Federal responses to SFWMD document authored by Garth Redfield December 20, 2006 TOC Meeting

General comments

We believe the Consent Decree specifically asks TOC to compare the long-term limits and levels prescribed in Appendices A and B for the Park and Refuge, respectively, to determine which is lower (Refuge) and which is more stringent (Park). The discussion of which is more protective contained in the Redfield document is beyond the scope of the Consent Decree's charge, but we would be willing to engage in such a discussion at a later time and in a difference venue.

In response to questions posed by TOC representatives to the Principals at the June 2006 meeting, we submitted a document at the November 2006 TOC meeting providing answers to these questions of which is lower and more stringent from the federal Principals. That document provides the federal position with respect to which is lower and more stringent, and the general findings are summarized below.

In summary for the Refuge, compliance with the long-term levels is expected to provide a long-term average 14-station interior marsh total phosphorus concentration of 7 ppb. The Phosphorus Rule establishes a long-term geometric mean of 10 ppb as the numeric phosphorus criterion throughout the Refuge. It would appear self-evident that the Refuge long-term level under the Consent Decree, 7 ppb, is lower than the numeric criterion for the Refuge, 10 ppb, under the Rule.

In summary, for the Park, compliance with the long-term limits is expected to provide a long-term flow-weighted mean total phosphorus concentration of 8 ppb for inflows to the Shark River Slough Basin, and 6 ppb for the Taylor Slough and Coastal Basins. The Phosphorus Rule establishes a long-term geometric mean of 10 ppb as the numeric phosphorus criterion throughout the Park. Again, it would appear self-evident that the Park long-term inflow limits under the Consent Decree, 8 and 6 ppb, are more stringent than the numeric criterion for the Park marsh, 10 ppb, under the Rule.

For a more detailed discussion of this comparison, please refer to the document entitled "Federal responses to 6/26/06 TOC questions" dated November 3, 2006, and posted on the TOC web site.

Specific comments

<u>Item #1:</u>

It is highly uncertain that the State's Phosphorus Rule, with the potential for implementation of moderating provisions and potentially indefinite extensions of timelines for cleanup, provides more protection than the Consent Decree. Further, it is unclear at best, and unlikely at worst, that the Consent Decree could be made more

protective simply by replacing the long-term levels and measurement regime in Appendix B with the State's Phosphorus Rule.

The Settlement Agreement does not call upon the TOC to quantify which test is lower (i.e., which compliance regime is more protective); it simply calls upon the TOC to compare the numeric values of the long-term levels in the Decree to the numeric criterion in the Class III standard.

While it is true that the State met both the interim and long-term levels in the Refuge during the past Water Year (May 1, 2005 – April 30, 2006), it should be noted that that trend has not continued – the State failed to meet the long-term levels of Consent Decree Appendix B in September 2006, just four months before those levels take effect.

As it pertains to impacted areas in the Refuge under a monitoring network which remains undefined by the state parties, the four-part test may provide useful information. But it may not be lower than Appendix B or even comparably protective of the impacted areas in the Refuge if moderating provisions prescribed in the State's Phosphorus Rule for the impacted areas are approved. Although Dr. Redfield argues that Appendix B tolerates high phosphorus concentrations in the impacted areas, Appendix B, unlike the four-part test, protects the impacted areas by requiring restrictions on discharges to the Refuge at 50 ppb or less. In any event, the four-part test may tolerate high concentration levels in impacted areas. Not achieving the four-part test due to high phosphorus levels in impacted areas may not, if moderating provisions in the State's Phosphorus Rule are approved in a case-specific context, result in any required remedial action so long as the District is implementing the Long-Term Plan. In contrast, failure to achieve the Appendix B long-term levels test on two or more occasions within twelve monthly sampling periods requires the State and District to implement further remedial measure including reducing phosphorus concentrations in discharges to the Refuge below the currently required 50 ppb, expanding STAs, and requiring more stringent BMPs.

It is not self-evident that the Consent Decree could be satisfied by achieving "overall" lower concentrations in the Refuge. The Consent Decree's objective for the Refuge is to eliminate excess phosphorus in inflows to the Refuge, so that impacted areas are restored and unimpacted areas are protected from eutrophication. In order to achieve this objective, the measurement regime needs to accurately, reliably, and timely identify and characterize excess phosphorus in inflows. This cannot be accomplished by measuring "overall" lower concentrations in the Refuge, as Dr. Redfield contends the Phosphorus Rule will do.

