

SWIM Plan Comments for Consideration – Perdido Watershed - 2017

We are:

Collectively, wish to thank the NFWFMD for accepting this tardy joint report and allowing our thoughts, observations and recommendations to be considered for inclusion in the final Perdido SWIM Plan.

Our organizations have been active within this community and watershed for decades, and serve the citizens of this area in a multitude of ways including education, outreach, sampling, field trips and presentations. Our intentions are to cross pollinate within our changing community and create better stewards of our beautiful natural resources. Our organizations complement each other without duplication, often without funding other than donations, and work in tandem to preserve our natural flora and fauna. We are engaged in these natural resource related discussions and dedicated to preserving our resources, culture and heritage.

We are the Membership and Boards of the:

- Francis M. Weston Audubon Society;
- Friends of Perdido Bay;
- Bream Fishermen Association;
- Longleaf Pine Chapter of the Native Plant Society; and
- Panhandle Watershed Alliance

Summary

The collective team of ‘Reviewers and Respondents Team’ have successfully identified issues and opportunities that we believe if adopted could significantly improve the planning process and maximize potential environmental benefits to all the local communities within this watershed. The Draft SWIM Plan was found *incomplete* and *does not adequately address* the current conditions and resources of the area, *nor provide steps to improve them or vet the future* proposed impacts and planned activities within the Florida component of the Perdido Watershed. The report did not include analysis of the current condition of the watershed (and water quality) which would be important information to help make sound decisions on what the system can accommodate in the future. The Perdido Watershed is 70% in Alabama; 30% in Escambia County, FL. If the currently planned activities were permitted to occur, the projected economic benefit would increase at the same rate the environmental condition would continue to decrease thus serving to compound water quality issues within this system.

We recommend a new trajectory to address growth in the region without compromising the environment. We recommend setting up a ‘Fund’ which is insulated from city/county/state agencies to support the environmental monitoring currently being conducted by the many organizations listed as authors. We recommend more transparency and accountability as to what activities are being considered which may change our current landscape due to growth without considering the resources. We would like to see an accounting of past SWIM Plan recommendations including the description and status of which projects were funded, did the project achieve the goal, what worked and what didn’t. We also recommend a central location to house all the pertinent information on local natural resources and environmental studies, including data and resources. Often, these studies are conducted and developed with taxpayer money but are unavailable in a public forum for the community to access. We

recommend funding an integrated organization which would serve as a regional resource and maintain a community calendar of events. In essence, we recommend a new trajectory to address the growth of our region without compromising the environment. Continued water quality impairments will result in additional lost aquatic resources and recreational use in this watershed. Please see the recommendations at the end of this document.

Considerations and Observations

Within the Perdido Watershed, **the greatest future impact** from the Florida side will be the ‘encouraged’ growth affiliated with the Navy Federal Credit Union – located south of I-10 and runs through Bell Creek and is adjacent to Eleven Mile Creek at the site of the former Langley Bell 4-H property; and the newly proposed Sector Plan and accompanying Belt Way north of I-10. While growth of the area is inevitable; Smart Growth (<https://www.epa.gov/smartgrowth>) should be the norm, such to include the values of the rural community. There are many environmental and stormwater benefits to preserving some areas as low density development. Impervious and highly engineered new developments should not be permitted in low lying flood prone areas.

The Sector Plan is a long range planning tool that benefits the entire county by bringing predictable, stable growth to the area while, at the same time, maintaining some protections for maintaining the rural atmosphere for the existing residents. The Sector Plan is based on Smart Growth. The Sector Plan is being developed by the county planning board. (<https://myescambia.com/our-services/development-services/planning-zoning/optional-sector-plan>)

The current Escambia County Planning Board met on Tuesday, 7 March 2017. Included on the agenda were discussions about the Sector Plan and the ability of individual property owners to opt out. During the discussions, one Board Member indicated the role of ‘this Board’ was to get property on the tax rolls to fund future growth for the county. While the Sector Plan and the new Beltway discussions are underway; no assurances to protect area surface water volume with regard to properly spanned bridges (not culverts) were considered. Neither was the connectivity within riparian zones and other flood prone low lying areas. Much of the area being discussed in the 2012 SWIM Plan and the Sector Plan is currently considered rural. By 2020 this watershed will be suburban, and by 2030 at the rate of development it will be urban.

