



MEMORANDUM

TO: Nathan Pence
FROM: Ed Oborny (BIO-WEST)
DATE: **May 23, 2014**
SUBJECT: EA HCP Biological Monitoring – **Week 6**

BIOLOGICAL MONITORING UPDATES

COMAL SYSTEM:

At the time of this memorandum, the total system discharge at Comal Springs was 122 cfs. This is down 9 cfs from last week's memo. As Comal Springs remained below 150 cfs for a sixth consecutive week, the required weekly habitat evaluation was conducted on May 22nd. Weekly habitat evaluations and memorandums will continue to occur until total system discharge at Comal Springs/River increases 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 the first week in June. Should total system discharge decline below 120 cfs (which is very likely next week with no significant rainfall this weekend), Comal Springs riffle beetle, Comal Springs salamander, and Comal discharge measurements/sampling will be triggered. 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 108 cfs. This is down 2 cfs from last week's memo. As part of critical period monitoring, Texas wild-rice physical measurements are to be conducted every 5 cfs decline (below 120 cfs), not to exceed one event per week. The next Texas wild-rice physical measurement sampling event will happen when total system discharge declines below 105 cfs. The first Critical Period full sampling event for San Marcos is not triggered until the total system discharge declines below 100 cfs.

COMAL SPRINGS/RIVER - WEEK 6 CONDITIONS:

Weekly habitat observations and photo documentation associated with HCP triggered sampling were conducted on Thursday, May 22nd. All pictures in this memorandum were taken on that date.

OBSERVATIONS AND ACTIVITIES:

The total system discharge at Comal Springs was down approximately 9 cfs (Figure 1) since last week's memorandum as groundwater levels that received a slight bump from the previous week's rain started to decline again this week. Overall, habitat conditions were similar this week to last week's observations.

Discharge, cubic feet per second

Most recent instantaneous value: 122 05-23-2014 06:45 CDT

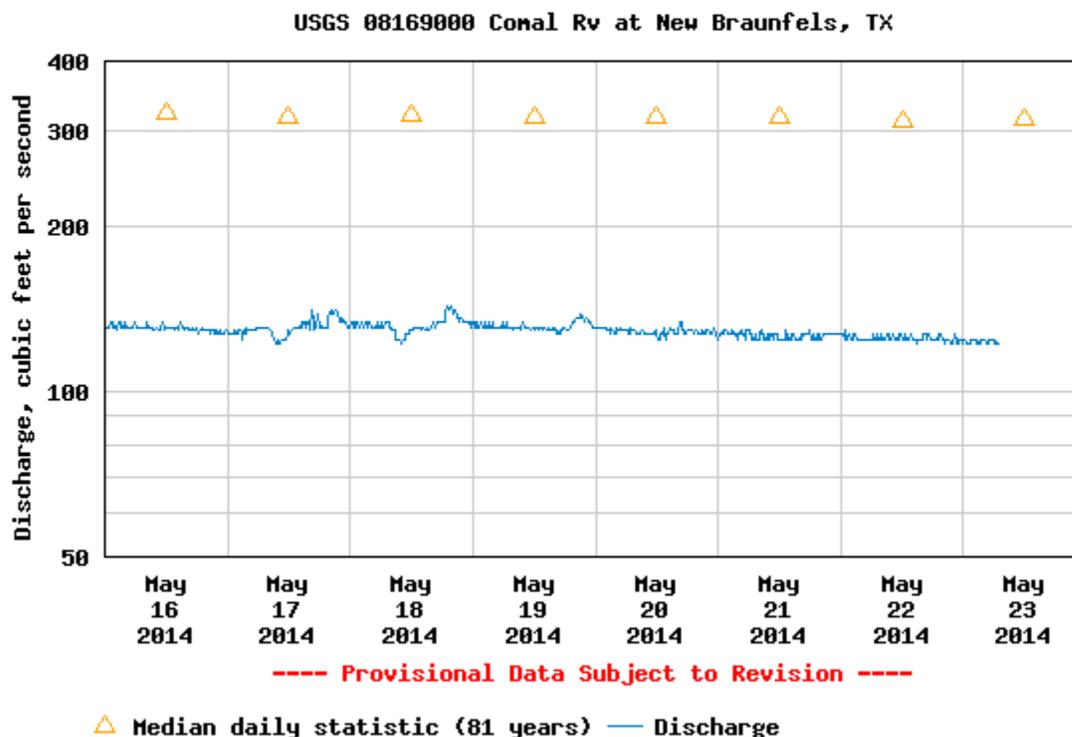


Figure 1: Screen shot of USGS webpage for the *COMAL* gage (08169000) showing total system discharge over the past week.

