



CHARLOTTE HARBOR NATIONAL ESTUARY PROGRAM

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June 19, 2009

Governing Board
Southwest Florida Water Management District
2379 Broad Street
Brooksville, FL 34604-6899

Re: Proposed Minimum Flows and Levels for the Lower Peace River and Shell Creek, 2009

Dear Governing Board members:

The Charlotte Harbor National Estuary Program (CHNEP) appreciates the opportunity to review and provide comments on the Proposed Minimum Flows and Levels for the Lower Peace River and Shell Creek dated April 9, 2009. The CHNEP received the document on June 10, 2009, along with a presentation by Dr. Marty Kelly during the CHNEP Science Forum. Our full technical and policy review of the MFL would require until at least August 21, 2009. We have attached initial comments for the interim.

The CHNEP is a partnership program established by an amendment to the Clean Water Act (Section 320) to identify, restore and protect estuaries along the coasts of the United States. In 1995, the estuarine system around Charlotte Harbor was recognized as an "estuary of national significance," creating the CHNEP. The program's *Comprehensive Conservation and Management Plan* (CCMP) identifies the region's common priority environmental issues and actions needed to solve them. Quantifiable Objective HA-1 states: "By 2015, identify, establish and maintain a more natural seasonal variation (annual hydrograph) in freshwater flows for ... the Peace River and its tributaries".

The CHNEP reiterates its December 28, 2007, request that the District **delay** rulemaking for the Lower Peace River Minimum Flows and Levels (MFLs) **until after an evaluation of the cumulative effects of the combined MFLs** for the Upper and Middle Peace, Upper and Lower Myakka and Lower Caloosahatchee Rivers on the Charlotte Harbor estuary **has been completed**. We recommend using the nearly completed Peace River basin integrated groundwater/surface water model and pre-development habitat mapping to develop a natural systems mode to assist in the evaluation of cumulative effects.

Should the Governing Board decide that the District initiate rulemaking for the Lower Peace River MFLs prior to the completion of the evaluation of cumulative effects, the CHNEP recommends the following actions be implemented as an interim step:

- Adopt MFLs that limit allowable reductions to 10% during the low flow season (Block 1) and 15% during transition and high flow seasons (Blocks 2 and 3) for both the Peace River and Shell Creek.
- Maintain a 130 cfs low flow threshold for the Lower Peace River.

- Begin the low flow seasonal Block 1 on April 1 (calendar day 91) to represent the natural hydrograph.
- Delay initiating rulemaking by 3 months to allow adequate time for a thorough review of the report, methods and models by the scientific community.

The CHNEP requests that the adoption of MFLs for the Lower Peace River be delayed until adequate scientific review can be completed, especially as it relates to the cumulative impacts of the Peace, Myakka and Caloosahatchee Rivers MFLs on the Charlotte Harbor estuary.

Thank you for the opportunity to comment.

Sincerely,

A handwritten signature in black ink that reads "Lisa B. Beever". The signature is written in a cursive style with a large initial "L" and "B".

