

Withlacoochee Area Residents, Inc.  
PO Box 350  
Inglis, Florida 34449-0350

25 October 2011

To: Mr. Blake Guillory  
Executive Director  
Southwest Florida Water Management District  
2379 Broad Street  
Brooksville, FL 34604  
[blake.guillory@watermatters.org](mailto:blake.guillory@watermatters.org)

From: Dan Hilliard  
Director  
W.A.R., Inc.  
PO Box 350  
Inglis, FL 34449  
[2buntings@comcast.net](mailto:2buntings@comcast.net)

Subject: MFL determinations by SWFWMD for Springs Coast river systems

## INTRODUCTION

The Withlacoochee Area Residents, Inc (WAR) has reviewed data provided by the SWFWMD (District) via presentations and District online resources applicable to ongoing technical review of minimum flows and levels (MFL) determination(s) as appropriate to three Springs Coast systems; the Weeki Wachee, Chassahowitzka, Homosassa Rivers inclusive. The following commentary may be applicable to other determinations in the region. WAR's response is generally global in nature although it does, on certain points, present to specific river components within the framework of this review.

WAR is deeply appreciative of the District's commitment and the courtesy extended to stakeholders in this very important review. The coastal springs and river courses which define this region are of very high economic value. Indeed, they are all designated as Outstanding Florida Waters (OFW(s)) and thus provided special protections by Florida Statute and Administrative Code. Large components of the estuarine system these water bodies support are also identified as OFWs. Numerous preserves or sanctuaries comprise a large portion of coastal estuaries and inshore waters related to these river systems.

Such waters and other State coastal resources contributed in excess of \$580 Billion dollars to Florida's gross product according to the Florida Department of Environmental Protection (Department) 2008 Integrated Water Quality Assessment (305b/303d). A narrower scope of review for economic contribution of inland waters suggests amounts in the range of \$20 Billion which we suspect to be very conservative. Economic activities founded on such resources that define this region are of critical importance to the public Health, Safety and Welfare.

WAR recognizes the legislative mandate that prompts the District's action concerning the subject systems. We are mindful of the District's Areas of Responsibility (AOR), likewise required by statute. Protection of the

citizen's water resources is intrinsic to our future prosperity. We are of the considered opinion the District has sufficient direction, latitude and expertise to satisfy these requirements and protect the water resources under review. The debate which has followed this process centers not on the need to be compliant with statute, but rather in the fashion of doing so.

### STAKEHOLDER INPUT

There are several issues put forth by Stakeholders in this process that will be addressed in the following order.

1. Reconciliation between technical review/draft recommendations with protection of Outstanding Florida Waters
2. Water quality/habitat reduction impacts
3. Analytical methodology/Data Quality
4. Disparity between draft recommendations and Stakeholder recommendations.

### OFW/MFL RECONCILIATION

Reconciling protection of OFW designated water bodies with impacts supported by the MFL determination process revolves around interpretation of various provisions of statute and code. Several Stakeholders have argued supremacy of the OFW provisions of Chapter 62-302.700 over Chapter 40D-8 FAC which establishes the framework for the District's approach to compliance with Chapter 373.042 FS. We are of the understanding that certain legal processes exist to resolve statutory conflict should it exist. As stated in Chapter 373 FS and understood to apply to scrutiny of other regulatory provisions, one or more elements of statute or code may not render other such provisions moot.

In response to public input (Heyl to Tripp, 10/11) the District has stated:

"... the MFL statute requires that the MFL be established based on the impact of withdrawals and there is no evidence that nitrate concentration is related to flow.", and

"...management of nutrients, especially of anthropogenic origin, is not an MFL function."

On the first part, it is not clear such is the case. It is reasonable to conclude that most if not all groundwater withdrawal which comes from a specific basin and contributes to reduced system flow will in fact be returned to the basin via wastewater treatment processes (septic systems and/or spray fields for treatment facilities), or by agricultural irrigation and lawn maintenance. In small part, reduced system flow will contribute to increased loiter time in river systems and may contribute to increased abundance of algae or other species responsive to nitrogen input. On a broader scope, such water use will compound nutrient loads to spring head discharge. This contention is clearly supported by discussion about water quality in the District's Homosassa River Peer Review MFL Draft (2010). Primacy of total load or concentration is another debate but the end result degrades the system.

