



MEMORANDUM

TO: Nathan Pence
FROM: Ed Oborny (BIO-WEST)
DATE: **November 21, 2014**
SUBJECT: EA HCP Biological Monitoring – **Week 32**

BIOLOGICAL MONITORING UPDATES

COMAL SYSTEM:

The total system discharge at Comal Springs/River was 131 cfs this morning following a USGS adjustment earlier in the week (Figure 1). This week marks the 32nd 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. HCP species specific low-flow monitoring activities are currently being controlled by the <150 cfs trigger.

Discharge, cubic feet per second

Most recent instantaneous value: 131 11-21-2014 07:45 CST

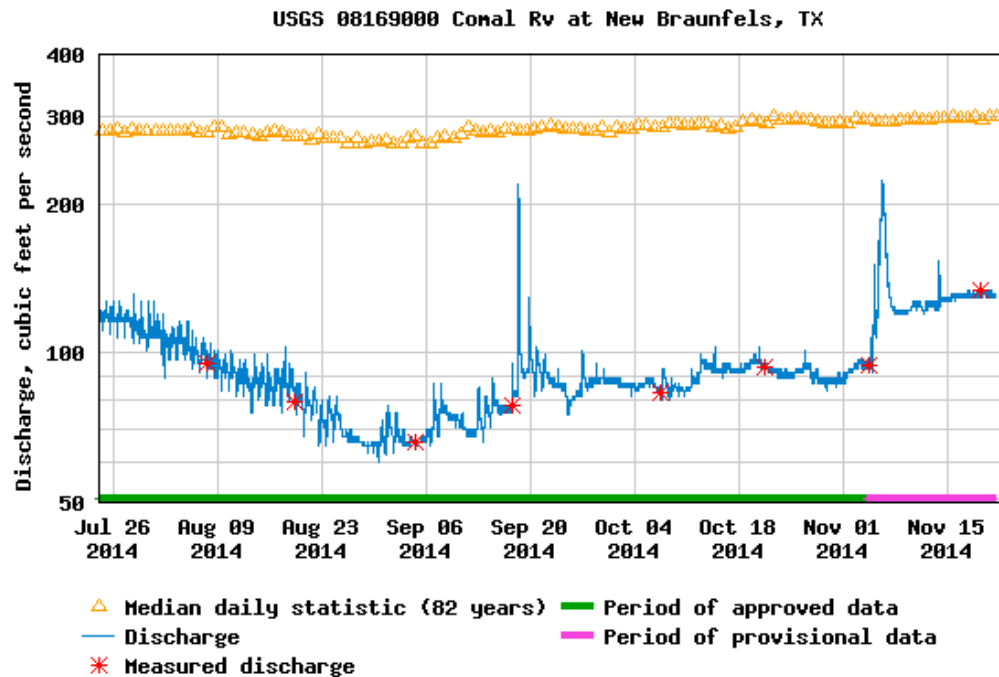


Figure 1: Screen shot of USGS webpage for the *COMAL* gage (08169000) showing total system discharge over the past four months.

SAN MARCOS SYSTEM:

The total system discharge for San Marcos Springs/River is approximately 104 cfs this morning. No Critical period sampling activities were conducted this week or are anticipated for next week.

COMAL SPRINGS/RIVER - WEEK 32 CONDITIONS:

Weekly habitat observations and photo documentation associated with HCP biological monitoring were conducted on Thursday, November 20th.

OBSERVATIONS AND ACTIVITIES:

Total system discharge was stable this week and at the highest level experienced since early summer (Figure 1). Figure 2 shows the beautiful fall colors currently being displayed in the three islands area of Landa Lake. With stable discharge this week, surface habitat for the major spring runs, Upper Spring run and Spring Island areas was consistent. Perhaps the best way to show habitat improvements since this summer and remaining impacted areas this fall is a photograph comparison from late August to this week (Figures 3 – 10). As evident in these figures, habitat throughout the system has improved considerably since late August. This is extremely evident with respect to re-wetting of surface habitat in the Spring Runs (Figures 3-6). However, an improvement also noted is the increase water levels which inundate existing rooted aquatic vegetation allowing vegetation mats that had become stuck on their leaves to float downstream (Figure 8 and 9). Although improved conditions exist relative to this past summer, impacts to habitat are still visually evident (Figure 7). The exception to the rule continues to be restored habitat areas in the Old Channel (Figure 10) which have maintained excellent fountain darter habitat throughout the year.



Figure 2: Fall Colors in Landa Lake

In summary, total system discharge, water level, and habitat conditions were stable over the past week. Although habitat conditions throughout the Comal system are clearly improved from this summer and early fall, they have not returned to those observed pre-drought.

