Alabama Department of Environmental Management

2018 Triennial Review of Water Quality Standards

Response to Comments

Public Hearing July 26, 2018

Public Comment Period June 10, 2018, through July 26, 2018

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List of Acronyms

Commenter	Acronym
Alabama Department of Conservation and Natural Resources	ADCNR
Alabama Power Company	APC
Alabama Rivers Alliance	ARA
Black Warrior Riverkeeper	BWRK
Cahaba River Society	CRS
Coosa Riverkeeper	CRK
Environmental and Natural Resources Law Clinic (on behalf of Coosa Riverkeeper, Mobile Riverkeeper, Choctawhatchee Riverkeeper, and Cahaba Riverkeeper)	ENRLC
Environmental Defense Alliance (on behalf of Alabama Rivers Alliance, Friends of the Locust Fork River, Cahaba Riverkeeper, Friends of Hurricane Creek, Choctawhatchee Riverkeeper, Black Warrior Riverkeeper, Coosa Riverkeeper, Cahaba River Society, and Sierra Club)	EDA
Mobile Baykeeper (on behalf of Dog River Clearwater Revival)	MBK
Southern Environmental Law Center (on behalf of Alabama Rivers Alliance)	SELC

Response to Comments

335-6-10-.07 TOXIC POLLUTANT CRITERIA APPLICABLE TO STATE WATERS

1. Comment: (BWRK)

We ask ADEM to work with the Alabama Environmental Management Commission to initiate rulemaking to comprehensively amend Alabama's water quality criteria for the protection of human health. The current criteria are no longer scientifically defensible and do not protect human health.

We were one of several groups to file a rulemaking Petition to Amend Ala. Admin. Code r. 3356-10-.07 which asked the EMC to revise and adopt toxic pollutant water quality criteria for the protection of human health and aquatic life. We incorporate the October 18, 2016 Petition into these comments by reference. The Department is lagging far behind in revising these essential criteria for protecting the public. For example, ADEM has engaged in five triennial reviews since EPA recommended criteria for methylmercury, yet ADEM has yet to adopt criteria for methylmercury. The Clean Water Act requires states to adopt revised toxics criteria during each triennial review AND every time it revises any standards. Section 303(c)(1) and the EPA's implementing regulation at 40 CFR 131.20(a) direct that, as part of the triennial review process, states must ensure that they have adopted criteria for toxic pollutants as required by Section 303(c)(2)(B). Even if a state has fully complied with the requirements of Section 303(c)(2)(B) previously, it is required to adopt new toxic criteria where, as here, EPA has published new Section 304(a) national criteria recommendations for certain priority pollutants.

In response to the Petition, ADEM has represented that it plans to take up the revision of toxic pollutant criteria during this triennial review. Yet there are no proposed changes to Ala. Admin. Code r. 335-6-10-.07 to revise and adopt water quality criteria for the protection of human health and aquatic life, which is unacceptable. Please share with us ADEM's plan to initiate rulemaking to meet this important requirement.

Response: National Recommended Water Quality Criteria published by EPA pursuant to §304(a) of the Clean Water Act (CWA) provide guidance for states and tribes to use to establish water quality standards and are strictly recommendations. EPA's recommended criteria do not impose legally binding requirements, and states and authorized tribes have the discretion to adopt, where appropriate, other scientifically defensible water quality criteria that differ from these recommendations.

The Department is making every effort to review and consider EPA's updated national 304(a) criteria recommendations for both human health and aquatic life during the 2018-2020 triennial review period. With respect to adoption of EPA's recommendations, Alabama can (1) adopt the criteria as recommended, (2) propose alternative criteria based on its own scientifically valid research, or (3) propose leaving criteria as they are, again with proper scientific justification. Whichever option is chosen must ultimately be approved by EPA.

Based on a recent survey conducted by the Department, none of the eight states in Region 4 have adopted EPA's recommendations for the human health criteria and only six states nationwide have

adopted some form of EPA's recommendations; therefore, Alabama is certainly not "lagging far behind" in its efforts to adopt/revise criteria.

The Department will continue to review and evaluate all data and information and collaborate with EPA and other stakeholders pertaining to the development of national recommended human health and aquatic life criteria during its 2018-2020 triennial review period.

2. Comment: (SELC)

Perfluoroctane sulfonate (PFOS), perfluorooactaonic acid (PFOA), per and polyfluoroalkyl (PFAS) and GenX are all some variation of fluorinated, man-made chemicals used as repellants to resist heat, oil, stains, grease, and water. These chemicals are used for various commercial purposes, including non-stick materials, carpet protection, fire-fighting foams, waterproof clothing, and the like. Their presence in the environment is pervasive, and they do not biodegrade. Only recently have the health and environmental effects of these chemicals come to light as the science and detection of these chemicals has improved.

In May of 2016, EPA issued a drinking water advisory for PFOA and PFOS at 70 parts per trillion (ppt). EPA based this advisory on epidemiological studies and peer-reviewed studies of laboratory animals. These studies showed that "exposure to PFOA and PFOS over certain levels may result in adverse health effects, including developmental effects to fetuses during pregnancy or to breastfed infants (e.g., low birth weight, accelerated puberty, skeletal variations), cancer (e.g., testicular, kidney), liver effects (e.g., tissue damage), immune effects (e.g., antibody production and immunity), thyroid effects and other effects (e.g., cholesterol changes)."

States have begun to address this problem in a number of ways. In 2017, Minnesota set advisory levels of 27 ppt for PFOS and 35 ppt for PFOA in tap water, and New Jersey set legal limits at 14 ppt for PFOA and 13 ppt for PFNA (yet another fluorinated chemical) in tap water. In January of 2018, Michigan set a tap water standard for groundwater usage at 70 ppt for PFOS and PFOA. At least 15 states have used EPA's health advisory to propose or set new enforceable drinking water standards for PFAS. A recent report by the Environmental Working Group in April has shown that contaminated sites of GenX and other PFAS have nearly doubled in the last year, and, most recently, on July 17, 2018, a bi-partisan group of members of Congress asked EPA to immediately adjust PFOS and PFOA drinking water advisory limits based on a recent draft Toxicology Profile for PFAS written by the Toxic Substances and Disease Registry.

The statewide water pollution in Alabama of these perfluorinated chemicals and their progeny is well documented and exists across the state. A recent study from Harvard University found that Alabama had the fourth highest concentration of PFAS levels in its water supply, only behind California, New Jersey and North Carolina. At least eight Alabama water systems have also been found to contain PFOS and PFOA. In addition, numerous lawsuits have been spawned in Alabama over perfluorinated chemicals in water supplies.

Under ADEM's triennial review process, the agency shall review applicable water quality standards (WQS) and "as appropriate" modify or adopt standards. And while some states have put limits of these compounds on drinking water, other states are studying these compounds more comprehensively in their triennial review. ADEM should consider, when reviewing WQS, legal

decisions, new and updated scientific information, newly available water quality monitoring data, changes in circumstances that affects the attainability of applicable WQS, and other information. The new and ever increasing information about the ubiquitous nature of these perfluorinated chemicals, and the drinking water advisory issued by EPA, calls for ADEM to consider a review of their toxicity for potential inclusion in the state WQS under 335-6-10-.07. These compounds are manufactured here in the state, and they have caused significant concern and contamination of drinking water supplies already. ADEM can follow the lead of other state agencies and begin a comprehensive review of these chemicals to limit human and wildlife exposure to a known human health threat.

Response: As you are aware, the drinking water health advisories issued by EPA for PFOA and PFOS are non-regulatory in nature. EPA released the per- and polyfluoroalkyl substances (PFAS) Action Plan in February 2019. This Plan includes priority actions as well as short and long-term actions that EPA has undertaken or plans to take with regard to PFAS. These actions include the possible development of a maximum contaminant level (MCL) for PFAS in drinking water and the possible development of Clean Water Act Section 304(a) ambient water quality criteria for human health for PFAS. The Department continues to spend considerable time and resources to collect and review PFAS data throughout the State of Alabama and, in numerous situations, work with entities to reduce the levels of PFAS in the environment. Additionally, the Department is taking a proactive approach to addressing PFAS by working closely with EPA and various other federal, state, and local stakeholders. To learn more about PFAS initiatives and activities please visit the following websites:

- http://adem.alabama.gov/newsEvents/reports/PFASDrinkingWaterSystemReport.pdf
- https://www.epa.gov/pfas
- https://www.ecos.org/pfas

3. Comment: (EDA)

In response to the public notice dated June 10, 2018 regarding the above-referenced matter [2018-2020 Triennial Review of Water Quality Standards], I submit, on behalf of the Environmental Defense Alliance, Alabama Rivers Alliance, Inc., Friends of the Locust Fork River, Cahaba Riverkeeper, Inc., Friends of Hurricane Creek, Choctawhatchee Riverkeeper, Inc., Black Warrior Riverkeeper, Inc., Coosa Riverkeeper, Inc., Cahaba River Society, Inc., and Sierra Club, the following comments on the proposed adoption of new or revised water quality standards.

On February 3, 2017, many of the organizations identified above submitted a "Petition for Determination that the Promulgation of New or Revised Water Quality Standards are Necessary in the State of Alabama to Meet the Requirements of the Clean Water Act and to Prepare and Publish Proposed Regulations Setting Forth New or Revised Water Quality Standards for the State of Alabama" to the U.S. Environmental Protection Agency. That Petition sets forth in detail recommendations and rationales for the adoption of new or revised water quality criteria for toxic pollutants in Alabama. The above-identified organizations adopt the recommendations and rationales for the adoption of new or revised water quality criteria for toxic pollutants as set forth in the Petition and exhibits as their comment on current rules of ADEM Administrative Code chapter 335-6-10, Water Quality Criteria.

Response: See response to comment 1.

4. Comment: (APC)

Proposed Revisions

Alabama Power respectfully requests that ADEM: (1) incorporate EPA's recommended framework and fish tissue criteria for selenium; (2) eliminate Alabama's current acute criterion; and (3) retain the current 5.0 µg/L chronic aquatic life criterion for selenium or increase it because available information demonstrates the current criterion is unnecessarily overprotective. Attachment A to these comments provides Alabama Power's proposed revisions to Ala. Admin. Coder. 335-6-10, Table 1.

To implement these requested changes, a maximum allowable monthly average water quality-based selenium concentration would be calculated using the water column aquatic life criterion and included in an NPDES permit for an individual discharger with effluent that will cause, or have the reasonable potential to cause, or contribute to an excursion above ADEM's water quality standards. If the concentration set out in the permit is exceeded, the permittee would be required to conduct a fish tissue study-i.e., collect and analyze fish tissue for selenium concentrations. If the results of the fish tissue study are less than or equal to applicable fish tissue compliance thresholds set forth in Ala. Admin. Coder. 335-6-10, Table 1, there would be no permit limit exceedance and the permittee would be in compliance with water quality standards. If the fish tissue concentration is greater than the compliance thresholds, a non-compliance form would be submitted to ADEM in accordance with the permit. Consistent with EPA's recommended criterion, Alabama Power proposes that egg and ovary concentrations supersede whole-body, muscle, and water-column concentrations, while whole-body and muscle concentrations supersede water-column concentrations. Should a permittee be unable to obtain fish tissue in the aforementioned scenario, a non-compliance form would be submitted based on an exceedance of the monthly average water quality-based effluent concentration specified in the permit.

a. Fish tissue criteria

Ecosystem health and integrity is a vital part of the CWA, and Alabama Power encourages ADEM to adopt a scientifically-sound and common-sense approach to selenium that protects Alabama's freshwater systems. Fish tissue-based criteria should take precedent over concentrations in the water column because the scientific community has reached a consensus that selenium toxicity is primarily based on organisms consuming selenium-concentrated food, rather than being directly exposed to selenium dissolved in the water. For this reason, fish tissue provides the most reliable medium for monitoring the pollutant and protecting aquatic life.

EPA has spent decades monitoring and revising the selenium criteria to be protective of the aquatic habitat. The federal agency's research and guidance should not be ignored. If ADEM were to disregard it and rely solely on water column criteria, such reliance could result in unnecessary and costly treatment for selenium where there is little actual risk to aquatic life.

Data collected through ADEM's Fish Tissue Monitoring Program shows selenium is not a pollutant of concern in Alabama. Below are summary statistics derived from fish muscle tissue

data collected by ADEM between October 9, 1996 and December 1, 2016. The selenium concentrations are reported on a wet weight basis, but they have been converted to dry weight using an assumed-percent moisture of 75% in fish muscle tissue, a number derived from EPA's selenium criteria development document.

Table 1: Summary of ADEM's fish muscle tissue data (1996-2016).

Number of sampling locations, statewide	251
Number of fish collected	8,752
Number of species represented in the fish collected	45
Number of composite fish analyses	1 ,436
Number of individual fish analyses	974
Estimated maximum selenium, µg/g dry weight	4.72
Estimated 95th percentile selenium, µg/g dry weight	4.00
Estimated median selenium, µg/g dry weight	4.00
Estimated average selenium, µg/g dry weight	2.63
Number of values less than method detection level	1779
Number of values	2,410
Percent values less than method detection level	73.8%
Range of method detection level, µg/g dry weight	0.08-4.04

In the summary statistics provided above, concentrations that are reported as "less than" the method detection limit ("MDL") are set equal to the MDL; therefore, 73.8% of the measured selenium concentrations were actually less than the MDL. This large percentage of fish tissue concentrations artificially set at the MDL level inflates certain calculations set out in the table above. Despite this inflation, the statistics clearly demonstrate selenium concentrations in fish tissue in Alabama are much lower than EPA's national recommended criterion for selenium in fish muscle tissue. In fact, the maximum estimated concentration of selenium (4.72 µg/g dry weight) measured in any fish sampled by ADEM over the 10-year period is only 41.8% of EPA's 11.3 mg/kg dry weight recommended criterion for fish muscle (Table 1). This data is quantifiable evidence selenium is not a pollutant of concern in the freshwater ecosystem in Alabama.

b. Water column criteria

Alabama Power requests that ADEM eliminate Alabama's current acute criterion of 20.0 µg/L and either retain or increase the current chronic aquatic life criteria of 5.0 µg/L for selenium. As EPA explained, "selenium is bioaccumulative and toxicity primarily occurs through dietary exposure." 81 Fed. Reg. at 45,287. Therefore, an acute limit should not be included, just as EPA does not recommend including one in its recommended criterion. Regarding Alabama's chronic limit for selenium, the current limit is overprotective, as further demonstrated below. As such, Alabama Power is supportive of the state agency increasing the criterion.

EPA actually recommended that the 30-day water column chronic value be lowered to 3.1 µg/L based on its use of a bioaccumulation model that "derive[d] a mathematical relationship between the concentration of selenium in the water to the concentration of selenium in the eggs and ovaries

of fish." U.S. EPA, *Aquatic Life Ambient Water Quality Criterion for Selenium — Freshwater 2016*, EPA-822-R16-006, B-5 (June 2016). "EPA translated the selenium egg-ovary criterion element into two set(s) of site-specific water concentration values (lentic and lotic), and used the distribution(s) of those water column values to derive the respective water-criterion elements." Id at K-2. This approach, however, is flawed for several reasons.

There is significant uncertainty in EPA's bioaccumulation modeling approach. Four input variables are necessary to derive a water concentration from the model: the concentration of selenium in the eggs or ovaries of the fish; the product of the trophic transfer factor ("TTF") values of the fish species that is the target of the egg-ovary criterion element and the TTF values of all lower trophic levels in its food web; the steady state proportional bioconcentration of dissolved selenium at the base of the aquatic food web; and, the species-specific proportion of selenium in eggs or ovaries relative to the average concentration of selenium in all body tissues. *Id.* at K-4. Yet, the model fails to consider that input variables may not be available for all sites. Moreover, by deriving its recommended concentration of selenium in water, EPA assumes these variables are consistent throughout all aquatic systems. This is simply not true. EPA itself acknowledged this fact when it said, "concentrations of selenium in the water column can vary substantially among aquatic systems." *Id.* at K-2. Science has also shown that the fate and toxicity of selenium in aquatic systems is highly dependent on site-specific factors, including food-web structure and hydrology.

Furthermore, in deriving values for the water column element from the egg-ovary element, EPA relied on a limited data set. "EPA selected the 20th percentile of the distribution of median water column values as the statistical cut-off.]" *Id*. at 31. By selecting a conservative value, the resulting water column value is overly conservative for most aquatic systems. In turn, permittees will be required to conduct needless fish tissue studies.

Irrespective of EPA's flawed water column criteria methodologies, ADEM's Fish Tissue Monitoring Program provides an independent verification that the chronic value in ADEM's water quality standards is sufficient or overprotective of aquatic life. Alabama has maintained a chronic limit of 5.0 µg/L since 1990 and has not seen aquatic life in the state adversely affected by selenium toxicity. In fact, the above-referenced ADEM data shows the maximum estimated concentration of selenium measured in fish is only 41.8% of EPA's 11.3 mg/kg dry weight recommended criterion. Furthermore, a study has concluded that the implementation of 5.0 µg/L in an NPDES permit resulted in the restoration of selenium-sensitive species. John U. Crutchfield, Jr., *Recovery of a Power Plant Cooling Reservoir Ecosystem from Selenium Bioaccumulation*, Environmental Science & Policy 3, S145-S163 (2000). If ADEM were to implement EPA's chronic water quality value of 3.1µg/L, many Alabama waters currently meeting their designated use that do not have selenium concentrations in fish tissue at levels of concern would ultimately be failing to meet their designated use, if based solely on water chemistry.

EPA, too, acknowledges a chronic limit of 5.0 µg/L of selenium is adequate. This is illustrated in the fact that EPA has allowed states to utilize limits above 3.1 µg/L (see Kentucky, utilizing 5.0 µg/L) despite EPA's 2016 recommended criterion. Separately, EPA has approved 448 Total Maximum Daily Loads ("TMDLs") for waterbodies in 13 different states that are impaired by selenium, and a majority of those states have a selenium water-column criterion of either 4.6 µg/L dissolved selenium or 5.0 µg/L total recoverable selenium. *See* EPA, *Assessment, Total Maximum*

Daily Load Tracking and Implementation System (*ATTAINS*), last updated on June 4, 2018. EPA has arguably reapproved these criteria as part of the TMDL-development process.

Finally, Alabama Power requests that ADEM not specify its chronic water column value as individual values for "lentic" and "lotic" waters. A lentic system refers to still waters, such as lakes and ponds, and a lotic system refers to flowing waters, such as rivers and streams. But, given that Alabama has few natural lakes, and in reality most of its aquatic systems are a hybrid between lotic and lentic, how would ADEM draw the line between these two systems? What definition would the agency implement? Would ADEM implement a flow measurement? EPA did not provide guidance for defining the two classifications. Instead, it simply referred to the systems as "flowing" and "still."

For these reasons, and others, ADEM should eliminate the current acute criterion of 20.0 µg/L for selenium and either retain or increase its current chronic aquatic life criteria of 5.0 µg/L for all aquatic systems in Alabama.

c. Implementation of the New Water Quality Standards

There are several things ADEM should consider regarding the actual implementation of the new recommended selenium standard. Not only will implementing and managing the standard not likely result in an increased burden to ADEM and its personnel, it could alleviate some of it given permittees will be responsible for conducting fish tissue studies should their monthly average discharge concentrations for selenium be exceeded. This could relieve ADEM from some annual fish collection.

Furthermore, Alabama will not be the first state to implement a fish tissue-based water quality standard for selenium. Four other states have adopted a similar standard: Idaho, Kentucky, Utah, and West Virginia; and numerous other states are currently in the process of evaluating whether to incorporate the new criteria. ADEM will therefore be able to seek guidance from these states, such as a framework for how to implement this standard in NPDES permits and how to develop standard operating procedures for collecting and/or analyzing fish tissue concentrations. Such guidance will circumvent a substantial investment in personnel man hours and financial resources.