On the second part, whether or not nutrient management considerations are part of the MFL function is perhaps a District policy. Management of such issues may fall on other divisions of the District than MFL staff, but investigation of these issues clearly falls within their purview. Inasmuch as the District has reviewed water quality indices in these proceedings in significant detail we conclude they are significant. Distinction between or exclusion of water quality metrics in this process is not understood by this organization. We do recognize the intent of the MFL process, but again, the definition of significant harm is the prevailing issue in this matter.

The District seeks to determine thresholds of significant harm in this process and rationalized determination which directly contributes to quantifiable degradation of water bodies should be examined. Analysis and projection of nutrient loading scenarios will contribute to greater strength of the final recommendations.

For the sake of clarity, definition of the following words is provided to limit the scope of meaning found in discussion of topical legal citations. Definition source is the Merriam-Webster Dictionary, emphasis added.

**Protect:** transitive verb

1 *a*: to cover or shield from exposure, injury, **damage**, or **destruction**: [guard](#) *b*: [defend](#) 1c <protect the goal>

2: **to maintain the status or integrity** of especially through financial or legal guarantees: as *a*: to save from contingent financial loss *b*: to foster or shield from infringement or restriction <salesmen with *protected* territories> <protect one's rights>; **specifically: to restrict competition** for (as domestic industries) by means of tariffs or trade controls

**Permit:** verb

Transitive verb: \per-mit-ted, per-mit-ting\

1: to consent to expressly or formally <permit access to records>

2: to give leave: **authorize**

3: to make possible <the design *permits* easy access>

Intransitive verb

1: to give an opportunity : [allow](#) <if time *permits*>

Permit: noun \pər-,mit'\

— **per-mit-tee** *noun*

— **per-mit-ter** *noun*

1 : a written warrant or license granted by one having authority <a gun *permit*>

2 : permission

*The Florida Constitution, ARTICLE II SECTION 7. Natural resources and scenic beauty. —*

*(a) It shall be the policy of the state to conserve and protect its natural resources and scenic beauty.*

*Adequate provision shall be made by law for the abatement of air and water pollution and of excessive and unnecessary noise and for the conservation and protection of natural resources.*

Some Stakeholders have taken the position that draft recommendations by the District for the systems under review are inconsistent with Article II, Section 7 of the Constitution. Indeed, Section 7 states clearly that natural resources are to be protected and water resources are central to this debate. Though conceptually broad, this policy is not qualified by exception or specific provision.

Chapter 40D-8 is applied by the District to the MFL process and attendant to the process is a requirement for the District to define “significant harm”, due to the legislature’s failure to do so. The District has consistently applied an impact benchmark to definition of significant harm such that no more than 15% of habitat in a given river system is degraded, and from this comes philosophical divisions. The argument is simple: On one part there is a view of perceived need to provide for potable water to support future development and on the other there is a desire to protect intrinsically valuable resources on behalf of current citizens of the state. Ch 373.042 (1)(a) stipulates not only that future water withdrawals not be harmful to water resources, but to the ecology of a system as well. The latter is a primary source of contention in this discussion inasmuch as numerous Stakeholders find the 15% standard applied in technical review to be excessive on one hand, and on the other, nebulous in context of estuarine ecosystems.

Chapter 373.042 FS clearly requires the Department and Governing Board to consider, and at their discretion, provide for protection of non-consumptive uses in this process. Such uses would reasonably include the protection of Outstanding Florida Waters due to their economic value and the value of ecological communities they support.

62-302.700(5) F.A.C. states "*The Commission may designate a water of the State as a Special Water after making a finding that the waters are of exceptional recreational or ecological significance and a finding that the environmental, social, and economic benefits of the designation outweigh the environmental, social, and economic costs.*"

In other words, the OFW designation means that Commission has determined that the benefit of preserving these waters outweighs the cost of that preservation. This means that the District must promote alternative water sources when it knows groundwater pumping in an OFW's springshed will degrade the OFW. With the OFW designation, the Commission has determined that there is a societal interest in preserving these waters that exceeds the economic cost. The District must consider the OFW designation when defining "significant harm".

