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RE: COLLIER COUNTY WATERSHED MANAGEMENT PLAN DEVELOPMENT

The Conservancy of Southwest Florida has reviewed the documents recently released with regard to the development of Collier County Watershed Management Plans and offers the following comments. As you know, we have been very supportive of watershed management plan development as a tool towards more effective water resource management, but see the current emphasis in disputing water quality regulations, rather than adhering to them - as threatening to produce the opposite effect. Therefore, we urge Collier County staff to address and rectify the following identified issues in order to ensure the resulting plans produce the intended benefit.

GENERAL CONCERNS WITH HANDLING OF WATER QUALITY ASPECTS

The Florida Department of Environmental Protection (FDEP) already thoroughly compiles, assesses data, and develops Total Maximum Daily Loads (TMDLs) and Basin Management Plans (BMAPs) as necessitated by state and federal water quality policies and laws. Therefore, the Scope of Work for these plans should have never included a task (Element 4 – Task 1) to revaluate Impaired Waters Rule (IWR) data. Doing so was redundant, resulting in a waste of precious limited public funds and time to complete these plans. Moreover, unfounded consultant opinions as to whether current legally binding standards have merit, or should be adhered to, defies the County's legal obligation to comply with state and federal water quality standards and regulations. The purpose of the Watershed Management Plans (WMPs) is "to protect the County's estuarine and wetland systems"[1], not to analyze actions which could potentially allow the County to skirt the existing regulations designed to protect estuarine and wetland systems.

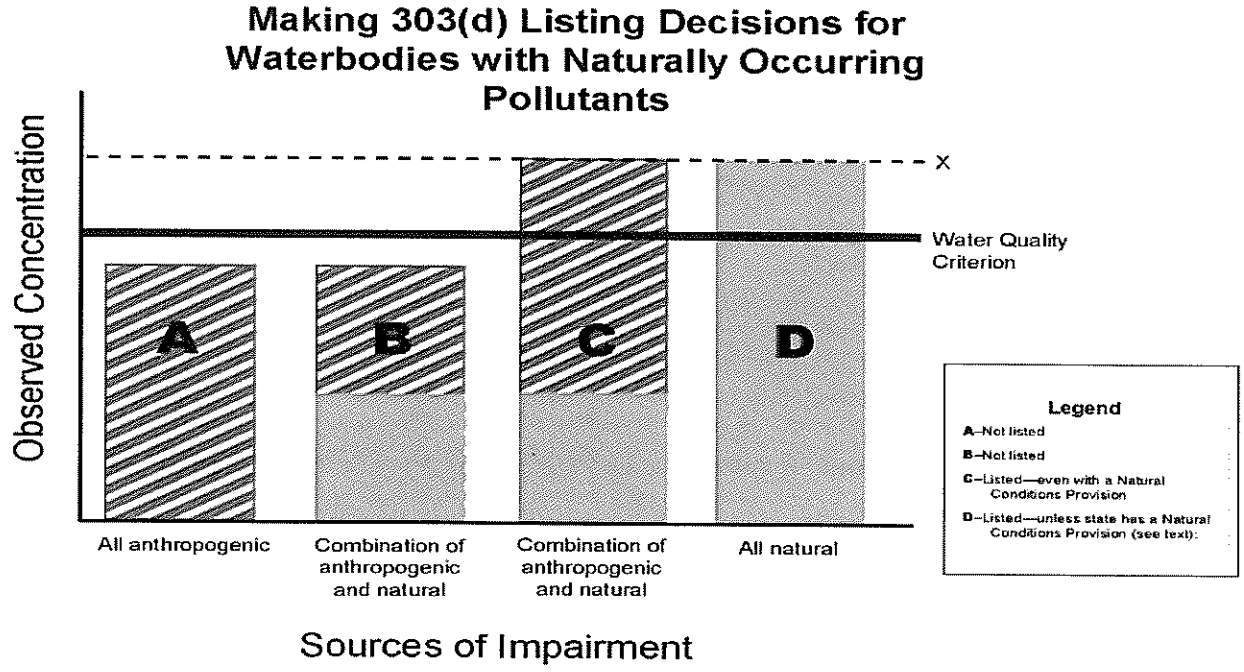
IMPROPER ASSESSMENT OF WATERBODIES BELIEVED TO BE IMPAIRED DUE TO NATURAL CONDITIONS

The technical memorandum from David Tomasko to Mac Hatcher dated 8/24/09 raises numerous points of disagreement between the contracted consultant and state and federal water quality law. The first is that waterbodies which receive loadings from natural sources should never be listed as "impaired". This is erroneous from both a state and federal legal perspective. The Florida Department of Environmental Protection (FDEP) determines and classifies whether impairment is believed to be the result of a natural pollutant source - specifically for potential natural dissolved oxygen (DO), iron, copper, and nutrient impairments. These waterbodies are noted as Category 4c impaired waterbodies on the state 303d lists. Many of the waterbodies that Mr. Tomasko speculated as "naturally polluted" have not been classified as Category 4c by the state and thus, are not even believed by FDEP to be impaired based on natural pollutant sources.