The existing data ADEM has on file-data on selenium concentrations in fish that have been collected through the Fish Tissue Monitoring Program since 1996-could also serve as a historical baseline for the agency. Chronic selenium toxicity is primarily based on bioaccumulation through the food chain, a process that takes time to see effects. This is why, for example, EPA recommends water column values take precedent over fish tissue values for new discharges of selenium where steady state has not been achieved between water and fish tissue at the site. ADEM, however, with its historical baseline of selenium concentrations in fish collected at 251 sites in Alabama, will be a step ahead of other states and able to use such historical data should the state agency see fit.

As for permits and the determination of whether selenium water quality-based effluent limitations are necessary, ADEM could continue to use the state's water column criteria when making a reasonable potential determination during the NPDES application stage. EPA has acknowledged using fish tissue for such determinations could be complex, and therefore, the federal agency recommends states continue to use the water column criteria. Given, however, that ADEM already

has fish tissue samples collected and analyzed, the agency could elect to include such data, and any fish tissue data provided by the applicant at ADEM's request, in its determination. Alabama Power has recommendations for how a reasonable potential determination could be conducted incorporating such information and is willing to share these recommendations with the agency.

Response: The Department is concerned that adoption of EPA's recommended selenium criteria would impose unnecessary constraints on the Department's resources and would be unnecessarily burdensome to implement. ADEM's comprehensive, statewide water-column and fish tissue data provides strong evidence that the current selenium water-column criteria of 20 µg/L (acute) and 5 µg/L (chronic) are adequately protective of aquatic life, and we do not see a need to revise this criteria at this time.

The Department will continue to review and evaluate all data and information pertaining to the development of selenium criteria during its 2018-2020 triennial review period.

335-6-10-.09 SPECIFIC WATER QUALITY CRITERIA

5. Comment: (ADCNR)

The current state standards set maximum water temperatures in streams, lakes, and reservoirs, under various water use classifications that shall not exceed 90^0F. Additionally, the maximum temperature in streams, lakes, and reservoirs in the Tennessee and Cahaba River Basins, and for that portion of the Tallapoosa River Basin from the tailrace of Thurlow Dam at Tallassee downstream to the junction of the Coosa and Tallapoosa Rivers which has been classified by the ADCNR as supporting smallmouth bass, sauger, or walleye, shall not exceed 86°F. Many of the aquatic species ranked as of Greatest Conservation Need (GCN) to the ADCNR are negatively impacted by water temperatures that are not only too warm, but also too cold. We present for review an opportunity to include a state minimum water temperature standard for point source dischargers and hydroelectric generators, particularly those in waters designated for "Fish and Wildlife".

The impacts of water temperatures on the aquatic environment have been well-documented in the peer-reviewed literature. There is evidence that water temperatures that are too high and too low negatively impact aquatic organisms. When water temperatures are altered, life history processes can be severely impacted. When water temperatures are too low or fail to reach a species-specific optimum, due to unnatural water temperature variation, the following can occur: growth and recruitment can be impacted, seasonal migrations may be disrupted, delayed spawning occurs, embryonic development can be inhibited, declines in abundance and early survival, insect emergence is disrupted, reduction of benthic biomass, and the elimination of temperature-specific species of fish (Irwin et al. 1997; Poff et al., 1997; Edwards, 1978; Clarkson et al. 2000; Small and Bates, 2001; Bunn and Arthington, 2002).

Due to the potential negative impacts to aquatic organisms when water temperatures fall below species-specific optimums, we believe that it is just as important and appropriate to set a state minimum water temperature standard as it is to set a state maximum water temperature standard for certain water use classifications (e.g. Fish and Wildlife), as has been standard

practice in prior editions of the state water quality standards. Additionally, in consideration of setting a state minimum water temperature, a seasonal component should be addressed. Depending on the water use classification, certain waters may benefit from having a seasonal minimum water temperature to facilitate life history processes like spawning, rearing, and early growth. Given natural and seasonal variation of water temperatures across the state, a set minimum in January may not be appropriate in the warmer summer months of June, July and August. The seasonal standard would be similar to other exceptions given throughout the state water quality standards.

Response: As part of the triennial review process, the Department will certainly take the request for a minimum temperature criteria under consideration; however, at this time, we are unaware of any documented impacts to aquatic life that are occurring in Alabama as a result of cold water conditions. Currently, there are ongoing biological and water quality studies within the Tallapoosa River Basin as part of the Federal Energy Regulatory Commission (FERC) relicensing process for the R.L. Harris Hydroelectric Project located near the City of Wedowee, Alabama. Results of those studies will be used by the Department to determine the proper course of action that may be necessary to address any identified water quality concerns, including temperature, with respect to the R.L. Harris Hydroelectric Project.

6. Comment: (SELC)

ADEM has a water quality maximum temperature of 90 degrees Fahrenheit for waterbodies with the designated use of Fish and Wildlife but does not have a minimum temperature. Ala. Admin. Code 335-6-10-.09 (5)(e)3. Certain fish cannot survive and are being impacted by cold water discharges from hydropower releases, specifically from Harris dam. Specifically, mortality of certain species of catfish and Alabama bass "was highest in treatments with decreased water temperatures." Many times these changes are sudden and can decrease water temperature as much as 10 degrees Celsius. ADEM should set a minimum temperature with which discharges must be so that the cold water will not harm or kill warm water native fish.

Response: See response to comment 5.

7. Comment: (ARA)

Maximum water temperature and maximum rises in water temperature are both specific water quality criteria under the current regulations. Ala. Admin. Code § 335-6-10-.09. The state is right to regulate high temperatures, but low temperatures and drops in temperature can be equally harmful to riverine health and ecology. Accordingly, section 6-10-.09, "Specific Water Quality Criteria" should be updated to include standards to protect the physical, biological, and chemical integrity of the state's waters against low temperatures.

The impacts of low temperatures, especially large deviations or drops in temperature, are well documented, so these comments will not address the scientific evidence that low temperatures are harming Alabama's rivers. It is worth making special mention of the strong connection between hydroelectric dams and downstream water temperature. For example, biologists have repeatedly identified areas of the Tallapoosa River below the Harris Dam as being impaired and suffering

from low fish and wildlife populations. This deficiency has repeatedly been tied to the low water temperatures coming from the cold reservoir waters. Under the current criteria, there is little hope to remedy this problem, as there is no protection against minimum temperature or negative deviations in water temperature.

Temperature is one of the primary criteria that waters must achieve. All seven water use classifications contain temperature standards. For example, the "Outstanding Alabama Waters" classification has these criteria, which are more or less reflected in the other classifications.

> (i) The maximum temperature in streams, lakes, and reservoirs, other than those in river basins listed in subparagraph (ii) hereof, shall not exceed 90° F.
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> (ii) The maximum temperature in streams, lakes, and reservoirs in the Tennessee and Cahaba River Basins, and for that portion of the Tallapoosa River Basin from the tailrace of Thurlow Dam at Tallassee downstream to the junction of the Coosa and Tallapoosa Rivers which has been classified by the Alabama Department of Conservation and Natural Resources as supporting smallmouth bass, sauger, or walleye, shall not exceed 86° F.
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> (iii) The maximum in-stream temperature rise above ambient water temperature due to the addition of artificial heat by a discharger shall not exceed 5°F in streams, lakes, and reservoirs in non-coastal and non-estuarine areas.
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> (iv) The maximum in-stream temperature rise above ambient water temperature due to the addition of artificial heat by a discharger shall not exceed 4° F in coastal or estuarine waters during the period October through May, nor shall the rise exceed 1.5° F during the period June through September.
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> (v) In lakes and reservoirs there shall be no withdrawal from, nor discharge of heated waters to, the hypolimnion unless it can be shown that such discharge or withdrawal will be beneficial to water quality.
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> (vi) In all waters the normal daily and seasonal temperature variations that were present before the addition of artificial heat shall be maintained, and there shall be no thermal block to the migration of aquatic organisms.
>
> (vii) Thermal permit limitations in NPDES permits may be less stringent than those required by subparagraphs (i)-(iv) hereof when a showing by the discharger has been made pursuant to Section 316 of the Federal Water Pollution Control Act (FWPCA), 33 U.S.C. §1251 et seq. or pursuant to a study of an equal or more stringent nature required by the State of Alabama authorized by Title 22, Section 22-22-9(c), Code of Ala. 1975, that such limitations will assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife, in and on the body of water to which the discharge is made. Any such demonstration shall take into account the interaction of the thermal discharge component with other pollutants discharged.

Ala. Admin. Code § 335-6-10-.09(1)(c)(3). Despite the proven impact that low temperatures have on fisheries and other freshwater species, classifications only have high temperature safeguards.

This fact ignores the reality that Alabama's rivers are impaired because of large drops in temperature, especially in areas immediately after dams and impoundments. As section .09(1)(c)(3) shows, the state's water quality standards will regulate harmful human-induced increases in temperature but not decreases. By regulating high temperatures, the state shows (1) temperature is a serious threat to Alabama's waters and (2) it has authority to regulate temperature under state and federal standards. Consequentially, it is impractical and arbitrary not to regulate low water temperatures.

Response: See response to comment 5.

8. Comment: (ARA)

ADEM's water quality standards must be updated to fully protect waters of the state from the impacts of hydroelectric dams. Impacts to water quality from the operation of these dams include reduced dissolved oxygen, unnatural temperature variations from deep water discharges, and impaired native aquatic communities due to poor water quality and unnatural flow manipulations. ADEM's current standards do not ensure adequate temperature and dissolved oxygen for the protection of fish and wildlife.

The current standard for water temperature should be revised to (1) establish minimum temperatures for discharges from hydroelectric dams relative to instream temperatures below the dam and (2) establish limits to temperature fluctuations in downstream reaches below these dams during both generation and non-generation periods. Cold-water releases from dams impact native aquatic life from the sudden decrease in water temperatures. Hydroelectric dams also impact temperature during periods of non-generation, when lack of ample instream flow leads to increased temperatures downstream of the dam.

We recommend the establishment of numeric criteria for minimum temperature in waters released from hydropower dams. We recommend narrative criteria be developed that protects waters downstream of hydropower dams from sudden temperature swings, unnaturally cool waters discharged from dams, and unnaturally high temperatures, especially during summer months, that can result from lack of sufficient water releases from the dam. Adding the proposed language would provide a standard capable of protecting downstream biota against low water temperatures. For example, studies of the Tallapoosa River have shown decreases in temperature downstream from Harris Dam, causing fish and other wildlife species to decrease. Establishing such criteria would offer better protection for the Harris tailrace.

Response: See response to comment 5.

9. Comment: (ADCNR)

Aquatic organisms all have specific water quality requirements needed to survive. These organisms can modify their rates of respiration to meet species-specific oxygen demands. Many of the species that are ranked as of Greatest Conservation Need (GCN) to the ADCNR are species that are intolerant to environmental changes. In streams, rivers, and reservoirs, a typical response to an environmental impact is a change in the dissolved oxygen (DO) concentration. Lowered DO concentrations can cause chronic and acute impacts to organisms

that can lead to mortality or the breakdown of certain life history processes, such as growth and recruitment. The result of low DO in highly sensitive species is typically mortality. While more tolerant species exhibit processes that allow them to withstand short term variations in DO, over time, this places stress on the organism and can lead to increased infection rates, lowered growth rates, reduced fecundity, and delayed spawning. Dissolved oxygen water quality standards accepted by ADEM are considered a general safety net for aquatic organisms. The state standard of 5 mg/l, for waters designated for "Fish and Wildlife" use, is a generally acceptable standard given daily and seasonal variability. However, as the standard in other water use classifications, time periods, or exceptions is reduced to 4 mg/l the level of impact to aquatic organisms heightens. We caution against overuse and long-term use of these exceptions as mortality can occur within hours of a low DO event. The intensity of the stress on aquatic organisms varies according to the duration of low DO concentration and the water temperature at the time of the event (e.g. summer drought conditions). Higher water temperatures typically result in higher respiratory demands in aquatic organisms. Therefore, the allowance of lowered DO events places Alabama's public aquatic trust resources in jeopardy.

When specifically referencing hydroelectric generation impoundments, we suggest adding language that DO requirements of 5 mg/l must be met or exceeded during generation and non-generation periods ("at all times") to avoid confusion in interpretation and intent of the state standard.

Response: The Department is compiling and evaluating all readily available data and information with respect to dissolved oxygen levels below existing hydropower facilities in Alabama. Upon completion of the analysis, the Department will determine if revisions to the existing dissolved oxygen criteria are warranted or if additional studies and analyses need to be conducted.

With respect to the existing dissolved oxygen criteria for discharges from existing hydroelectric generation impoundments, the Department will also consider adding language to clarify the existing regulations.

10. Comment: (CRK)

Water quality criteria “must be based on sound scientific rationale and must contain sufficient parameters or constituents to protect the designated use.” 40 C.F.R. §131.11(a). We were unable to locate any scientifically credible evidence that would suggest 4.0 mg/ L dissolved oxygen is sufficient for aquatic life in waters impacted by existing hydropower facilities, while 5.0 mg/L is necessary in the absence of hydropower facilities. However, we were able to locate several government reports that indicate impacts to fish at levels of 4.0mg/L and do not suggest the existence of hydropower facilities has any impact on tolerable dissolved oxygen concentrations.

U.S. Fish & Wildlife Service reports summarizing other studies show that growth in largemouth bass is reduced at dissolved oxygen levels below 8.0 mg/L, and distress is detected at 5.0 mg/L. 5.0 mg/L is the minimum oxygen concentration for growth of white

crappie. Optimum oxygen levels for bluegill are greater than 5.0 mg/L. Carp are very tolerant of low oxygen waters like the Coosa, yet still need 6-7 mg/L for good growth.

While available science does show that many fish can tolerate 4.0 mg/L oxygen concentrations for short periods of time, Alabama's criteria provides for 4.0 mg/L concentrations for an indefinite period of time so long as a hydropower facility is nearby. Other states have adopted standards which provide a minimum daily average concentration (for example, 5.0 mg/L) combined with an instantaneous minimum concentration (for example, 4.0 mg/L). Such a format recognizes the diurnal cycle of oxygen levels and the ability for fish to cope with lower concentrations of oxygen for short periods of time. More importantly, such a format is grounded in science. In other words, the Department's argument that fish can tolerate acute oxygen concentrations of 4.0 mg/L does not comport with the fact that the Department's criteria allows for chronic 4.0 mg/L conditions.

We repeat our ask that the Department provide credible scientific evidence that fish are miraculously able to tolerate 4.0 mg/L when they sense that a hydropower facility is nearby but otherwise need 5.0 mg/L. Quite frankly, it is clear that this water quality criteria is not based on sound scientific rationale and instead is designed to provide a variance for an entire industry. In the previous triennial review we called this criteria a "standard variance," which is not allowed under federal regulations. In response to our comments, the Department suggested that it was not a standard variance, but was a site-specific criteria. This argument doesn't hold water.

Alabama's dissolved oxygen criteria do not meet the established protocols and procedures for site-specific criteria. Site-specific criteria can be used to address waterbody specific conditions when the waterbody naturally differs in a way that makes it unique. Site-specific criteria must be based on a sound scientific rationale and protect designated uses. Again, this criteria neither protects the designated use nor is based on sound scientific rationale. In other words, it doesn't matter what the Department wants to call its variance for the hydropower industry; this criteria does not comport with federal regulations. EPA has developed procedures to derive site-specific aquatic life criteria and there is no evidence the Department has followed these procedures.

While Alabama can develop site-specific criteria, they must be set equal to natural background levels, excluding anthropogenic sources. Because hydropower facilities are an anthropogenic source, the Department cannot use their existence in setting a site-specific criteria. If the Department wants to set a site-specific criteria for the Coosa River, we would certainly invite them to do so because the background dissolved oxygen level for the Coosa River in the absence of hydropower facilities would greatly exceed 5.0 mg/L. Again, we could not find any evidence in the regulations or the administrative record that the Department properly followed the procedure to develop a site-specific criteria.

Water quality criteria are one part of a larger picture. Using the Water Quality Standards and Use Classification System maliciously to avoid recognizing impairment of designated uses of streams is inappropriate. If existing hydroelectric facilities cause dissolved oxygen to deviate below a scientifically defensible criteria, this should be handled through other

Department activities and not by adopting water quality criteria that are not scientifically defensible.

We recommend the Department reconsider the 4.0 mg/L standard variance (or "site-specific criteria") for existing hydroelectric generating facilities and update dissolved oxygen water quality criteria using scientifically defensible methods.

Response: See response to comment 9.

11. Comment: (ARA)

ARA supports the comments submitted by the Southern Environmental Law Center on its behalf. The state should eliminate the D.O. variance given for hydropower. The current standard for dissolved oxygen should be revised to (1) remove the exception for discharges from hydroelectric dams of 4 mg/l and (2) protect downstream water quality when the turbines are not generating power.

Discharges from dams should be held to instream water quality standards of 5 mg/l for dissolved oxygen. Ample operational methods and technologies are available to ensure these standards can be met. In addition, it is well documented that D.O. in waters below a dam can drop below standards when there isn't sufficient oxygenated water being released into the waterbody (low flow conditions). Since these violations are a direct result of the operation of the dam, water quality standards must specify that minimum D.O. concentrations in downstream reaches below dams be maintained at all times. The biological needs of downstream fish and mussels must be met at all times, even when the dam is not generating electricity.

Below are ARA's full 2015 comments calling for such removal, which the state has neither addressed nor followed.

The Environmental Protection Agency (EPA) recommends a target dissolved oxygen concentration of 6.0 mg/l to have "no production impairment" to existing fisheries and 8.0 mg/l invertebrates. Alabama Department of Environmental Management's standard dissolved oxygen criterion for a diversified warm water biota, including game fish is 5.0 mg/l. Based on the potential biological effects of sub-5.0 mg/l dissolved oxygen concentrations to fishes and aquatic invertebrates, low dissolved oxygen concentrations in many of the facilities' tailwaters during non-generation periods impact the fishes, mussels, snails, and other aquatic animals that would otherwise use these habitats. The very fact that the dam exists changes the hydrology of the river by holding water back and not allowing it to flow so that there is a chance, with water movement, that DO could be increased. This is an unreasonable disturbance given the fact that the waters should serve multiple purposes, including enhancing fish and wildlife.

Under 40 CFR 131.10(g) states may remove a designated use which is not an existing use, as defined in § 131.3, or establish sub-categories of a use if the State can demonstrate that attaining the designated use is not feasible because:

> 3. Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or to operate such modification in a way that would result in the attainment of the use.

The State's criterion at 335-6-10-.09 Specific Water Quality Criteria, (5) Fish and Wildlife, (e) Specific criteria, 4. Dissolved Oxygen is as follows:

> (i) For a diversified warm water biota, including game fish, daily dissolved oxygen concentrations shall not be less than 5 mg/l at all times; except under extreme conditions due to natural causes, it may range between 5 mg/l and 4 mg/l, provided that the water quality is favorable in all other parameters. The normal seasonal and daily fluctuations shall be maintained above these levels. In no event shall the dissolved oxygen level be less than 4 mg/l due to discharges from existing hydroelectric generation impoundments. All new hydroelectric generation impoundments, including addition of new hydroelectric generation units to existing impoundments, shall be designed so that the discharge will contain at least 5 mg/l dissolved oxygen where practicable and technologically feasible. The Environmental Protection Agency, in cooperation with the State of Alabama and parties responsible for impoundments, shall develop a program to improve the design of existing facilities.

