Tulane Environmental Law Clinic

March 29, 2021

By E-mail to: kcaviness@mdeq.ms.gov and U.S. Mail
Kim Caviness
Mississippi Department of Environmental Quality
P.O. Box 2261
Jackson, MS 39225

Dear Ms. Caviness,

Please consider the following comments on the 2021 Triennial Review revision of the Mississippi Water Quality Standards for Intrastate, Interstate, and Coastal Waters. The Tulane Environmental Law Clinic submits these comments on behalf of Healthy Gulf, the Pearl Riverkeeper, and Audubon Delta. Healthy Gulf, Pearl Riverkeeper, and Audubon Delta reserve the right to rely on all public comments submitted in this matter, and specifically rely additionally on the comments submitted by the Mississippi River Collaborative (MRC).

Thank you.

Substantially Prepared by:

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Respectfully,

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Enclosure

COMMENTS OF
HEALTHY GULF, THE PEARL RIVERKEEPER, AND AUDUBON DELTA[1]
ON THE 2021 TRIENNIAL REVIEW OF
MISSISSIPPI WATER QUALITY STANDARDS FOR
INTRASTATE, INTERSTATE, AND COASTAL WATERS
COMMISSION REGULATION

I. MDEQ SHOULD NARROW AND CLARIFY THE LANGUAGE IN THE WATER QUALITY STANDARD VARIANCES SECTION ON PARTICIPATION.

The purpose of the Clean Water Act is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters wherever attainable." Clean Water Act (CWA) Section 101(a)(2). MDEQ proposes to define the water quality standards (WQS) variance as a "time-limited" designated use and criterion for a specific pollutant from a specific source or specific water body that reflects the highest attainable condition for a period of time.

The variance section of the 2021 Triennial Review, section E of Rule 2.5, addresses variances and how to obtain them. However, this section in its current form fails to fully address important aspects of the variance process including the time-limited nature of a variance and the public participation requirement. Furthermore, the proposed Review fails to differentiate and to explicitly define important terms. In addition to rectifying these issues, the Review should be amended to include language which will promote the advancement of technology where no current technology exists to control a pollutant. This is in keeping with the purpose of the WQS variance, which is to allow progress toward a WQS that is not currently attainable.

[1] Audubon Delta is the regional office of the National Audubon Society, encompassing the states of Arkansas, Louisiana, and Mississippi.

A. MDEQ Should Include an Upper Limit on the Length of a Variance.

A central component of the variance is its time-limited nature. The term of a WQS variance must only last "as long as necessary to achieve the highest attainable condition." 40 CFR 131.14(b)(1)(iv). To ensure variance terms do not extend longer than necessary, 40 CFR 131.14(b)(1)(v) requires that WQS variance terms over five years be reevaluated at least once every five years. The proposed 2021 Triennial review reflects this requirement in Rule 2.5 Section E.2.v. While the state could do the bare minimum as required by the statute, Mississippi should take a more proactive approach in limiting WQS variance terms by reevaluating terms of over five years every three years. This more aggressive reevaluation strategy has been implemented by other states such as Montana. *Upper Missouri Waterkeeper v. United States Environmental Protection Agency*, 377 F.Supp.3d 1156, 1160 (D. Mon. 2019) (citing Mont. Code Ann. § 75-5-313(8)). Montana also safeguards against indefinite or unnecessarily lengthy WQS variances by setting a twenty-year upper limit for variance terms. *Id*. at 1162 (citing Mont. Code Ann. § 75-5-313(8)).[2] The *Upper Missouri Waterkeeper* Court notes that Montana is a national leader in the protection of its waters. *See id*. at 1171. Mississippi should strive for this distinction by adopting similar proactive regulations to protect its uniquely beautiful waters.

B. The Public Participation Requirement for Variance Implementation Should Be Expounded Upon for Clarity.

Mississippi's proposed variance regulation mentions that WQS variances must meet certain public participation requirements as outlined in 40 CFR 131.20(b). However, these requirements lack any further clarity, and do not provide ample accountability and transparency to the public and interested stakeholders. Under 40 CFR 131.20(b) the state must,

[2] "An individual, general, or alternative nutrient standards variance may be established for a period not to exceed 20 years and must be reviewed by the department every 3 years from the date of adoption to ensure that the justification for its adoption remains valid."

> hold one or more public hearings for the purpose of reviewing water quality standards as well as when revising water quality standards, in accordance with provisions of State law and EPA's public participation regulation (40 CFR part 25). The proposed water quality standards revision and supporting analyses shall be made available to the public prior to the hearing.

40 CFR 131.20(b). Rather than simply citing the statute, the MDEQ should include the public participation requirement. Additionally, MDEQ should include where the public can locate the WQS revisions and supporting analyses that must be made available to them. MDEQ should provide materials both online and in a physical location, to accommodate the various limited means of access of members of the public. Expounding upon the public participation requirements in the Review ensures the public has the information it needs to participate. Providing this information within the Review will work towards fostering public participation and a greater sense of governmental transparency.

C. Ambiguous Language Should Be Clarified and Similar Terms Should Be Differentiated.

Many terms in the review have not been defined, leaving sections ambiguous and the reader confused. MDEQ should either include a greater number of definitions for terms in its general definition section, Rule 2.1 Section H, or it should add a definition section to each rule in order to clarify rule specific terms. In the "Water Quality Variances" section the following terms should be defined: Waters of the United States, waterbody/waterbody segment(s), Pollutant Minimization Program,[3] and feasible pollutant control technology. Additionally, the highest attainable condition, highest attainable interim condition, and highest attainable use have not been differentiated. Please differentiate these terms for clarity. In the general body of the

[3] This is capitalized in one area and uncapitalized in others. Is this purposeful? If so, please explain the difference between the capitalized and uncapitalized Pollutant Minimization Program.

document the following terms should be defined for clarity: Use Attainability Analysis, existing uses, mixing zones, and natural conditions.

MDEQ's proposed definition of "highest attainable use" in the definition section (Proposed Rule 2.1(H)(12)) is not sufficient to resolve the ambiguity and does not match EPA's definition at 40 C.F.R. § 131.3(m). EPA's definition makes clear that the term is in the context of "the **modified** aquatic life, wildlife, or recreation use . . ." and also makes clear that the UAA used to classify waters into this downgraded use must demonstrate "the factor(s) in § 131.10(g) that preclude(s) attainment of the use . . . ." *Id.*

II. MDEQ'S PROPOSED INCLUSION OF A MODIFIED FISH AND WILDLIFE CLASSIFICATION IS VAGUE AND AMBIGUOUS.

A. MDEQ Should Restrict the Application of Modified Fish and Wildlife Classification and Explicitly Require A Use Attainability Analysis to Determine the Highest Attainable Use.

Rule 2.3(E) should explicitly state that a site-specific UAA is required prior to the designated use change and subsequent inclusion of each waterbody into the Modified Fish and Wildlife Classification. States are required to conduct a UAA whenever "the State wishes to. . . adopt subcategories of uses specified in section 101(a)(2) that require less stringent criteria." 40 CFR 131.10(j). Further, 131.10(g) factors are required to be considered when a state must conduct a UAA under 131.10(j). Once a state has rebutted the presumption of attainability of a CWA 101(a)(2) specified use by demonstrating through a UAA that such a use is not attainable, the state must adopt the highest attainable use.[4] 40 CFR 131.3(m); 80 FR 51020-01, at 51025.

[4] Highest attainable use is defined as "the modified aquatic life, wildlife, or recreation use that is both closest to the uses specified in section 101(a)(2) of the Act and attainable, based on the evaluation of the factor(s) in § 131.10(g) that preclude(s) attainment of the use and any other information or analyses that were used to evaluate attainability." 40 CFR 131.3(m).

Furthermore, Rule 2.3(E) should restrict the applicability of the broad Modified Fish and Wildlife Category to waterbody segments that meet appropriate normative and numeric site-specific criteria. The EPA has previously approved a state's adoption of a broad limited or modified use category as a highest attainable use. 80 FR 51020-01, at 51026. Although Florida adopted a broad "Limited Use" classification, the Florida WQS restrict the application of the classification to "either (1) wholly artificial waters, or (2) altered water bodies dredged and filled prior to November 28, 1975." FAC 62-302.400(6)(a)-(b); 80 FR 51020-01, at 51025. The Florida WQS also restricts the application of the classification to waters "with human induced physical or habitat conditions that prevent attainment of the full designated use for recreation and fish and wildlife protection." *Id.*[5]

Louisiana's WQS also include a Limited aquatic life and wildlife subcategory. Similar to Florida's limited use classification, Louisiana limits the applicability of the limited aquatic life subcategory to specific types of waterbodies that meet certain enumerated characteristics.[6] Although the language of Louisiana's limited aquatic life subcategory does not confine itself to the enumerated characteristics and waterbody types, it serves as useful guidance and provides greater clarity as to the applicability of the subcategory.

However, Mississippi's proposed changes do not demonstrate the level of clarity and precision as those adopted by Florida or Louisiana.

[5] MDEQ has previously considered Florida's Class III "Limited Use" Classification. MDEQ Internal Work Group Powerpoint, "Refining MS's Water Body Classifications," Sep. 24, 2018 (attached as Exhibit A).

[6] Water bodies that might qualify for the *limited aquatic life and wildlife* use subcategory include intermittent streams, and naturally dystrophic and man-made water bodies with characteristics including, but not limited to, irreversible hydrologic modification, anthropogenically and irreversibly degraded water quality, uniform channel morphology, lack of channel structure, uniform substrate, lack of riparian structure, and similar characteristics making the available habitat for aquatic life and wildlife suboptimal. LAC 33:IX:1111(A).

Here, Rule 2.3(E) proposes to broadly apply the Modified Fish and Wildlife Classification to waters which "share the same water quality criteria as Fish and Wildlife waters with the exception of any modified criteria" based on 40 CFR 131.10(g) factors. Earlier in the proposed revisions, Rule 2.1(H)(15) defines modified criterion as a "a waterbody-specific criterion adopted to protect either the Modified Fish and Wildlife or Drainage Waters classifications." The section further states that the "criterion should be supported by the findings of the respective waterbody's [UAA] in support of the designated use change and reflect the use of scientifically defensible methods." Rule 2.1(H)(15).

However, Rule 2.3(E) makes no mention of whether a UAA is required or even whether waters that will be included within this classification will require a "designated use change" as specified in Rule 2.1(H)(15). It also fails to indicate whether the classification is to be restricted on site-specific or waterbody-specific criterion designed to support the HAU. Within its internal guidance documents, MDEQ limits the applicability of the Modified Fish and Wildlife criteria to site-specific narrative and numeric criteria which would "most likely [be] developed. . . for DO, pH, or temperature.[7] Waterbody Classifications and Criteria, August 30, 2019 (attached as Exhibit B). However, there is no such limitation or guidance found within Rule 2.3(E). Thus the inconsistent usage of modified criteria, site-specific criteria, UAA requirements, and other language throughout the proposed revisions renders the proposed Modified Fish and Wildlife Classification ambiguous and vague, thereby leaving it open to interpretation. The resultant

[7] This information is located within a spreadsheet detailing the waterbody classifications and their respective applicable criteria. MDEQ states that the applicable criteria for the Modified Fish and Wildlife Classification is: "All criteria (narrative and numeric) that apply for Aquatic Life Support apply with the exception of any site-specific criteria developed and assigned to an individual waterbody. (Most likely that site-specific criteria developed would be for DO, pH, or temperature." The spreadsheet further details that the consideration of potential 131.10(g) factors is limited to factors 3, 4, 5, and 6. Waterbody Classifications and Criteria, August 30, 2019.

ambiguity leaves open the possibility that the section might be interpreted to mean that a UAA is not required for reclassification.

Ultimately, Rule 2.3(E) should be amended to clarify that waterbody segments can be reclassified into the less restrictive Modified Fish and Wildlife Classification only upon a determination, based upon one of the 131.10(g) factors, that attaining its current designated use is not feasible. This determination must be made via a site-specific UAA in order to ascertain whether the waterbody or waterbody segment meets the necessary modified criteria for reclassification. As previously mentioned, this language is included throughout the proposed WQS but without specific reference to the Modified Fish and Wildlife Classification. Moreover, MDEQ's internal guidance on reclassification of designated uses to less stringent uses details a brief step-by-step process which includes the previously requested requirements. MDEQ Guidance for Designated Use Reclassification, Draft 6-16-2020, at 2-4.[8]

The failure to include more well-defined language within the provision will result in uncertainty, thereby leaving the public and all interested stakeholders unsure of what types of waters will be included within the modified classification; whether a UAA is required for reclassification; and what types of modified criterion will be set in order to protect the HAU. MDEQ should include more restrictive and limiting language to make clear what waterbodies will remain under their existing classification and what waterbodies will likely face reclassification inquiries. Further clarity on the applicability of the Modified Fish and Wildlife Classification is in line with EPA's comments which states that "it is good to clarify what remains in place." Comment PL97, Email Attachment "Revised for Triennial Review – Latest Revisions – February 4, 2021," Feb 7, 2021.

[8] The 5 Step Process reflects EPA's Water Quality Standards Handbook, Chapter 2(2.7)(Removal of Designated Uses).

B. MDEQ Must Specify That Waters Falling Within the Modified Fish and Wildlife Classification Must Protect Existing Uses.

Rule 2.3(E) appropriately includes language protecting "the attainment of water quality standards within downstream waters." However, it is imperative that MDEQ add language specifying that the reclassification of waterbodies into the Modified Fish and Wildlife Classification will not result in the removal or downgrading of existing uses. States may not remove or downgrade designated uses if they are existing uses, unless a use requiring more stringent criteria is added. 40 CFR § 131.10(h)(1). Any planned activities which will "foreseeably lower water quality to the extent that it no longer is sufficient to protect and maintain the existing uses in that waterbody" must be avoided, prevented, or adequately mitigated in order to ensure the protection of the existing water quality. EPA Water Quality Standards Handbook, Ch. 4(4.4).

The EPA defines 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." 40 C.F.R. § 131.3(e). In its Water Quality Standards Handbook, EPA further describes existing uses as follows: "An 'existing use' can be established by demonstrating that:

- fishing, swimming, or other uses have actually occurred since November 28, 1975; **or**
- that the water quality is suitable to allow the use to be attained—unless there are physical problems, such as substrate or flow, that prevent the use from being attained.

While MDEQ's regulations generally protect existing uses, providing in the negative in proposed Rule 2.5(F)(6) that "[t]he State may designate a use, or remove a use that is *not* an existing use, if . . . ," MDEQ must include a clear provision in the Modified Fish and Wildlife Use Classification that MDEQ may not use this use classification to downgrade or remove an existing use.

C. MDEQ Should Require Public Participation Prior to Any Decision to Downgrade Waters into the Modified Fish and Wildlife Classification.

Rule 2.3(E) should ensure that the public will be afforded ample notice and opportunity for public hearings. EPA regulations requires States to provide opportunity for a public hearing before adding or removing a use or establishing subcategories of a use. 40 CFR 131.20(b); (WQSH 2.5). Furthermore, a state is required to revise its water quality standards if "any new information indicates that the use specified in section 101(a)(2) of the [CWA] are attainable." Thus, Rule 2.3(E) should indicate that the public will be given proper notice and opportunity for hearing and comment prior to the change or inclusion of each and any waterbody segment into the Modified Fish and Wildlife Classification. In addition, Rule 2.3(E) should also indicate that any waterbody segment redesignated to the Modified Fish and Wildlife Classification will be reviewed on a triennial basis to determine whether a higher water quality use is attainable.

For example, Ohio has also promulgated limited and modified criteria for waterbody segments which are found to be incapable of supporting the protection of wildlife. Waterbody segments are redesignated within Ohio's limited and modified subcategories based upon a UAA's findings. These redesignated water body segments are subjected to review "on a triennial basis (or sooner) to determine whether the use designation should be changed." OAC 3745-1-07(B)(1)(b).

Here, the Mississippi public participation requirement is found within multiple provisions related to the reclassification of waters based on modified criteria. See e.g., Rule 2.1(E); Rule 2.2(F)(5)(a)(2). MDEQ's internal guidance on the designated use reclassification also notes that the final step of the reclassification process is to "provide public notice to the proposed changes and include the use of public comments received as part of that notice."

MDEQ Guidance for Designated Use Reclassification, Draft 6-16-2020, at 4.[9] However, there is no mention of a public notice and hearing requirement within the Modified Fish and Wildlife Classification provision. MDEQ should include such a requirement in order to provide clarity and confidence that MDEQ is operating in conformity with EPA regulations regarding public participation. Furthermore, the inclusion of a public participation requirement within Rule 2.3(E) clarifies the duties and rights of the public and all interested stakeholders.

E. MDEQ Should Specify Whether the Modified Fish and Wildlife Classification is a Sub-category or a New Designated Use.

The proposed Modified Fish and Wildlife Classification, Rule 2.3(E), does not clearly define whether the classification is to be regarded as a designated use or as a subcategory of a use. Under 40 CFR 131.10(c), states may elect to adopt subcategories of a designated use and set the appropriate criteria to reflect varying needs of such subcategories. A designated use subcategory refers to any use that "reflects the subdivision of uses specified in section 101(a)(2) of the Act into smaller, more homogenous groups for the purposes of reducing variability within the group." (WQSRR, 51025).[10] A sub-category of a use specified in section 101(a)(2) of the Act is not necessarily less protective than a use specified in section 101(a)(2) of the Act. (WQSRR, FN 14).

Here, it is clear that Rule 2.3(E) is a smaller subdivision of the Fish and Wildlife Classification (Rule 2.3(D)) for the purpose of reducing variability. Specifically, Rule 2.3(E) states that "waters within this classification share the same water quality criteria as Fish and Wildlife waters with the exception of any modified criteria that have been established for a

[9] EPA Water Quality Standards Handbook, Ch. 2, S. 2.7.5.
[10] Uses specified in Section 101(a)(2) of the Federal Water Pollution Control Act ("Clean Water Act") refers to "to uses that provide for the protection and propagation of fish,[FN13] shellfish, and wildlife, and recreation in and on the water, as well as for the protection of human health when consuming fish, shellfish, and other aquatic life." WQSR, 52015).

waterbody or waterbody segment." Such language indicates that Rule 2.3(E) is intended as a subcategory Rule 2.3(D). Moreover, MDEQ has additionally proposed that the modified criterion designed to protect the Modified Fish and Wildlife classification is a "waterbody-specific criterion" which can only be adopted when "supported by findings of the respective waterbody's use attainability analysis in support of the designated use change." Rule 2.1(H)(15).

The revised WQS's requirement of a use attainability analysis ("UAA") for the adoption of modified criterion reflects EPA's regulations regarding a State's obligation to conduct a UAA a subcategory. 40 CFR 131.10(j)(2). Furthermore, an explicit description of Rule 2.3(E) as a subcategory ensures that the Modified Fish and Wildlife classification is clear to the state, stakeholders and the public. Moreover, other states which have incorporated modified or limited criteria for a designated use have expressly stated that the modified use is a subcategory. Louisiana's water quality standards include a limited aquatic life and wildlife designated use which resembles Rule 2.3(E). However, Louisiana has expressly classified that use as a "subcategory" of their Fish and Wildlife Propagation designated use. LAC 33:IX:1111(A).

III. MDEQ'S PROPOSED DRAINAGE WATERS USE CLASSIFICATION SHARES MANY OF THE ISSUES WITH THE PROPOSED MODIFIED FISH AND WILDLIFE USE CLASSIFICATION.