Moreover, according to federal law and guidance, even FDEP-classified Category 4c waterbodies should be relisted as Category 5 (needing a TMDL) if there is *any* indication that

[1] Collier County Growth Management Plan. CONSERVATION AND COASTAL MANAGEMENT ELEMENT. January 25, 2007. Policy 1.3.5. GOAL 2. (VI) Objective 2.1

anthropogenic pollution is, or could be present The EPA guidance figure below illustrates that unless pollutant concentrations are *solely* linked to natural sources, a TMDL must be completed for that waterbody[2]. Similarly, a waterbody must remain on the 303(d) list even if some portion of the exceedance can be contributed to natural sources, as shown in bar "C" of the figure.



If there are absolutely no anthropogenic pollutant factors that are plausible or can be identified, then that must be fully demonstrated with scientific evidence as part of an application to obtain site specific alternative criteria (SSAC) or place the waterbody on the "delist list". Until such time that a SSAC has been granted or the waterbody has been delisted, the legal requirement is to develop a TMDL to meet applicable water quality standards. To that end, the County should not continue to question, but instead comply, with such regulatory requirements by utilizing EPA's Florida 303(d0 list Decision Documents as the appropriate list of impairments and waterbodies to address.

IMPROPER ASSESSMENT OF DISSOLVED OXYGEN (DO) IMPAIRMENTS

Also outlined in the August 24, 2009 Technical Memorandum from Dave Tomasko to Mac Hatcher[3], 11 WBIDs in Collier County are not meeting the state water quality standards for DO and are currently on the FDEP Impaired Waters List. The memo cites previous work submitted (by PB&J assumingly) regarding reference sites used in the Gordon River Extension TMDL for DO - as evidence that DO impairment may not be caused by anthropogenic sources. The referenced previous work was not provided with the memo, and therefore cannot be commented on. However, the Gordon River Extension TMDL highlights an even larger problem concerning reference sites. The Conservancy would agree that the reference site approach utilized in the TMDL was not appropriate, however this does not provide evidence that natural sources are solely contributing to low DO in the subject impaired WBIDs. The four WBIDs mentioned, 3278G, 3278H, 3278I, and 3278V are in fact, all impaired for DO. WBID 3278G, Fakahatchee

[2] Information Concerning 2008 Clean Water Act Sections 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions, pp. 10-11 (Oct. 12, 2006).
[3] Tomasko, Dave PBS&J. Technical Memorandum to Mac Hatcher, PM Collier County. Re: Watershed Model Update and Plan Development Contract 08-5122, PO 4500106318, Element 4 - Task 1 – Review of IWR data. August 24, 2009.

Strand is included on the 303(d) list and the remaining WBIDs have exceeded state water quality standards for DO, however no causative pollutant was found (FDEP category 4d), meaning that total nitrogen (TN), total phosphorus (TP), nor biological oxygen demand (BOD) exceeded FDEP's "thresholds". Again, had FDEP thought the DO to be the result of natural conditions, it would have classified these as 4c – which it did not. According to federal regulations, EPA is responsible for developing TMDLs for those impairments that FDEP has placed in a category 4d as required under federal water quality law.

Moreover, county sampling in even in the most "pristine" areas, such as the Fakahatchee reference site Mr. Tomasko referred to, is primarily being conducted within canals that drain upstream urbanized areas containing stormwater pollution. No basin within the county is truly unaffected by anthropogenic activity and therefore, would qualify as for exemption of a TMDL due *solely* on natural conditions under federal law. That being said, a TMDL assessment assesses pre-development natural load and subtracts it from existing pollutant loads to determine the appropriate load reduction value – so the county would never be required to remove natural pollutant loads anyhow. Therefore, the County should comply with DO impairment determinations in creating watershed management plans that reduce the anthropogenic inputs of pollutants which depress DO levels.