With respect to Dr. Redfield's comments about EPA, EPA did not compare the protectiveness of Appendix B and the Phosphorus Rule. As explained in the federal guidance to the TOC in November 2006 (posted on the TOC website), EPA simply determined that application of the State's Class III criterion of 10 ppb using only the 14-station network would not measure water quality conditions in the entire Refuge, to ensure that the State's numeric criterion is, in fact, applied throughout the water body, as required by the Clean Water Act and EPA's regulations. It is entirely possible that

Appendix B provides greater protection than the State's Phosphorus Rule for the Refuge, or at least for the portions of the Refuge it measures.

The Consent Decree requires compliance with 50 ppb inflow limits before 2007 and lower than 50 ppb after 2006. The District's admission that STAs are discharging at concentrations above 100 ppb demonstrates the necessity of imposing limits on discharges to the Refuge, which currently can be no higher than 50 ppb in light of the exceedance-related violations that occurred every year from 1999 through 2004. The United States awaits the State's development of permits that meet the requirements of the Consent Decree for the structures discharging to the Refuge.

With respect to the last paragraph of #1, the federal TOC representatives submitted detailed comments on Dr. Goforth's analysis at the November 2006 TOC meeting, disagreeing with his approach. This document entitled, "Federal technical response to June 2006 Goforth memo to TOC", dated November 7, 2006, is posted on the TOC web site. The Goforth Analysis is further flawed because it fails to account for biases that result from DEP's rounding methodology in computing compliance requirements associated with the four-part test, and from the differences in confidence levels used in developing the four-part test and the Appendix B equations (also see Walker report submitted to December 2006 TOC, entitled, "Comparison of methods for tracking marsh phosphorus concentrations in Loxahatchee National Wildlife Refuge under the Consent Decree).

Item #2:

Regarding this section's comments on EPA, please refer to our comments under Item #1.

Item #3:

The first sentence in the second paragraph states, "In order to be protective, any compliance system must have the capability to respond to phosphorus inputs from the Refuge's peripheral canal." This statement concedes that the measurement regime must accurately, reliably, and timely identify and characterize excess phosphorus in inflows, which cannot be accomplished by measuring "overall" lower concentrations in the Refuge, as the District contends the Phosphorus Rule will do. If the State is willing to work collaboratively to scientifically demonstrate which measurement regime better provides this protection, the United States would agree.

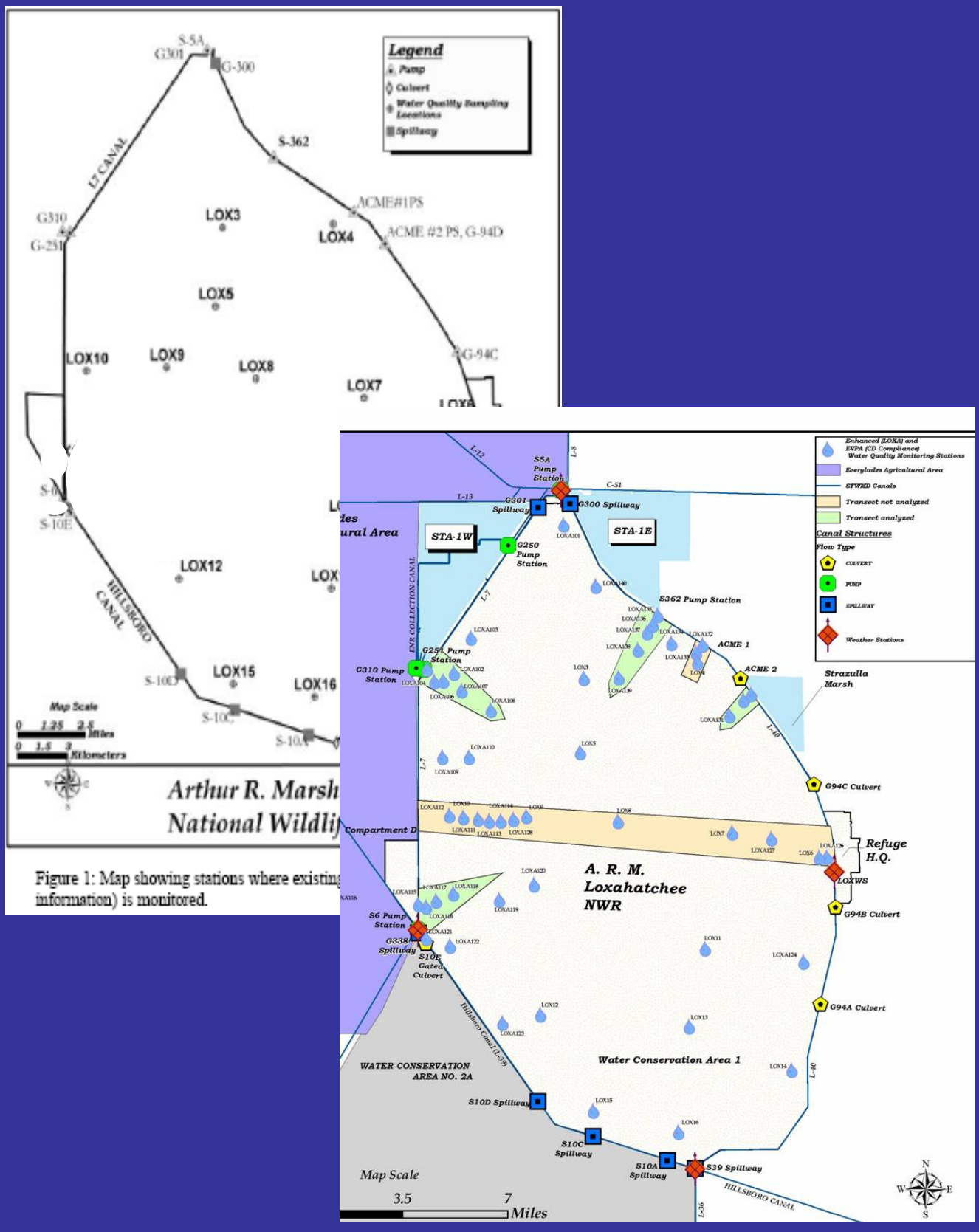
Item #4:

The arguments under this item already have been refuted by the United States and rejected by the Court. In addition, preliminary results from the Refuge's annual report concerning its enhanced monitoring and modeling program corroborates the federal position that exceedances of the Appendix B levels are influenced by loads penetrating the interior Refuge from the rim canals. This Report will be published in the near future. Attached at the end of this report is a presentation that provides a preview of that report.

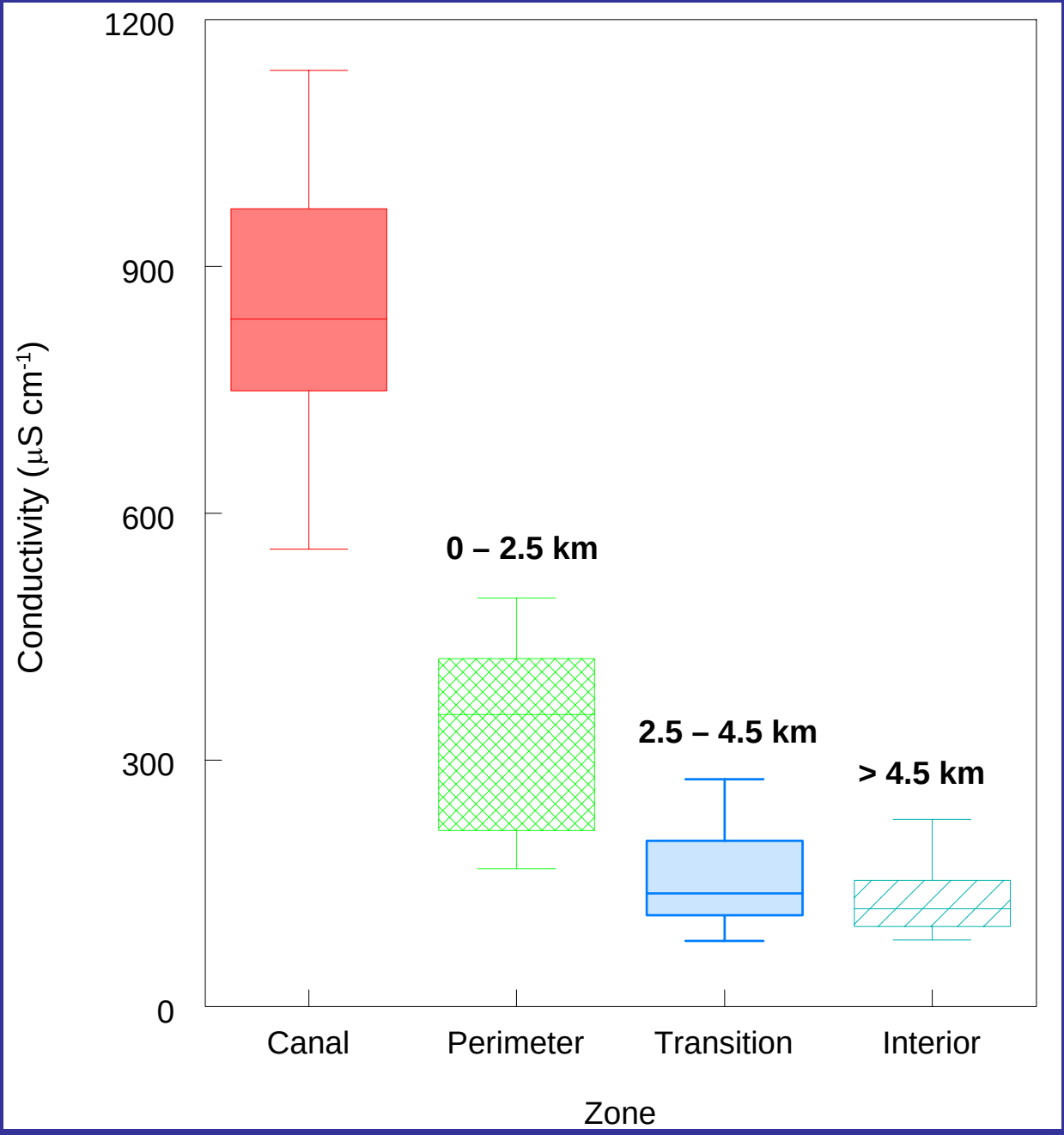
Item #5:

Regarding the second paragraph under this item, under the Consent Decree, it is the State that bears the burden of achieving water quality compliance, not the United States. If the levels are violated, as they have been in the Refuge, the State bears the burden to lower the inflow limitations, not to seek transfer to the United States a burden to prove need for lower inflow limitations. The State must carry its burden with appropriate permits for the structures discharging to the Refuge.

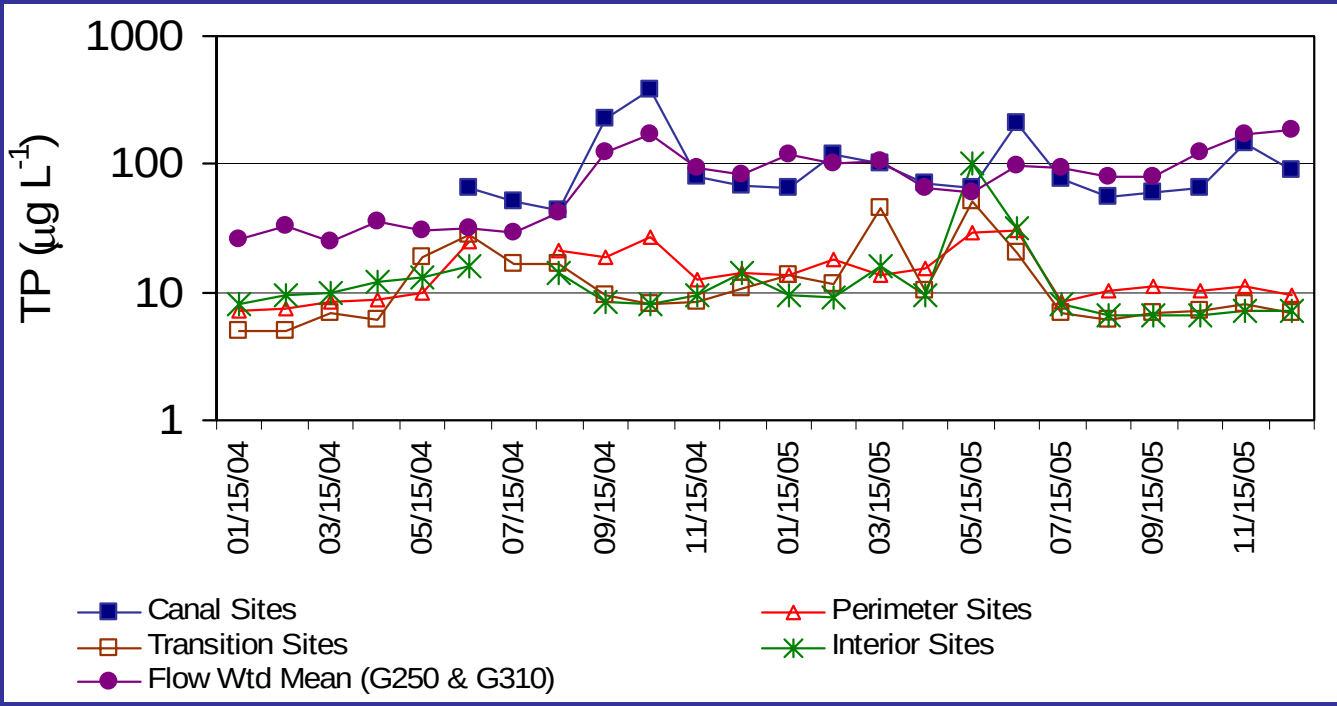
Enhanced WQ Network



Marsh Zone Characterization



TP in the Marsh - geometric mean



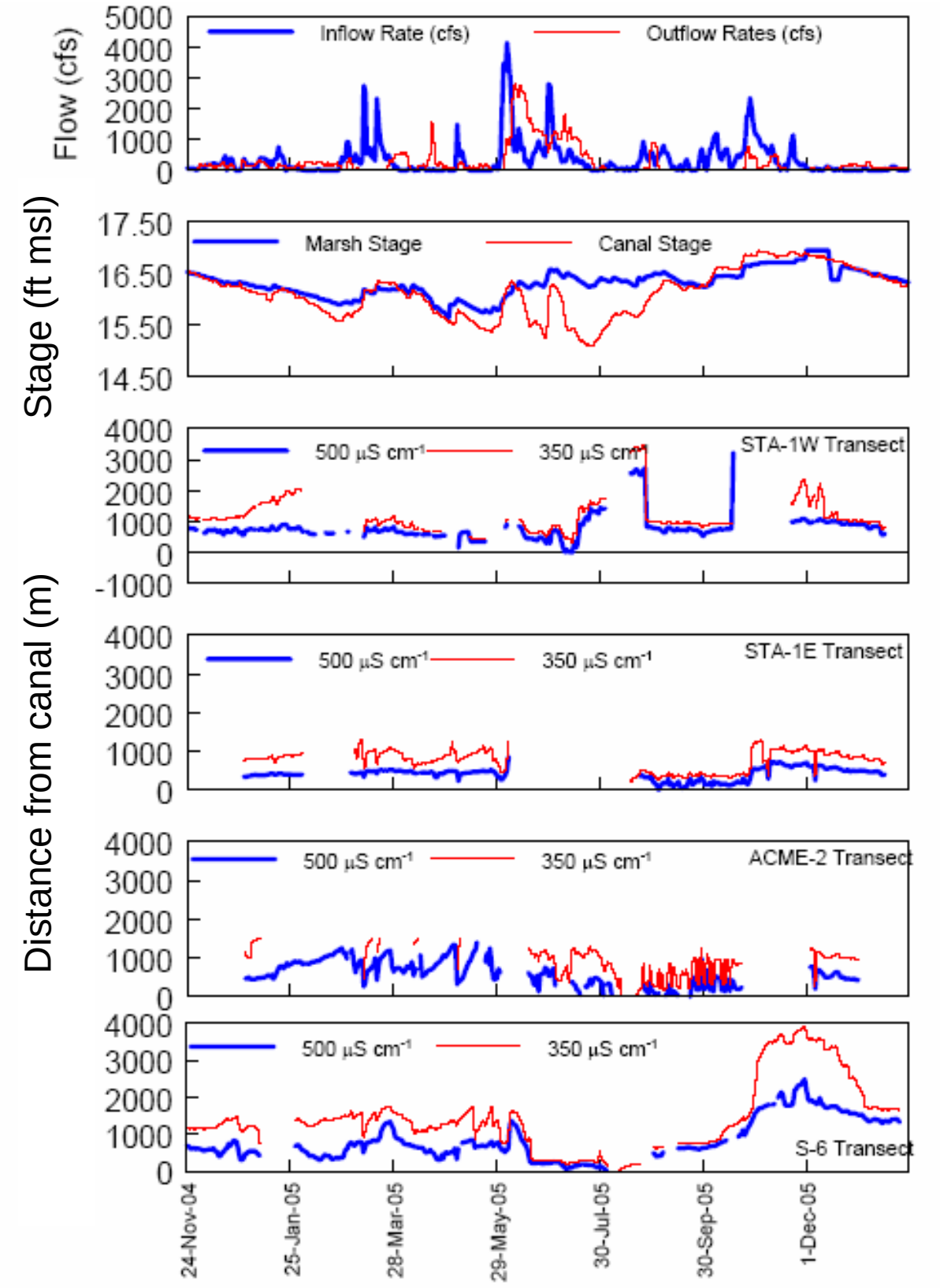
Marsh Perimeter Zone

Canal → 1.6 miles interior

Marsh Transition Zone

1.6 mi → 2.8 miles interior

Canal Water Intrusion



Note: 350 µS cm^{-1} above point where find change