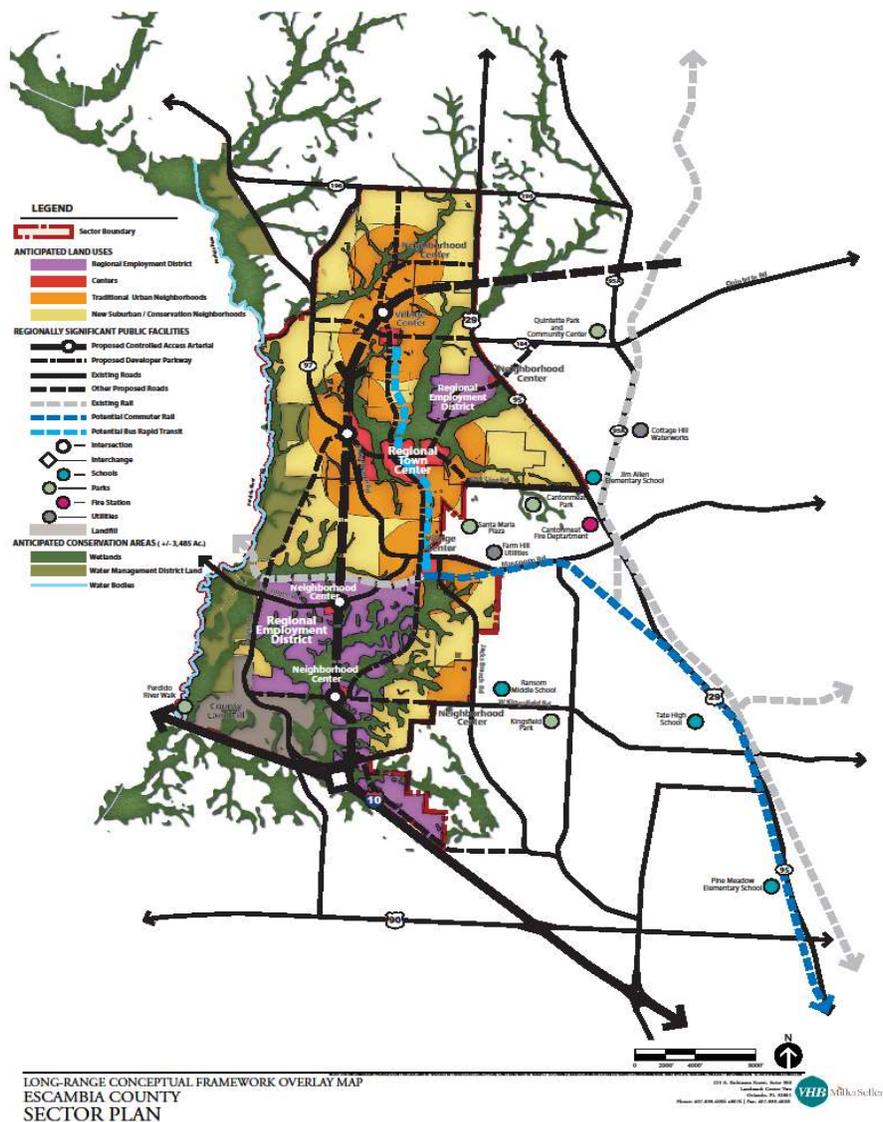
The Escambia County Planning Board and Staff rely on other county departments and their knowledge to assure these plans are well designed, but citizens have observed a lack of coordinated oversight between in-house departments, regional agencies and jurisdictional oversight.

*In Florida, there are 33 verified water quality impairments among 27 waterbodies in the Perdido watershed under DEP’s TMDL program (FDEP, 2009). Impairments pertain to levels of mercury in fish, fecal coliform, dissolved oxygen, turbidity, biological oxygen demand, unionized ammonia and nutrients (FDEP, 2009). Mercury was the most common exceedance, occurring in 22 waterbodies. **Impaired sub-basins cover about 79,918 acres of land, which amounts to 36% of the Florida watershed.** The verified list will be revised in December 2011 (Espy, 2011). Six additional waterbody segments containing eight impairments are proposed to be added, while 15 impairments are proposed to be delisted (FDEP, 2011). TMDLs have been developed for Tenmile Creek and Elevenmile Creek for fecal coliform. These waterbodies do not yet meet water*

quality standards. Figure 8 of the Draft Perdido Swim Plan 2012 depicts impaired waterbodies and lists waterbodies and their impairments.

The proposed Escambia County Sector Plan (seen below) – depicting potential future growth via future roads and potential development. Dark dashed line represents the new Beltway, which crosses many low lying areas including Cowdevil Creek and Jack’s Branches.

Exhibit D



Water Quality Impairments as discussed above are due to past and current development practices. Continuing on this path will add to future and additional anthropogenic impacts, habitat destruction and additive impairments. The rural community often laments the increased rates of sedimentation and turbidity observed in surface water after rain events. Rain on impervious surfaces picks up sediments and other materials and flushes stormwater into low-lying creeks and streams. These impacts serve to stress an already unhealthy system.

Citizen water quality monitoring programs have been active in this watershed for the past 50 years, providing a large and valuable data set of conditions over time. What have these organizations observed over their 50 years of sampling? Pristine creeks have become impaired or disappeared by being buried under parking lots or tons of sediment.

Jurisdictional agencies have relaxed regulations to accommodate growth, sometimes relying on outdated and limited information. Compliance assistance has replaced compliance enforcement and limited funding has cut staff positions. We believe in strengthening environmental ordinances to accommodate growth management avoid further deterioration would help increase property values and rekindle stewardship. Independent oversight would restore issues between citizens and bureaucratic mentality that has evolved in our communities.