INAPPROPRIATE RECOMMENDATION FOR COUNTY-WIDE DO DEVIATIONS

The memo suggests that a Site Specific Alternative Criteria (SSAC) "may be appropriate for deriving appropriate DO targets for Collier County waterbodies". It should be made clear that: 1) SSAC are developed on a WBID by WBID basis, not county-wide, and 2) SSAC still have to maintain the existing designated use of the waterbody unless a Use Attainability Analysis (UAA) is completed that demonstrates that the current use is unattainable. Both a SSAC and a UAA are very costly, and since many would be needed in order to legally allow for deviation of DO standards county-wide, it would extremely expensive and risky for the County to invest such resources - unless there was definitive proof that DO standards are not influenced at all by any anthropogenic factor. Conducting water quality testing ourselves through-out the county and reviewing all other available water quality data, the Conservancy does not see the scientific justification required for such DO deviations to be granted. Additionally, Collier County staff indicated at the August 4, 2010 Collier EAC meeting that the County has no intentions of developing SSACs for DO. Therefore, the point of SSACs is moot and again, the focus of these plans should be on meeting current DO water quality standards instead.

INAPPROPRIATE CONTESTING OF SALINITY CHARACTERIZATION

It was also unnecessary to assess salinity regimes of WBIDs and apply DO criteria that do not match their designated use or current water quality standards. As you are aware, FDEP - with Collier County's participation -recently went through an extensive WBID re-delineation process just a couple years ago to determine boundaries that better reflect waterbodies and their designated use.

In the June 25, 2009 Technical Memorandum from Dave Tomasko to Mac Hatcher[4] PBS&J reports that "[w]hile sites within the Gordon River fail to meet both marine and freshwater DO criteria, so do the majority of reference sites used in the Gordon River TMDL report." As outlined above, simply because reference sites failed to meet criteria does not mean there are no anthropogenic factors contributing to the reference site impairment or the subject waterbodies impairment. Therefore, the County should not rely on this unsupported recommendation to

[4] Tomasko, Dave PBS&J. Technical Memorandum to Mac Hatcher, PM Collier County. Re: Watershed Model Update and Plan Development Contract 08-5122, PO 4500106318 Element 4, Task 3: Water Quality and Ecological Assessment of the Gordon River.

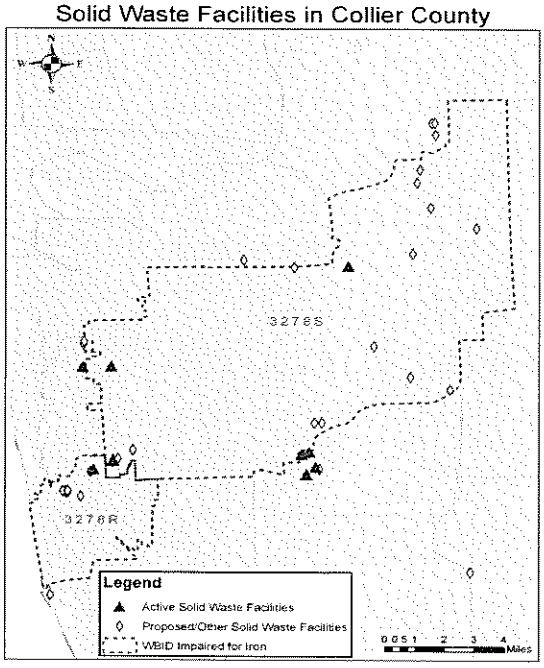
revisit the characterization of WBIDs as fresh or marine as an avenue to arguing for more lenient water quality standards to be applied. Moreover, the analysis was a moot point either way, because the two WBIDs assessed as potentially marine in the Memorandum - failed water quality standards for DO when using either the marine or freshwater criteria.

INAPPROPRIATE NEGATION OF IRON IMPAIRMENTS

The August 24, 2009 Technical Memorandum from Dave Tomasko to Mac Hatcher[5] suggests that "no detailed analyses have been conducted" for sources of iron and that "contaminant sources are not known to exist in these watersheds". It should be noted that generally an assessment of pollutant sources is conducted through the TMDL process and therefore, is forthcoming after impairment has been verified. Therefore, is would be premature to expect that those sources would be identified at this point prior to an Iron TMDL. Regardless, unless Mr. Tomasko can provide sufficient scientific evidence that the iron exceedance is *entirely* natural and thus, a SSAC is granted or the waterbody is delisted by FDEP – the legal requirement is to meet state iron water quality standards.

