MEMORANDUM

TO:	Nathan Pence
FROM:	Brad Littrell (BIO-WEST)
DATE:	**December 19, 2014**
SUBJECT:	EA HCP Biological Monitoring – **Week 36**

BIOLOGICAL MONITORING UPDATES

COMAL SYSTEM:

After a brief bump from a small rain event this morning (approximately ½ inch in New Braunfels), the total system discharge at Comal Springs/River was 134 cfs this afternoon (Figure 1). This is the exact same value reported in last week's memo, reflecting relatively stable aquifer levels over the last couple of weeks. This week marks the 36th consecutive week for habitat evaluations and memorandums which will continue to occur until total system discharge at Comal Springs/River increases and consistently stays above 150 cfs.

Discharge, cubic feet per second

Most recent instantaneous value: 134 12-19-2014 13:45 CST

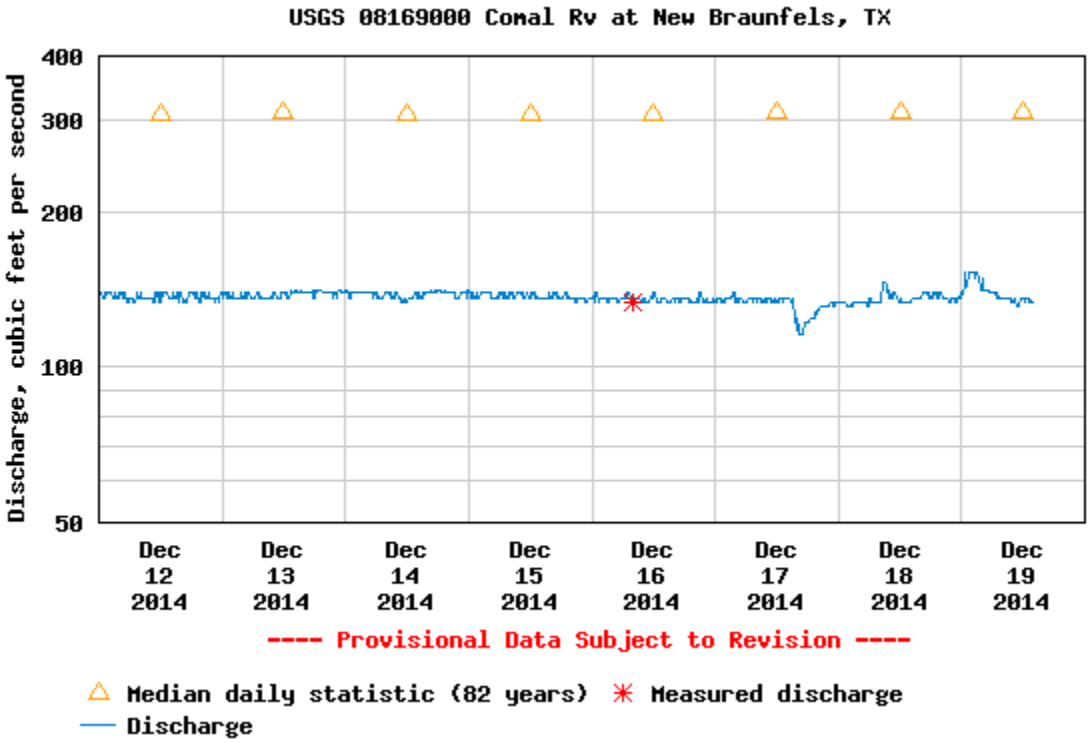

Figure 1: Screen shot of USGS webpage for the ***COMAL*** gage (08169000) showing total system discharge over the past week.

SAN MARCOS SYSTEM:
The total system discharge for San Marcos Springs/River is approximately 117 cfs this afternoon. No Critical period sampling activities were conducted this week or are anticipated for next week.

COMAL SPRINGS/RIVER - WEEK 36 CONDITIONS:
Weekly habitat observations and photo documentation associated with HCP biological monitoring were conducted on Friday, December 19th. There were no sampling activities conducted this week as HCP species specific low-flow monitoring activities continue to be controlled by the <150 cfs trigger. Should conditions remain between 120 and 150 cfs, the next scheduled sampling activity will be aquatic vegetation mapping of the four study reaches and fountain darter presence/absence dip netting in January 2015.

OBSERVATIONS AND ACTIVITIES: Besides the small bump from local rainfall this morning, total system discharge was very consistent this week (Figure 1). Unfortunately, this morning's rain event was heaviest east of I-35 with little rain occurring over the recharge zone. Wetted surface area in each of the spring runs, western shoreline, and Spring Island areas remain similar to conditions reported over the last month or so. The Upper Spring Run continues to be devoid of any significant aquatic vegetation, resulting in some of the most marginal fountain darter habitat in the system at this time (Figure 2). However, quality fountain darter habitat continues to persist in Landa Lake and the floating aquatic vegetation mats remain under control (Figure 3). As in all previous memos, the Old Channel continues to support high quality fountain darter habitat with restored native aquatic vegetation excelling (Figure 4). Similarly, large patches of *Cabomba* provide significant fountain darter habitat in the New Channel (Figure 5).

Figure 2: Upper Spring Run Reach – note lack of aquatic vegetation in the photo.

Figure 3: Floating aquatic vegetation mat condition in Landa Lake.

Figure 4: Old Channel restored native aquatic vegetation.

Figure 5: Submerged *Cabomba* providing fountain darter habitat in the New Channel.

In summary, total system discharge and water level conditions were consistent with conditions observed last week and similar to those observed over the past month. Overall, endangered species habitat continues to be impacted for surface dwelling invertebrates in the spring runs, western shoreline, and Spring Island areas, while impacts to fountain darter habitat continue to be mostly restricted to the Upper Spring Run Reach at this time.

Merry Christmas!

Brad