Comments to the Alabama Water Agencies Working Group

As a key Water Associations stakeholder with an interest in shaping water policy in Alabama, the Cahaba Riverkeeper submits the following comments in response to the Alabama Water Agencies Working Group's (AWAWG) report, "Water Management Issues in Alabama." We appreciate the opportunity to submit comments and trust they will be considered in AWAWG's decision-making process. We also request to be added to AWAWG's stakeholder list in any future reports and to receive such documents.

From review of AWAWG's report, it appears that the central thrust relates to ensuring that Alabama has sufficient (abundant) "water resources" to maintain and support a viable economic base, recreation, industrial uses, wildlife habitat, transportation, agriculture, and water quality parameters." Cahaba Riverkeeper is dedicated to protecting, maintaining, and restoring the Cahaba River and its aquatic components. Our concern is also guided by the importance of the Cahaba as the primary source of drinking water for more than a million citizens. While our comments primarily focus on the Cahaba watershed and its ecosystem, known as one of America's most biologically significant waters, the principles we present should be applicable to all state waters.

Sustainability

AWAWG's report mentions a "sustainable water resource future." How is this defined? What is the benchmark used for sustainability? The word "sustainability" is widely used today by various entities and interests, yet is a little understood term. The concept of sustainability is often used inappropriately where the natural environment is concerned. As related to the environment, the appropriate definition is: the maintenance of the factors and practices that contribute to the quality of the environment on a long-term basis.

As applied to Alabama's aquatic environment, the term must be clearly defined as related to the specific ecosystem and its components. For example, where the Cahaba River is concerned, sustainability as a front-end goal, without emphasis on quality, is inappropriate, because the Cahaba has been so radically degraded during the past several decades. What is first required for the Cahaba is a program to restore those degraded aspects of the ecosystem. Restoration, rather than sustainability, should be the goal for the Cahaba River system, and perhaps other watersheds, as well.

In order to restore a river and then move toward sustainability, AWAWG should employ a "carrying capacity" analysis when considering water resource issues. Carrying capacity is defined as the maximum population size of any species that the environment can sustain indefinitely. This takes into consideration such interrelated factors as habitat conditions, nutrients, and adverse impacts from within and without the ecosystem.

In the Cahaba's case, adverse impacts to the ecosystem have been documented for decades. Unfortunately, many of these adverse impacts can be traced to a continuous set of sources: increased sedimentation from construction run-off; increased impervious surfaces; increased nutrient loads from sewage treatment facilities; and increased flow, bank erosion, headcutting, and riparian disturbances. As has been demonstrated in numerous studies, most, if not all, of these impacts are attributable to human development of one sort or another.

Additionally, an ecological baseline must be established to develop a restoration plan for the Cahaba. AWAWG should determine the nature and magnitude of adverse impacts to the Cahaba via pollution, sediment intrusion, storm water run-off, riparian disturbance, droughts, and other assaults. At that point, a biological-ecological analysis should be conducted to determine to what extent and in what manner the ecosystem can be restored to good health. Only then can the concept of sustainability be employed. The goal must not be simply to sustain the status quo, but to restore the degraded components of the ecosystem to Clean Water Act (CWA) standards and then maintain the Cahaba, and all Alabama rivers, as a healthy interrelated system.

Cahaba Riverkeeper suggests that AWAWG first focus on any and all Alabama waters currently residing on the Clean Water Act's § 303(d) list of impaired waters. Unfortunately, these state waters fail to meet even minimum water quality standards per the mandates of the Clean Water Act (CWA). Our most degraded waters should take priority where our future is concerned, especially if one of AWAWG's interests involves "encroachment of federal entities into managing Alabama's water resources." The best way to keep federal oversight from "encroaching" into Alabama's water resource affairs is for the State to fulfill its already dilatory obligations under the CWA to bring all state waters up to minimum standards.

Ecology

Cahaba Riverkeeper notes a lack of emphasis in AWAWG's report concerning ecological principles as applied to Alabama's waters. Much is made of issues such as drought planning, water conservation, instream flows, water availability, economic development, and water resource management. (See "Working Group's Findings and Policy Adoptions).