As with the proposed Modified Fish and Wildlife Use classification, MDEQ's proposed Drainage Waters use classification requires restrictions and clarity. First, MDEQ must make clear in this section that any downgrade to this use classification will require a UAA that demonstrates that the waters cannot meet its current designated use or one of the Clean Water Act 101(g) uses. It should also make clear that existing uses cannot be removed by downgrading to this classification. The current proposed language appears problematic in this regard, as it says: "Waters classified as Drainage Waters may contain a transient population of aquatic life

when there is suitable habitat for survival of aquatic life." Rule 2.3(F). Where there is suitable habitat for survival of aquatic life, and aquatic life do survive in these waters, then the full Fish and Wildlife classification may be an existing use and not removable. We note that, consistently with Commenters' concern in this regard, EPA suggested for this section that MDEQ "add[ ] information that the existing population will be protected." Aug. 7, 2020, EPA comments on MDEQ draft WQS (hereinafter "August 2020 EPA comments; attached as Exhibit C). MDEQ does not appear to have heeded EPA's advice.

MDEQ's proposed inclusion of industrial "cooling waters" as sample waters that may fit the Drainage Waters use classification appears inapt and is vague. Industries can obtain cooling water from any number of sources; MDEQ's language appears to leave open the possibility that simply because an industry uses a water as cooling water, it is appropriate to downgrade those waters and lower their protections with more lax water quality criteria. We note that EPA also recommended that "To insure that no waste assimilation is allowed in this class, we will recommend adding language to clarify that the industrial discharges of cooling water should not contain other pollutants." August 2020 EPA Comments at 54.

IV. CONCLUSION

Most of MDEQ's proposed changes appropriately track the language of EPA regulations, and the desire for flexibility to set standards specific to waterbodies that are exceptions to the typical situation is understandable. However, all of the proposed changes discussed herein appear broadly designed in a manner that would result in lowering protections for Mississippi waters; therefore, we urge MDEQ to pursue our recommendations in order to avoid misuse. The goal of Mississippi's water quality standards must be to achieve the full "fishable/swimmable" goals of the Clean Water Act, even if that attainment is years into the future and a methodology to

achieve them is not perfectly clear at this time. Once the use of a waterbody is downgraded, there are essentially no legal mechanisms in place to restore the quality of the water. Similarly, once a variance is granted under MDEQ's current language, it appears to be continuable into the foreseeable future so long as the issue is revisited every five years. Variances must have a clear final time limit, and more robust mechanisms must be included to ensure that progress is continually made toward the Clean Water Act's fishable/swimmable goals.

EXHIBIT
A

Refining MS's Water Body Classifications

MDEQ Internal Workgroup

9/24/2018

Background: Why are we here?

- Historically, MDEQ staff and stakeholders have expressed concerns regarding water bodies being incorrectly classified.
  - Examples that frequently come up: dredged streams or rivers, streams with control structures, urban or highly modified streams, flood control lakes, road side ditches, etc.
  - For these water bodies…what are the appropriate classifications? what are the appropriate expectations?
- Some concern that we also need a classification to provide more protection for some waters.
  - Examples include: reference water bodies used for IBI program, waters of higher value to stakeholders (Black Creek, Wolf River, Red Creek, etc.)

Why refine our classifications?

- Classifications establish our goals for a water body (assigned whether or not it is being attained)
- Water quality assessments determine attainment based on numeric and narrative criteria which are specified in the WQS for each classification
- Defining and adopting subcategories will allow us to tailor descriptions and criteria to better match site-specific conditions that we see in MS waters
- Appropriate classification provides more appropriate characteristics and/or appropriate restoration goals

Current MS Water Body Classifications

Fish and Wildlife

- E.coli - 30 day geometric mean of 126 per 100 mL; instantaneous cannot exceed 410 per 100 mL more than 10% of the time
- DO – daily average of 5.0 mg/L and instantaneous minimum of 4.0 mg/L
- pH – 6.0-9.0
- Temperature – daily max of 90 F
- Conductance -1000 micromhos/cm
- Dissolved solids – 750 mg/l monthly average or 1500 mg/l any time
- All toxic criteria apply

Public Water Supply

- Bacteria, DO, pH, Temperature same as Fish and Wildlife
- Chlorides – 230 mg/l
- Conductance – 500 micromhoms/cm
- Dissolved solids – 500 mg/l
- Threshold Odor – threshold number not to exceed 24 as a daily avg.
- Radioactive substances – 1000 piccuries per liter
- Barium, Fluroride, Lead, Nitrate Specific criteria

Recreation

- Same as Fish and Wildlife
- Plus for Coastal and Marine Waters – enterococci - 90 day geo mean of 35 per 100 mL; instantaneous cannot exceed 130 per 100 mL more than 10% of the time (during a 90 day period)

Shellfish Harvesting

- Same as Fish and Wildlife except for bacteria
- Fecal coliform MPN shall not exceed 14 per 100 ml, and not more than 10% of the samples shall exceed an MPN of 43 per 100 ml in certain areas.

Ephemeral

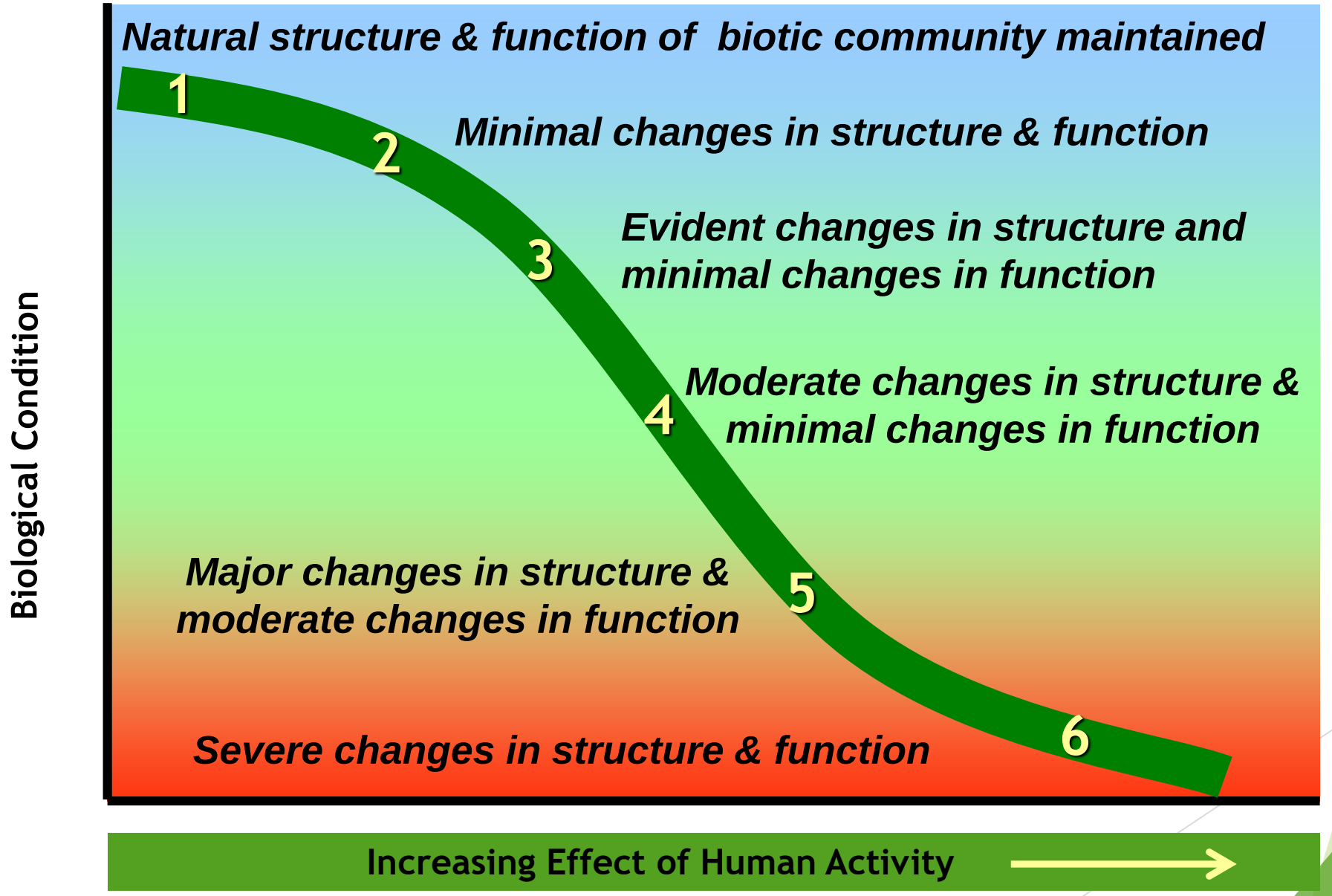
- “Minimum Conditions Applicable to All waters are applicable except as they relate to fish and other aquatic life.”

Fish and Wildlife Classification

- Fish and Wildlife
  - Default classification for all state waters
  - Must meet criteria requirements for
    - Aquatic Life Use
    - Fish Consumption
    - Secondary Contact Recreation

- A water body classified as Public Water Supply, Recreation, or Shellfish Harvesting shall meet not only the criteria to support its respective classification, but also shall meet the criteria to support the Fish and Wildlife classification.

Biological Gradient



Options for Consideration

- Aquatic Life Use
  - Current “Fish and Wildlife” classification
  - Default classification to support aquatic life ecosystem in all MS surface waters
- Modified Aquatic Life Use
  - This is a step below “Aquatic Life”
  - Water bodies that have been modified by humans and contain an altered aquatic life
- Agricultural Drainage Waters
  - Another option for highly modified waters that can not properly maintain aquatic life or a very limited aquatic life
  - Could address specific concerns related to Delta waters
    - Human created agricultural drainage ditches; including those with weirs
    - Water bodies that are routinely cleared and maintained for drainage
- Exceptional / Outstanding MS Waters
  - A step above “Aquatic Life” for waterbodies that have existing high quality waters, high ecological diversity, endangered species, recreational importance, etc.
  - Could be considered a Tier 2.5 for antidegration

Alabama

- Outstanding Alabama Water
  - “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…”
  - DO – 5.5 mg/l
  - Bacteria – geometric mean of 126 per 100 ml of E. coli never to exceed 235 per 100 ml
- Fish and Wildlife Water
  - Very similar to our current Fish and Wildlife use
  - DO – 5.0 mg/l
  - Bacteria – geometric mean of 548 per 100 ml of E. coli never to exceed 2,507 per 100 ml
- Limited Warmwater Fishery
  - Best usage of waters (May – November): agricultural irrigation, livestock watering, industrial cooling, and any other usage, except fishing, bathing, recreational activities, including water contact sports , or as a source of water supply for drinking or food-processing purposes.
  - DO – 3.0 mg/l
  - Bacteria same as Fish and Wildlife
- Agricultural and Industrial Water Supply
  - Best usage of waters: agricultural irrigation, livestock watering, industrial cooling, and any other usage, except fishing, bathing, recreational activities, including water contact sports , or as a source of water supply for drinking or food-processing purposes.
  - DO – 3.0 mg/l
  - Bacteria – geometric mean of 700 per 100 ml of E. coli never to exceed 3,200 per 100 ml

Kentucky

- Warm Water Aquatic Habitat
  - DO – 5.0 mg/L as a 24-hour avg.
- Cold Water Aquatic Habitat
  - DO – 6.0 mg/L as a 24- hour avg.
  - Temperature criteria differ as well
- Outstanding State Resource Waters
  - DO – 6.0 mg/L as a 24- hour avg.
  - Contains waters in the Kentucky Wild Rivers Act, Federal Wild and Scenic Rivers Act, waters supporting endangered or threatened species, and waters containing exceptional aesthetic or ecological value.
  - Could also include waters that support diverse or unique native aquatic flora or fauna, or an unusual and uncommon aquatic habitat

Florida

- Class I
  - Potable Water Supplies
- Class II
  - Shellfish Propagation or Harvesting
- Class III
  - Fish Consumption, Recreation, Propagation, and Maintenance of a Healthy, Well-Balanced Population of Fish and Wildlife
  - E. coli – geometric 126 per 100 ml
  - DO based on saturation values, differ from region to region
- Class III Limited
  - Fish Consumption, Recreation or Limited Recreation, and/or Propagation and Maintenance of a Limited Population of Fish and Wildlife
  - Criteria are the same except for any site specific alternative criteria
- Class IV
  - Agricultural Water Supply
  - Wholly artificial channels that are part of a water control system
  - DO – 4.0 in a 24 hour avg., never to exceed 3.0.
- Class V
  - Navigation, Utility and Industrial Use

Arkansas

- Extraordinary Resource Waters
  - Scenic beauty, aesthetics, scientific values, broad scope recreation potential and intangible social values.
- Ecologically Sensitive Waterbody
  - Identifies segments known to provide habitat within the existing range of threatened, endangered or endemic species of aquatic or semi-aquatic life forms.
- Natural and Scenic Waterways
  - Identifies segments which have been legislatively adopted into a state or federal system
- Primary Contact Recreation
  - All streams with watersheds of greater than 10 mi^2 and all lakes/reservoirs
- Secondary Contact Recreation- all waters
- Aquatic Life
  - Provides for the protection and propagation of fish, shellfish and other forms of aquatic biota
  - Further subdivided into: Trout ; Lakes and Reservoirs ; Streams (Broken into ecoregion)
- Domestic Water Supply
- Industrial Water Supply
  - Water will be protected for use as process or cooling water. Quality Criteria may vary with the specific type of process involved
- Agricultural Water Supply
  - Waters which will be protected for irrigation of crops and/or consumption by livestock
- Other Uses
  - Not dependent upon water quality, such as hydroelectric power generation and navigation

Arkansas Criteria

- Specific Criteria broken down by waterbody type; and streams broken further down into regions. Site Specific criteria for a number of waterbodies.
- Temperature (˚C) – 29-32 for streams ; 32 for lakes and Reservoirs ; 20 for Trout waters
- Turbidity (Base Flow Values NTU) – 10-75 for streams; 25 for lakes and reservoirs
- pH – Between 6.0 and 9.0 standard units
- DO – Streams Primary (mg/L) = 5-6 , Critical (mg/L) = 2-6 ; Lakes and Reservoirs = 5 mg/L
- Bacteria – Primary Contact (May 1 to September 30); Secondary contact (October 1 to April 30)

	Limit (col/100mL)			
	E. Coli		Fecal Coliform	
Primary Contact	Individual Sample	Geometric Mean	Individual Sample	Geometric Mean
Exceptional Waters, Lakes and Reservoirs	298	126	400	200
All Other Waters	410	-	400	200
Secondary Contact				
Exceptional Waters, Lakes and Reservoirs	1490	630	2000	1000
All Other Waters	2050	-	2000	1000

Ohio

- Ohio breaks their Aquatic Life Use into 8 tiered subcategories
  - Aquatic life
  - Exceptional Warm Water
  - Coldwater
  - Seasonal salmonid
  - Warm Water
  - Modified Warm Water
  - Limited Resource Water
  - Limited warm water
- Actual numeric values of fish and invertebrate IBIs for Warm water, Modified Warm water, and Exceptional Warm water by region.
- Cold, Seasonal Salmonid, Limited resource - different Ammonia, chlorine, cyanide, DO, pH, and temp values.

Implementation

- Defining Subcategories
- Developing Water Quality Criteria for each subcategory
  - Site-specific for each waterbody at this time
  - Can be narrative, numeric, or a combination
  - How do we handle Bacteria? Toxics?
- Moving a waterbody into an new subcategory may require a Use Attainability Analysis (UAA)
- All use revisions are a change to WQS and would require EPA approval

40 CFR 131.10(g) Factors

- Naturally occurring pollutant concentrations prevent the attainment of the use; or
- Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met; or
- Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place; or
- 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; or
- Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses; or
- Controls more stringent than those required by sections 301(b) and 306 of the Act would result in substantial and widespread economic and social impact.

EXHIBIT
B

To reclassify a waterbody, a Use Attainability Analysis (UAA) is required.
The UAA focuses on determining the potential attainable uses of a waterbody, or highest attainable use (HAU). As such, a UAA assesses the stressors limiting the potential uses and evaluates whether or not those stressors are controllable or can be remedied.

For reclassification that will result in less stringent criteria, one or more of the following conditions (often referred to as the 10(g) factors) must be met:

1. Naturally occurring pollutant concentrations prevent the attainment of the use; or
2. Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met; or
3. Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place; or
4. 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; or
5. Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses; or
6. Controls more stringent than those required by sections 301(b) and 306 of the Act would result in substantial and widespread economic and social impact.

MS Waterbody Classifications	EPA Recognized Designed Uses	Applicable Criteria	Potential 10(g) Factor(s)	Fishable/ Swimmable?	Requires Evaluation as part of every Triennial Review?
Outstanding MS Water	Aquatic Life Support Fish Consumption* Secondary Contact Recreation*	All criteria (narrative and numeric) that apply for Aquatic Life Support apply with the exception of any site-specific criteria developed and assigned to an individual waterbody. Waterbodies in this classification are also assigned to Tier 2.5 for antidegradation.		yes	No
Fish and Wildlife	Aquatic Life Support Fish Consumption* Secondary Contact Recreation*			yes	No
Modified Fish and Wildlife	Modified Aquatic Life Support Fish Consumption* Secondary Contact Recreation*	All criteria (narrative and numeric) that apply for Aquatic Life Support apply with the exception of any site-specific criteria developed and assigned to an individual waterbody. (Most likely that site-specific criteria developed would be for DO, pH, or temperature.)	3 4 5 6	yes – bacteria and toxic criteria all apply the same as a Fish and Wildlife water	No
Drainage Waters			3 4 5 6	?	?
Ephemeral			2	no	yes

*The designated uses of Fish Consumption and Secondary Contact Recreation for these waterbodies will not be affected. The criteria needed to support attainment of these uses will remain in the same for all waterbodies classified as Outstanding MS Waters, Fish and Wildlife, or Modified Fish and Wildlife.

EXHIBIT C

Part 6: Chapter 2: Mississippi Commission on Environmental Quality Regulations for Surface Water Quality Criteria for Intrastate, Interstate, and Coastal Waters
Adopted by the Mississippi Commission on Environmental Quality (February 25, 2016)
Approved by U.S. Environmental Protection Agency (January 18, 2017)
Revised for Triennial Review – Latest Revisions – June 22, 2020

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Rule 2.1 General Conditions Applicable to All Waters of the State:

A. Antidegradation: The policy inherent in these standards shall be to protect water quality existing at the time these water quality standards were adopted and to ~~upgrade~~ improve or enhance water quality within the State of Mississippi. Waters whose existing quality is better than the ~~established~~ standards and criteria established herein will be maintained at high quality unless the Commission finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located.

In no event, however, may degradation of water quality interfere with, or become injurious to, existing in-stream water uses. For the purposes of this rule, existing uses are defined as those uses actually attained in the waterbody on or after November 28, 1975, whether or not they are included within these water quality criteria. Further, in no case will water quality be degraded ~~below (or above)~~beyond the base levels set forth in these standards for the protection of the ~~beneficial~~ waterbody classifications and designated uses described herein. In addition, the State will assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control.

~~Where the Commission determines that high quality waters constitute an outstanding national resource, such as waters of National State Parks, Wildlife Refuges, and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.~~ When a Water of the State constitutes an exceptional state resource, this waterbody may be designated by the Commission as an Outstanding Mississippi Water (OMW). Discharges to OMWs shall be allowed as long as attainment of all existing uses

Commented [ZE1]: Are there relevant part of the permitting regs that should be reviewed?

