



MEMORANDUM

TO: Nathan Pence and Rick Illgner
FROM: Ed Oborny (BIO-WEST)
DATE: September 20, 2013
SUBJECT: EA HCP Bio-monitoring Update – Week 6

Gentlemen,

BIO-MONITORING UPDATES

Comal System:

The total system discharge at Comal Springs is ≈ 120 cfs. Weekly habitat evaluations continue to occur and will do so until total spring flow increases above 150 cfs. The next 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:

The total system discharge for San Marcos Springs is ≈ 105 cfs. 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 6 (September 13-20) CONDITIONS AND ACTIVITIES:

Comal: Weekly habitat observations and photo documentation were conducted on Thursday, September 19th. Additionally, Comal Spring riffle beetle surveys were completed on September 15th.

RESULTS:

Since the start of this critical period monitoring event in early August, this was the first week with a net gain in cfs over the course of the week (≈ 111 cfs to ≈ 120 cfs). This increase in total system discharge was visually evident in Spring Run 1 (Figure 1). However, even with slight improvements, flow continues to go subsurface near the headwaters of spring runs 1 and 2.



Figure 1: Flowing water in Spring Run 1 over bryophytes and *Ludwigia* downstream of the main orifice.

As in all previous weeks, Spring run 3 continues to maintain upwelling and horizontal flow from the headwaters with surface connectivity to the entire spring run. Extensive algal buildup is still very prominent in the Upper Spring run reach (Figure 2). Note: All photographs were taken on Thursday, September 19th unless otherwise noted.

Considerable spring upwellings continue to be observed in the Spring Island area (Figure 3). Neither Spring Run 5 (Upper Spring Run reach) nor either the northern and southern runs of Spring Run 6 (Spring Island) had surface flow. However, improvement in standing surface water in the southern spring run of Spring Run 6 was very evident (Figure 4).

Week 5 biological activities at Comal Springs included completing cotton lure retrieval at 10 sites along the Western Shoreline. As with the other two study reaches discussed last week, Comal Springs riffle beetles were the most abundant beetle collected in the Western Shoreline study reach. Fourteen Peck's Cave amphipods were also collected at the Western Shoreline study reach. As discussed last week, 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. This collection concludes the first 4-week count during the Critical Period sampling this summer. Table 1 shows the total counts per representative sample reach over time and in recent collections.



Figure 2: Continued algal build up adjacent to Spring Run 5 in the upper spring run reach.



Figure 3: Notable upwelling springs in Spring Island area.



Figure 4: Enlarged surface water areas in Spring Run 6 on Spring Island.

Table 1: Comal Springs riffle beetles – Total Counts per area

Survey Date	Riffle Beetle Total Counts			
	Spring Run 3	Western Shoreline	Spring Island	Total
Long-term average (2004-2013)	152	146	132	430
May / June 2013 Spring sampling	124	68	97	289
August / Sept. 2013 Critical period	118	119	100*	337
Lowest count per individual reach since going to cotton lures	53 (May 2010)	20 (May 2012)	20 (May 2010)	--
Lowest Total count since going to cotton lures (May 2010)	53	110	20	183

* one of two missing lures not counted in last week’s memo was found on Sunday with 53 Comal Springs riffle beetles attached. Therefore, the total beetle count at Spring Island was 47 (last week’s memo) + 53 = 100.

As evident in Table 1, the total Comal Springs riffle beetle counts in all reaches were less than the long-term average but overall, more than recorded in the spring 2013 sampling, and considerably more than the lowest recorded samples (individually or in total) over the years. We continue to maintain duplicate sets of cotton lures within the study reaches enabling us to document 4-week counts every 2 weeks.

Similar to the first 5 week’s memorandums, fountain darter habitat conditions in Landa Lake continue to hold strong. In addition to the lake, fountain darter habitat continues to prosper in the Old Channel (Figure 5) and New Channel (Figure 6). 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.

Identical to last week, the Comal system continues to support quality fountain darter habitat conditions in Landa Lake and Old and New Channels. With lower than average flows and algal build up, fountain darter habitat in the Upper Spring Run reach remains in extremely poor condition. As stated in previous weeks, impacts to endangered Comal invertebrate surface habitat continue to occur in the main spring runs and Spring Island area. The most notable impacts to both Comal Springs riffle beetle and Comal Springs salamander habitats continue to be in Spring Run 1.

San Marcos

As mentioned in the introduction, no critical period sampling activities have been triggered this summer on the San Marcos system. As discussed in previous memorandums, impacts to aquatic habitat continue to occur in the San Marcos system but have not approached the magnitude documented in 2009.

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



Figure 5: Restored aquatic vegetation in Old Channel.



Figure 6: Expanses of *Cabomba* in the New Channel.