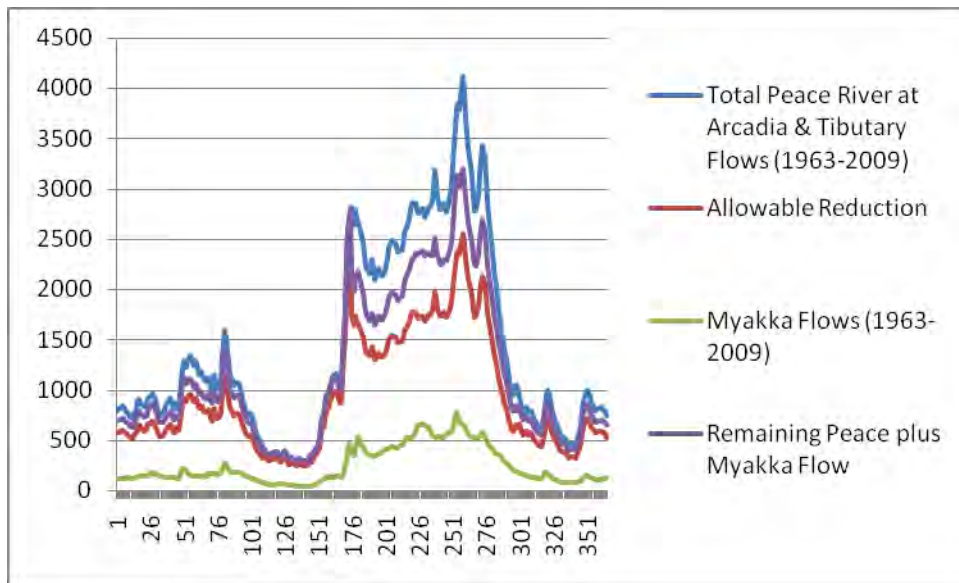
Lisa B. Beever, PhD, AICP
Director

Draft Charlotte Harbor National Estuary Program Comments – 6/19/09
Proposed Lower Peace River and Shell Creek Minimum Flows and Levels, April 9, 2009

I. The proposed allowable reductions of Lower Peace River flows exceed the total Myakka River flows.

To evaluate potential effects of the proposed Lower Peace River MFLs on the Charlotte Harbor estuary, it is critical to understand how these proposed allowable reductions in the Lower Peace River compare to other primary freshwater sources to estuary. Therefore, CHNEP compared average daily river flow from the Lower Peace River with and without MFL reductions to those of the Myakka River.

As shown in the graph below, CHNEP used average daily flows for the Peace River estimated from 4 available stations (Peace River at Arcadia, Horse Creek near Arcadia, Joshua Creek at Nocatee, and Prairie Creek at Fort Ogden), applied the allowable reduction for the Lower Peace River and compared the same period of record (1963-2009) to the Myakka River at Sarasota. As clearly shown on the graph, the allowable reduction exceeds Myakka River Flows at Sarasota.



For the 1963-2009 period, average flows for the Peace River were 1427 cfs and Myakka River were 244 cfs. The proposed MFLs would allow reductions to the Peace River of 477 cfs, almost twice the Myakka River flows. By comparison, using the recommended 10% allowable reductions during the low flow season (Block 1) and 15% during transition and high flow seasons (Blocks 2 and 3) would allow reductions to the Peace River of 205 cfs, or 85% of Myakka River flows. This raises questions regarding sustaining adequate freshwater inflows to Upper Charlotte Harbor.

II. The proposed allowable reduction of Peace River flows are half of the historic flows.

To avoid institutionalizing human altered hydrologic changes to the Lower Peace River and Charlotte Harbor estuary, it is important to compare the estimated changes in flow allowed by the proposed Lower Peace River MFLs to historic river flows. Because the District lacks a natural systems hydrologic model, in the past we accepted the District's use of available historic flows information to establish baselines. The documentation did not present a comparison of flows under the proposed MFLs with historic flows in the current document. Therefore, the CHNEP compared historic flows (1950-1969) in the Lower Peace River to recent flows, adjusted for withdrawals under the proposed MFL. Data from 3 available stations on tributaries to the Lower Peace River (Peace River at Arcadia, Horse Creek near Arcadia, and Joshua Creek at Nocatee) were obtained and then the allowable percent reductions to the 1970-1999 and the 2000-2009 periods of record were applied. Comparison of historic flows (1950-1969) to recent flows, adjusted for the proposed MFLs, demonstrates that average reductions in flow would be between 47% and 53%.

Using Proposed MFL

Period	1950-1969 Mean Daily cfs	1970-1999 Mean Daily cfs	2000-2009 Mean Daily cfs	Allowable Reduction applied 1970-1999 Flows	Resulting 1970-1999 Reduction based on 1950-1969 Flows	Allowable Reduction applied 2000-2009 Flows	Resulting 2000-2009 Reduction based on 1950-1969 Flows
Block 1 (4/20-6/25)	886	479	689	403	55%	579	35%
Block 2 (10/27-4/19)	965	807	589	573	41%	419	57%
Block 3 (6/26-10/26)	2,851	1,894	2,617	1,174	59%	1,623	43%
Average	1,607	1,121	1,261	747	53%	859	47%