Cheers! Ed



Figure 3: Spring Run 1 headwaters: August (Top) – November (Bottom)



Figure 4: Spring Run 1 downstream of Landa Lake Drive: August (Top) – November (Bottom)



Figure 5: Spring Run 2: August (Top) – November (Bottom)



Figure 6: Spring Run 3 headwaters: August (Top) – November (Bottom)

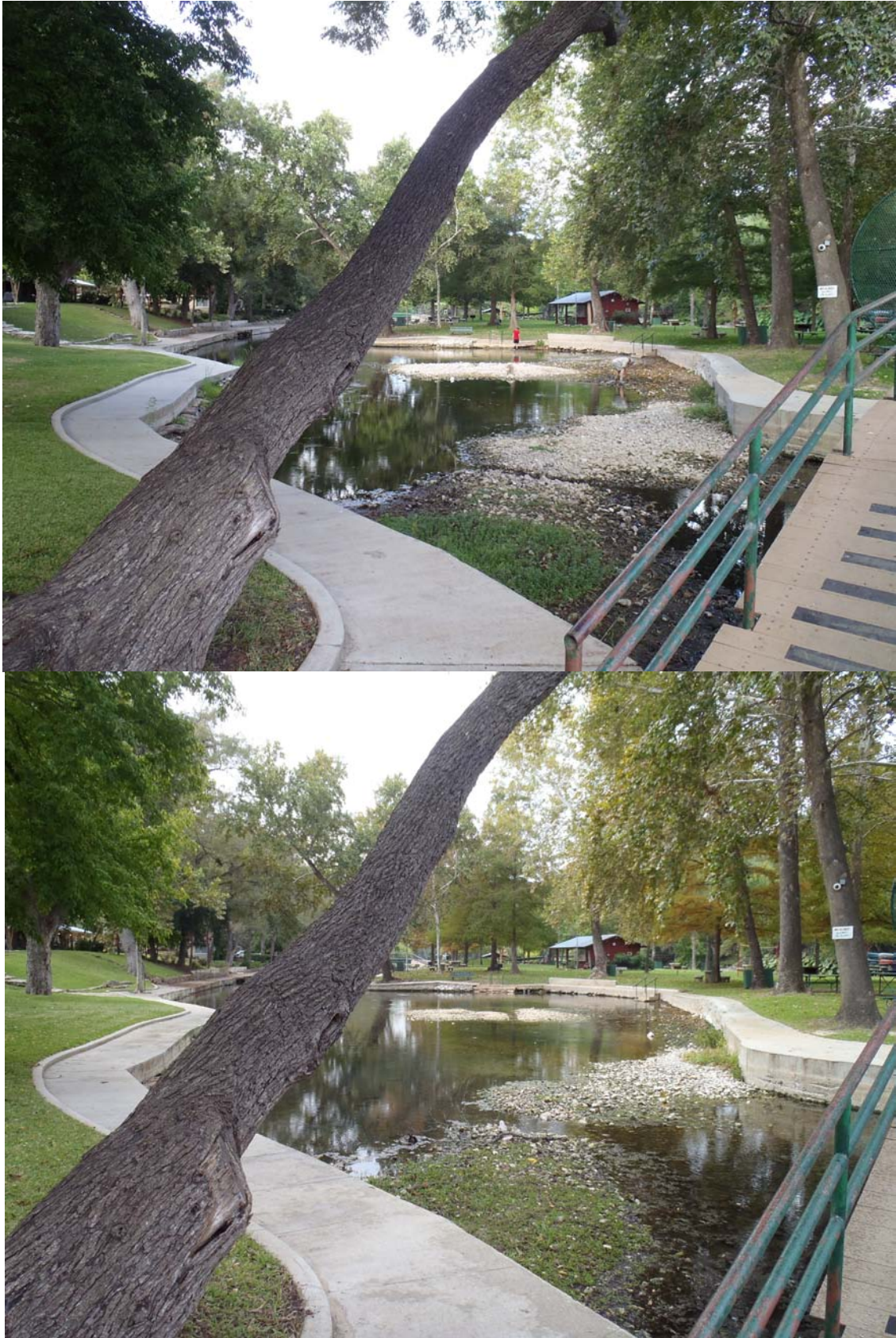


Figure 7: Spring Island Eastern Outfall: August (Top) – November (Bottom)



Figure 8: Upper Spring Run reach: August (Top) – November (Bottom)



Figure 9: Landa Lake Floating Aquatic Vegetation Mats: August (Top) – November (Bottom)



Figure 10: Old Channel Restored Native Vegetation: August (Top) – November (Bottom)