5.7.2 Water Quality Monitoring Program Strategy for Comal Springs and San Marcos Springs

The goal of the Water Quality Monitoring Program (WQMP), first implemented in 2013, is (1) provide early detection of water quality impairments associated with the San Marcos and Comal Spring and River systems that may negatively impact the Covered Species, and (2) identify the point and nonpoint sources of those impairments, supporting Covered Species protection by allowing for investigation and adoption of any necessary measures through the Adaptive Management Process to address the source(s) of the concerning indicators (*EAHCP Section, 5.7.2*).

In 2016, the Expanded Water Quality Monitoring Program Work Group and the Biological Monitoring Program Work Group were created by the Implementing Committee to carry out a holistic review of the EAHCP monitoring programs and make changes based on the recommendations of National Academy of Sciences (NAS), the NAS Work Group, the input of the Science Committee, the Permittees, and subject matter experts. The Work Groups' final report – "***Report of the 2016 Expanded Water Quality Monitoring Program Work Group and Report of the 2016 Biological Monitoring Program Work Group"***[1] (Report) - was presented to the Implementing Committee for approval in June 2016. This work plan reflects the recommendations found in that report.

Target for 2017:

In 2017, the WQMP in both the Comal and San Marcos spring systems will continue as established, but with the following modifications:

1. Surface water (base flow) water quality sampling be removed from the WQMP.
2. Sediment sampling to be conducted once per year, only in even-numbered years.
3. One real-time monitoring data sonde will be added to each spring system and maintained by the EAA.
4. Reduce stormwater sampling to one event each year. Test only for herbicide and pesticide compounds included in the City of San Marcos and City of New Braunfels Integrated Pest Management Plans for golf courses plus atrazine in odd years; test full suite of parameters in even years. Add two additional samples per each event at each site, with priority given to locations at tributary outflows.
5. Passive diffusion sampling will include adding a pharmaceutical and personal care product (PPCP) diffusion sampler at the most downstream sampling site.
6. Groundwater (well) sampling will be conducted by the EAA, but not through the EAHCP.
7. Tissue (fish or clam) sampling will be conducted once a year, in odd-numbered years in each spring system. The tissue sampling will include a pelagic, fish apex predator, a covered benthic

[1] Edwards Aquifer Habitat Conservation Plan (2016). *Report of the 2016 Expanded Water Quality Monitoring Work Group and Report of the 2016 Biological Monitoring Program*. San Antonio, TX: Edwards Aquifer Habitat Conservation Plan.

.

fish species (such as the fountain darter), and a sediment dwelling filter feeder (such as the Asian Clam).

Also, the EAA will conduct a collective analysis of data with other programs conducting monitoring within the spring systems, such as the Clean Rivers Program, currently conducted by GBRA and TCEQ in the Comal and San Marcos rivers, the EAHCP Biological and Water Quality Monitoring Programs and the EAA Aquifer Science Department's groundwater and spring orifice-sampling programs.

Additionally, the EAA will analyze data from the WQMP as follows:

1. Compare surface (base flow) and stormwater sampling data to Texas Surface Water Quality Standards Aquatic Life Protection, *(30 TAC Ch. 307 Section 307.6),*
2. Compare real time monitoring data to historical long-term averages,
3. Continue to compare sediment data to MacDonald, Ingersoll, and Berger (2000) and TCEQ (2104),
4. Create baseline criteria for the PDS and tissue sampling methods.

Budget:

Table 7.1:
$200,000

Estimated 2017 budget:
$343,750*

*2017 EAHCP Sampling will be performed by an outside contractor; estimated annual costs $300,000. Real Time Instruments (RTI): $43,750.