Reference is made to economic value of these resources several times in this discussion. This issue is acutely in the thoughts of various Stakeholder groups and/or individuals. Not only do these river systems provide great value to ecological communities associated with freshwater and estuarine environments, they support very substantial economic activity. Citrus County's economy in particular is largely defined by such systems as the Homosassa River and Crystal River. A segment of these economic activities includes residential and commercial development, eco-tourism, fishing, photography, boating, hotels, restaurants, transportation and medical care. A recent article in the Citrus Chronicle suggested between 75,000 and 100,000 visitors per year come to Crystal River for the sole purpose of interaction with manatees. The catalyst for this activity is not derived from analytical water quality summaries, but instead by the perception of clean waters (springs) and abundant wildlife supported by their ambient water quality. We are aware that the visual gauge of water quality is a matter of perception by the beholder, but much judgment is rendered on that simple litmus. More important is the ecological communities supported by these waters. Upon the simple visual litmus used by the public hangs the future of water based economies in the local region. Hanging in the balance is tourism demand, and thus value. A very large component of tax roll value for local governments is founded on water front properties, both residential and commercial. These are resources worthy of protection. The District has not given consideration to this aspect of the process even though empowered to do so because it has defined significant harm.

Another aspect of this consideration is found in the severe costs associated with implementation of Chapter 40D-80 FAC or broader recovery/restoration actions as enumerated in Chapter 373 FS. The plethora of impaired water bodies in the state and recovery plans already in place speak volumes about the success Florida has had in management of the resource. We do not take this lightly, nor belittle the task of restoring these waters, for it is surely daunting. It is however a hideously expensive proposition which results from shortcomings of legislative policy and perhaps, in days gone by, ignorance. The real cost is a blade with two sharp edges. On one hand is the cost of restoration, and on the other, the costs of lost economic benefit across the broad scope which otherwise accrues from the resource. We are relatively confident that the larger index rests with the expense of lost benefit.

In *Charlotte County v. SWFWMD*, Case No. 94-5742RP 1997, Administrative Law Judge J. Stephen Menton's decision stated, in part: "*The establishment of minimum flows and levels does not have to be based on precise historical averages. The statute seeks to prevent "significant" harm to the water resources. Preventing any and all measurable impact to the water resources is not the stated legislative goal and some impact is an unavoidable element of achieving beneficial use of the water resources for human activity. Thus, the establishment of MFLs is highly infused with policy considerations and requires a balancing of societal interest in order to decide what impacts are significant.*" -Emphasis added-

The power to insert societal interest into the definition of 'significant harm' is provided by the District's latitude in defining the term. Further, there is ample provision and precedent found in statute, code and case history. As previously stated, the Department and Governing Board are required to consider non-consumptive uses. Non-consumptive uses reasonably encompass societal interest. By extension this authorizes economic impact analysis. Chapter 62-302.700 (4) (e) requires such analysis in the process of designating waters of the state as Outstanding Florida Waters. We strongly suggest such review by the District is appropriate to this process.

We note that all of the systems under review are designated OFWs and each is on the Impaired Waters List (303d). This differs from the Peer Review Draft for "*Recommended Minimum Flows for the Homosassa River*", Leeper et al. 2010 discussion which references dated information suggesting the Homosassa River was not on the 303d list. All coastal water bodies from Weeki Wachee to the Withlacoochee River inclusive are so listed. We note that petitions and recommendations which led to OFW designation for these systems enumerated broad arrays of productive ecological communities which are dependent upon high quality waters. Water quality metrics for each of these systems were evaluated and adopted as part of this process. These standards include nutrient values for nitrogen/nitrate and phosphate. An example of both documents is found in the District's Library for the Lower Withlacoochee River.

EPA 2010 303d Watershed Assessment, Tracking & Environmental Results

[http://iaspub.epa.gov/tmdl\\_waters10/attains\\_impaired\\_waters.impaired\\_waters\\_list?p\\_state=FL&p\\_cycle=2010](http://iaspub.epa.gov/tmdl_waters10/attains_impaired_waters.impaired_waters_list?p_state=FL&p_cycle=2010)

#### WATER QUALITY/HABITAT IMPACTS

#### **Ch 62-302.700 FAC Special Protection, Outstanding Florida Waters, Outstanding National Resource Waters.**

*"(1) It shall be the Department policy to afford the highest protection to Outstanding Florida Waters and Outstanding National Resource Waters. No degradation of water quality, other than that allowed in subsections 62-4.242(2) and (3), F.A.C., **is to be permitted in Outstanding Florida Waters** and Outstanding National Resource Waters, respectively, notwithstanding any other Department rules that allow water quality lowering." -Emphasis added-*

It is clear that actions by the State or other parties may not sanction degradation of waters designated as OFW other than under provisions of Ch62-4.242(2) and (3) FAC. The MFL determinations underway do not directly impact water quality of these waters, but they do provide foundation for future permit approval within defined parameters, and thus become part of a coordinated process which establishes and promotes specific identified harm to these systems. It is often said by officials of the Department and District that the agencies "regulate by permit". The Department and District do not regulate all water use as a matter of policy and Rule. However, the agencies have legal authority to act against non-permitted activities which impinge on

water supply and water quality, and they will do so with alacrity when appropriate. As surely as the people are bound by these regulations, so too are the Department and District. It is not clear to this organization the District has sufficient data for groundwater quality within each basin, or computer models to evaluate and assure future water use permits will meet not only the public interest test in the B.O.R., but standards in Chapter 62-302.700 FAC.

