



## MEMORANDUM

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TO: Nathan Pence and Rick Illgner  
FROM: Ed Oborny (BIO-WEST)  
DATE: September 06, 2013  
SUBJECT: EA HCP Bio-monitoring Update – Week 4

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Gentlemen,

### **BIO-MONITORING UPDATES**

#### **Comal System:**

With the USGS gage adjustment at Comal Springs, the total system discharge is  $\approx 116$  cfs. This adjustment triggers the  $< 120$  cfs HCP Section 6.4.3 specific Comal Springs riffle beetle and Comal Springs salamander surveys. These surveys will be initiated next week and will be conducted every other week until total system discharge rebounds above 120 cfs.

In addition, weekly habitat evaluations will continue to occur until total spring flow increases above 150 cfs. A full system critical period sampling is not scheduled until total springflow declines below 100 cfs. Fall comprehensive sampling is scheduled to occur in late October / early November.

#### **San Marcos System:**

As with the Comal gages, the USGS adjusted the gage for San Marcos down to  $\approx 103$  cfs. Unlike the Comal, this adjustment did not trigger any additional HCP bio-monitoring activities. As described in previous memorandums, no critical period sampling for the San Marcos system is scheduled until total springflow declines below 95 cfs (Texas wild-rice physical measurements) or below 85 cfs (full Critical Period sampling event). Fall comprehensive sampling is scheduled for mid-October.

### **WEEK 4 CONDITIONS AND ACTIVITIES:**

**Comal:** The present total discharge at Comal Springs is  $\approx 116$  cfs. BIO-WEST completed all activities associated with the full Critical Period sampling effort with the retrieval and resetting of cotton lures for Comal Springs riffle beetles on September 1<sup>st</sup>. Weekly habitat observations and photo documentation were conducted on Thursday, September 5<sup>th</sup>.

### **RESULTS:**

Week 3-4 biological activities at Comal Springs included retrieving cotton lures at 10 sites each within the Spring Run 3, Western Shoreline, and Spring Island areas. The cotton lures were placed (August 14-16) at spring upwellings or openings to conduits that are known, historically, to

be habitat for a variety of beetle species, including Comal Springs riffle beetle (*Heterelmis comalensis*). During collections, the more common Elmids beetle, *Microcyloepus pusillus* was the most abundant beetle collected. Comal Springs riffle beetles and Peck's Cave amphipods (*Stygobromus pecki*) were also documented at each of the three representative study reaches (Spring Run 3, Western Shoreline, and Spring Island). As this was a 2-week preliminary evaluation to assess presence/absence, computing density based on this sampling is not appropriate. The comprehensive sampling protocol requires a 4-week collection period to allow the detritus and algae to build up on the cotton lures to attract invertebrates. As such, a 2-week count is not appropriate to compare directly to the 4-week densities. As for total counts, over a dozen Comal Springs riffle beetles were found at both Spring Run 3 and Spring Island, and over 20 individual riffle beetles were recorded from the Western Shoreline study reach. Next week (9-13 September) we will be collecting our 4-week samples and will have density estimates to present and compare to established baseline conditions.

I have not included many photographs in this memorandum as conditions this week (Sept. 5<sup>th</sup>) have changed very little from observations last week (August 28<sup>th</sup>). Spring runs 1 and 2 continue to be very low with little to no flow near the orifice and surface flow extended downstream in each run. Spring run 3 continues to maintain upwelling flow from the headwaters with surface connectivity to the entire spring run. It was again visually evident that upwelling flow is still coming from the Upper Spring Run reach. Individual springs with upwelling flow were observed near the confluence of Blieders creek. Neither Spring Run 5 (Upper Spring run reach) nor either the northern and southern runs of Spring Run 6 (Spring Island) had surface flow. Figure 1 shows the upstream view from Spring Island with several upwelling springs still quite evident.



Figure 1: Just upstream of Spring Island – numerous upwelling areas – shown by bubbles

Similar to each memorandum this August, fountain darter habitat conditions in Landa Lake remain favorable with multiple spring upwellings and large patches of bryophytes both on their own and located within other vegetation types. However, as noted last week, surface vegetation mats continue to form (Figure 2). The City of New Braunfels has been notified of this potential concern and will be taking action to alleviate this risk.



Figure 2: Extensive vegetation mats in Landa Lake

In addition to the lake, fountain darter habitat continues to prosper in the New Channel and Old Channel. As per the Section 6.3.4 of the HCP (< 150 cfs trigger), presence absence dip netting for the fountain darter will next occur in October, or when total discharge declines below 100 cfs.

In summary, the Comal system continues to support quality fountain darter habitat conditions in Landa Lake and Old and New Channels. Limited fountain darter habitat continues to persist in the Upper Spring Run reach. As stated in previous weeks, impacts to endangered Comal invertebrate surface habitat continue to occur in the Spring Island area as well as the main spring runs. Sampling in the representative areas (Spring Run 3, Western Shoreline, and Spring Island) confirmed that Comal Springs riffle beetles are still occupying both horizontal and upwelling habitats. Peck's Cave amphipods were also documented in all three representative sample areas. To examine potential impacts of invertebrate populations in Spring runs 1 and 2, BIO-WEST will be assisting the U.S. Fish and Wildlife Service (USFWS) Aquatic Resources Center (ARC)

biologists set and retrieve cotton lures in the both Spring Run 1 and Spring Run 2. A portion of the riffle beetles collected will be transported by ARC biologists to the ARC for support of refugia populations. It should be noted that this is not a HCP required activity but rather a USFWS duty relating to refugia. As such, BIO-WEST is donating our time to support this activity (in an effort to collect data that will assess potential impact and subsequent recovery [should impact be detected]) and will not be billing the Authority for these activities. The HCP bio-monitoring is designed specifically to address impacts and recovery at the three representative reaches (Spring Run 3, Western Shoreline, and Spring Island). However, it is possible that none of these three areas will experience significant impacts during this drought, and as such collecting some information on Spring Run 1 that has already gone subsurface near the orifice seems prudent to maximize the opportunity this current drought is providing.

### **San Marcos**

As previously mentioned, no critical period sampling activities have been triggered this summer on the San Marcos system. As discussed in last week's memorandum and echoed at the September 3<sup>rd</sup> drought contingency meeting, some impacts to aquatic habitat are occurring in the San Marcos system but have not approached the magnitude witnessed in 2009.

As always, please don't hesitate to contact me if you have any questions or concerns.

Ed