



MEMORANDUM

TO: Nathan Pence and Rick Illgner
FROM: Ed Oborny (BIO-WEST)
DATE: **October 25, 2013**
SUBJECT: EA HCP Bio-monitoring Update – **Week 11**

BIO-MONITORING UPDATES

Comal System:

The total system discharge at Comal Springs is ≈ 146 cfs. Weekly habitat evaluations continue to occur and will do so until total springflow increases above 150 cfs. The next full system critical period sampling is not scheduled until total springflow declines below 100 cfs. Fall comprehensive sampling on the Comal system continued this week with aquatic vegetation mapping, thermistor downloading, discharge measurements, photo documentation, fountain darter drop netting, and macroinvertebrate sampling.

San Marcos System:

The total system discharge for San Marcos Springs is ≈ 125 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 continued this week with thermistor downloading, photo documentation and expanded fish community sampling.

WEEK 11 (October 19 - 25) CONDITIONS AND ACTIVITIES:

Comal: Weekly habitat observations and photo documentation associated with HCP triggered sampling were conducted on Tuesday, October 22nd. Note: All photographs in this memorandum were taken on October 22nd unless otherwise noted on the photograph. Fall comprehensive sampling continued this week as well.

RESULTS:

Since last week's memorandum, only minor rainfall occurred but the USGS did adjust the Comal gage based on field measurements as evident in the Figure 1 screen capture from the USGS streamflow website. With this adjustment upwards, total system discharge is now approximately 146 cfs.

Discharge, cubic feet per second

Most recent instantaneous value: 146 10-25-2013 08:45 CDT

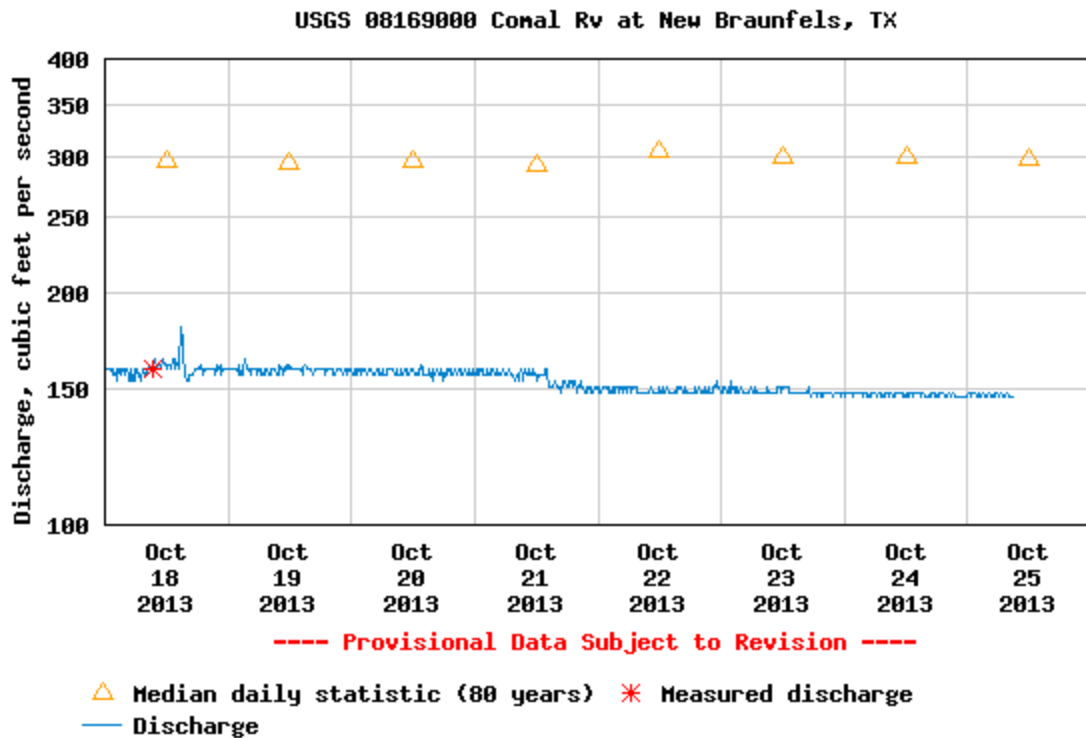


Figure 1: Screen shot of USGS webpage for the Comal gage (08169000) showing total system discharge over the past week.