Yet, aquatic ecosystems are driven by biological factors. Cahaba Riverkeeper believes AWAWG should adopt a clear vision where biological realities are concerned. The group's mission should include a policy statement indicating that Alabama's waters begin with biological processes and that those processes must be maintained (and restored where needed) as a priority in order to move toward sustainability.

The AWAWG report appears heavy on water resource uses and light on aquatic protection and restoration. Taking the Cahaba River as an example, existing data are clear that one our nation's most important biological resources has undergone drastic adverse impacts over the

years from human-related disturbances. Many of these impacts are ongoing, despite countless studies, reports, Court orders, enforcement actions, public hearings, and long-range plans.

AWAWG should emphasize that Alabama's waters face issues beyond matters of abundance. Then, as our state moves to maintain biologically intact aquatic ecosystems and restore degraded rivers, we will stand on a firm footing when other states make claims on Alabama's waters.

The report mentions that Alabama needs a "secure water future." This concept must take into consideration that protection of aquatic ecosystems goes hand-in-hand with water quantity. These two issues are interconnections in a matrix of biological processes that include human use. How that use impacts our waters begins with ecological processes, as well as the boundaries of carrying capacity. AWAWG should place equal emphasis on quality and quantity.

Water Quality Regulations

While we appreciate the observation that "The State has public trust obligations to protect its water resources and to provide for their prudent use and development," it is also true that Alabama's waters are regulated by both federal and state law. AWAWG should review whether these laws have been adequately applied over the years where the protection and restoration of our waters is concerned.

It is the purpose of the Clean Water Act "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Yet, Alabama has failed to fulfill its obligations under CWA to restore the Cahaba River and other § 303(d)-listed waters to even minimal water quality standards.

Alabama operates its own water quality program, subject to oversight by the Environmental Protection Agency (EPA). As stated by Alabama Code §22-22-2: "Whereas the pollution of the waters of this state constitutes a menace to public health and welfare, creates public nuisances, is harmful to wildlife, fish and aquatic life and impairs domestic, agricultural, industrial, recreational and other legitimate beneficial uses of water, it is hereby declared to be the public policy of this state and the purpose of this chapter to conserve the waters of the state and to protect, maintain and improve the quality thereof for public water supplies, for the propagation of wildlife, fish and aquatic life and for domestic, agricultural, industrial, recreational and other legitimate beneficial uses; to provide for the prevention, abatement and control of new or existing water pollution; and to cooperate with other agencies of the state, agencies of other states and the federal government in carrying out these objectives." *(Acts 1971, No. 1260, p. 2175, §1.)*

As is evident, both federal and state laws strive for restoration of impaired waters, as well as maintenance of all waters within the state. Alabama notes that pollution is "a public nuisance and is harmful to wildlife, fish, and aquatic life." Have existing laws been adequately implemented and enforced by the agencies charged with carrying out the maintenance and restoration of Alabama's waters? If not, what recommendations does AWAWG have to remedy this problem? Cahaba Riverkeeper urges the Group to take a strong position in this regard.

Where the Cahaba ecosystem is concerned, the evidence is clear that the nuisance caused by pollution (including sediment) has often gone unabated, despite having been the subject of public scrutiny for many years. What has caused these failures? How can they be remedied? Does AWAWG have a mechanism to address these ongoing problems? How can stakeholders help?

Background: Cahaba River Ecosystem

According to EPA, "Excessive sedimentation and nutrient enrichment are affecting the biology of the Cahaba River watershed. Deleterious effects of sediment deposition on the fish and benthic macroinvertebrate communities were evident in the main stem Cahaba River below Trussville to below Helena and at several tributaries to the Cahaba (unnamed tributary to Little Cahaba Creek, Little Cahaba River, and Buck Creek). Excessive nutrient inputs (nitrogen and phosphorus) to the Cahaba system from both point and non-point sources have allowed the excessive and widespread growths of filamentous algae." (*Cahaba River: Biological and WaterQuality Studies Birmingham, AL March/April, July and September, 2002*)

These adverse impacts continue to have a deleterious effect upon a number of aquatic species listed pursuant to the U.S. Endangered Species Act (ESA). One of the precipitating causes for said impacts is recognized as "dramatic increases in the 'disturbed' land use class since 1990. As of 1998, over 38% of the watershed falls into the 'disturbed' land use class; this is up from 8.8% in 1990."