As a component of the citation above it is specified that no degradation of water quality is to be permitted in OFWs. As indicated earlier in the definition, “permitted” is a transitive verb, not a noun. The purpose of protecting water quality is to support existing ecologic communities in these waters. Water quality in and of itself is an abstract with little meaning until interaction with ecologic communities occurs. In the circumstances of the Springs Coast MFL determination, the evaluation of water quality is in effect reduced to salinity modification by the District and it is not clear this is conceptually appropriate technical review of the best available data. Withdrawals of ground water from each basin to provide for public demand will, without doubt, compound documented increasing nutrient load trends in the systems due to increased use of septic systems; residential fertilizer use and/or waste treatment facility spray fields. This is a known cause and effect relationship and should be examined as part of the definition of significant harm.

One component of water quality apparently not examined by the District in this process is sulfate (SO<sub>4</sub>) concentrations. Natural background for SO<sub>4</sub> in oceans of the world is in the range of 2,712 mg/l (Stumm and Morgan, 1981). SO<sub>4</sub> concentration varies as a ratio to salinity, ie. 2.7:35. Analytical summaries submitted to FDEP Bureau of Mining and Mineral Resources for the area of Waccasassa Bay (Kincaid 2009) support a finding that natural background for SO<sub>4</sub> in those waters has a mean value of 2130 mg/l. SO<sub>4</sub> concentrations are frequent water quality metrics for mining operations because of potential environmental and ground water quality impacts offsite.

We note discussion in both the Chassahowitzka and Homosassa River MFL Drafts about breakpoints in various taxa or benthic communities attributed to salinity. While the former indicated no significant breakpoints, several were noted for the Homosassa River. From the executive summary of the latter document:

*“Flow reductions of 2.7 percent or less from median baseline conditions were associated with fifteen percent reductions in predicted abundances of individual pseudo-species or taxa. Similar or increased sensitivity to flow reductions was predicted for many taxa across the range of baseline flows, in particular for baseline flows less than the median flows.”*

We characterize the discussion of disparity for this response in comparison to other findings in the Draft as speculative or unexplained, and suggest the possibility that SO<sub>4</sub> may be responsible in part or whole. Further, it is not clear why these responses appear to have been set aside. The Draft recommended threshold for significant harm is 5% flow reduction, approximately twice the value which precipitated -15% predicted abundances as referenced above.

Chapter 62-40.473, F.A.C. provides additional guidance for the establishment of minimum flows and levels, requiring that "consideration shall be given to the protection of water resources, natural seasonal fluctuations in water flows, and environmental values associated with coastal, estuarine, aquatic and wetland ecology, including: a) recreation in and on the water; b) fish and wildlife habitats and the passage of fish; c) estuarine resources; d) transfer of detrital material; e) maintenance of freshwater storage and supply; f) aesthetic and scenic attributes; g) filtration and absorption of nutrients and other pollutants; h) sediment loads; i) water quality; and j) navigation.”

Examination of the complexities of protecting estuarine resources is brought into sharp focus by Dr. Estevez, Mote Marine: (*A Review and Application of Literature Concerning Freshwater Flow Management in Riverine Estuaries*, 2000). Within the document it is stated:

*"The Florida Department of Environmental Protection (1999) defined "indicator" as a physical, biological or hydrological parameter used to represent a water body function. An indicator should be simpler and easier to measure than a more inclusive assessment of water body functions. For example ... "salinity may be measured as an indicator of the habitat functions provided by an estuary. Predicting or measuring the change to ... salinity from changes in water levels or flows is much simpler than attempting to directly measure changes in habitat use." Worth (1998) recommended the establishment of a minimum suite of biological metrics for monitoring that would be required as a basis for setting MFLs in estuaries.*