During all full sampling and critical period events, discharge data is collected at HCP Bio-monitoring locations to relate directly to biological monitoring activities being conducted. We conducted Fall comprehensive discharge measurements Thursday (October 24th) with the results of that trip and all measurements taken since the start of the Critical Period event depicted in Figure 2.

Surface water flow in Spring run 1 continues to improve with increasing springflow (Figure 3). As in all previous weeks, Spring run 3 continues to maintain connectivity throughout the run. Algae is still present in portions of the Upper Spring run reach (Figure 4) but not to the levels experienced in August or even recent weeks. As of this memorandum, aquifer levels have not rebounded to the point to allow flow over the concrete structure at Spring run 5. Increased surface water level and springflow continue to maintain near full inundation around the Spring Island area as well as surface flow in both the northern and southern runs of Spring run 6.

As dirt work was initiated for the Landa Lake walls construction project, I have included a photograph showing the area of wall removal (Figure 5) on river left just above the confluence of the combined Spring run 1 and 2 with Landa Lake.

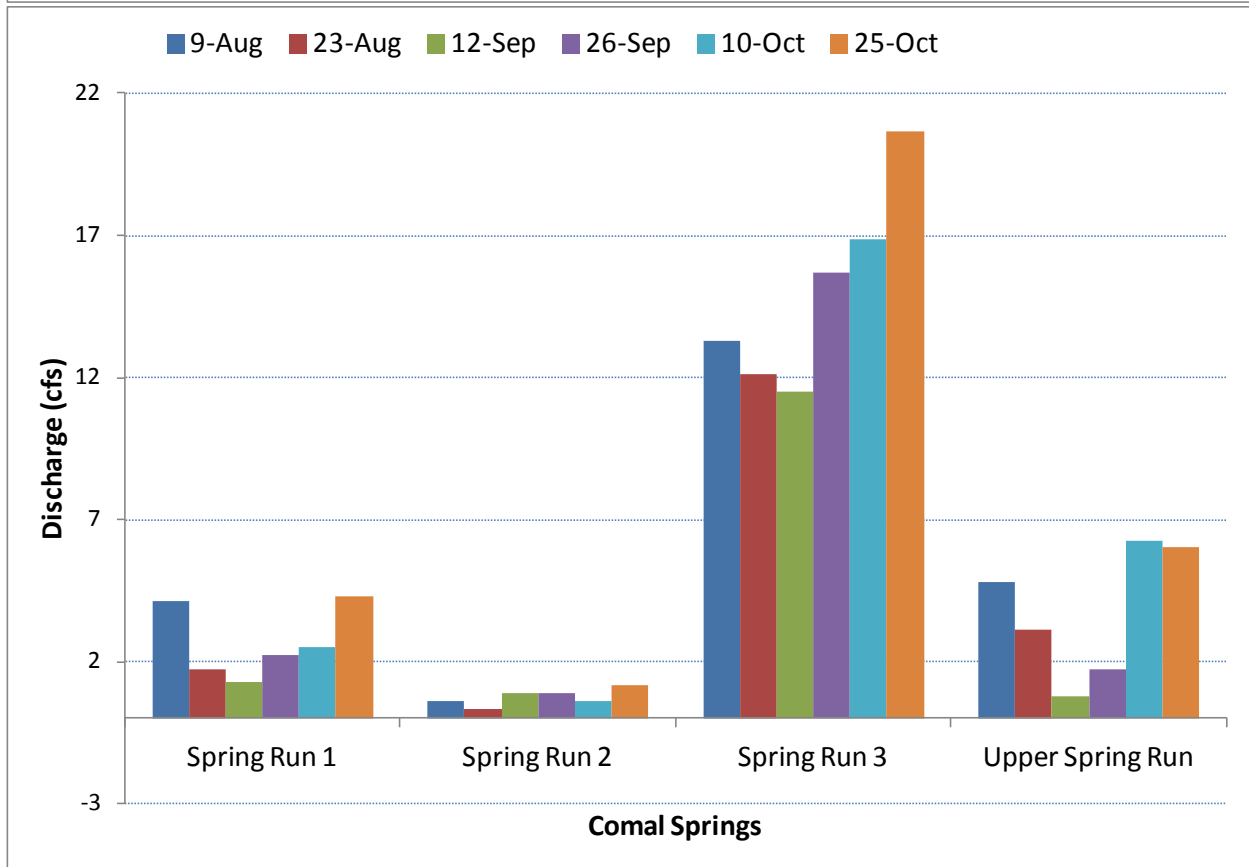
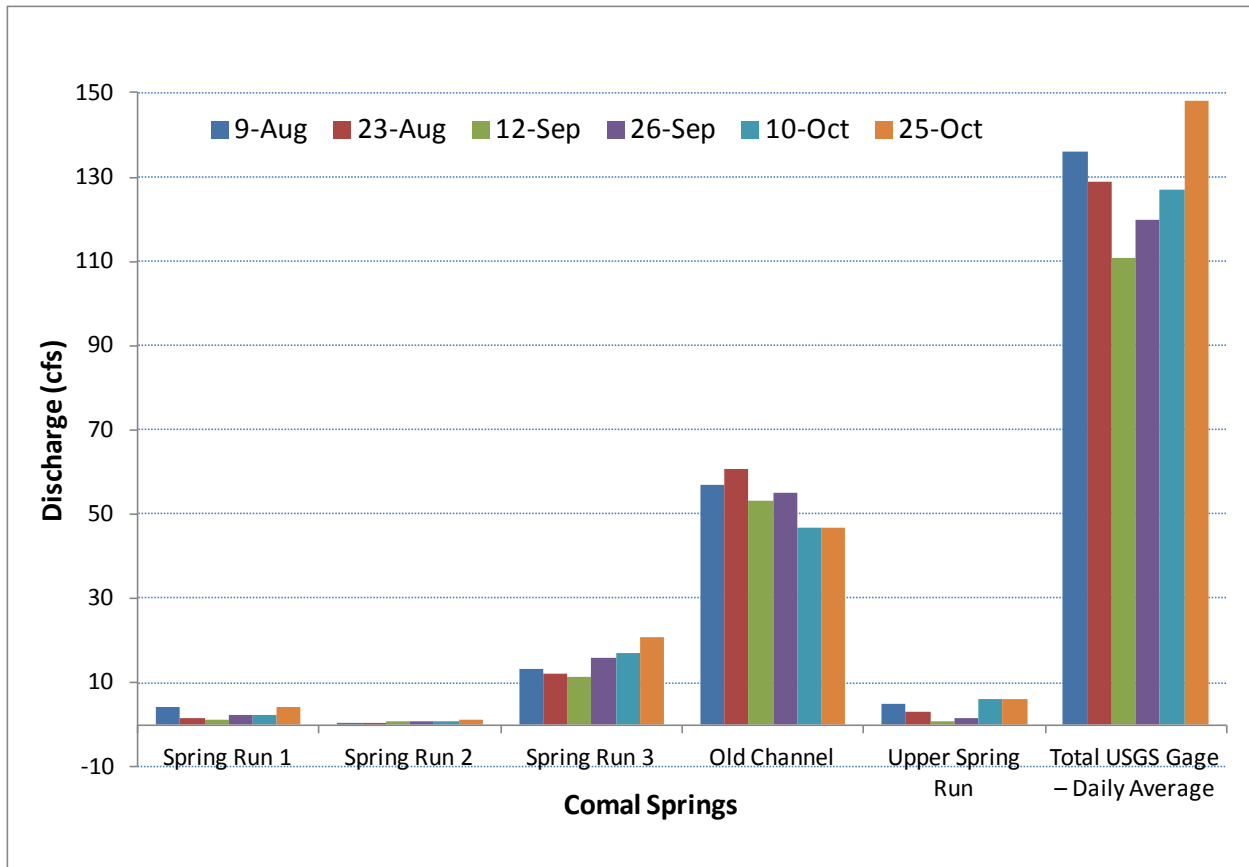


Figure 2: Discharge at measured sites since start of 2013 Critical Period sampling – All sites (Top) – Spring runs and Upper Spring run (bottom).



Figure 3: Looking upstream toward Spring run 1 main orifice (continuous surface flow extending bank to bank).

