



Memorandum

To:	Scott Storrent, EAHCP Program Manager
From:	Lucas Bare, Kylan Frye, and Erin Hitchcock, ICF
Date:	April 26, 2023
Re:	Recommended Changes to EAHCP Covered Activities for the Permit Renewal

1. Introduction

The purpose of this memo is to identify recommended changes to the activities covered under the Edwards Aquifer Habitat Conservation Plan (EAHCP) in the planning process to renew the EAHCP incidental take permit. This is the first of several memos and reports for the Analyze and Sign-off Phase of the permit renewal process, which will examine the major components of the EAHCP (e.g., Covered Activities, Covered Species, Conservation Measures) and identify potential changes to the EAHCP and incidental take permit to be considered by voting members of the Implementing Committee.¹ Changes identified herein will be presented to the Implementing Committee for concurrence by voting members and then will be carried forward in the permit renewal process. This permit renewal process will result in a draft amended EAHCP to the governing bodies of the permittees for final approval and authorization to submit to the U.S. Fish and Wildlife Service (USFWS). The final draft amended EAHCP will be submitted to USFWS with the incidental take permit amendment application. For more information about the EAHCP permit renewal process, including a detailed work plan, refer to eahcrenewal.org.

The EAHCP permit renewal is a multi-year and iterative planning process. The anticipated timeline for submitting the draft amended EAHCP and incidental take permit amendment application to the USFWS is the end of 2025. Throughout the planning process to identify changes to the EAHCP, components of the plan may need to be re-examined should circumstances change (e.g., identification of new scientific data or changes in regulatory status of species). As such, this memo serves as a check point to identify changes to Covered Activities to carry forward in the permit

¹ The Implementing Committee, as defined on page 35 of the Funding and Management Agreement, is composed of voting members from each of the five permittees and the Guadalupe-Blanco River Authority, a non-voting member. The governing bodies of the ITP Permittees will ultimately approve the final draft HCP.

renewal, but other changes to Covered Activities may still need to be considered later in the planning process. These changes will be documented through additional technical memoranda or draft EAHCP chapters and reviewed by EAHCP stakeholders, USFWS, and Permittees.

This memo describes the process for identifying changes to the Covered Activities and summarizes all changes evaluated, which are categorized as either recommended changes, changes considered but not recommended, or changes needing further evaluation.. The proposed specific edits to the Covered Activities chapter of the EAHCP are detailed in ***Attachment 1: Edwards Aquifer Habitat Conservation Plan Excerpted Chapter 2 with Proposed Changes***. This memo only addresses the Covered Activities for which take is authorized by the incidental take permit, which is described in Chapter 2 of the EAHCP. It does not address Conservation Measures, including avoidance and minimization measures for new Covered Activities, which will be covered in a subsequent memo.

2. Evaluation of Covered Activities

Covered Activities encompass all actions that the EAHCP Permittees may conduct for which take is authorized by the incidental take permit. Covered Activities must be under the direct control² of the Permittees. The following sections describe the evaluation of the EAHCP's Covered Activities for the permit renewal process.

2.1 Process for Evaluating Covered Activities

The process for identifying potential changes to the EAHCP's Covered Activities started with the 2020 *Permit Options Report*.³ The *Permit Options Report* describes how Permittees may make changes to the EAHCP and the incidental take permit. To inform the report, EAHCP program staff and Permittees were interviewed to identify issues that could be addressed through various permit options, including potential changes to Covered Activities.

Feedback on the EAHCP's Covered Activities was also requested during the Listen and Learn Phase of this permit renewal process. At Workshop 1, the following question was posed: "During the permit renewal process, what activities should be removed or considered for coverage that are not already covered?" The feedback received was then summarized in the 2022 *Listen and Learn Report*.⁴

Following the completion of the Listen and Learn Phase, further evaluation of potential changes to Covered Activities was conducted as follows:

² *Direct control* is defined at 50 Code of Federal Regulations 13.25(d) to include any person who is under the direct control of the permittee, a person employed by the permittee, or person under contract to the permittee for purposes authorized by the permit.

³ Available here: <https://www.edwardsaquifer.org/wp-content/uploads/2020/09/EAHCP-Permit-Options-Report.pdf>

⁴ Available here: <https://www.eahcrenewal.org/wp-content/uploads/2022/12/EAHCP-Permit-Renewal-Listen-and-Learn-Workshop-Report.pdf>

1. The Permittees met with EAHCP program staff to review the current Covered Activities identified in Chapter 2 of the EAHCP and discuss suggested changes identified in the *Permit Options Report* and the *Listen and Learn Report*.
2. EAHCP program staff and the USFWS met to review all of the EAHCP's Covered Activities and hear the USFWS's ideas and recommendations for potential changes for consideration by the Permittees.
3. EAHCP program staff and ICF drafted proposed changes to the Covered Activities in a prior version of this memo that was reviewed by the Permittees.
4. A draft memo was reviewed by EAHCP stakeholders and the USFWS.

To consider all the suggested changes, each potential Covered Activity was screened according to the five criteria listed below. Candidate Covered Activities needed to meet all five criteria to be recommended as a Covered Activity for the renewed permit.

1. **Location:** The project or activity occurs in the Permit Area.
2. **Timing:** Construction of the project or implementation of activities is scheduled to begin after the EAHCP permit amendment is approved—anticipated to be August 2027—and the project is completed within the term of the renewed permit, which is assumed to be 30 years (through 2057).
3. **Impact:** The project or activity has a reasonable likelihood to result in take⁵ of a Covered Species⁶.
4. **Definition:** The location, size, and other relevant aspects of the project or activity can be defined sufficiently such that direct and indirect impacts on Covered Species can be evaluated and Conservation Measures developed to mitigate those impacts.
5. **Practicability:** Inclusion of the project or activity as a Covered Activity will not result in undue delays or substantial additional cost to the permit renewal process relative to the benefit of including the project or activity in the permit. In other words, it will be more cost-effective to provide incidental take permits for the project, activity, or service through the EAHCP rather than separately. Impractical Covered Activities include ones that, on their own, would add additional Covered Species, generate substantial controversy, or significantly complicate the impact analysis.

⁵ *Take* is defined in section 3 of the Endangered Species Act as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” USFWS further defines “harm” (50 CFR 17.3) as “...an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.”

⁶ The current list of EAHCP Covered Species was used in evaluating this criterion without any consideration for potential changes to the covered species list that may be recommended as part of the permit renewal process.

2.2 Summary of Changes to Covered Activities

The following sections summarize the major proposed changes to EAHCP Chapter 2, *Covered Activities*, including a brief description of the type of change, the rationale for the change, and how it was evaluated using the criteria for Covered Activities described above, if applicable. Refer to *Attachment 1: Edwards Aquifer Habitat Conservation Plan Excerpted Chapter 2 with Proposed Changes* for proposed edits to the chapter to implement these changes. Not summarized in this section are proposed minor editorial changes or factual updates to Chapter 2 where additional explanation is not necessary.

Edwards Aquifer Authority

Move Detailed Description of Edwards Aquifer Authority Act Regulatory Framework to Chapter 1

Nature of Change

Editorial change to move detailed descriptions of the Edwards Aquifer Authority (EAA) Act, types of permits, and permit administration to Chapter 1, and summarize EAA permits authorizing groundwater withdrawal with Table 2-1 in Chapter 2.