Commented [ZE2R1]: Will review in the permit regs review.

Commented [ZE3]: How does the definition for waters of state differ from the definition of waters of the United States? If so, what are the differences?

Commented [k4]: This is not new language. It was moved up from the paragraph below for improved clarity.

Commented [ZE5R4]: The notes regarding relocation are very helpful.

Commented [PL6]: See comment in ONRWs below

is protected. When a Water of the State constitutes an outstanding national resource, this waterbody may be designated by the Commission as an Outstanding National Resource Water (ONRW). New or expanding discharges shall not be allowed into ONRWs. Outstanding state and national resource waters can include, but are not limited to, waters within national parks, state parks, or wildlife refuges, waters of exceptional ecological significance, or waters of high recreational or aesthetic value. ~~For the purposes of this rule, existing uses are defined 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 Criteria.~~

B. Sampling and Assessment: The limiting values of water quality herein described shall be measured by the Commission in surface waters under consideration as determined by good environmental engineering and scientific practice and after consultation with affected parties. Samples shall be taken from points so distributed over the seasons of the year, time of day, and area and depth of the waters being studied ~~as to permit~~ to provide a realistic assessment of water quality. All sampling must be conducted in accordance with the appropriate MDEQ-approved Quality Management Plan (QMP), Quality Assurance Project Plan (QAPP), or its equivalent.

Water quality assessments are technical reviews of physical, chemical, bacteriological, biological, and/or toxicological data and information to determine the quality of the ~~state's~~ State's surface water resources. Monitoring data are ~~compared~~ evaluated against ~~to the~~ both narrative and numeric water quality criteria ~~in order to make decisions~~to ~~evaluate and~~ determine ~~on~~ if ~~whether~~ a waterbody is supporting or not supporting its classification(s)/designated use(s)~~uses~~. Water quality assessments regarding designated use attainment ~~will~~ are ~~be~~ conducted in accordance with the most recent version of *Mississippi's Consolidated Listing and Assessment Methodology* (CALM). All samples shall be collected and analyzed in accordance with the appropriate methodology specified in 40 CFR 136 and with the latest edition of *Standard Methods for the Examination of Water and Wastewater* or other methods acceptable to the Commission.

C. Waterbody Classifications, Designated Uses, and Attainment: Water quality standards define the water quality goals of each waterbody or portion thereof, in part, by designating the use or uses to be made of the water. States adopt water quality standards to protect public health or welfare, to enhance water quality, and to serve the purposes of the Federal Clean Water Act: (1) provide, wherever attainable, water quality for the protection and propagation of fish, shellfish, and wildlife, as well as, recreation in and on the water (fishable/swimmable) and (2) consider the use and value of State waters for public water supplies, protection and propagation of fish, shellfish and wildlife, recreation in and on the water, agriculture and industrial purposes, and navigation.

Commented [PL7]: I'm assuming MS plans to go with a "Tier 2.5" category, or at least somewhere in between regular Tier 2 and 3, here.

Let's chat about whether it needs more Tier 2 wording or maybe I'll find more in another section. Right now it isn't clear the requirements are equal or better than previous paragraph if that is what is intended.

Fed Regs:
Tier 2 language: Where the quality of the waters exceeds levels necessary to support…that quality shall be maintained and protected unless..[intergovernmental…]…In allowing such degradation or lower water quality, the State shall assure water quality adequate to protect existing uses fully…[stat and reg for point sources and BMPs]

Tier 3 language: Where high quality waters constitute an outstanding National….that water quality shall be maintained and protected.

Commented [ZE8]: You may want to consider making two paragraphs here. One for ONRWs and one for OMWs.

Commented [PL9]: Why use this phrase instead of "high quality water"? I can't think of how these two things would be different right now, so it is mostly just a choice in words question relative to the 131 text. Or is it more inclusive because it is any water regardless of water quality?

Commented [PL10]: WQS handbook:

EPA interprets this provision to mean no new or increased discharges to ONRWs and no new or increased discharge to tributaries to ONRWs that would result in lower water quality in the ONRWs. The only exception to this prohibition, as discussed in the preamble to the Water Quality Standards Regulation (48 F.R. 51402), permits States to allow some limited activities that result in temporary and short-term changes in the water quality of ONRW. Such activities must not permanently degrade water quality or result in water quality lower than that necessary to protect the existing uses in the ONRW… intent of EPA's provision clearly is to limit water quality degradation to the shortest possible time. …During any period of time when, after opportunity for public participation in the decision, the State allows temporary degradat ... [1]

Commented [ZE11]: Is this the same as Outstanding Mississippi Resource Water? If so, to avoid confusion you may want uses Mississippi instead of state.

Commented [k12]: This text was not removed. This language was moved to a paragraph above.

Commented [ZE13]: Since the term "fishable/swimmable" does not appear in 101(a)(2) or 40 CFR Part 131, we suggest that MDEQ consider removing the term from this section.

Commented [PL14]: Added to match 131.10a more closely

The State of Mississippi assigns one or more waterbody classifications to all Waters of the State. Each waterbody classification has one or more corresponding designated uses. A waterbody, or a specific waterbody segment, may be assigned multiple waterbody classifications. When multiple classifications are assigned to a waterbody, the State must ensure protection of the most sensitive use. The State must also protect water quality and the attainment of designated uses within downstream waters. In no case shall it be permissible to deposit or introduce materials into Waters of the State that will cause impairment of the reasonable or legitimate use of said waters.

Certain ~~waters~~ Waters of the State may not fall within desired or prescribed limitations as outlined within these water quality standards. In such instances, the Commission may authorize exceptions or alternatives to these ~~limits~~criteria as described in more detail within Rule 2.5 Implementation of Water Quality Standards.~~, under the following conditions:~~

~~(1) the designated use is not attainable because of natural background conditions; or~~

~~(2) the designated use is not attainable because of irretrievable man-induced conditions; or~~

~~(3) the application of effluent limitations for existing point sources is more stringent than those required pursuant to Section 301(b)(2)(A) and (B) of the Federal Water Pollution Control Act of 1972, as amended, in order to attain the designated use, would result in substantial and widespread adverse economic and social impact.~~

~~In no case shall it be permissible to deposit or introduce materials into waters~~ Waters of the State that will cause impairment of the reasonable or legitimate use of said waters.

D. Natural Conditions: Natural conditions are defined as background water quality conditions due only to non-anthropogenic sources. The criteria herein apply specifically with regard to substances attributed to sources (permitted discharges, nonpoint sources, or in-stream activities) as opposed to natural phenomena. Some waterbodies may ~~naturally~~ have characteristics ~~outside~~ that are naturally outside the limits established ~~by~~ herein~~these criteria~~. Therefore, naturally occurring conditions that preclude attainment of these ~~fail to meet~~ criteria should not be interpreted as violations of ~~these~~ the criteria.

E. Criteria for New Materials: ~~In view of the fact that~~ Industries continue to~~industry is continuing to~~ produce new materials whose characteristics and effects are unknown at this time or for which ~~incomplete~~ national water quality ~~national~~ criteria recommendations have not been established.~~,~~ For ~~for~~ the purposes of setting water quality standards or permit limits on a case-by-case basis, ~~such~~ these new materials shall be evaluated on their merits as information becomes available to the Commission. Sources of information shall include, but not be limited to, the latest edition of *Quality Criteria for Water*, prepared by the U.S. Environmental Protection Agency (U.S. EPA) pursuant to Section 304(a) of the Federal Clean Water Act and Title XIV of the Federal Public Health Services Act: Safety of Public Water Systems (Safe Drinking Water Act).

Commented [PL15]: I would make this match more closely to fed reg

The State must also consider the water quality standards of downstream waters and ensure that its water quality standards provide for the attainment and maintenance of the water quality standards of downstream waters.

Commented [KC16]: This is not new language. It was moved up from the paragraph below for improved clarity.

Commented [ZE17]: We understand that this is not new language. However, If there is an opportunity to have MS clarify what "reasonable" or "legitimate" mean (or just replace with "designated") that would be ideal.

Commented [k18]: This text was not removed. This language was moved to a paragraph above.

Commented [ZE19]: You may want to consider adding information limiting the option of developing criteria based on natural conditions to criteria for the protection of aquatic life. The option is generally not available for the protection of human health. See: https://www.epa.gov/sites/production/files/2015-02/documents/natural-conditions-framework-2015.pdf

F. Applicable Flow: All criteria contained herein shall apply to all stages of stream flow greater than or equal to the 7-day, 10-year minimum flow (7Q10) in unregulated, natural streams, and the legally guaranteed minimum flow in regulated streams, unless otherwise provided in these regulations. This requirement shall not be interpreted to permit any unusual waste discharges during periods of lower flow. Notwithstanding the above, a stream flow equal to the 7-day, 2-year minimum flow (7Q2) in unregulated natural streams shall be utilized in establishing permit limitations for storm waterstormwater permits. In cases in which either (1) the data are indefinite or inconclusive, or (2) the 7-day, 2-year minimum flow and/or the 7-day, 10-year minimum flow are inappropriate because of the hydrology of the area, other appropriate State and federal agencies will be consulted in establishing the applicable stream flow.

G. Mississippi River: The Mississippi River is classified for Fish and Wildlife, but with the following additions to the criteria stated herein:

Mineral Constituents: Not to exceed the following concentrations at any time:

From Mississippi-Tennessee border to Vicksburg

Chlorides	60 mg/l
Sulfates	150 mg/l
TDS	425 mg/l

From Vicksburg south to the Mississippi-Louisiana border

Chlorides	75 mg/l
Sulfates	120 mg/l
TDS	400 mg/l

H. Mixing Zones: It is recognized that limited areas of mixing are sometimes unavoidable; however, mixing zones shall not be used as a substitute for waste treatment. Mixing zones constitute an area whereby physical mixing of a wastewater effluent with a receiving water bodywaterbody occurs. Application of mixing zones shall be made on a case-by-case basis and shall only occur in cases involving large surface water bodieswaterbodies in which a long distance or large area is required for the wastewater to completely mix with the receiving water bodywaterbody.

The location of a mixing zone shall not significantly alter the designated uses of the receiving water outside its established boundary. Adequate zones of passage for the migration and free movement of fish and other aquatic biota shall be maintained. Toxicity and human health concerns within the mixing zone shall be addressed as specified in the Environmental Protection Agency *Technical Support Document for Water Quality-Based Toxics Control* (EPA 505/2-90-001, March 1991) and amendments thereof. Under no

Commented [KC20]: This language has not been removed. Text was moved to new Section of WQS Implementation

Commented [ZE21R20]: Thank you for notes.

Commented [KC22]: This language was not removed. Language was moved to new Section for Waterbody-Specific Criteria.

~~circumstances shall mixing zones overlap or cover tributaries, nursery locations, locations of threatened or endangered species, or other ecologically sensitive areas.~~

F~~I~~. Water Contact Advisories:~~Coastal Recreational Waters:~~

Bacteria: According to 40 CFR 131.41(b), Coastal Recreational Waters are defined as marine coastal waters (including coastal estuaries) ~~and estuarine waters~~ that are suitable for recreational purposes, including but not limited to, such water contact activities as swimming, wading, and water skiing. Coastal recreational waters do not include inland waters or waters upstream ~~of~~ from the mouth of a river or a stream having a natural connection to the open sea. Water quality monitoring for bacteria ~~content~~ is conducted by MDEQ ~~on~~ within Coastal Recreational Waters ~~these waters~~ to protect the health of bathers. Water contact is discouraged on Mississippi's public access bathing beaches along the shoreline of Jackson, Harrison, and Hancock Counties when enterococci exceed 104 colonies per 100 ml. When enterococci counts exceed 104 per 100 ml at the public access beaches, water contact advisories are issued by Mississippi's Beach Monitoring Task Force.

Harmful Algae: Cyanobacteria, commonly referred to as blue-green algae, are naturally-occurring photosynthetic bacteria found in both freshwater and marine ecosystems. Under certain environmental conditions, cyanobacteria can rapidly multiply to form harmful algal blooms (HABs). As the cyanobacteria multiply, some of the cells can produce toxic compounds, known as cyanotoxins, which can be harmful to human and animal health. Microcystins and cylindrospermopsin are two types of toxins produced by cyanobacteria. When the microcystins concentration exceeds 8 µg/L or cylindrospermopsin concentration exceeds 15 µg/L, water contact advisories are issued.

G~~J~~. Definitions:

(1) Acute criterion or Criteria Maximum Concentration (CMC) is the highest concentration of a pollutant to which aquatic life can be exposed for a short period of time (1-hour average) without deleterious effects. (40 CFR 131.36)

(2) Best management practice (BMP) means a structural or non-structural management-based practice used singularly or in combination to reduce nonpoint source inputs to receiving waters in order to achieve water quality protection goals.

(3) Bioconcentration Factor (BCF) is defined as the ratio (in L/kg-tissue) of the concentration of a substance in tissue of an aquatic organism to its concentration in the ambient water, in situations where the organism is exposed through the water only and the ratio does not change substantially over time. (EPA-822-B-00-004)

(4) Biological integrity is defined as the ability of a system to support and maintain a balanced, integrated, and adaptive community of organisms having a composition, diversity, and functional organization comparable to that of natural habitats of the region.

Commented [KC23]: Move to Implementation Section

Commented [k24]: Waiting on feedback from Emily (FSD)

Commented [KC25]: Are there any definitions that should be added?

Commented [ZE26R25]: Suggest adding highest attainable use(s)

Commented [ZE27]: We will suggest adding a definition for modified criteria so that the term can be utilized for both of the two lower uses that have been added.

Commented [ZE28R27]: Modified criterion- A waterbody specific criterion adopted to protect either the Modified Fish, Aquatic Life, and Wildlife or Highly Modified Fish, Aquatic Life, and Wildlife designated use. The criterion should be supported by the findings of the respective waterbody's use attainability analysis in support of the designated use change and reflect the use of scientifically defensible methods. Following adoption of modified criteria into Rule 2.4, the state will submit the modified criteria for review and require action by the EPA before the modified criteria supersede the previously applicable criterion.

(5) Cancer Potency Factor (CPF) is a measure of the cancer-causing potency of a substance estimated by the upper 95 percent confidence limit of the slope of a straight line calculated by the Linearized Multistage Model according to the U.S. ~~Environmental Protection Agency~~EPA Guidelines (FR 51(185): 339992-34003, and FR 45(231 Part V); 79318-79379).

(6) Chronic Criterion or Criteria Continuous Concentration (CCC) is the highest concentration of a pollutant to which aquatic life can be exposed for an extended period of time (4 days) without deleterious effects. (40 CFR 131.36)

(7) Clean techniques refers to an integrated system of sample collection and laboratory analytical procedures designed to detect concentrations of trace metals below criteria levels and eliminate or minimize inadvertent sample contamination that can occur during traditional sampling practices.

(8) Composite sampling is a technique whereby multiple temporally or spatially discrete media or tissue samples are combined, thoroughly homogenized, and treated as a single sample.

(9) E. coli (*Escherichia coli*) is a common inhabitant of the intestinal tract of warm-blooded animals, and its presence in water samples is an indication of fecal pollution and the possible presence of enteric pathogens.

(10) Enteric pathogens are a species of bacteria can be highly pathogenic when they enter and colonize the human digestive tract.

(11) Grab samples are samples where the entire sample is collected in one uninterrupted interval.

(12) Mean Annual Flow is the total of daily mean flows for the full period of record divided by the total days for the full period of record.

(13) Membrane Filtration (MF) is a method of quantitative or qualitative analysis of bacterial or particulate matter in a water sample filtered through a membrane capable of retaining bacteria.

(14) Most probable number (MPN) is the most probable number of coliform-group organisms per unit volume of sample water.

(15) Point source is a stationary location or fixed facility from which pollutants are discharged or emitted. Also, any single identifiable source of pollution, e.g., a pipe, ditch, or ship.

(16) 7Q10 is the average streamflow rate over seven consecutive days that may be expected to be reached as an annual minimum no more frequently than one year in ten years.

(17) 7Q2 is the average streamflow rate over seven consecutive days that may be expected to be reached as an annual minimum no more frequently than one year in two years.

(18) Stratification is the formation of layers of water within a ~~water body~~waterbody that are of different densities. The density difference may be caused by variations of temperature, salinity, or concentrations of other dissolved substances within the water at different depths.

(19) Threshold odor number is the number of times a sample needs to be diluted with clean water in order to reach the level that smell is not detectable.

(20) Toxic substance means any substance or combination of substances (including disease-causing agents), which after discharge and upon exposure, ingestion, inhalation, or assimilation into any organism, whether directly from the environment or indirectly by ingestion through food chains, has the potential to cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions or suppression in reproduction or growth) or physical deformities in such organisms or their offspring.

Source: Miss. Code Ann. *§§ 49-2-1, et seq. and 49-17-1, et seq.*

Rule 2.2 Minimum Conditions Applicable to All Waters of the State:

A. Narrative Standards:

(1) Waters shall be free from substances attributable to municipal, industrial, agricultural, or other discharges that will settle to form putrescent or otherwise objectionable sludge deposits.

(2) Waters shall be free from floating debris, oil, scum, and other floating materials attributable to municipal, industrial, agricultural, or other discharges in amounts sufficient to be unsightly or deleterious.

(3) Waters shall be free from materials attributable to municipal, industrial, agricultural, or other discharges producing color, odor, taste, total suspended or dissolved solids, sediment, turbidity, or other conditions in such degree as to create a nuisance, render the waters injurious to public health, recreation, or to aquatic life and wildlife, or adversely affect the palatability of fish, aesthetic quality, or impair the waters for any designated use. Except as prohibited in Rule 2.1.H. above, the turbidity outside the limits of a 750-foot mixing zone shall not exceed the background turbidity at the time of discharge by more than 50 Nephelometric Turbidity Units (NTU). Exemptions to the turbidity standard may be granted under the following circumstances:

(a) in cases of emergency to protect the public health and welfare

(b) for environmental restoration projects which will result in reasonable and temporary deviations and which have been reviewed and approved by the Department of Environmental Quality.

(4) Waters shall be free from substances attributable to municipal, industrial, agricultural, or other discharges in concentrations or combinations that are toxic or harmful to humans, animals, or aquatic life. Specific requirements for toxicity are found in Rule 2.2.F.

(5) Municipal wastes, industrial wastes, or other wastes shall receive effective treatment or control in accordance with Section 301, 306, and 307 of the Federal Clean Water Act. A degree of treatment greater than defined in these sections may be required when necessary to protect legitimate water uses.

B. ~~Water Body~~Waterbody Classifications and Designated Uses: The State of Mississippi assigns one or more waterbody classifications to all Waters of the State. Each waterbody classification has one or more corresponding designated uses. The ~~State of Mississippi water body~~waterbody classifications and corresponding ~~U.S. EPA associated~~ designated uses ~~for water quality assessment purposes recognized by the State of Mississippi~~ are provided in Table 1. ~~as follows:~~All Waters of the State default to the Fish and Wildlife Classification. Some waterbodies may have more than one classification. Any waterbody

Commented [ZE29]: We suggest checking this reference.

Commented [ZE30]: You may want to consider using the term "designated" rather than "legitimate."

Commented [ZE31]: Is this repeating the same information in the first sentence?

classified as Public Water Supply, Recreation, or Shellfish Harvesting shall meet not only the criteria to support its respective classification, but also shall meet the criteria to support the Fish and Wildlife classification.