There are no verified impairments for biology; however, very low Stream Condition Index (SCI) scores indicate that Dry Creek and McDavid Creek have very poor habitat quality (FDEP, 2005). Agricultural land use practices are described as having degraded these stream corridors (FDEP, 2005). Agricultural conversion of riparian headwaters is clearly visible on aerial photographs, particularly in the vicinities of Walnut Hill and Molino. - Draft Perdido Swim Plan 2012

Since these conditions were noted in the 2012 Draft Perdido SWIM Plan, have conditions improved or become more impaired? In 1973, Tom Hopkins, head of the then new UWF Marine Sciences Department observed the following when discussing the Pensacola Bay System – the same applies to the Perdido Watershed. *“The management of the surrounding uplands is fragmented amongst a multitude of federal, state, and regional regulatory agencies, as well as numerous local governments bordering the system. Present day management is accomplished through uncoordinated implementation of various monitoring, permitting, and regulatory programs. In addition, many of these programs are reactive rather than proactive in nature, a critical situation given the growth pressure that this region has experienced and will experience in the future.”*

Increasing water quality standards and improving natural habitat in low lying areas could serve to mitigate flood events by providing the opportunity for wetlands to hold and slow waters. Wetlands, both isolated and connected to riparian zones are priceless for maintaining our water quality along these watersheds. In addition, these areas would provide wildlife corridors for our native and migrating species and serve as refuge and rest areas for many of the fauna which fly across the Gulf of Mexico.

In recent years, a chronic undercurrent has been working its way through the region like an invasive species. This harmful perception appears to have devolved into an ‘Us versus Them’ mentality. The root of the situation appears to be that jurisdictional agencies see ‘their customers’ as the economic development sector and those concerned with the state and welfare of our natural resources, as the enemy.

This condition was manifested at a March 2017 meeting, in which the Environmental Law Institute (ELI) focused on engaging and offering assistance to the local citizenry to identify local issues, priorities and goals as future projects for Natural Resource Damage Assessment (NRDA) opportunities become available. Discussions were focused on the need for a trusted collaborative and technical assistance programs to educate the community and the elected local and regional constituents. Many attendees pointed out that citizen science groups are trying to fill that role, but often these organizations complain about being excluded from early NRDA and full NRDA projects and discussions. A policy specialist pointed out that at a higher level, federal agencies do not trust their state/county/city counterparts; and in return none of these agencies trust the public. Perhaps the biggest irony is that taxes support these bureaucracies and this way of thinking.

Funding cuts during the recent and current political climate have decreased the level of regular monitoring of stream and river biota; such that the State of Florida has written the current permits to include self monitoring and self policing by municipal, industrial and the land development industry. Self policing has not improved the water quality in this watershed.

International Paper's pulp and paper mill in Cantonment is a major source of industrial wastewater discharged to surface waters. The facility has had a long history of water quality violations (FDEP, 2006). Discharge of up to 28 mgd of untreated wastewater to Elevenmile Creek has caused water quality problems in the creek and Perdido Bay. In March 2010 a new permit and consent order were issued requiring corrective actions to comply with water quality standards. International Paper is to upgrade its treatment facility, install a 10-mile pipe system to a 1,381 acre treatment wetland, and conduct long-term monitoring of Elevenmile Creek, Perdido Bay, and the wetlands. This new treatment system is to start no later than March 2012 and be fully phased in by March 2013 (Evans, 2011). As this facility has been generally regarded as the most substantial single pollutant source affecting Perdido Bay, the degree to which the upgraded treatment system succeeds may be among the most important near-term factors affecting water quality in the bay. - Draft Perdido Swim Plan 2012 – The wetland discharge project has been completed but even overland discharge through the engineered wetlands has not resulted in improved water quality in Tee and Wicker Lakes, where it discharges or in the upper Perdido Bay System.

Uncoordinated development within the Ten Mile Creek Basin (part of the Eleven Mile Creek Watershed), for example, has resulted in pronounced stream degradation, bank destabilization, and water quality impacts. The basin has thus been the focus of recent stormwater retrofit and stream restoration activity by the county. In addition to increasing stormwater flows and creating 'flashy' pulses of runoff, the increased impervious surface area can also depress stream base flows as more sediment is carried into these systems. This, in turn, can further impact the viability of the habitat, which is often smothered by the sediment carried in stormwater pulses.

Our observations then see hastily funded projects, often inappropriate for the landscape, which compound issues further downstream. These 'Random Acts of Restoration' cost the tax payer and the environment high stakes when funding is rarely available. To compound the issue are the relaxation of water quality standards at a time when they should be strengthened the most. These observations do not sit well. Results of the \$2.5 M Stormwater Retrofit, completed in February 2017, do not seem to be benefitting Eleven Mile Creek at Hwy 297A during a 2.8" rain event (see pictures below).

