APPENDIX 1-2
Author Responses to Peer Review Comments

This appendix is composed of responses by Chapter authors to comments received during the public review process. Each author compiled the responses in his or her own style, appropriate to the subject and the level of detail in the reviewer's comments. The editors have not attempted to use a uniform format or style for these responses to peer review.

Chapter 1: Responses to Peer Review Comments

The Introduction to the *2002 Everglades Consolidated Report* (ECR) received many constructive comments through the external review process. The authors appreciate the time and expertise reflected in these comments.

The paragraph on the international importance of Everglades restoration has been added. Several additional statements have been added to expand upon progress being made toward achieving water quality goals in the introduction to the section "Achieving Long-Term Water Quality Goals."

Responses to Comments from Audubon of Florida

- Changing "enrichment to pollution" would not add clarity to the Report. Enrichment equates to nutrient pollution in the context of oligotrophic ecosystems such as the Everglades.

- "Most of" was added to the sentence.

- The evidence summarized in Chapter 3 and in earlier Consolidated Reports supports the statements made on the value of BMPs, including those associated with water management. The additional sentences would not convey new information and would add unwarranted vagueness.

- This was a good suggestion and a paragraph from WRDA 2000 was added to provide a crystal clear set of objectives for CERP.

- The Peer Review Panel did not share this "slippage" interpretation of the narrative in the Introduction or in Chapter 8A. They felt that clarifying challenges to Everglades Restoration is required by the agency most responsible for implementation of aggressive measures to meet ambitious timelines; see Final Panel Report, page 5. Chapter 8A is written very clearly to reflect facts associated with meeting water quality goals and has no conceptual subtext on extending mandated timelines.

Chapter 2A: Response to Peer Review Comments

Responses to Comments from the Peer Review Panel

Little evidence in literature how to conduct and evaluate standard compliance

The authors have acknowledged within the chapter that there is a lack of literature precedence to guide a water quality criterion excursion analyses. Furthermore, as suggested, we have revised the chapter to document our reasoning for selecting the methods utilized and to acknowledge the potential weaknesses. The Department and SFWMD will continue to refine their methodology with considerations to comparability and consistency.

Confusion with definitions of criteria and standards

The authors recognize that the usage of the terms "criteria" and "standard" in Chapter 2A may not be consistent with current scientific definitions, however we have chosen to use the terms in a manner consistent with Florida law and previous reports. Analyses presented within the report compared annual monitoring results to Class III water quality criteria. An evaluation of standards compliance would additionally require an evaluation of the designated present and future most beneficial uses (classification of waters), the Florida antidegradation policy, and any moderating provisions.

Management implications of standard compliance determination and excursion categories

The categorical system utilized in the chapter was selected to convey a succinct summary of the relative severity of excursion from water quality criteria. Management decisions will be based on more thorough evaluations, such as the states five-year rotating impaired waters evaluation. It is likely that as these more thorough evaluations are completed, the results will be reported and summarized in future Consolidated Report, as was done for the DO SSAC and a pesticide review in the 2001 Consolidated Report.

Method employed to handle values reported as less than the method detection limit (MDL)

The authors agree that there are a number of methods for handling values reported as less the MDL, ranging from value replacement (MDL, ½ MDL) to maximum

likelihood statistical models. Excursion analyses utilizing replacement with the MDL represent the most conservative scenario while replacement with ½ the MDL can potentially underestimate water quality problems. However, in an effort to determine the most appropriate and robust method the Department and SFWMD will reevaluate this approach within the next year.

Data Quality Concerns: Comparability of Inter-laboratory Data

The peer review panel has raised some important concerns, which the Department and SFWMD share. However, we believe that the panel misinterpreted the inter-laboratory comparability discussion. Inter-laboratory comparability is generally not a concern for routine SFWMD water quality monitoring data currently used in the evaluations presented in Chapter 2, because a large majority of this data are generated from consistent sources and methodologies. In some cases and for some projects the SFWMD does utilize overflow laboratories. Regardless of the data source, the SFWMD's DBHYRO database contains substantial metadata documenting the laboratory, analytical procedure, MDL, PQL, and QA/QC results, relevant to an evaluation of relative data quality.