Table 1. Mississippi ~~Water Body~~Waterbody Classifications and Designated Uses

MS Waterbody Classifications	~~U.S. EPA Associated~~ Designated Uses
Fish and Wildlife	Aquatic Life Use* Fish Consumption* Secondary Contact Recreation
Recreation	Primary Contact Recreation*
Public Water Supply	Drinking Water Supply*
Shellfish Harvesting	Shellfish Consumption*
Modified Fish and Wildlife	Aquatic Life Use-Modified Fish Consumption* Secondary Contact Recreation
Drainage Waters	Aquatic Life Use-Drainage Waters Fish Consumption* Secondary Contact Recreation
Outstanding Mississippi Water	Aquatic Life Use* Fish Consumption* Secondary Contact Recreation

*Denotes U.S. EPA Designated Uses

~~A water body classified as Public Water Supply, Recreation, or Shellfish Harvesting shall meet not only the criteria to support its respective classification, but also shall meet the criteria to support the Fish and Wildlife classification.~~

C. Dissolved Oxygen: Dissolved oxygen concentrations shall be maintained at a daily average of not less than 5.0 mg/l with an instantaneous minimum of not less than 4.0 mg/l.

When possible, samples should be taken from ambient sites according to the following guidelines:

For ~~waters bodies~~ waterbodies that are not stratified, samples should be taken:

At mid-depth if the total water column depth is 10 feet or less.
At 5 feet from the water surface if the total water column depth is greater than 10 feet.

For waters that are stratified, samples should be taken:

At mid-depth of the epilimnion if the epilimnion depth is 10 feet or less.

Commented [k32]: This language is not new. Text was moved up from paragraph below the table for improved clarity.

Commented [ZE33]: It would be helpful to clarify the difference in uses and classifications by linking to the CWA uses rather than EPA uses.

Commented [KC34]: Text was not removed from document. Text moved up into paragraph above table for improved clarity.

At 5 feet from the water surface if the epilimnion depth is greater than 10 feet.

D. pH: The normal pH of the waters shall be 6.0 to 9.0. The discharge of waters or wastewaters shall not cause the pH to vary more than 1.0 unit within this range, nor be less than 6.0, nor be greater than 9.0. Variations may be allowed on a case-by-case basis if the Commission determines that there will be no detrimental effect on attainment of the ~~water body's~~waterbody's designated use(s) as a result of the ~~greater~~ larger pH change. In black water streams and in those watersheds with highly acidic soils, the pH may be lower than 6.0 due to natural conditions.

E. Temperature: The maximum water temperature increase above natural temperatures shall not exceed 5°F (2.8°C) in streams, lakes, and reservoirs, nor shall the maximum water temperature exceed 90°F (32.2°C), except that in the Tennessee River, the temperature shall not exceed 86°F (30°C). In lakes and reservoirs, there shall be no withdrawals from or discharge of heated waters to the hypolimnion unless it can be shown that such discharge will be beneficial to water quality.

In all waters, the normal daily and seasonal temperature variations that were present before the addition of artificial heat shall be maintained. The maximum water temperature shall not exceed 90°F (32.2°C) in coastal or estuarine waters. The discharge of any heated waste into any coastal or estuarine waters shall not raise temperatures more than 4°F (2.2°C) above natural background temperatures during the months of October through May nor more than 1.5°F (0.8°C) above natural background temperature during the months of June through September.

There shall be no thermal block to the migration of aquatic organisms. Requirements for zones of passage as referenced in Rule 2.1.H. shall apply. The general requirements of Rule 2.1.B. state that samples should be taken from points so distributed over the seasons of the year, time of day, and area and depth of the waters being studies as to permit a realistic assessment of water quality. Therefore, the temperature shall be measured during the environmentally critical period. In addition, temperature shall be measured at a depth of 5 feet in waters 10 feet or greater in depth; and for those waters less than 10 feet in depth, temperature criteria will be applied at mid-depth.

Commented [ZE35]: We suggest checking this reference.

In those specific cases where natural conditions elevate the temperatures in excess of the limits expressed herein, Rule 2.2.E. shall apply on a case-by-case basis. The discharge of any heated waters into a stream, lake, or reservoir shall not raise temperatures more than 5°F(2.8°C) above natural condition temperatures. The discharge of any heated waste into any coastal or estuarine waters shall not raise temperatures more than 4°F (2.2°C) above natural condition temperatures during the months of October through May nor more than 1.5°F (0.8°C) above natural condition temperatures during the months of June through September. This will also be considered on a case-by-case basis requiring evidence that the aquatic life of the ~~water body~~waterbody will not be adversely impacted by the elevated temperatures.

F. Toxic Substances:

(1) Aquatic Life and Human Health Standards

(a) Aquatic Life - The concentration of toxic substances in ~~State waters~~Waters of the State shall not result in chronic or acute toxicity or impairment of the uses of aquatic life. Toxicity concentrations in ~~State waters~~Waters of the State in excess of these values shown in Table 2 will be assessed to determine chronic or acute toxicity, and/or the impairment of the uses of aquatic life. Chronic and/or acute toxicity will be determined in accordance with the most recent version of the U.S. EPA's *Water Quality Standards Handbook~~: Second Edition~~* ~~(EPA-823-B-94-005a, August 1994)~~ and *Technical Support Document for Water Quality-Based Toxics Control* (EPA-505/2-90-001, March 1991). Regardless of the results of chronic or acute toxicity bioassay surveys, the concentrations of toxic substances shall not exceed the chronic or acute values, except as provided for in Rules 2.2.F.5(a) and 2.2.F.5(b).

(b) Human Health - The concentration of toxic substances shall not exceed the level necessary to protect human health through exposure routes of fish (and shellfish) tissue consumption, water consumption, or other routes identified as appropriate for the ~~water body~~waterbody.

(2) Numeric criteria for all waters are established herein for certain toxic pollutants for which the U.S. ~~Environmental Protection Agency~~EPA has published national criteria recommendations for the protection of aquatic life and human health pursuant to Section 304(a) of the Federal Clean Water Act in addition to chlorine and ammonia. The pollutants are listed in Table 2 and are expressed as the dissolved phase of the parameter.

(3) Ammonia toxicity shall be evaluated according to EPA guidelines published in *Aquatic Life Ambient Water Quality Criteria for Ammonia (Freshwater)-2013* (EPA-822-R-13-001) ~~*1999 Update of Ambient Water Quality Criteria for Ammonia; EPA document number EPA 822-R-99-014*~~ or *Ambient Water Quality Criteria for Ammonia (Saltwater)-1989*~~;~~ (EPA~~ document number~~ 440/5-88-004). ~~This material related to ammonia toxicity is hereby incorporated by reference including any subsequent amendments and editions.~~

Commented [ZE36]: We suggest checking the Publication No. for the document. It may be EPA-822-R018-002. There was error in the document referenced here and EPA has published the correction.

(4) Application of Numerical Criteria:

(a) When evaluating human health effects all waters must comply with the Organisms Only criteria except for waters classified as Public Water Supply and all stream segments within 50 stream miles upstream of a drinking water intake. Stream segments that are classified as Public Water Supply or

are within 50 miles upstream of a drinking water intake shall comply with the Water and Organisms criteria.

(b) When applying acute or chronic toxicity or human health criteria the following stream flows shall be used:

Acute Toxicity - 7Q10
Chronic Toxicity - 7Q10
Human Health - Mean Annual Flow

(c) Criteria for certain metals may be modified on a site-specific basis when a water effect ratio (WER) study is conducted in accordance with Rule 2.6.C.2.a. of Mississippi's *Wastewater Regulations for National Pollutant Discharge Elimination System (NPDES) Permits, Underground Injection Control (UIC) Permits, State Permits, Water Quality Based Effluent Limitations and Water Quality Certification,* Title 11, Part 6, Chapter 1. In these instances, the criterion for the specific metal in the affected ~~water body~~waterbody shall be equal to the criterion concentrations calculated using the following equations:

Commented [ZE37]: According to the information on the MDEQ website, the reference is Rule 1.2.6.C.2.a. See https://www.mdeq.ms.gov/wp-content/uploads/2017/06/11-Miss.-Admin.-Code-Pt.-6-Ch.-1..pdf

Commented [KC38]: Check this reference against updated Permitting Regs

~~and~~

CMC = WER * Acute
CCC = WER * Chronic

Where: CCC = Criteria Continuous Concentration
CMC = Criteria Maximum Concentration
WER = Water Effects Ratio for a Specific Pollutant
Acute = Acute Criterion from Table 2
Chronic = Chronic Criterion from Table 2

When a WER study has not been conducted, the criterion listed in Table 2 of this regulation shall apply. ~~because the~~The value of the WER is presumed to equal one in the absence of data to indicate otherwise.

(5) Discharger-Specific Alternative Criteria:

(a) Existing Discharges

(1) The Commission may establish discharger-specific alternative criteria for existing discharges if all of the following conditions are satisfied:

(i) Discharge existed prior to December 1, 1988.

(ii) Discharger performs acute and/or chronic bioassays, ~~and~~ in-stream biological assessments, and other evaluations as deemed appropriate by the Commission.

(iii) The designated ~~use~~ uses of the waters ~~is~~ are maintained.

(2) All discharger-specific alternative criteria will be subject to Mississippi public participation requirements for revisions to water quality standards and will be subject to review by the U.S. ~~Environmental Protection Agency~~EPA.

(b) New Source Discharges

(1) The Commission may establish discharger-specific alternative criteria for new source discharges if the discharger can demonstrate that established State ~~Water~~ water ~~Quality~~ quality ~~Criteria~~ criteria are based on conditions not applicable to Mississippi such as, but not limited to, water quality criteria established based on the use of species not indigenous to Mississippi. The *Revised Deletion Process for the Site-Specific Recalculation Procedure for Aquatic Life Criteria* (EPA-823-R-13-001) should be applied for any revisions to the composition of the sensitive species distribution to better reflect the taxonomy of species within a specific waterbody or location.

(2) All ~~discharger~~ discharger-specific alternative criteria will be subject to Mississippi public participation requirements for revisions to water quality standards and will be subject to review by the U.S. ~~Environmental Protection Agency~~EPA.

(6) Toxic and Human Health Parameters for which ~~no~~ No State Numeric Criteria have been Established:

(a) For those toxic and human health parameters for which no State numeric criteria have been established, the Commission shall determine ~~permit limitations~~criteria using available references which shall include, but not be limited to, the latest version of U.S. EPA *Quality Criteria for Water* (Section 304(a)), Federal regulations under Section 307 of the Federal Clean Water Act, and Federal regulations under Title XIV of the Federal Public Health Services Act: Safety of Public Water Systems (Safe Drinking Water Act) ~~Section 1412 of the Public Health Service Act as amended by the Safe Drinking Act (Pub. 93-523)~~.

(b) The not to be exceeded value for criteria published in 1980 or the one hour average value for criteria published in 1985 or later shall be used as an acute

Commented [KC39]: Confirm that is language is consistent with any revisions to the MDEQ Permitting regs

Commented [KC40]: Added underline for emphasis

toxicity number for calculating effluent limitations, establishing Total Maximum Daily Loads (TMDLs), or reviewing ambient water quality data.

(c) The 24-hour average for criteria published in 1980 or the 4-day average for criteria published in 1985 or later shall be used as a chronic toxicity number for calculating effluent limitations, establishing TMDLs, or reviewing ambient water quality data.

(d) If metals concentrations for criteria are hardness-dependent, the chronic and acute concentrations shall be based ~~on 25 mg/l hardness if the ambient hardness is less than or equal to 25 mg/l. Concentrations shall be based~~ on the actual mixed in-stream hardness.

(e) If separate criteria are given for freshwater and saltwater, they shall be applied as appropriate.

(f) For non-carcinogens, these concentrations will be determined using a Reference Dose (RfD) as published by the U.S. ~~Environmental Protection Agency~~EPA pursuant to Section 304(a) of the Federal Water Pollution Act as amended unless a more recent RfD is issued by the U.S. ~~Environmental Protection Agency~~EPA as listed in the Integrated Risk Information System (IRIS) file, in which case the more recent value will be used.

Water quality standards or criteria used to calculate water quality-based effluent limitations (and for all other purposes of water quality criteria under Section 303(c) of the Federal Clean Water Act) to protect human health through the different exposure routes are determined as follows:

(1) Fish tissue consumption:

$$WQC = (RfD) \times [(Body\ Weight) / (FCR \times BCF)]$$

where: WQC = water quality criterion
RfD = reference dose
FCR = fish consumption rate (17.5 gm/person-day)
BCF = bioconcentration factor

BCF values are based on U.S. ~~Environmental Protection Agency~~EPA publications pursuant to Section 304(a) of the Federal Clean Water Act. FCR values are average consumption rates for a 70 kg adult for a lifetime of the population; alternative FCR values may be used when it is considered necessary to protect localized populations which may be consuming fish at a higher rate.

Commented [KC41]: Added underline for clarity

Commented [KC42]: Discuss with Permitting if there is language in permitting regs that states what the assumed hardness value is if we do not have site specific data. This 25 mg/l hardness reference was based on older calculations and is no longer current.

(2) Water consumption and fish tissue consumption:

$$WQC = (RfD) \times [(Body\ Weight) / (WCR + (FCR \times BCF))]$$

where: WQC = water quality criterion
RfD = reference dose
FCR = fish consumption rate (17.5 gm/person-day)
BCF = bioconcentration factor
WCR = water consumption rate (~~assumed to be~~ 2 liters/day for adults)

The equations listed in this subparagraph will be used to develop water quality criteria or standards on a case-by-case basis for toxic substances that are not presently included in the water quality standards.~~-~~ Alternative FCR values may be used when it is considered necessary to protect localized populations that may be consuming fish at a higher rate.

(g) For carcinogens, the concentrations of toxic substances will not result in unacceptable health risk and will be based on a Cancer Potency Factor (CPF). An unacceptable health risk for cancer will be considered to be more than one additional case of cancer per one million people exposed (10^{-6} risk level).

Water quality standards or criteria used to calculate water quality-based effluent limitations (and for all other purposes of water quality criteria under Section 303(c) of the Federal Clean Water Act) to protect human health through the different exposure routes are determined as follows:

(1) Fish tissue consumption:

$$WQC = (Risk) \times [(Body\ Weight) / (CPF \times (FCR \times BCF))]$$

where: WQC = water quality criterion
Risk = risk factor (10)
CPF = cancer potency factor
FCR = fish consumption rate (17.5 gm/person-day)
BCF = bioconcentration factor

BCF values are based on U.S. ~~Environmental Protection Agency~~EPA publications pursuant to Section 304(a) of the Federal Clean Water Act.

FCR values are average consumption rates for a 70 kg adult for a lifetime of the population; alternative FCR values may be used when it is considered necessary to protect localized populations which may be consuming fish at a higher rate.

(2) Water consumption (including a correction for fish consumption):

$$WQC = (Risk) \times [(Body\ Weight) / (CPF \times (WCR + (FCR \times BCF)))]$$

where: WQC = water quality criterion
Risk = risk factor (10)
CPF = cancer potency factor
FCR = fish consumption rate (17.5 gm/person-day)
BCF = bioconcentration factor
WCR = water consumption rate (~~assumed to be~~ 2 liters/day for adults)

The equations listed in this subparagraph will be used to develop water criteria or standards on a case-by-case basis for toxic substances that are not presently included in the water quality standards. Alternative FCR values may be used when it is considered necessary to protect localized populations that may be consuming fish at a higher rate.

G. Numeric Criteria for All Waters of the State: Numeric water quality criteria for the protection of human health and aquatic life within all Waters of the State are provided in Table 2. These criteria shall be applied as described in above in Rule 2.2 (F). Additional details regarding the information provided in Table 2 are provided below.

Commented [ZE43]: We suggest reviewing these sentences.

Notes for Table 2. Numeric Criteria for All Waters of the State
~~TABLE 2 Notes~~

a The CMC = $1/[(f_1/CMC_1) + (f_2/CMC_2)]$ where f_1 and f_2 are the fractions of total selenium that are treated as selenite and selenate, respectively, and CMC_1 and CMC_2 are 185.9 µg/l and 12.83 µg/l. The value in the table is calculated assuming a worst case scenario in which all selenium is present as selenate.

b Hardness dependent parameter. Criteria are indicated at hardness of 50 mg/l as $CaCO_3$. Equations for criteria calculation of hardness dependent parameters can be found in *Quality Criteria for Water*. The equation is applicable for in-stream hardness ranges from 25 mg/l to 400 mg/l. If in-stream hardness is less than 25 mg/l, then a hardness value of 25 mg/l should be used to calculate the criteria. If in-stream hardness is greater than 400 mg/l, then a hardness of 400 mg/l should be used to calculate the criteria.

Commented [ZE44]: We suggest reviewing 2.2.F(6)(d) concerning the implementation of metals criteria.

c Criteria for pentachlorophenol are based on a pH dependent equation as found in *Quality Criteria for Water*. Values listed are for a pH of 7.0 s.u.

d Site specific criteria for Mississippi Sound.

e Parameter subject to water effects ratio equations where:
CMC = WER * Acute
CCC = WER * Chronic

f Ammonia criteria are dependent on pH, temperature, ~~and/or~~and salinity. See Rule 2.2 (F)(3) for more detail~~Section II.10.C~~.

g Expressed as µg free cyanide (as CN)/L.

h Refers to the inorganic form only.

i Applies to the sum of α and β isomers.

j Chemical Abstracts Service (CAS) registry numbers, which provide a unique identification for each chemical.

k This criterion applies to total PCBs (e.g., the sum of all congener or all isomer or homolog or Aroclor analyses).

Commented [k45]: No reference to this in the table now. Review previous WQS versions and track this down.

Commented [ZE46R45]: Could this be a WER?