Rationale for Change

Detailed descriptions of the EAA Act's regulatory framework are not necessary for describing the EAA's activities for which take is authorized. The description of EAA's Covered Activities should focus on the permits it administers for the withdrawal of groundwater.

Covered Activity Criteria

This is an editorial change, so evaluation with Covered Activity criteria is not applicable.

Add Aquatic Vegetation Maintenance around U.S. Geological Survey Gages

Nature of Change

Substantive change to add aquatic vegetation maintenance at U.S. Geological Survey (USGS) Gages #08168913 (Old Channel), #08168932 (New Channel), and #08169000 (Comal River) in the Comal Springs system and at USGS Gage #08170500 (Sewell Park) in the San Marcos Springs system.

Rationale for Change

Flow estimates at gages #08168913, #08168932, #08169000, and #08170500 are calculated by automated readings and are verified manually by USGS technicians using transects and flow meter measurements. Adjustments are made to the stage-discharge relationship based on manual flow measurements collected from the transect. An accurate representation of springflow is critical for assessing when flows decrease and trigger Critical Period Management in the San Antonio Pool and the Critical Period Monitoring. If a manual measurement cannot be recorded, the USGS may back-correct flow records. Since 2018, it is not uncommon for USGS to shift the flow record 20 or more cfs in either direction during a record correction at the gage and the flow record has become

increasingly subject to large manual corrections. Often, this creates issues with pumping reductions and biological monitoring requirements.

The primary reason for the increase in manual flow corrections and large shifts in the flow record is due to the presence of aquatic vegetation in the Comal River and the substantial expansion of Texas wild-rice in the San Marcos River, which disrupts the ability for the USGS to accurately measure flow at the gage locations.

Providing a vegetation-free transect for USGS to conduct manual flow measurements would improve flow measurements and in turn, help the EAHCP implement and manage the critical period programs. The USGS and USFWS have expressed support for vegetation maintenance to improve flow measurements.

Covered Activity Criteria

- **Location:** All gages are in the Permit Area: USGS Gage #08168913 is located on the Old Channel of the Comal River in the City of New Braunfels, USGS Gage #08168932 is located on the New Channel of the Comal River, USGS Gage #08169000 is located on the Comal River below the confluence of the Old and New Channels, and USGS Gage #08170500 is located on the San Marcos River in Sewell Park at Texas State University in the City of San Marcos.
- **Timing:** The activity would occur after 2027 and over the course of the renewed permit term. Vegetation would be removed from the gage area initially and would be assessed twice monthly to ensure that the gage area stays clear. Vegetation would be removed during monthly assessments, if needed.
- **Impact:** The activity has a reasonable likelihood of taking the Covered Species, including direct removal of Texas wild-rice or removal of other aquatic vegetation species that would result in habitat loss for Covered Species (e.g., fountain darter, San Marcos salamander). The impact to Covered Species from clearing this vegetation would be considered in the permit renewal process and addressed in the take estimate under the amended EAHCP, as appropriate.
- **Definition:** The transect area to be cleared at each gage is approximately 15 square meters. The activity is understood sufficiently to evaluate its effects to Covered Species.
- **Practicability:** The Permittees conduct similar vegetation maintenance activities elsewhere on the Comal River and San Marcos River. The activity would not add undue complexity, new Covered Species, or controversy to the EAHCP. Removing aquatic vegetation at this site will enhance the ability for the EAA to measure springflow and provide accurate flow data to support EAHCP implementation and management decisions (e.g., triggering of Condition M during low flows).

City of New Braunfels

Update Description of Management of Public Recreational Use

Nature of Change

Editorial change to update the description of this Covered Activity to include paddleboarding as a recreational use of the river and City of New Braunfels' enforcement of public safety and enforcement measures.

Rationale for Change

New recreational uses (e.g., paddleboarding) of the Comal Springs systems have gained popularity since the EAHCP was approved. This warrants updating the description of the types of recreational uses occurring. More detail about how the City of New Braunfels manages public recreation through enforcement is warranted to reflect the name of the Covered Activity and the interest in recreation enforcement received during the Listen and Learn Phase.

Covered Activity Criteria

This is an editorial change, so evaluation with Covered Activity criteria is not applicable.

Update Description of Golf Course Diversions and Operation

Nature of Change

Editorial update to clarify the irrigation system and water reuse on the Landa Park Golf Course at Comal Springs.

Rationale for Change

In the current EAHCP, the description of water use at the Landa Park Golf Course reflects the initiation of a project to develop and implement a reuse water system for the golf course and states that the design process has not been completed. This process has been completed and a water reuse system is in place; therefore, the new language reflects the most updated water use for the permittee.

Covered Activity Criteria

This is an editorial change, so evaluation with Covered Activity criteria is not applicable.

Update Description of Boat Operations on the Comal River

Nature of Change

Editorial change to update the description of this Covered Activity to note which types of boats are authorized on the Comal River and under what circumstances motorized boats may be used on the river system.

Rationale for Change

This change adds clarification and more detail to the description of what types of boat activities are authorized for the Comal River.

Covered Activity Criteria

This is an editorial change, so evaluation with Covered Activity criteria is not applicable.

Add Major Repair and Construction Activities

Nature of Change

Substantive change to add major repairs and new construction in and adjacent to the Old and New Channels of the Comal River, Landa Lake, and the Comal Springs system, including those that may require a Clean Water Act Section 404 permit.

Rationale for Change

Commenters during the Listen and Learn Phase suggested adding as Covered Activities construction and major repair activities within and on the banks of Landa Lake and the Comal River. The City of New Braunfels anticipates the need for these types of activities, and the existing EAHCP covers only minor or routine repair and maintenance that does not require a Clean Water Act Section 404 permit. The City of New Braunfels Parks and Recreation Master Plan⁷, completed in 2018, identifies maintenance and repair activities that may be completed during the renewed permit term, including: repair, remodeling, and upkeep of recreational access points; upkeep of City of New Braunfels Parks; renovation of the tube chute; and Landa Park Aquatic Complex renovation (spring-fed pool adjacent to Old Channel). New construction projects described in the Parks and Recreation Master Plan include a trail system in a new city park in Town Creek parcels along Dry Comal Creek.

The purpose of expanding the EAHCP's Covered Activities to include construction and major repair activities that may require a Clean Water Act Section 404 permit is to streamline the permitting process for the City of New Braunfels and to ensure that the effects of these activities are considered in the conservation strategy of the EAHCP. The EAHCP would not fund the City of New Braunfels' construction and repair activities unless these are identified as conservation measures for Covered Species.

Covered Activity Criteria

- **Location:** The activity is in the Permit Area, in the Comal Springs system (Comal Springs, Landa Lake or the Comal River) or the adjacent riparian areas within the Permit Area.
- **Timing:** The activity would occur during the permit term, after 2027 and over the course of the renewed permit term.
- **Impact:** Direct impacts on Covered Species (e.g., fountain darter, Comal Springs dryopid beetle, and Comal Springs Riffle Beetle) and their habitat for in-stream projects or indirect impacts for

⁷ Available here: <https://www.nbtexas.org/DocumentCenter/View/15753/New-Braunfels-Strategic-Master-Plan-Document-MPS>

projects in adjacent riparian areas that could alter water quantity or quality in the Comal Springs system.

