCP Mitigation Measure</th>
<th>Description</th>
<th>2018 Budget Request</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1.1</td>
<td>Refugia</td>
<td>$5,043,261</td>
</tr>
<tr>
<td>5.1.2</td>
<td>Voluntary Irrigation Suspension Program Option</td>
<td>$2,284,100</td>
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<tr>
<td>5.1.3</td>
<td>Regional Water Conservation</td>
<td>$4,507,750</td>
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<tr>
<td>5.5.1</td>
<td>ASR - Leasing</td>
<td>$5,615,975</td>
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<tr>
<td>5.5.1</td>
<td>ASR – O &amp; M</td>
<td>$1,366,700</td>
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<td>6.3.1</td>
<td>Biological Monitoring - Monitoring</td>
<td>$408,275</td>
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<td>5.7.2</td>
<td>Water Quality Monitoring</td>
<td>$344,060</td>
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<td>6.3.3</td>
<td>Ecological Modeling</td>
<td>$0</td>
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<td>6.3.4.2</td>
<td>Applied Research – Freeman Aquatic Bldg. and Research</td>
<td>$450,000</td>
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<td></td>
<td>Scientific Panel Review</td>
<td>$269,750</td>
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<td></td>
<td>EAA Administrative Costs</td>
<td>$910,000</td>
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**Total Funding Request**

$17,680,444 $21,199,871