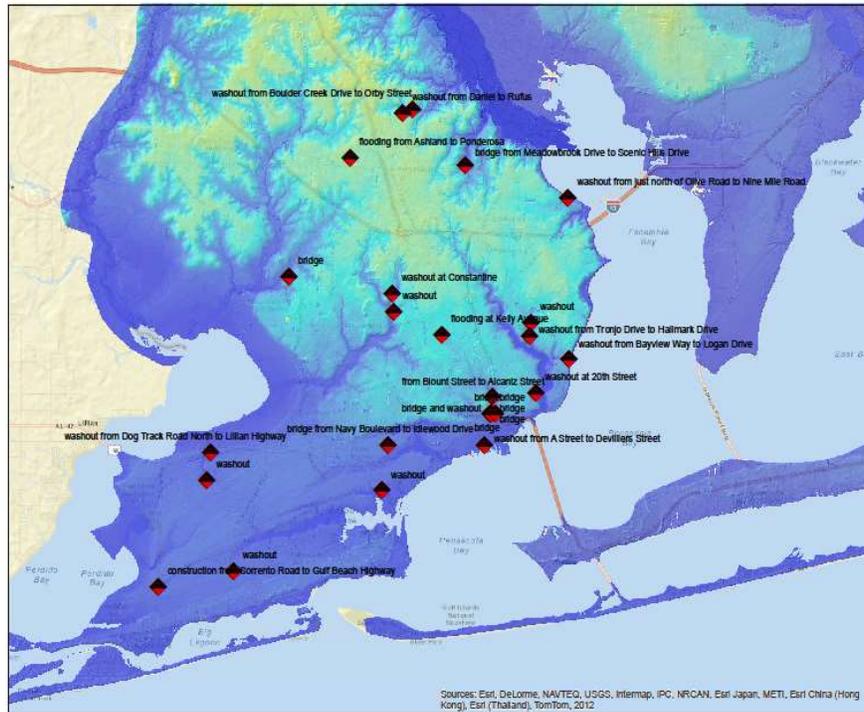


Looking downstream at Eleven Mile Creek from Hwy 297A Bridge Feb 2017 during a rain event

The source of the turbidity in the picture above is the stormwater culvert diverting stormwater from the 1980s built Bristol Park Subdivision directly into the creek. While this approach was common in the 1970s, 80s, and 90s, it is hard to fathom that this insult to our watersheds continues in 2017. Bristol Park and other neighboring subdivisions were built in the riparian zone of the watershed and experienced extreme flooding in the April 2014 - 28" rain event. Currently the county is trying to purchase properties to incorporate and develop new stormwater holding basins. A more sustainable approach would be to retreat from low lying areas and place them into conservation easements.



Looking at the recently updated \$ 2.5M stormwater outfall & source of turbidity at Eleven Mile Creek from Hwy 297A Bridge during a 2.8" rain event in Feb 2017.



In April 2014, twenty-eight inches of rain fell on parts of this watershed. An overlay of the most impacted portions of the county on LiDAR revealed a direct correlation between economic loss of property and development in low lying areas. Again, we advocate for keeping development out of low lying areas. <http://oceanservice.noaa.gov/facts/lidar.html>

While Escambia County is eager to invite the added growth and tax base the Sector Plan offers; it remains obvious that our current and future tax base cannot support the cost of cleaning up and restoring these impaired systems. Agriculture is located in the northern portion of this county and is focused on peanuts, soybeans, and cotton. Sand, clay and gravel mining is another industry very active and very destructive in the same region. Both types of activities contribute to water quality impairment downstream, destroy habitat, and threaten the future stability of the lower watershed, specifically the bay. In addition, ground water withdrawals during seasonal drought conditions can serve to lower base flow of creeks and branches already suffering from sedimentation thus often stranding fish in shallow pools.

FDEP (2006, 2008) conclude that elevated nutrient levels in groundwater may have been contributing to nutrient enrichment within nearby surface waterbodies, particularly within Perdido Bay. The 2008 Integrated Water Quality Assessment for Florida (FDEP 2008) indicated that ground water in the unconfined aquifer of the Perdido Bay planning unit was high in nutrients. Values exceeded surface water criteria or guidance levels for nitrate+nitrite, total nitrate, and orthophosphate. High phosphorous and low dissolved oxygen were found in unconfined groundwater in the Perdido River planning unit. The sampling distribution for these observations, however, was limited. Sources of the high nutrients in groundwater have not been

*determined. Potential nutrient sources are agricultural and silvicultural land uses, stormwater ponds, septic tanks, wastewater discharges, and landfills. **Natural conditions may contribute to elevated phosphorus and low dissolved oxygen.** - Draft Perdido Swim Plan 2012*

Background levels for phosphorus in the Perdido Watershed are historically very low. Early water chemistry detection methods were limited to 0.04mg/L. As methods and technology developed, the background levels for phosphorus within the Perdido River watershed were 0.01mg/L. The Bream Fishermen Association (BFA), a citizen science organization, has been monitoring water quality in the Perdido Watershed since 1970; data are analyzed by FDEP using NELAC Methods and available to the public in the FL and USEPA Storet Program. Do not relax water quality criteria to accommodate impairment due to un/under-regulated growth.