- **Definition:** The nature of the instream or adjacent construction activities is understood well enough to include them in the renewed EAHCP so that impacts can be evaluated programmatically. As part of the permit renewal process, assumptions for the number, size, frequency, and general location of projects using best available information would be made to estimate direct and indirect impacts for estimating the amount of take that would occur for Covered Species. This estimated take would be included in the total authorized take under the renewed permit. Additional Conservation Measures to avoid, minimize, and mitigate impacts to Covered Species from construction and major repair activities would also be added under the renewed permit.
- **Practicability:** The City of New Braunfels has conducted repair, maintenance, and construction projects in the Comal Springs system within the Permit Area, requiring a Section 404 permit. These projects have required that the U.S. Army Corps of Engineers (USACE) consult with the USFWS under Section 7 of the Endangered Species Act (ESA). Expanding the activities covered under the EAHCP to include these projects would help to streamline Section 404 permitting and ensure that these projects are consistent with the biological goals and objectives of the EAHCP. Adding this activity would not add undue complexity, new Covered Species, or controversy to the EAHCP.

City of San Marcos

Update Description of Management of Public Recreational Use

Nature of Change

Editorial change to update the description of this Covered Activity to include paddleboarding as a recreational use of the river.

Rationale for Change

New recreational uses (e.g., paddleboarding) of the San Marcos River and springs systems have gained popularity since the EAHCP was approved, which warrants updating the description of the types of recreational uses occurring. More detail about how the City of San Marcos manages public recreation is warranted to reflect the name of the Covered Activity and the interest in recreation enforcement received during the Listen and Learn Phase.

Covered Activity Criteria

This is an editorial change, so evaluation with Covered Activity criteria is not applicable.

Update Description of Boat Operations on the San Marcos River

Nature of Change

Editorial change to update the description of this Covered Activity to note which types of boats are authorized on the San Marcos River and under what circumstances motorized boats may be used on the river system.

Rationale for Change

This change adds clarification and adds more detail to the description of what types of boat activities are authorized for the San Marcos River.

Covered Activity Criteria

This is an editorial change, so evaluation with Covered Activity criteria is not applicable.

Add Major Repair and Construction Activities

Nature of Change

Substantive change to add major repairs and new construction in and adjacent to the San Marcos Springs system, including those that may require a Clean Water Act Section 404 permit.

Rationale for Change

Commenters during the Listen and Learn Phase suggested adding as Covered Activities construction and major repair activities that occur instream or in riparian areas. The City of San Marcos anticipates the need for these types of activities, and the existing EAHCP covers only minor or routine repair and maintenance that does not require a Clean Water Act Section 404 permit. Infrastructure maintenance or repair activities may include the upkeep of existing river access points and bridge maintenance that may include improving concrete footers/piers, abutments, wingwalls, and riprap. Potential projects may include, but would not be limited to, Aquarena Springs Drive bridge maintenance, Hopkins bridge maintenance, and Cypress Island pedestrian bridge rehabilitation. New construction activities may include installation of pedestrian walkways and installation of new recreation access points, including installation of concrete or steps and earthwork on adjoining banks.

The purpose of expanding the EAHCP's Covered Activities to include construction and major repair activities that may require a Clean Water Act Section 404 permit is to streamline the permitting process for the City of San Marcos and to ensure that the effects of these activities are considered in the conservation strategy of the EAHCP. The EAHCP would not fund the City of San Marcos' construction and repair activities unless these are identified as conservation measures for Covered Species.

Covered Activity Criteria

- **Location:** The activity is in the Permit Area, in the San Marcos Springs system (San Marcos Springs, Spring Lake, and San Marcos River) or adjacent riparian areas within the Permit Area.
- **Timing:** The activity would occur during the permit term, after 2027 and over the course of the renewed permit term.
- **Impact:** Direct impacts on Covered Species (e.g., fountain darter, San Marcos salamander, Texas wild-rice) and their habitat for in-stream projects or indirect impacts for projects in adjacent riparian areas that could alter water quantity or quality in the San Marcos Springs system.
- **Definition:** The nature of the instream or adjacent construction activities is understood well enough to include them in the renewed EAHCP so that impacts can be evaluated programmatically. As part of the permit renewal process, assumptions for the number, size, frequency, and general location of projects using best available information would be made to

estimate direct and indirect impacts for estimating the amount of take that would occur for Covered Species. This estimated take would be included in the total authorized take under the renewed permit. Additional Conservation Measures to avoid, minimize, and mitigate impacts to Covered Species from construction and major repair activities would also be added under the renewed permit.

- **Practicability:** The City of San Marcos has conducted repair, maintenance, and construction projects in the San Marcos Springs system within the Permit Area, requiring a Section 404 permit. These projects have required that USACE consult with the USFWS under Section 7 of the ESA. Expanding the activities covered under the EAHCP to include these projects would help to streamline Section 404 permitting and ensure that these projects are consistent with the biological goals and objectives of the EAHCP. The activity would not add undue complexity, new Covered Species, or controversy to the EAHCP.

Texas State University

Update Description of Management of Recreational and Educational Activities

Nature of Change

Editorial changes to update the description of this Covered Activity to include paddleboarding as a recreational use of the San Marcos River, remove golf as a recreational use adjacent to the river, and differentiate the recreational and educational activities occurring in Spring Lake, which are only conducted when authorized by TXST, from those occurring in the San Marcos River.

Rationale for Change

New recreational uses (e.g., paddleboarding) of the San Marcos River have gained popularity since the EAHCP was approved, which warrants updating the description of the types of recreational uses occurring. The Texas State University golf course has been closed since 2015 and will remain closed in the foreseeable future. The existing EAHCP is not clear that recreational and educational activities occur in Spring Lake only when authorized by TXST, so a separate covered activity heading is added to make this distinction.

Covered Activity Criteria

These changes are editorial in nature for the purpose of clarifying existing Covered Activities, so evaluation with Covered Activity criteria is not applicable.

Update Description of Vegetation Management

Nature of Change

Editorial change to update the description of this Covered Activity to clarify the location of vegetation management activities and to clarify how floating vegetation mats are managed and why they are removed.

Rationale for Change

The change adds detail on where Covered Activities occur and how floating vegetation mats are managed by the Permittee.

Covered Activity Criteria

This is an editorial change, so evaluation with Covered Activity criteria is not applicable.

Update Description of Diving Classes in Spring Lake

Nature of Change

Editorial change to eliminate the detailed description of Texas State University's diving classes conducted in Spring Lake (e.g., number of students, number of dives) and instead refer to the Spring Lake Management Plan for this detail.

Rationale for Change

The details about various types of diving classes and specifics as to the number of students and/or dives per class are not necessary for including in the EAHCP. This level of detail is more appropriate in the Spring Lake Management Plan, which will be referenced in the EAHCP. This way, if certain dive class specifics need to change, these changes would not require amending the EAHCP or incidental take permit.

Covered Activity Criteria

This is an editorial change, so evaluation of Covered Activity criteria is not applicable.

Update Description of Research Programs

Nature of Change

Editorial changes to update the description of Research Programs, including the conditions on the Covered Activity.

Rationale for Change

The change clarifies the responsible party as the Meadows Center for reviewing research proposals to determine if there is a potential for take and specifying the requisite course for individuals providing diving support to research studies.

Covered Activity Criteria

This is an editorial change, so evaluation of Covered Activity criteria is not applicable.

Update Description of Water Diversion from Spring Lake and San Marcos River

Nature of Change

Editorial change to update the description of this Covered Activity to correct water diversion numbers in the current EAHCP.

Rationale for Change

The change corrects water diversion numbers for Spring Lake and the San Marcos River for surface water rights issued by Texas Commission on Environmental Quality (TCEQ) and held by Texas State University.

