



MEMORANDUM

TO: Nathan Pence
FROM: Ed Oborny (BIO-WEST)
DATE: July 25, 2014
SUBJECT: EA HCP Biological Monitoring – Week 15

BIOLOGICAL MONITORING UPDATES

COMAL SYSTEM:

At the time of this memorandum, the total system discharge at Comal Springs was 116 cfs (Figure 1). This makes the fifteenth consecutive week below 150 cfs, and therefore, the required weekly habitat evaluation was conducted on July 24th. Weekly habitat evaluations and memorandums will continue to occur until total system discharge at Comal Springs/River increases and consistently stays above 150 cfs. Unless significant rainfall over the watershed occurs, total system discharge will likely remain below 120 cfs next week triggering the next round of the every other week 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 summer fountain darter dip netting which will be initiated next week.

Discharge, cubic feet per second

Most recent instantaneous value: 116 07-25-2014 06:45 CDT

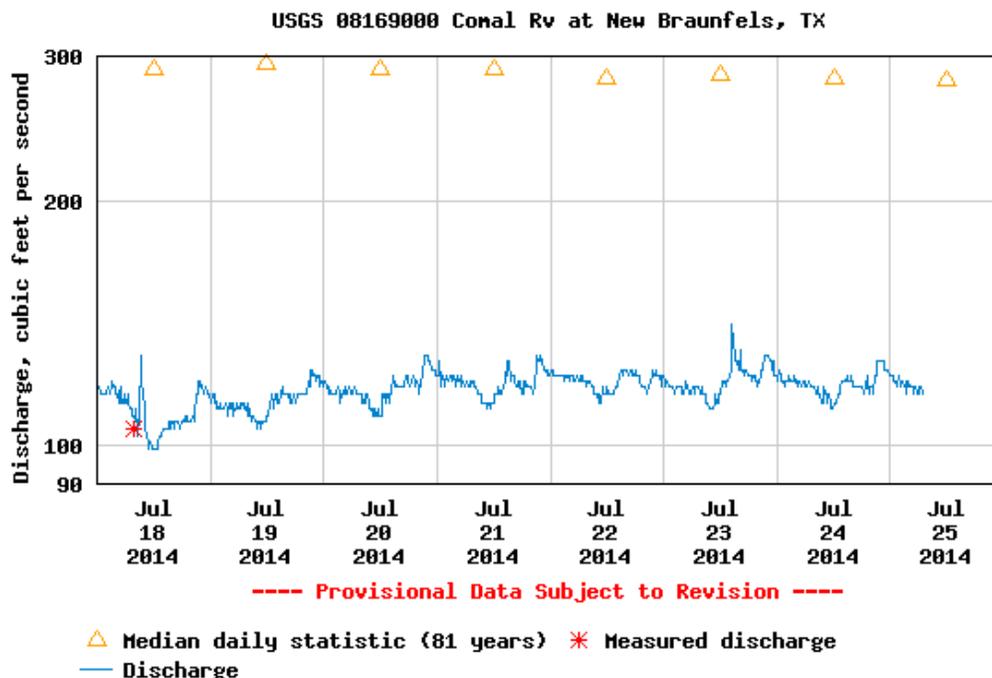


Figure 1: Screen shot of USGS webpage for the *COMAL* gage (08169000) showing total system discharge over the past week.

SAN MARCOS SYSTEM:

After a USGS adjustment downward this week, total system discharge for San Marcos Springs/River is approximately 133 cfs. At the present total discharge conditions, the San Marcos River will not likely trigger any critical period biological monitoring in the near future. Annual full-system mapping of Texas wild-rice is currently underway with fountain darter dip netting scheduled to start next week.

COMAL SPRINGS/RIVER - WEEK 15 CONDITIONS:

Weekly habitat observations and photo documentation associated with HCP triggered sampling were conducted on Thursday, July 24th.

OBSERVATIONS AND ACTIVITIES:

With the rainfall towards the end of last week, the J17 water level had risen to over 639 early this week which was nearly an 8 foot rise to the week prior. At the time of photo documentation this week, J17 had dropped back down to the 636's. It is quite amazing how a few feet at J17 can so closely relate to the condition of Spring Run 1 in real time. Although the total system discharge at the time of this and last week's memorandums were both reported at 116 cfs, the preceding patterns were very different. Figure 1 shows the increasing trend that occurred throughout this week following the USGS adjustment on July 18th. As a result of this increasing trend and overall rise in total system discharge this week, surface habitat conditions in previously impacted areas improved; considerably in the case of Spring Run 1. Unlike last week, both of the two major orifices at Spring Run 1 exhibited surface discharge this week (Figure 2) with longitudinal surface connectivity throughout the entire spring run and improved lateral connectivity in many places (Figure 3). As in all previous weeks, Spring Run 2 continues to maintain surface flow for the main portion of the channel. Spring Run 3 continues to maintain connectivity throughout the run and observed improved lateral connectivity this week.