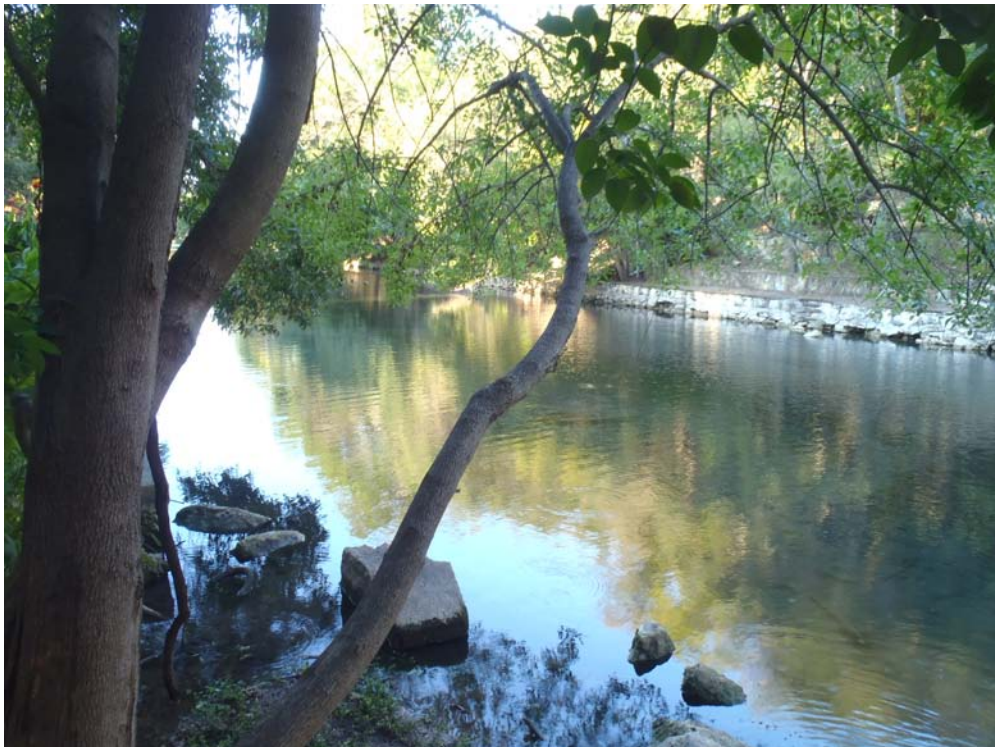


Figure 4: Upper Spring run reach adjacent to Spring run 5.



Figure 5: Landa Lake walls construction project - downstream view towards the lake. Note top of photo shows the old walls removed with the lower part of the photo showing the old walls needing to be removed.

There were no Critical period biological sampling activities conducted at Comal Springs this week. Fall comprehensive sampling activities included completing aquatic vegetation mapping (Oct. 21-24), fountain darter dropnetting (Oct. 21-23), and macroinvertebrate sampling (Oct. 24-25). Additionally, thermistors were downloaded this week, fixed station photo documentation took place and Comal Springs riffle beetle lure retrieval was initiated on October 22nd, and discharge measurements were conducted on October 24th.

Similar to the first 10 week's memorandums, fountain darter habitat conditions in Landa Lake continue to look really good. The floating vegetation mat condition in Landa Lake continues to be under control (Figure 6). In addition to the lake, fountain darter habitat continues to thrive in the Old Channel (Figure 7) and New Channel (Figure 8).



Figure 6: Floating vegetation mat condition in Landa Lake.



Figure 7: Restored aquatic vegetation in Old Channel.



Figure 8: Extensive areas of *Cabomba* in New Channel.

Overall, the Comal system continues to support quality fountain darter habitat conditions in Landa Lake and Old and New Channels. Reduced habitat conditions are present in the Upper Spring Run reach but fountain darters continue to occupy this remaining habitat (again documented by drop netting activities this week). Relative to average flow conditions, slight impacts to invertebrate habitat are still occurring in the Comal system.

San Marcos

As mentioned in all previous updates related to the Comal system, no critical period sampling activities have been triggered this summer on the San Marcos system. Fall comprehensive sampling continued on the San Marcos system with the downloading of thermistors, fixed station photo documentation, and expanded fish community sampling being conducted October 21-24.

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

Ed