Older data show a similar trend, with certain Cahaba fish species showing biological imperilment as early as the 1970s. The U.S. Fish and Wildlife Service (USFWS) has identified "habitat degradation resulting from excess nutrients and sediments" as a major cause of this imperilment.

The Cahaba's benthic community has suffered injury over the years. These macroinvertebrates are a good indicator of environment stress. It is helpful to note that several species of Cahaba mollusks have been listed as either threatened or endangered by USFWS. This can be viewed as evidence that the Cahaba's water quality is not being maintained or protected from the "public nuisance" of pollution.

EPA states: "Consistent with the EPA 2002 findings, Onorata, et al. (1998) found that the upper watershed (St. Clair County and northeastern Jefferson County) was affected primarily by sedimentation of non-point source origins, while the middle reach of the Cahaba (within the urbanized Birmingham area) was affected not only by non-point sources (sediments and nutrients), but also by multiple point sources primarily originating from multiple wastewater treatment facilities." Why this situation was allowed to occur is unknown. Scientific data are basic to implementing sound policy. As witnessed in the Cahaba River, said policy must have been lacking.

"With the heavy development of the Cahaba River watershed in the last decade, nutrient enrichment originating from both point and non-point sources is also a valid concern. This enrichment, along with the previously raised concerns with periphytic growth and excessive sedimentation, has contributed to the decline in the overall ecological health of the Cahaba system." As can be seen from EPA's analysis, by the year 2002, the Cahaba ecosystem was

suffering from serious biological impairment. Based on prior studies, this evolving impairment was known to have been occurring for years. One wonders how many more acres of impervious surface have appeared while the impairment continued.

In the broader view, a similar situation has evolved systematically in the Mobile Basin aquatic ecosystem, the Cahaba River's final destination. In 2000, USFWS reported in the *Mobile River Basin Aquatic Ecosystem Recovery Plan*: "The fauna and their habitats have been extensively affected over the years by impoundment, channelization, mining, dredging, and pollution from point (specific) and nonpoint (diffuse) sources. As a result, at least 17 mussels and 37 aquatic snails are presumed extinct, most within the past few decades. At the time this recovery plan was released for public review in 1998, there were 32 aquatic animal and plant species in the Basin protected under the Endangered Species Act of 1973, as amended (Act)." (see Executive Summary). To seek a remedy for this ongoing degradation to one of Alabama's most significant water resources, USFWS established a coalition to study the problem and make recommendations. The original impetus behind the idea came about as early as 1994. The Recovery Plan is what eventually emerged from the coalition's work.

The Recovery Plan includes a series of "actions needed" to recover the Mobile River Basin's ecological decline, actions that apply to all Alabama waters. The Plan calls for a basin-wide scale of management. Some of the actions suggested include: protect habitat integrity and quality; develop public education programs regarding watershed stewardship responsibilities; reintroduce aquatic species into restored habitats as appropriate; monitor listed species populations; and coordinate ecosystem management actions and species recovery.

Overall, the Plan acknowledges a host of human impacts to the Mobile Basin. It "also recognizes that humans and their activities are integral components of the ecosystem, and that recovery strategies and actions must allow for sustainable economic growth and other human needs." How to balance these often competing interests remains the relevant question facing us today.

It is imperative to keep in mind that many of Alabama's water resources are greatly changed since William Bartram described our state's remarkable natural landscape in 1791. Our aquatic ecosystems have suffered a slow decline in quality from a plethora of sources. "Over half of all known or presumed aquatic animal extinctions in the United States since European settlement have been freshwater mussels and snails unique to the Mobile Basin" (see Recovery Plan). This situation is not new to Alabama. Any serious effort to manage the state's "water resources" should include a broad-based restoration of impaired waters as a first priority.

Nonpoint Sources of Pollution

Pollution enters Alabama's waters from many and varied sources, including nonpoint sources, such as land disturbances from agriculture, construction sites, and urbanized settings. Stormwater run-off can have serious adverse impacts to a receiving water.