That being said, the Conservancy's cursory analysis shows at least one potential non-natural source of iron within WBIDs impaired for iron - active solid waste facilities (shown on the map below). In FDEP's "Evaluation of Potential Ground Water/Geologic Contributions of Iron" for the Caloosahatchee[6] at least 6 potential sources of iron were established: 1) Solid Waste Sites in Planning Unit or Near WBID of interest, 2) Solid Waste Facilities in watershed of WBIDs being evaluated, 3) SUPERFUND Sites in Planning Unit or Near WBID of interest, 4) SUPERFUND Sites in watershed of WBIDs being evaluated, 5) NPDES Discharges in Planning Unit or into WBID of interest, and 6) Sites in COMET Database in Planning Unit or Near WBID of Interest. This supports that there are anthropogenic inputs of iron and thus, iron impairments would likely apply.

Solid Waste Facilities in Collier County



[5] Id 3

[6] Florida Department of Environmental Protection. Caloosahatchee Basin, East Caloosahatchee (WBID 3237B) West Caloosahatchee (WBIDs 3235E, 3235F, 3235G, 3235J, 3235L) Orange River (WBID 3240J) Estuarine Caloosahatchee (3240B, 3240E, 3240I, 3240M, 3240N). Evaluation of Potential Ground Water/Geologic Contributions of Iron. Prepared by James Dodson, Teayann Tinsley, Akia Laurant, and Edgar Wade Ground Water Protection Section, Bureau of Watershed Restoration.

Therefore, the County should instead work towards identifying potential anthropogenic inputs of iron (as seen in the map above) and assess measures necessary to meet state iron water quality standards.

NEED FOR SEPARATE BUT COMPATIBLE BMAPS AND WMPS FOR COLLIER COUNTY'S WATERSHEDS

Watershed Management Plans (WMP) cannot act as reasonable assurance documents in place of Basin Management Action Plans (BMAP), since they will not adequately address water quality impairments based FDEP's impaired waters lists and Total Maximum Daily Loads (TMDLs) already completed within the county. The county's Watershed Management Plans are not designed to isolate and assign specific pollutant / wasteload allocation reductions as a BMAP would, as well as are not a compliance instrument with the same level of binding and enforceable measures necessary to fulfill the requirements of the BMAP. BMAPs "represent a comprehensive set of strategies--permit limits on wastewater facilities, urban and agricultural best management practices, conservation programs, financial assistance and revenue generating activities, etc.--designed to implement the pollutant reductions established by the TMDL. These broad-based plans are developed with local stakeholders--they rely on local input and local commitment--and they are adopted by Secretarial Order to be enforceable".[1] Additionally, BMAPs cross geopolitical boundaries and also developed with the participation of all affected stakeholder groups who would be required for their successful implementation - such as the County, City of Naples, City of Marco, etc. in the case of Collier County.

Whereas, Collier County Comprehensive Plan Policy 2.1.4 outlines that "All Watershed Management Plans shall address the following concepts: a. Appropriate wetlands and uplands serving as a buffer to wetlands are conserved; b. Drainage systems do not degrade wetland and estuary ecosystems; c. Surface water that potentially could recharge ground water is not unduly drained away; d. When feasible the extent and effects of salt-water intrusion are lessened; e. The timing and flow of fresh water into the estuaries from the watershed shall, as a minimum, not degrade estuarine resource value; f. The needs of the watershed's natural resources and human populations are balanced; g. The effects on natural flood plains, stream channels, native vegetative communities and natural protective barriers which are involved in the accommodation of flood waters; h. Non-structural rather than structural methods of surface water management should be considered first in any proposed new works; i. Wetland and estuarine habitat functions are conserved and/or enhanced; and j. Wetland and estuarine ecosystems will be conserved and/or enhanced using a variety of innovative tools, including landowner incentives, public acquisition, conservation easements, and/or transferable development rights." Therefore, the Collier WMPs are planning tools for evaluating land use changes to reduce impacts to water resources with regards to wetlands loss, or changes in quantity, timing or distribution of flows - but they do not emphasize water quality nor provide binding enforceable pollutant / wasteload allocation and reduction requirements for meeting Total Maximum Daily Load pollutant limits to restore water quality to state water quality standards. The Conservancy thus supports separate BMAPs be done to address these impairments, which would then work in tandem with Collier's WMPs.

AGRICULTURAL LANDS SHOULD NOT BE ASSIGNED A ZERO IN RESOURCE VALUE EVALUATIONS.