In response to comments as part of the 2012 Triennial Review ADEM stated:

> Water quality certifications issued to existing hydroelectric power generation facilities will, in many cases, require retrofitting of turbines to meet the dissolved oxygen (DO) requirements specified in ADEM Administrative Code r. 335-6-10.09. In addition, the certifications require extensive monitoring of discharges from hydroelectric impoundments to provide operational feedback and to confirm that discharges are in compliance with the applicable criterion. Final operating licenses issued by the Federal Energy Regulatory Commission (FERC) for hydroelectric impoundments in the Black Warrior and Coosa River basins require the installation of DO enhancement measures at many of the facilities in those basins. The Department will continue to review water quality data collected in accordance with FERC license requirements and the Department's water quality certifications and will propose changes as appropriate.

It is unclear what this response is intended to convey. While it is true that FERC is requiring stronger protections as part of the relicensing of many of these dams, this has nothing to do with Alabama's Water Quality Standards program. As provided in our 2012 comments, which are hereby incorporated, the hydroelectric variance is scientifically and legally unjustifiable. Furthermore, DO monitoring reports which FERC compelled APC to release as part of the on-going relicensing process reveal rampant and often devastating violations of ADEM's water quality standards during periods of non-generation. This is directly attributable to ADEM confusing and improper variance program under 335-6-10-.09

While it is well known to ADEM that waters below hydroelectric generating impoundments routinely fail to meet minimum standards, none of these waters have been listed as impaired on the State's 303d list nor has ADEM developed a TMDL to address these shortcomings.

In its comments and recommendations to the 2009 Triennial Review, EPA provided the following suggestion:

> The State should consider eliminating or modifying the 4 mg/l standard variance for dissolved oxygen for existing hydroelectric generation impoundment discharges. A default provision in the standard allowing dissolved oxygen to be degraded to 4 mg/l during periods of hydroelectric impoundment discharge should not be allowed if a dissolved oxygen standard of 5 mg/l can be met or if a standard higher than 4 mg/l can be met. If the 5 mg/l dissolved oxygen criteria cannot be met, then the State must make a demonstration documenting the lower water quality is adequate to protect existing uses fully, accordance with CFR 131.12(a)(2).

EPA also suggested:

> In addition, the standard in 335-6-10-.09(5)(e)4 could be reworded to be more explicit in the requirement for hydroelectric impoundments to operate so as to maintain the dissolved oxygen concentrations of 5 mg/l during periods of non-generation/non-discharge. Finally, EPA recommends that the State standard require any modification or addition to existing or new hydroelectric generation impoundments meet the dissolve oxygen standards of 5 mg/l. *Id.*

Alabama's current water quality standards pertaining to D.O at hydroelectric impoundments do not provide for the protection of designated uses, including aquatic life uses. There has been no demonstration that these hydroelectric impoundments preclude attainment of a 5 mg/l DO water quality criterion. To the contrary, TVA is employing oxygen boosting solutions on their hydroelectric impoundments throughout the Tennessee Valley system but sadly not in Alabama. In order to be in compliance with the Clean Water Act, ADEM's water quality criteria should require that all waters meet the minimum standard of 5 mg/l and ensure that such provisions are enforced as part of the 401 certification process. Despite repeated comments and suggestion from both citizen/stakeholders and EPA, ADEM has made no efforts to correct these deficiencies. In order to ensure that Alabama's water quality standards are protective of aquatic life and comply with the Clean Water Act's mandate to protect designated uses and prevent degradation. ADEM should adopt EPA's recommendations from the 2009 Triennial Review.

Therefore we reiterate our proposal for the following changes to dissolved oxygen criteria in 335-6-10-.09, and that they be applied to all use classifications as appropriate:

> (i) For a diversified warm water biota, including game fish, daily dissolved oxygen concentrations shall not be less than 5 mg/l at all times; except under extreme conditions due to natural causes, it may range between 5 mg/l and 4 mg/l, provided that the water quality is favorable in all other parameters. The normal seasonal and

> daily fluctuations shall be maintained above these levels. ~~In no event shall the dissolved oxygen level be less than 4 mg/l due to discharges from existing hydroelectric generation impoundments~~. All ~~new~~ hydroelectric generation impoundments~~, including addition of new hydroelectric generation units to existing impoundments any modification or addition to existing or new hydroelectric generation,~~ shall be designed or retrofitted so that the discharge will contain at least 5 mg/l dissolved oxygen where practicable and technologically feasible. The Environmental Protection Agency, in cooperation with the State of Alabama and parties responsible for impoundments, shall develop a program to improve the design of existing facilities.

If ADEM is unwilling or unable to revise the State's water quality standards to eliminate or modify the 4 mg/l standard variance for dissolved oxygen for existing hydroelectric generation impoundment discharges, ARA reserves the option to petition the EPA to use its authority under the Clean Water ACT to develop water quality standards for Alabama which eliminates or modifies the 4 mg/l standard variance for dissolved oxygen for existing hydroelectric generation impoundment discharges or to require ADEM to develop such standards as a prerequisite to approval of Alabama's water quality standards.

Response: See response to comment 9.

12. Comment: (ARA)

A hydropower "unit" consists of several components, including the turbine, generator, and penstock. The turbine itself is comprised of several components, and is subject to frequent upgrades. When a turbine is upgraded, many of the components are replaced, often leading to increased capacity or efficiency. While the number of units often remains the same during these upgrades, the technology of the units is being improved, thus leading to increased benefits to the operator often at considerable cost. These types of upgrades should not be included in the grandfathered criteria and should be subject to the standard dissolved oxygen limit. If an operator is willing to spend the money for new components to increase capacity and efficiency, the financial protections available through the grand-fathered standard are no longer applicable. If new components are to be installed, ADEM should require the operator to use the opportunity to also install equipment to meet water quality standards.

In its comments and recommendations to the 2009 Triennial Review, EPA recommended that the "State standard require any modification or addition to existing or new hydroelectric generation impoundments meet the dissolve oxygen standards of 5 mg/l." Despite multiple responses signifying that ADEM will make these considerations, there has been no action taken by the Department.

ARA proposes the following changes to dissolved oxygen criteria in 335-6-10-.09, and should be applied to all use classifications as appropriate:

> For a diversified warm water biota, including game fish, daily dissolved oxygen concentrations shall not be less than 5 mg/l at all times; except under extreme conditions

due to natural causes, it may range between 5 mg/l and 4 mg/l, provided that the water quality is favorable in all other parameters. The normal seasonal and daily fluctuations shall be maintained above these levels. Hydroelectric generation impoundments shall operate in such a manner as to maintain dissolved oxygen concentrations of not less than 5 mg/l during periods of non-generation and in no event shall the dissolved oxygen level be less than 4 mg/l due to discharges from existing hydroelectric generation impoundments. All new hydroelectric generation impoundments, including addition of new hydroelectric generation units to existing impoundments as well as the modification of existing generation units with new turbines, shall be designed so that the discharge will contain at least 5 mg/l dissolved oxygen where practicable and technologically possible. The Environmental Protection Agency, in cooperation with the State of Alabama and parties responsible for impoundments, shall develop a program to improve the design of existing facilities.

Response: See response to comment 9.

13. Comment: (BWRK)

We agree with and incorporate by reference the July 26, 2018 public comments submitted by Coosa Riverkeeper which ask ADEM to revise Alabama's dissolved oxygen standard of 4.0 mg/L at existing hydroelectric generating facilities. We ask that the Department update dissolved oxygen water quality criteria at existing hydroelectric generating facilities using scientifically defensible methods. Water quality criteria "must be based on sound scientific rationale and must contain sufficient parameters or constituents to protect the designated use." 40 C.F.R. §131.11(a). ADEM has failed to offer any scientifically credible evidence that would suggest 4.0 mg/L dissolved oxygen is sufficient for aquatic life in waters impacted by existing hydropower facilities, while 5.0 mg/L is necessary in the absence of hydropower facilities. While available science does show that many fish can tolerate 4.0 mg/L oxygen concentrations for short periods of time, Alabama's criteria provides for 4.0 mg/L concentrations for an indefinite period of time so long as a hydropower facility is nearby. In these circumstances, a blanket criterion of 4.0 mg/L fails to protect the designated use of Alabama's water use classifications.

Response: See response to comment 9.

14. Comment: (SELC)

ADEM's water quality standards mandate that in order to propagate fish and wildlife, for a diversified warm water biota, daily dissolved oxygen (DO) concentrations shall not be less than 5 mg/l at all times; except under extreme conditions due to natural causes. Ala. Admin. Code 335-6-10-.09(5)(e)4. However, waters at hydroelectric generation impoundments only have to maintain a dissolved oxygen level of 4 mg/l while generating. *Id.* Without any scientific evidence, ADEM continues to carve out an exception for hydropower. Even the D.C. Circuit Court has recognized this inconsistency and stated, "Alabama law actually sets a lower dissolved oxygen water quality standard for hydropower generators than for other

users…" *Am. Rivers v. Fed. Energy Regulatory Comm'n*, No. 16-1195, 2018 WL 3320870, at *14 (D.C. Cir. July 6, 2018).

ADEM has been asked by the EPA and the Alabama Rivers Alliance for at least nine years to improve the dissolved oxygen level standard for hydroelectric generation units. But ADEM continues to ignore these requests. The EPA recommended in its comments in the 2009 Triennial Review, that:

> The State should consider eliminating or modifying the 4 mg/l standard variance for dissolved oxygen for existing hydroelectric generation impoundment discharges. A default provision in the standard allowing dissolved oxygen to be degraded to 4 mg/l during periods of hydroelectric impoundment discharge should not be allowed if a dissolved oxygen standard of 5 mg/l can be met or if a standard higher than 4 mg/l can be met. If the 5 mg/l dissolved oxygen criteria cannot be met, then the State must make a demonstration documenting the lower water quality is adequate to protect existing uses fully, accordance with CFR 131.12(a)(2).

The regulation that EPA cites, CFR 131.12(a)(2), states that water quality criteria "must be based on sound scientific rationale and must contain sufficient parameters or constituents to protect the designated use." 40 C.F.R. §131.11(a). The EPA recommends an even higher DO level than 5 mg/l - a target dissolved oxygen concentration of 6.0 mg/l should be maintained to have 'no production impairment' to existing fisheries and 8.0 mg/l for invertebrates.

The Fish and Wildlife (FWS) has also written about the DO water quality standard in Alabama: "the normal development of several lotic benthic macroinvertebrates is no longer possible at levels below 5 mg/L." "One of the primary principles of adopting higher DO concentrations (e.g. 5 mg/L) in water quality standards is to create a natural, healthy aquatic system." *Id*. The FWS cited studies which show low DO concentrations can adversely impact both fish and freshwater mussels. Even short periods of low DO can cause irreversible damage to aquatic life and sometimes lead to species die-off. Low DO can have an effect on fish behavior, growth, feeding, and reproduction. Further, DO concentrations below 5.0 mg/l mark a dividing line between good and bad conditions for fish. *Id.*

Several renowned scientists have also expressed dismay at ADEM's 4.0 mg/l standard. In comments, Dr. Bernard Khuajda, a biologist at the Tennessee Aquarium stated that "Fishes found in Alabama must have a dissolved oxygen level higher than a 5.0 mg/l to have normal growth and to propagate….I know of no science which lends support that Alabama fishes can successfully propagate, have normal growth rates, and have adequate larval and juvenile survival at a 4.0 mg/l dissolved oxygen level." Exhibit 6 (Khuajda Declaration). In comments regarding a FERC license, Dr. Michael Gangloff, has stated that ADEM's 4.0 mg/L DO criterion is far lower than historic DO conditions on the Coosa River. ADEM's low DO standard has likely contributed to the loss of endemic mussel species:

> The proposed [DO] concentration of 4 mg/L for project tailwaters is clearly lower than historical conditions and are likely insufficient to preserve aquatic resources.

> Data collected from the Coosa River pre-1950 only found significantly depleted DO levels at highly polluted sites (Alabama Water Improvement Advisory Commission 1949).

Exhibit 7 (Gangloff Declaration), ¶ 8. As described in the attached declaration of Dr. Bringolf, the potential biological effects on fish and aquatic invertebrates of sub-5.0 mg/L dissolved oxygen, typical in the tailwaters of many of APC's facilities during periods of non-generation, are substantial, rendering ADEM's program insufficient for the protection or recovery of imperiled species. Exhibit 8, ¶17. Dr. James Williams concurs and states, "In my best professional judgment I believe that there should be consistent minimum standards for dissolved oxygen during both generation and non-generation periods of not less than 5 ppm."

ADEM is ignoring generally accepted science by giving hydropower this exception. Several authors have written on the biological effects of low dissolved oxygen concentrations to fishes and aquatic invertebrates. For instance, a study on the Flint River in Georgia found that "as DO levels fell below 5 mg/L, the upper range of weekly unionid mortality increased steadily." DO concentrations less than 5.0 mg/L may negatively affect the balanced composition of the aquatic community. Dissolved oxygen levels, "can be used to predict fish species composition and quantify habitat quality…" And hypoxia is usually defined as dissolved oxygen concentrations less than 5 mg/l. Killgore and Hoover point out:

> groups such as darters and species such as freshwater drum, which exhibit no behavioral or morphological adaptations to hypoxia … were not abundant in the system. Regionally abundant and widespread species known to be intolerant of hypoxia…were conspicuously absent.

Many darter species, like the ones Killgore and Hoover describe as being intolerant of low DO, serve as host fish for the parasitic life stage of many mussel species. Without the presence of these fish, mussel populations would suffer because a crucial developmental stage (transformation from glochidia to subadult) cannot be successfully completed.

Most importantly, ADEM has already concluded that a 5.0 mg/L DO is necessary for a diversified warm water biota, which is why the agency requires a 5.0 mg/l standard for the rest of the regulated community. The exception for existing hydropower developments is not based on protection of aquatic life, but rather accommodation of one industry. When confronted with this inexplicable inconsistency, ADEM's latest response in 2015 was that, "[t]he 4.0 mg/L criterion established for discharges from existing hydroelectric generation impoundments is not a variance, but a site-specific criterion established for an existing use." Water quality standards can be based on "guidance modified to reflect site-specific conditions." 40 C.F.R. § 131.11(b)(ii). When using a site-specific criteria, the standard still has to be based on "sound scientific rationale," and still has "to be sufficient to protect the designated use." All of the science previously mentioned indicates that a 4.0 mg/l does not meet the designated use for fish and wildlife, especially not for sensitive species such as those that are endangered or threatened.

Further, a "site-specific criterion is developed to protect aquatic life at a *particular site*." (emphasis added). Site-specific criteria can be used to "protect unique characteristics inherent to a specific water." ADEM is not setting a "site-specific" criterion because the 4.0 mg/l criterion applies across the state at different hydropower sites run by different hydropower entities in different waterbody types, even in different ecoregions.

Site-specific criteria at a specific site can be set for dissolved oxygen if the value is equal to the natural background. Natural background "is defined as background concentration due *only* to non-anthropogenic sources, i.e., non-manmade sources." When setting a site-specific dissolved oxygen water quality criteria, "it is necessary…to not only identify that natural conditions could account for the observations, but also that documented human-induced impacts are not causing or exacerbating those conditions." In fact, a factor in deciding whether it is appropriate to use the natural background as the DO standard is whether or not there is "evidence of hydrological alteration (e.g. dams, impoundments…)". However, hydropower, by its very definition, is man-made. Gangloff reiterated that a 4.0 mg/l dissolved oxygen standard is not the background concentration due to natural sources, but rather is only low because of the manmade dam.

Additionally, although ADEM says that this exemption is "based on an existing use"; the State has not designated "hydropower" as an existing use. *See* Ala. Admin. Code 335-6-11-.01 (hydropower is not listed). And most sections below the hydroelectric impoundments are designated as Fish and Wildlife. If ADEM wishes to remove a designation, federal regulations mandate that "a state must conduct a use attainability analysis… whenever the State wishes to remove a designated use that is specified in Section 101(a)(2) of the [Clean Water] Act." 40 C.F.R. 131.10(j)(2). Has ADEM conducted a use attainability analysis for this exemption?

Part of a use attainability analysis may hinge on whether or not it is feasible for hydroelectric facilities across Alabama to maintain a 5.0 mg/l dissolved oxygen standard. To put Alabama's standards in perspective, none of the surrounding states allow a hydropower exemption. Most of Tennessee's waters designated for fish and aquatic life must have a DO concentration of at least 5.0 mg/l, including "lakes and reservoirs". In Georgia, the water quality standard for fishable waters that "support [] warm water species of fish," is "a daily average of 5.0 mg/l and no less than 4.0 mg/l at all times." Georgia's standards do not have a hydroelectric carve-out. Mississippi's standards for dissolved oxygen for fish and wildlife are the same as Georgia's with no hydropower exemption. North Carolina's regulations also state that for propagation and survival of wildlife, the waters must maintain a daily average of at least 5.0 mg/l with a minimum instantaneous value of at least 4.0 mg/l. While "swamp waters, lake coves, or backwaters" may have lower values if caused by natural conditions, there is no carve-out for hydropower.

Numerous dams have used oxygenation technologies to boost tailwater over 5.0 mg/l. For example, the Chatuge Dam, operated by TVA on the Hiawassee River in North Carolina, installed an infuser weir and increased its DO from 1.0 mg/l to 7.6 mg/l. Georgia Power achieved similar results using a labyrinth weir at the Lloyd Shoals Project on Georgia's Ocmulgee River. The use of a labyrinth weir increased DO levels from 3.0 mg/l to 5.4 mg/l.

TVA has also employed labyrinth weirs; they installed them at the South Holston Dam near Bristol, Tennessee in 1991. These weirs increased DO levels from 3.0 mg/l to 7.2 mg/l. At the Canyon Dam, located on Texas' Guadalupe River, the Guadalupe-Blanco River Authority uses a labyrinth weir to meet Texas' DO criterion of 6 mg/l for hydropower releases. The weir increases DO concentrations from 3.5 mg/l to 6.5 mg/l. The TVA has also used penstock air injection to great effect. On its Tims Ford Dam, located on the Elk River in Tennessee, this technology increased DO levels to over 5 mg/l; DO levels were, during some weeks, as high as 7 mg/l. The Southwestern Power Administration has also experimented with various oxygenation technologies. While the DO levels in their discharges are not available, the installation of baffles over thrust relief openings at Table Rock Dam, Norfolk Dam, and Bull Shoals Dam, all located on the White River in Arkansas, resulted in increases of 1–3.5 mg/l in DO levels. The SWPA's experience with these baffles has indicated that "effects on generation are minimal, increased cavitation damage has not occurred, and the systems are virtually maintenance free." Hypolimnion aeration may also help dams reach their discharge DO criteria. The Army Corps of Engineers uses such a system to meet a 6 mg/l DO requirement at the Richard B Russell Dam, located on the Savannah River in Georgia and South Carolina. It is estimated that that hypolimnion aeration system increases DO concentration by 4–5 mg/L. Alabama Power has also demonstrated that it could increase DO levels. At the Logan Martin Dam on the Coosa River, Alabama Power has experimented with draft tube venting since the early 1970s. The system installed on Unit 2 in 1986 could increase DO level from 4 mg/l to 6 mg/l.

ADEM's method of giving hydropower this exemption is certainly not a "defensible and transparent method for classification." In fact, ADEM has never published or responded with more than a one-liner for why hydropower gets this exemption. For years, ADEM has stated that it "will consider the suggested revisions to the dissolved oxygen requirements at 335-6-10-.09, and propose changes as appropriate." Yet, ADEM continues to arbitrarily allow this exception for hydropower plants without any scientific rationale. ADEM must require a 5.0 mg/l at all times for all users.

Response: See response to comment 9.

