



## MEMORANDUM

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TO: Nathan Pence  
FROM: Ed Oborny (BIO-WEST)  
DATE: **July 11, 2014**  
SUBJECT: EA HCP Biological Monitoring – **Week 13**

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### **BIOLOGICAL MONITORING UPDATES**

#### **COMAL SYSTEM:**

At the time of this memorandum, the total system discharge at Comal Springs was 122 cfs (Figure 1). This makes the thirteenth consecutive week below 150 cfs, and therefore, the required weekly habitat evaluation was conducted on July 10<sup>th</sup>. Weekly habitat evaluations and memorandums will continue to occur until total system discharge at Comal Springs/River increases and consistently stays above 150 cfs. Without significant rain this weekend, total system discharge will likely decline below 120 cfs next week triggering Comal Springs riffle beetle, Comal Springs salamander, and Comal discharge measurements/sampling. As described in previous weeks, the next Critical Period full sampling event is not triggered until the total system discharge declines below 100 cfs. The next scheduled routine monitoring is fountain darter dip netting later in July.

#### **SAN MARCOS SYSTEM:**

After a USGS adjustment downward this week, total system discharge for San Marcos Springs/River is approximately 141 cfs. At the present total discharge conditions, the San Marcos River will not likely trigger any critical period biological monitoring this month. The next scheduled routine monitoring is full-system Texas wild-rice mapping and fountain darter dip netting scheduled during the next couple of weeks.

#### **COMAL SPRINGS/RIVER - WEEK 13 CONDITIONS:**

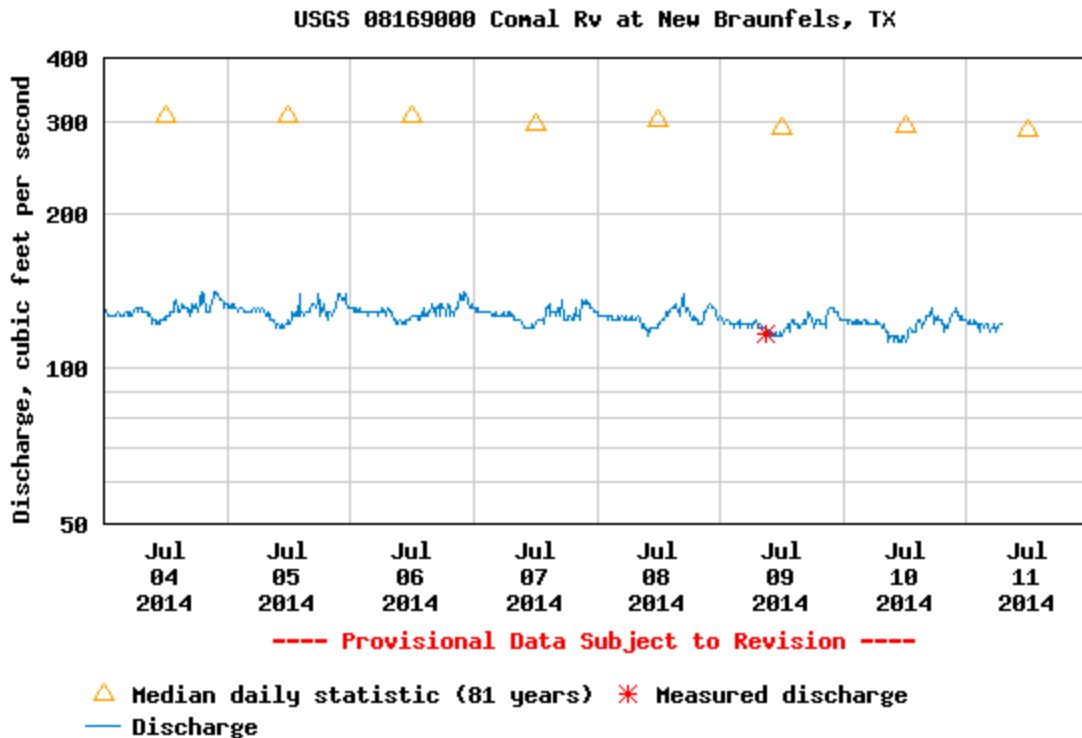
Weekly habitat observations and photo documentation associated with HCP triggered sampling were conducted on Thursday, July 10<sup>th</sup>.

#### **OBSERVATIONS AND ACTIVITIES:**

The J17 water level at the time of this memorandum was dipping into the 632's with over a three foot decline since last week's memorandum. As a result, habitat conditions relative to flow, water level and exposed substrate in select areas declined considerably this past week and are approaching conditions similar to those experienced last summer/fall at similar total system discharge conditions. This was most evident within Spring Run 1 and the Spring Island area as noted herein.

## Discharge, cubic feet per second

Most recent instantaneous value: 122 07-11-2014 06:45 CDT



**Figure 1:** Screen shot of USGS webpage for the *COMAL* gage (08169000) showing total system discharge over the past week.

One of the two major orifices at Spring Run 1 ceased surface discharge (Figure 2) this week, and although the other supported a trickle of surface flow it was not enough to maintain longitudinal surface water connectivity in the spring run (Figure 3). Downstream of the dry surface portion, surface water habitat reappeared but the channel remained laterally constricted as one proceeded downstream, some by discharge (Figure 4) and other by a combination of reduced discharge and human intervention (Figure 5). As in previous weeks, Spring Run 2 continues to maintain surface flow for the main portion of the channel and Spring Run 3 continues to maintain connectivity throughout the run (Figure 6). Although longitudinal connectivity in Spring Run 3 remains intact, the width of the channel in certain locations is starting to experience constrictions (Figure 7). Algae continues to be extremely thick in the Upper Spring Run reach eliminating most native bryophytes and coating all remaining rooted aquatic macrophytes (Figure 8). As mentioned for the past several memos, unless there is a significant change in flow conditions, this will only get worse in coming weeks with increased ambient air temperatures. It remains encouraging that even with a thick green mat of algae blanketing this reach fountain darters continue to present.