Using Recommended MFL

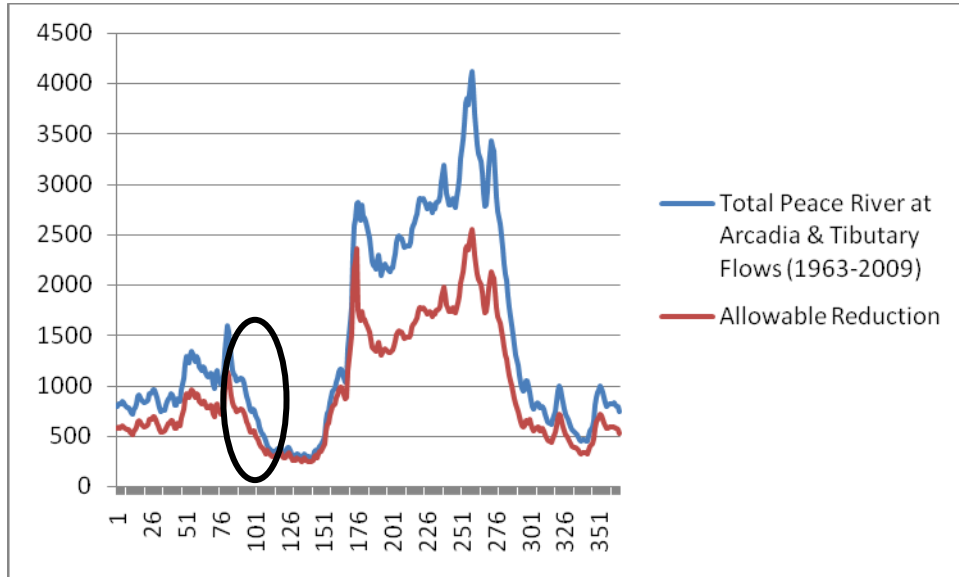
Period	1950-1969 Mean Daily cfs	1970-1999 Mean Daily cfs	2000-2009 Mean Daily cfs	Recom- mended MFLs applied 1970-1999 Flows	Resulting 1970-1999 Reduction from 1950- 1969 Flows	Recom- mended MFLs applied 2000-2009 Flows	Resulting 2000- 2009 Reduction based on 1950- 1969 Flows
Block 1 (4/1-6/25)	886	479	689	509	43%	544	39%
Block 2 (10/27-3/31)	965	807	589	680	30%	530	45%
Block 3 (6/26-10/26)	2,851	1,894	2,617	1,610	44%	2,225	22%
Average	1,607	1,121	1,261	958	40%	1,112	31%

Comparison of historic flows to the recommended MFL of 10% in Block 1 and 15% in Blocks 2 and 3, shows that reductions in flow would be between 31 and 40%. Although this recommendation does not achieve CCMP objective HA-1, it is far better than the proposed MFL.

A preferred analysis of MFLs in the Charlotte Harbor estuary would be a natural systems model based on predevelopment land uses coupled with recent rainfall records for comparison with actual flows and measures of significant harm. With District assistance, CHNEP has funded the completion of the pre-development mapping in the Peace River basin, scheduled to be completed at the end of the year.

III. Annual hydrographs indicate that the low flow season (Block 1) should begin April 1 (Calendar day 91)

The annual hydrographs for the Lower Peace River reflect a rapid rate of declining flow starting in early April of each year, as show on the graph below. In preparation for the driest period within the hydrograph, the reduced allowable reduction associated with Block 1 should begin on April 1 (Calendar day 91), concurrent with these typical rapid flow declines.