15. Comment: (CRS)

In previous Triennial Review comments, we have proposed that Cahaba River segments in the upper basin that are frequently used for whole-body contact activities be designated as 'Swimmable'. In a paragraph below, we request two Fish & Wildlife segment designations be upgraded to protect whole-body contact from October to May. Here, we address our concern about the criteria ADEM currently uses to upgrade the Designated Use of particular stream segments.

ADEM's response to our previous requests to upgrade Designated Uses for specific stream segments has been that water quality data does not support the designation. It seems to us that there is an incorrect assumption by ADEM that stream segment designations are to be guided by *current water quality conditions.*

As we pointed out in our October 28th, 2011 letter to Director LeFleur, 40 CFR 131.3(f) reads as follows:

> (f) Designated uses are those uses specified in water quality standards for each water body or segment **whether or not they are being attained** (emphasis added).

Thus, according to 40 CFR 131.3(f), it is not necessary to have a de facto requirement for stream segments to achieve water quality standards before an upgraded designated use may be adopted; **demonstration of an existing use should generally be a sufficient reason to upgrade to the designated use**. 40 CFR 131.3(e) does not state that water quality standards to support the existing use must already be met, only that the actual use exist. The intent of the Clean Water Act is clear; if the *beneficial use* exists, the State should attempt to protect that use, even if doing so requires development and execution of a plan to raise water quality up to the standard that is thought to be protective of that use.

Another way to express this is that designated uses should be applied to support existing uses whether or not the water quality standards to support that existing use are currently being attained. Actual water quality conditions that are too low to protect an existing use should not preclude upgrading the designated use for those river segments. This approach is necessary if the State hopes to protect citizens who are actually using the waters of the state for a use the state has defined as a use that should be protected. In this regard the methodology outlined in *Alabama's Water Quality Assessment and Listing Methodology* is an impediment to improving water quality of Alabama's streams and is a barrier to establishing appropriate designated uses for some segments.

We request the author of the 'Response to Comments' for the 2018 Triennial Review to respond specifically to our comment that this *de facto* requirement to meet water quality standards prior to upgrading the designated use for a particular stream segment is an arbitrary policy that ADEM has adopted and is an impediment to protecting actual existing uses of our streams and to proper implementation of the Clean Water Act.

ADEM has expressed the concern that designating a particular segment as 'swimmable' when in fact water quality data does not meet that standard may encourage whole body water-contact to the detriment of public health. However, we point out that the lack of a 'swimmable' designation has not deterred a great many boaters and swimmers from using Cahaba stream segments that do not have that 'swimmable' designation. The general public is largely unaware of the State's formal designated use classifications for streams. Our organization, and we imagine ADEM staff, receive calls from concerned citizens asking if it is safe to swim at specific locations on the Cahaba River. We would like to be able to relate what we think about that and, perhaps just as importantly, be able to say that efforts are being made to make more stream segments conform to the standards set for 'swimmable' streams. As it is now, we cannot say that additional efforts beyond the status quo are being made. We are hobbled by the fact that current 'designated uses' are not supporting 'existing uses' as required by the Clean Water Act.

We made this point in our 2012 and our 2015 Triennial Review comments, but the 'Response to comments' did not address the issue. Therefore, we request the author of the 2018 Triennial Review Response to comments to specifically address to our assertion that ADEM's Use designation protocol found in *Alabama's Water Quality Assessment and Listing Methodology* is inconsistent with the intent of the Clean Water Act, and we urge ADEM to amend this policy and methodology document to affirm that designation of uses should be based on existing uses.

Response: Segments of the Cahaba River are classified as "Outstanding Alabama Water", "Swimming and Other Whole Body Water-Contact Sports", "Public Water Supply", and "Fish and Wildlife". The following designated uses pursuant to ADEM Administrative Code r. 335-611 are considered by EPA to be consistent with the "fishable/swimmable" goal – Outstanding Alabama Water, Public Water Supply, Shellfish Harvesting, Swimming and Other Whole Body Water-Contact Sports, and Fish and Wildlife – and provide for the protection of aquatic life and human health. According to Alabama's water quality standards regulations in ADEM Administrative Code r. 335-6-10 and 335-6-11, the Cahaba River meets the "fishable/swimmable" goal set forth by the EPA.

Effective February 3, 2017, the Department revised the bacteriological criteria for several use classifications by extending the recreational season and revising the single sample maximum criterion for freshwater. In doing so, the Department considers the Fish and Wildlife (F&W) use classification provides adequate protection for water recreation (i.e. swimming and other whole body water-contact activities) during the months of May through October.

Simply because swimming is observed in a particular waterbody classified as F&W does not necessitate that the Swimming and Other Whole Body Water-Contact Sports (S) classification should be added to the subject waterbody. Both classifications are considered protective of incidental (i.e. wading, paddling) contact recreation year-round and whole body water-contact recreation (i.e. swimming) during the months of May through October. Therefore, the Department will continue to be judicious in assigning the Swimming classification to existing F&W classified waters, unless it can be demonstrated that such waters are being utilized in a manner consistent with the Swimming and Other Whole Body Water-Contact Sports (S) classification.

The Department will continue to review a number of requests for the addition of use classifications to specific waterbodies and, as resources allow, the State will propose the addition of classifications recognizing existing uses where appropriate.

335-6-10-.09(1) OUTSTANDING ALABAMA WATER

16. Comment: (ARA)

In our 2012 Triennial Review comments, we recommended that ADEM consider its Outstanding Alabama Waters (OAW) policy to be more inclusive of high quality waters that for whatever reason have not been elevated to OAW status. Examples of these types of

waters included waters identified as critical habitat for endangered species, waters nominated by another resource agency such as the Alabama Department of Conservation and Natural Resources, or those waters with national recognition (such as Wild and Scenic designation) or possessing unique features (for example the Locust Fork, Coosa, and Chattahoochee Rivers are regionally recognized for whitewater recreation).

In the Response to Comments, ADEM misinterpreted our comments to suggest that certain waters immediately be designated "by default." This was not our intent. There are many waters in Alabama that are deserving of special recognition and enhanced protection that have not been elevated to OAW status due to an overly restrictive designation criteria.

In its comments and recommendations to the 2009 Triennial Review, EPA recommended that ADEM consider revising its Outstanding Resource Designations under 335-6-10-.09 (Outstanding Alabama Waters (OAW)) to be "more inclusive of waters which are high quality and should be recognized above the tier I level. We reiterate that request and suggest OAW standards consider high quality waters that would meet specific criteria such as unique fisheries, exceptional recreation of scenic values, waters within wilderness, national or state forests areas or waters with TE&E species. We recommend that the revised OAW provision include language that would allow ADEM to consider, under special circumstances, waters that would not otherwise be eligible for OAW if they were specially nominated by DCNR or a federal resource agency in a manner similar to the designation process for the Federal Wild and Scenic designation. This is not a default designation. Under these provisions, a water would first be considered under the existing OAW standards but, if found ineligible, could be re-considered and subsequently designated as OAW if there was compelling support from an approved State or federal resource agency (DCNR or a federal agency such as NPS, FWS, or EPA). This would maintain ADEM's existing baseline but provide ADEM the flexibility through a narrative discretionary standard to designate waters that are deserving of increase protection yet suffer from a limitation. The expectation would be that, if a water were designated for OAW under this discretionary standard, it would be a top priority for correcting whatever impairment kept it from meeting the baseline standard just as if it were a previously designated OAW water that had subsequently become impaired.

Response: The Department protects high quality waters using all three components of a water quality standard, namely the (1) designated use(s), (2) narrative and numeric criteria to protect those uses, and (3) an antidegradation policy. Protection of high quality waters is not only afforded under the Outstanding Alabama Water (OAW) use classification, but also under the Fish and Wildlife (F&W), Shellfish Harvesting (SH), Swimming and Other Whole Body Water-Contact Sports (S), and Public Water Supply (PWS) use classifications. Pursuant to ADEM Administrative Code, Rule 335-6-10-.12(4) Tier II waters are defined as "all other waters (those waters not identified as either Tier 3 waters or Tier 1 waters), including all waters assigned the use classification of Outstanding Alabama Water (as identified in rule 335-6-11-.02)."

According to ADEM Administrative Code, rule 335-6-10-.09(1) the Outstanding Alabama Water (OAW) use classification was established to provide additional protections for "high quality waters that constitute an outstanding Alabama resource, such as waters of state parks

and wildlife refuges and waters of exceptional recreational and ecological significance." The Department has established a thorough evaluation process, in concert with interested stakeholders, to evaluate waters which may be candidates for the OAW classification. The Department will continue to evaluate possible candidate waters for the OAW classification and propose such changes where appropriate. However, the Department disagrees with "lowering the bar" so that certain waterbodies can become candidates for the OAW use classification, especially considering that most waters of the state already are afforded Tier II protection under our existing water quality standards.

335-6-10-.09(3) SWIMMING AND OTHER WHOLE BODY WATER-CONTACT SPORTS

17. Comment: (BWRK)

Ala. Admin. Code 335-6-11-.01(2) provides that

> [u]se classifications apply water quality criteria adopted for particular uses based on existing utilization, uses reasonably expected in the future, and *those uses not now possible because of correctable pollution but which could be made if the effects of pollution were controlled or eliminated"*

(Emphasis added). This regulation makes it clear that the Commission should assign use classifications without taking into account existing water quality conditions. *Use classifications are to be set based on the existing and past uses and potential future uses,* regardless of correctable pollution.

Despite this clear mandate, Ala. Admin. Code r. 335-6-10 states that

> [i]n assigning this classification to waters intended for swimming and water-contact sports, the Commission will take into consideration the relative proximity of discharges of wastes and will recognize the potential hazards involved in locating swimming areas close to waste discharges. The Commission will not assign this classification to waters, the bacterial quality of which is dependent upon adequate disinfection of waste and where the interruption of such treatment would render the water unsafe for bathing.

This footnote is clearly contrary to the intention of the Use Classification System, the Clean Water Act and Ala. Admin. Code r. 335-6-11-.01(2). If swimming is an existing, past, or potential use for a stream, it must be assigned an "S" classification. The bacterial quality of the water cannot have any bearing on this decision.

Bypasses, upsets and general noncompliance from waste treatment facilities are correctable pollution for the purposes of Ala. Admin. Code r. 335-6-11-.01(2). The appropriate time for considering the bacterial quality of the water is when designing permits and assessing waters for the Section 303(d) List, not when assigning use classifications. In violation of the Clean Water Act, the Department is using this exception to avoid upgrading certain waters

to "S" classification, even though whole body recreation is known to occur in them. This fiction not only violates the Clean Water Act: it keeps permit limits less stringent and artificially reduces the number of waterbodies on the Section 303(d) List. It also puts the public in danger.

Response: The prohibition on assignment of the Swimming and Other Whole Body Water-Contact Sports use classification within the vicinity of treated wastewater discharges is included in the ADEM regulations at the request of the Alabama Department of Public Health to provide for a reduced risk of illness and for the protection of public health. The provision recognizes that no treatment system is completely fail-safe and that instantaneous notification of the public when a failure is detected is impractical. The note further serves to inform the public of the increased risk they may incur when swimming in the immediate vicinity of treated wastewater sources.

Effective February 3, 2017, the Department revised the bacteriological criteria for several use classifications by extending the recreational season and revising the single sample maximum criterion for freshwater. In doing so, the Department considers the Fish and Wildlife (F&W) use classification provides adequate protection for water recreation (i.e. swimming and other whole body water-contact activities) during the months of May through October.

Simply because swimming is observed in a particular waterbody classified as F&W does not necessitate that the Swimming and Other Whole Body Water-Contact Sports (S) classification should be added to the subject waterbody. Both classifications are considered protective of incidental contact recreation (i.e. wading, paddling) year-round and whole body water-contact recreation (i.e. swimming) during the months of May through October. Therefore, the Department will continue to be judicious in assigning the Swimming classification to existing F&W classified waters, unless it can be demonstrated that such waters are being utilized in a manner consistent with the Swimming and Other Whole Body Water-Contact Sports (S) classification.

18. Comment: (SELC)

Sections 335-6-10-.09(2)(e)7, 336-6-10-.09(3)(a), and 335-6-10-.09(3)(c)6(i) of the Alabama Administrative Code attempt to prohibit designating waters for Swimming and Whole Body Contact when a sewage treatment facility is in the vicinity, irrespective of whether people are actually swimming in the area. ADEM is illegally attempting to restrict uses based on a specific pollution plume, not use. By doing this, this gives wastewater treatment plants the latitude to not treat their discharge to a level that is safe for swimming. States "must adopt those water quality criteria that protect the designated use." 40 C.F.R. §131.11. The specific use must be designated based on existing use, use reasonably expected in the future, or those uses not now possible because of correctable pollution designated use. Ala. Admin. Code 335-6-11-.01(2). Finally, federal law also states that "[i]n no case shall a State adopt waste transport or waste assimilation as a designated use for any waters of the United States." 40 C.F.R. 131.10(a). There are several waterbodies where people swim near wastewater treatment facilities that should be designated a swimmable water. *See* Coosa

Riverkeeper and Cahaba River Society's comments. ADEM should carefully review these waterbodies and determine their current use and not carve out an exemption for all wastewater treatment plants in the State.

Response: See response to comment 17.

19. Comment: (ARA)

The state's consideration of waste discharges when classifying waters as "Swimming and Other Whole Body Water-Contact Sports" is dangerous and inconsistent with state and federal law.

Many previous Triennial Review comments have pointed out that swimming and other recreational activities regularly occurs in waters that have not been designated by the Department as "Swimming and Other Whole Body Water-Contact Sports." In the response to comments on the 2012 Triennial Review, the Department states:

> The prohibition on assignment of the Swimming and Other Whole Body Water-Contact Sports use classification in the vicinity of treated wastewater discharges is included in the ADEM regulations at the request of the Alabama Department of Public Health to provide for a reduced risk of illness and for the protection of public health. The provision recognizes that no treatment system is completely fail safe and that instantaneous notification of the public when a failure is detected is impractical. The note further serves to inform the public of the increased risk they may incur when swimming in the immediate vicinity of treated wastewater sources.

Since making this response, the state has seemingly codified that discretion by making it a footnote in section 335-6-10. This policy is in direct conflict with federal water quality regulations. According to 40 CFR 131.3(f):

> (f) *Designated uses* are those uses specified in water quality standards for each water body or segment *whether or not they are being attained* (emphasis added).

Thus, demonstration of an existing use is a sufficient reason to upgrade to the designated use. 40 CFR 131.3(e) identifies "existing uses" as "those uses actually attained in the water body on or after November 28, 1975, whether or not they are included in the water quality standards." Therefore it is *not necessary* for a water body to meet a water quality standard in order for it to be so designated.

If the waterbody is being used for a particular purpose (i.e. swimming or other whole body water-contact sports), the State must set water quality standards to protect that use. There are other mechanisms available to the Department and ADPH including notice and warning signs at outfall locations; effective public notice of each permit violation; and timely and effective enforcement action. Regardless of the response mechanisms that ADEM and ADPH decide to use, ADEM must designate waters according to existing uses or their capability of attaining a particular use. When evidence of an existing use is provided, ADEM

must undertake to ensure that the water quality criteria are appropriate to meet that use. Consequentially, the state should remove its footnote at Section 335-6-10-.09(3)(a), which gives ADEM the discretion not classify waters as "Swimming" when the water is in the proximity of waste discharges.

Water use classifications should reflect actual uses and potential future uses of the water. This fact is especially true of the "Swimming and Other Whole Body Water-Contact Sports" classification. Across the state, Alabamians enjoy swimming and recreating in waterways. Although these waters are used for swimming and other whole body water-contact sports, the state refuses to classify some of them as such. Apart from violating the federal and state law referenced in the previous section, this practice endangers public safety and human health.

In light of the comments made regarding water use and public health, we recommend the following changes to section 335-6-10:

Remove §§335-6-10-.09(1)(c)(3) fn1:

> ~~In assigning this classification to waters intended for swimming and water-contact sports, the Commission will take into consideration the relative proximity of discharges of wastes and will recognize the potential hazards involved in locating swimming areas close to waste discharges. The Commission will not assign this classification to waters, the bacterial quality of which is dependent upon adequate disinfection of waste and where the interruption of such treatment would render the water unsafe for bathing.~~

There is no legitimate purpose for giving the state this ability; it does not further environmental protection or public safety. ADEM should remove this arbitrary and illogical note.

Whether the state likes it or not, people are using these polluted areas for swimming and recreation. Pursuant to state and federal law, ADEM should classify these waters according to their real, existing use. If a water is designated for swimming, it receives additional standards and protections to reflect the increased safety concerns that come with people making full-body contact with toxic or polluted water. By refusing to correctly classify these bodies of water, the administrative code is stopping ADEM from taking the steps needed to clean up pollution and adequately protect the people. If a waterway is polluted from waste discharges, people should not swim in it. But the answer is not to refuse to classify it as a "Swimming" water. The waters where people are swimming in close proximity to waste discharges are the ones in most need of protection and special attention. Removing the footnote will (1) bring the state's "Swimming" standards in compliance with the appropriate law and (2) allow the state to pursue better water quality for deficient and dangerous waters.

Response: See response to comment 17.

20. Comment: (CRS)

ADEM points out that the Alabama Department of Public Health has requested ADEM to prohibit assigning 'Swimmable' designations to stream segments below wastewater treatment discharges. However, beyond some distance downstream, 'swimmable' designations have been applied. Perhaps ADEM has a protocol in place to determine how far downstream from a municipal wastewater treatment facility discharge one must go to establish or allow the next 'swimmable' designation. In three instances we found 'swimmable' waters designations around 20 stream miles downstream from wastewater facility discharges. We request ADEM provide a description of how a 'swimmable' determination is made downstream of wastewater discharges, including some examples of factors that figure into such a determination.

If no particular protocol is currently used for making such a determination, we encourage ADEM to formalize a protocol for making such decisions and to engage the public in that determination.

We recommend that the more appropriate way to address the Health Department's concern about health risks below wastewater discharges and also meet the intent of the Clean Water Act is to designate stream segments used for whole body contact as "Swimmable," adopt permit limitations sufficient to protect those existing uses, and to require public notification of any permit violations/spills that might result in water quality violations and health risks.

A suggestion related to non-compliance events at wastewater treatment facilities is that ADEM should reconsider additional means to assure compliance by these facilities. A rapid return to compliance in the event of an accident would also help minimize public exposure to health hazards. We encourage ADEM to require these facilities provide a public announcement when spills occur. There are now many different avenues to allow the public to be made aware of spills or other conditions that could put public health at risk. The public should not be kept in the dark when such events occur.

Response: See response to comment 17.

Additionally, enforcement of NPDES permits is outside the scope of Alabama's water quality standards regulations in ADEM Administrative Code r. 335-6-10 and 335-6-11; however, the commenter's concerns have been provided to the NPDES Permit Program for consideration.

21. Comment: (ENRLC)

The Clean Water Act sets the national goal "water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983." 33 U.S.C. §1251(a)(2). While states select the "appropriate water uses to be achieved and protected" for each waterbody, the Clean Water Act's fishable/swimmable goal means that the designation of "Fishable/swimmable [is] required, with rare exceptions." 40 C.F.R. 131.10(a); Declaration of Barry W. Sulkin at ¶ 9.

This means that, by default, all Alabama waters should be classified for Swimming and Whole Body Contact. *See* Sulkin Decl. ¶ 9. Alabama's water quality standard regulations must comply with federal regulations. *See* 40 C.F.R. 131.1 ("This part describes the requirements and procedures for developing, reviewing, revising, and approving water quality standards by the States as authorized by section 303(c) of the Clean Water Act.").