Specific pollutants include: sediment, fertilizer, herbicides, pesticides, animal waste, and assorted volatile organic compounds. Many of these pollutants have the propensity to cause harm to aquatic species. Also of importance is the potential cumulative effects of numerous pollutants combining to adversely impact an aquatic ecosystem. "For example, recent studies

indicate that imperiled aquatic species in the Cahaba River continue to decline due to the cumulative impacts of stormwater runoff and waste water treatment plant discharges (Shepard *et al.,* 1996)." (see Recovery Plan)

Some of the same impacts that affect the Cahaba ecosystem are noted in the Mobile Plan in the section, "Current and Future Threats to the Basin's Imperiled Aquatic Species." The list of threats identified is long, including impoundments, dredging, degraded channels, mining, toxic pollution, run-off, sediment, and excessive nutrients. Many of these impact the Cahaba.

Cahaba Riverkeeper believes AWAWG should focus attention on how these impacts can be remedied, while ensuring that new sources of injury and degradation do not occur. A good start would be to review all best management practices for their efficacy. These would include best management practices (BMPs) for forestry, farming, construction, ranching, and animal waste disposal. Special attention should be given to BMPs related to construction runoff.

A careful review of all sources of nonpoint pollution in the Cahaba ecosystem should be undertaken. Where sources have a deleterious effect, they should be modified and/or eliminated in an effort to improve water quality, species viability, and habitat conditions. As the quality of the waters improves, adversely impacted aquatic components will move toward restoration. This effort will help USFWS recover listed species, reduce the number of Cahaba species residing on the ESA, and eventually see the Cahaba River removed from the CWA's §303(d) list.

Human Demographic Trends and Impacts

According to USFWS' *Final Environmental Assessment, Habitat Management Plan for the Cahaba River National Wildlife Refuge*: "Water quality degradation and the physical alteration of the river environment represent significant challenges for the survival of aquatic biota. The Cahaba River was selected by *American Rivers* in 1990 as one of the 10 most endangered rivers in the United States (American Rivers 1990)."

In its effort to upgrade the Refuge's environmental conditions, USFWS recommended several "proposed actions." These include: 1) cooperative efforts for water quality improvement; 2) restoration of the Cahaba River aquatic environment adjacent to the refuge; 3) an ecosystem management strategy for uplands that restores and maintains mosaic cover of native pine and hardwoods; 4) management of wetland and streamside forests; 5) minimization of forest fragmentation and disturbed-edge habitat within the refuge; 6) protection of rare, endangered, threatened, and sensitive species and natural communities; and 7) restoration of native wildlife associated with longleaf pine communities.

USFWS is mandated to "sustain and, where appropriate, restore and enhance, healthy populations of fish, wildlife, and plants using, in accordance with applicable Federal and state laws, methods and procedures associated with modern scientific resource programs." The quote demonstrates that the Service recognizes that the Cahaba ecosystem is in need of restorative measures, at least in the National Wildlife Refuge. The USFWS' concern does not stop at water quality, but includes riparian areas, wetlands, native forested areas, and longleaf pine communities. (http://www.fws.gov/policy/601fw1.html)

Furthermore, the Service is aware that: "While water quality degradation represents a primary constraint in protecting and restoring the Cahaba River aquatic system, the long-term and

gradual alteration of the river's physical environment represents one of the greatest threats to aquatic ecosystems. Species have evolved and adapted to the varied environment of a free-flowing river. As man alters stream flows, channel structure and riparian zones, many species disappear from temperature fluctuations, sediment transport, variable dissolved oxygen and pH, substrate degradation, water depth, and variable stream velocity."

Obviously, upstream disturbances are the primary reason for the present need to restore components of the Refuge's natural environment. Major landscape disturbances have occurred in the upper watershed due to significant human population increases in the Birmingham-Hoover Metro area. This influx of population has resulted in massive changes to the land, mainly in the form of subdivisions, apartments, malls, shopping centers, interstate highways, parking lots, etc. This has, in turn, led to increased stormwater run-off, nonpoint sources of pollution, bank erosion, sediment loads, toxic pollution, increased nutrient loads, and increased (and rapid) flows during major storm events.

These impacts often occur out of sight of the human population and are thus an abstract issue for the general population. Yet, says USFWS, "Water quality degradation and the hydrological alteration of the river environment have been responsible for a decrease in river biodiversity. Both impacts are primarily the result of regional issues outside and north of refuge boundaries." (http://www.fws.gov/cahabariver/pdf/EA-Cahaba%20River%20HMP%20EA-Final.pdf)

Unfortunately, these adverse impacts to the Cahaba ecosystem are not a new phenomenon. As early as 1977, USFWS cited "degradation of water quality due to urbanization" as a major reason for the Service's proposal to place the Cahaba shiner on the Endangered Species list. The Service recognized that urbanization in the upper watershed was adversely modifying the species' habitat to the point of the Cahaba shiner needing federal protection.