Figure 2: Spring Run 1 main orifices (surface flow has returned).

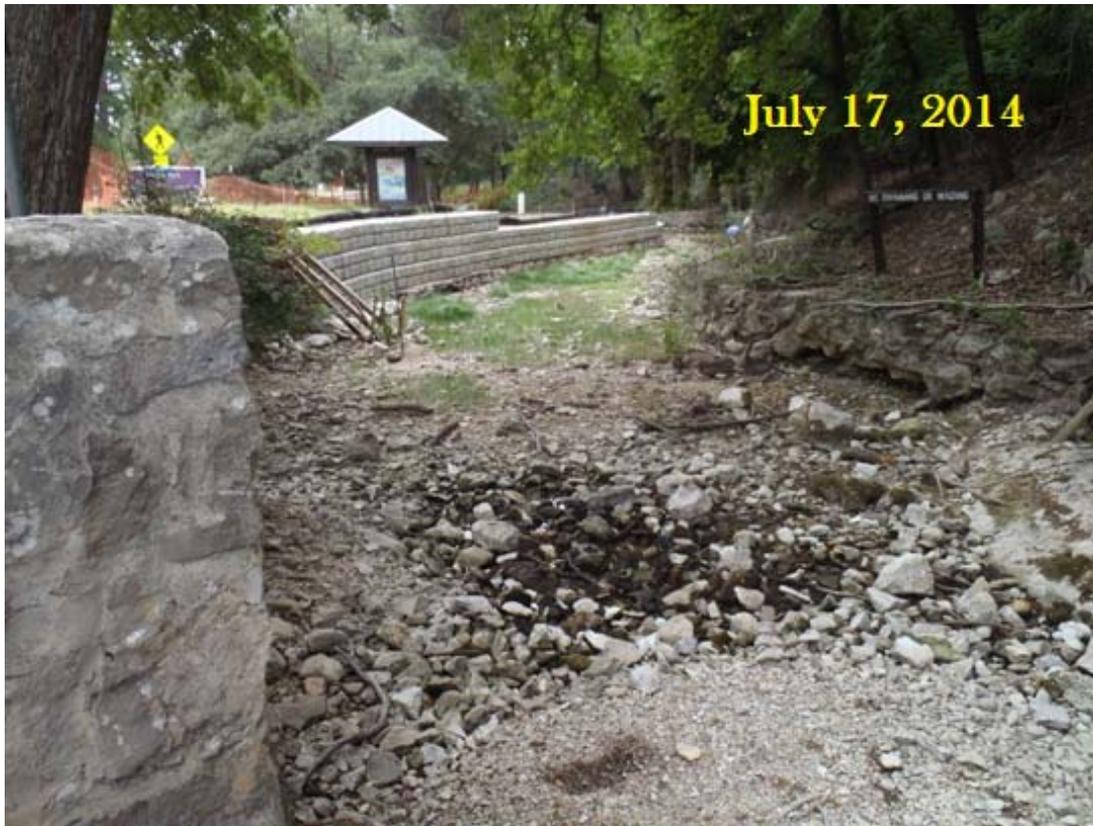


Figure 3: Spring Run 1 main channel looking downstream from main orifices. July 17 – top photo – no surface flow for an extended area; July 24 – bottom photo – surface flow throughout.

The rains last week also provided some relief to the algae condition in the Upper Spring Run reach (Figure 4). It is encouraging that after nearly 3 months of intense algal coverage in this reach with discharge less than 5 cfs, aquatic macrophytes continue to survive (Figure 5). In addition, biologists conducting night dives associated with the fountain darter movement study this week confirmed the continued presence of fountain darters in this reach. However, even with the nice reprieve, it will likely be very short lived and unless there is a significant change in flow conditions, algae will likely again get worse in coming weeks with increased ambient air temperatures.