Covered Activity Criteria

This is an editorial change, so evaluation with Covered Activity criteria is not applicable.

Update Description of Management of Golf Course and Grounds

Nature of Change

Editorial change to include management of recreational intramural fields in the description of the land use and management of the previous Texas State University Golf Course location.

Rationale for Change

The Texas State University Golf Course is no longer used as a golf course. The University currently uses a portion of the previous golf course location as intramural fields and recreational use. The update reflects a change in management activities at this location. Ongoing management activities include application of fertilizer and pesticides, mowing, and landscaping. The change updates the activity to reflect current land use practices.

Covered Activity Criteria

This is an editorial change, so evaluation with Covered Activity criteria is not applicable.

Update Description of Boat Operations

Nature of Change

Editorial change to update the description of this Covered Activity to note which types of boats are authorized on the San Marcos River and Spring Lake and under what circumstances motorized boats may be used on the river system.

Rationale for Change

This change adds clarification and adds more detail to the description of what types of boat activities are authorized for the San Marcos River and Spring Lake.

Covered Activity Criteria

This is an editorial change, so evaluation with Covered Activity criteria is not applicable.

Add Major Repair and Construction Activities

Nature of Change

Substantive change to add major repairs and new construction in and adjacent to the San Marcos Springs system, including those that may require a Clean Water Act Section 404 permit.

Rationale for Change

Commenters during the Listen and Learn Phase suggested adding construction activities, major construction projects, and activities on banks to the EAHCP Covered Activities. Texas State University anticipates the need for these types of activities⁸, and the existing EAHCP covers only minor or routine repair and maintenance that does not require a Clean Water Act Section 404 permit. The following activities are anticipated:

- Recreation access points would be repaired, stabilized or constructed.
- Sewell Park access points would be improved, maintained, and repaired as needed. Bank stabilization activities would be implemented, including areas near the Sessom Creek Confluence and San Marcos River headwaters.
- Concrete walls along portions of Sewell Park and Upper Sewell (below the dam) would be repaired, replaced, or removed.
- Improvements may include replacing existing walls with natural river banks.
- Development of recreational/educational trails adjacent to Spring Lake.
- Installation of a floating pedestrian bridge along a portion of the Slough Arm or southern portion of Spring Lake.
- Improvement or replacement of concrete curbing along the headwaters area of Spring Lake. These improvements or replacements could be considered conservation measures since they are proximate to major spring orifices and habitat and are in danger of failing.

The purpose of expanding the EAHCP's Covered Activities to include construction and major repair activities that may require a Clean Water Act Section 404 permit is to streamline the permitting process for the Texas State University and to ensure that the effects of these activities are considered in the conservation strategy of the EAHCP. The EAHCP would not fund the Texas State University's construction and repair activities unless these are identified as conservation measures for Covered Species.

Covered Activity Criteria

- **Location:** In Spring Lake or the San Marcos River (Spring Lake Dam to City Park) or adjacent riparian areas within the Permit Area.
- **Timing:** After 2027 over the course of the renewed permit term.
- **Impact:** Direct impacts on Covered Species and their habitat for in-stream projects or indirect impacts for projects in adjacent riparian areas that could alter water quantity or quality in Spring Lake or the San Marcos River.

⁸ Texas State University will be initiating a University Master Planning process in 2023, which will identify specific facilities and campus improvements that will be completed. The focus of the Master Plan will be the eastern side of the campus, which includes areas around the San Marcos River and Spring Lake. The Master Plan would be completed in 2024; however, preliminary information on proposed projects would be available in spring of 2024. Once available, the list of projects will be evaluated to determine if they warrant coverage under the EAHCP, and the EAHCP's recommended Covered Activities for Texas State University will be updated, as needed.

- **Definition:** The EAHCP would cover these activities programmatically. Assumptions for the number, size, frequency, and general location of projects using best available information would be made to estimate direct and indirect impacts for estimating the amount of take that would occur for Covered Species and to define Conservation Measures to avoid, minimize, and mitigate impacts.
- **Practicability:** Texas State University has conducted repair, maintenance, and construction projects in the San Marcos Springs system within the Permit Area, requiring a Section 404 permit. These projects have required that USACE consult with the USFWS under Section 7 of the ESA. Expanding the activities covered under the EAHCP to include these projects would help to streamline Section 404 permitting and ensure that these projects are consistent with the biological goals and objectives of the EAHCP.

Texas Parks and Wildlife Department

Texas Parks and Wildlife Department is not a permittee under the EAHCP and is not seeking incidental take authorization under the amended EAHCP for its creation of a State Scientific Area in the Permit Area. As such, the description of Texas Parks and Wildlife Department activities is proposed for removal from the EAHCP's Covered Activities. Any EAHCP implementation responsibilities that remain with Texas Parks and Wildlife Department would be described in the implementation chapter of the EAHCP.

2.3 Activities Considered but Not Recommended for Coverage

The following projects or activities were considered for coverage in the renewed EAHCP but are not proposed, as explained below.

Spring-Fed Pool Diversions at City of New Braunfels

A reinforced toe is planned to be installed at the spring-fed pool diversion. This activity is not recommended for coverage because it is scheduled to occur in 2023—before the current permit term expires—and would require a USACE Section 404 permit. Because the project requires a Section 404 permit, it will receive take authorization through the federal consultation associated with that permit (i.e., through an ESA Section 7 consultation and biological opinion).

Spring Lake Dam Improvement

Improvements to Spring Lake Dam are required to meet TCEQ Dam Safety Program guidelines. These improvements would be required in the next 3 to 5 years—before the current permit term expires—and would require a USACE Section 404 permit. Therefore, the project will receive take authorization through the federal consultation associated with that permit (i.e., through an ESA Section 7 consultation and biological opinion).

Cape's Dam Repair or Removal

Cape's Dam Repair or Removal was initially discussed for including as a Covered Activity. However, the City of San Marcos does not yet have clear plans for Cape's Dam. Furthermore, the location and extent of direct and indirect impacts on Covered Species are highly uncertain. The project is also

controversial. As such, this project does not meet the definition or practicability criteria to be recommended for coverage.

San Antonio Water System Infrastructure Installation and Maintenance

San Antonio Water System (SAWS) has obtained ESA Section 10(a)(1)(B) permits for installing pipelines and pumphouses to authorize take of listed karst species and salamanders. Expanding the Covered Activities to include this type of infrastructure installation that does not have a direct impact on the San Marcos or Comal Springs systems would increase the complexity of the EAHCP by adding other Covered Species. SAWS has elected to pursue coverage for these types of activities on an as-needed basis through other ESA Section 10 or Section 7 take authorizations. SAWS infrastructure projects do not meet the practicability criterion to be recommended for coverage.

Commercial Recreation Outfitters

Under the current EAHCP, incidental take resulting from recreational activities conducted by commercial outfitters may be covered under a voluntary Certificate of Inclusion (COI). To date, no outfitters have applied for or received a COI under the program. Based on feedback from meetings with the Permittees, the Permittees decided to remove the voluntary COI provision from the EAHCP due to lack of participation and an expected lack of future interest from recreational outfitters.

2.4 Changes to Covered Activities Needing Further Evaluation

Based on the comments received from Permittees, stakeholders, and the USFWS on draft versions of this memo and the excerpted Chapter 2 (Attachment 1), certain Covered Activities need to be evaluated further for how they are described in the EAHCP. These Covered Activities are listed below. Any subsequent changes to these Covered Activities will be proposed via additional technical memoranda and/or draft EAHCP chapter and reviewed by stakeholders, USFWS, and Permittees.