The discussion of inter-laboratory comparability studies, such as the Everglades Round Robin (ERR) program, describes efforts by participating agencies and interested parties, to develop protocols that will insure a reasonable level of comparability and allow an evaluation of differences among varied monitoring efforts conducted by varied groups and agencies. These evaluations were first utilized for phosphorus threshold research (*e.g.*, ERR). With the rapidly increasing number of monitoring efforts related to CERP implementation and impaired waters evaluations which may be incorporated into future reports, there is an increasing need for data comparability protocols. This section of the report has been rewritten to stress these points and prevent misinterpretation.

SSAC and Class III Criteria Comparisons for Dissolved Oxygen

The DO SSAC was developed for marsh sites. Canal and inflow sites are under a different set of conditions. These conditions will be handled separately, such as through permit conditions.

Are there plans to develop SSAC for pH? Are there, likewise, plans to develop a SSAC for iron.

The purpose of a SSAC is to identify natural conditions or man induced conditions that can not be controlled or abated. Since the alkalinity and pH excursions within the Refuge are due to natural background conditions, these constituents seem to fit the requirements for SSAC development. However, other more appropriate means may be available under state law to address these issues. The appropriateness of a SSAC for iron

is questionable because the data are not definitive at this time. As noted in the Chapter, iron excursions in the Park are likely related to sampling artifacts. The SFWMD and Department will continue to monitor and evaluate iron in the EPA.

Why are different methods used for phosphorus evaluations than those proposed for compliance determination (i.e., long-term geometric mean)?

No standard or guidance currently exists for the determination of nutrient standards compliance. Many technical issues relative to the final P-criterion compliance methodology are still being developed and discussed with the interested parties. Given the uncertainties any attempt to presuppose a methodology would likely be a highly misleading and inaccurate evaluation. When a P criterion and compliance measurement methodology are adopted, the P evaluation presented in Chapter 2 will be revised accordingly.

Table 2A-7 indicates, in one sense, that there is a possibility that the outflows from WCA-2 and WCA-3 contain more phosphorus than the interiors.

Not all waters discharged to the Water Conservation Areas sheet flow across the interior marsh. In some cases inflow waters flow around the periphery of the Conservation Area, minimally influence interior monitoring sites, and are discharged to the next area (e.g., S-5A discharges into WCA-1, S-7 inflows to WCA-2A). Additionally, outflows from the Conservation Areas are often mixed with other canal waters prior to discharge to the next area. For example, the water discharged to the ENP through the S-12 structures is a combination of water from WCA-3A and water from the Miami and L-67 canals originating in the EAA.

Responses to Comments from the U.S. Department of the Interior

Tables 2A-2 and 2A-3 appear to be very similar to Appendix 2A-3. Are there plans to expand the information in the appendix?

The appendix was added in response to comments received last year requesting that information for other parameters with Class III standards be provided. If through the peer review and public comment process additional specific information is requested then the appendix can be expanded.

Graphs presented in Chapter 5 show a relationship between P enrichment and lowered DO. Enrichment above ~ 15 ppb TP appears to cause severe DO depletion. Does the DO criterion development consider areas with TP at or above 15 ppb to be impacted?

The DO SSAC was developed utilizing a reference site approach. Reference site selection was performed as defined in Chapter 5 of this report and Chapter 4 of previous Consolidated reports. Based on the evaluations conducted during the development of the P criterion suggesting that TP concentrations above 10 ppb can result in biological impacts, sites with long-term phosphorus concentration above 10 ppb were not consideration during the development of the DO SSAC.

Chapter 2B: Responses to Peer Review Comments

The peer review comments on Chapter 2B were very positive and we appreciate the content and tone of the review. Questions or comments on the chapter were minor in nature and scope. In view of this and material presented at the public workshops, the authors have decided that no specific responses are needed. The authors note the call for more thorough documentation and citation of a number of points. This exposes the tension inherent in these reports between the approach of the authors to communicate with a broad audience, and with peer reviewers—all scientists—who seek detail and factual support. This tendency runs counter to our desire to make the report accessible to the public or policy makers. The authors strove to err on the side of brevity and simplicity, and note that many details are found in earlier reports or in the appendices.

There were specific comments made by the Sugar Cane Growers Cooperative on mercury issues in the context of Chapter 5 on the phosphorus criterion. These have been addressed in the responses to comments on that chapter.