Perhaps most alarming is the Service's statement that: "The section of the Cahaba River inhabited by the Cahaba shiner has been severely degraded during the past 15 years." (http://ecos.fws.gov/docs/federal_register/fr170.pdf) This assertion was made in 1977. It can be seen that the Cahaba has been poorly served for many decades. During that time, innumerable studies, reports, committees, coalitions, petitions, lawsuits, public hearings, and media coverage regarding the Cahaba have occurred - without relief.

While some parameters of the Cahaba watershed have improved during that time, in no small part due to Clean Water Act mandates, the Cahaba River remains a degraded, impaired "water resource." Cahaba Riverkeeper believes this systemic failure of government and nongovernment efforts must change if the ecosystem is to have a chance at being restored to some semblance of its former self.

To that end, we suggest that part of AWAWG's task should include a carrying capacity analysis aimed at determining what level of human impacts the ecosystem can sustain and still move toward ecological integrity. And, where necessary, what remedial efforts should be undertaken to reverse these impacts? Restoration transcends basic water quality and may include modifying land-based activities, as well.

Antidegradation

“The Clean Water Act (CWA) requires states to establish water quality standards to "protect the public health or welfare" and "enhance the quality of water" (Section 303(c)(2)(A)). Water quality standards are to be established for water bodies "taking into consideration their use and value for public water supplies, propagation of fish and wildlife, recreational purposes, and agriculture, industrial, and other purposes, and also taking into consideration their use and value for navigation." (Section 303(c)(2)(A)).

In addition, the CWA establishes the national goal that wherever attainable, "...water quality provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water..." (Section 101(a)(2)).”

State waters thus receive a designated use from ADEM, and said uses are to be protected pursuant to CWA. Further, CWA establishes an “antidegradation” policy. This policy is designed to guide states regarding the protection of designated uses, as well as existing uses.

Alabama’s antidegradation policy seeks to “conserve the waters of the State of Alabama and to protect, maintain and improve the quality thereof for public water supplies, for the propagation of wildlife, fish and aquatic life, and for domestic, agricultural, industrial, recreational and other legitimate beneficial uses; and to provide for the prevention, abatement and control of new or existing water pollution.” (335-6-10-.04, Antidegradation Policy)

An important facet of this policy is the requirement that: “Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.” Has this policy been adequately implemented? Has ADEM adequately enforced this requirement in all Alabama waters?

Cahaba Riverkeeper recommends that AWAWG focus attention on the extent to which Alabama’s waters have been degraded since the creation of the CWA and the Alabama Water Pollution Control Act. Where degradation can be identified as a chronic problem, such as with the Cahaba River and other § 303(d) waters, remedial measures should be devised and implemented as a priority.

Also of importance is for AWAWG to identify state waters having unique existing uses outside the typical designated use classification scheme. Such waters might harbor biologically threatened, endangered, or sensitive aquatic species, or offer unique recreational opportunities such as fishing, canoeing, etc. Where these uses exist, special attention should be given, as per the mandates of CWA and its implementing regulations. These waters may deserve a higher level of protection (such as being upgraded to Outstanding National Resource Water.)

As per ADEM’s regulations: “Where high quality waters constitute an outstanding National resource, such as waters of national and state parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.” (335-6-10-.04, Antidegradation Policy)

As applied to the Cahaba River, the operative words in the above paragraph are "ecological significance." Decades of data exist illustrating the Cahaba's unique and important ecological significance. In many ways, the same can be said for the entire Mobile River Basin. As stated in USFWS' Recovery Plan: "The diversity of the Basin's freshwater animals is truly astounding, representing a large percentage of the aquatic fauna of North America."

"The Basin ranks third in the nation in variety of fishes (160 species)..... and is among the top ten river basins in the world in diversity of freshwater mussels (75 species). The Basin also provides habitat for the richest aquatic snail fauna in the world (120 species)... As noted earlier, many of these aquatic animals are endemic to the Basin..."