The two major orifices at Spring Run 1 continued to support limited surface discharge on May 22nd (Figure 2) and albeit extremely constricted in places, surface flow connectivity was being maintained from the main orifices throughout the longitudinal extent of the spring run. Similar to all five previous memos, Spring Run 2 continues to maintain surface flow for the main portion of the channel while Spring Run 3 continues to maintain connectivity throughout the run. Algae continue to be interspersed with bryophytes in most of the Upper Spring run reach (Figure 3) and stagnant conditions in Spring Run 5 have returned (Figure 4). Fountain darters are still occupying this upper reach at this time. The surface water level in the Spring Island area declined slightly this past week exposing a bit more surface habitat adjacent to the island (Figure 5) and causing stagnant conditions in the southern run of Spring Run 6 (Figure 6). Spring flow continues to expel from Spring Run 7 (Figure 7) and fountain darter habitat conditions in Landa Lake continue to excel. As mentioned for several weeks now, floating vegetation mats (Figure 8) will likely continue to be a concern all summer with the potential for shading underlying habitats. The heavy mat reported immediately above the fishing pier last week had been efficiently removed and was no longer present.

In addition to the lake, fountain darter habitat continues to thrive in the Old Channel (Figure 9) and New Channel (Figure 10). As predicted, the previous weeks rain that caused turbid conditions in the New Channel did not have any appreciable effect on the aquatic macrophytes in that stretch of river.



Figure 2: Spring Run 1 main orifices exhibiting surface discharge (May 22nd)



Figure 3: Upper Spring Run reach mix of bryophytes, macrophytes and algae.



Figure 4: Stagnant conditions in Spring Run 5.

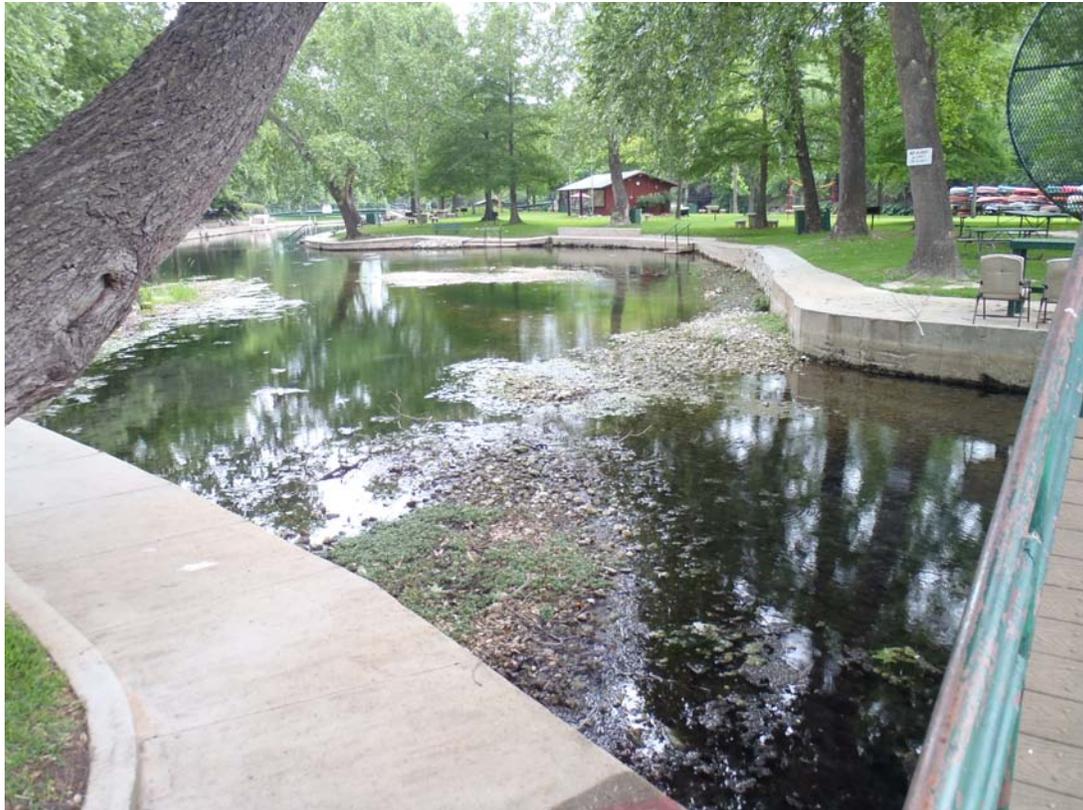


Figure 5: Exposed surface habitat adjacent to Spring Island area



Figure 6: Stagnant conditions in southern channel of Spring Run 6 on Spring Island



Figure 7: Good surface flow from Spring Run 7 on western shoreline.



Figure 8: Floating vegetation mat condition in Landa Lake.



Figure 8: Large snapper enjoying the restored habitat in the Old Channel.



Figure 9: Extensive fields of *Cabomba* in the New Channel

Relative to last week's report, endangered species habitat conditions in the Comal Springs/River were similar. The system continues to support quality fountain darter habitat conditions in all but the Upper Spring Run reach. Although reduced habitat conditions remain in the Upper Spring Run reach, fountain darters are persisting. Floating vegetation mats in Landa Lake remain a concern and will need attention all summer long should total system discharge remain low. Surface habitat for the endangered Comal invertebrates was slightly worse this week with a bit more exposed area.

No HCP biological monitoring activities were conducted on the San Marcos system this past week. As previously mentioned, the first Critical Period full event trigger for San Marcos is not until 100 cfs.

Have a wonderful Memorial Day weekend!

Ed