- **Federal Regulations Outline the Correct Process for Designating Uses for Waters**
  Federal regulations lay out the connection between designated uses and water quality criteria. First, states must first designate uses for each water body segment based upon existing and potential future uses. 40 C.F.R. §131.10. States "must adopt those water quality criteria that protect the designated use." 40 C.F.R. §131.11. States must then apply the water quality criteria to each pollution source impacting each segment so that, despite any authorized discharges, the water body segment meets its designated uses. *See* Declaration of Barry Sulkin at ¶ 7.

  In establishing designated uses, federal regulations compel states to consider "the use and value of water for public water supplies, protection and propagation of fish, shellfish and wildlife, [and] recreation in and on the water." 40 C.F.R. § 131.10(a). Existing uses of a waterbody must be incorporated into the water's designated uses. 40 C.F.R. § 131.10(a); *see* Sulkin Decl. at ¶ 5. Any existing use of a water body segment triggers the corresponding designated use, whether or not the water body segment is currently meeting the water quality criteria necessary to support the designated use. 40 C.F.R. § 131.10(a); Sulkin Decl. ¶ 7. The regulations also prohibit a state from removing a designated use that is an existing use. 40 C.F.R. § 131.10(h)(1); Sulkin Decl. ¶ 5. Finally, federal law also states that "[i]n no case shall a State adopt waste transport or waste assimilation as a designated use for any waters of the United States." 40 C.F.R. 131.10(a).

- **Alabama's Designated Use Regulations Follow Federal Law.**
  Alabama's Designated Uses regulations follow federal law stating: "Use classifications apply water quality criteria adopted for particular uses based on existing utilization, uses reasonably expected in the future, and those uses not now possible because of correctable pollution but which could be made if the effects of pollution were controlled or eliminated." ALA. ADMIN. CODE r. 335-6-11.01; Sulkin Decl. ¶ 4. Alabama's regulations also follow federal law by recognizing both that use classifications are based on existing uses, uses reasonably expected in the future, and "those uses not now possible because of correctable pollution but which could be made if the effects of pollution were controlled or eliminated." ALA. ADMIN. CODE r. 335-6-11-.01(2); Sulkin Decl. ¶ 4. Alabama's designated uses regulations also correctly recognize that designated uses should reflect existing uses. ALA. ADMIN. CODE r. 335-6-11.01(2); Sulkin Decl. ¶ 6.

- **Alabama's Water Quality Criteria Fail to Comply with Federal Regulations.**
  Alabama's Water Quality criteria fail to comply with the federal regulations. Instead of crafting water quality criteria that "protect the designated use," Alabama's Water Quality criteria attempt to dictate what uses are appropriate based on existing pollution.

Specifically, the water quality criteria for both "Public Water Supply" and "Swimming and Whole Body Contact" contain the following language:

> "Waters in the immediate vicinity of discharges of sewage or other wastes likely to contain bacteria harmful to humans, regardless of the degree of treatment afforded these wastes, are not acceptable for swimming or other whole body water-contact sports."

The water quality criteria for "Swimming and Whole Body Contact" includes the following language:

> (NOTE: In assigning this classification to waters intended for swimming and water-contact sports, the Commission will take into consideration the relative proximity of discharges of wastes and will recognize the potential hazards involved in locating swimming areas close to waste discharges. The Commission will not assign this classification to waters, the bacterial quality of which is dependent upon adequate disinfection of waste and where the interruption of such treatment would render the water unsafe for bathing)

In effect, Alabama is attempting to restrict Swimming and Whole Body Contact designated uses based on the location of sewage discharges instead of based on where people are currently swimming or where waters would be appropriate for swimming and whole body contact but for the sewage discharges. *See* Sulkin Dec. ¶ 12. This scheme fails to comply with federal law and therefore must be corrected immediately.

- **Alabama Should Redesignate Its Waters Based Upon the Correct Federal Procedure.** Based on the national goal of fishable/swimmable waters and EPA guidance, all Alabama waters should, by default, be designated fishable/swimmable—or a more protective designation. If Alabama wishes to remove a fishable/swimmable designation, federal regulations mandate that "a state must conduct a use attainability analysis… whenever the State wishes to remove a designated use that is specified in Section 101(a)(2) of the [Clean Water] Act." 40 C.F.R. 131.10(j)(2); Sulkin Decl ¶ 9.

  To comply with federal regulations, Alabama must strike the offending language listed above in Sections 336-6-10-.09(2)(e)7, 336-6-10-.09(3)(a), and 336-6-10-.09(3)(c)6(i) from its Water Quality Criteria regulations. Sulkin Dec. ¶ 17. For water body segments within Alabama for which there is proof that people are using the segment for swimming or other whole-body contact, Alabama must immediately redesignate those water body segments as "Swimming and Whole Body Contact," and reduce permitted pollution into those segments until swimming and whole body contact recreation are safe. Sulkin Decl. ¶ 16. Alabama must immediately restore the "Swimming and Whole Body Contact" designated use for any water segment for which it has not completed a use attainability

analysis demonstrating "Swimming and Whole Body Contact" is both not and existing use and unattainable. *See* Sulkin Dec. ¶ 12.

Response: Federal regulations at 40 CFR §131.10(g) provide states a mechanism to assign use classifications to waterbodies that cannot attain the "fishable/swimmable" goal as defined under Section 101(a)(2) of the Clean Water Act. Pursuant to applicable federal laws, regulations, and policy, ADEM has prepared a Use Attainability Analysis (UAA) for each and every waterbody in Alabama that has been assigned an LWF or A&I use classification and subsequently received EPA approval on those decisions.

Also, see response to comment 17.

335-6-10-.09(5) FISH AND WILDLIFE

22. Comment: (BWRK)

As stated above, we ask ADEM to properly classify waters where swimming and other whole body recreation is occurring. Since the last triennial review, the Department has finally recognized that for Alabama's F&W streams, incidental contact occurs well beyond the months of June, July, August and September. In 2015, ADEM extended the incidental contact season to reflect that people recreate in F&W streams in May through October. While we applaud the Department for this incremental step in the right direction, the reality in Alabama is that incidental contact occurs year-round. Swimming, fishing, scientific study, snorkeling, scuba diving, canoeing, kayaking, paddleboarding, boating, and more occur during spring, fall and winter without the proper bacteria standards to protect those who come into contact with the water. For streams classified F&W, the geometric mean E. coli organism density of 126 colonies/100 ml during these months is the same as the "S" classification. However, the maximum E. coli organism density of 298 colonies/100 ml is higher than the "S" maximum of 235 colonies/100 ml. The maximum should be made more stringent to protect these recreational uses. Also, the incidental contact season must be extended to reflect that Alabamians swim and recreate in Fish and Wildlife streams throughout the year.

Response: Effective February 3, 2017, the Department revised the bacteriological criteria for several use classifications by extending the recreational season and revising the single sample maximum criterion for freshwater. In doing so, the Department considers the Fish and Wildlife (F&W) use classification provides adequate protection for water recreation (i.e. swimming and other whole body water-contact activities) during the months of May through October.

Simply because swimming is observed in a particular waterbody classified as F&W does not necessitate that the Swimming and Other Whole Body Water-Contact Sports (S) classification should be added to the subject waterbody. Both classifications are considered protective of incidental contact recreation (i.e. wading, paddling) year-round and whole body water-contact recreation (i.e. swimming) during the months of May through October. Therefore, the Department will continue to be judicious in assigning the

Swimming classification to existing F&W classified waters, unless it can be demonstrated that such waters are being utilized in a manner consistent with the Swimming and Other Whole Body Water-Contact Sports (S) classification.

335-6-10-.09(6) LIMITED WARMWATER FISHERY

23. Comment: (ARA)

Under 335-6-10.05 (5), the general conditions applicable to all water quality criteria requires that "all waters, where attainable, shall be suitable for recreation in and on the waters during the months of June through September. The Warm-Waters Fisheries violates this provision by allowing levels of e coli bacteria levels to 1000 colonies/ 100 ml. Additionally, while this provision purports to apply to waters used for Warm Waters Fisheries, the suitable uses listed in 335-6-10.05 (6)(c)(1) only allow for "agricultural irrigation, livestock, watering, and industrial cooling waters." In fact the classification actually forbids "fishing" as suitable use. This classification is not in keeping with Alabama's water quality policy and is unnecessary given the already existing classifications of "Agricultural and Industrial" and "Fish and Wildlife," Waters under consideration for Warm Waters Fisheries would be better designated as Fish and Wildlife and then have impairments addressed through the TMDL process.

Response: The bacteria criteria for Limited Warmwater Fishery (LWF) of the E. coli group shall not exceed a geometric mean of 548 colonies/100 ml, nor exceed a maximum of 2,507 colonies/100 ml – similar to the bacteria criteria for the Fish and Wildlife (F&W) use classification during the months of November through April.

ADEM Admin. Code r. 335-6-10-.05(5) states that "All waters, where attainable, shall be suitable for recreation in and on the waters during the months of May through October except that recreational use is not recommended in the vicinity of discharges or other conditions which the Department or the Department of Public Health does not control." This language explicitly states that the recreation use shall be suitable only where that use is attainable. The Department has conducted a Use Attainability Analyses (UAA) consistent with the requirements of 40 CFR 131.10 for each segment currently classified as LWF. This classification was established to provide an interim classification for waters that could seasonally attain the F&W classification and to afford those streams seasonal water quality protection consistent with the F&W classification.

It is not the Department's intent to downgrade waters from the F&W use classification to the LWF or Agricultural and Industrial Water Supply (A&I) use classification and, to date, this has not been done. However, federal regulations at 40 CFR §131.10(g) provide states a mechanism to assign use classifications to waterbodies that cannot attain the "fishable/swimmable" goal as defined under Section 101(a)(2) of the Clean Water Act. Pursuant to applicable federal laws, regulations and policy, ADEM has prepared a Use Attainability Analysis (UAA) for each and every waterbody in Alabama that has been assigned an LWF or A&I use classification and subsequently received EPA approval on those decisions.

The Department aims for all streams in Alabama to meet the "fishable/swimmable" goal as defined under the CWA. The Department continues to monitor and evaluate all LWF and A&I waterbodies and as new information becomes available demonstrating that a higher use is attainable, the Department intends to propose a change to ADEM Administrative Code r. 335-6-10-.09 assigning the higher use classification.

335-6-10-.09 WATERBODIES LESS THAN "FISHABLE/SWIMMABLE"

24. Comment: (BWRK)

In August 2000, the Environmental Management Commission adopted new water quality standard regulations that eliminated the Industrial Operations use classification. However, the use classification system retains both an "agricultural and industrial (A&I)" classification (Ala. Admin. Code r. 335-6-10-.09(7)) and a limited warmwater fishery (LWF) classification (Ala. Admin. Code r. 335-6-10-.09(x)). Neither of these classifications are a "fishable/swimmable" use as defined in Clean Water Act (CWA) section 101(a)(2). We ask that the Department work to eliminate these substandard classifications so that all Alabama waters attain the "fishable, swimmable" goal of the Clean Water Act. After all, the Clean Water Act of 1972's intent was to ensure all U.S. surface waters would meet standards necessary for human sports and recreation *by 1983*. The following streams in the Black Warrior basin are still not meeting the "fishable, swimmable" goal of the CWA.

Segment	Beginning	End	Current Classification
Valley Creek	Blue Creek	Its source	LWF
Opossum Creek	Valley Creek	Its source	A&I
Village Creek	Bayview Lake Dam	Its source	LWF
Cane Creek (Oakman)	Dixie Springs Road	Alabama Highway 69	LWF
Cane Creek (Jasper)	Mulberry Fork	Town Creek	LWF
Town Creek	Cane Creek	100 yard upstream of Southern Railway crossing)	LWF

An integral part of the triennial review and revision process is considering whether a selected waterbody is able to attain its designated use and, if such waters had not included the uses specified in CWA Section 101(a)(2), whether such uses are now attainable, as required by 40 CFR 131.20(a). ADEM has never done this for these waters that fail to meet the fishable, swimmable goal of the CWA, using outdated use attainability analyses ("UAA") to avoid considering whether conditions in these waterbodies have changed. ADEM stated in response to past comments that the Department has relied upon 40 CFR §131.10(g) "to demonstrate that these waters currently classified as LWF or A&I cannot attain the F&W use." However, the Department has not articulated a strategy or plan to change the status quo going forward, even though many of the justifications supporting a use attainability analysis ("UAA") could be addressed, and given that these UAAs were performed 14-15 years ago. For example, the Valley Creek Use Attainability Analysis (which addresses both

Valley Creek and Opossum Creek) states that the failure of Valley Creek to achieve F&W status is because of: [l]eaking sewer lines, domestic animals and wildlife populations, and leaking septic tanks are nonpoint sources of both nutrients and bacteria to Valley Creek. Sewer overflows are also a source of both nutrients and bacteria to Village [sic] Creek that is driven by precipitation. The Valley Creek WWTP currently achieves an extremely high level of treatment. Jefferson County is estimated to expend $800 million to resolve sewer overflows and replace leaking sewer lines. It is anticipated that this substantial capital investment will improve water quality. 2001 "*Use Attainability Analysis: Valley Creek," Alabama Department of Environmental Management.*

That study also concluded that "Opossum Creek watershed is one of the most highly industrialized areas of Birmingham, and it contributes point source and nonpoint source pollutants to Valley Creek." *Id*. With respect to Village Creek, EPA R4 found in 2000 that

> primary contact recreation use (such as F&W) is not designated at this time as a result of a combination of human-caused conditions (that may not be feasible to fully remedy), natural physical conditions of the watershed unrelated to water quality (e.g., high water table), and likely to a lesser extent natural sources of pollution. However, it is anticipated that the substantial capital investment to resolve sewer overflows and replace leaking sewer lines will improve water quality.

2000 Use Attainability Analysis for Village and Valley Creeks, EPA Region 4.

Changes during the intervening fifteen years, like the remedial work and capital improvements to the Jefferson County sewer system, could change this analysis and perhaps these conclusions. Will ADEM analyze conditions at these locations today and revisit or update the UAAs? It is especially discouraging to see no plans in place for the rehabilitation of these waters to F&W. ADEM continues to permit additional discharges to these impaired waters, so unless the status quo changes, neither will water quality in these streams. The LWF classification was originally established to provide an interim classification for waters that could seasonally attain the Fish & Wildlife classification and to afford those streams seasonal water quality protection consistent with the Fish & Wildlife classification. It should not be used to give some waters permanent second class status, which appears to be the case here. The perception is that ADEM has given up on these waters.

Response: See response to comment 23.

335-6-11-.02 USE CLASSIFICATIONS

25. Comment: (CRK)

The Treasured Alabama Lake special designation is for "high quality waters within impoundments and natural lakes that constitute an exceptional resource." To qualify, the reservoir must (1) be a high quality water, (2) constitute an exceptional resource and (3) be fully supporting their classified uses at the time of designation. Unfortunately, only Lake Martin has been designated as a Treasured Alabama Lake, which gives the appearance of bias by the Commission and Department. It would seem that "Treasured Alabama Lake"

was created solely for the benefit of Lake Martin, but, the Commission has the opportunity to prove otherwise by rightfully recognizing Lake Jordan as such. Furthermore, Lake Martin's water quality has degraded and is no longer supporting its classified use due to fish consumption advisories.

Lake Jordan qualifies as a Treasured Alabama Lake, and, based on our research is the only major lake in the entire state of Alabama that could qualify, due largely to fish consumption advisories. Alabama Power Company's Jordan Dam was completed in 1928, and the lake was later expanded with the addition of Walter Bouldin Dam in 1967. According to available data, water quality in Lake Jordan would be considered "high quality" for a reservoir. Additionally, the lake is fully supporting its classified uses according to the best available data. The only matter up for debate is whether or not Lake Jordan constitutes an exceptional resource. When considering what defines an "exceptional resource" the regulations note exceptional whole body water-contact recreation, water supply or rare and extraordinary ecological significance as key factors. Lake Martin possess none of these traits which Lake Jordan does not, and failure to recognize that would show inherent bias in the Treasured Alabama Lake designation.

A portion of Lake Jordan (often referred to as Lake Bouldin) serves as a public water supply and is designated as such. The entirety of Lake Jordan is designated as Swimming and is used as such for swimming, paddling, skiing, wakeboarding, and tubing. Lake Jordan is also part of the Alabama Scenic River Trail. A major draw of Lake Jordan is its exceptional fishing. It is part of the Alabama Bass Trail and hosted the 2004 Bassmasters Classic. It has exceptional largemouth bass and spotted bass fishing as well as good catfish, crappie, and bream fishing. Lake Jordan clearly meets the qualifications for Treasured Alabama Lake designation and this should not take so much consideration from the Department as to continue to delay a proposal to the Commission as such.

We recommend Lake Jordan be recognized as a Treasured Alabama Lake.

Response: The Treasured Alabama Lake is a special designation reserved for "high quality waters within impoundments and natural lakes that constitute an exceptional resource, such as waters of state parks and wildlife refuges and waters of exceptional whole body water-contact recreation, water supply or rare and extraordinary ecological significance." The Department will review all available data and information and will consider the request for Lake Jordan to be considered for the Treasured Alabama Lake special designation.

26. Comment: (CRK)

The Outstanding Alabama Water classification described in Ala. Admin. Code 335-6-10-.09(1) is for "high quality waters that constitute an outstanding Alabama resource, such as… waters of exceptional recreational or ecological significance." This classification has not been given to many streams, which is a shame for there are many streams worthy of such a classification across the State. The Coosa River from Wetumpka to Jordan Dam segment of river qualifies for Outstanding Alabama Water for both its exceptional recreational *and* ecological significance.

This segment of river holds enormous recreational significance. It is the most paddled stretch of river in the entire state. Two successful livery businesses, Coosa Outdoor Center and Coosa River Adventures, have put hundreds of paddlers on this segment every single week of summer for decades. It is notable for having hosted the annual Coosa River Whitewater Festival for 30 years, along with many other unique festivals and events such as the Coosa River Challenge and the Coosa Canoe & Kayak Fishing Tournament. It is part of the Alabama Scenic River Trail. It is the only place in the Mobile River Basin to feature big river Class II rapids during summer months, and as such the recreational opportunities it provides are the definition of exceptional. One of the best selling kayaks on the market, Jackson Kayak's *Coosa*, was designed specifically for the unique fishing opportunities on this stretch of river.

Though the recreational significance of this segment is sufficient to warrant an Outstanding Alabama Water classification, it also has ecological significance. It is designated as a Strategic River Reach Unit by the Alabama Rivers & Streams Network. It contains mussel species such as the threatened Fine-lined Pocketbook (*Lampsilis atilis*), the threatened Alabama Moccasinshell (*Medionidus acutissimus*), the endangered Southern Clubshell (*Pleurobema decisum*), and the petitioned Coosa Creekshell (*Villosa umbrans*), though historically it is known to have also contained Southern Combshell (*Epioblasma penita*), Cherokee Pigtoe (*Pleurobema hartmanianum*), Rayed Kidneyshell (*Ptychobranchus formanianus*) and Monkeyface (*Quadrula metanevra*). It contains snail species such as the endangered Rough Hornsnail *(Pleurocera foremani*), the threatened Tulatoma snail (*Tulotoma magnifica*), and the Coosa Pyrg *(Marstonia hershleri*), though historically it is also known to have contained the Interrupted Rocksnail (*Leptoxis foremani*). Historically, Gulf Sturgeon (*Acipenser oxyrinchus desotoi*) swam in these waters.

In addition to the lengthy list of rare species found here, this segment has more humble ecological significance as well. From the stands of Cahaba lilies that bloom each year, to the osprey who patrol these waters, to some of the meanest Alabama bass (*Micropterus henshalli*) that can be caught in this State, it is truly a remarkable place that one who has experienced it would concur that it certainly warrants an Outstanding Alabama Water classification.