AWAWG has an opportunity to fill the gap between past studies and recommendations and the need for action. To that end, Cahaba Riverkeeper suggests that all ecologically significant Alabama waters be so identified and protected pursuant to ADEM's antidegradation regulations.

Monitoring

Water quality monitoring is the backbone of Alabama's efforts to protect our state's waters. According to ADEM's *State of Alabama Water Quality Monitoring Strategy,* the Department is aware of the need for "a coordinated monitoring approach designed to characterize water quality, to identify impacts from a variety of sources, and to provide a systematic and integrated framework for gathering necessary information to support the decision-making process."

Cahaba Riverkeeper is concerned that Alabama's history of aquatic monitoring has been much shy of the mark. The long list of state waters designated as impaired via § 303(d) of CWA indicates a lack of either relevant monitoring in those waters, a failure in enforcement, or a less-than-adequate permitting process.

According to EPA, states must protect aquatic life as an existing use. "Non-aberrational resident species must be protected, even if not prevalent in number or importance. Water quality should be such that it results in no mortality and no significant growth or reproductive impairment of resident species. Any lowering of water quality below this full level of protection is not allowed." (*Water Quality Handbook, Chapter 4: Antidegradation* [40 CFR 131.12])

Further, "An existing aquatic community composed entirely of invertebrates and plants, such as may be found in a pristine alpine tributary stream, should still be protected whether or not such a stream supports a fishery."

In order to protect uses such as aquatic life, states must maintain a sufficient monitoring program. Said program should ensure that a water body's aquatic life needs, as well as all relevant habitat requirements necessary to support aquatic life, are clearly identified Monitoring should also determine to what extent injury has occurred, and is occurring, to the ecosystem and its aquatic inhabitants.

Cahaba Riverkeeper recommends that AWAWG conduct a comprehensive review of ADEM's monitoring program and make improvements where required. To help facilitate this effort, we also suggest that EPA be asked to assist in said review with an eye toward ensuring that all

of Alabama's ecologically significant waters and unique aquatic uses are adequately monitored and protected.

EPA is clear that: "Even though the shorthand expression 'fishable/swimmable' is often used, the actual objective of the Act is to 'restore and maintain the chemical, physical, and biological integrity of our Nation's waters' (section 101(a)). The term 'aquatic life' would more accurately reflect the protection of the aquatic community that was intended in section 101(a)(2) of the Act." (*Water Quality Handbook*)

With that in mind, Cahaba Riverkeeper urges AWAWG to emphasize the importance of Alabama's unique biological heritage, as well as other issues such as maintaining abundant water supplies. And, in order for Alabama to satisfy the basic requirements of maintaining our unique aquatic biology, we must utilize the most scientific monitoring program available
.
One of the purposes of the *2012 Water Quality Monitoring Strategy* is to determine whether the goals of the CWA (and its implemented regulations) are being met. Perhaps AWAWG should investigate the answer to that question. Why have so many of Alabama's waters been identified as being impaired? What steps are being taken to restore those waters and prevent future degradation? What timetable exists for all state waters to meet the basic requirements of CWA and the Alabama Water Pollution Control Act?

Are the Cahaba's biologically imperiled species being recovered? Is a program in place to halt the erosion of the Cahaba's banks? Is "headcutting" being checked where extant? Is a program in place to halt unnatural sources of sediment from impacting the Cahaba? Is the biological integrity of the Cahaba River ecosystem being fully protected, maintained, and/or restored?

Cahaba Riverkeeper believes AWAWG should include these questions as part of its ongoing analysis of Alabama's "water resources." Water quality must be seen as being directly linked with water abundance (quantity). Pollution is an ongoing nuisance. The place to start planning is with adequate monitoring and scientific data.

Interbasin Transfers

"An interbasin transfer takes place when water is withdrawn from one river basin (a donor basin), distributed for use in another river basin (receiving basin) and not returned to the basin of origin. Interbasin transfers involve a consumptive use of water from the donor basin." (Georgia Water Coalition)

In AWAWG's "Water Management Issues in Alabama" report, it is stated that: "A number of IBTs currently exist in Alabama and have existed for many years. Specific numbers are not known since there is no monitoring or reporting requirement." (page 24) As stated in our comments above, monitoring is the backbone of any efforts to protect our state's waters. We suggest that a comprehensive analysis be made of exactly how many interbasin transfers exist in Alabama, along with the creation of a monitoring program designed to determine the effects of said transfers on our state's aquatic environment.