Instead, we advocate for raising the bar for many water quality criteria including one of the most fundamental parameters - dissolved oxygen – which supports the many sensitive species found in healthy waterways. We would like to see better application of Best Management Practices. We advocate for annual habitat assessments and coordination with the many monitoring programs currently occurring and orchestrated by many citizen scientists in our region. Without trained volunteers, many natural resource projects would not get accomplished including sea turtle nest monitoring, eradication of the invasive lion fish, roof top nesting, shorebird nesting, shoreline restoration, bird counts, butterfly counts, stream, creek and shoreline clean-ups and a plethora of other efforts underway to preserve our heritage and leave a legacy for future generations.



Bream Fishermen Water Quality Monitoring Stations in 2016. At one time, the BFA monitored 96 stations in Perdido, Pensacola, Escambia, East Bays, and Santa Rosa Sound to Choctawhatchee Bay monthly. Today, the BFA monitors 48 stations quarterly in partnership with FDEP.

Stream Restoration in Escambia County, FL, is in its infancy. Excess developments in this impaired watershed have created an additional downward spiral through impervious surfaces, habitat degradation and sedimentation which have resulted in down cut stream systems and habitat loss and degradation. 'Restoration projects' claiming to restore hydrology, ecosystem function and ecosystem services have resulted in highly engineered hardening projects to accommodate additional stormwater discharge and little benefit to the hydrology or ecosystem.



Ten Mile Creek at Pine Forest Road – is an example of a highly engineered and expensive restoration project using cement armoring blankets, FEMA rock (no natural rock exist in this coastal plain habitat) to create a conveyance of stormwater while attempting to appear natural. By July and August, the cement blanket will heat the shallow water, thus reducing oxygen in the water column. This design actually inhibits natural plant growth required for shading and contributing to the ecosystem through organic material. Note the remaining pine trees no longer benefit from a thick stand, so heavy winds make them more vulnerable to falling over. Healthy Northwest Florida creeks have upwards of 45% woody material in the system as habitat for aquatic species.

Within the Perdido Watershed, **the greatest future impact** from the Alabama side will be the 'encouraged' growth affiliated with the OWA Complex – a first class, family-friendly, tourist destination planned near Wolf Bay developed and designed by the Poarch Band of Creek Indians. When completed, the OWA development is expected to attract 1 million new visitors to South Alabama and will directly or indirectly generate close to 3,500 jobs. A projected 7 percent increase in tourist spending would raise Baldwin County's economic output by close to \$250 million. Phase I of the project, which includes the 150-room hotel, retail and dining spaces, amusement park and lake will open summer 2017.

(http://www.pci-nsn.gov/westminster/foley_holdings_press.html) Future plans call for a water park, additional hotels, a condominium complex and a resort-level RV park. When complete, total investment in the development is expected to top \$500 million. While growth of the area is inevitable, Smart Growth should be the norm, such to include the values of the rural community and where practicality is the preferred method. Impervious highly engineered – development should not be permitted in low lying flood prone areas.

The Blackwater River enters this portion of the Perdido River below Hwy 90 and before the river delta expands and opens up to the bay. The Blackwater River Watershed currently has more than 50% of its land use in agriculture, and is one of the main reasons the Bream Fishermen Association monitors this site for nutrients.

Recommendations for Perdido Watershed:

Smart Growth should be the norm, such to include the values of the rural community. Impervious highly engineered development should not be permitted in low lying flood prone areas due to our highly erodible sandy soils and our 65” of rain annually. A more sustainable approach would be to retreat from low lying areas and place them into conservation easements.

While growth appears to be the focus in our rural areas, it remains obvious that our current and future tax base cannot support the cost of cleaning up and restoring these impaired systems. Self policing whether by industry, municipality, by state, county or city has not improved the water quality in this watershed; in many cases self policing may compound the problems.

Population increases will require additional treatment for wastewater facilities to address the many micro pollutants, microplastics and endocrine disruptors which are being detected in surface waters. These compounds including micro pollutants are being detected by more powerful analytical methods related to the steady rise in the use of man-made substances. The compounds in question include pesticides, pharmaceuticals, biocides, ingredients in personal care products, waterproofing agents, detergents, paints, etc., which find their way into natural waters from a variety of sources – agriculture, households, construction and transportation.

Increasing water by taking older homesteads septic to sewer will help, but this is a multi pronged issue and will require finesse as the connection from home to new sewer line is costly and often prohibitive to rural communities.

The Bayou Marcus wastewater facility may be in-line for upgrades since new technology continues to be developed. The proliferation of chemical applications (pharmaceuticals) and the ageing population will guarantee the consumption of these compounds will continue to rise. What remain unclear are the behaviors of these compounds as they enter surface waters. Surface water chemistry is unique to many NW FL watersheds. The Perdido Bay system remains impaired from nutrient loading discharged over decades from the mill; treatment facilities which will be burdened with more intake should be upgraded to the latest technology if we intend to restore this ecological system.