Chapter 3: Responses to Peer Review Comments

Several of the comments from the review panel were already addressed in the chapter. Many of the other comments were addressed in other chapters. The comment that seemed to be of most interest was concerning what the District is doing at the farm-level to address compliance. Chapter 3 explains that farm-level data is not used for compliance unless the EAA Basin goes out of compliance. This has not happened. The chapter also discusses the fact that we communicate with permittees through inspections and constant correspondence and many are voluntarily improving their BMP plans even though the EAA Basin is in compliance. The data to date is not sufficient to target "hot spots" for additional BMPs because there is no direct statistical relationship established between the farm-level data and the EAA Basin-level data. To emphasize this point, edits are proposed to page 2, "EAA Permit-level Monitoring Results," paragraph 2.

Chapter 4: Responses to Peer Review Comments

This summary highlights the significant changes made to Chapter 4 in response to the peer review committee and comments made by the public, state and federal agencies and other interested parties.

- The format of the Chapter 4A section entitled "Annual Report on STA Performance and Compliance" was revised to present information on each STA in a consistent manner. This resulted in additional narrative, tables and charts describing STA operations and performance. These revisions addressed many of the comments provided by Dr. Kent.

- A summary of STA operations was compiled into a descriptive table.

- Consistent schematics of the STAs, complete with structure labeling, were provided that indicate the direction of flow within each treatment cell.

- The draft report erroneously reported that a few parameters were not in compliance with State operating permits conditions; this error has been corrected, as all STAs are in full compliance with all permits.

- The comments on the STA Optimization portion of this chapter (4B) have been addressed and changes incorporated into the section.

- We have added several tables to Chapter 4C in order to provide additional information about past and current research. Table 4C-1 provides information on hydraulic loading rates, hydraulic residence time, and a brief description of all advanced treatment technology (ATT) research studied by the Ecological Technologies Division. Table 4C-2 lists the best performance to date for each ATT at each scale tested. Appendices 4C-2 and 4C-3 provide a summary of SAV and PSTA mesocosm research located at the STA-1W north and south Supplemental Technology Sites. Additionally we have added hydraulic residence times along with the hydraulic loading rates to our discussion sections and increased the explanation of dye tracer study analysis. The summary table for the Managed Wetlands research project was corrected and the time range for the data presented was extended three months to cover the full experimental period. The result is that percent reductions calculated from the table now matches the conclusions generated by the consultant using a multivariate regression analysis known as the paired watershed analysis.

- We were unable to accommodate two comments because the data has not been generated. Currently, only two ATTs have completed the Supplemental Technologies Standard of Comparison (STSOC) discussed in the chapter and therefore, a table of costs comparing all ATTs cannot yet be compiled. Additionally, analysis employing standard chemical reactor kinetics for all ATT projects has not been completed and therefore cannot be reported in this year's ECR.

Chapter 5: Responses to Peer Review Comments

Responses to Comments from the Peer Review Panel

In establishing a P standard, an upper bound also must be established which takes into account natural spatial and temporal variations in P concentrations.

Considerable thought and attention need to be devoted to defining the means by which P-standard compliance will be measured and calculated, over the entire EPA and over an entire year, with data from multiple sampling programs.

As stated in the Chapter, the Department is currently attempting to resolve the remaining issues related to the development of the P-criterion through a series of technical workshops. One of the most significant issues remaining is the compliance measurement methodology. The Department understands and acknowledges, as indicated in the Chapter, the need for the compliance methodology to establish an upper bound while also taking into account natural spatial and temporal variations. It is also expected that the compliance method will specify the data requirements for determining compliance as well as the temporal and spatial scale of the compliance determination to be used over the EPA.

In developing a Phosphorus criterion for South Florida marsh conditions, eventually to be applied to the Everglades in establishing a phosphorus standard for the EPA, the definition of terms, as it was in Chapter 2A, is again an issue. Referring to the review of Chapter 2A, there is concern that the terms "criterion" and "standard" are not being used in a manner consistent with current water quality management practices. In Chapter 1 a number of uses of water, particularly in the Water Conservation Areas, are articulated: water supply to urban areas; flood control; and supply of water to the Everglades National Park. The P criteria required for each of these uses is different. For purposes of establishing a standard, what use criterion will be selected – the most restrictive use or the largest use? Setting appropriate standards is critical to effective water quality management as noted by the National Research Council (2001). Carefully defining uses of water is key to setting appropriate standards.

The use of the terms criterion and standard in Chapter 5 are consistent with their definition under current state law and the requirements in the EFA for which this chapter and much of the report was prepared. We acknowledge that these definitions may differ from the current scientific definition.