The Technical Memorandum erroneously assigns a score of "0" for Vegetation/Habitat and Hydrological areas where a natural system has been converted to a developed land use class (e.g., *agriculture*, urban development, golf course, and *pasture*). Agricultural and pasture lands provide more natural resource value than urban development. Even the document is internally inconsistent with regards to this in that assigns agriculture land cover types scores ranging from

moderate to high value in its Landscape Suitability Index (LSI). These land uses include woodland pasture; with livestock (8.87), pasture; without livestock (8.03), low intensity pasture; with livestock (7.32), citrus (7.02), high intensity pasture; with livestock (6.96), and row crops (6.07). Hydrology, like vegetation, looks at the preexisting conditions (PDVM) and compares it to the current conditions. While a predevelopment vegetation community provides optimal functional value for native wildlife (e.g., for food, cover, and breeding) and hydrologic function based on its intact native vegetative state, conversion to agricultural uses does not eliminate hydrologic or habitat value as explained in the following sections.

Natural Resource Value of Agricultural Lands Overview: As vital as agriculture is to Florida's economy, the agricultural lands themselves also provide key habitat and ecological functions to the surrounding areas. They provide an important function to Florida's hydrology by sometimes acting as temporary water retention areas in addition to providing nesting and foraging habitat, habitat for base prey populations, and necessary components of the life cycle for various wildlife species. With proper management, they can help replenish aquifers and filter nutrients before they enter other systems. They often "serve as a buffer to encroaching urban development, and can restrict the spread of exotic and nuisance species to undeveloped areas[7]". Agricultural lands support some of the states most imperiled species including, the crested caracara (*Caracara plancus*), southeastern American kestrel (*Falco sparverius paulus*), burrowing owl (*Athene cunicularia floridana*), wood stork (*Mycteria americana*), gopher tortoise (*Gopherus polyphemus*), eastern indigo snake (*Drymarchon couperi*), and the Florida panther (*Puma concolor coryi*) as well as a vast array of other wildlife. In a developing landscape, Florida's wildlife has become more dependent on human impacted areas for survival. Where natural habitats are becoming scarcer because of land conversion to agriculture, species have adapted to their changing surroundings. Humans as well are learning to adapt and apply more natural water control and retainment methods on agricultural land, restoring the historic hydrology of Southwest Florida.

Hydrologic Value of Agricultural Lands: The scores for hydrology were based on the length and duration of inundation and its functional value to native wildlife. Shifts in vegetation that represented a change in depth and duration of inundation were the result of the low scores that agricultural lands received. Not taken into account was that agricultural lands do or can have the ability to retain a large quantity of water similar to function of natural wetlands had on pre-developed land and are sometime used as a temporary flood storage basin. They also recharge groundwater levels as a result of rainfall or irrigation water absorption, reducing the run-off on the soil surface. A percentage of this soil retained water is then slowly released into canals and other water bodies[8]. Often, farm fields lie fallow and/or are seasonally flooded during the summer wet months when water storage is most needed. These storage and aquifer recharge functions can effectively stabilize water flow from the land and mitigate flood damage in downstream areas.

In fact, there has been a recent movement to pay farmers for these water storage services. One such concept is Recyclable Water Containment Areas (RWCAs). A designated RWCA can be created on private land, such as an agricultural field, where it would persist for a temporarily agreed amount of time (i.e. five years). Studies have shown that temporary flooding of agricultural lands (such as in a RWCA) enhances water retention and by doing so, delays discharge from the watershed to local bays and estuaries. "Work by S. Shukla (UF/IFAS Agricultural and Biological Engineering Department) and colleagues on retention ponds in southwest Florida has shown that approximately 50% of the water in the pond is lost through

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[7] Restoring the Everglades: Challenges for Agriculture. Economic Research Service/USDA. Agricultural Outlook (1997). Retrieved from http://www.ers.usda.gov/publications/agoutlook/sep1997/ao244d.pdf

[8] Restoring the Everglades: Challenges for Agriculture. Economic Research Service/USDA. Agricultural Outlook (1997). Retrieved from http://www.ers.usda.gov/publications/agoutlook/sep1997/ao244d.pdf

lateral and downward movement[9]". Impounded water on agricultural lands however, increases the water table of adjacent lands leading to more water storage and reduced pumping for irrigation[10]. As the water evaporates, detritus and other nutrients settle to the bottom. This is advantageous for future crop production, as well as the environment, by providing better soil for growth and less fertilizer and nutrient application needs. Therefore, the potential storage and aquifer recharge values that agricultural lands do or could provide should be reflected through a higher hydrologic score being assigned to them.

