



Edwards Aquifer Habitat Conservation Plan

National Academy of Sciences Report 1 Implementation Plan

August xx, 2015

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The Edwards Aquifer Authority contracted with the National Academy of Sciences (NAS) to act as an independent Science Review Panel (SRP) in order to evaluate select components of the Edwards Aquifer Habitat Conservation Plan (EAHCP). NAS is required to produce three reports. The first of these reports has been released and is entitled, *Review of the Edwards Aquifer Habitat Conservation Plan: Report 1* (hereafter referred to as *Report 1*).

An official process for reviewing and implementing *Report 1* was approved at the January 15, 2015 Implementing Committee meeting. From February to May, this process included presentations to the Implementing, Science, and Stakeholder Committees. At the April 16 and May 21, 2015 Implementing Committee meetings, the EAHCP Program Manager presented a matrix outlining a preliminary evaluation of the NAS recommendations. Subsequent to these presentations, the Implementing Committee accepted the following structure for this evaluation for implementing *Report 1* recommendations:

<b>Required for Compliance</b>	Is implementation of this recommendation required to maintain compliance with the Incidental Take Permit (ITP) or EAHCP?
<b>Supports Achieving Biological Objectives or Goals</b>	Will implementation of a recommendation contribute to achieving the Biological Objectives or Goals?
<b>Fatal Flaw of Program</b>	<ol style="list-style-type: none"> <li>1. Does the recommendation correct a wrong direction, decision, or approach that otherwise prevents the Permittee from achieving the Biological Objectives or Biological Goals in the HCP?</li> <li>2. Does the recommendation correct a wrong direction, decision, or approach that would cause the Permittees to exceed the Take levels identified in the ITP?</li> </ol>
<b>Immediate Implementation</b>	Within the next year
<b>Delayed Implementation</b>	2-5 year implementation schedule
<b>Operationally Feasible</b>	Can the technical and physical elements of a recommendation be implemented based on the current level of knowledge, understanding, and resources?
<b>Politically Feasible</b>	Has there been an expression historically by the Permittees as to the political nature or controversial nature of the recommendation?
<b>Fiscally Feasible</b>	Are there funds available for implementation of the recommendation?
<b>Implementation Strategy</b>	How will the recommendation be implemented?

Another component of this process included the creation of the *Report 1* Recommendation Review Work Group (RRWG). The RRWG provided Stakeholder and Implementing Committees representation during the development of the *National Academy of Sciences Report 1 Implementation Plan (Report 1 Implementation Plan)* by EAHCP staff. On March 19, 2015, the Implementing Committee assigned the following members to the RRWG and approved its charge: *Cindy Loeffler* (Texas Parks & Wildlife Department), *Melani Howard* (City of San Marcos and Texas State University), *Roger Biggers* (New Braunfels Utilities), *Darren Thompson* (San Antonio Water System), and *Mark Hamilton* (Edwards Aquifer Authority).

The specific charge of the RRWG was to—by consensus—review the staff-drafted *Report 1 Implementation Plan*, modify it as necessary, and, if appropriate, recommend the plan to the Implementing Committee for adoption and implementation. The RRWG held three meetings during June and July 2015 and decided not to elect a Chair, instead relying on EAHCP staff to facilitate the meetings. Meetings were held as open fora where attendees actively participated in the discussion and provided valuable input. The agendas and minutes from each meeting are included here as appendices.

At their final meeting on July 10, 2015, the RRWG voted and reached a consensus on the “Summary” section of the draft *Report 1 Implementation Plan*, the matrix that includes the evaluation for each of the NAS recommendations, and the RRWG’s budget implication-based prioritization of these recommendations. With that stated, the RRWG recommends for approval and adoption this draft of the *Report 1 Implementation Plan* by the Implementing Committee. **(This paragraph will be modified by EAHCP staff per the RRWG requests after the July 10 meeting.)**

## **Introduction**

During its meetings, the RRWG recognized three overarching themes in responding to the recommendations in *Report 1*:

1. The RRWG realized that many of the NAS recommendations were already done or were currently being implemented by the EAHCP.
2. Since the EAHCP does not have a specific budget earmarked for the implementation of the recommendations from *Report 1*, the RRWG recognized the importance of analyzing the costs versus the benefits of implementing each of the NAS recommendations. With this understanding of the EAHCP budget, the RRWG prioritized the NAS recommendations in this report to the Implementing Committee.
3. The RRWG realized that no recommendations from *Report 1* are needed in order for the Permittees to maintain compliance with the EAHCP ITP.

With this stated, the following is a summary of the RRWG-recommended *Report 1 Implementation Plan* on the four topic areas in *Report 1*: Hydrologic Modeling, Ecological Modeling, Biological and Water Quality Monitoring, and the Applied Research Programs.