The waters within the EPA have been classified (FAC 62-302.400) as Class III waters which have a designated use of "Recreation, Propagation and Maintenance of a Healthy, Well-Balanced Population of Fish and Wildlife." All water quality criteria for Class III waters must be designed to be protective of this designated use.

When a site specific dissolved oxygen (DO) criterion/standard was developed for the EPA in the 2001 Everglades Consolidate Report, it was noted as a Site Specific Alternative Criterion development effort. No such terminology is employed with the P criterion development. There is no explanation of why different methods are being employed with DO and P criteria/standard development. Is it the fact that P has specific legislative directives?

Why is DO criterion development based on physical and chemical processes while P criterion development utilizes statistical measures of central tendency? Why is compliance determinations for DO based on proportion of samples violating the standard over a year while P compliance utilizes the geometric mean? The variation of criterion and standard compliance methodologies employed across water quality variables may lead to management confusion if not carefully coordinated and justified.

The DO SSAC is an alternative criterion that was developed to recognize the fact that the existing 5.0 mg/L DO criterion for Class III waters is not appropriate for the Everglades marshes due to natural processes. In order to establish a DO SSAC, the natural DO regime within unimpacted portions of the marsh needs to be described. Since the DO levels in the marsh follow a cyclic diel pattern dependent on physical variables such as time of day and temperature, it was necessary to incorporate these parameters into the SSAC.

The Phosphorus Criterion is not a SSAC. The phosphorus criterion development is a numeric interpretation of the existing Class III narrative criterion for the Everglades Protection Area (EPA) as required by the Everglades Forever Act (EFA). The EFA also specifies that the P-criterion will be applied as a geometric mean that is consistent with the observed lognormal distribution of the P data.

During the development of the P-criterion, the biological responses to P-enrichment were examined across the Water Conservation Areas and the ENP. Despite the slight north to south P gradient, the flora and fauna as well as their response was found to be very similar across the EPA. Therefore, a single criterion can be protective of the flora and fauna across the entire EPA.

The following statement on page 5-24 is not clear in its meaning, nor implications, to establishing a P-criterion. "...the adoption of the EFA default P-criterion of 10 ug/l to be measured as an annual geometric mean, may not be statistically differentiable from alternative numbers in that range identified through further research." It seems to say that because we cannot accurately measure a statistical difference, say, between 10 ug/l

and 13 ug/l, it does not matter which we choose as the criterion. In other words, no further research on the topic is warranted because we cannot measure differences in this range anyway. While this is an extremely important topic to be discussing, the exact meaning is not clear and should be explained in more depth.

The meaning of the specified statement is clarified in the revised text.

Response to Comments from Audubon

However, for the first time the Draft report injects discussion of the prospect of linking the establishment of the numerical phosphorus criterion to the performance anticipated from available pollution control technologies. This concept, is mistakenly offered as valid in the report:

> *"Additionally, the P-standard needs to consider the ability to lower P concentrations (i.e., effectiveness of treatment technologies to comply with the criterion. The EFA recognizes the importance of relating the water discharged to the EFA to the resulting water quality in the receiving waters of the EPA downstream of the inflows. Further, the EFA directs the Department and the District to define and use these relationships to establish discharge limits for the permitted discharges to the EPA to assure that the receiving waters will comply with the P-criterion. The primary discharge to the EPA will be from the Stormwater Treatment Areas (STAs), which are treatment wetlands that treat the water from agricultural and urban areas prior to being discharged to the Everglades." (Page 5-43)*

Regardless of the erroneous inclusion of the statement quoted above, no authorization exists within the Everglades Forever Act to support the first sentence suggesting that the P-standard should reflect the "effectiveness of treatment technologies." This would be a "technology based standard" which is specifically contrary to the requirements of both the Everglades Forever Act, 373.4592, Florida Statutes, Chapter 403, Florida Statutes, and the Federal Clean Water Act.

The report was revised to eliminate the misinterpretation resulting from the above statement.

Response to Comments from the U.S. Department of the Interior

Corroboration of the biological P-criterion study conclusions by the diel DO study is encouraging. We encourage the continuation of these DO studies. To what degree does the change in DO help to explain observed community changes?