Activities that have the potential to negatively impact water quality (agriculture, mining, etc.) should be monitored on regular intervals by independent citizen monitoring groups who can ensure best management practices (BMPs) are being applied; and, if impacts are evident and occurring, these same groups can work authorities until the concern is mitigated properly to protect the water body.

Unintended impacts from pesticide use such as are currently playing out with neonicotinoids and have been linked to colony collapse disorder within pollinators. Forty-two percent of the bee colonies collapsed in the United States alone in 2015. Agriculture makes up a large portion in this watershed. Impacts to food supply and risks are concerns to be noted and considered.

The shift from agriculture or natural lands to accommodate growth is a direct impact to loss of habitat. As rural areas become urban, the patches of green space that remain are often stripped of all weeds and their flowers, which bees rely on for food. We believe well managed buffers and maintaining low lying areas for wildlife is imperative.

We advocate for citizen organizations to be funded so they may be properly trained to conduct monitoring and provide oversight and assistance to the many underfunded agencies that are currently relying on self policing from their 'Permittees'. Training would make data available for various agencies relying on quality data.

A sum equivalent to the tax incentives offered to lure development to the region should be set aside for water quality monitoring and follow up compliance monitoring by independent organizations. *An example would be an SCI (Stream Condition Index) on Bell Creek adjacent to the Navy Federal Credit Union.*

To develop relationships between citizens and governmental agencies, trust is imperative. The observations and actions within this community continue to be disconnected. Perhaps this has to do with funding cuts and staff reductions. An observation worth monitoring is the loss of continuity when staff turnover occurs in various departments and agencies. The relationships and institutional knowledge of these collective organizations within the NW FL Region are long lasting and should be valued as a resource.

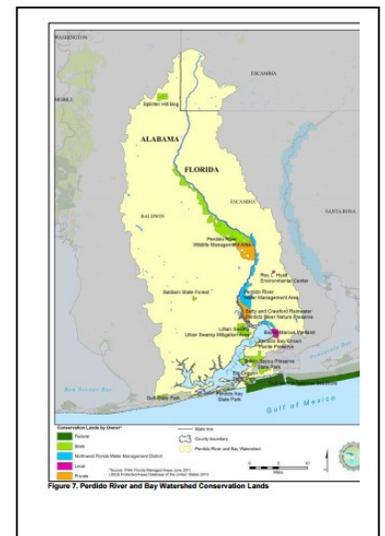
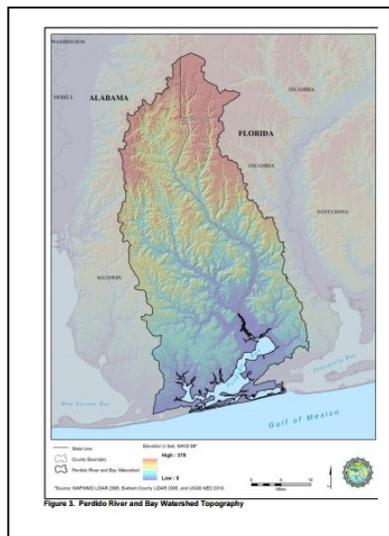
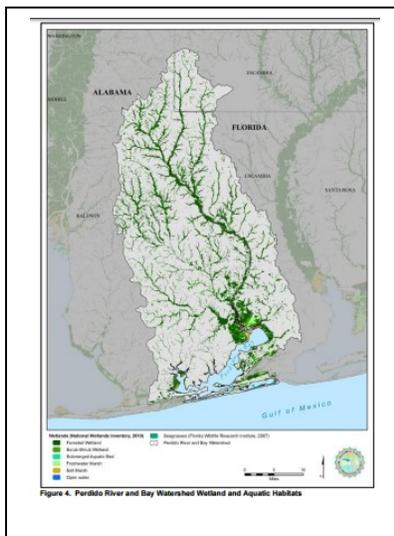
Developing this trust is a process. As noted earlier, a policy specialist pointed out that at a higher level, federal agencies do not trust their state/county/city counterparts; and in return none of these agencies trust the public. Perhaps the biggest irony is that taxes support these bureaucracies and this way of thinking.

The Perdido Watershed and the many creeks, branches, and isolated marshes and swamps that remain today must be protected and remain connected to function. Currently, **federal oversight** of the county and state would benefit this landscape by developing greenways for wildlife corridors, areas to accommodate floods and store waters to allow natural percolation into the groundwater without continued fragmentation. In 2014, Florida voters passed the Land Acquisition Trust Fund with 75% voting in favor of protecting our natural resources.

Oversight to ensure the intent of this act and monies accrued should be achieved through a partnership with citizen organizations that have been active in these landscapes. What’s more, funding from this fund should be allocated to each of the 67 counties in Florida to address water quality and management issues in their regions and respective watersheds.