Covered Activities needing further evaluation for how they are described in the EAHCP include the following.

- **Evaluate the descriptions for management of recreational use for City of New Braunfels, City of San Marcos, and Texas State University.** USFWS and stakeholder comments suggest that the descriptions for recreation management should be evaluated further to ensure that the description addresses all anticipated recreational activities that are likely to result in take while not being too general to cause uncertainty as to which recreational activities are covered and which are not.
- **Review *Diversion of Water from Spring Lake and San Marcos River* for accuracy and clarity.** Additional coordination is needed between the ICF, EAHCP program staff, Texas State, and the City of San Marcos to revise and update surface water diversion information so that the water right and diversion volume limit and location information is accurate, current, and relevant.
- **Determine if the Aquifer Storage and Recovery (ASR) facility should be described as a Covered Activity in Chapter 2 or only in Chapter 5 as a mitigation measure.** Use of the ASR for springflow protection is included in the EAHCP as a minimization measure in Chapter 5. It is unclear what adverse impacts use of the ASR would have on Covered Species, so this activity

may not need to be described in Chapter 2 as an activity for which SAWS seeks take authorization.

- **Evaluate whether management of open space adjacent to Springs systems needs coverage.** USFWS commented that it is “...unclear how the golf course and grounds management and management of recreation fields will have an effect on species, and thus needs coverage.” Additional evaluation is needed to determine the likelihood of take resulting from management and maintenance of the golf course in New Braunfels and the recreational fields at Texas State University.
- **Avoid duplicate descriptions of Covered Activities.** USFWS commented that “For ease of implementation, understanding this document, and compliance monitoring, it would be beneficial to combine duplicate activities (e.g., vegetation management, recreation, repair and construction activities).” Avoiding duplicate descriptions of Covered Activities, which are presently organized by Permittee, would require modifying the chapter’s organization and this warrants further evaluation before such modification could be proposed.

Attachment 1
**Edwards Aquifer Habitat Conservation Plan
Excerpted Chapter 2 with Proposed Changes**

1 **Note to Reviewer:** Text below is excerpted directly from the current EAHCP (updated in 2021). Any
2 gray-shaded text indicates proposed edits for the EAHCP permit renewal. The excerpted text does not
3 include the sections in the current EAHCP that list the Minimization and Mitigation Measures and
4 Measures that Contribute to Recovery for each Permittee; these measures will be addressed in a
5 subsequent technical memorandum.

6 2.1 Covered Activities

7 The Applicants seek incidental take coverage for four categories of activities that may result in
8 incidental take of the fish and wildlife Covered Species: (1) the regulation and use of the Aquifer; (2)
9 recreational activities in the Comal and San Marcos spring and river ecosystems; (3) other activities
10 in, and related to, the Comal and San Marcos springs and river ecosystems; and (4) activities
11 involved in and related to the implementation of the minimization and mitigation measures in these
12 ecosystems (described in Chapter 5).

13 Regulation of Edwards Aquifer groundwater withdrawals is the responsibility of the Edwards
14 Aquifer Authority (EAA). The EAA seeks coverage for the entities it authorizes to use the Aquifer.
15 The San Antonio Water System (SAWS), the City of New Braunfels, the City of San Marcos, and Texas
16 State University seek incidental take coverage, as Applicants, for their pumping from the Aquifer
17 authorized by the EAA.

18 The cities of New Braunfels and San Marcos and Texas State University have the authority to manage
19 the spring and river ecosystems within their respective jurisdictions including many aspects of the
20 use of the ecosystems for recreation and education. They are seeking incidental take coverage for
21 these activities.

22 Each of the Applicants will be responsible for the implementation of minimization and mitigation
23 measures as well as measures that contribute to the recovery of the Covered Species, each seeks
24 coverage for any take that may result from these measures.

25 The following is a description of the specific activities for which incidental take coverage is sought.
26 Descriptions of the measures that will be implemented to minimize and mitigate the impacts of the
27 incidental take are set out in Chapter 5.

28 2.2 Edwards Aquifer Authority

29 2.2.1 Groundwater Withdrawal Authorization and Management

30 **Note to Reviewer:** The text describing the EAA Act and associated rules that is proposed for removal
31 from this section will be summarized in Chapter 1 of the EAHCP as background information pertaining
32 to the regulatory framework of the plan.

33 Relative to the HCP, the EAA's primary statutory obligation is to authorize and manage the
34 withdrawal of groundwater from the Aquifer. The EAA carries out its statutory powers through
35 rulemaking, decisions of the General Manager, decisions of other authorized staff, and orders, or
36 other decisions of the Board of Directors.

37 The EAA seeks incidental take coverage for the EAA's programs that implement these statutory
38 functions. In addition, the EAA seeks coverage for entities who are both authorized under the EAA
39 Act and the EAA's rules to withdraw groundwater from the Aquifer within the jurisdictional

boundaries of the EAA and in compliance with the Act and rules. Table 2-1 summarizes the EAA's groundwater withdrawal permits included as Covered Activities.

Table 2-1. Edwards Aquifer Authority Groundwater Withdrawal Permits Included as Covered Activities

Permit Type	EAA Act Section	Description	Subject to Annual 572,000 ac-ft/yr Cap ¹
Initial Regular and Regular Permits	1.16	Permits initially issued based on historical use during the historical period from June 1, 1972, through May 31, 1993, and new permits, issued after August 12, 2008, resulting from the sale or amendment of an initial regular permit, or the consolidation of two or more initial regular permits. ²	Yes
Term Permits	1.19	Issued for a defined term up to a maximum of 10 years	No
Emergency Permits	1.20	Issued for preventing the loss of life, or to prevent severe, imminent threats to public health or safety	No
Recharge Recovery Contracts	1.44	Entered into pursuant to Aquifer storage and recovery projects conducted to increase the yield of the Aquifer, protect springflows, and ensure minimum springflows of the Comal and San Marcos Springs	No
Exempt Wells	1.15, 1.16, 1.33	Exempt from the duty to obtain a groundwater withdrawal permit, but must register well with the EAA	No

¹ Permits not subject to the annual statutory cap on Aquifer withdrawals of 572,000 ac-ft/yr are addressed in Section 8.1, *Changed Circumstances*.

² Although the EAA Act provides in Section 1.18 that the EAA may also issue Additional Regular Permits, this portion of the act cannot be implemented because no additional water is available for permitting under the 572,000 ac-ft/yr cap established by the Legislature in 2007.

For more information on the EAA Act and Rules, including permit transfers and amendments and the Critical Period Management Program, refer to Section 1.5.2, *Edwards Aquifer Authority*.

2.2.2 Vegetation Maintenance around U.S. Geological Survey Gages

Flow measurements at United States Geological Survey (USGS) gages #08168913, #08168932, #08169000 and #08170500 are calculated by automated readings and are verified manually by USGS technicians using transects and flow meter measurements. Adjustments are made to the stage-discharge relationship based on manual flow measurements collected from the transect. An accurate representation of springflow is critical for assessing when flows decrease and trigger Critical Period Management in the San Antonio Pool or Critical Period Monitoring. If a manual measurement cannot be recorded, the USGS may back-correct flow records, which can create issues with pumping reductions and biological monitoring requirements.