Much of the reduction in the DO regime observed in P-enriched portions of the system results from the P-induced biological changes occurring primarily within the periphyton and submerged aquatic vegetation communities. Without a doubt, the depressed DO levels resulting from P-enrichment produce secondary impacts within other communities including microbes, macroinvertebrates, macrophytes, and fish. We agree that the P-induced changes to the DO regime are critical and have far reaching consequences. However, the determination of the degree to which the changes in the biological communities result secondarily from changes in the DO regime rather than directly from the phosphorus changes themselves is outside of the scope of the P-criterion development effort discussed in Chapter 5.

Response to Comments from William W. Walker

Table 5-2 and Figure 5-10. These values are reported as "inflow concentrations", but are not flow-weighted. Flow-weighting is an important feature in tracking ENP inflows under the Consent Decree. Flow-weighted means are generally lower than arithmetic means at the S12's and are much less sensitive to concentration spikes that tend to occur during periods of no flow and have no impact on the water actually entering the Park. The Consent Decree procedure provides a better means for comparing data from different periods (vs. simple means shown in Table 5-2) because it accounts for the effects of flow variations. The table gives the impression that concentrations are lower after 1995, but this is at least partially due to higher flows.

It is agreed that the use of flow-weighted means generally provides a more accurate tracking of the P loads at the inflow structures. However, the primary reason for including the inflow information in Chapter 5 is to provide a comparison of the inflow concentrations to those measured along the gradients in WCA-3 and ENP. This comparison was especially important for one of the marsh sites in ENP that showed higher mean P concentrations than determined at the inflow. Therefore, to allow a one to one comparison, the simple means for the inflow sites were believed to be more appropriate in this case.

Responses to Comments from USEPA

USEPA REMAP soil total phosphorus data for WCA3 and the Park were used to generate figures 5-6 and 5-11. Figure 5-6 also includes 1991 data from Reddy. We are unable to independently recreate these figures. It appears that REMAP canal sediment data from 1993-1995 may have been included.

In addition, figure 5-11 includes soil phosphorus contours that extend several miles to the southwest beyond the sampling locations, an artifact of the kriging program. The sampling locations within the Park were limited to the freshwater marsh. We suggest masking the portion of the Park beyond the sampling sites so the reader does not incorrectly infer that data exist where there are no data.

There is a statement on page 5-25 expressing caution in using soil phosphorus data to define areas of impact because of the presence of marl soils in addition to peat soils within the Park. We agree with this caveat, and suggest that it be added to page 5-12 since it is also relevant to WCA3A. Soils in WCA3A north of I-75 have bulk densities and inorganic content comparable to the marl soils within the Park.

The sediment TP contour maps were regenerated to exclude the canal data that were erroneously included in the draft. Also, the sediment contours for the Park were limited to the extent of the data as specified.

The sediment type classification contained in the REMAP database provided to the Department indicated that 76 of approximately 169 samples collected in ENP were from marl or marl/peat sediment. Therefore, the caveat specified above was deemed appropriate. However, the data indicated that only 7 of 180 samples from WCA-3 were collected from marl or marl/peat sediments. Given that the marl sediment comprised less than 4 % of the samples, the same caveat is not believed to be necessary for WCA-3.

One might infer from the presentation on pages 5-43 to 5-44 that the Department has already determined that chemical treatment is inappropriate for application to any basin discharging into the Everglades Protection Area, including urban areas that may not have much land available for biological approaches.

The Department has made no determination that chemical treatment has no application to any basin discharging into the EPA. The discussion of treatment technologies relative to the P-criterion was clarified based on comments received.

Responses to Comments from Tetra Tech

The metrics used for determining the threshold generally have been selected based on their having a "good" response to phosphorus, i.e., those that showed large changes, not necessarily those that were shown to have negative effects on fish and wildlife. Data on fish and birds do exist for the Everglades, and these were not considered in the analysis. The concept that there is redundancy at the lowest levels of the food chain, and that some changes at the algal levels may not have any consequences for the higher trophic levels was not acknowledged.

The EFA requires that the P criterion prevent any imbalance in the natural populations of flora and fauna. Nowhere is the importance of fish and wildlife placed above that of lower trophic levels flora and fauna. Given the requirement to protect all flora and fauna, the use of the lack of response observed in fish and wildlife (due to their ability to relocate to unimpacted areas for feeding, etc) to bias the results is unrealistic.

