



MEMORANDUM

TO: Nathan Pence
FROM: Ed Oborny (BIO-WEST)
DATE: **May 30, 2014**
SUBJECT: EA HCP Biological Monitoring – **Week 7**

BIOLOGICAL MONITORING UPDATES

COMAL SYSTEM:

At the time of this memorandum, the total system discharge at Comal Springs was 148 cfs. This is up nearly 25 cfs from last week's memo. However, as Comal Springs remained below 150 cfs for a seventh consecutive week, the required weekly habitat evaluation was conducted on May 29th. Weekly habitat evaluations and memorandums will continue to occur until total system discharge at Comal Springs/River increases and consistently stays above 150 cfs. As per HCP triggered low-flow sampling requirements, should total system discharge continue to stay below 150 cfs, aquatic vegetation mapping in study reaches and fountain darter presence/absence dip net sampling will take place in June. As described in previous weeks, the next Critical Period full sampling event is not triggered until the total system discharge declines below 100 cfs.

SAN MARCOS SYSTEM:

The total system discharge for San Marcos Springs is approximately 144 cfs. This is up over 30 cfs from last week's memo from a combination of an upward adjustment made last Friday by the USGS coupled with the nice rainfall and subsequent recharge that the aquifer experienced this week.

COMAL SPRINGS/RIVER - WEEK 7 CONDITIONS:

Weekly habitat observations and photo documentation associated with HCP triggered sampling were conducted on Thursday, May 29th. All pictures in this memorandum were taken on that date.

OBSERVATIONS AND ACTIVITIES:

Following the nice rains over the watershed Memorial Day weekend, the total system discharge at Comal Springs peaked near 300 cfs and settled out at approximately 148 cfs (Figure 1). The increase in total system discharge led to an increase in water surface elevation and flow in the individual spring runs and adjacent to Spring Island. These increases in flow and water level subsequently resulted in improvements in Comal Spring invertebrate habitat in these locations.

Discharge, cubic feet per second

Most recent instantaneous value: 148 05-30-2014 07:45 CDT

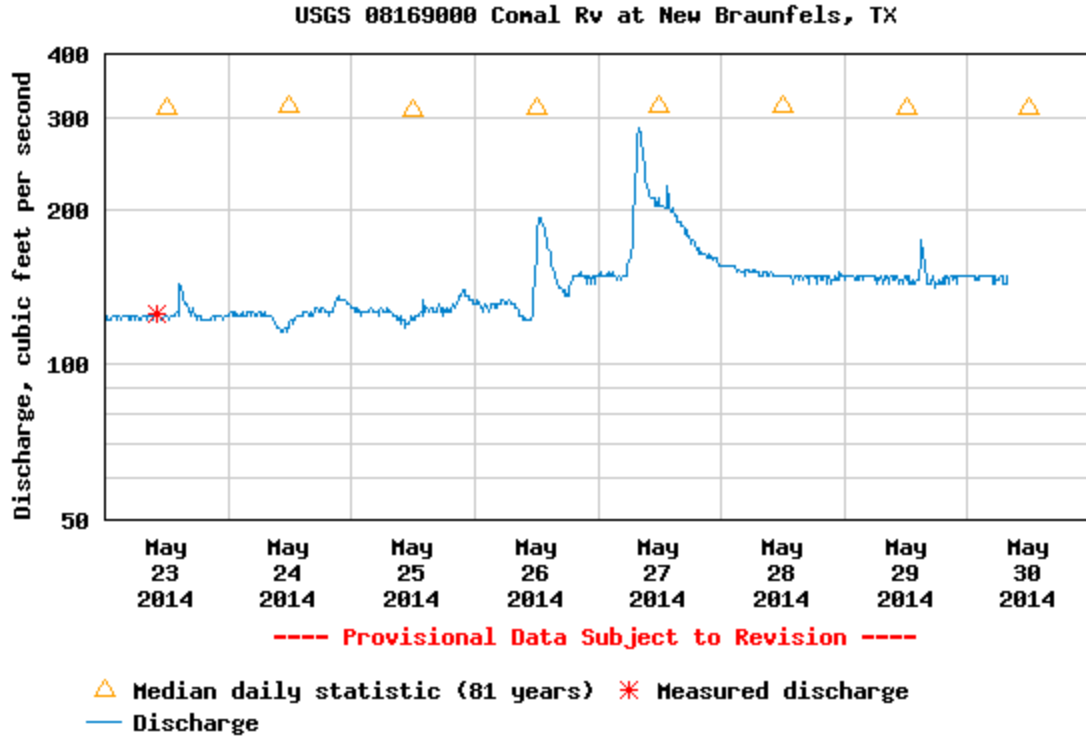


Figure 1: Screen shot of USGS webpage for the *COMAL* gage (08169000) showing total system discharge over the past week.

The two major orifices at Spring Run 1 exhibited increased surface discharge and looked the best they have in several weeks. Not surprisingly, the Spring Run 1 channel was considerably expanded (Figure 2) with more surface wetted area this week. Similar to all 2014 memos, Spring Run 2 continues to maintain surface flow for the main portion of the channel while Spring Run 3 (Figure 3) continues to maintain connectivity throughout the run. The pulse from the rains did a nice job thinning out the green algae in the Upper Spring Run reach but did not affect existing bryophyte patches or rooted aquatic macrophytes (Figure 4). Fountain darters continue to occupy this upper reach. The surface water level in the Spring Island area increased considerably this past week with almost complete inundation of exposed habitat adjacent to the island (Figure 5) and within Spring Run 6 (Figure 6). Fountain darter habitat conditions in Landa Lake continue to excel and the pulse flows did a nice job moving the floating aquatic vegetation mats downstream (Figure 7).

In addition to the lake, fountain darter habitat continues to thrive in the Old Channel (Figure 8) and New Channel (Figure 9). Although some turbidity was still evident in the New Channel coming from Dry Comal Creek, it was evident that aquatic vegetation within this reach of river was not affected by the pulse flow event experienced.



Figure 2: Spring Run 1 main channel with expanded surface flow.



Figure 7: Checking and replacing cotton lures for riffle beetles in Spring Run 3.



Figure 4: Upper Spring Run reach mix of bryophytes, macrophytes and only limited algae.



Figure 5: Limited exposed surface habitat adjacent to Spring Island area.



Figure 6: Fully wetted southern channel of Spring Run 6 on Spring Island.



Figure 7: Floating vegetation mat condition in Landa Lake.



Figure 8: Restored fountain darter habitat in the Old Channel.



Figure 9: Slightly turbid conditions in the New Channel from Dry Comal Creek.

Relative to last week's report, endangered species habitat conditions in the Comal Springs/River were considerably improved. The system continues to support quality fountain darter habitat conditions and it was nice to have a flushing event knock back some of the green algae previously noted in the Upper Spring Run reach. Although reduced habitat conditions remain in the Upper Spring Run reach relative to other portions of the system, fountain darters continue to persist in this reach. Floating vegetation mats in Landa Lake were alleviated somewhat by the pulse event but will continue to need attention all summer. The biggest improvement this past week was the increased inundated areas and expanded wetted area in individual spring runs which directly influences the endangered Comal invertebrates.

No HCP biological monitoring activities were conducted on the San Marcos system this past week, nor are they anticipated for some time now that total system discharge in that system is over 140 cfs.

Cheers!

Ed