MEMORANDUM

TO:	Nathan Pence
FROM:	Ed Oborny (BIO-WEST)
DATE:	**October 31, 2014**
SUBJECT:	EA HCP Biological Monitoring – **Week 29**

BIOLOGICAL MONITORING UPDATES

COMAL SYSTEM:

The total system discharge at Comal Springs/River was 91 cfs this morning. This week marks the 29th consecutive week below 150 cfs total system discharge, and therefore, the required weekly habitat evaluation was conducted on October 30th. Weekly habitat evaluations and memorandums 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 continue to be driven by the <120 cfs trigger. Fall Comprehensive sampling continued with the following activities associated with HCP Biological Monitoring at Comal Springs completed thus far and anticipated for next week:

COMPREHENSIVE AND CRITICAL PERIOD MONITORING

- Completed
  - Benthic macroinvertebrate sampling in aquatic vegetation.
  - Flow partitioning transects in the Upper Spring Run area and Landa Lake.
  - Comal Springs discharge measurements.
  - Comal Springs salamander sampling.
  - Aquatic vegetation mapping in intensive study reaches.
  - Fish community sampling via SCUBA and seine.
  - Fountain darter drop netting at all intensive study reaches.
  - Fountain darter presence/absence dip netting (standard and fixed method).
  - Fountain darter timed dip net surveys.
  - Water quality grab samples and thermister downloading.
  - Weekly photo documentation and habitat evaluation – critical period.

- November 3 - 9
  - Fixed station photography
  - Fountain darter visual SCUBA survey in Landa Lake.
  - Weekly photo documentation and habitat evaluation – critical period
  - Comal Springs discharge measurements – critical period
  - Comal Springs salamander sampling – critical period

SAN MARCOS SYSTEM:
The total system discharge for San Marcos Springs/River is approximately 103 cfs this morning. No Critical period sampling activities were conducted this week or are anticipated for next week. Fall Comprehensive sampling this week included San Marcos salamander surveys and Texas wild-rice physical habitat measurements. The final activity to wrap up the Fall Comprehensive event will be fish community sampling in Spring Lake scheduled for next week. Figure 1 shows a San Marcos salamander in Spring Lake hanging out for an underwater photo shoot while Figure 2 shows an interested bystander. Figures 3 and 4 show Texas wild rice stands in Spring Lake and a cool shot of a hummingbird nest near the dam, respectively.

Figure 1. San Marcos salamander in the Hotel Reach survey area on October 28th.

Figure 2. Interested bystander during salamander surveys in Spring Lake.

Figure 3. Texas wild-rice stands in Spring Lake just upstream of the eastern spillway.

Figure 4. Hummingbird nest on the upstream side of the dam in Spring Lake.

COMAL SPRINGS/RIVER - WEEK 29 CONDITIONS:
Weekly habitat observations and photo documentation associated with HCP biological monitoring were conducted on Thursday, October 30th.

OBSERVATIONS AND ACTIVITIES:
Discharge was very stable throughout the system again this week with fluctuations of only a few cfs. As such, surface habitat for the major spring runs, Upper Spring run and Spring Island areas remained similar relative to water level and discharge. Exposed surface area (Figure 5) continues to be present in all three areas along with green algae (Figure 6) build-up at various levels in all three as well.

Extensive fountain darter sampling was conducted this week via dip netting and drop netting (Figure 7) throughout the Comal System. Results are currently being analyzed but preliminary observations show a large number of small darters were found throughout the system. In particular, the furthest downstream dip net sampling location in the Comal River (approximately 1,000 meters upstream of the confluence with the Guadalupe River) had several patches of high quality habitat (Figure 8) and a large number of fountain darters within. This included very small individuals suggesting recent reproductive activity. Fountain darter habitat continues to be in less suitable condition in the Upper Spring Run reach but fountain darters (including small ones) continue to be collected there. Quality fountain darter habitat continues to persist in Landa Lake but not without impacted areas. The condition of floating aquatic vegetation mats in Landa Lake is shown in Figure 9. As in all previous memos, the Old Channel continues to support high quality fountain darter habitat with thriving restored native aquatic vegetation (Figure 10) while the New Channel continues to support darters but not to the level of Landa Lake or the Old Channel.
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In summary, total system discharge, water level and habitat conditions were very stable this past week. Endangered invertebrate habitat continues to be impacted for surface dwelling invertebrates as noted in previous weeks. Although not without impacts, fountain darter habitat throughout the Comal system continues to support fountain darters as well as darter reproduction throughout the system. The restored native aquatic vegetation areas in Landa Lake and the Old Channel continue to provide excellent fountain darter habitat.

Happy Halloween!

Ed

Figure 5: Exposed substrate in the eastern outfall of Spring Island.

Figure 6: Green algae build-up in the Upper Spring run reach.

Figure 7: Drop net sampling fun in the Old Channel of the Comal River.

Figure 8: High quality fountain darter habitat at the furthest downstream sampling point in the Comal River.

Figure 9: Floating aquatic vegetation mat condition in Landa Lake.

Figure 10: Restored native aquatic vegetation in Old Channel.