TABLE 2
Numeric Criteria for All Waters of the State (µg/l)

CAS [j]	Parameter	Freshwater ~~Water~~		Saltwater ~~Water~~		Human Health	
		Acute	Chronic	Acute	Chronic	Organisms Only	Water & Organisms
107028	Acrolein	3	3				
309002	Aldrin	3.0		1.3		0.000050	0.000049
959988	alpha-Endosulfan	0.22 [i]	0.056 [i]	0.034 [i]	0.0087 [i]	89	62 [j]
7664417	Ammonia	[f]	[f]	[f]	[f]		
7440382	Arsenic (III), Total Dissolved	340 [e]	150 [e]	69	36		
7440382	Arsenic, Total Dissolved					24 [h]	0.078 [h]
33213659	beta-Endosulfan	0.22 [i]	0.056 [i]	0.034 [i]	0.0087 [i]	89 [j]	62
7440439	Cadmium, Total Dissolved	1.03 [b,e]	0.15 [b,e]	40	8.8	168	5
63252	Carbaryl	2.1	2.1	1.6			
57749	Chlordane	2.4	0.0043	0.09	0.004	0.00081	0.00080
16887006	Chloride	860000	230000				
7782505	Chlorine	19	11	13	7.5		
2921882	Chlorpyrifos	0.083	0.041	0.011	0.0056		
16065831	Chromium (III), Total Dissolved	323 [b,e]	42 [b,e]			140468	100
18540299	Chromium (Hex), Total Dissolved	16 [e]	11 [e]	1100	50	1470	98
7440508	Copper, Total Dissolved	7.0 [b,e]	5.0 [b,e]	4.8	3.1	1000	1300
57125	Cyanide	22.0 [g]	5.2 [g]	1.0 [g]	1.0 [g]	140	140
8065483	Demeton		0.1		0.1		
333415	Diazinon	0.17	0.17	0.82	0.82		
60571	Dieldrin	0.24	0.056	0.71	0.0019	0.000054	0.000052
1031078	Endosulfan Sulfate					89 [j]	62 [j]
72208	Endrin	0.086	0.036	0.037	0.0023	0.060	0.059
58899	gamma-BHC (Lindane)	0.95	0.08	0.16		1.8	0.98
86500	Guthion		0.01		0.01		

Commented [ZE47]: EPA has recommended a criterion of 33 µg/l for the acute criterion in salt water. https://www.epa.gov/wqc/aquatic-life-criteria-cadmium

Commented [ZE48]: Also, EPA has recommended a criterion of 7.9 https://www.epa.gov/wqc/aquatic-life-criteria-cadmium

Commented [KC49]: This value no longer given in EPA table

CAS [j]	Parameter	Freshwater ~~Water~~		Saltwater ~~Water~~		Human Health	
		Acute	Chronic	Acute	Chronic	Organisms Only	Water & Organisms
76448	Heptachlor	0.52	0.0038	0.053	0.0036	0.000079	00.00079
1024573	Heptachlor Epoxide	0.52	0.0038	0.053	0.0036		
7439896	Iron		1000				
7439921	Lead, Total Dissolved	30 [b,e]	1.18 [b,e]	210	8.1		15
121755	Malathion		0.1		0.1		
7439976	Mercury (II), Total Dissolved	2.1[e]	0.012	1.8	0.025		
7439976	Mercury					0.153	0.151
72435	Methoxychlor		0.3		0.3		
2385855	Mirex		0.001		0.001		
7440020	Nickel, Total Dissolved	260 [b,e]	29 [b,e]	75	8.3	4600	610
84852153	Nonylphenol	28	6.6	7	1.7		
56382	Parathion	0.065	0.013				
87865	Pentachlorophenol	8.7 [c]	6.7 [c]	13 [c]	7.9 [c]	3.0	0.27
108952	Phenol	300	102	300	58	860000	10000
	Polychlorinated Biphenys (Total PCBs)	0.02 [k]	0.014 [k]	1.0 [k]	0.03 [k]	0.000064 [k]	0.000064 [k]
7782492	Selenium, Total Dissolved	11.8 [a,e]	4.6 [e]	290 [e]	71 [e]	4200	170
7440224	Silver, Total Dissolved	0.98 [b,f]		1.9			100
7783064	Sulfide-Hydrogen Sulfide		2.0		2.0		
8001352	Toxaphene	0.73	0.0002	0.21	0.0002	0.00028	0.00028
	Tributyltin (TBT)	0.46	0.072	0.42	0.0074		
7440666	Zinc, Total Dissolved	65 [b,e]	65 [b,e]	90	81	26,000	7,400
1746016	2,3,7,8 TCDD (Dioxin)					51×10^{-9}	50×10^{-9}
50293	4,4 DDT	1.1	0.001	0.13	0.001	0.00022	0.00022

Commented [KC50]: Why is this e here? Look up.

Commented [ZE51]: The recommended criterion for chronic effects in fresh and salt water is 0.03µg/l. See https://www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table

Commented [KC52]: No longer have recommended values for Phenol in EPA Table

Commented [ZE53]: We suggest reviewing the spelling here. May need an "l".

Commented [KC54]: Value no longer in EPA table

Commented [KC55]: Value no longer in EPA table

Commented [ZE56]: EPA has published new criteria for selenium. We suggest that the State consider adopting the criteria to protect all state waters.

Source: Miss. Code Ann. *§§ 49-2-9, 49-2-1, et seq., and 49-17-1, et seq.*

Rule 2.3 ~~Specific Water Quality Criteria:~~ Waterbody Classifications and Related Water Quality Criteria:

A. PUBLIC WATER SUPPLY CLASSIFICATION:

Waters in this classification are a source of raw water supply for drinking and food processing purposes. The water treatment process shall be approved by the Mississippi State Department of Health. The raw water supply shall be such that after the approved treatment process, it will satisfy the regulations established pursuant to Section 1412 of the Public Health Service Act as amended by the Safe Drinking Water Act (Pub. L. 93-523). Information regarding surface water intakes for Public Water Supply is provided in Table 3.

Commented [k57]: Check reference

Table 3. Mississippi Surface Water Intakes for Public Water Supply

~~Water Body~~Waterbody	Name	Location	Status
Bonita Reservoir	City of Meridian	Lauderdale County	Inactive
Long Creek Reservoir	City of Meridian	Lauderdale County	Inactive
Luxapallila Creek	Columbus Light and Water	Lowndes County	Inactive
Okatibbee Reservoir	Pat Harrison Waterway District	Lauderdale County	Inactive
Pascagoula River	Jackson County Port Authority	Jackson County	Active
Pickwick Lake (Yellow Creek Embayment)	Short Coleman Park Water Association	Tishomingo County	Inactive
Ross Barnett Reservoir Pearl River	City of Jackson	Hinds County	Active
Tenn-Tom Waterway	City of Corinth Gas and Water Department	Tishomingo County	Active
Tombigbee River	NE MS Regional Water Supply District	Itawamba County	Active

Waters that meet the Public Water Supply criteria shall also be suitable for secondary contact recreation. Secondary contact recreation is defined as incidental contact with the water during activities such as wading, fishing, and boating, that are not likely to result in full body immersion. In considering the acceptability of a proposed site for disposal of bacteria latent wastewater in or near waters with the public water supply classification, the Permit Board shall consider the relative proximity of the discharge to water supply intakes.

Commented [ZE58]: What is "bacteria latent wastewater"?

(1) Bacteria: Culturable e.coli shall not exceed a geometric mean of 126 per 100 ml over a 30-day period, nor shall the samples examined during a 30-day period exceed 410 per 100 ml more than 10% of the time. There should be a minimum of 5 samples taken over a 30-day period with no less than 12 hours between individual samples.

(2) Chlorides (Cl): There shall be no substances added which will cause the chloride content to exceed 230 mg/l in freshwater streams.

(3) Specific Conductance: There shall be no substances added to increase the conductivity above 500 micromhos/cm for freshwater streams.

(4) Dissolved Solids: There shall be no substances added to the waters that will cause the dissolved solids to exceed 500 mg/l for freshwater streams.

(5) Threshold Odor: There shall be no substances added which will cause the threshold odor number to exceed 24 (at 60°C) as a daily average.

(6) Radioactive Substances: There shall be no radioactive substances added to the waters which will cause the gross beta activity (in the known absence of Strontium-90 and alpha emitters) to exceed 1000 picocuries per liter at any time.

(7) Specific Chemical Constituents: In addition to the provisions in Section II.4. and 10., the following concentrations (dissolved) shall not be exceeded at any time:

Constituent	Concentration (mg/l)
Barium	2.0
Fluoride	2.0
Lead	0.015
Nitrate (as N)	10.0

B. SHELLFISH HARVESTING CLASSIFICATION

Waters in this classification are for propagation and harvesting shellfish for sale or use as a food product. These waters shall meet the requirements set forth in the latest edition of the *National Shellfish Sanitation Program, Manual of Operations, Part I, Sanitation of Shellfish Growing Areas*, as published by the U. S. Public Health Service. Waters that meet the Shellfish Harvesting ~~Area C~~criteria shall also be suitable for recreational purposes. In considering the acceptability of a proposed site for disposal of bacteria latent wastewater in or near waters with this classification, the Permit Board shall consider the relative proximity of the discharge to shellfish harvesting beds.

(1) Bacteria: The median fecal coliform MPN (Most Probable Number) of the water shall not exceed 14 per 100 ml, and not more than 10% of the samples shall ordinarily exceed an MPN of 43 per 100 ml in those portions or areas most probably exposed to fecal contamination during most unfavorable hydrographic and pollutive conditions.

C. RECREATION CLASSIFICATION:

Waters in this classification are to be suitable for recreational purposes, including such water contact activities as swimming and water skiing. In considering the acceptability of a proposed site for disposal of bacteria latent wastewater in or near waters with this

Commented [k59]: Check provisions referenced here

Commented [ZE60R59]: 2.2.A.4

Commented [KC61]: Do we need to update/revise this reference?

Commented [ZE62R61]: National Shellfish Sanitation Program (NSSP) Guide for the Control of Molluscan Shellfish, Section II as published by the U.S. Food and Drug Administration

Commented [ZE63R61]: Also, you want to check with MS shellfish program (Erik Broussard, MDMR) to see if Section II covers all of the information needed.

Commented [ZE64]: See earlier comment.

Commented [ZE65]: See earlier comment.

classification, the Permit Board shall consider the relative proximity of the discharge to areas of actual water contact activity.

(1) Bacteria: Culturable e.coli shall not exceed a geometric mean of 126 per 100 ml, nor shall the samples examined during a 30-day period exceed 410 per 100 ml more than 10% of the time. There should be a minimum of 5 samples taken over a 30-day period with no less than 12 hours between individual samples.

For both marine and estuarine coastal recreational waters, enterococci shall not exceed a 90-day geometric mean of 35 per 100 ml, nor shall the samples examined during a 90-day period exceed 130 per 100 ml more than 10% of the time. Coastal recreational waters do not include inland waters upstream of the mouth of a river or a stream having a natural connection to the open sea.

(2) Specific Conductance: There shall be no substances added to increase the conductivity above ~~1000~~ 750 micromhos/cm for freshwater streams.

Commented [KC66]: Correction

(3) Dissolved Solids: There shall be no substances added to the water to cause the dissolved solids to exceed ~~750~~ 1000 mg/l as a monthly average value, nor exceed 1500 mg/l at any time for freshwater streams.

Commented [KC67]: Correction

D. FISH AND WILDLIFE CLASSIFICATION:

Waters in this classification are intended for fishing and for propagation of fish, aquatic life, and wildlife. Waters that meet the Fish and Wildlife Criteria shall also be suitable for secondary contact recreation. Secondary contact recreation is defined as incidental contact with the water during activities such as wading, fishing, and boating, that are not likely to result in full body immersion.

Commented [ZE68]: We suggest adding protection to be consistent with 40 CFR 131.10(a).

(1) Bacteria: Culturable e.coli shall not exceed a geometric mean of 126 per 100 ml over a 30-day period, nor shall the samples examined during a 30-day period exceed 410 per 100 ml more than 10% of the time. There should be a minimum of 5 samples taken over a 30-day period with no less than 12 hours between individual samples.

For marine and estuarine waters, enterococci shall not exceed a 90-day geometric mean of 35 per 100 ml, nor shall the samples examined during a 90-day period exceed 130 per 100 ml more than 10% of the time.

(2) Specific Conductance: There shall be no substances added to increase the conductivity above ~~1000~~ 750 micromhos/cm for freshwater streams.

Commented [KC69]: Correction

(3) Dissolved Solids: There shall be no substances added to the waters to cause the dissolved solids to exceed ~~750~~ 1000 mg/l as a monthly average value, nor exceed 1500 mg/l at any time for freshwater streams.

Commented [ZE70]: We recommend adding Total to Dissolved Solids.

Commented [KC71]: Correction

E. MODIFIED FISH AND WILDLIFE CLASSIFICATION:

Waters in this classification are intended to support water quality appropriate for a modified population of fish, aquatic life, and wildlife that are limited or substantially degraded due to alternations of the physical habitat, hydrology, or water quality based on one or more 40 CFR 131.10(g) factors. Waters within this classification share the same water quality criteria as Fish and Wildlife waters with the exception of any site-specific criteria (narrative or numeric) that have been established for a waterbody or waterbody segment. Waters that meet the Modified Fish and Wildlife criteria shall also be suitable for fish consumption and secondary contact recreation. Secondary contact recreation is defined as incidental contact with the water during activities such as wading, fishing, and boating, that are not likely to result in full body immersion. Waters classified as Modified Fish and Wildlife must also protect the attainment of all waterbody uses and associated criteria within downstream waters.

F. DRAINAGE WATERS

Waters within this classification are intended strictly for the drainage of agricultural lands, agricultural irrigation, livestock watering, industrial cooling, and process water supplies. Waters classified as Drainage Waters may contain a transient population of aquatic life when there is suitable habitat for survival of aquatic life. However, typical conditions within these waters are not adequate to support the reproductive cycles for fish and other aquatic life. Waters in this classification can include, but are not limited to, wholly artificial canals or ditches, waterbodies or ditches located behind or influenced by a control structure, or waters which are part of a water control or water management system. One or more of the 40 CFR 131.10(g) factors apply to waters in this class. Waters within this classification share the same water quality criteria as Fish and Wildlife waters with the exception of any site-specific criteria (narrative or numeric) that have been established for a waterbody or waterbody segment. Waters that meet the Drainage Waters criteria shall also be suitable for fish consumption and secondary contact recreation. Waters classified as Drainage Waters must also protect the attainment of all waterbody uses and associated criteria within downstream waters.

G. OUTSTANDING MISSISSIPPI WATER (OMW) CLASSIFICATION:

Waters in this classification are high quality waters that constitute an outstanding Mississippi resource. Waters within this classification can include, but are not limited to, waters within national parks, state parks, wildlife refuges, waters of exceptional ecological significance, or waters of high recreational or aesthetic value. Waters within this classification must meet the same water quality criteria as Fish and Wildlife waters with the exception of any site-specific alternative criteria that have been established to protect the outstanding features of the waterbody.

(1) Existing point source discharges into an Outstanding Mississippi Water shall be allowed.

(2) New point source discharges or expansions of existing point source discharges shall not be allowed into an Outstanding Mississippi Water unless the permit

Commented [PL72]: The only thing left to think about, now that I think these two paragraphs are reading well, is whether adding a line about secondary rec in both opens up the discussion. It is good to clarify what remains in place so maybe we can just talk it through.

Commented [ZE73]: We will suggest using "modified" to describe criteria because it emphasizes that it is different than the default criteria. See suggestion definition below.

Commented [ZE74]: Modified criterion- A waterbody specific criterion adopted to protect either the Modified Fish, Aquatic Life, and Wildlife or Highly Modified Fish, Aquatic Life, and Wildlife designated use. The criterion should be supported by the findings of the respective waterbody's use attainability analysis in support of the designated use change and reflect the use of scientifically defensible methods. Following adoption of modified criteria into Rule 2.4, the state will submit the modified criteria for review and require action by the EPA before the modified criteria supersede the previously applicable criterion.

Commented [ZE75]: Since the sentence is contained the Fish and Wildlife Use above, we suggest removing it here.

Commented [ZE76]: We suggest using "water quality standards" because in designating up stream water uses, they can't lead to a non-attainment of downstream antidegradation requirements either. So, we should suggest the deletion of "all waterbody uses and associated criteria" and adding "water quality standards"

Commented [ZE77]: We understand that the intent is to have something that is even more limited/impacted than the "Modified" classification above, perhaps something like "Highly Modif ... [2]

Commented [ZE78]: To insure that no waste assimilation is allowed in this class, we will recommend adding language to clarify that the industrial discharges of cooling water should ... [3]

Commented [ZE79]: We suggest using "or" rather than "and" here.

Commented [ZE80]: We suggest adding information that the existing population will be protected. The second sentence could be revised to indicate some use lower than regular modifie ... [4]

Commented [ZE81]: We suggest using "modified criteria" rather than site-specific criteria.

Commented [ZE82]: Again, we recommend using water quality standards rather than uses and criteria here.

Commented [PL83]: This language aligns with ONRW characterization at the beginning of the document/ ... [5]

Commented [ZE84]: We understand that the antidegradation requirements will be addressed in the antidegradation implementation procedures that are located in the permitting regs. Currently, t ... [6]

applicant has conducted a thorough evaluation of all practicable treatment and disposal alternatives and has demonstrated to the satisfaction of the Permit Board that there is no feasible alternative other than to discharge into the Outstanding Mississippi Water.

(3) Effluent limitations for new point source discharges or expansions of existing point source discharges to waters upstream of Outstanding Mississippi Waters shall be established by the Permit Board to be protective of the downstream Outstanding Mississippi Water.

(4) Toxics apply for protection of aquatic life and human health. Specific requirements for toxicity are found in Rule 2.2.F.

(5) Nonpoint source discharges shall use best management practices adequate to protect water quality consistent with the Department's nonpoint source program.

(6) All NPDES permits should incorporate or employ water pollution prevention or waste reduction measures.

Commented [ZE85]: We interpret Toxics to mean Toxics Criteria. If this is correct, we suggest adding "Criteria".

Commented [ZE86]: We recommend adding information that about making sure current dischargers are in compliance with regs additional to pollution prevention and waste reduction.

H. EPHEMERAL STREAM CLASSIFICATION:

Waters in this classification do not support a fisheries resource and are not usable for human consumption or aquatic life. Ephemeral streams normally are natural watercourses, including natural watercourses that have been modified by channelization or a manmade drainage ditch, that without the contribution of point source discharges, flow only in direct response to precipitation or irrigation return-water discharge in the immediate vicinity and whose channels are normally above the groundwater table. Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses. These streams may contain a transient population of aquatic life during the portion of the year when there is suitable habitat for fish survival. Normally, aquatic habitat in these streams is not adequate to support a reproductive cycle for fish and other aquatic life. Wetlands are excluded from this classification.

Waters in this classification shall be protective of wildlife and humans that may come in contact with the waters. Waters contained in ephemeral streams shall also allow maintenance of the standards applicable to all downstream waters.

(1) Provisions A, B, C, and E of Rule 2.2 (Minimum Conditions Applicable to All Waters: Narrative Standards) are applicable except as they relate to fish and other aquatic life. All aspects of provisions 2.2.A.4) and 2.2.F. concerning toxicity will apply to ephemeral streams, except for domestic or compatible domestic wastewater discharges which will be required to meet toxicity requirements in downstream waters not classified as ephemeral. Alternative methods may be utilized to determine the potential toxic effect of ammonia. Acutely toxic conditions are prohibited under any circumstances in waters in this classification.

(2) Dissolved Oxygen: The dissolved oxygen shall be maintained at an appropriate level to avoid nuisance conditions.

(3) Bacteria: The Permit Board may assign bacterial criteria where the probability of a public health hazard or other circumstances so warrant.

(4) Fisheries resource is defined as any waterbody which has a viable gamefish population as documented by the Mississippi Department of Wildlife Fisheries and Parks or has sufficient flow or physical characteristics to support the fishing use during times other than periods of flow after precipitation events or irrigation return water discharge.

(5) "Not usable for human consumption or aquatic life" means that sufficient flow or physical characteristics are not available to support these uses.

(6) "Flow only in response to precipitation or irrigation return water" means that without the influence of point source discharges the stream will be dry unless there has been recent rainfall or a discharge of irrigation return water.

(7) "Protective of wildlife and humans that may come in contact with the waters" means that toxic pollutants shall not be discharged in concentrations that will endanger wildlife or humans.

(8) "Nuisance conditions" means objectionable odors or aesthetic conditions that may generate complaints from the public.

Recommendations for assignment of the Ephemeral Stream classification shall be made to the Commission on Environmental Quality by the Permit Board after appropriate demonstration of physical and hydrological data. The Ephemeral Stream classification shall not be assigned where environmental circumstances are such that a nuisance or hazardous condition would result or public health is likely to be threatened. Alternate discharge points shall be investigated before the Ephemeral Stream classification is considered.