IV. The Lower Peace River Proposed MFL Report doesn't clearly explain the methods or support the conclusions.

The technical information provided in the April 2009 Lower Peace River MFL report does not clearly explain the details of methods used, making it difficult to understand how the data and modeling results support the proposed MFLs. Relevant research regarding regional, Peace River and Charlotte Harbor macroinvertebrate, fishery and water quality data is available, and does not appear to be incorporated into these MFL calculations. This lack of clarity and documentation raises questions that should be resolved prior to determining whether the proposed MFLs will achieve the long term sustainability of the Lower Peace River and Charlotte Harbor estuary. Specifically:

1. What is the cumulative effect of all the MFLs for the Upper, Middle and Lower Peace, Upper and Lower Myakka and Caloosahatchee Rivers on the Charlotte Harbor estuary?
2. How can a 38% reduction in high flow volumes result in less than 15% reduction in the water volume, inundated river area and shoreline of the river?
3. How are Shell and Prairie Creek flows considered in calculations?
4. How are the OFW and Aquatic Preserve regulatory requirements (no degradation below ambient conditions) that exist below the US 41 bridge incorporated into the MFL calculations?
5. What is the documentation that the block flows with different allowable percent reductions are more effective at the long term sustainability of ecological health of the Lower Peace River and Upper Charlotte Harbor than one simple percent of allowable daily withdrawals, down to a low flow threshold?
6. What is the documentation that the 90 cfs low flow threshold will better sustain the ecological integrity of Lower Peace River and Upper Charlotte Harbor than the current 130 cfs?
7. Is the 90 cfs low flow threshold high enough to support minimum salinity levels at the currently permitted PRMRWSA intake?
8. Why wasn't the full historical data set used, and why was the period of data changed from 1996-1999 (relatively dry) to 1999-2002 (relatively wet)?
9. How were the 1951-2004 data incorporated into the MFL calculations, as indicated for Figure 8-5 on page 8-10?
10. How was tide stage incorporated into the MFL calculations?
11. What is the documentation that defines the 15% reduction in water volume, area and shoreline length at 2, 5 and 15 PSU's as being the most relevant to the Charlotte Harbor system?
12. What is the documentation that the 2, 5 and 15 PSUs are most appropriate indicators for the sustainable health of the Peace River and Charlotte Harbor?
13. How are the critical salinity ranges for sensitive benthic invertebrates and larval fish stages of 0-2 PSUs incorporated into the MFL calculations?
How will the potential increases in nutrients and salinities affect Charlotte Harbor, especially the hypoxia duration and extent, (which appears to be exacerbated by stratification and increased nutrients)?
14. What are the anticipated reductions in habitat availability to other important benthic invertebrates (especially mollusks), fishery, ichthyoplankton (for which seasonal riverine salinity levels are critical), submerged vegetation (seagrasses) and emergent wetland vegetation, especially those requiring low salinities most sensitive to even small changes?

15. How will these stresses be evaluated and minimized?
16. Given the meandering nature of the Peace River and associated lengths of inundated shoreline vegetation and critical timing for fishery development, what are the anticipated impacts on long term populations and are these acceptable?
17. How are the estimated changes in median flow along the river centerline used to calculate the actual area and the shoreline of habitat affected across the river and its meanders?
18. What will the changes in river habitat area and shoreline be at the extreme lowest and highest ends of river flow and salinity where the organisms will most sensitive to changes?
19. How is amount of time that particular habitats are inundated with specific salinities incorporated into the calculations?
20. How will potential future "significant harm" in the river, creek and harbor be measured and defined?
21. If "significant harm" is observed and/or measured in the river, creek and harbor, what are the written requirements to implement correction measures immediately, as well as in the short and long term?
22. How are the increasing levels of surface water conductivity associated with irrigation and groundwater discharges incorporated into the potential impacts of changes in salinity on habitat associated with the proposed MFLs?
23. How will changes in flows associated with surface runoff associated with potential major changes in land uses (mining, agriculture, residential use) be incorporated into the Lower Peace R MFLs?
24. Are the proposed Lower Peace R MFLs based on current or "recovered" flows from the Upper and Middle Peace R?
25. Are the proposed Lower Peace River MFLs based on current or "recovered" flows from Shell Creek?
26. Have the proposed Lower Peace River MFLs been reviewed for consistency with federal Essential Fish Habitat requirements?
27. How are potential effects of the MFLs on Critical Sawfish habitat in the Lower Peace River evaluated and incorporated?