Three USGS Gages are located in the Comal River Springs system in the City of New Braunfels. USGS Gage #08168913 is located on the Old Channel of the Comal River, USGS Gage #08168932 is located on the New Channel of the Comal River, and USGS Gage #08169000 is located on the Comal River,

1 below the confluence of the Old and New Channels. USGS Gage #08170500 is located on the San
2 Marcos River at Aquarena Springs Drive and Sewell Park at Texas State University in the City of San
3 Marcos. The EAA seeks incidental take coverage for removing aquatic vegetation from an area of
4 approximately 15 square meters at each gage site to maintain a vegetation-free transect for USGS to
5 conduct manual flow measurements. Initial vegetation removal would be pulled manually by hand
6 and then the transect would be assessed approximately twice monthly and hand-pulled as needed to
7 ensure that the gage transect area stays clear.

8 **2.3 City of New Braunfels**

9 The Comal Springs, Landa Lake, and the Comal River are located within the boundaries of the City of
10 New Braunfels. The City has the authority to manage the ecosystems of the Comal Springs, Landa
11 Lake, and the Comal River within its geographical boundaries. These ecosystems are also used for
12 recreational activities that are regulated in part by the City. Further, the City of New Braunfels
13 diverts surface water from the Comal River.

14 As described below, the City seeks incidental take coverage for the recreational activities within its
15 jurisdiction, the management of the ecosystems of the Comal Springs, Landa Lake, and Comal River,
16 the diversion of water from the Comal River, and city-sponsored construction projects that occur
17 instream and adjacent to the Comal River, Comal Springs, and Landa Lake.

18 **2.3.1 Management of Public Recreational Use of Comal Springs and River** 19 **Ecosystems**

20 Public recreational use of the Comal Springs and River ecosystems includes, but is not limited to,
21 swimming, wading, tubing, boating, canoeing, kayaking, paddleboarding, scuba diving, snorkeling,
22 and fishing. Related activities include operation of the wading pool at Landa Park on Spring Run 2,
23 non-motorized vessels on Landa Lake, and all tubing, regardless of origin of the tuber or tube, on the
24 Comal River from the confluence of the Dry Comal Creek to the confluence of the Guadalupe River.
25 During high-use periods, the New Braunfels Police Department stations officers in the Comal River
26 to protect public safety. The City of New Braunfels Park Rangers enforce recreation ordinances
27 within City boundaries. Where this recreational use is facilitated in any respect by the City of New
28 Braunfels, including but not limited to providing public access or outfitting services, the City of New
29 Braunfels seeks incidental take coverage for impacts of these Covered Activities.

30 **2.3.2 Management of Water Levels in the Comal River**

31 The City of New Braunfels operates gates, culverts, and dam structures from Landa Lake to the Old
32 Channel (three culverts), New Channel U.S. Geological Survey (USGS) Weir, Spring-fed Pool Inlet,
33 Wading Pool Weir, Clemens Dam, USGS Weir Dam #2, Golf Course Weir, and Mill Pond Dam (joint
34 New Braunfels Utility and City of New Braunfels operation) to maintain constant elevations of the
35 Landa Park Spring-fed Pool and to regulate flow regimes in the Old and New Channels during high
36 and low flow events.

37 The City of New Braunfels also has a permit from TCEQ for 40 acre-feet of impounded water at
38 Clemens Dam (Permit 18-3827, City of New Braunfels Tube Chute). This permit is non-consumptive
39 and establishes the constant level in the Comal River upstream of Clemens Dam to the confluence of
40 the Old Channel and confluence of the Dry Comal Creek

1 The City seeks incidental take coverage for the operation of these structures including any incidental
2 take that may occur during their operation such as by entrapment of a Covered Species.

3 **2.3.3 Golf Course Diversions and Operation**

4 The City of New Braunfels seeks incidental take coverage for the maintenance and upkeep of the
5 Landa Park Golf Course adjacent to the Old Channel of the Comal River, including the use of plant
6 protectants and the diversion of water from the Old Channel to maintain the golf course.

7 Irrigation water for the golf course is obtained via a single diversion from the Old Channel permitted
8 by TCEQ (Permit 18-3824, Permit 18-3824A, Permit 18-3824B, and Permit 18-3826). The diversion
9 is located approximately 200 yards upstream of Hinman Island Drive and considerably downstream
10 of the Old Channel Long-Term Biological Goal reach. The total water that is permitted for that
11 diversion is 300 ac-ft/yr (200 ac-ft under permit 18-3824 and 100 ac-ft/yr for permit 18-3826).
12 Permit 18-3826 is the more junior water right. The total diversion rate allowed under both permits
13 combined is 2 cfs. Currently, the pump for the diversion is capable of diverting only 1 cfs. The
14 surface water diversion will be operated in accordance with TCEQ rules including any TCEQ order to
15 reduce or stop diverting water during low flows.

16 Historically, the Landa Park Golf Course does not use its full permitted water rights for irrigating the
17 Golf Course. To reduce dependency on Comal River water further, the City of New Braunfels, in
18 collaboration with New Braunfels Utilities, used a grant provided by the Texas Water Development
19 Board to develop and implement a reuse water system that can be used to maintain the golf course
20 by supplementing or, when feasible, replacing the surface diversions used for irrigation purposes.
21 The water irrigation system has been installed on the golf course and is awaiting New Braunfels
22 Utilities to implement a system-wide water reuse program to supply the irrigation system.

23 **2.3.4 Spring-Fed Pool Diversions and Operation**

24 The City of New Braunfels seeks incidental take coverage for the impacts of its use and operation of
25 the Landa Park Spring-fed Pool adjacent to the Old Channel of the Comal River. The City of New
26 Braunfels is authorized to divert 8 ac-ft/yr of water from the Old Channel and impound it in the pool
27 by TCEQ Permit 18-3826. Because the water is returned to the Old Channel, this diversion is
28 permitted as a non-consumptive use. Maintenance operations (routine cleaning, algae removal,
29 chemical application pursuant to label instructions, and filling/emptying) will be conducted
30 according to the 2003 Comal Ecosystem Management Plan (Appendix N) or any updates to this plan
31 agreed to by the USFWS and the Permittees. Surface water diversions will be operated in accordance
32 with TCEQ rules as established by Permit 18-3826.

33 **2.3.5 Boat Operations on Comal River and Landa Lake**

34 The City of New Braunfels seeks incidental take coverage for the boats it operates on the Comal
35 River and Landa Lake related to research, enforcement, litter collection, and maintenance activities.
36 The City of New Braunfels uses non-motorized boats such as kayaks and canoes for all routine
37 maintenance and research activities. Motorized boats are used by law enforcement and first
38 responders for emergency purposes only on the Comal River and Landa Lake.

1 **2.3.6 Infrastructure Maintenance, Repair, and Construction**

2 The City of New Braunfels seeks incidental take coverage for existing infrastructure maintenance
3 and repair, and construction or installation of new infrastructure and facilities located instream or
4 on City of New Braunfels property immediately adjacent to the Comal Springs system or that
5 directly affects the Comal Springs system.

6 Routine, minor repairs include activities such as upkeep of access points or walkways and stairways
7 adjacent or leading to the springs or river. Major repairs or new construction activities include
8 stabilization or reconstruction of recreational access points, construction of new access points,
9 major repair of banks, and other activities significantly modifying infrastructure or facilities in the
10 Comal Springs system. New construction activities may include installation of new river access
11 points, including installation of concrete or stone steps and associated earthwork on adjacent banks.

