

**LCRA-SAWS Water Project
Scientific Review Panel Riverine Aquatic Habitat Committee Comments**

**Draft 2004 Activities Report
Colorado River Flow Relationships to Aquatic and State Threatened Species: Blue
Sucker**

The Scientific Review Panel Riverine Aquatic Habitat Committee found the Draft 2004 Activities Report: 'Colorado River Flow Relationships to Aquatic and State Threatened Species: Blue Sucker', indicates the project team is progressing well with the tasks of habitat mapping, intensive site selection, blue sucker activities and fish guild development.

Below we provide a few questions and comments to information provided in the report.

Habitat Mapping and Intensive Site Selection

1. SRP had original concern that the hydraulic modeling sites (representative reaches) over emphasized boulder and riffle areas (Table 3 compared to Table 1) were adequately addressed in the descriptions of each site. Wherein the project team explained that present information leads to the conclusion that such areas are likely favored or preferred habitat for the adult Blue Sucker, hence the overemphasis on boulder and riffle areas. Likewise in their description of the sites, they allayed concern of how they were going to take into account areas from a water quality perspective (see their list at bottom of page 7). Proximity to major wastewater treatment plants was mentioned as the way that was taken into account.

2. SRP still has some questions over project team's use of mesohabitat as a useful and consistently used ecological term in the context of the study. Reading the text on page 7 was confusing in that the terms, mesohabitat, major mesohabitat, habitat, reach of stream, representative reach of stream, overall segment, areas, special aquatic habitat features all were used. One questions then whether minor mesohabitats exist and what they are and how different they are from habitats. This meaning and terminology question becomes more confusing when Tables 1 and 2 are included and additional terms and "habitats" are presented. SRP suggests inclusion of a hierarchical table with exact terminology and specific spatial scale and examples be included to ease interpretation.

3. Specific Comments:

The use of a 100 meter buffer should be justified in the mapping of the adjacent land use and riparian systems for the study (Page 4).

Page 4 – "Field activities consisted of two biologists evaluating all major roadways and numerous minor roadways that cross or run adjacent to the river." The SRP doubt that the biologists in fact evaluated roadways!

Page 5 – “...aquatic biologists who have experience or gained experience through this study..” We are a bit concerned that on the job training underpins the QA/QC step for the study.

Page 8 – “On December 8, 2004, the project team conducted an aerial reconnaissance of the ten proposed sites to evaluate the post-flood condition of the sites. A qualitative evaluation of impacts to each site was conducted.” What was the result of this evaluation and its implication to the study?

Table 3 and 4 need to have some type of linkage back to the reach level summary tables of habitat and riparian features with better justification that the habitat and riparian types are adequately represented at the study site level than given in the descriptions in the following section of the report.

4. Study Site delineation boundaries:

Intensive Study Site 3: The top end of site 3 may pose a problem in the hydraulic modeling if flow levels split the channel around the wooded island. Special care should be taken to ensure the flow split relationships are captured during the calibration data collections. Alternatively, the site could be extended around the corner into the single channel section to avoid this problem.

Intensive Study Site 4: The site boundary on the inside of the bend should be widened since it appears that some areas of the overflow channel may be missed as represented with the line work. I would also extend the upper right of the study site past the small wooded island strip into the single channel section (see notes on site 3 above).

Intensive Study Site 5: The upper right lower spatial extent of the study site should be extended to include the full overflow channel on the inside of the bend. It should also be extended on the right upper side to the single channel where the overflow channel begins.

Intensive Study Site 6: The right boundary of the study site should not end on the split channel as this can be problematic for calibration and modeling. Efforts should be made to start and end the study sites in straight single channel sections to avoid potential calibration and simulation problems.

Intensive Study Site 7: The inside boundary should be adjusted to be sure the complete overflow channel is included.

Intensive Study Site 9: The bottom end of the study site should be extended into the single channel section.

Blue Sucker Tracking

1. Fixed Station. The SRP in October 2004 recommended consideration of more than one fixed station for tracking blue suckers. The report documents the installation the fixed tracking station in Altair. SRP notes that blue suckers were caught, tagged and released at various locations along the length of the Colorado River. The report also acknowledges difficulty tracking blue suckers at higher flows by plane due to deeper waters, but notes fish could be tracked under higher flows by land. The land/boat tracking of tagged blue suckers is important in that it provides location and more specific habitat use by suckers. However, logistically and time wise such tracking is expensive. Again, SRP questions why additional fixed stations are not used in the study and at least implemented close to the up- and down-stream boundaries of released tagged fish. This would ensure some degree of tracking of fish during high flow periods. If cost were a factor, SRP suggested at the October meeting that a reduction in frequency of land/boat tracking might be justified. SRP suggests the project team provide an ecological/economic cost benefit rationale for additional fixed stations.

2. Post tagging mortality of fish. Many studies of tagged fish indicate high mortality/expelled tags (as high as 50%) within several months of release. Does the project team have a plan/method to assess such mortality? For example, expelled tags can wash downstream indicating “fish” movement. Alternatively, caught tags/dead fish can appear not to have moved between sampling dates. Such occurrences can affect the ecological interpretation of the tagging study and requires consideration now that the tracking study is underway.

3. Figures. With just a couple of tracking surveys completed, the summary data provided were clear and concise with regard to activity of tagged fish. However, as more sampling is done, activity of individual fish, activity of the group of fish tagged at each site and net activity of all tagged fish may be difficult to determine from written summaries and data in table form only. The project team should consider various types of ways to graphically present the data.

Fish Guild Development

1. The first paragraph (page 26) introduces the focus on 3 specific habitat types (backwaters, side channels and tributaries). And later states, “A total of 15 sites were selected, three of each habitat type.” SRP came up with a different distributional count of 8 creeks, 5 side channels and 2 backwaters.

Section 5.1 Although the report indicates that “Depth and velocity were the two primary factors, but substrate was also considered in selecting sites.”, no specific quantitative ranges are provided and the report should be modified to be clear on this important set of criteria. The report primarily focuses on depth in its descriptions.

Section 5.2 The report indicates that “At each prospective site the depth and substrate were recorded along with GPS coordinates.” How many points were collected? What sampling strategy was used to locate measurement point(s)? It is somewhat unclear how

these sites were actually selected. Some rationale for selection of these sites need to provided and justified. In all the site descriptions, no velocity data is provided but is highlighted as key variable in site selection.

Section 5.3 Utley site “...flows ranged from 0.01 to 0.10 m/s ...” is likely velocities and flow.

LaGrange site “ ... flows ranging from 0.03 to 0.07 m/s ...” velocity please.