Response: Coosa River from Wetumpka to Jordan Dam is currently classified as "Swimming and Other Whole Body Water-Contact Sports" and "Fish and Wildlife". As resources allow, the Department will review the available data and information for this segment of the Coosa River and will evaluate the request to upgrade this water to the "Outstanding Alabama Water" use classification.

27. Comment: (MBK)

Currently the section of Dog River from Halls Mill Creek to its source is classified as 'Fish and Wildlife'. However, there is a great deal of swimming (*See* Image 1) that occurs in this waterbody and since uses must be designated based on the existing use this waterbody should receive a use designation of swimming and effluent limits and BMPs implemented to ensure attainment of this use.

Attachment A: Halls Mill Creek

Image 1 – 'Hippie Beach' in Halls Mill Creek (30.604136, -88.140781) where swimming is extremely common.

Comments on the Triennial Review have consistently highlighted the problem with avoiding giving a "Swimming and Other Whole Body Water-Contact Sports" designation for waterbodies near sewage outfalls where there is and has been and/or currently is an existing use of swimming. In response to comments identifying this issue during the 2012 Triennial Review, the Department stated:

> *"The prohibition on assignment of the Swimming and Other Whole Body Water-Contact Sports use classification in the vicinity of treated wastewater discharges is included in the ADEM regulations at the request of the Alabama Department of Public Health [ADPH] to provide for a reduced risk of illness and for the protection of public health. The provision recognizes that no treatment system is completely fail safe and that instantaneous notification of the public when a failure is detected is impractical. The note further serves to inform the public of the increased risk they may incur when swimming in the immediate vicinity of treated wastewater sources."*

However, according to 40 CFR 131.3(f): Designated uses are those uses specified in water quality standards for each water body or segment even if they are not currently being attained (emphasis added). This is contrary to ADEM's assertion above, it is not necessary to meet the standards of a classification for a water body to be designated.

Mobile Baykeeper, Waterkeepers Alabama, and ARA have repeatedly attempted to make suggestions for methods available to the Department that can reduce the risk of contracting a water borne illness, including notice and warning signs at outfall locations; public education on the risks of swimming near discharge locations, timely and effective public notice of each permit violation; and an enforcement program that effectively reduces effluent violations.

Mobile Baykeeper has commented extensively on the issue of the illegality of not designating waters where swimming occurs as "Swimming and Other Whole Body Water-Contact Sports" when they are in proximity to a wastewater discharge in the joint letter submitted by: Coosa Riverkeeper, Mobile Baykeeper, Choctowatchee Riverkeeper, and the

Cahaba Riverkeeper; therefore, we will not cover that issue redundantly here except to note that there may be additional areas of concern in the Mobile Bay basin not included in the joint letter where swimming is occurring (I.E. swimming is an existing use) but the use is not currently listed as swimming due to proximity to a wastewater discharge. The Department should conduct a comprehensive review to ensure this issue is remediated at all waterbodies where swimming is an existing use but the waterbody is currently not designated "Swimming and Other Whole Body Water-Contact Sports".

Response: See response to comment 17.

28. Comment: (BWRK)

As noted in past comments, we agree with EPA's opinion that waters currently classified Fish & Wildlife, Public Water Supply, and Shellfish Harvesting be upgraded to the "S" use designation to more accurately reflect their historical and existing uses. *EPA R4 August 26, 2010 Comment and Recommendations for Alabama Triennial Review*. Such an upgrade is critical both to recognize and protect these important recreational uses and we would like ADEM to explain why it has not acted, despite ample opportunity to do so.

Of all the segments we asked to be designated "S" in our 2015 comments, only one (North River, from Tuscaloosa's water supply to Binion Creek) has received that designation since the last triennial review. That lack of progress is unacceptable: ADEM's current version of Ala. Admin. Code r. 335-611-.02 still fails to recognize a number of places in the Black Warrior basin, identified in past years by our organization, where swimming and other whole body recreation is taking place, both historically and currently. We renew our request to the Department, made in our 2012 and 2015 comments, to add the "S" classification to the following waters designated "PWS" to recognize and further protect their current and historical use.

Segment	***Beginning***	***End***	***Current Classification***
Lost Creek	2m upstream of Wolf Creek	Cane Creek	PWS/F&W
Mulberry Fork	Burnt Cane Creek	Frog Ague Creek	PWS/F&W
Mulberry Fork	Frog Ague Creek	Mulberry/Sipsey junction	PWS/F&W
Sipsey Fork	Mulberry Fork	Lewis Smith Dam	PWS/F&W
Self Creek	Alabama Hwy 79	Its source	PWS
Calvert Prong	Calvert Prong dam/Hwy 31	Its source	PWS
Brindley Creek	Broglen River	Its source	PWS
Eightmile Creek	Lake Catoma Dam	Its source	PWS
Brushy Creek	Sipsey Fork (Smith Lake)	Hwy 278	PWS/F&W
Clear Creek	City of Haleyville	Its source	PWS
Curtis Mill Creek	Town of Double Springs	Its source	PWS

In addition to the segments identified above, Riverkeeper also requested in 2012 and 2015 that the following segments classified F&W also be upgraded to "S" to reflect their current and historical use.

Segment	***Beginning***	***End***	***Current Classification***
Mulberry Fork	Sipsey Fork	Its source	F&W
Big Prairie Creek	Black Warrior River above Demopolis Lock and Dam	Its source	F&W
Five Mile Creek	Black Warrior River	Payne Lake in Talladega National Forest	F&W
North River	Black Warrior River	Its source	F&W
Hurricane Creek	Warrior River	Its source	F&W
Davis Creek	Warrior River	Its source	F&W
Turkey Creek	Locust Fork	Its source	F&W
Self Creek	Gurley Creek	Hwy 79	F&W
Gurley Creek	Locust Fork	Its source	F&W
Calvert Prong	Blackburn Fork	Calvert Prong dam	F&W
Blackburn Fork	Locust Fork	Inland Lake Dam	F&W
Graves Creek	Locust Fork	Its source	F&W
Slab Creek	Locust Fork	Its source	F&W
Burnt Cane Creek	Mulberry Fork	Its source	F&W

ADEM's past justification for failing to upgrade these streams was "insufficient data." The only "data" necessary is the fact that people currently swim in, have swum in the past, or could potentially swim in these waters, which we have repeatedly advised the Department. We attach an Appendix to these comments which document swimming and whole body recreation in many of these waters. In the intervening six years, ADEM has had more than adequate time to consult or develop the necessary data. These segments should be upgraded to use classification "S" because people are swimming and recreating in them as we write. It is ADEM's regulatory responsibility to ensure that these uses are recognized and protected. As we have stated previously, we would be glad to provide ADEM with any additional information necessary to document these historical and existing uses. In addition, if ADEM chooses not to upgrade these segments, please provide the Department's reasoning and any regulatory justification for the decision. *If ADEM truly believes that the segments we have identified that have active and documented public recreational use are potentially unsafe for the S classification, then, as we stated in 2012 and 2015, ADEM needs to notify stakeholders and the public accordingly, address this point in any response to comments, and add these stream segments to the 303(d) List.* If not, ADEM must stop delaying and act to designate these waters.

Response: See response to comment 22.

29. Comment: (BWRK)

We renew our request that ADEM also designate the following waters as "S" based upon their current and historical use for swimming and other whole body contact recreation.

Segment	***Beginning***	***End***	***Current Classification***
Black Warrior River	Warrior Lock and Dam	Oliver Lock and Dam	F&W
Five Mile Creek	Black Warrior River	Payne Lake (Talladega NF)	F&W
North River	Binion Creek	Its source	F&W
Five Mile Creek	Old Jasper	Hwy US 79/its source	F&W
Lost Creek	Mulberry Fork	2m upstream of Wolf Creek	F&W
Valley Creek	Black Warrior River	Blue Creek	F&W
Valley Creek	Blue Creek	Its source	LWF

In response to our 2012 and 2015 triennial review comments, ADEM declined to upgrade these waters to "S" because of their proximity to wastewater treatment plants ("WWTPs): "portions of the requested segments of Warrior River, North River, Valley Creek, Five Mile Creek, and Lost Creek could not be upgraded to a "Swimming and Other Whole Body Water-Contact Sports" use classification. Waters in the immediate vicinity of discharges of sewage or other wastes likely to contain bacteria harmful to humans, regardless of the degree of treatment afforded these wastes, are not acceptable for swimming or other whole body water-contact sports." *See, e.g., Alabama Department of Environmental Management 2012 Triennial Review of Water Quality Standards Response to Comments.*

This statement completely fails to acknowledge that these waters have been and are currently being used for swimming and other whole body contact recreation. ("Use classifications apply water quality criteria adopted for particular uses based on existing utilization, uses reasonably expected in the future, and those uses not now possible because of correctable pollution but which could be made if the effect of pollution were controlled or eliminated." Ala. Admin. Code r. 335-6-11-.01(2)). CWA regulations *require* that "[w]here existing water quality standards specify designated uses less than those which are presently being attained, the State shall revise its standards to reflect the uses actually being attained." 40 CFR 131.10(i). ADEM must adhere to this requirement.

Pollution from WWTPs is eminently correctable. The solution is not to ignore the reality on the ground, but to protect the public by adequately treating and, as necessary, enforcing at the plants. As ADEM continues to evaluate the segments we have identified for proposed upgrades to "S," we emphasize why it is essential for the Department to appropriately classify all Alabama waters. In order to fulfill the Department's mission "to protect and improve . . . the health of all [Alabama] citizens," the waters where the State's citizens swim and recreate must specifically reflect this use --- and be protected. That is the only way that ADEM and the public can assure that any other proposed uses of these waters (for industry

and commerce) are compatible with their use for recreation and also will not harm public health.

It is arbitrary for ADEM to assert that stream segments will not be designated for swimming and whole body water-contact sports because a stream segment is downstream from the discharge of a wastewater treatment facility, especially when there is no minimum or maximum distance prescribed below the discharge. Without guidance regarding its intended limitations, any application of this prohibition is by definition arbitrary

We note that some of the segments we have proposed for the "S" classification because of their historic and current use for swimming and other whole body water-contact sports are in economically impoverished communities. For many of these citizens who are otherwise denied recreational opportunities, the Black Warrior River and its tributaries provide a vital and welcome public resource. A member of Riverkeeper often reminisces about growing up poor in Tuscaloosa, where the Black Warrior was his "country club" because he had very few other outlets for recreation. ADEM has the important responsibility to ensure that citizens (particularly those at the economic margin) are both considered and protected.

Response: See response to comment 17.

30. Comment: (BWRK)

For the past several comment cycles, we have proposed waters in the Black Warrior basin for designation as Outstanding Alabama Waters. The following three candidates from the watershed should be recognized as OAWs: the entire free-flowing portion of the Locust Fork; Turkey Creek in Jefferson County; and Blackwater Creek in Winston and Walker counties. Based upon information and belief, we believe that ADEM has the necessary water quality data to determine if these waterbodies are eligible. The Department consistently replies it is "reviewing" these waters for possible classification as OAW, but nothing changes. Where does that process stand today? What, if any, additional data or information does ADEM require? We urge the Department to recognize these truly exceptional waters without further delay.

The Locust Fork has been rated in the top 2% of the nation's streams by the National Park Service for "outstanding recreational values." In a past triennial review, Region 4 strongly recommended the designation of the Locust Fork as an OAW due to "high water quality" as well as "recreational and ecological significance." *See USEPA Region 4 August 26, 2010 Comment and Recommendations for Alabama Triennial Review*. We agree with Region 4's assessment eight years ago that the Locust Fork deserves OAW status. The Locust Fork is known locally and nationally for its geology, history, exceptional recreational and scenic values, fishing, and as habitat for rare and/or threatened/endangered species. The Locust Fork is home to rare species including the Black Warrior waterdog (*Necturus alabamesis*), Cahaba shiner (*Notropis cahabae*), flattened musk turtle (*Sternotherus depressus*), plicate rocksnail (*Leptoxis plicata*), and numerous species of mussels, many of which are on the federal Endangered Species List. The Locust Fork has designated critical habitat for six species of mussels: Alabama moccasinshell (*Medionidus acutissimus*), dark pigtoe

(*Pleurobema furvum*), orangenacre mucket (*Lampsilis perovalis*), ovate clubshell (*Pleurobema perovatum*), triangular kidneyshell (*Ptychobranchus greenii*), and upland combshell (*Epioblasma metastriata*). The Locust Fork was designated as critical habitat for the Black Warrior waterdog in early 2018. The Locust Fork of the Black Warrior is one of the premier whitewater rivers in Alabama; the Alabama Cup Whitewater Canoe & Kayak Races have been held at King's Bend of the Locust Fork for the past 27 years. It is past time to recognize this gem.

Another Region 4 recommendation to ADEM in that letter was that the Department make the OAW classification more inclusive of waters that are "high quality" as well as those with endangered or rare species. Both Turkey Creek and Blackwater Creek meet this description.

Turkey Creek contains some of the most biologically diverse habitat in this region of Alabama. The waters of Turkey Creek are home to three federally listed endangered species of fish: the vermilion darter (*Etheostoma chermocki*), the watercress darter (*Etheostoma nuchale*), and the rush darter (*Etheostoma phytophilum*). The vermilion darter occurs only in Turkey Creek and nowhere else in the world. 7.2 miles of Turkey Creek are known vermilion darter habitat and in 2010 the U.S. Fish & Wildlife Service expanded the endangered darter's protected habitat by designating 13 miles of Turkey Creek as critical habitat. Turkey Creek near Pinson is also the site of the Turkey Creek Nature Preserve, 466 acres of land set aside as a public resource. Generations of area residents have used the creek for recreation, including swimming and picnicking, and that tradition continues today.

Blackwater Creek is noted for exceptional scenic and recreational value as a popular destination for kayaking, canoeing, and fishing. Blackwater Creek is also home to some of the few remaining populations of threatened flattened musk turtles and endangered Black Warrior waterdogs, both rare endemic species that occur in the upper Black Warrior River basin and nowhere else in the world. Blackwater Creek was designated as critical habitat for the Black Warrior waterdog in early 2018.

Because ADEM's own guidance supports the designation of these waters, we cannot understand why, year after year, they are bypassed. *See ADEM's OAW EVALUATION GUIDANCE* (January 1999). According to that guidance, ADEM should look to whether the "natural characteristics" of the water have been maintained or whether they have been altered by man; whether they are "high quality" waters; whether they are contained by a state park or wildlife refuge; and whether they are waters of "exceptional recreational significance*." Id.*

All of the OAW candidates we propose are high quality waters, acknowledged for exceptional recreational significance by residents of Alabama and beyond, and Turkey Creek has the added distinction of being home to a nature preserve. As a bonus, all three candidates are of "extraordinary" ecological importance because of the rare species that inhabit them. In other words, ADEM's own guidelines require the designation of these waters as OAWs.

ADEM has continued to represent in the past that it was reviewing data in order to make these designations … yet there are no new designations in the Black Warrior watershed offered this year, just as there were none in 2015 or 2012. ADEM has never substantiated or explained the

need for such a lengthy review. If the Department maintains that it must have additional data or analysis to make these designations, please identify *specifically* what information the Department still lacks or needs.

Just as we did in 2015, we also propose the North River and Clear Creek in Fayette and Tuscaloosa counties for OAW designation. Just like the Locust Fork, Blackwater Creek, and Turkey Creek, the North River and its tributary Clear Creek are high quality streams of extraordinary ecological significance and deserving of this recognition. Both of these additional candidate waters are federally designated critical habitat for a number of rare mussels: the endangered ovate clubshell (*Pleurobema perovatum*), endangered triangular kidneyshell (*Ptychobranchus greenii*), endangered dark pigtoe (*Pleurobema furvum*), endangered southern clubshell (*Pleurobema decisum*) as well as the threatened orange-nacre mucket (*Lampsilis perovalis*) and threatened Alabama moccasinshell (*Medionidus acutissimus)*. "A section of Clear Creek contains critical mussel habitat and harbors the most biologically diverse collection of mussels of the North River watershed." (McGregor and Wynn, 2008). The upper reaches of the North River and Clear Creek also contain a federally endangered amphibian, the Black Warrior waterdog (*Necturus alabamensis*). *See* U.S. Fish and Wildlife Service Species Profile: Black Warrior Waterdog. Clear Creek is also home to the threatened flattened musk turtle (*Sternotherus depressus*). Given the fact that the North River and Clear Creek are home to these unique species, ADEM must designate them as OAWs.

Response: Segments of Locust Fork are currently classified as "Public Water Supply", "Swimming and Other Whole Body Water-contact Sports", and "Fish and Wildlife" with "Swimming and Other Whole Body Water-Contact Sports" added to many segments of Locust Fork in 2012. The Department will review the available data and information for the entire free-flowing portion of Locust Fork and will evaluate the request to upgrade these waters to the "Outstanding Alabama Water" (OAW) use classification.

Turkey Creek as well as Blackwater Creek are both currently classified as "Fish and Wildlife". Additional data is required in order to proceed with evaluating Turkey Creek and Blackwater Creek as candidates for the OAW use classification. As a part of this evaluation, water quality data collected within the past five years for dissolved oxygen, pH, temperature, and/or E. coli bacteria must be available for the requested waterbody, and the available data must indicate the waterbody is compliant with the OAW use classification.

The Department will review the available data and information for North River and Clear Creek and will evaluate the request to upgrade these waters to the "Outstanding Alabama Water" (OAW) use classification. As a part of this evaluation, the Department must consider whether the proposed use is currently being attained.

Consistent with the Department's Water Quality Assessment and Listing Methodology, data collected by other agencies, industry or industry groups, and watershed groups is considered and evaluated and, where appropriate, this information is used for making use classification upgrade determinations.

31. Comment: (ENRLC)

Federal regulations clearly mandate that state designated uses must reflect actual uses of the state's waters. The law also requires Alabama to "re-examine any waterbody segment with water quality standards that do not include the uses specified in section 101(a)(2) of the Act every 3 years to determine if any new information has become available." 40 C.F.R. 131.20(a). The law mandates that "[i]f such new information indicates that the uses specified in section 101(a)(2) of the Act are attainable, the State shall revise its standards accordingly." 40 C.F.R. 131.20(a). The following water segments are impacted by sewage treatment plants or lagoons but have evidence of actual swimming and whole body contact use. Use is detailed below, and Exhibit B includes photographs demonstrating Swimming and Whole Body Contact use in these waterways.

- **Choccolocco Creek from Logan Martin Lake to Boiling Spring tributary**. Choccolocco Creek is heavily used for recreation. See Exhibit B. Families swim, tube, and fish in what the locals often call "Choccolock." Coosa Riverkeeper staff have observed swimming at nearly every bridge crossing from Silver Run Road in Oxford to Highway 77 in Lincoln. A tube livery business called Floating Fun, LLC operates in this segment. They put floaters on the creek between Silver Run Road and Priebes Mill Road, offering a variety of takeout and alternative launch points as far downstream as Curry Station Road. The creek is also part of the Alabama Scenic River Trail and includes campgrounds for paddlers to camp for free. This segment is designated for Fish & Wildlife. There are two wastewater treatment plants located in or near this segment: Oxford's Tull C Allen Wastewater Treatment Plant and Anniston's Choccolocco Creek Wastewater Treatment Plant

- **Coldwater Creek from its source to its confluence with Choccolocco Creek.** Coldwater Creek, currently with Fish & Wildlife designated use, is exceptionally popular for whole-body contact recreation. See Exhibit B. Most notably, there is a park just off the Highway 78 bridge crossing called Coldwater Creek Memorial Park. Coosa Riverkeeper staff have often observed as many as 40 individuals in the water at this park on a weekday. This is due to the great access and facilities at the park (pavilion, benches and portable toilets), the shallow water that makes parents feel safer about letting their children swim, and the cold temperature (approximately 70 Fahrenheit) that the creek maintains through the summer. The park was designed to encourage swimming, with concrete steps into the creek.