Additionally, we do not agree with the concept that the changes in the lower tropic levels do not have consequences for the higher trophic levels. While in some cases there may be some redundancy at the lowest trophic levels with respect to their role as a food source for higher organisms, other functions of the native communities are not replicated by their replacements. For example, it is widely accepted by the researchers in the Everglades that the periphyton and SAV communities play an essential role in maintaining a suitable oxygen regime. As demonstrated in this and previous chapters and acknowledged by the reviewers, as the structure of the periphyton and SAV communities is altered by P-enrichment their role in the production of oxygen is not maintained by the more tolerant species and the dissolved oxygen levels in the marsh become depressed. Even fish and wildlife cannot live without oxygen. Other observed changes such as the increased growth and density of emergent macrophytes also have important implications for higher trophic levels.

Use of distance as the independent variable: In all past work dealing with methods to calculate the phosphorus threshold, the median values of data have been plotted with respect to distance, with the changepoint method being applied to determine a distance beyond which no change occurs. This distance is then related to the annual geometric mean phosphorus concentration to recommend a value for the standard. The problem with using this approach is that it does not consider the variability of total phosphorus at background sites and does not consider the variability of the biological metric at individual stations. When one plots biological data with respect to phosphorus, the background phosphorus variability is factored in. Using DEP's gradient approach, data for sensitive species, changepoint method, and abundance, we obtain a changepoint of 18 ppb. The value of the numeric threshold derived depends significantly on whether distance or phosphorus is used as the independent variable, and whether the actual data or median values are used. We note that the current version of Chapter 5 uses total phosphorus concentrations as the independent variable in plotting responses for WCA-3A. This is appropriate. We strongly recommend that this procedure be applied for WCA-2A and WCA-1 data analyses upon which Chapter 5 relies.

As discussed in previous versions of this Chapter, the Department utilized a reference site approach in evaluating the data from WCA-1 and WCA-2. A combination of cluster and change point analyses was used to delineate a group of biologically similar reference sites that were minimally impacted by P-enrichment. The P regime (including the spatial and temporal variability) at that set of reference sites was then used to develop a protective P-criterion. Given the limited amount of data available for WCA-3 and ENP, the same approach could not be used to independently derive a criterion. Instead, the analysis of the WCA-3 and ENP data presented in this years report was geared toward determining if the available information from these areas supported the more extensive analyses performed for the other areas. The results were consistent with the previous analyses and indicated that the biological communities present were very similar to those in the other portions of the system and exhibited a comparable response to P-enrichment. These findings support the previous analyses using the approach recommended by Tetra-Tech.

The Tetra-Tech reanalysis of the data from WCA-2 results in a higher change point due to the change point method utilized. The method utilized by Tetra-Tech is apparently a segmented regression change point (although no details are provided). This technique indicates a change point at a different position (middle of the transition) on the response curve than does the more conservative technique utilized by the Department that identifies the last unimpacted point along the response curve. Therefore, the derivation of higher change points using this technique is not unexpected.

Use of a step-function change to describe the response of biological metrics: The default function used to fit the data is a step-function. Whether this is indeed justifiable as compared with other fits, such as a straight line or a sigmoidal curve, is not shown in any reports to date. By using a step function fit to medians of data values the change in the biological metric is greatly exaggerated. The use of a step change may be appealing because of the need to derive a "numeric threshold," but it may not be ecologically valid. Examination of the data indicates that most biological change in the Everglades is transitional rather than abrupt, as the changepoint method would imply.

As specified above and in previous versions of this Chapter, the change point analysis was only one of the analytical tools used by the Department to evaluate the data for P-criterion development. Additionally, the change point technique used did not force the detection of a change point where one did not exist and allowed for multiple change points that would have more closely resembled a sigmoidal response. In most cases a single significant change point was determined which suggested more of a step-function response occurring over a very short distance. Additionally, most of the change points determined were corroborated using other observational, graphical, and statistical evidence. Therefore, the use of the change point analyses, as one of the analytical tools used by the Department during the derivation of the P-criterion is completely valid.

Responses to Comments from William H. Green (Hopping Green Sams & Smith)

To what extent did the historical Everglades contain regions with ecologically valuable flora and fauna where surface and soil phosphorus concentrations were substantially greater than levels currently observed for the oligotrophic (unimpacted) areas of the WCAs?

In last year's 2001 Everglades Consolidated Report, the Department acknowledged that the information provided regarding historical surface water and soil phosphorus concentrations and flora and fauna is useful from a restoration perspective.

What flora and fauna niches lost in the historically larger Everglades might be functionally restored, in part, in the phosphorus enriched (impacted) parts of the

conservation areas, and how does the answer to that question relate to what the numeric interpretation for phosphorus should be in those localized areas?

