



Response: Focus of this study is the 80 ft deep semi-perched aquifer, and there is limited data available on this groundwater region.

## **Water Quality**

Question: Was copper a parameter that was historically exceeded?

Response: Yes, in the past. City has done much to address copper issue, now levels are below limit.

Question: How often did sondes record measurements?

Response: Every 15 minutes.

Question: How many water quality data points contribute to the plots that show nitrogen species concentrations at different locations?

Response: Dozens of samples were used to develop average concentrations at each location.

Question: Is the Copper standard a monthly average or is there a maximum daily value?

Response: The VWRf permit includes this information, but exact values not available during meeting. (Note permit values in 2008 permit are 4.2 ug/l monthly average and 8.8 ug/l max month)

Question: Does the Estuary water temperature get warmer than 25 degrees C?

Response: This information will be in the report, not available during meeting. Additionally noted that the warmer temperatures are due to air temperature rather than the VWRf discharge.

*Comment:* The study should look at the temperature impacts of the VWRf discharge on Estuary temperature.

Response: These effects are anticipated to be small. A detailed assessment will not be conducted but temperature impacts will be addressed.

*Comment:* It is critical that VWRf temperature impacts are understood as this relates to steelhead impacts. This should be a component of understanding Estuary health.

Question: What information is provided by the temperature profile data?

Response: Temperature profiles generally show the completely mixed system.

*Comment:* In the nitrogen nutrient balance, some of the inorganic nitrogen species do not remain in the same state for that long. Can the change in nitrogen species be included in the water balance?

Response: There is more nitrogen in the Estuary than needed to promote algal growth. Even with aggressive reductions in nitrogen, there is still going to be excessive nutrients for algal growth. Algae are likely limited by other parameters such as light.

## **Ecosystem Functioning**

*Comment:* In Jan/March, terns are not nesting. Slides/analysis for this time period can be eliminated.

*Comment:* In Jan/March the Estuary is an adult steelhead migration corridor.

*Comment:* This is a simplified model of habitat. Habitat is also linked to vegetation which would change if water level changes.

*Response:* If there is input on what these criteria should be then it would be useful to have this input for the study.

*Comment:* Bacterial water quality should be considered as a potential impact on migration.

*Response:* The improvements to the treatment plant (under construction) will reduce bacterial concentrations in the effluent.

*Comment:* There have been large “burps” of coliform that is discharged to the beach

*Response:* The ponded lagoon is a natural system not a creation of the VWRP, and there are many sources of coliform.

*Question:* If the stage of the Estuary is higher due to the VWRP discharge then artificial breaching would occur more frequently.

*Response:* Agree that natural breaching is the more desirable type of breach.

*Comment:* For example, assuming that the Estuary stage is 7 feet max then there is more inundated vegetation and more edge habitat. Seems that the study should look at habitat availability over time under a natural flow condition and that water quality should be included in the evaluation of habitat. Therefore, alternatives need to look at habitat availability as a function of time.

*Question:* Is the effect of the discharge on macroinvertebrate habitat a part of the analysis?

*Response:* No it is not. The approach is more simplified and is based on qualitative changes in water quality.

*Comment:* If macroinvertebrate data are available and included in the scope of work then the report should include these data.

*Question:* How saline is the Estuary?

*Response:* When closed, approximately 3,000-6,000 uS/cm (approx. 2–4 psu), When open, approximately 25,000 to 50,000 uS/cm (approx. 17–36 psu).

## **Scenarios**

*Comment:* Consider looking at something other than all or nothing flow in the Estuary. Is there some portion of the discharge that would maintain the existing extent/habitat of the Estuary?

*Comment:* Consider treatment wetlands for quality improvement and for maintaining habitat, with the wetlands located at a slightly upstream location.

*Comment:* In general the City should be looking into further developing their recycled water system. There was Prop 84 money that the City could have taken advantage of.

*Comment:* Evaluate wetlands in combination with recycled water. Determine what is the “correct” discharge into the Estuary. Also, what are the upstream diversions that could contribute to a watershed solution? In addition, the alternative evaluation should consider water quality as a critical component.

*Question:* What if UWCD did not divert water under low flow conditions and instead the water was left in the river.

*Response:* (Dan Detmer) Water below freeman diversion would not make it to the Estuary.

*Comment:* If the full Estuary stage is 10 feet, then the beach berm is still going to form to a height above 10 feet. Would this scenario make it harder for a mechanical (artificial) breach? Consider maximizing habitat with stage height but minimizing opportunities for a mechanical breach.

*Comment:* Currently, there is an effective inter-basin transfer from the Ventura River to the Santa Clara River, as much of the water in the river/estuary did not originate in the Santa Clara River Watershed. The City should embark on an integrated, city-wide, water management plan. The future direction for the City should be 100% reuse/reclamation. The City should implement different types of solutions including decentralized treatment, greywater reuse, requirements for new developments, etc. Also, consider moving the discharge to an upstream location to supplement groundwater in the Oxnard Plain.

*Comment:* Analysis should consider moving the discharge to an upstream location (i.e. downstream of Freeman) and how the discharge would behave in the perched zone.

*Response:* Note that in the region of the Freeman diversion, the baseflow percolates at 80 cfs.

*Comment:* A zero discharge in the Estuary would “trash” the Estuary.

*Comment:* Consider looking at a zero VWRP discharge scenario and then evaluating how much additional flow is needed in the Estuary, where this additional flow would be provided by other sources. This approach would provide a mechanism to justify the need to providing other sources of flow in the river.

*Comment:* Analysis should include how wetlands and recycled water can be used in conjunction with the Estuary alternatives.

*Comment:* Consider urban water reuse in combination of treatment wetlands at the The Nature Conservancy site.

*Comment:* The City should embark on a long range plan for the inevitable, where there is a 15 foot sea level rise. The long term approach needs to focus on more efficient use of water.

*Comment:* Discussion of recent artificial breach and the fish samples that were collected. Analysis includes determination of whether fish are anadromous steelhead. Discussion also included a request to test the fish for signs of sex change. Discussion included that there was probably a very short residence time of these fish in the Estuary and that this was not an appropriate basis for evaluating the potential effects of the discharge on the sex of fish species.

*Comment:* Consider evaluating the potential for the VWRP discharge to have sub-lethal effects on species. Analysis should include the sub-lethal effects of copper and any other studies that have been done to document this potential impact.

*Comment:* It is a significant effort to look at the potential fine-scale effects of the discharge on fish species. However, in general, the fish are not going to do well without water in the Estuary.

### **Next Steps**

- Meeting minutes and presentation materials will be posted on City website.
- Next stakeholder meeting will be in February 2011.