*Despite the Department's encouragement to use simple indicator criteria as proxies for living resources, approaches taken to define significant or unacceptable harm turn back to criteria that are strongly ecological in nature. A state "conventions subcommittee" writing on impacts to natural systems proposed that significant harm occurs when, "anthropogenic effects on hydrology that have caused, or are expected to cause, directly or indirectly, singly or cumulatively, by their extensiveness, intensity, duration, or frequency, one or more of the following for more than five years: 1) local or regional extirpation of one or more native species, 2) ... reduction in abundance or reproductive success of a listed ... species, 3) ... reduction in abundance or reproductive success of a keystone species, 4) ... reduction in abundance or reproductive success of a commercially or recreationally significant species, and 5) replacement of the dominant species group of flora or fauna such that another species or group of species becomes dominant or a significant increase occurs in the abundance or productivity of a nuisance, exotic, or uncharacteristic species" (Lowe, 1994).*

*Although this definition has not been adopted by districts "due to concerns of practicality in implementing such a broad definition" (Worth, 1998), it is the best operationalized definition for harm to emerge on a statewide basis, to date. The definition might be made less unworkably broad if constrained to a particular set of indicators drawn for living resources and tailored to local conditions as needed in the case of estuaries."*

We perceive that Dr. Estevez is generally supportive of Florida's MFL process, but his work indicates that policy may often supersede science in this process. Whether the District has subsequently adopted the broad definition described above is not clear, but the strong reliance upon spatial dislocation of isohaline values in the current review gives pause. It is not clear that Chapter 62-302.700 provisions provide for habitat modification, or in simpler terms, the inshore dislocation of estuarine ecosystems at the expense of freshwater systems. In context of this discussion it is assumed that although the District is guided by Chapter 40D FAC in its operations, it is in fact a component of FDEP and as such obligated to conform to the same regulations as the Department, i.e. Chapter 373 FS, Ch 403 FS, and Chapter 62 FAC. In fact Chapter 373.016 (5) specifically allows the Department to delegate such authority to the District.

In conclusion to the referenced document, Dr. Estevez states (emphasis added):

*"The question of freshwater inflows to riverine estuaries is a good scientific question, as well as an important one for coastal resource management. **Fresh water is an integral part of the definition of an estuary and so deserves primacy in all aspects of estuarine ecology, as a matter of first principles.** Changes to inflows have harmed many estuaries in the world, and have the potential to harm more. We seek to learn enough about*

*estuaries to restore damaged ones and protect natural ones, but to do so will require the development of insights and tools not presently available.”*

Estuarine systems are highly sensitive to modifications of salinity. This is recognized by Dr. Estevez in numerous works and by District Staff. Very slight spatial or temporal changes of salinity can precipitate rapid modification of the affected system. Information provided by the District in the Stakeholder discussions indicates a distinct disconnect, however, in that analysis of impacts caused by reductions in system flow stand independent of those projected by sea level rise. Chapter 373.016 (2) requires both the Department and Governing Board take into account cumulative impacts on water resources. District staff has advised the Stakeholders that withdrawals and sea level rise have not been analyzed in such fashion (Stakeholders Conference 7-18-11). Lacking such review it is not clear the Governing Board will render decision on the proposed rule(s) based on the best available information.

WAR recognizes that forecasts of sea level rise (SLR) are based on historical record and in fact the District has supplied data with three trend scenarios. *“Implications of sea level rise and wetland creation and management in Florida”* - Estevez 1987 discusses such issues and highlights not only impacts but management strategies. With that said, SLR forecast is somewhat speculative, as are population growth forecasts. One suggests pending modification of ecologic systems over the long term is likely, and the other projects demand for the resource which ultimately leads to the consumption related impacts rationalized by this process. However, SLR is projected at very slow rates, whereas growth is disproportionately quicker. Once water use permits are issued, the District’s ability to modify consumption authorization is severely constrained by legal issues, regardless of consequences. Much groundwater withdrawal within the subject basins does not fall within jurisdiction of the District such as residential wells. However, residential and commercial development will certainly reinforce and compound the increasing trend of nutrient loads to these water bodies. SLR and basin ground water withdrawals will each have characteristic impacts and each is predictable and interrelated. Independent technical review of each aspect in a standalone mode is of questionable value and possibly misleading. As such, we urge the District to reconsider this matter and incorporate these components into cumulative impact analysis.

The District has expended substantial funds through contracts with qualified experts to generate hydrodynamic models which examine impacts from both flow reductions and SLR. Lacking incorporation into cumulative impact analysis, the purpose for which SLR was examined independently in these hydrodynamic models remains unclear.