Source: Miss. Code Ann. *§§ 49-2-9, 49-2-1, et seq., and 49-17-1, et seq.*

Rule 2.4 Waterbody-Specific Water Quality Criteria:

A. Chlorides, Sulfates, and Total Dissolved Solids (TDS) in the Mississippi River:

The Mississippi River is classified as Fish and Wildlife. All water quality criteria for the Fish and Wildlife classification apply but with the following additions to the criteria stated herein:

Mineral Constituents: Not to exceed the following concentrations at any time:

From Mississippi-Tennessee border to Vicksburg

Chlorides	60 mg/l
Sulfates	150 mg/l
TDS	425 mg/l

From Vicksburg south to the Mississippi-Louisiana border

Chlorides	75 mg/l
Sulfates	120 mg/l
TDS	400 mg/l

B. Dissolved Oxygen in the Escatawpa River:

The Escatawpa River is located within Jackson County in southeast Mississippi. The waterbody is located within the Pascagoula River Basin is classified as Fish and Wildlife. Site-specific criteria for dissolved oxygen apply to a segment of the Escatawpa River from river mile 10 to its mouth at the Pascagoula River. The following dissolved oxygen standard is applicable for this segment:

Dissolved oxygen concentrations shall not be less than a daily average of 3.7 mg/l from May 1 through October 31. Additional information regarding the derivation and implementation of this criterion can be found in MDEQ the report titled, *A Site-Specific Dissolved Oxygen Criterion for the Escatawpa River: Criteria Derivation and Implementation.*

C. Selenium in Little Bywy Crrek, Middle Bywy Creek, and Big Bywy Ditch

Little Bywy Creek, Middle Bywy Creek, and Big Bywy Ditch are located within Choctaw and Montgomery Counties in central Mississippi. These waterbodies are located within the Big Black River Basin and are all classified as Fish and Wildlife. Site-specific criteria for selenium apply to the following waterbody segments:

Little Bywy Creek: From the headwaters to its mouth at Middle Bywy Creek
Middle Bywy Creek: From its headwaters to its mouth at Big Bywy Ditch
Big Bywy Ditch: From the confluence with Middle Bywy Creek to its mouth at the Big Black River

The following selenium criteria apply for the segments listed above:

Media Type	Fish Tissue		Water Column
Criterion Element	Egg/Ovary	Fish Whole Body or Muscle	Monthly Average Exposure
Magnitude	15.1 mg/kg (dry weight)	Whole body: 8.5 mg/kg (dry weight) or Muscle: 11.3 mg/kg (dry weight) (skinless, boneless fillet)	1.5 µg/L in lentic aquatic systems or 3.1 µg/L in lotic aquatic system
Duration	Instantaneous	Instantaneous	30 days
Frequency	Not to be exceeded	Not to be exceeded	Not more than once in three years on average

1. Fish tissue elements are expressed as steady-state.
2. Egg/Ovary supersedes any whole-body, muscle, or water column element when fish egg/ovary concentrations are measured.
3. Fish whole-body or muscle tissue supersedes water column element when both fish tissue and water concentrations are measured.
4. Water column values are based on dissolved total selenium in water and are derived from fish tissue values via bioaccumulation modeling. Water column values are the applicable criterion element in the absence of steady-state condition fish tissue data.
5. Fish tissue data provide instantaneous point measurements that reflect integrative accumulation of selenium over time and space in fish population(s) at a given site.

Commented [ZE87]: The state should protect all state waters by adopting selenium criteria for all state waters not just Little Bywy Creek, Middle Byway Creek and Big Byway Ditch.

Commented [ZE88]: Additional comments will be provided later.

Rule 2.5 Implementation of Water Quality Criteria :

According to 40 CFR §131.13, States may, at their discretion, include in their State standards, policies generally affecting their application and implementation, such as mixing zones, low flows and variances. Such policies are subject to EPA review and approval.

A. Natural Conditions: Natural conditions are defined as background water quality conditions due only to non-anthropogenic sources. The criteria herein apply specifically with regard to substances attributed to sources (permitted discharges, nonpoint sources, or in-stream activities) as opposed to natural phenomena. Some waterbodies may have characteristics that are naturally outside the limits established herein. Therefore, naturally occurring conditions that preclude attainment of these criteria should not be interpreted as violations of the criteria.

Commented [KC89]: This language is exact language repeated from an earlier section in these WQS since this language also directly relates to criteria implementation.

B. Applicable Flow: All criteria contained herein shall apply to all stages of stream flow greater than or equal to the 7-day, 10-year minimum flow (7Q10) in unregulated, natural streams, and the legally guaranteed minimum flow in regulated streams, unless otherwise provided in these regulations. This requirement shall not be interpreted to permit any unusual waste discharges during periods of lower flow.

Notwithstanding the above, a stream flow equal to the 7-day, 2-year minimum flow (7Q2) in unregulated, natural streams shall be utilized in establishing permit limitations for stormwater permits. In cases in which either (1) the data are indefinite or inconclusive, or (2) the 7-day, 2-year minimum flow and/or the 7-day, 10-year minimum flow are inappropriate because of the hydrology of the area, other appropriate State and federal agencies will be consulted in order to establishing the appropriate and applicable stream flow.

Commented [KC90]: This is not new language. This text was moved from an earlier section.

C. Mixing Zones: It is recognized that limited areas of mixing are sometimes unavoidable; however, mixing zones shall not be used as a substitute for waste treatment. Mixing zones constitute an area whereby physical mixing of a wastewater effluent with a receiving waterbody occurs. Application of mixing zones shall be made on a case-by-case basis and shall only occur in cases involving large surface waterbodies in which a long distance or large area is required for the wastewater to completely mix with the receiving waterbody.

The location of a mixing zone shall not significantly alter the designated uses of the receiving water outside its established boundary. Adequate zones of passage for the migration and free movement of fish and other aquatic biota shall be maintained. Toxicity and human health concerns within the mixing zone shall be addressed as specified in the U.S. EPA *Technical Support Document for Water Quality-Based Toxics Control* (EPA-505/2-90-001, March 1991) and amendments thereof. Under no circumstances shall mixing zones overlap or cover tributaries, nursery locations, locations of threatened or endangered species, or other ecologically sensitive areas.

Commented [KC91]: This is not new language. This text was moved from an earlier section.

D. Schedules of Compliance:
When appropriate, a state, UIC, or NPDES permit issued by the Permit Board pursuant to Rule 1.1.3.H may contain a schedule of compliance leading to compliance with the Federal Water Pollution Control Act and the Mississippi Air and Water Pollution Control Law.

Additional information and requirements regarding schedules of compliance can be found within ???

E. Water Quality Standards Variances:

As defined in 40 CFR §131.3(o), a water quality standards variance is a time-limited designated use and criterion for a specific pollutant(s) or water quality parameter(s) that reflect the highest attainable condition during the term of the variance. A water quality standards variance must meet certain provisions according to 40 CFR §131.14 and must meet certain public participation requirements within §131.20(b). A WQS variance is a water quality standard subject to EPA review and approval or disapproval.

(1) Applicability:

A WQS variance may be adopted for a permittee(s) or water body/waterbody segment(s), but only applies to the permittee(s) or water body/waterbody segment(s) specified in the WQS variance.

Where a State adopts a WQS variance, the State must retain, in its standards, the underlying designated use and criterion addressed by the WQS variance, unless the State adopts and EPA approves a revision to the underlying designated use and criterion consistent with §§131.10 and 131.11. All other applicable standards not specifically addressed by the WQS variance remain applicable.

A WQS variance, once adopted by the State and approved by EPA, shall be the applicable standard for purposes of the Act under §131.21(d) through (e), for the following limited purposes. An approved WQS variance applies for the purposes of developing NPDES permit limits and requirements under 301(b)(1)(C), where appropriate, consistent with paragraph (a)(1) of this section. States and other certifying entities may also use an approved WQS variance when issuing certifications under section 401 of the Act.

A State may not adopt WQS variances if the designated use and criterion addressed by the WQS variance can be achieved by implementing technology-based effluent limits required under sections 301(b) and 306 of the Act.

(2) Requirements for Submission to the Commission and to EPA:

A WQS variance must include:

(a) Identification of the pollutant(s) or water quality parameter(s), and the water body/waterbody segment(s) to which the WQS variance applies. Discharger(s)-specific WQS variances must also identify the permittee(s) subject to the WQS variance.

(b) The requirements that apply throughout the term of the WQS variance. The requirements shall represent the highest attainable condition of the water body or waterbody segment applicable throughout the term of the WQS variance ased on

Commented [KC92]: Insert reference to Permitting Regs

Commented [PL93R92]: Is the authorizing provision in MS permitting regs? Was it approved in the past or is a new provision needed in permit or WQS regs to meet new CSAP requirement of 131 regs?

Commented [ZE94]: Is the information in 1.1.4(A)(9)?

Commented [ZE95]: We suggest checking this reference.

the documentation required in (b)(2) of this section. The requirements shall not result in any lowering of the currently attained ambient water quality, unless a WQS variance is necessary for restoration activities, consistent with paragraph (b)(2)(i)(A)(*2*) of this section. The State must specify the highest attainable condition of the water body or waterbody segment as a quantifiable expression that is one of the following:

(i) For discharger(s)-specific WQS variances:

The highest attainable interim criterion; or

The interim effluent condition that reflects the greatest pollutant reduction achievable; or

If no additional feasible pollutant control technology can be identified, the interim criterion or interim effluent condition that reflects the greatest pollutant reduction achievable with the pollutant control technologies installed at the time the State adopts the WQS variance, and the adoption and implementation of a Pollutant Minimization Program.

(ii) For WQS variances applicable to a water body or waterbody segment:

The highest attainable interim use and interim criterion; or

If no additional feasible pollutant control technology can be identified, the interim use and interim criterion that reflect the greatest pollutant reduction achievable with the pollutant control technologies installed at the time the State adopts the WQS variance, and the adoption and implementation of a Pollutant Minimization Program.

(c) A statement providing that the requirements of the WQS variance are either the highest attainable condition identified at the time of the adoption of the WQS variance, or the highest attainable condition later identified during any reevaluation consistent with paragraph (b)(1)(v) of this section, whichever is more stringent.

(d) The term of the WQS variance, expressed as an interval of time fromthe date of EPA approval or a specific date. The term of the WQS variance must only be as long as necessary to achieve the highest attainable condition and consistent with the demonstration provided in paragraph (b)(2) of this section. The State may adopt a subsequent WQS variance consistent with this section.

(e) For a WQS variance with a term greater than five years, a specified frequency to reevaluate the highest attainable condition using all existing and readily available information and a provision specifying how the State intends to

Commented [ZE96]: Suggest checking this reference

Commented [ZE97]: Suggest checking this reference

Commented [ZE98]: Suggest checking this reference

Commented [ZE99]: Suggest checking this reference

obtain public input on the reevaluation. Such reevaluations must occur no less frequently than every five years after EPA approval of the WQS variance and the results of such reevaluation must be submitted to EPA within 30 days of completion of the reevaluation.

(f) A provision that the WQS variance will no longer be the applicable water quality standard for purposes of the Act if the State does not conduct a reevaluation consistent with the frequency specified in the WQS variance or the results are not submitted to EPA as required by (b)(1)(v) of this section.

Commented [ZE100]: Suggest checking this reference

The supporting documentation must include:

(a) Documentation demonstrating the need for a WQS variance.

For a WQS variance to a use specified in section 101(a)(2) of the Act or a sub-category of such a use, the State must demonstrate that attaining the designated use and criterion is not feasible throughout the term of the WQS variance because:

One of the factors listed in §131.10(g) is met, or

Actions necessary to facilitate lake, wetland, or stream restoration through dam removal or other significant reconfiguration activities preclude attainment of the designated use and criterion while the actions are being implemented.

For a WQS variance to a non-101(a)(2) use, the State must submit documentation justifying how its consideration of the use and value of the water for those uses listed in §131.10(a) appropriately supports the WQS variance and term. A demonstration consistent with paragraph (b)(2)(i)(A) of this section may be used to satisfy this requirement.

Commented [ZE101]: Suggest checking this reference

(b) Documentation demonstrating that the term of the WQS variance is only as long as necessary to achieve the highest attainable condition. Such documentation must justify the term of the WQS variance by describing the pollutant control activities to achieve the highest attainable condition, including those activities identified through a Pollutant Minimization Program, which serve as milestones for the WQS variance.

(c) In addition, for a WQS variance that applies to a waterbody or waterbody segment:

Identification and documentation of any cost-effective and reasonable best management practices for nonpoint source controls related to the pollutant(s) or water quality parameter(s) and water body or waterbody segment(s) specified in the WQS variance that could be implemented to make progress towards attaining the underlying designated use and

criterion. A State must provide public notice and comment for any such documentation.

Any subsequent WQS variance for a water body or waterbody segment must include documentation of whether and to what extent best management practices for nonpoint source controls were implemented to address the pollutant(s) or water quality parameter(s) subject to the WQS variance and the water quality progress achieved.

(3) Implementing WQS variances in NPDES permits.

A WQS variance serves as the applicable water quality standard for implementing NPDES permitting requirements pursuant to §122.44(d) of this chapter for the term of the WQS variance. Any limitations and requirements necessary to implement the WQS variance shall be included as enforceable conditions of the NPDES permit for the permittee(s) subject to the WQS variance.

F. Designation of Uses and Use Attainability Analyses:

According to 40 CFR §131.10 (a), each State must specify appropriate water uses to be achieved and protected. The classification of the waters of the State must take into consideration the use and value of water for public water supplies, protection and propagation of fish, shellfish and wildlife, recreation in and on the water, agricultural, industrial, and other purposes including navigation. If adopting new or revised designated uses other than the uses specified in section 101(a)(2) of the Act, or removing designated uses, States must submit documentation justifying how their consideration of the use and value of water for those uses listed in this paragraph appropriately supports the State's action. A use attainability analysis may be used to satisfy this requirement. In no case shall a State adopt waste transport or waste assimilation as a designated use for any waters of the United States.

In designating uses of a water body and the appropriate criteria for those uses, the State shall take into consideration the water quality standards of downstream waters and shall ensure that its water quality standards provide for the attainment and maintenance of the water quality standards of downstream waters.

States may adopt sub-categories of a use and set the appropriate criteria to reflect varying needs of such sub-categories of uses, for instance, to differentiate between cold water and warm water fisheries.

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

States may adopt seasonal uses as an alternative to reclassifying a water body or segment thereof to uses requiring less stringent water quality criteria. If seasonal uses are adopted, water quality criteria should be adjusted to reflect the seasonal uses, however, such criteria shall not preclude the attainment and maintenance of a more protective use in another season.

States may designate a use, or remove a use that is *not* an existing use, if the State conducts a use attainability analysis that demonstrates attaining the use is not feasible because of one of the six factors in this paragraph. If a State adopts a new or revised water quality standard based on a required use attainability analysis, the State shall also adopt the highest attainable use.

(1) Naturally o((ccurring pollutant concentrations prevent the attainment of the use; or

(2) Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met; or

(3) Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place; or

(4) 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; or

(5) Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses; or

(6) Controls more stringent than those required by sections 301(b) and 306 of the Act would result in substantial and widespread economic and social impact.

States may not remove designated uses if:

(1) They are existing uses, as defined in §131.3, unless a use requiring more stringent criteria is added; or

(2) Such uses will be attained by implementing effluent limits required under sections 301(b) and 306 of the Act and by implementing cost-effective and reasonable best management practices for nonpoint source control.

Where 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.

A State must conduct a use attainability analysis as described in §131.3(g), and paragraph (g) of this section, whenever:

(1) The State designates for the first time, or has previously designated for a water body, uses that do not include the uses specified in section 101(a)(2) of the Act; or

Commented [PL102]: Add definition of highest attainable use in the definitions section

Commented [PL103]: typo

Commented [ZE104]: Suggest reviewing this reference.

(2) The State wishes to remove a designated use that is specified in section 101(a)(2) of the Act, to remove a sub-category of such a use, or to designate a sub-category of such a use that requires criteria less stringent than previously applicable.

A State is not required to conduct a use attainability analysis whenever:

(1) The State designates for the first time, or has previously designated for a water body, uses that include the uses specified in section 101(a)(2) of the Act; or

(2) The State designates a sub-category of a use specified in section 101(a)(2) of the Act that requires criteria at least as stringent as previously applicable; or

(3) The State wishes to remove or revise a designated use that is a non-101(a)(2) use. In this instance, as required by paragraph (a) of this section, the State must submit documentation justifying how its consideration of the use and value of water for those uses listed in paragraph (a) appropriately supports the State's action, which may be satisfied through a use attainability analysis.

Commented [ZE105]: Suggest reviewing reference.

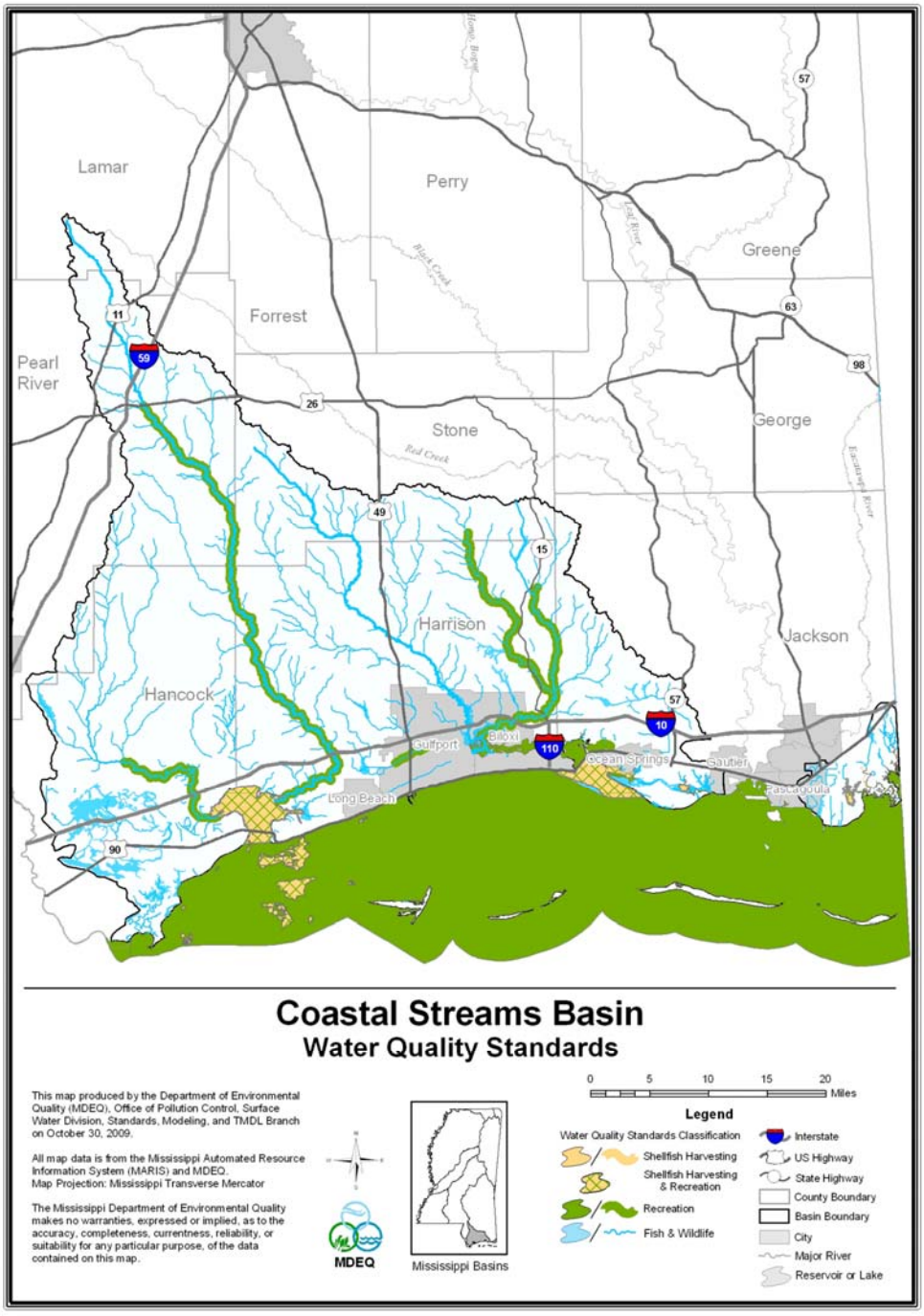
Commented [ZE106]: Suggest reviewing reference