One can envision ways in which such IBTs can have deleterious effects upon a basin's aquatic life. No transfers should be allowed in cases where the loss of water from the donor

basin will have an adverse impact on that basin's biological integrity. Equal scrutiny should be given to the receiving basin.

If it is determined that a transfer is absolutely necessary, Cahaba Riverkeeper recommends that AWAWG establish specific criteria to regulate transfers, in an effort to ensure that no harm occurs to the aquatic environment of both water bodies. All reasonable options should be exhausted before consideration of transfer. Such options should include a water conservation program in the receiving basin.

Any water body involved in a proposed interbasin transfer should have a water allocation plan in place such that the carrying capacity to support all existing uses is not exceeded. A similar plan should be in place for any donor basin, as well.

"IBTs can be problematic in that they contribute to unsustainable growth (e.g., Atlanta) as greater quantities of water from outside watersheds are required for expanded consumption and future demands." (AWAWG report, page 24) Alabama obviously needs clear guidelines to prevent this sort of unsustainable growth, especially in any waters listed as impaired pursuant to § 303(d) CWA.

What mechanisms can be devised to ensure that no IBT creates adverse effects to state waters or existing/designated uses? How will IBTs affect state waters during drought conditions? What effect on NPDES permits would such a transfer have? How would a transfer of waters be monitored to ensure no violation of antidegradation regulations occurs? What requirements pursuant to Section 7 of the Endangered Species Act will come into play regarding IBTs?

Will the IBT inhibit or dissuade water conservation? How will the transfer affect ground water? How will a transfer affect existing users? Does Alabama have a water budget from which to judge the practicality and management goals of IBTs? Will the receiving basin be allowed to sell water received via the transfer?

According to the Southern Environmental Law Center, "Such massive transfers of water between distinct river basins can wreak ecological havoc in the river systems, including flooding, water shortages, deterioration of water quality and aquatic habitat, and threats to public drinking water supplies." AWAWG should investigate all such issues before considering how to regulate transfers (or disallow them as a policy determination). At present, the Cahaba Riverkeeper is opposed to IBTs in the Cahaba River watershed.

Instream Flows

Limiting comments to instream issues related to the Cahaba River, we believe that the primary consideration should be protection, maintenance, and/or restoration of the biological integrity of the aquatic ecosystem.

We suggest ADEM adopt regulations aimed at maintaining instream flows such that the Cahaba's aquatic life forms (and their habitats) are offered the maximum protection. Emphatically, ADEM should be compelled to enforce the regulations under its purview, a failing that has been both a boon to unlawful activities by businesses and an embarrassment to the state.

Conclusion

"The habits of a profligate past are colliding with ecological and economic limits." (*What are the Essential Legal Components for Successful, Comprehensive Watershed Management?*, Bennett L. Bearden, Assistant Attorney General and Counsel to the State Geologist, Office of the State Geologist, Geological Survey of Alabama, 2009) We appreciate any effort to improve the conditions of Alabama's water resources. While many eyes are focused on ways to increase the abundance of water in Alabama, it is critical to place equal emphasis on maintaining, protecting, and restoring our state's unique aquatic ecosystems.

Decades of studies have pointed to the need for decisive action regarding the degradation of Alabama's waters and its unique aquatic life. Federal and State statutes and implementing regulations have been in place to steer the course toward the proper management of our waters, wildlife, recreational uses, etc. Yet, we still find ourselves struggling to reach an ecologically sound future. Success in achieving this goal relies on stakeholder participation in a transparent process, with public hearings involving all stakeholders. A recommended basis for guiding AWAWG's planning is the American Society of Civil Engineer's Regulated Riparian Model Water Code.

Many of Alabama's waters are not healthy. They require restoration before the goal of sustainability is conceivable. The status quo simply isn't working. As Assistant Attorney General Bearden said: Our past is colliding with our ecological limits. In other words, we are overshooting our aquatic environment's carrying capacity. Quality and quantity must go hand-in-hand to ensure the success of our state's water management plan.

Thank you for receiving our comments.

Respectfully submitted,

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