*The **Land Acquisition Trust Fund** was designed to acquire, restore, improve, and manage conservation lands including wetlands and forests; fish and wildlife habitat; lands protecting water resources and drinking water sources, including the Everglades, and the water quality of rivers, lakes, and streams; beaches and shores; outdoor recreational lands; working farms and ranches; and historic or geologic sites, by dedicating 33 percent of net revenues from the existing excise tax on documents for 20 years.*

Funding should be allocated to non-governmental programs (including Citizen Monitoring Groups) that have remained active in the area for decades, keep the bigger picture in focus and keep water quality at the forefront by knitting together the next three images from the Draft SWIM Plan. The placement of these stacked overlays should be vetted with the proposed Sector Plan & Beltway to determine if these proposed developments can be accomplished without impacting the watershed further.



If not, then the discussion pertaining to development should cease until ecologically sustainable site specific plans can be developed. Monitoring in the form of water quality, biological, groundwater, stream channel, invasive species – to name a few should be performed by independent organizations in partnership with NGOs and academic institutions to relay information to the public in a timely manner, to protect and improve the remaining resources. Many organizations that have been active in preservation, monitoring, and natural resource stewardship should be funded.

We recommend setting up an ‘Environmental Fund’ which is insulated from city/county/state agencies to support the environmental monitoring currently being conducted by the organizations listed as the authors. We recommend transparency and accountability and would like an honest accounting of activities since the last SWIM Plan for this basin was developed; what worked, what didn’t and why. We recommend a central location to house all the pertinent information on local natural resources and environmental studies, including data and resources, often developed with taxpayer monies but

unavailable in a public forum for the community to access. In essence, we recommend a new trajectory to address the growth of our region without compromising the environment.

To protect the nature of the community, all new development should be vetted to ensure the landscape can 'handle' new impervious surfaces. While much information is contained in the draft SWIM Plan, actual data was not present. Little analysis of the current status of the watershed was provided which would provide important guidance on what type of development the area can support without additional impairments.

For example, a proposed project within this watershed would place 14,000 homes on 1,200 acres crossing several low lying areas within Cowdevil Creek and Jack's Branch. If this projected development were to occur and follow the same ordinances our county and state have adopted and in effect today - where will the funding come from to repair these impacted waterways, after the next hurricane or flood event?

We recommend a special fund be designed for monies paid in as development occurs to offset monitoring costs. Similar to the tax incentives issued by the city, county, and state to lure development into rural areas, a designated sum – similar to a bond issues by the developer and backers to set aside 'repair and restoration' monies when the region receives another flood event or hurricane. Developers often back elected officials, many of whom have interests in natural resource mining and land development backgrounds. While city, county and state funded agencies have employees who work for the elected officials; Independent organizations should be included and funded to provide checks and balances – before bad environmental decisions are made.

In January 2017, a large boiler used in the paper making process at the International Paper Plant in Cantonment blew up, discharging a highly alkaline pulp mixture into the air and causing an estimated \$50M in damages. Once considered a boom to the area for 1,800 jobs it created, our state agency relaxed water quality regulations because the facility could not meet the narrative criteria, never mind the numeric criteria of their permits. Now we have an Outstanding FL Water emptying into what was a vibrant bay and is now impaired and has one industry discharging to it. Perhaps if we had a fund as described above, the NGO's could have developed a solution for steps needed to save this ecosystem.

Stream restoration in northwest Florida has yet to be properly developed. One size does not fit all in stream restoration practices within the Coastal Plain. Creek hardening to address sedimentation, erosion and stabilization is expensive and quick to fail. Independent organizations in partnership with academic institutions can develop site specific methods better adapted to the coastal plain landscape. Currently restoration efforts are highly engineered and developed using a civil engineering 'rigid and hardened' mindset which prove expensive, are ill suited to our landscape, and fail during regular tropical events as witnessed time and again. The application of low impact restoration methods, many of which were proven during the 1930s by the Civilian Conservation Corps (and still standing today) utilizes the native materials and plantings to restore the important roots which help shape our landscape.

An extremely important habitat component in our coastal plain ecosystem which is routinely removed from the system is woody material. The rivers in our landscape were lined with Atlantic white and red cedars, bays, cypress, etc. After our forests were cut in the early 1900s, few thought about replanting. As paper mills moved near the forests and closer to the water, more was cut and not replanted. When replanting finally did happen, it was often the wrong species. Today, the Perdido River has several larger

log jams on it. These log jams add a vital component for the fishery, woody material, in the system. The Perdido River delineates the boundary between FL and AL. Both FL and AL should have had a meeting to discuss log jam removal before a permit from the FDEP was issued. (Meeting minutes were never located for any formal discussions between ADEM and FDEP.) Recommend developing a strategic assessment, monitoring, and management of woody 'material' (not debris) to benefit aquatic habitat without impacting recreational uses or threatening infrastructure

The removal of this resource disrupts nutrient recycling and habitat loss. What's more, the removal can release the tangle of logs such to release some snags as seen below. The log jam is virtually beached on a sand bar, and although it makes navigation difficult, water scours around without issue. No flooding has occurred as a result of the log jam. The log jam made traveling upstream in the river impossible because of the blockage. Never mind that the river is less than 3' deep above I-10. Fishermen, specifically bass fishermen put pressure on the county to remove this vital function. This river is an ecological gem, in part because it remains in a rural state which if properly managed would invite more ecotourism.