~~*Rule 2.4 Water Body*~~*Waterbody* ~~*Classifications in State Waters:*~~*Rule 2.6 Waterbody Classifications for Waters of the State (Organized by River Basin)*

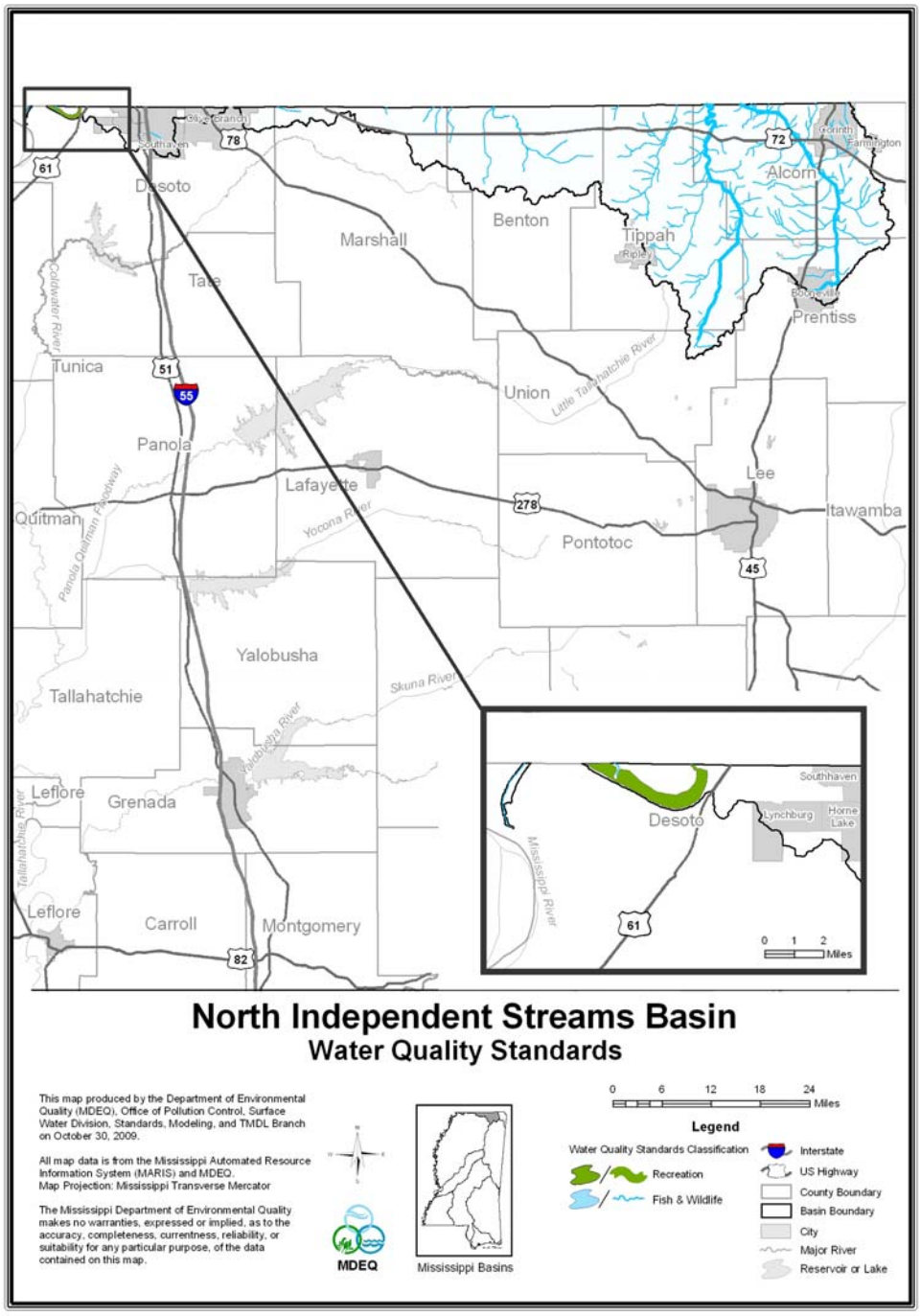
All ~~of the State waters~~Waters of the State not specifically listed below shall be classified as Fish and Wildlife. State waters carrying other classifications are:

Coastal Streams Basin		
Waters	**Location**	**Classification**
Back Bay of Biloxi	From Popps Ferry Bridge to Biloxi Bay	Recreation
Bangs Lake	From headwaters to the Mississippi Sound	Shellfish Harvesting
Bayou Cumbest	From headwaters to the Mississippi Sound	Shellfish Harvesting
Big Lake	From Bernard Bayou to the Popps Ferry Bridge	Recreation
Biloxi Bay	From Headwaters (US Hwy 90 Bridge) to the Mississippi Sound	Shellfish Harvesting Recreation
Buoy Beef	Mississippi Sound	Shellfish Harvesting Recreation
Davis Bayou	From headwaters to the Biloxi Bay	Shellfish Harvesting
Graveline Bay	From headwaters to Graveline Bayou	Shellfish Harvesting
Graveline Bayou	From Graveline Bay to the Mississippi Sound	Shellfish Harvesting
Jourdan River	From confluence of Bacon Bayou and Catahoula Creek to the St. Louis Bay	Recreation
Kittiwake Reed (Long Beach Reef)	Mississippi Sound	Shellfish Harvesting Recreation
Mallini Bayou	From St. Louis Bay to St. Louis Bay	Shellfish Harvesting
Mississippi Sound	Contiguous to Mississippi Coastline	Recreation
Old Fort Bayou	From Bayou Talla to Biloxi Bay	Recreation
Pass Christian Reef (off Henderson Point)	Mississippi Sound	Shellfish Harvesting Recreation
Pass Marianne Reef	Mississippi Sound	Shellfish Harvesting Recreation
Pelican Key Reef	Mississippi Sound	Shellfish Harvesting Recreation
Point Clear Shell Plant	Mississippi Sound	Shellfish Harvesting Recreation
St. Joe Reef (St. Joseph's Point Reef)	Mississippi Sound	Shellfish Harvesting Recreation
St. Louis Bay	Harrison and Hancock Counties	Shellfish Harvesting Recreation

Coastal Streams Basin		
Waters	**Location**	**Classification**
St. Stanislaus Reef	Mississippi Sound	Shellfish Harvesting Recreation
Tchoutacabouffa River	From headwaters to the Back Bay of Biloxi	Recreation
Telegraph Reef	Mississippi Sound	Shellfish Harvesting Recreation
Turkey Creek	From North Gulfport Eighth Grade to Bernard Bayou	Recreation
Tuxachanie Creek	From headwaters to the Tchoutacabouffa River	Recreation
Waveland Reef	Mississippi Sound	Shellfish Harvesting Recreation
Wolf River	From MS Hwy 26 to the St. Louis Bay	Recreation


Lamar
Perry
Greene
Forrest
Pearl River
Stone
George
Harrison
Jackson
Hancock
Gulfport
Biloxi
Ocean Springs
Gautier
Pascagoula
Long Beach
Coastal Streams Basin
Water Quality Standards
This map produced by the Department of Environmental Quality (MDEQ), Office of Pollution Control, Surface Water Division, Standards, Modeling, and TMDL Branch on October 30, 2009.
All map data is from the Mississippi Automated Resource Information System (MARIS) and MDEQ.
Map Projection: Mississippi Transverse Mercator
The Mississippi Department of Environmental Quality makes no warranties, expressed or implied, as to the accuracy, completeness, currentness, reliability, or suitability for any particular purpose, of the data contained on this map.
MDEQ
Mississippi Basins
0 5 10 15 20 Miles
Legend
Water Quality Standards Classification
Shellfish Harvesting
Shellfish Harvesting & Recreation
Recreation
Fish & Wildlife
Interstate
US Highway
State Highway
County Boundary
Basin Boundary
City
Major River
Reservoir or Lake

North Independent Streams Basin		
Waters	**Location**	**Classification**
Horn Lake	DeSoto County	Recreation


Desoto
Marshall
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Tippah
Alcorn
Prentiss
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Tunica
Union
Panola
Lafayette
Lee
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Quitman
Pontotoc
Yalobusha
Tallahatchie
Leflore
Grenada
Carroll
Montgomery
Coldwater River
Little Tallahatchie River
Yocona River
Skuna River
Yalobusha River
Tallahatchie River
Panola Quitman Floodway
Mississippi River
Southhaven
Lynchburg
Horne Lake
0 1 2 Miles
North Independent Streams Basin
Water Quality Standards
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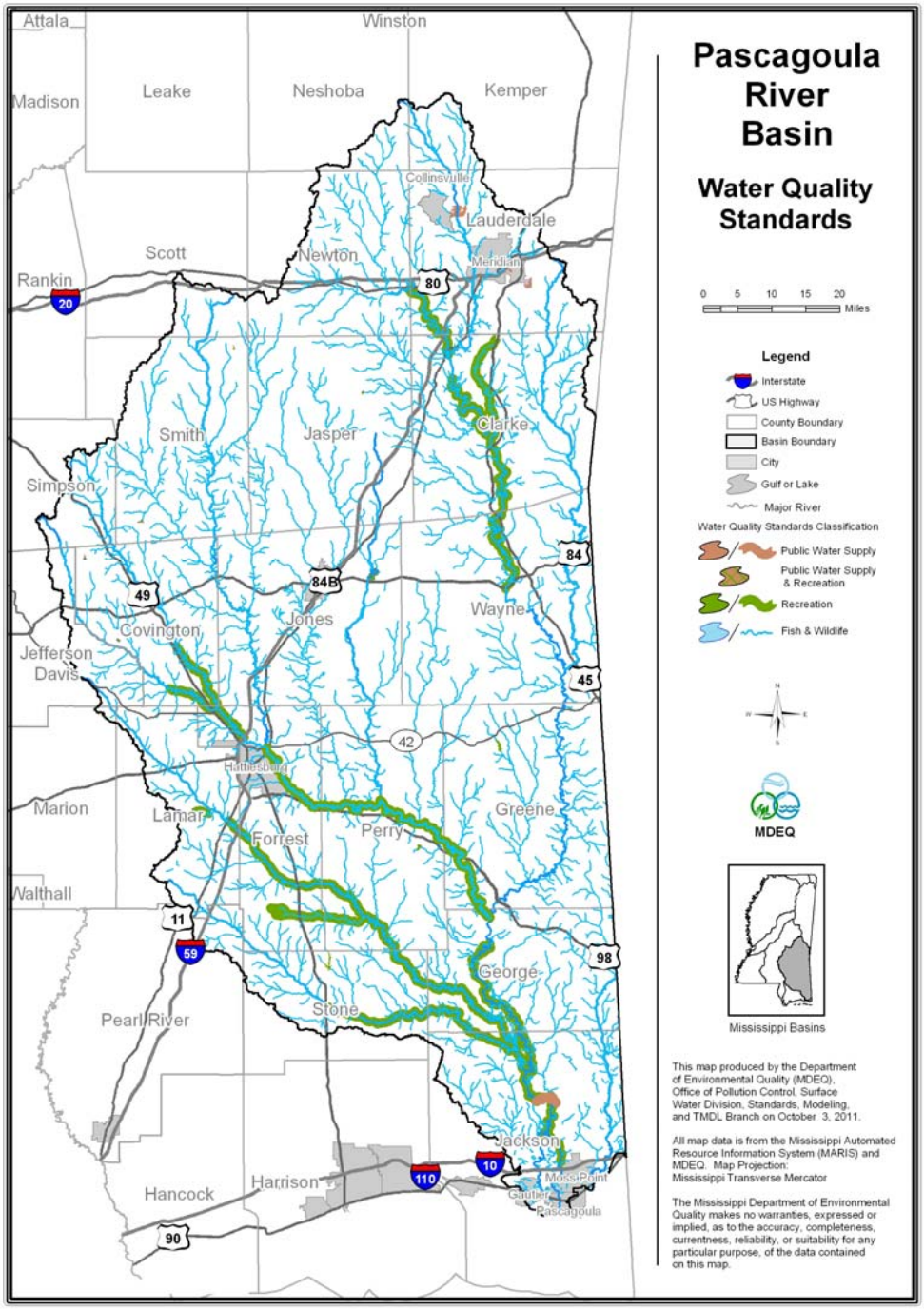
MDEQ
Mississippi Basins
0 6 12 18 24 Miles
Legend
Water Quality Standards Classification
Recreation
Fish & Wildlife
Interstate
US Highway
County Boundary
Basin Boundary
City
Major River
Reservoir or Lake

Pascagoula River Basin		
Waters	**Location**	**Classification**
Archusa Reservoir	Clarke County	Recreation
Beaverdam Creek	From headwaters in Perry and Forrest Counties to Black Creek	Recreation
Black Creek	From Hwy 11 to the Pascagoula River	Recreation
Bonita Reservoir	Lauderdale County	Public Water Supply
Bowie Creek	From MS Hwy 589 to the Bowie River	Recreation
Bowie River	From Bowie Creek to Interstate 59	Recreation
Chickasawhay River	From Stonewall to MS Hwy 84	Recreation
Chunky River	From US Hwy 80 to the Chickasawhay River	Recreation
Clarke State Park (Ivy Lake)	Clarke County	Recreation
Dry Creek Lake Site #3	Covington County	Recreation
Escatawpa River	From River Mile 10 to the Pascagoula River	Fish and Wildlife[1]
Flint Creek Reservoir	Stone County	Recreation
Lake Bogue Homa	Jones County	Recreation
Lake Claude Bennett	Jasper County	Recreation
Lake Geiger	Forrest County	Recreation
Lake Marathon	Smith County	Recreation
Lake Mike Conner	Covington County	Recreation
Lake Perry	Perry County	Recreation
Lake Ross Barnett	Smith County	Recreation
Lake Shongela	Smith County	Recreation
Lakeland Park Lake	Wayne County	Recreation
Leaf River	From Hwy 42 to the Chickasawhay River	Recreation
Long Creek Reservoir	Lauderdale County	Public Water Supply
Okatibbee Reservoir	Lauderdale County	Public Water Supply Recreation
Okatoma Creek	From Seminary (MS Hwy 590) to the Bowie River	Recreation
Pascagoula River	From 5 miles north of Cumbest Bluff to Cumbest Bluff	Public Water Supply
Pascagoula River	From 6 miles north of MS Hwy 26 (George County) to Smear Bayou (Jackson County)	Recreation
Red Creek	From US Hwy 49 to Big Black Creek	Recreation
Turkey Creek Reservoir	Greene County	Recreation

[1] The following dissolved oxygen standard is applicable for this segment: dissolved oxygen concentrations shall not be less than a daily average of 3.7 mg/l from May 1 through October 31. Additional information regarding the derivation and implementation of this criterion can be found in the report titled *A Site-Specific Dissolved Oxygen Criterion for the Escatawpa River: Criteria Derivation and Implementation.*


Attala
Winston
Madison
Leake
Neshoba
Kemper
Collinsville
Lauderdale
Meridian
Scott
Newton
Rankin
20
80
Smith
Jasper
Clarke
Simpson
84
84B
49
Jones
Wayne
Covington
Jefferson Davis
45
42
Hattiesburg
Marion
Lamar
Forrest
Perry
Greene
Walthall
11
59
98
George
Stone
Pearl River
Jackson
10
110
Harrison
Hancock
MossPoint
Gautier
Pascagoula
90
Pascagoula River Basin
Water Quality Standards
0 5 10 15 20
Miles
Legend
Interstate
US Highway
County Boundary
Basin Boundary
City
Gulf or Lake
Major River
Water Quality Standards Classification
Public Water Supply
Public Water Supply & Recreation
Recreation
Fish & Wildlife
MDEQ
Mississippi Basins
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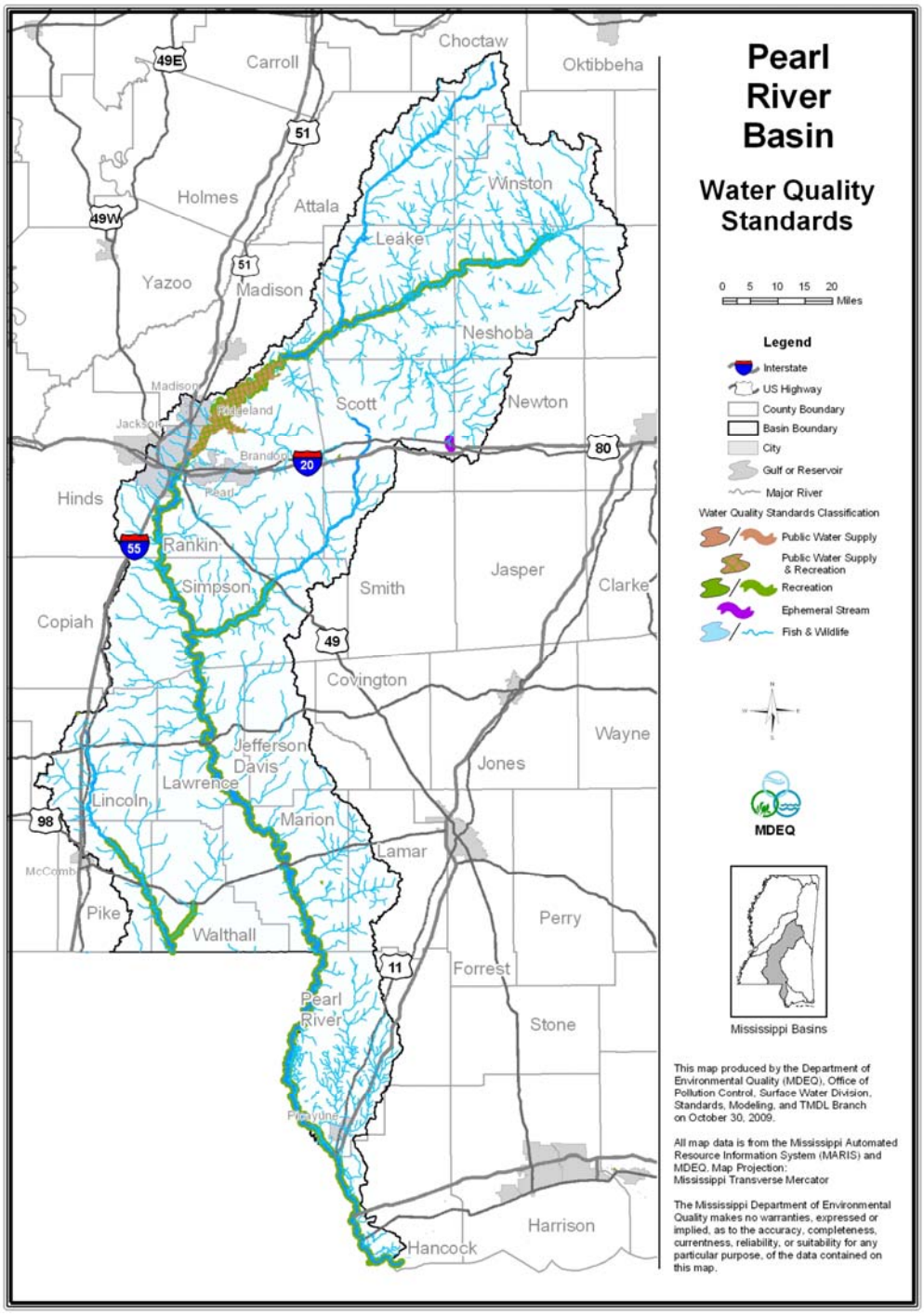
The Mississippi Department of Environmental Quality makes no warranties, expressed or implied, as to the accuracy, completeness, currentness, reliability, or suitability for any particular purpose, of the data contained on this map.