#### ANALYTICAL METHODOLOGY

WAR finds in general terms the District staff has been diligent in this process. We recognize the enormity of the task and dependency upon data sets which are sometimes sparsely populated. However, questions have been raised by Stakeholders for both the Chassahowitzka and Homosassa Rivers which remain open.

1. It is our understanding that review of information related to impacts on blue crab populations and species vitality in the region of the Chassahowitzka River estuary is inconclusive. The reason for such adjudication is unclear, but a potential impact on the whooping crane population which winters in the Chassahowitzka National Wildlife Refuge is significant. Inasmuch as whooping cranes are a listed species and to certain degree dependent upon vitality of the blue crab population, we are of the opinion this element of technical review should be clarified. Information contained in the FWCC document “Review of the Biology and Population

Dynamics of the Blue Crab, *Callinectes sapidus*, in Relation to Salinity and Freshwater Inflow” Crowley et al. 2011, presents relevant discussion about estuarine salinity and species vitality.

2. The draft rules propose that withdrawals from the two basins will not cause significant harm at reductions of 11% of flow for the Chassahowitzka River and 5% for the Homosassa River. We note the disparity of these determinations as well as the inverse relationship to flow volume in comparison of the two systems. Likewise the razor thin threshold between mean flow and significant harm as defined by the District is extraordinarily narrow for the Homosassa River. We question whether hydrodynamic models are sufficiently accurate to support such fine determination in the case of the Homosassa River.

3. The volume of flow for the Chassahowitzka system is relatively low. There is indication of long term substantial decline in system flow which the District suggests is a result of corresponding reduction of rainfall in the historical record. Lack of flow related breakpoints are presumed because the spring(s) discharge mildly saline water from undetermined sources and thus there is no clear definition of fresh to saltwater conditions. The taking of ground water from the basin at potentiometric elevations not contaminated with chlorides may exacerbate this circumstance. The 11% reduction in flow recommended for this system in the Draft is a substantial portion of current discharge, yet in terms of beneficial use up gradient, relatively small. In other words, does the potential benefit outweigh specified harm?

4. Discussion of species abundance and response to reduced flows in the Drafts is not wholly understood. It appears the analysis is in part posits a linear correlation between flows and abundance. Where the confusion arises is whether or not the given species abundance responds as a linear function of population base, or geometric function. Ecological communities are generally prolific in reproduction as matters of necessity for most reviewed in these processes are building blocks at or near the bottom of the food chain. Does loss of 15% of juveniles for a given species predict a corresponding 15% of total population, or 20%? May we expect 30% population reductions, or even more?

5. While recognizing findings by the Peer Review panel for the Homosassa River MFL determine it consistent with statute and code, there are objections within that are somewhat critical. Specific components follow:

The first tier of comments/questions are based on extracted commentary from “**SCIENTIFIC REVIEW OF THE RECOMMENDED MINIMUM FLOWS FOR THE HOMOSASSA RIVER SYSTEM**”-Hackney 2010

a. **Question #1** - “Is the District’s threshold of a maximum 15% change of resource within the system a reasonable approach? **Yes**, while it may be somewhat arbitrary, setting a quantifiable threshold provides a means to evaluate the impact that reductions in discharge would have on fish and invertebrates, salinity-based habitats, and the extent of thermal refuge for the Florida manatee. While reasonable, many of the r2 values were low (but significant) and only positive relationships were examined. Both positive and negatives ones should be examined if the goal is to not dramatically change the community structure of the entire system.”

b. **Question 2** - “Was there an adequate data base for development of the regression model? **Yes**, the salinity, tide stage, and discharge records for gage sites in the river and the salinity measurements made by SWFWMD and other agencies provided an adequate data base for the empirical regression models developed to describe salinity in the main channel of the Homosassa River. **Yes**, for most of the biological response measures (plankton, fishes, and manatees). The benthic analysis was incomplete, however. There were also considerable data sets for SAV and EAV that seemed to contradict each other.”

c. **Question 5** - “Was the data collection approach adequate to determine the past and present natural resources on the river system? **Yes**, with respect to flow, this approach is quite adequate to conclude that present-day spring and river discharges can be considered baseline or natural flows [also, please see response to the next question concerning water quality]. The approach assumed that present-day flow records were representative of past, or baseline, conditions based largely on the determination using a numerical groundwater flow (Basso 2010) that groundwater pumping in the Northern District of SWFWMD has reduced historical spring flows in the Homosassa River system by an insignificant amount (approximately 1 percent). With respect to many natural components, the answer was no. There were some data for SAV/EAV and water quality from earlier reports, but not much else besides those. Obtaining data on past resources that are not considered of economic value is often difficult. Data collected as part of the current MFL document will serve as a baseline for future modification of MFL evaluations.”