### **Hydrologic Modeling Program**

*Report 1* contains nine recommendations related to the Hydrologic Modeling Program, two of them being the consideration of the MODFLOW as a work in progress, and the continual development of the HSPF model for estimating and understanding recharge. The RRWG supported these recommendations, and also considered the importance of the iterative and continual process needed for model improvement. The RRWG supported the EAA's development of a multi-year modeling plan that outlines the future of model improvement, including quantitatively assessing model uncertainty. Addressing model uncertainty was important to the RRWG.

Also, the RRWG recognized that implementing the following two recommendations could be future goals for the hydrologic model, but, because of limited resources and data, the EAA currently does not have the capability to implement them:

1. Including conduits in the development of the hydrologic model
2. Moving toward making springflow predictions on a daily time scale

### **Ecological Modeling Program**

*Report 1* contains 15 recommendations related to the ecological model, of which the RRWG recognized that because the model is in year three of a three-year development timeline, five

recommendations have already been implemented. The RRWG also recognized that seven recommendations were already in progress.

In addition, the RRWG recognized that the ecological model does not currently include a component for the Comal Springs Riffle Beetle (*Heterelmis comalensis*; CSRB), but RRWG nonetheless supported the recommendation to continue research on this Covered Species. As with the development of the hydrologic model, the RRWG recognized that the development of the ecological model was an iterative process and that when there is a better understanding of the CSRB, this component could be developed if required for compliance and provided resources are allocated.

### **Biological and Water Quality Monitoring Program**

The RRWG advised the EAHCP to take a holistic view of both the Biological Monitoring and Water Quality Monitoring Programs. As so much has been learned about these two monitoring programs since the EAHCP began in 2013, this holistic approach would consider the NAS recommendations in the report, recommendations and input developed by the Science Committee, ITP Permittee input, and solicited input from subject matter experts.

Towards this end, the NAS RRWG recommended creating both a Biological Monitoring Work Group and a Water Quality Monitoring Work Group, where both groups would consider the costs and benefits of any changes to both monitoring programs. In addition, it was contemplated by the RRWG that at some point these two work groups would meet jointly to specifically address the NAS recommendation to “increase coordination and integration” of the programs.

#### Biological Monitoring

Specific to the Biological Monitoring Program, the RRWG supported optimizing the sampling methods for the CSRB.

The RRWG recommended that the following issues be addressed by the Biological Monitoring Work Group:

- Increasing the coordination between the Water Quality and Biological Monitoring Programs while looking at the costs and benefits
- Determining a reason to scale results to the entire spring and reach system
- Determining if the Covered Species are impacted by anthropogenic parameters

#### Water Quality Monitoring

Specific to the Water Quality Monitoring Program, the NAS RRWG generally supported the ideas that:

- Nutrients play an important role in the Comal system.
- The Water Quality Monitoring Program should focus on parameters sampled and detection limits used for the protection of Covered Species and for watersheds rather than mimicking standard water quality sampling programs.
- Passive diffusion samplers might be a cheap alternative to comprehensive grab sampling techniques.

The RRWG recommended that the following issues be addressed by the Water Quality Monitoring Work Group:

- Increasing coordination between the Water Quality and Biological Monitoring Programs while looking at the costs and benefits
- Ensuring the Water Quality Monitoring Program supports the biology (biological goals) and not human health/water quality standards
- Determining whether enhanced sampling for nutrients and household/personal care products is needed

### **Applied Research Program**

For the recommendations pertaining to the EAHCP Applied Research Program, the RRWG recognized that the program had completed many of the recommendations or was currently in the process of incorporating them. In addition, the RRWG supported the recommendation that the Applied Research Program should offer longer-term projects (multi-year). The RRWG identified that this recommendation was critical for the Applied Research Program.

As with the Biological and Water Quality Monitoring Programs, the RRWG recommended the creation of an Applied Research Work Group to establish a research plan for the remainder of Phase I of the EAHCP.

Specifically, the NAS RRWG recommended the following issues be addressed by the Applied Research Work Group:

- Determining if additional applied research studies are needed
- Developing a research plan that prioritizes the numerous studies recommended by the SRP, the Science Committee, the Implementing Committee, and independent

### **Overarching Issues**

The RRWG discussed and reviewed the five overarching issues identified in *Report 1* and concluded that one of the recommendations had been completed through the EARIP planning

process and one recommendation was in process and being completed by EAHCP staff. The other three recommendations, such as the comprehensive information management, were identified as important, but need to be evaluated by the Permittees as necessary and as resources allow.

**(This paragraph will be modified by EAHCP staff per the RRWG requests after the July 10 meeting.)**

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Appendix I: DRAFT Implementation Plan Prioritization Matrix

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Appendix II: DRAFT Implementation Plan Matrix

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Appendix III: Work Group meeting agendas and minutes

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