Wildlife Value of Agricultural Lands: Agricultural lands also provide habitat for many imperiled species, with one such species being the Audubon's crested caracara. The caracara, a threatened bird of prey, occurs as an isolated population in the south central part of the state. Historically this region was dominated by xeric grassland or dry prairie, but native land cover has been subject to conversion to unimproved or improved pasture utilized for cattle ranching[11]. Morrison and Humphrey (2001) conducted a population study on the distribution and reproductive activity of caracara breeding pairs in relation to land ownership and usage. "Eighty-two percent of 73 active nest sites found were on privately owned *cattle ranches*[12]". Additionally, the study found that "46 breeding areas with 4 years of known histories of occupancy and reproduction, pairs nesting on lands where the major land use was cattle ranching exhibited higher rates of breeding-area occupancy, attempted breeding during more years, initiated egg laying earlier, exhibited higher nesting success, and attempted a second brood after successfully fledging a first brood more often than pairs nesting on lands managed as natural areas[13]". Populations of non-breeding caracaras also occupy habitats uncharacteristic of these breeding areas. "Specifically, *citrus groves* were occupied extensively, and *row crops* were used particularly during breeding seasons[14]". Non-breeding caracaras seem to prefer citrus groves because it serves as a refuge from high temperatures and breeding caracaras as they defend their territory[7].

The smallest falcon in the United States, the Southern American kestrel, also depends on agricultural fields for hunting. Kestrels, listed as threatened in Florida, utilize open pine habitats, woodland edges, prairies, and *pastures* throughout much of the state[15]. They often perch themselves on telephone wires at the edge of a field or other open area. From this vantage point they hunt for their normal prey which includes: insects (favoring grass-hoppers and dragonflies), lizards, and small mammals[16].

The Florida burrowing owl, a state listed Species of Special Concern, occurs throughout the state "although its distribution is considered local and spotty and the presence of burrowing owls is primarily dependent upon habitat[17]". They often inhabit open native prairies and cleared areas that offer short groundcover including *pastures*, *agricultural fields*, golf courses, airports, and vacant lots in residential areas[18]". This species is one that has managed to thrive in areas affected by human development where land clearing has sometimes created new habitat for them.

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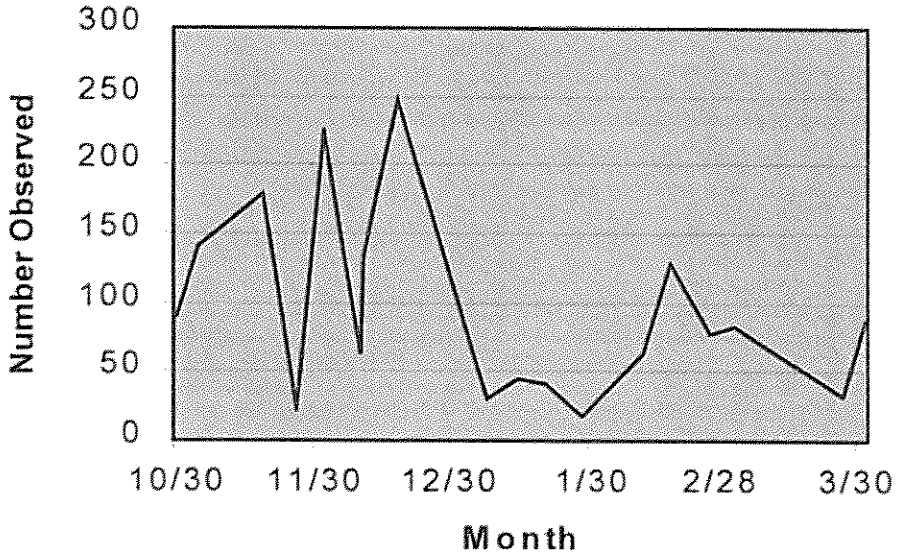
[9] IBID
[10] IBID
[11] Morrison, Joan, and Stephen Humphrey. "Conservation Value of Private Lands for Crested." *Conservation Biology.* 15.3 (2001): 675–684. Print.
[12] IBID
[13] IBID
[14] Dwyer, J, F. (2010) Ecology of Non-breeding and Breeding Crested Caracaras (*Caracara Cheriway*) in Florida. Retrieved from http://scholar.lib.vt.edu/theses/available/etd-05092010-132909/unrestricted/Dwyer_JF_D_2010.pdf
[15] Field Guide to Rare Animals of Florida, Florida National Areas Inventory (2001). Retrieved from http://www.fnai.org/FieldGuide/pdf/Falco_sparverius_paulus.pdf
[16] American Kestrel, Florida Fish and Wildlife Conservation Commission. Accessed by http://myfwc.com/WILDLIFEHABITATs/BirdSpecies_AmericanKestrel.htm
[17] Burrowing Owl, Florida Fish and Wildlife Conservation Commission. Accessed by http://myfwc.com/WILDLIFEHABITATS/BirdSpecies_BurrowingOwl.htm
[18] IBID