As noted in the 2001 Everglades Consolidated Report, "it is considered unlikely that P-enriched areas within the northern [impacted] portion of the Everglades will recreate the historic pond apple zone. This is shown by the current P-enriched area in WCA-2A, where P additions have resulted in cattail monocultures — not pond apple thickets. Complex relationships among factors such as hydrology, soil type, as well as the P regime, control the biological communities that develop in these disturbed areas. Given the scale of the Everglades restoration efforts, the purposeful creation of localized P-enriched zones for recreating the historic pond apple described in the Tetra Tech report is not practical." The Department continues to maintain that position. Further, the 2001 Peer-Review Panel agreed with the Departments position stating "Recognition of the value of a Pond Apple habitat would be better addressed by restoration at the original site."

What would benefit the overall Everglades ecology more: (a) a numeric interpretation of the narrative nutrient criterion which distinguishes between unimpacted and already impacted areas or (b) the across the board application in all areas of a numeric interpretation based only on unimpacted areas?

The numeric interpretation will acknowledge and factor in both impacted and unimpacted areas.

Is it possible that requiring existing already impacted areas to meet a numeric interpretation for phosphorus developed to prevent imbalances of flora and fauna in unimpacted areas will increase mercury contamination risks for fish and wildlife in those already impacted areas?

We do not believe that the data support the hypothesis that lowering phosphorus levels in the current impacted areas will increase mercury contamination risks for fish and wildlife.

What soil conditions and associated macrophyte communities should we strive for as a restoration goal in impacted areas? What overlying surface water phosphorus concentrations will promote the earliest establishment of those soil conditions?

The soil and surface water phosphorus concentration goals for the impacted area will be the same as for the unimpacted areas – those that will maintain a natural population of aquatic flora and fauna.

What are the relationships between waters discharged to, and the resulting water quality, in the Everglades Protection Area?

The Everglades Forever Act requires that relationships between waters discharged to and the resulting water quality in the Everglades Protection Area be determined in association with the permit modification request to be submitted by the South Florida Water Management District prior to December 31, 2003.

What discharge limits are necessary to prevent an imbalance in the natural populations of flora and fauna in the unimpacted areas and to provide a "net improvement" in the already impacted areas?

The Everglades Forever Act also requires that discharge limits be determined in association with the permit modification request to be submitted by the South Florida Water Management District prior to December 31, 2003.

Chapter 6: Responses to Peer Review Panel Comments

2002 ECR Review Panel Comments

General comments on clarity, omissions, and errors that were highlighted have been addressed.

The panel suggests that the District focus attention on hydrological temporal and spatial variability so that the importance of variability can be ascertained. Another hydrologic issue deserving attention, and not addressed, is the continued ponding in the southern part of WCAs and the relative dryness of northern WCAs.

More spatial articulation will be considered for the next consolidated report.

The panel was not provided with information to competently judge the efficacy of the District's nutrient theory of tree island development.

This section has been enhanced

Regarding wading bird nesting, this issue is relatively straight forward. However, the panel suggests that future surveys and analyses consider each wading bird species separately.

Species-based summaries will be considered for the next consolidated report.

The muck fire/bird colony suitability hazard index is another section the panel finds difficult to properly evaluate. The index contains many assumptions, few of which are supported in the text.

This section has been enhanced to address concerns.

Finally, the discussion of drought effects on Florida Bay is somewhat abbreviated and leaves the reader wanting more information.

A new figure developed by Jayantha Obeysekera and text has been added to chapter 6 to address this issue.

Responses to Comments from the U.S. Department of the Interior, National Park Service

The most glaring omission is the correct Fig. 6-13. The figures on p. 6-32 do not relate to the figure legend; therefore, it is nearly impossible to accurately review report comments based on the salinity data presented.

This has been corrected

Everglades National Park's salinity data and Libby John's AOML salinity data/maps for the same time period (mid-June/July 2001) indicate different conclusions than those presented by SFWMD.

Data were checked and methodology is now included. Differences may be due to differences in spatial articulation and kriging techniques.

The Report comments on seagrass could be misleading. It is implied that the wrack of seagrass found in Whipray is due to hypersaline conditions. This conclusion might be true if salinities were high enough and lasted long enough. However, there are many other possibilities.

Good point. Text has been adjusted to reflect other possibilities.

