



MEMORANDUM

TO: Nathan Pence
 FROM: Ed Oborny (BIO-WEST)
 DATE: **December 5, 2014**
 SUBJECT: EA HCP Biological Monitoring – **Week 34**

BIOLOGICAL MONITORING UPDATES

COMAL SYSTEM:

The total system discharge at Comal Springs/River was 139 cfs this morning following a calm, steady week (Figure 1). This week marks the 34th 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: 139 12-05-2014 08:45 CST

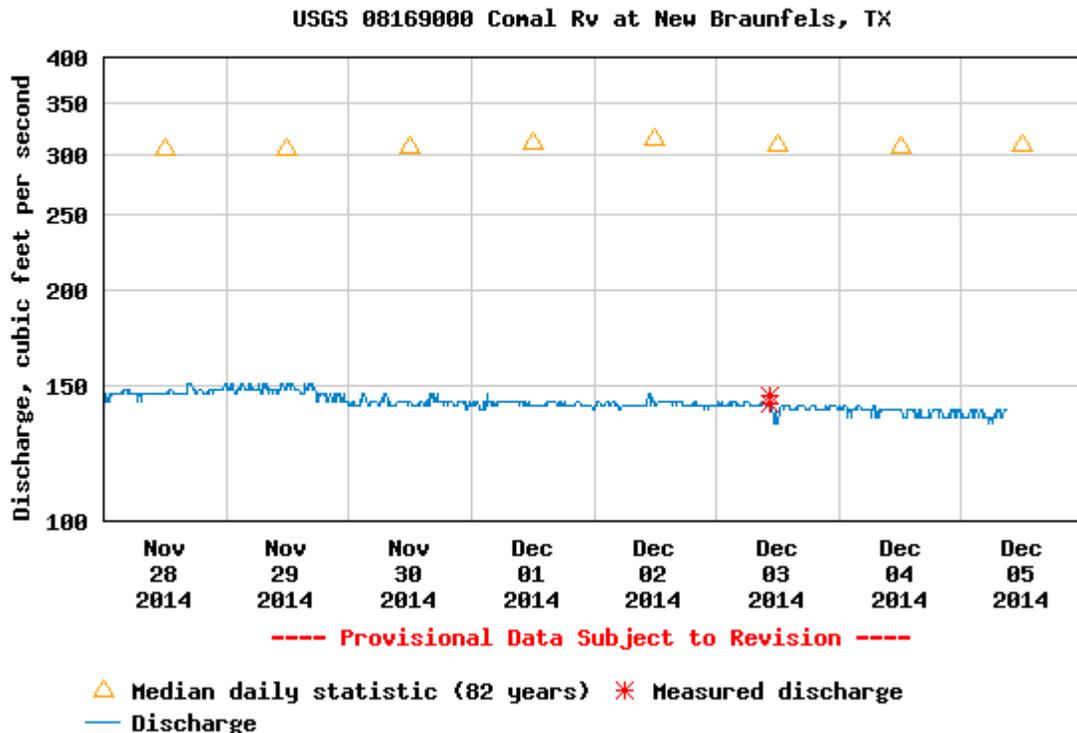


Figure 1: Screen shot of USGS webpage for the *COMAL* gage (08169000) showing total system discharge over the week.

SAN MARCOS SYSTEM:

The total system discharge for San Marcos Springs/River is approximately 125 cfs this morning after an upwards adjustment by USGS earlier this week. No Critical period sampling activities were conducted this week or are anticipated for next week.

COMAL SPRINGS/RIVER - WEEK 34 CONDITIONS:

Weekly habitat observations and photo documentation associated with HCP biological monitoring were conducted on Thursday, December 4th. 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: Total system discharge was very consistent this week (Figure 1) following last week's excitement. Increased longitudinal and lateral surface area discussed last week remained in each of the spring runs as did water level improvements in the Upper Spring Run, western shoreline and Spring Island areas. Figure 2 shows a downstream view of surface connectivity in Spring Run 1. The sedimentation discussed last week in Spring Run 3 was still very evident in the headwaters area (Figure 3) but the spring run discharge below the headwaters had self-cleaned the majority of the sediment further downstream (Figure 4).



Figure 2: Surface water connectivity in Spring Run 1.



Figure 3: Spring Run 3 sedimentation in headwaters area.



Figure 4: Spring Run 3 looking downstream below headwaters.

Fountain darter habitat in the Upper Spring Run reach continues to be in poor condition relative to the rest of the Comal system and years past. Quality fountain darter habitat continues to persist in Landa Lake and the floating aquatic vegetation mats are presently under control (Figure 5). As in all previous memos, the Old Channel continues to support high quality fountain darter habitat with restored native aquatic vegetation excelling (Figure 6) with New Channel fountain darter habitat remaining abundant as well (Figure 7).



Figure 5: Floating aquatic vegetation mat condition in Landa Lake.

In summary, total system discharge and water level conditions were very consistent over the past week. 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 are mostly restricted to areas in the upper system at this time. Although habitat throughout the Comal system is improved from this summer and early fall, conditions have not returned to those observed pre-drought.

Cheers!

Ed



Figure 6: Old Channel restored native aquatic vegetation in former sediment island area.



Figure 7: New Channel submerged aquatic vegetation remains abundant.