  In addition to Coldwater Creek Memorial Park, another location downstream is especially popular for swimming. It is an abandoned dam site just upstream of Airport Road where dozens of people recreate each day throughout the summer. This segment's current designated use is Fish & Wildlife. Coldwater Creek appears to be currently meeting Alabama's Swimming water quality criteria based on over 70 samples Coosa Riverkeeper has collected there since 2015. Although there are no sewage treatment plants located in this segment, there are sewage main lines which cross this segment and lift stations near the creek whose failure could result in the deterioration of swimming conditions.

- **Mobile Bay**
  Fairhope Public Beach in Mobile Bay is used heavily for swimming. See Exhibit B. Mobile Bay near Fairhope is currently classified for Fish & Wildlife and Shellfish Harvesting. This area includes the Grand Hotel, hundreds of private boathouses on both shores of the Bay, numerous public parks, and the northern portion of Dauphin Island. All are areas where people frequently swim. Mobile Baykeeper hosts the Grandman Triathlon annually in Mobile Bay, where hundreds of triathletes jump from Fairhope Pier and swim 1/3 of a mile to shore. See http://www.mobilebaykeeper.org/ race-photos/. Fairhope Utilities operates a wastewater treatment plant approximately half a mile north of this area. Daphne Utilities operates a wastewater treatment plant approximately 7 miles north of this area.

- **Chickasaw Creek, from Mobile College to Limit of Tidal Effects**
  People enjoy swimming in Chickasaw Creek at Chicksabogue Park. See Exhibit B. This portion of Chickasaw Creek is designated for Fish & Wildlife. The Water Works Board of the City of Pritchard has an outfall approximately 2,500 feet downstream from Chicksabogue Park.

- **Buck Creek from Cahaba Valley Creek to the Cahaba River**
  Buck Creek from Cahaba Valley Creek to the Cahaba River is very heavily used for recreation. See Exhibit B. This segment is currently designated for Fish & Wildlife. Along the stretch is Helena Amphitheater Park, which is very popular for swimming. There are two upstream segments of Buck Creek. Buck Creek from Cahaba Valley Creek to Shelby Co Rd 44 is classified as Limited Warmwater Fishery. Buck Creek from Co Rd 44 to the source of Buck Creek is classified as Fish & Wildlife. There are three sewage treatment plants on these segments. Helena operates a Waste Water Treatment Plant in the lower Buck Creek segment less than one mile upstream of the Amphitheater Park. Pelham operates a Waste Water Treatment Plant in the middle Buck Creek segment approximately 2 miles upstream of the Amphitheater. Alabaster also operates a Waste Water Treatment Plant in the middle Creek segment upstream of the Amphitheater. Discharges from these Waste Water Treatment Plants must be stringent enough to protect the existing swimming and whole body contact uses in Buck Creek.

- **Choctawhatchee River - Alabama Highway 12 to Brooking Mill Creek**
  This portion of the Choctawhatchee River is designated for Fish & Wildlife. There is canoe/kayak use of the segment and there is significant use involving whole body contact at the downstream end of the reach at and just above the Hwy. 92 bridge. This segment also includes U.S. 84, where there is moderate use at and upstream of the U.S. 84 bridge. This segment is impacted by Daleville SE Lagoon.

- **Little Choctawhatchee River – Choctawhatchee River to its source**
  This portion of the Little Choctawhatchee River is designated for Fish & Wildlife. This segment has canoeing and kayaking mostly from Hwy. 123 to the mouth of the Little Choctawhatchee River. The area at the Old Power Dam (Old Power Dam Road/CR121) has moderate use and has had that use likely for decades. Choctawhatchee Riverkeeper has frequently observed families with very young children, persons at highest risk from

contaminated water at the site. This segment is impacted by Choctawhatchee Waste Water Treatment Plant.

- **West Fork Choctawhatchee River Big Creek to Judy Creek**
  The West Fork of the Choctawhatchee River, from Big Creek to Judge Creek, is currently designated for Fish & Wildlife. This segment has canoeing and kayaking from Dale CR 36 upstream through the segment. The area can have heavy use between Hwy. 27 and the falls and use by paddlers in the segment between the outfall and the shoals. This segment has been used for decades, probably for several generations of locals for recreation. This segment is impacted by Ozark NE Lagoon.

The seven water bodies above are prime examples of how Alabama's illegal water quality standards are jeopardizing the health and safety of Alabamians. However, this list is not necessarily comprehensive of all affected waterbody segments. The Department should review Ala. ADEM Admin Code r. 335-6-11-.02 and upgrade any Fish & Wildlife segments with waste treatment facilities near recreation to Swimming. If necessary, the Department should hold a separate public comment period to determine which segments are impacted by waste treatment facilities near swimming and whole body contact recreation.

Response: See response to comment 17.

32. Comment: (CRS)

The National Park Services' Rivers, Trails, and Conservation Assistance Program, Alabama Innovation Engine, The Freshwater Land Trust, The Nature Conservancy, the Cahaba River Keeper, and the Cahaba River Society have been working together to respond to a need for improved access to accommodate current and future use of the Cahaba River by paddlers, picnickers, swimmers, birders, other day-use, and other natural resource enthusiasts through efforts to create the "Cahaba Blueway". The public's current and desired recreational use of the Cahaba requires having a reasonably safe and healthy river resource. Therefore, like ADEM, we want to promote and improve water quality in the Cahaba River for the wider enjoyment of using it for whole-body contact sports.

However, for this effort to be successful, it will be important to improve the Cahaba's water quality for certain stream segments for October to May. From Highway 52 upstream to Highway 280 and from Grants Mill Road upstream to Highway 11, the Cahaba River's designated use is Fish & Wildlife (the 'F&W' segments). In the Response to Comments for the 2012 Triennial Review, ADEM points out that much of the Cahaba River has an OAW designation which has the same bacteria standard as the 'Swimmable' classification. And further that for the summer months, June through September, the 'F&W' designation also has the same standard of a geometric mean of 126 colonies/ 100 ml sample. So, most of the Cahaba River has the same standard as 'swimmable' most of the time, according to ADEM.

However, ADEM's 2012 and 2015 Triennial Review Response to Comments seems to assume that there are only limited whole body water-contact activities in F&W stream segments from October to May. We point out that since late fall, winter, and spring time flows are typically greater than summer time flows for southeastern rivers, and the upper Cahaba in particular, these months are

actually preferred and more often used by recreational paddlers. Thus the F&W designation in fact does NOT protect paddlers, who are often in whole body water-contact in these segments during the winter and early springtime when they most frequently use the river.

The Cahaba F&W segment from Grants Mill to Highway 11 in Trussville is particularly popular because it offers an entertaining whitewater experience during these months. The Highway 78 to Grants Mill segment in particular is very popular with experienced paddlers during these months. As a part of the Cahaba Blueway system, a new paddling access is currently being constructed at Highway 78 by the Freshwater Land Trust and an improved access has been built at Grants Mill by The Nature Conservancy and the other Cahaba Blueway partners. As a result, usage of this segment will increase.

The Cahaba River is designated 'OAW/S' from its confluence with the Alabama River to the confluence with the lower Little Cahaba River. Why is the 'S' designation added for this segment, but not for other 'OAW' segments?

In ADEM's Response to Comments for the 2012 Triennial Review, the author suggested that it is not necessary to list OAW segments as 'swimmable' because the OAW water quality standards are equivalent to those for 'swimmable'. We understand that the water quality standards for bacteria levels are the same for both designations and that bacteria levels are the most important parameter to protect for swimming uses. However, the OAW designation describes the best usage of these waters as: "activities consistent with the natural characteristics of the waters." Whereas the best usage for 'swimmable' waters is: "swimming and other whole body water-contact sports". So, we request ADEM do one or the other of two things: 1) add the "swimming and other whole body water-contact sports" phrase to the description of its "best usage of waters" for the OAW designation, or 2) Cahaba's OAW segments also be designated as 'Swimmable'.

Please see the attached Appendix B for photographs noting the date and location of whole body water-contact sports activities in sections of the Cahaba River that are not currently designated for that use. Based on this evidence of use, we request the designated use for following sections of the Cahaba River be upgraded to 'Swimmable':

- Grant Mill to US Highway 11 in Trussville
- Highway 52 to Caldwell Mill Road bridge in Shelby County
- The confluence of the Upper Little Cahaba River with the Cahaba River to Cahaba Beach Road
- The confluence of Shades Creek with the Cahaba River to its source
- The confluence of Buck Creek with the Cahaba River to Highway 261

For the Highway 280 to Highway 52 segment, CRS has conducted whole body contact activities in that stretch; Hoover High School students and teachers have participated in whole body water-contact activities in the Cahaba River near the High School; David Butler, the Canoe the Cahaba outfitter, has frequently put clients on the Lorna Road to Highway 52 segment; and the City of Hoover is contemplating building at least two canoe access locations, at Lorna Road and at the Sports Park on Rocky Ridge Road.

Response: Prior to attaining the Outstanding Alabama Water (OAW) use classification, waterbodies were classified "Public Water Supply" (PWS), "Shellfish Harvesting" (SH), "Swimming and Other Whole Body Water-Contact Sports" (S), and/or "Fish and Wildlife" (F&W). Once a designated use has been assigned to a waterbody, it cannot be removed if it is an existing use. As part of ADEM's Antidegradation Policy, "existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected." This is the reason why some OAW waterbodies may have one use classification and not another. The use classifications can be viewed as a hierarchy with the OAW use classification being at the top of the list; therefore, adding a Swimming classification to an OAW is redundant.

According to the conditions related to the best usage of waters designated the Outstanding Alabama Water use classification found at ADEM Administrative Code r. 335-6-10-.09(1)(b), "High quality waters that constitute an outstanding Alabama resource, such as waters of state parks and wildlife refuges, and waters of exceptional recreational or ecological significance, may be considered for classification as an Outstanding Alabama Water (OAW)." OAW is considered a high quality water and its criteria is protective of "whole body water-contact sports"; therefore, the addition of the "Swimming and Other Whole Body Water-Contact Sports" use classification is unnecessary.

33. Comment: (CRS)

Buck Creek from Cahaba Valley Creek to Shelby County Road 44 is currently designated as a Limited Warmwater Fishery (LWF), having been upgraded from an Agricultural & Industrial classification. While the water quality standards for LWF are an improvement over those of an Agriculture & Industrial classification, neither designated use meets the "Fishable and Swimmable" standard EPA has set a compliance goal.

During each triennium, ADEM should re-examine those stream segments where fishing and swimming have not been designated (40 CFR 131.20). A Use Attainability Analysis (UAA) for Buck Creek was conducted in the past. However, a new UAA should be conducted to allow a current determination of Buck Creek's status and we make that request. We suspect that the reason for not designating Buck Creek Fishable/Swimmable is due to a combination of the discharges from wastewater treatment facilities and the hydrologic alteration associated with the operation of nearby quarries that have lowered the ground water table. However, 40 CFR 131.10(d) states:

> *"At a minimum, uses are deemed attainable if they can be achieved by the imposition of effluent limits required under section 301(b) and 306 of the Act (the Clean Water Act) and cost-effective and reasonable best management practices for nonpoint source control."*

We understand this to mean that ADEM should not allow discharges from an NPDES-regulated facility to result in a use classification less than the fishable/swimmable goal set by the Clean Water Act if the imposition of effluent limits would achieve that goal. Does ADEM interpret 40 CFR 131.10(d) differently?

As ADEM proceeds to imposes more protective effluent limitations associated with compliance with the goals of the Cahaba Nutrient TMDL, improved wastewater treatment technology and techniques will be adopted. As municipal wastewater dischargers to Buck Creek adopt technology

to better comply with the Cahaba Nutrient TMDL, it becomes appropriate to re-evaluate Buck Creek's LWF designation. A new UAA should be undertaken to determine if the LWF designation may be upgraded to F&W for Buck Creek.

Response: Although Buck Creek has a use classification of Limited Warmwater Fishery (LWF), it has more stringent dissolved oxygen, pathogen, and toxicity requirements than the typical LWF classified waterbody; therefore, EPA considers the Buck Creek segment to be consistent with the "fishable/swimmable" goal of the Clean Water Act. ADEM will continue to evaluate available data and information for Buck Creek to determine if it can fully support ADEM's F&W use classification.

GENERAL

34. Comment: (ARA)

We appreciate the changes made to previous Chapter 335-6-11 Water Use Classifications for Interstate and Intrastate Waters as reported in the 2016 Integrated Water Quality Monitoring and Assessment Report.

Likewise, ARA would like to express our appreciation for the prompt and in-depth response from ADEM to our comments in the 2015 review process. While we have continuing disagreements with the ultimate outcome of that process, the open dialogue and feedback is refreshing and works towards ensuring that the public participation process has real meaning. ARA looks forward to working with ADEM throughout this Triennial Review to ensure that the State's water quality standards provide the highest protections for Alabama's waters and her citizens.

Response: Comment noted.

GENERAL: INSTREAM FLOW

35. Comment: (CRK)

Currently, there is no water quality criteria for flow. Water quantity has a major impact on water quality and we encourage the Department to look at ways to address flow with a water quality criteria. This could also be useful in the Water Wars because, as we interpret the federal regulations, Georgia would be required to recognize and protect downstream water quality criteria on the Coosa, Tallapoosa and Chattahoochee Rivers. A criteria that protects flow, based on sound science, could be a useful tool for Alabama to protect flows coming into our state.

The Department is well aware that altered flows can impact stream quality. In fact, the Department in the past had listed three segments of the Coosa River as impaired due to "Flow Alteration." These segments (which include Lay Lake, Logan Martin Lake and Weiss Lake on the Coosa plus two segments of the Tallapoosa River and the Tombigbee River) were listed on the 1998 §303(d) List of Impaired Waters. In doing so, the Department recognized that flow alteration is a pollutant which causes water quality issues.

The Department has recognized at least as early as 1998 that flow is vital to a stream's health. As such, we believe the Department must develop criteria for flow. In 2010, EPA encouraged the Department "to consider explicit expression of flow as a water quality standard, either through a narrative standard, (i.e. such as used by Tennessee "…flow shall support the aquatic criteria…") or through a numeric standard (i.e. such as used by Vermont, "no more than 5% 7Q10 change from natural flow regime…").

We recommend the Department develop a water quality criteria for flow.

Response: The Department has no authority under existing regulations or statutes to establish and enforce instream flow requirements.

As directed by Governor Kay Ivey in her letter dated January 24, 2018, the Alabama Water Resources Commission (AWRC) and the Alabama Department of Economic and Community Affairs Office of Water Resources (ADECA-OWR) submitted a Roadmap for development of an Alabama Water Resources Management Plan which was approved by the AWRC at its meeting on November 28, 2018. The AWRC's and ADECA-OWR's basic objective is to use the State's existing water-related management mechanisms to the fullest extent possible to achieve a well-organized process for managing Alabama's valuable water resources. In some cases, existing laws and policies may need to be refined as part of the continuing water management planning process.

The Department will continue to work with the AWRC and the ADECA-OWR on this issue.

36. Comment: (MBK)

In 2015, we joined several other organizations in advocating for ADEM to address hydrologic alteration as part of the Water Quality Standards program and to develop flow criteria for waters of the state. We continue to call on ADEM to revise water quality standards to include hydrologic alteration as a component of water quality, with the understanding that reductions in flow can impair waters and cause those waters to not meet their designated use criteria, therefore causing violations of the Clean Water Act and Antidegradation policy (335-6-10-.04). As such, we support language suggested by the Alabama Rivers Alliance (ARA) on pages 4-6 of their 2015 Triennial Review Comment letter, dated July 16, 2015. Related to amendments to 335-6-10-.01(2), we reiterate that the following language be inserted: "Water quality criteria shall acknowledge and, when appropriate, preserve instream flow and levels in all water sources as necessary to protect the appropriate biological, chemical, and physical integrity of water sources."

Response: See response to comment 35.

37. Comment: (ARA)

Under Section 304 of the Clean Water Act (CWA) pollution is defined as "the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water." In *PUD No. 1 of Jefferson Cnty. V. Wash. Dept. of Ecology*, 511 U.S. 700 (1994)

the court agreed with the state of Washington that "§ 304 of the act expressly recognizes that water "pollution" may result from "changes in the movement, flow, or circulation or any navigable water." In reaching this conclusion the court determined that the separation of Water quality from water quantity is an "artificial distinction."

As part of the 2012 Triennial Review, the Alabama Rivers Alliance encouraged ADEM to develop flow criteria the State. In doing so, ARA provided a comprehensive analysis of the Federal and State authorities which require ADEM to adopt such criterion. In the 2014 Response to Comments, ADEM asserted:

> The Department has no authority under existing regulations or statutes to require minimum stream flow. This is an extremely complex issue that will require legislative action to address. The Department will continue to work with the Office of Water Resources on initiatives to develop an in-stream flow policy for Alabama.

While we fully appreciate that the hydrologic alteration of our state's waters is a complex and challenging issue, it is incorrect that ADEM does not have the authority to set flow criteria and the assertion that ADEM is working with the Alabama Office of Water Resources is unpersuasive. ARA reiterates its previous comments and incorporates them in this letter.

Since the 2012 Triennial Review, Alabama's efforts to protect its water resources through a challenge to the U.S. Army Corps of Engineers water control manual for the Alabama Coosa Tallapoosa (ACT) sub-basin has exposed Alabama's ongoing inability to "conserve the waters of the state." It his complaint against the Corps, Governor Bentley relied on the U.S. EPAs comments on the Final Environmental Impact Study to assert that "compliance with water quality standards… means that the existing instream water uses and the water quality necessary to protect them will be maintained." A protection within the state's water quality standards program of the instream flows necessary for the waters in the ACT basin to meet designated uses would have placed the state in a much better position to defend its position against Georgia and the Corps. This episode also reminds us that Alabama's neighboring states are steadily moving forward with flow protections thus putting Alabama at further disadvantage.

Additionally, ADEM's proposed water reuse and aquifer storage regulations invite criticism because of the potential adverse impacts to the rivers of the state. While water reuse and ASR may have merit, ADEM's regulations present a very real risk that these regulations will cause streams to fail to meet designated uses by allowing increased, if unintended, hydrologic alteration. A state instream flow condition applicable to all water quality criteria would enable the department to make a determination at the time of permit application whether the proposed permit would cause impairment and to include in such permits conditions necessary to protect the chemical, physical, and biological integrity of the state's waters.

That flow and water quality are inextricably interconnected is settled science. "Fundamental to [the charge to wisely manage the quantity and quality of waters] is ensuring that sufficient

water is retained in rivers and lake systems at all times of year to sustain fishery and aquatic wildlife resources and ecological processes." The Instream Flow Council has identified five critical components that must be assessed in order to determine whether a stream is sustaining fishery and aquatic wildlife resources and ecological process. These riverine components are hydrology, geomorphology, biology, water quality, and connectivity.

IFC asserts that "the amount of flow is one of several factors that affect maintenance of water quality, including, the physical, chemical, and biological attributes of water." It is in this area that ADEM has primary responsibility to ensure that the state's water quality standards adequately describe the components necessary to determine whether a stream is meeting designated uses including the Fish and Wildlife Designation. ADEM's current standards do not do this. The current standards focus primarily on the chemical attributes of the water (i.e Dissolved Oxygen, PH, Nutrients, Chemicals, etc.) with only temperature and turbidity describing physical attributes, and only limited acknowledgement of the impacts to biological characteristics. ADEM's standards must evolve to reflect the current scientific understanding of riverine functions.