WAR is of the opinion the underscored sentence above should end with ‘yes’.

d. **Question 7** - “Was the weight of evidence enough to convince the panel that the recommended MFL satisfied the Florida Statute establishing the MFL requirement? Generally, **yes**, it would satisfy the statute, but because of the variability and low predictability of input data, there could be problems with the accuracy of the predictions.”

e.” We feel the District should take a multivariate approach as illustrated in their analyses in the appendices using Primer statistics. The goal of the MFL process is to do no “significant harm”, which in many cases is a professional judgment call. The suggested multivariate approach outlined at the end of this document (The sections on Chapters 4 & 5) would improve the ability to make predictions of potential outcomes based on flow reductions. These outcomes would be more holistic and at the heart of the MFL process.”

It is not clear the District has followed or responded to this recommendation and clarification is requested. Specific reference to the multivariate approach is found in “Chapters 4 & 5”, pages 27-28 of the Peer Review.

Chassahowitzka MFL Peer Review - **SCIENTIFIC REVIEW OF THE CHASSAHOWITZKA RIVER SYSTEM  
RECOMMENDED MINIMUM FLOWS AND LEVELS - Powell et al 2010**

“The Panel notes that reported chloride levels in the springs vary by an order of magnitude (SWFWMD 2010, Table 2.5) suggesting that the ultimate origin of their water could be from very different parts of the Floridan Aquifer. This concerns the Panel if modest changes in future aquifer pumping rates can potentially alter the amount and proportion of salts discharged from these springs. Unfortunately, the District’s simple regression equation of river flow and water levels may be too inaccurate during low flow periods to adequately address the potential contribution of saline waters in spring discharges to the river. This means that the spring flow MFL may have to be adjusted in the future as the District goes forward with its regional water management duties and responsibilities.”

WAR suggests that such critique should prompt great caution in making this determination. The Chassahowitzka River discharges directly into a National Wildlife Refuge. Chapter 62-302.700(9)(b)(4)

## DISPARITY BETWEEN DRAFT AND STAKEHOLDER RECOMMENDATIONS

The District staff has recommended in draft form, reductions of flow in the subject systems of 11% and 5% for Chassahowitzka and Homosassa Rivers respectively. Vocal Stakeholders have countered with requests for no reductions for both systems. Central to this debate is the concept of “significant harm” and degradation of Outstanding Florida Waters which are described by the State as having great value beyond that of water supply. The District has presented findings based on best available data, but questions stand about the quality and application of that information.

## CONCLUSIONS AND RECOMMENDATIONS

The District is compelled to develop these rules by Florida statute and administer mandated Areas of Responsibility. One of these mandates requires the District to plan for water supply in the form of 20 year plans. The Northern Region of the District’s jurisdiction is located within a larger area projected to be central to the state’s next development boom (Wildlife 2060 - FWCC/1000 Friends of Florida, 2010). Notably, a great concentration of this development will occur in the Springs Coast Region and I-75 corridor north of I-4. This is presented as a graphic form below.



The question arises then; will future water use permit applications within the subject basins satisfy the public interest test found in the District’s Basis of Review? The answer is not clear and should be examined in the analytical processes under discussion.

Basis of Review (BOR)

### **3.2.3 Public Interest Test.**

***In determining whether a regulated activity located in, on, or over surface waters or wetlands, is not contrary to the public interest or, if such an activity significantly degrades or is within an Outstanding Florida Water, that the regulated activity is clearly in the public interest, the District shall consider and balance, and an applicant must address, the following criteria:***

- a. Whether the regulated activity will adversely affect the public health, safety, or welfare or the property of others;***
- b. Whether the regulated activity will adversely affect the conservation of fish and wildlife, including endangered or threatened species, or their habitats;***
- c. Whether the regulated activity will adversely affect navigation or the flow of water or cause harmful erosion or shoaling;***
- d. Whether the regulated activity will adversely affect the fishing or recreational values or marine productivity in the vicinity of the activity;***
- e. Whether the regulated activity will be of a temporary or permanent nature;***
- f. Whether the regulated activity will adversely affect or will enhance significant historical and archaeological resources under the provisions of section 267.061, F.S.; and***
- g. The current condition and relative value of functions being performed by areas affected by the proposed regulated activity.***