Responses to Comments from Audubon of Florida

Give data average (e.g., 30 m) in the second full paragraph on page 6-33, after "Water transparency was generally extremely high."

Sentence has been modified.

Chapter 7: Responses to Peer Review Comments

The introduction to the chapter was rewritten to more clearly state the purpose of the Comprehensive Everglades Restoration Plan including early mention of RECOVER. Several flow charts and maps were added to the chapter in response to comments made by the reviewers: Interrelationships of RECOVER Protocols, CERP Adaptive Assessment Program, Applied Science Strategy and maps of the feasibility study areas and initial project locations. It is hoped that these additions will provide greater clarity to the chapter. Adaptive assessment was more thoroughly discussed in the monitoring and assessment section and the draft memorandum of understanding has been included as Appendix 7. Other clarifying text was added in relation to the pilot projects, protocol papers, the National Academy of Sciences and the report card.

Chapter 8A: Responses to Peer Review Comments

- For each of the thirteen key gaps in the information needed for making long-term water quality solutions, the status and anticipated completion timeframe (if available) are presented.

- The thirteen key information gaps have been prioritized within three categories: regulatory, implementation and funding.

- It was not possible to provide an estimate of the funding needed to complete the work.

Chapter 8B: Responses to Peer Review Comments

The description that the USFWS property is "isolated" on page 8B-6 is not clear.

Added language to page 8B-6 to clarify that the USFWS property is considered part of the Everglades Protection Area (EPA) but is east of the levee around WCA 1.

Problems with not meeting the 2006 deadline should be included in the public outreach initiatives, and the text should communicate the integrated nature of the actions being taken to restore the Everglades.

Added language to page 8B-9 (Public Outreach Initiatives section) that meetings with stakeholders in the basins have been held and will continue to be held where these issues are discussed.

The updates on the activities in the ESP basins may be better summarized in tabular format.

Agree. Since this would be a major change to this chapter without adding any new information, no revisions have been made. However, a tabular format will be used in next year's ECR.

Chapter 8C: Responses to Peer Review Comments

Our analysis of the acquisition program is that the District is behind schedule. The information provided is not sufficient to determine if lands being acquired are priority for infrastructure or for watershed management purposes.

I concur with the comment that the reported information does not reflect scheduling information, but is limited to a discussion of acquisitions accomplished during the report period. Note land acquisitions schedules are dynamic and influenced by construction schedules, project priorities and funding constraints. The comments regarding the District land acquisition schedule speak to the need for furnishing acquisition status reporting by projects. We are currently developing system report capabilities to provide this information to the community at large, accurately and timely (with web access). In addition, this information is furnished as part of other publications such as the Save Our Rivers and Florida Forever Work Plans.

I would not recommend revising the current report Chapter as alternative sources are available; however, I would recommend that future reports consider incorporating information on acres to be acquired for the projects, total acres acquired and % acquisition project is complete; and whether lands acquired are a priority for infrastructure or for watershed management purposes. I feel this would be best addressed in the project specific sections of the report.

The public relations aspects (positive or negative) in continuing to acquire private lands is not discussed but should probably be addressed in the public outreach section of this chapter.

On a going forward basis, summary of land acquisition public workshops and public outreach activities can be maintained and furnished for inclusion in the report.

Chapter 8E: Responses to Peer Review Comments

There is a strong need for a comprehensive plan that coordinates strategies for management of invasive species among agencies, and also develops strategies for developing partnerships with private landowners.

Much more information must be obtained and made available on invasive animal species, including their biology, ecological effects on other organisms, means of spread, habitat requirements, and methods of control.

Public education about invasive species and the threats they pose to South Florida ecosystems is critical to long-term success in controlling exotic species.

The SERTF Working Group's non-native animal report and other syntheses of ecological effects of invasive animal species should be completed and made available to as soon as possible.

This purpose of this chapter is to provide an overview of current invasive species management programs in the Everglades Protection Area. The authors recognize that agency efforts to inventory, monitor and control invasive animals in the Everglades are lagging far behind efforts to manage plants. The authors strongly endorse the concept of an all taxa approach to invasive species management in the Everglades, but a lead agency has yet to be identified to spearhead this effort. The South Florida Ecosystem Working Group is working to develop an invasive species animal team that compliments the work of the Noxious Exotic Weed Task Team (NEWTT). This is an important step in recognizing both plants and animals as a threat to Everglades restoration.