Agricultural lands have also become vital to the wetland species, such as the endangered wood stork - which has been observed using man-made wetlands such as storm water treatment areas and ponds, golf course ponds, borrow pits, reservoirs, roadside ditches, *agricultural ditches*, drainages, flow-ways, mining and mine reclamation areas, and dredge spoil sites for foraging and breeding purposes[19]. Other protected wading bird species, such as egrets, herons, ibises, and roseate spoonbills also make use of the shallow waters that collect on *agriculture fields* and nearby ditches for feeding. With rapid conversion of short hydro-period wetlands into development in recent years, water retention on agricultural lands are playing a larger role in the foraging habitat for these species. A study conducted by Main and Vavrina (2009) demonstrated the usage of wading bird species on such agricultural lands. Surveys were taken in and around 12 miles of canals serving agricultural operations on a 1,000 acre potato farm for 18 weeks starting in October until March, coinciding with the nesting season of many wading birds in southwest Florida[20]. The results from these surveys documented over 1,619 individuals representing 11 species of wading birds[21]. Additionally, the "greatest concentrations of birds were observed clustered around ditch cleaning operations during October through December[22]". Another factor influencing the population of wading birds in the canals was when the water levels were lowered during February in preparation for harvest[23].

Figure 3. Number of Wading Birds Observed during Agricultural Area Surveys[24]



[19] Wood stork (*Mycteria americana*) Five Year Review: Summary and Evaluation, U.S. Fish and Wildlife Service. Accessed by http://www.fws.gov/northflorida/WoodStorks/2007-Review/2007-Wood-stork-5-yr-Review.pdf
[20] Main, Martin, and Vavrina, Charles. "Wading birds and agriculture in Southwest Florida." *University of Florida IFAS Extension.* 2009. Web. 16 Aug 2010. <http://edis.ifas.ufl.edu/pdffiles/UW/UW13900.pdf>.
[21] IBID
[22] IBID
[23] IBID
[24] IBID

Table 1. Wading birds observed during surveys of agricultural canals listed by species, number and % of total birds observed, and listed status by state and federal agencies[25].

Species	Count	%	Listed Status	Agency
Cattle Egret	410	25		
Great Egret	392	24		
Snowy Egret	238	15	Species of Special Concern	State
Wood Stork	193	12	Endangered	State, Fed.
White Ibis	172	11	Species of Special Concern	State
Little Blue Heron	114	7	Species of Special Concern	State
Great Blue Heron	41	3		
Roseate Spoonbill	19	1	Species of Special Concern Under Review	State, Fed.
Tri-colored Heron	19	1		
Sandhill Crane	13	1	Threatened	State
Glossy Ibis	8	0		
Green-backed Heron	4	0		
Total	1619	100		

Many species of reptiles also utilize habitat on agricultural fields including the threatened gopher tortoise which, along with its burrows, are protected by state law. Gopher tortoises live in well-drained sandy areas with a sparse tree canopy and abundant low growing vegetation. They are commonly found in habitats such as sandhill, pine flatwoods, scrub, scrubby flatwoods, dry prairies, xeric hammock, pine-mixed hardwoods, and coastal dunes which have historically been maintained by periodic wild fires however, *managed agricultural lands* can also provide preferred habitat[26]. In areas with no dominant tree cover such as improved pasture, abandoned pasture, cropland (row and field), abandoned citrus groves, fallow crop land, and disturbed habitat like farmland there is a high potential for gopher tortoise habitat[27]. "Mechanical clearing and grazing by cattle can also be used to maintain open canopy and encourage forage species of plants on which the gopher tortoise feeds[28]". As a keystone species, the gopher tortoises' burrows also provide shelter for "more than 360 species of animals, including indigo snakes, gopher frogs, Florida mice, skunks, opossums, rabbits , quail, armadillos , burrowing owls, snakes, lizards, frogs, toads, and many invertebrates. Many of these "commensals" use tortoise burrows to escape predators, adverse weather conditions, and fire[29]". Some of these species are completely dependent on these burrows and cannot exist without them[30]. The presence of gopher tortoises and their burrows effectively create a unique ecology, in which a vast assortment of biodiversity is dependent.