12 In general, these activities may include the following components:

- 13 • Removal of riparian and aquatic vegetation.
- 14 • Relocation or biotic salvage of Covered Species in accordance with approved relocation plans.
- 15 • Dewatering at construction sites.
- 16 • Installation of best management practices (BMPs), including, but not limited to those to reduce
17 downstream sedimentation and for human health and safety.
- 18 • Installation of concrete, riprap, boulders, and steps on banks.
- 19 • Installation of bridge piers or temporary abutments.
- 20 • Earthwork on banks or instream.
- 21 • Reestablishment of flow.

22 **2.4 City of San Marcos**

23 The City has the authority to manage the ecosystems of the San Marcos River and Springs within its
24 jurisdiction. These ecosystems are also used for recreational activities that are regulated in part by
25 the City. The City of San Marcos also is authorized to pump water from the Aquifer.

26 The City seeks incidental take coverage for the recreational activities within its jurisdiction,
27 management of the San Marcos River and Springs ecosystem, permitted use of the Aquifer, and city-
28 sponsored construction projects that occur instream and adjacent to the San Marcos River and
29 Springs.

30 **2.4.1 Management of Recreational Use of San Marcos Springs and River**
31 **Ecosystems**

32 Recreational uses of the San Marcos Spring and River ecosystems occurring within City of San
33 Marcos parks adjacent to the San Marcos River include, but are not limited to, swimming, wading,
34 tubing, boating, canoeing, kayaking, paddleboarding, snorkeling, SCUBA diving, and fishing. The City
35 of San Marcos seeks incidental take coverage for its management of public recreation and for the
36 individuals who recreate in accordance with all applicable laws and regulations.

1 **2.4.2 Boat Operations on San Marcos River**

2 The City of San Marcos seeks incidental take coverage for its boat operations on the San Marcos
3 River related to emergency response, emergency response training, law enforcement, research,
4 litter collection, and maintenance activities. The City typically uses kayaks and non-motorized
5 inflatable boats, with occasional use of electric trolling motors. The use of gas-powered motors
6 would be reserved only for emergency situations when excessive currents are present, such as a
7 rescue during a flood event.

8 **2.4.3 Infrastructure Maintenance, Repair, and Construction**

9 The City of San Marcos seeks incidental take coverage for maintenance and repair of existing
10 infrastructure and construction or installation of new infrastructure located instream or on City of
11 San Marcos property immediately adjacent to the river or in a location where the construction or
12 maintenance activity has the ability to directly affect the San Marcos Springs and River ecosystem.

13 Routine, minor repairs would include activities such as repairs to river access points and to
14 pedestrian walkways adjacent to the river. Major infrastructure repair activities include, but are not
15 limited to, bridge maintenance and repair, including full bridge replacement and repair of concrete
16 footers/piers, abutments, wingwalls, and riprap; stabilization or remodeling of river access points.
17 New construction activities may include installation of new river access points, including installation
18 of concrete or stone steps and associated earthwork on adjacent banks.

19 In general, these activities may include the following components:

- 20 • Removal of riparian and aquatic vegetation.
- 21 • Relocation or biotic salvage of Covered Species in accordance with approved relocation plans.
- 22 • Dewatering at construction sites.
- 23 • Installation of BMPs, including, but not limited to, those to reduce downstream sedimentation
24 and for human health and safety.
- 25 • Installation of concrete, riprap, boulders, and steps on banks.
- 26 • Installation of bridge piers or temporary abutments.
- 27 • Earthwork on banks or in -stream.
- 28 • Reestablishment of flow.

29 **2.5 Texas State University**

30 Portions of the San Marcos River and the San Marcos Springs (Spring Lake) are located within the
31 jurisdiction of Texas State University. The University has the authority to manage the ecosystems of
32 the San Marcos River and Springs within its jurisdiction. These ecosystems are used for educational
33 and research purposes by the University, for recreational activities by the students, faculty and staff
34 of the University and for public service activities. The University is authorized to pump water from
35 the Aquifer and to divert water from Spring Lake and San Marcos Springs.

36 The University seeks incidental take coverage for the educational, recreational, and public service
37 activities within its jurisdiction, the management of the ecosystems of the San Marcos River and
38 Springs, the permitted use of the Aquifer, the diversion of water from Spring Lake and river, the use

1 of the San Marcos Springs and River, and university-sponsored construction projects that occur
2 instream and adjacent to the San Marcos River and Spring Lake.

3 **2.5.1 Management of Public Recreational Use of the San Marcos River**

4 Public recreational use of the San Marcos River includes, but is not limited to, swimming, wading,
5 tubing, boating, canoeing, kayaking, paddleboarding, diving, snorkeling and fishing. Covered
6 Activities include authorized recreational activities in accordance with all applicable laws and
7 regulations.

8 **2.5.2 Management of Recreational/Educational Use of Spring Lake**

9 Recreational/educational use of Spring Lake includes, but is not limited to, boating, kayaking,
10 paddleboarding, and snorkeling. The recreational/educational activities that occur in Spring Lake
11 are allowed via guided-tours and/or with prior approval from The Meadows Center for Water and
12 the Environment. Covered Activities include authorized recreational/educational activities in
13 accordance with all applicable laws and regulations.

14 **2.5.3 Vegetation Management**

15 **2.5.3.1 Management of Submerged and Floating Aquatic Vegetation in Spring** 16 **Lake**

17 Texas State University currently cuts and harvests submerged aquatic vegetation throughout Spring
18 Lake with a harvester boat and manually cuts vegetation from around spring openings, the
19 underwater archaeological site, along the wall by historic hotel (now offices for the Meadows
20 Center), and in the diving area. Vegetation may be removed to enhance viewing from the Meadows
21 Center's glass-bottom boats and prevent entanglement of plant material in the boat propellers.

22 **2.5.3.2 Management of Aquatic Vegetation and Litter from Spring Lake Dam** 23 **to City Park**

24 Lower flows in the San Marcos River increase the likelihood of vegetation mats forming on top of
25 Texas wild-rice which may interfere with flowering and reproduction, block sunlight and interfere
26 with photosynthesis and slow current velocity (Power 1996). Additionally, the San Marcos River is
27 heavily used for recreation from Spring Lake Dam to IH-35. Texas State University will remove or
28 dislodge floating vegetation mats and litter in the River from Spring Lake Dam to City Park. The
29 purpose of this is to benefit Texas wild-rice and other submerged aquatic vegetation used as habitat
30 for fountain darters while enhancing the aesthetics and enjoyment of recreational activities, such as
31 tubing, swimming, canoeing, paddleboarding, and fishing, in areas from Spring Lake Dam to City
32 Park.

33 **2.5.4 Diving Classes in Spring Lake**

34 Texas State University provides educational activities within Spring Lake and the San Marcos River
35 in accordance with all applicable laws and regulations. The University has designated an area as its
36 Dive Training Area in Spring Lake; this area was the site of the underwater show of the Aquarena
37 Springs theme park for over 40 years. The natural and cultural resources in this area have long been
38 disturbed, hence diving activities occurring here will have minimal impact, if any, on listed species.

1 To minimize the impacts of its classes and programs on the habitat in Spring Lake, any individual
2 diving outside of the Dive Training Area has to complete the Dive Authorization Course for Spring
3 Lake.

4 Texas State University seeks incidental take coverage for these educational activities. Current
5 educational activities include the following Covered Activities: Dive Authorization Course,
6 Continuing Education SCUBA Classes, and Texas State SCUBA classes. These activities are defined in
7 the Spring Lake Management Plan (Appendix X).