The norm within our region when faced with this type of situation is to remove the logs from the system to protect the bridge from being undermined. The cause of many log jams in creeks and rivers has to do with upland management and not leaving adequate buffers between waterbodies and uplands.



Loose logs which likely floated downstream from a log jam removal project – that likely wasn't warranted or necessary from an ecological point of view.

Picture taken February 2017 looking upstream at Barrineau Bridge crossing over the Perdido River.

We ask the Water Management District to provide open and transparent accountability from the actions taken since the last Perdido SWIM Plan was published. We would like to know what projects were funded, implemented, by whom and how much, how they functioned, who has oversight and authority, what worked and what didn't, and where these reports are being housed.

We also ask that attendees who participated in the Technical & Public component of the Surface Water Improvement and Management (SWIM) Program and offered comments be recognized in a separate appendix and identified as academic, business, government, NGO or citizen.

We would like to see better coordination, including citizen participation and oversight, perhaps request that Environmental Impact Assessments be considered during the act of expanding and widening roadways, to include concerns of these impacts from these activities:

- Habitat fragmentation;
- Loss of flood plain function;
- Interruption of sheet flow with regard to the bottle neck that occurs with bridges and rivers; and
- Placing something permanent on something impermanent creates conflict, such as hardening ditches and routing stormwater directly into creeks.

We would like to request and see creative solutions to educate and conduct awareness for interested citizens to assist with monitoring conditions annually. We would like all businesses coming into the region to value the resources as a special commodity by:

- Incentivizing private land owners to leave creeks and flood plains in a natural condition, offer conservation easements/property tax breaks to minimize impacts;
- Offer Carbon Sequestration credits when wetlands and riparian zones remain intact; and
- Provide wildlife corridors for native and migrant species;

We ask that projects concerning drainage, development, bridge expansion, and other significant changes to the landscape be based on the best available and current sciences, most recent LiDAR maps (within the last 5 years) and not on outdated methods or twenty year plus old drainage reports.

We ask that the public is made aware of large projects which have the predisposition to curtail the 'community and way of life' - such that the 'potential impacts' can be mitigated or thought through without impacts to our communities and our natural systems.

The watershed is one large ecological system. The current trajectory of growth by retooling rural communities in the Perdido Watershed should only occur if low lying areas are left intact. Monies could be better spent with a greater return on investment (investment here refers to maintaining our natural resources) if local talent such as stream ecologists trained in this landscape had a role in these repairs and decisions. Many of Dr. Tom Hopkins students, now retired, remain in the area and are members of the many citizen science organizations who have developed these comments. Their understanding and history in these areas are a resource which should be considered as we plan our future growth.

We will remain engaged in these natural resource related discussions and appreciate inclusion in future dialogue and planning opportunities in our area. As mentioned earlier, we have observed an increased turn over in various departments and agencies and we are concerned about a loss of continuity.

Because we have first-hand knowledge of these watersheds for a long period of time, please consider our resources to help provide continuity and historical knowledge through these changes. Our contact information is included below for your future reference. Together we look forward to contributing to more sustainable healthy watersheds in Northwest Florida.

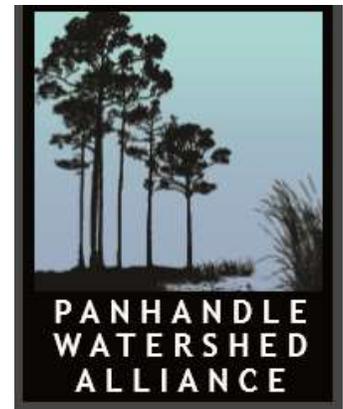
Our Natural Landscape in northwest Florida provides the delicate balance between drought and floods. The smallest ecological changes create a ripple in the entire ecosystem:

- Invasive species take hold;
- Sensitive species are lost;
- Relaxing protective rules (SCI, wetland buffers, DO, etc.);
- Weakening ordinances;
- Rubber stamping permits without considering impacts;
- Educate the public, elected officials, communities, etc. – what happens upstream (here) impacts and effects what happens downstream (there); and
- All upland changes have negative implications to low lying areas.

We thank you for your time and hope you understand the connection between our organizations.

Healthy uplands = Healthy waters;
Healthy waters = Healthy communities; and
Healthy communities = Healthy economy.

These collective comments are offered from several non-profits who represent the public and value this community; these organizations value of the native flora and fauna, the seasonal migrations and landscape changes, the year round residents and the special way of life within these communities; Mostly these organizations expand the understanding and allow us to educate our communities through Citizen Science Programs.



WATER QUALITY MONITORING · HABITAT CONSERVATION · CITIZEN ENGAGEMENT · ENVIRONMENTAL EDUCATION