The surface water level in the Spring Island area this week was the lowest observed in 2014 resulting in continued exposed surface habitat in the area along the eastern side of the island (Figure 9). The northern spring run on Spring Island continues to be dry and the southern spring run ceased surface flow this week and is presently represented by mats of algae on dry substrate with a few pools scattered amongst the run (Figure 10).



**Figure 2:** Spring Run 1 main orifices (upper left orifice has ceased surface flow).



**Figure 3:** Spring Run 1 main channel looking upstream towards orifices (Presently, there is no surface connectivity to the main orifice pool).





**Figure 4:** Highly constricted Spring Run 1 channel just downstream of where the surface flow in the channel resumes (photo taken looking upstream).



**Figure 5:** Spring Run 1 constricted channel looking downstream from Landa Drive.



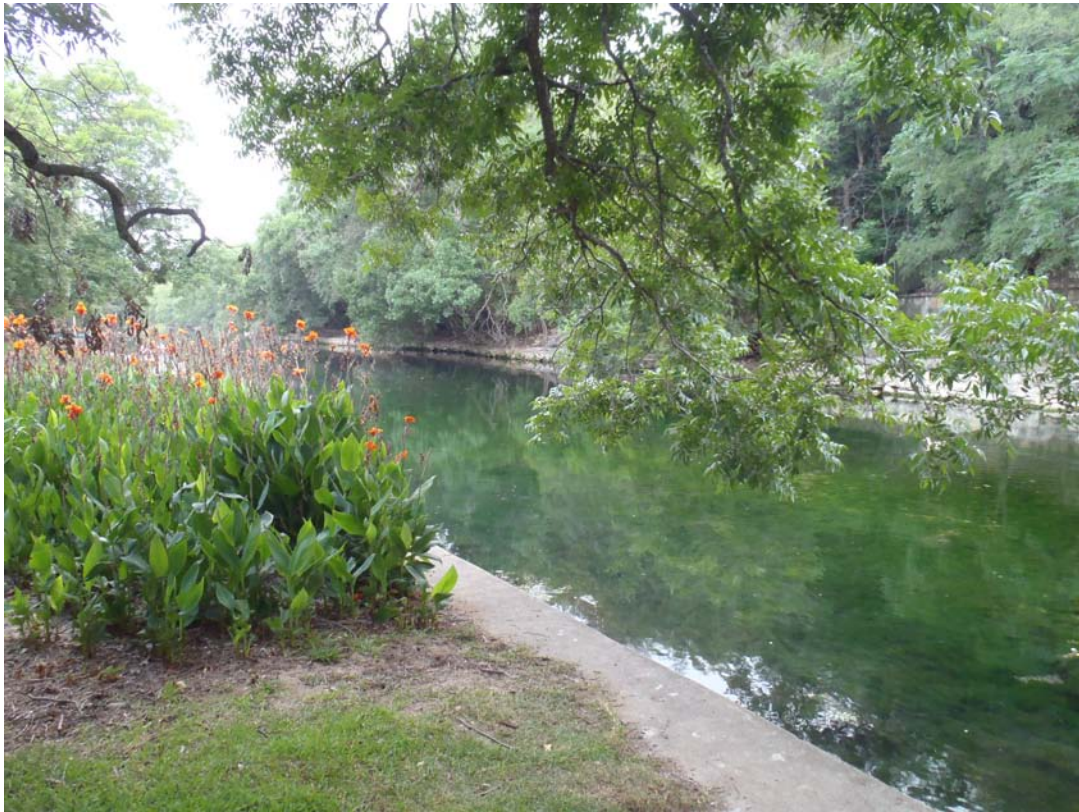


**Figure 6:** Spring Run 3 looking downstream from headwaters.



**Figure 7:** Spring Run 3 constricted area downstream.





**Figure 8:** Extensive algal coverage in the Upper Spring Run reach adjacent to Spring Run 5.



**Figure 9:** Continued exposed surface habitat adjacent to Spring Island.





**Figure 10:** Southern spring run on Spring Island (only a few pools of standing water left).

Aquatic vegetation within Landa Lake continues to support quality fountain darter habitat. Floating vegetation mats in Landa Lake were again well controlled this past week (Figure 11) with the area above the fishing pier that was noted last week being completely cleared (Figure 12). Fountain darter habitat continues to hold strong throughout the Old (Figure 13) and New (Figure 14) channels.

In summary, endangered species habitat conditions in the Comal Springs/River are presently at their lowest observed level in 2014 because of increased exposed substrate and continuing build-up of algae in select areas. Conditions are now starting to approach what was observed late last (2013) summer. With that said, the good news is the overall system continues to support quality fountain darter habitat conditions throughout most of its entirety and even in areas of degraded habitat (Upper Spring Run reach), fountain darters continue to be present. Reductions in wetted area in individual spring runs and the Spring Island area again this week translated into reduced surface habitat conditions for the endangered Comal invertebrates. However, Comal Spring riffle beetles continue to occupy all sample reaches with densities remaining above historical lows. As mentioned in the introductory paragraph, it is very possible that HCP species-specific critical period sampling will be triggered at Comal Springs this coming week.

As always, if you have any questions, please give me a shout. Ed





**Figure 11:** Floating aquatic vegetation mat condition in Landa Lake.



**Figure 12.** Landa Lake fishing pier (floating mats cleared from last week).





**Figure 13:** Restored native aquatic vegetation continues to thrive in the Old Channel.



**Figure 14:** New Channel *Cabomba* continues to support quality fountain darter habitat.