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[25] IBID

[26] Gopher Tortoise Habitat, Florida Fish and Wildlife Conservation Commission. Accessed by http://myfwc.com/WILDLIFEHABITATS/GopherTortoise_Habitat.htm

[27] Ashton, Ray, and Patricia Ashton. *The Natural History and Management of the Gopher Tortoise*. 1st edition. Malabar, FL: Krieger Publishing Company, 2008. 65-93. Print.

[28] IBID

[29] Puckett, Catherine, and Franz, Richard. "Gopher Tortoise: A Species in Decline." *University of Florida IFAS Extension*. Gopher Tortoise Council, 2001. Web. 11 Aug 2010. <http://edis.ifas.ufl.edu/uw048>.

[30] IBID

Eastern indigo snakes are also protected as a threatened species and utilize agricultural lands. In areas where there are populations of gopher tortoises, indigo snakes can be found sheltered in tortoise burrows where they take refuge from cold winters and desiccation[31]. Studies of radio-marked eastern indigo snakes on the central ridge of South Florida indicate that they use a wide variety of natural, disturbed, and nonnatural habitat types[16]. "On the ridge itself, eastern indigos favor mature oak scrub, turkey oak sandhill, and *abandoned citrus grove habitats*, whereas snakes found off of the sandy ridges use flatwoods, seasonal ponds, *improved pasture*, and *active and inactive agricultural lands*[32]". In extreme South Florida habitats such as the Everglades and Florida Keys, eastern indigo snakes are found in tropical hardwood hammocks, pine rocklands, freshwater marshes, *abandoned agricultural land*, coastal prairie, mangrove swamps, and human-altered habitats[33].

The critically endangered Florida panther also utilizes these agricultural areas. Kautz et al. (2006) denotes three priority zones for panther conservation: primary, secondary, and dispersal zones. Primary zone, which is land necessary for the long-term viability and persistence of the panther in the wild, is 3,548 mi^2 (9,189 km^2) in size and 7.6% of it is *agricultural lands*[34]. Secondary zone is 1,269 mi^2 (3,287 km^2) and 36% is agriculture and dispersal zone is 44 mi^2 (113 km^2) in size and is comprised of 49% *agriculture*[35]. Panther home ranges often include contain a mosaic of natural habitats and man-made habitat such as agricultural lands, of which panthers utilize. *Agricultural lands* interspersed with native habitat can benefit and provide habitat for the panther's primary prey, which include deer and feral hogs[36]. Panther telemetry data collected by Land et al. indicates that panthers use *agricultural fields* (primarily croplands and citrus groves) both during the day and even more so at night, albeit not as high as some other areas[37].

Therefore, the Conservancy urges the Hydrological and Vegetation/Habitat Scores to be revised to scores commensurate with those reflected in the Landscape Suitability Index (LSI) and a revised assessment be done.

Conclusions

In conclusion, Mr. Tomasko himself said that "[t]here were no discrepancies in the mathematical calculation of impairment for the previously identified impaired water bodies by FDEP in Collier County"[38]. Therefore, there is no scientific nor legal basis for the County to dispute state and federal water quality regulations in the development of these plans. The Conservancy urges that these watershed plans be designed to adhere and comply with existing state and federal water quality policies and laws, as well as reflect the hydrologic and habitat values provided by agricultural lands – in order to ensure that the most accurate and effective plans are produced. Thank you for your time and consideration of our comments and recommendations.

Sincerely,

Jennifer Hecker

Jennifer Hecker
Director of Natural Resource Policy

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[31] Multi-Species Recovery Plan for South Florida: Eastern Indigo Snake, North American Wild Turkey Management Plan, Accessed by http://www.nwtf.org/NAWTMP/downloads/Literature/Eastern_Indigo_Snake.pdf

[32] IBID

[33] IBID

[34] Kautz, et al. "How much is enough? Landscape-scale conservation for the Florida panther." *Biological Conservation*. 130. (2006): 118-133. Print.

[35] IBID

[36] Logan , et al. "Florida Panther Habitat Preservation Plan: South Florida Population." Florida Panther Interagency Committiee. (1993)

[37] Land et al. Florida Panther Habitat Selection Analysis of Concurrent GPS and VHF Telemetry Data

[38] Id 3.