Similar to the main spring runs, the surface water level in the Spring Island area rebounded some this week. Exposed surface habitat in the area along the eastern side of the island (Figure 6) remained event but unlike last week, both spring runs associated with Spring Island had some water and limited surface flow (Figures 7 and 8). As noted in last week's memorandum, cotton lures were placed at each of the designated sampling locations in late June in anticipation of this critical period trigger and will be collected per the 4-week protocol next week.

Aquatic vegetation within Landa Lake, the Old Channel (Figure 9), and New Channel (Figure 10) continue to support quality fountain darter habitat.



Figure 4: Algal coverage not nearly as thick as previous weeks in the Upper Spring Run reach.



Figure 5: *Cabomba* present in the Upper Spring Run area.

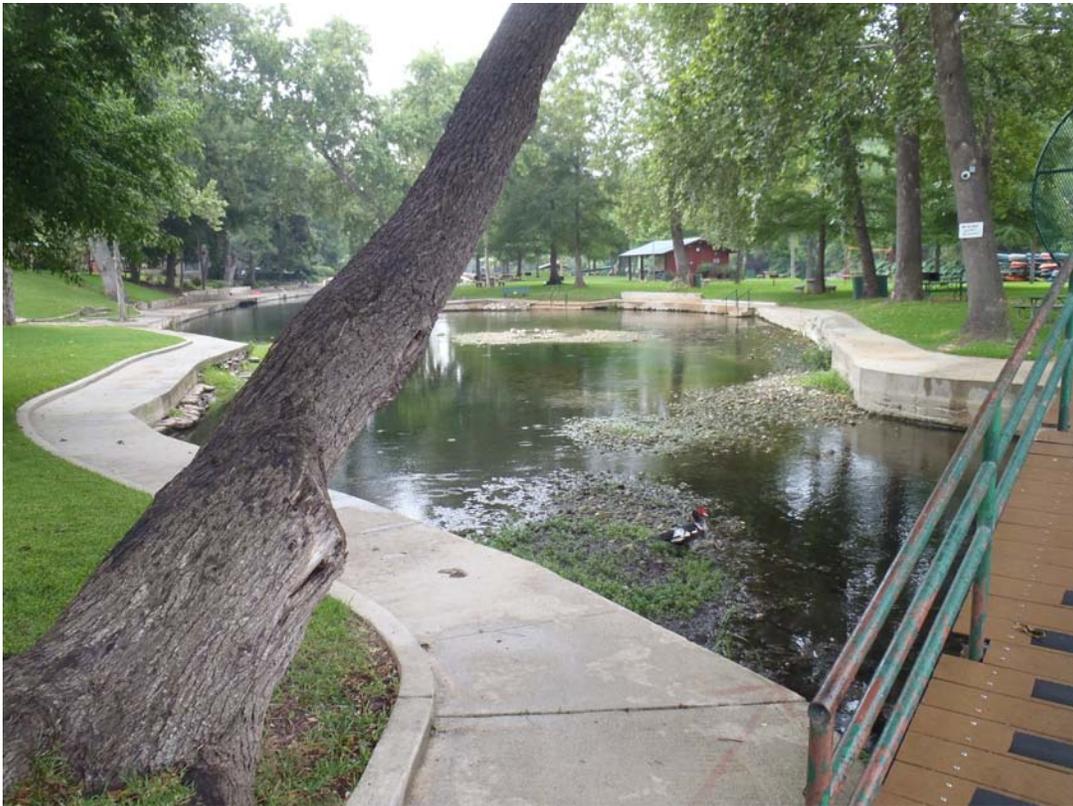


Figure 6: Exposed surface habitat adjacent to Spring Island.



Figure 7: Southern spring run nearly bank to bank wet with some limited surface flow.



Figure 8: Northern spring run on Spring Island with very limited wetted area and surface flow.



Figure 9: Restored native aquatic vegetation continues to thrive in the Old Channel.



Figure 10: New Channel *Cabomba* continues to support quality fountain darter habitat.

In summary, this week was a nice reprieve from the conditions emerging last week when total system discharge was nearing levels that have not been witnessed since 1996. However, with the hot, dry summer upon us, it is likely going to be a short reprieve unless we are blessed with some significant rainfall in the near future. It is encouraging that the overall system continues to support quality fountain darter habitat conditions throughout most of its entirety. Comal Springs endangered invertebrate surface habitat continues to be impacted and will remain so until exposed surface areas are once again inundated. Critical period monitoring will continue to be vital to track the success of the surface dwelling invertebrates in reduced surface habitat as these conditions persist at Comal Springs.

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