8 **2.5.5 Research Programs**

9 Research is a primary component of Texas State University's activities in Spring Lake. All research
10 proposals will be reviewed by the staff of the Meadows Center to ensure there is no impact on
11 Covered Species or their habitat in Spring Lake. If take cannot be avoided it will be minimized by
12 educating the researchers as to the area where the species are located and by requiring measures to
13 minimize any potential impacts. Any diving support to a research study in Spring Lake will be
14 provided by individuals who have completed the Dive Authorization Course for Spring Lake.

15 **2.5.6 Diversion of Water from Spring Lake and San Marcos River**

16 Texas State University has surface water right certificates from the TCEQ, as described below. Texas
17 State University seeks incidental take coverage for the use and operation of the authorized
18 diversions.

19 **2.5.6.1 Spring Lake (Certificate 18-3865)**

20 Texas State University has a 100 ac-ft/yr irrigation water right. A pump house located on the south-
21 eastern side of the Sink Creek Slough Arm of Spring Lake diverts an average of 26 ac-ft/yr of water
22 for the purpose of irrigating the grounds in the Spring Lake area. The permit limits the diversion
23 rate for the diversion to 1.33 cfs.

24 The University also has a 534 ac-ft/yr industrial permit with a maximum permitted diversion rate of
25 600 gpm. The water is pumped from an intake site located just below the Spring Lake dam. The
26 permit limits the diversion rate for the diversion to 1.33 cfs.

27 Texas State University has a 513 ac-ft/yr municipal water right; a 64,370 ac-ft/yr hydroelectric
28 water right, of which 31,108 ac-ft/yr have been permanently placed in the Texas Water Trust for
29 environmental flow protection purposes; a 100 ac-ft/yr water right for agricultural purposes
30 retained and is in-use as of 2022 (described above); and a 700 ac-ft/yr water right to operate an
31 artificial waterfall. The permit for the hydroelectric plant and artificial waterfall is for non-
32 consumptive use with the water being returned to Spring Lake near the point of diversion. The
33 diversion rate for the 513 acre-foot right is limited by the permit to 2.22 cfs. The University has not
34 exercised these rights and has no present intention to exercise these rights. However, Texas State
35 University may consider exchanging these rights for additional irrigation or industrial rights if
36 future growth requires additional water resources.

37 In addition, the University is authorized to impound 150 ac-ft in Spring Lake.

38 The rate of diversion from Spring Lake for consumptive use water under TCEQ Certificate No 18-
39 3865 is limited to a total of 4.88 cfs.

1 **2.5.6.2 San Marcos River (Certificate 18-3866)**

2 Texas State University has 40 ac-ft/yr in irrigation rights that are not currently being used. The
3 diversion is located on the San Marcos River at Sewell Park. The permit requires Texas State
4 University to reduce the diversion to 20 ac-ft/yr when flow in the San Marcos River falls below 128
5 cfs. The permit limits the rate of diversion for this water right to 1 cfs. The University also has a 60
6 ac-ft/yr industrial permit used to fill and replenish seven off-channel reservoirs (old fish hatchery
7 ponds) for biological research and related educational purposes. In 2022, Texas State University
8 used 45.4 ac-ft/yr to replenish these ponds. The permit limits the rate of diversion for this water
9 right to 2.22 cfs. The water is diverted at a pump house located in Sewell Park.

10 The total rate of diversion for consumptive use water from the San Marcos River under TCEQ
11 Certificate No 18-3866 is limited to 3.22 cfs.

12 **2.5.7 Management of Recreational Fields and Facilities**

13 Texas State University seeks incidental take coverage for the impacts of its maintenance of
14 recreational fields and facilities located adjacent to Spring Lake in the Sink Creek area. These areas
15 were previously used as a nine-hole golf course; however, a portion of the former golf course was
16 repurposed as intramural sports fields, tailgating areas, and football fields. Management practices
17 include application of fertilizer and pesticides, mowing, and landscaping. During events, portable
18 toilets may be used, but would be placed as far from the Spring Lake and the San Marcos River as
19 possible to prevent spills or overflow due to flooding.

20 **2.5.8 Boating in Spring Lake and Sewell Park**

21 Texas State University seeks incidental take coverage for the impacts of its boating activities in
22 Spring Lake and Sewell Park. Texas State University conducts guided tours in Spring Lake and rents
23 out kayaks, canoes and paddleboards for use in Sewell Park. Activities in Spring Lake occur in the
24 glass-bottom boat runs, and the activities downstream of Spring Lake utilize the area between
25 Sewell Park and Rio Vista Falls. Additionally, the glass bottom boat and glass bottom kayaks operate
26 in Spring Lake. Canoes and kayaks will also occasionally be used for research and maintenance
27 projects in Spring Lake and in the River.

28 Motorized boats that are used on Spring Lake include the electric glass-bottom boats used for tours,
29 the diesel-powered mechanical vegetation harvester, and emergency services boats as needed.
30 Other non-motorized boats on Spring Lake include canoes, kayaks, and paddle boards used for
31 recreational/educational purposes.

32 **2.5.9 Infrastructure Maintenance, Repair, and Construction**

33 Texas State University seeks incidental take coverage for existing infrastructure maintenance and
34 repair, and construction or installation of new infrastructure and facilities associated with or located
35 instream or on University property that is adjacent to or directly affects the San Marcos Springs and
36 the San Marcos River and ecosystem. Routine, minor repairs would include activities such as repairs
37 to access points along the river. Major infrastructure repairs or new construction activities include
38 but are not limited to stabilization or reconstruction of access points along the San Marcos River,
39 banks stabilization such as concrete wall installation or stabilization, replacing existing walls with
40 natural river banks, and creating recreational trails in riparian areas adjacent to Spring Lake. New

1 construction activities may include installation of new river access points, including installation of
2 concrete or stone steps and associated earthwork on adjacent banks.

3 In general, these activities may include the following components:

- 4 • Removal of riparian and aquatic vegetation.
- 5 • Relocation or biotic salvage of Covered Species in accordance with approved relocation plans.
- 6 • Dewatering at construction sites.
- 7 • Installation of BMPs, including, but not limited to, those to reduce downstream sedimentation
8 and for human health and safety.
- 9 • Installation of concrete, riprap, boulders, and steps on banks.
- 10 • Installation of bridge piers or temporary abutments.
- 11 • Earthwork on banks or in -stream.
- 12 • Reestablishment of flow.

13 **2.6 San Antonio Water System**

14 The San Antonio Water System (SAWS) is a water purveyor to residences, businesses and other end
15 users in the City of San Antonio and parts of Bexar and surrounding counties. SAWS is authorized by
16 the EAA to pump water from the Aquifer. SAWS has access or otherwise controls approximately 47
17 percent of the permitted water rights to pump from the Aquifer. As part of its operation, it stores
18 water pumped from the Aquifer in an Aquifer Storage and Recovery facility (SAWS ASR) located in
19 Southern Bexar County. The SAWS ASR is an underground storage reservoir in the Carrizo Aquifer in
20 Southern Bexar County. As a SAWS Water Management Project it is designed to store aquifer water
21 when demand is less than available supply. The stored water is returned to San Antonio for use
22 during critical period when demand is high.

23 SAWS seeks incidental take coverage for its pumping from the Aquifer and for its use and operation
24 of the SAWS ASR.