We appreciate the complexity of this issue. While "[t]he natural flow paradigm (preservation of the natural flow variability and ecological function of river systems) is axiomatic to ecological integrity of river systems." The IFC recognizes that integrating the five riverine components into complex legal and institutional procedure is "a daunting challenge." In order to manage a standards program not gridlocked by site by site assessments, the department should consider adoption of sustainability boundary approach that sets a conservative presumptive standard of hydrologic alteration based divergence from the natural flow. Waters with alterations within this conservative boundary (generally 10-20% alteration from natural flow) may be presumed to meet flow requirements necessary to maintain riverine and ecological functions of the system. Waters experiencing alterations outside of this sustainability boundary must be assessed for ability to meet designated uses using acceptable scientific methodology.

In consideration of these comments and the comments presented as part of the 2012 Triennial Review, we recommend that the following changes be made to 335-6-10:

Amend 335.6-10-.01(2) to read:

> (2) Water quality criteria, covering all legitimate water uses, provide the tools and means for determining the manner in which waters of the State may be best utilized, provide a guide for determining waste treatment requirements, and provide the basis for standards of quality for State waters and portions thereof. Water quality criteria shall acknowledge and, when appropriate, preserve instream flows and levels in all water sources as necessary to protect the appropriate *biological, chemical, and physical integrity of water sources.* Water quality criteria are not intended to freeze present uses of water, nor to exclude other uses not now possible. They are not a device to insure the lowest common denominator of water quality, but to encourage prudent use of the State's water resources and to enhance their quality and

productivity commensurate with the stated purpose of Title 22, Section 22-22-1 et seq., Code of Alabama 1975.

Amend 335-6-10-.02 (8) to read

(8) "Pollution" means ~~the discharge of a pollutant or combination of pollutants~~ the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water.

In 335-6-10-.02 insert the following definitions:

(x1) "Instream flow" means the minimum amount of flow needed, as determined by the Alabama Department of Conservation and Natural Resources, to uphold the natural biological, physical, and chemical integrity of a waterway established using generally accepted scientific methodologies considering hydrology, geomorphology, biology, connectivity, and water quality.

In selecting a generally accepted scientific methodology, ADCNR shall consult with and shall consider recommendations from the Water Resources Council, other experts, and the general public. In determining and establishing the instream flowrates, ADCNR shall give consideration to consumptive and nonconsumptive water uses, including, but not limited to, agricultural, industrial, municipal and domestic uses, assimilative waste capacity, recreation, navigation, fish and wildlife resources and other ecologic values, estuarine resources, aquifer recharge and aesthetics.

(x2) Biological integrity" of a water source means the maintenance of water in the source in the volume and at the times necessary to support and maintain wetlands and wildlife (including fish, flora, and fauna).

(x3) "Chemical integrity" of a water source means the maintenance of water in the source in the volume and at the times necessary to enable a water source to achieve the water quality standards prescribed for the water source by federal or State laws or regulations in light of authorized effluent discharges and other expected impacts on the water source.

(x4) "Physical integrity" of a water source means the volume of water necessary to:
a. support commercial navigation of the water source as required by federal or state law or regulation;
b. preserve natural functions of the riverine ecosystem
c. Preserve cultural, or historic resources as determined by or as required by federal or state law or regulation;
d. provide adequate recreational opportunities to the people of the state; and
e. prevent serious depletion or exhaustion of the water source.

In 335-6-10-.04 include the following:

> (x) Developments constituting a new or increased hydrologic alteration shall assure that such alteration, alone or in combination with existing water uses, will not impair the natural biological, physical, and chemical integrity of a waterway.

In 335-6-10-.05 include the following:

> (x) The quality of any waters impacted by a hydrologic alteration that requires consideration, review, certification, or approval by the Department shall be such as will maintain the natural biological, physical, and chemical integrity of the impacted waters and shall be such as will not cause the best usage of any other waters to be adversely affected by such hydrologic alteration. Waters not altered by more than ten percent from the instantaneous natural flow from all hydrologic alterations shall be presumed to not be impaired

Along with these changes to 335-6-10, we reiterate our recommendation that the Department conduct a stream by stream analysis of instream flow needs throughout the state and at the very minimum adopt a sub-watershed quantity criteria which is modeled on the natural flow variability, aquatic habitat, and water demands specific to each region. ARA encourages ADEM to consider examples from other states that are already addressing flow through their WQS programs and to seek input and assistance from stakeholders throughout the state as well as from other State and federal agencies. It is important to note the work that DCNR and the Geologic Survey of Alabama continue to do on instream flow, including the study and assessment of instream flow. When implementing the proposed changes, ARA recommends special consultation with those state agencies—or in the alternative to adopt their methodologies and scientific framework.

Response: See response to comment 35.

GENERAL: NPDES PERMITS

38. Comment: (BWRK)

Currently, it is not entirely clear that Alabama's water quality standards are incorporated in or made specifically enforceable by Alabama NPDES permits. The Department's NPDES permits contain stock language that: "[t]his permit has been issued under ADEM Admin. Code div. 335-6. All provisions of this division that are applicable to this Permit are hereby made a part of this permit." Not all provisions "are hereby made a part of [NPDES] Permit[s]." Only those "that are applicable to [a specific] Permit." Does the Department consider water quality standards like Ala. Admin. Code r. 335-6-10 and r. 335-6-11, "applicable to [NPDES] Permit[s]?" If not, is the Water Quality Division willing to work with the Permit Division to make it so?

Many states use specific language in their NPDES permits which require compliance with water quality standards. *See, e.g., Northwest Environmental Advocates v. City of Portland*, 56 F.3d 979 (9th Cir. 1995) ("notwithstanding the effluent limitations established by this permit, no wastes shall be discharged and no activities shall be conducted which will violate

Water Quality Standards as adopted in OAR 340-41-445..."). In order to be truly protective of Alabama's waters, water quality standards must be specifically incorporated into NPDES permits and enforceable.

Response: Enforcement of NPDES permits is outside the scope of the review of Alabama's water quality standards regulations in ADEM Administrative Code r. 335-6-10 and 335-6-11. The commenter's concerns have been provided to the NPDES Permit Program for consideration.

GENERAL: NUTRIENT CRITERIA DEVELOPMENT

39. Comment: (ARA)

We continue to encourage ADEM to make progress towards developing nutrient criteria of rivers and streams. While ADEM has provided excellent lake specific criteria for several reservoirs, much work remains to protect our rivers and streams from the impacts associated with excessive nutrients and stormwater runoff. In 2004, ADEM's published its *Nutrient Criteria Implementation Plan* describing how nutrient criteria will be developed for rivers and streams in the coming years and in June 2012, the *Tallapoosa River Basin Numerical Nutrient Criteria for Wadeable Streams Final Report* was completed. This is very slow advancement. We request that ADEM provide a schedule for development and implementation of these criteria and identify quantifiable benchmarks for periodic evaluation. Where possible, we recommend that ADEM adopt EPA's published regional standards as ADEM conducts the studies necessary to identify scientifically based standards at the individual basin level.

Response: The Department is in the process of revising the Nutrient Criteria Implementation Plan. The revisions will reflect the Department's current priorities for development of nutrient criteria for waterbodies that typically have the highest risk for nutrient over-enrichment, which based on our findings are tributary embayments of lakes/reservoirs and coastal/estuarine waters. In addition, the development of numeric nutrient criteria for rivers and streams may be difficult to implement due to the varying ecology and topography within Alabama; therefore, the Department is also investigating the option of adopting narrative nutrient criteria to address nutrients in rivers and streams.

The Department has had great success in addressing nutrient issues throughout Alabama via the TMDL program. TMDL limits have been established for both point and nonpoint sources to address nutrient impairments, and post TMDL follow-up monitoring has shown a significant reduction in nutrient loadings and corresponding improvements in various response parameters such as chlorophyll-a (algae), dissolved oxygen, pH, fish and macroinvertebrates. The Department has and will continue to use scientifically valid approaches to develop nutrient criteria that are protective of designated uses, implementable, and scientifically defensible.

GENERAL: PERMIT FOR CASH WASH FACILITIES

40. Comment: (CRS)

Car wash facilities should not be allowed to discharge wash water directly to any MS4. However, general permits for car wash facilities, such as ALG140853, do not require limitations on discharge of surfactants. Nor has the EPA set out clear guidelines for surfactant discharge limitations. Such discharges are allowed despite the fact that it is widely known that surfactants may be very detrimental to aquatic wildlife. Given the water quality challenges MS4 communities face and the impacts urban streams experience, car wash facilities should not be permitted to discharge wash water to an MS4.

If ADEM determines it does not have the authority to regulate surfactant discharges, we urge ADEM to strongly encourage adoption of 'safer alternatives through informed substitution'. The EPA has made recommendations regarding 'Safer Choice Criteria for Surfactants' that we hope would be encouraged by ADEM. Could ADEM include in MS4 permits a requirement that MS4s regulate car wash facilities to prevent pollution of the MS4 and streams by surfactants?

Response: Requirements for General Permits for commercial car wash facilities are outside the scope of the review of Alabama's water quality standards regulations in ADEM Administrative Code r. 335-6-10 and 335-6-11. The commenter's concerns have been provided to the NPDES Permit Program for consideration.

GENERAL: RIPARIAN BUFFERS

41. Comment: (ARA)

EPA currently recommends aquatic buffers, otherwise known as "riparian buffers," as natural boundaries between local waterways and existing development. These buffers help protect water quality by filtering pollutants such as sediment, nitrogen, phosphorous, pesticides, etc. The vegetation found in a riparian area helps to slow down floodwaters and prevent stream bank erosion. These buffers also provide for wildlife habitats for deer, birds and other wild animals. Trees and other plants found along a river or stream bank provide shaded areas that help regulate temperature and keep the water from becoming too hot for the aquatic wildlife, and they provide food sources for certain animal species. Other benefits of buffers include flood control, stream bank stabilization, stream temperature control, and room for lateral movement of the stream channel.

We appreciate the Departments response that "The Department's stormwater management regulations at ADEM Admin. Code r. 335-6-12 recognize riparian buffers as an effective Best Management Practice for the control of erosion and sediment", and that "the Department's regulations at ADEM Admin. Code r. 335-6-7 specify buffers for certain animal feeding operations and confined animal feeding operations." We recommend that riparian buffers be listed as a specific criteria which goes beyond a recognition as an effective best management practice under ADEM Admin. Code r. 335-6-12.

In recommending riparian buffers, the EPA suggests that good aquatic buffer regulations specify the size and management of the stream buffer as a specific planning tool to protect stream quality and aquatic habitat. According to the EPA, "[e]ffective buffer ordinances provide guidelines for buffer creation and maintenance and should require:

- buffer boundaries to be clearly marked on local planning maps
- maintenance language that restricts vegetation and soil disturbance
- tables that illustrate buffer width adjustment by percent slope and type of stream
- direction on allowable uses and public education"

ARA recommends that ADEM adopt, as part of its water quality criteria, specific language from Baltimore County, Maryland's "Environmental Protection and Resource Management" regulations which provide in part:

> The forest buffer, including wetlands and floodplains, shall be managed to enhance and maximize the unique value of these resources. Management includes specific limitations on alteration of the natural conditions of these resources. The following practices and activities are restricted within the forest buffer, except as provided for [by federal or state law, or other state regulatory agencies] in accordance with a soil conservation and water quality plan approved by the [the state]:
>
> (1) The existing vegetation within the forest buffer shall not be disturbed except as provided [otherwise]. This includes, but is not limited to, disturbance by tree removal, shrub removal, clearing, mowing, burning, spraying, and grazing.
>
> (2) Soil disturbance shall not take place within the forest buffer by grading, stripping of topsoil, plowing, cultivating, or other practices.
>
> (3) Filling or dumping shall not occur within the forest buffer.
>
> (4) Except as permitted by the department, the forest buffer shall not be drained by ditching, underdrains, or other drainage systems.
>
> (5) Pesticides shall not be stored, used, or applied within the forest buffer, except for the spot spraying of noxious weeds consistent with the recommendations of [an appropriate state agency or extension service].
>
> (6) Animals shall not be housed, grazed, or otherwise maintained within the forest buffer.
>
> (7) Motorized vehicles shall not be stored or operated within the forest buffer, except for maintenance and emergency use approved by the department.
>
> (8) Materials shall not be stored within the forest buffer.

Response: The Department recognizes riparian buffers as an effective Best Management Practice for the control of erosion and sediment that should be used in conjunction with a comprehensive watershed management plan; however, the Department does not agree that it is a necessary component of water quality standards rules.

GENERAL: SILTATION

42. Comment: (CRK)

Currently, there is no specific quantitative water quality criteria for siltation amongst the State's regulations. The State does have specific water quality criteria for turbidity, which measures how much sediment is being transported. Siltation criteria, on the other hand, should be developed to deal with the impairments caused to designated uses when sediment builds up in a stream bottom. This happens commonly, and on the Coosa River most notably at the mouths of creek draining into our reservoirs. Sediment builds up and impacts the habitat and feeding grounds of fish and wildlife. It impacts Swimming uses by reducing water depth and affecting navigation. It also impairs the ability for a reservoir to store water for drinking water supply. The Department recognizes siltation as a major issue. Three segments in the Coosa River Basin are impaired due to siltation (habitat alteration) including Broken Arrow Creek (Logan Martin Lake), Wolf Creek (Lay Lake) and Yellow Leaf Creek (Lake Mitchell). But, the department has failed to develop criteria for siltation.

We recommend the Department develop a water quality criteria for siltation.

Response: The Department has the ability to manage and protect waters of the State from sediment impacts utilizing both our numeric and narrative criteria established in ADEM Admin. Code r. 335-6-10. The Department will continue to conduct research regarding development of a more appropriate benchmark for sediment in order to make more informed decisions with respect to our 303(d) Assessment/Listing and Total Maximum Daily Load (TMDL) Programs, and to address data gaps and develop more robust and quantitative benchmarks for sediment.

GENERAL: STORMWATER RUNOFF

43. Comment: (CRS)

The Clean Water Act requires regulation of temperature and pH even though these parameters are not strictly 'pollutants'. Because these parameters were specifically addressed by the Act, there is no confusion about regulating a parameter that is not strictly a pollutant.

Thus, regulation of a physical characteristic of a discharge that is not strictly a pollutant is possible. Alabama could and should regulate hydrologic alteration under the Clean Water Act as a change in the physical characteristics of stormwater runoff which is within the purview of the Clean Water Act. Hydrologic alteration is the largest source of siltation and habitat alteration impairments in the Cahaba River and probably many other Alabama

streams. ADEM will never be able to adequately manage excessive sediment loading until we find a way to regulate or manage this most significant sediment source.

Section 101(a) of The Clean Water Act states:

> (a) The objective of this Act is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters…
> …
> (7) it is the national policy that programs for the control of nonpoint sources of pollution be developed and implemented in an expeditious manner so as to enable the goals of this Act to be met through the control of both point and nonpoint sources of pollution.

It is clear that the goals of the Clean Water Act contemplate protection of the chemical, physical, and biological integrity of the Nation's waters. It is reasonable to expect that excessive siltation loading that is an indirect result of stormwater runoff should be included among the factors over which the Clean Water Act has authority.

Nevertheless, both EPA and ADEM have struggled with how to manage pollution from the increased volume of stormwater runoff associated with increased imperviousness that accompanies urbanization. We have heard from your staff that ADEM believes it can regulate 'pollutants' but not 'pollution'. To improve our understanding, we request the author of the 'Response to Comments' to describe or cite a reference for ADEM having or not having regulatory authority over a clear, demonstrated sources of hydrologic alteration that cause 'pollution'.

We hope ADEM will be patient with our frustration over this distinction and the way it is being applied to non-point source pollution. We see increased runoff volume as the largest source of siltation impairments in the Cahaba River system. As we have pointed out many times, scouring of the banks and stream bed has been estimated to be the source of about 67% of sediment loading to Shades Creek, as determined by EPA's Sediment TMDL for Shades Creek. While this sediment is from an indirect source, it is clearly an important cause of water quality impairment, as ADEM has also noted to occur for the Cahaba River mainstem in the Cahaba Siltation and Habitat Alteration TMDL.

We ask ADEM to seek and/or develop a legal foundation for controlling increased volume in stormwater runoff and to apply that in stormwater permitting. The current status of not regulating increases in volume of stormwater runoff is a significant contributor to degradation of the Cahaba River and other streams in Alabama. We urge ADEM to find a way to address this important source of water quality degradation in Alabama.

Response: Flow is not considered a pollutant under either the Federal Clean Water Act or Alabama's Water Pollution Control Act. In January 2013, a federal court ruled that the EPA cannot regulate stormwater flow in setting a total maximum daily load (TMDL) for impaired waters under the Clean Water Act (CWA) because stormwater runoff is not considered a pollutant. The court found that EPA could only issue TMDLs for actual pollutants. (Virginia

Department of Transportation, et Al. v. United States Environmental Protection Agency, Et Al. U.S. District Court for the Eastern District of Virginia. 3 Jan. 2013. Print.) In conclusion, the court reiterated that the "language of 33 U.S.C. § 1313(d)(1)(c) is clear." Id. The Clean Water Act (CWA) authorizes EPA "to set TMDLs to regulate pollutants, and pollutants are carefully defined." *Id.* Because stormwater runoff is not a pollutant, "EPA is not authorized to regulate it via TMDL." *Id.*

GENERAL: TMDLs

44. Comment: (MBK)

We also reiterate our concern regarding continued lack of TMDL development for waters impaired by mercury. In Mobile and Baldwin Counties, the Escatawpa, Mobile, and Tombigbee River Basins have a numerous water segments that have been identified as impaired for mercury. Currently the vast majority of these waterbodies had data collected in the late 1990s (1996-1998) but do not have finalized TMDLs. We assert that a quarter of a century is too long a time period pass without addressing this issue, especially given strong past recommendations from EPA that ADEM adopt water quality criterion for mercury, consistent with EPA's 2001 Methylmercury Water Quality Criterion and 2010 Implementation Guidance.

Response: The Department plans to address mercury-impaired waters through the TMDL program. The Department will consider EPA's recommended human health criterion for methylmercury in conjunction with the TMDL development for mercury-impaired waters.

45. Comment: (ARA)

In previous years, ARA has submitted comments advocating for the development of a TMDL for Mercury. In its Response to Comments, ADEM stated:

> Although considered a low priority at this time, the Department does intend to address mercury-impaired waters through the TMDL program. The Department will consider EPA's recommended human health criterion for methylmercury in conjunction with the TMDL development for mercury-impaired waters.

We appreciate the state's commitment to address the methylmercury pollution in Alabama's water waters. We disagree that the methylmercury crisis should be a low priority for the state. The majority of the state's Fish Consumption Advisories are in regards to methylmercury, and the EPA has identified it as a serious issue. We reiterate our past comments that a TMDL is crucial to protect human health and wildlife, and ADEM should make it a top priority.

Response: See response to comment 44.

Other Comments Submitted During the Comment Period

The Department received a number of other comments during the 2018 triennial review comment period that did not pertain to provisions in ADEM Administrative Code r. 335-6-10 or 335-6-11. Many of these comments expressed concerns with provisions in other chapters of the Department's administrative code and will be provided to the appropriate program managers. A few comments were submitted which addressed the Department's Water Quality Assessment and Listing Methodology. These comments will be considered as a part of future revisions to the methodology.

Several commenters expressed a desire for the Department to respond to comments submitted during previous triennial review periods. While the Department appreciates these comments and has considered many of them, it is beyond the Department's resources to provide specific responses to comments submitted prior to the 2018 triennial review.

The Department appreciates the time and effort that have obviously been invested in the many comments and suggestions provided by individuals and organizations, with the goal of improving water quality in Alabama. These comments have been made a part of the hearing record, which will be provided to EPA Region 4.