In very general terms we estimate the limits of water supply supported by the Drafts will allow for the withdrawal of about 11,000,000 GPD and support a per capita consumption of 150 GPD for about 79,000 residents. This represents about 54% of the current Citrus County population. In context of current state population estimates, neither the supply nor demand is truly significant. The preceding graphic (pg 9) projects population growth and regional density over the next 50 years, a parameter which greatly exceeds statutory requirements for water planning, but at the same time illustrates the severe regional demands expected on the resource. Population in Florida has increased about eightfold since 1950 and it is not unreasonable to expect another doubling over the next 50 years. If past is prologue, such speculation may be conservative in the extreme. The next questions: Will the stipulated degradation of the Springs Coast Rivers provide adequate supply for this growth and is it rational from an economic perspective? WAR is at best, skeptical on both points.

While conceptually supportive of the requirement for MFL rules for Florida water bodies, there remains an open question about what constitutes "significant harm". The peer reviews for both Chassahowitzka and Homosassa Rivers describe the 15% of harm litmus as arbitrary or somewhat arbitrary. Peer review panels for both drafts have found the Drafts consistent with statute, yet provided technical criticism on the basis that natural systems could be better protected with revisions of process. It is our opinion this criticism should be taken to heart by the District and protection of the resource(s) be established as a first priority for economic reasons. It is not required that the District rationalize withdrawals in every MFL determination. Each of these systems has been degraded over long periods of time, and more recently they have all been designated as impaired waters despite fairly recent designation as OFWs. In fact the District has the authority to initiate a recovery action plan as a first determination.

WAR contends the District has latitude to evaluate this rule with the addition of economic impact analysis and recommends the District do so. Such constraints are required by statute to designate water bodies as OFW and it is illogical to degrade these systems without comprehensive analysis. The legal basis for doing so is

found in the act of defining “significant harm” by the District, this in lieu of statutory definition. We recommend the District incorporate economic analysis in this process for these systems, and also reconcile the rule with statutory provisions related to Outstanding Florida Waters.

There is no question whatsoever that subsequent issuance of water use permits to support residential or commercial development will contribute to increased nutrient loads at springs in the respective basins. This will occur without the development of the rule of course, but the potential for regulating such impacts by implementation of the rule is greater if such considerations are incorporated. It is not clear the District has the technical data base to evaluate such impacts on a case by case basis. If a basin supply is regulated simply as a single source it is imperative the outflow nutrient loads be analyzed. Otherwise a circumstance clearly exists that state issued permits will contribute to degradation of OFW. WAR recommends technical evaluation of this issue as a component of the definition of significant harm. A reasonable benchmark for such evaluation would exist in comparison between zero withdrawal and Draft suggested withdrawal limits of ground water in each basin.

WAR concludes that Stakeholders requests for 0% flow reduction recommendations for these reviews are justified due to questions and methodology related to the definition of significant harm. District staff has stated repeatedly that future review of these determinations may lead to modification of the rule. We are of the opinion such modification may allow for increased or decreased minimum flow authorizations. Proactive protection is cheaper than retroactive restoration. Credible objections exist and the process can be improved. Until such time as questions and/or recommendations by Peer Review Panels and Stakeholders are fully addressed, and deeper understanding of the nature of these systems is established, we respectfully do not find the present “best available data” sufficient to make a determination otherwise without putting extraordinarily valuable resources at risk.

Lastly, in this process we suggest the over-arching priority for implementation of the Rule(s) should be fidelity to the residents of the District’s jurisdiction, who along with the balance of the State’s populace are joint owners of the resource. Growth is certain and the District is compelled to plan for that eventuality. However, the degree to which growth occurs is somewhat speculative and uncertain. Robust and plentiful alternative water supply sources exist and in some cases have been adopted by regional water supply authorities for long range planning purposes. Florida’s water resources are finite and we urge all parties to pursue economies of efficiency, alternative supplies and management philosophy intent on preserving the quality of our most valuable resource. Thank you for your review of our position on this very important matter.

Respectfully submitted for W.A.R., Inc.,



Dan Hilliard  
Director  
352/447-5434

CC: -See email distribution  
W.A.R. Inc Executive Board  
SWFWMD Staff Members  
Stakeholders