Pearl River Basin		
Waters	**Location**	**Classification**
Ross Barnett Reservoir	Madison and Rankin Counties	Recreation
Ross Barnett Reservoir	From River Bend to the Reservoir Dam	Public Water Supply
Bogue Chitto River	From MS Hwy 570 to the MS/LA State Line	Recreation
Lake Columbia	Marion County	Recreation
Lake Dixie Springs	Pike County	Recreation
Magees Creek	From US Hwy 98 to the Bogue Chitto River	Recreation
Pearl River	From Barnett Reservoir to the City of Jackson Water Intake	Public Water Supply
Pearl River (including Ross Barnett Reservoir)	From Hwy 16 near Edinburg to the Mississippi Sound	Recreation
Strong River	From US Hwy 49 to the Pearl River	Recreation
Shadow Lake (Roosevelt State Park)	Scott County	Recreation
Legion Lake	Simpson County	Recreation
Unnamed Drainage Ditch	From Lake POTW (MS0025194) to Warrior Branch	Ephemeral


Pearl River Basin
Water Quality Standards
0 5 10 15 20 Miles
Legend
Interstate
US Highway
County Boundary
Basin Boundary
City
Gulf or Reservoir
Major River
Water Quality Standards Classification
Public Water Supply
Public Water Supply & Recreation
Recreation
Ephemeral Stream
Fish & Wildlife
MDEQ
Mississippi Basins
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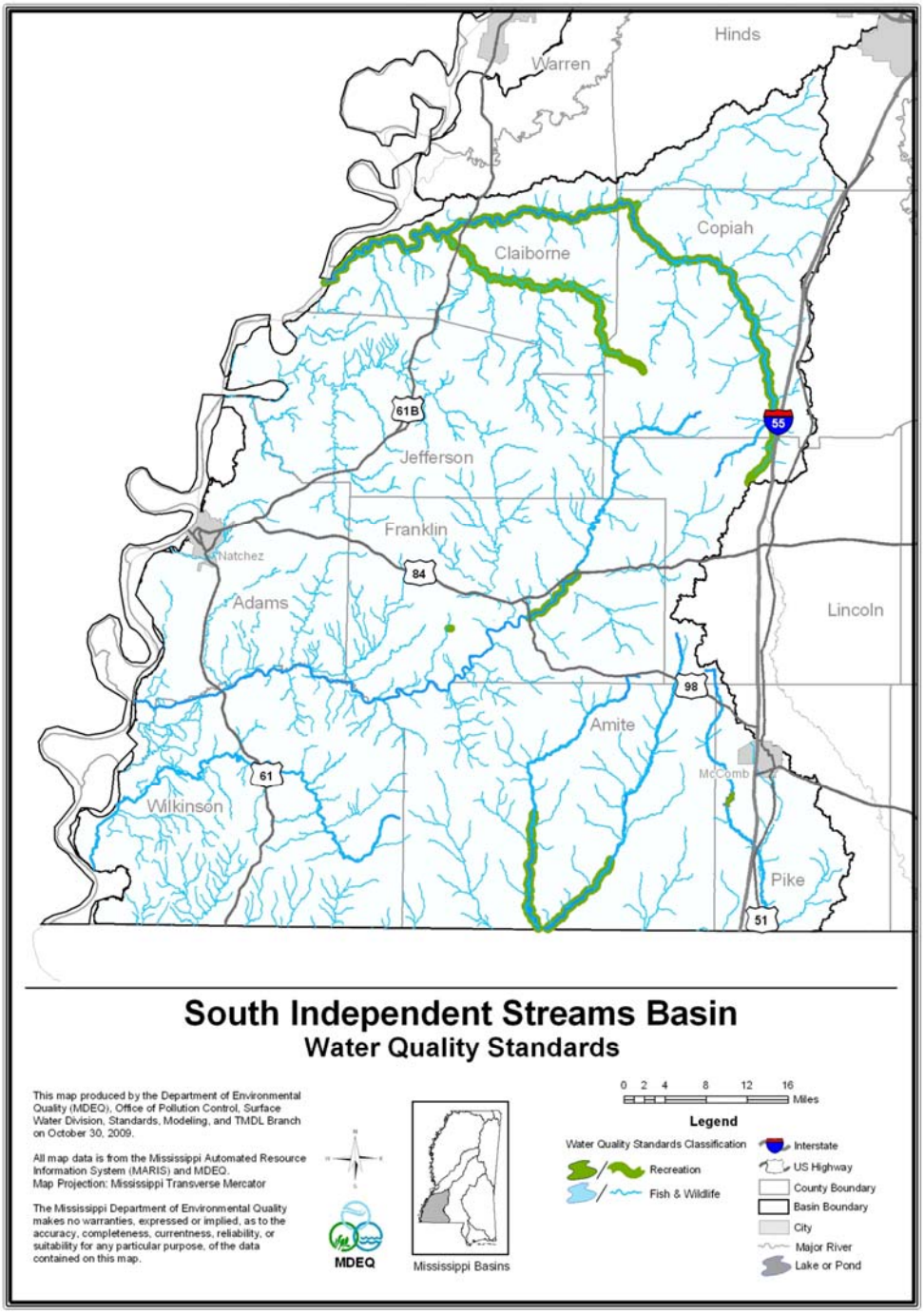
Choctaw
Oktibbeha
Carroll
Holmes
Attala
Winston
Leake
Yazoo
Madison
Neshoba
Scott
Newton
Hinds
Rankin
Simpson
Smith
Jasper
Clarke
Copiah
Covington
Wayne
Jefferson Davis
Lawrence
Jones
Lincoln
Marion
Lamar
Pike
Walthall
Perry
Forrest
Pearl River
Stone
Harrison
Hancock
49E
51
49W
80
20
55
49
98
11

South Independent Streams Basin		
Waters	**Location**	**Classification**
Bayou Pierre	From headwaters to the Mississippi River	Recreation
Clear Springs Lake	Franklin County	Recreation
East Fork Amite River	From MS Hwy 584 to the MS/LA State Line	Recreation
Homochitto River	From US Hwy 84 to US Hwy 98	Recreation
Little Bayou Pierre	From headwaters to Bayou Pierre	Recreation
Percy Quinn State Park Lake	Pike County	Recreation
West Fork Amite River	From MS Hwy 24 to the MS/LA State Line	Recreation


Hinds
Warren
Copiah
Claiborne
61B
55
Jefferson
Franklin
Natchez
84
Adams
Lincoln
98
Amite
McComb
61
Wilkinson
Pike
51
South Independent Streams Basin
Water Quality Standards
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Map Projection: Mississippi Transverse Mercator
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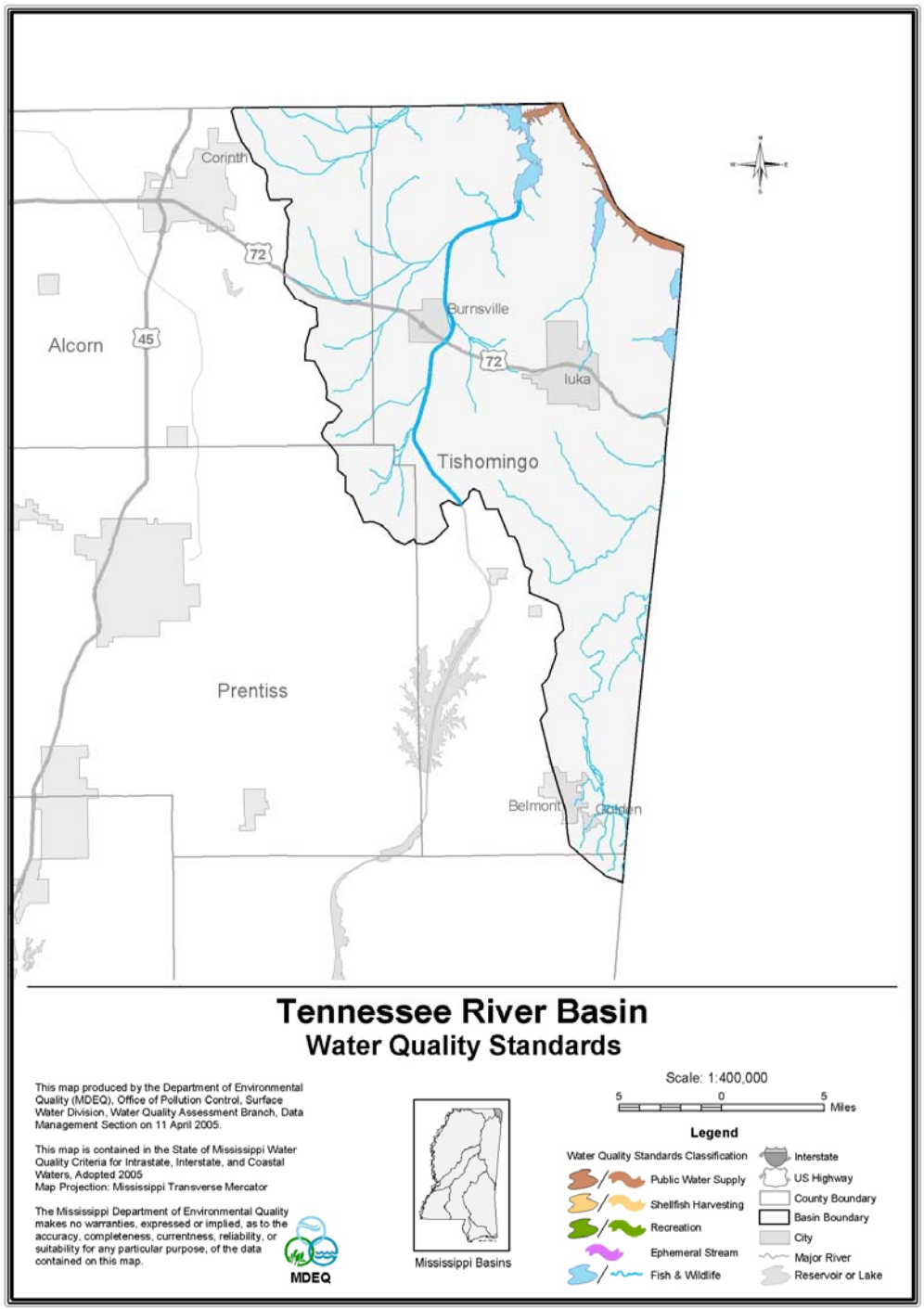
MDEQ
Mississippi Basins
0 2 4 8 12 16
Miles
Legend
Water Quality Standards Classification
Recreation
Fish & Wildlife
Interstate
US Highway
County Boundary
Basin Boundary
City
Major River
Lake or Pond

Tennessee River Basin		
Waters	**Location**	**Classification**
Bear Creek	From MS/AL State Line to the MS/AL State Line	Recreation
Pickwick Lake (including Yellow Creek Embayment)	Tishomingo County	Public Water Supply Recreation
Tennessee River	From MS/AL State Line to the MS/TN State Line	Public Water Supply Recreation
Tenn-Tom Waterway	From Pickwick Lake to Little Yellow Creek	Public Water Supply Recreation



Tennessee River Basin
Water Quality Standards

This map produced by the Department of Environmental Quality (MDEQ), Office of Pollution Control, Surface Water Division, Water Quality Assessment Branch, Data Management Section on 11 April 2005.

This map is contained in the State of Mississippi Water Quality Criteria for Intrastate, Interstate, and Coastal Waters, Adopted 2005
Map Projection: Mississippi Transverse Mercator

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MDEQ

Mississippi Basins

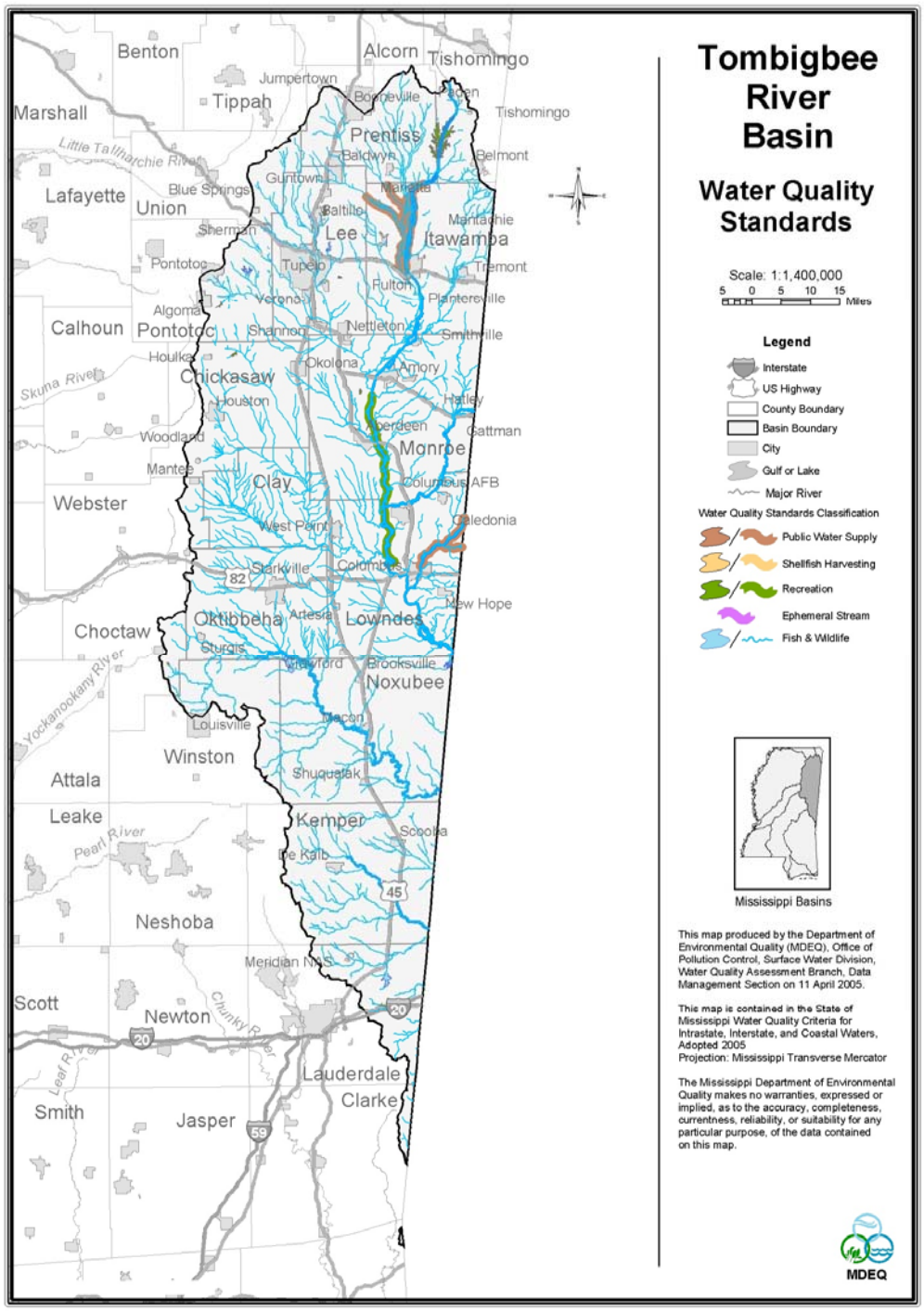
Scale: 1:400,000
5 0 5 Miles

Legend

Water Quality Standards Classification
- Public Water Supply
- Shellfish Harvesting
- Recreation
- Ephemeral Stream
- Fish & Wildlife

- Interstate
- US Highway
- County Boundary
- Basin Boundary
- City
- Major River
- Reservoir or Lake

Tombigbee River Basin		
Waters	**Location**	**Classification**
Aberdeen Lake (Tenn-Tom Waterway)	From Mile 355.5 to Mile 364.3 (Normal Pool Elevation 190.0)	Recreation
Bay Springs Lake (Tenn-Tom Waterway)	From Mile 410.0 to Mile 419.0 (Normal Pool Elevation 414.0)	Recreation
Canal Section Pool "C" (Tenn-Tom Waterway)	From Mile 389.0 to Mile 396.4 (Normal Pool Elevation 270.0)	Recreation
Chiwapa Reservoir	Pontotoc County	Recreation
Choctaw Lake	Choctaw County	Recreation
Columbus Lake (Tenn-Tom Waterway)	From Mile 332.9 to Mile 355.5 (Normal Pool Elevation 163.0)	Recreation
Davis Lake	Chickasaw County	Recreation
Donivan Creek	From Natchez Trace Parkway to the Tombigbee River	Public Water Supply
Lake Lamar	Lee County	Recreation
Lake Lowndes	Lowndes County	Recreation
Lake Monroe	Monroe County	Recreation
Lake Tom Bailey	Lauderdale County	Recreation
Luxapallila Creek	From the MS/AL State Line to Hwy 50	Public Water Supply Recreation
Oktibbeha County Lake	Oktibbeha County	Recreation
Tenn-Tom Waterway	From Montgomery Lock Dam to Hwy 25 near Fulton	Public Water Supply
Twentymile Creek	From Natchez Trace Parkway to the Tombigbee River	Public Water Supply
Tombigbee River	From Boat Ramp Road to Hwy 78	Public Water Supply
Tombigbee State Park Reservoir	Lee County	Recreation
Yellow Creek	From the MS/AL State Line to Luxapallila Creek	Public Water Supply


Benton
Alcorn
Tishomingo
Jumpertown
Tippah
Marshall
Booneville
Tishomingo
Prentiss
Baldwyn
Belmont
Little Tallahatchie River
Guntown
Lafayette
Blue Springs
Union
Marietta
Baltillo
Lee
Itawamba
Mantachie
Sherman
Pontotoc
Tupelo
Tremont
Fulton
Algoma
Verona
Plantersville
Calhoun
Pontotoc
Shannon
Nettleton
Smithville
Houlka
Okolona
Amory
Skuna River
Chickasaw
Houston
Hatley
Aberdeen
Cattman
Woodland
Monroe
Montpelier
Clay
Columbus AFB
Webster
Caledonia
West Point
Starkville
Columbus
82
New Hope
Choctaw
Oktibbeha
Artesia
Lowndes
Sturgis
Crawford
Brooksville
Noxubee
Yockanookany River
Macon
Louisville
Winston
Attala
Shuqualak
Leake
Kemper
Scooba
Pearl River
De Kalb
45
Neshoba
Meridian NAS
Scott
Newton
20
Chunky River
Leaf River
Lauderdale
Clarke
Smith
Jasper
59
Tombigbee River Basin
Water Quality Standards
Scale: 1:1,400,000
5 0 5 10 15
Miles
Legend
Interstate
US Highway
County Boundary
Basin Boundary
City
Gulf or Lake
Major River
Water Quality Standards Classification
Public Water Supply
Shellfish Harvesting
Recreation
Ephemeral Stream
Fish & Wildlife
Mississippi Basins
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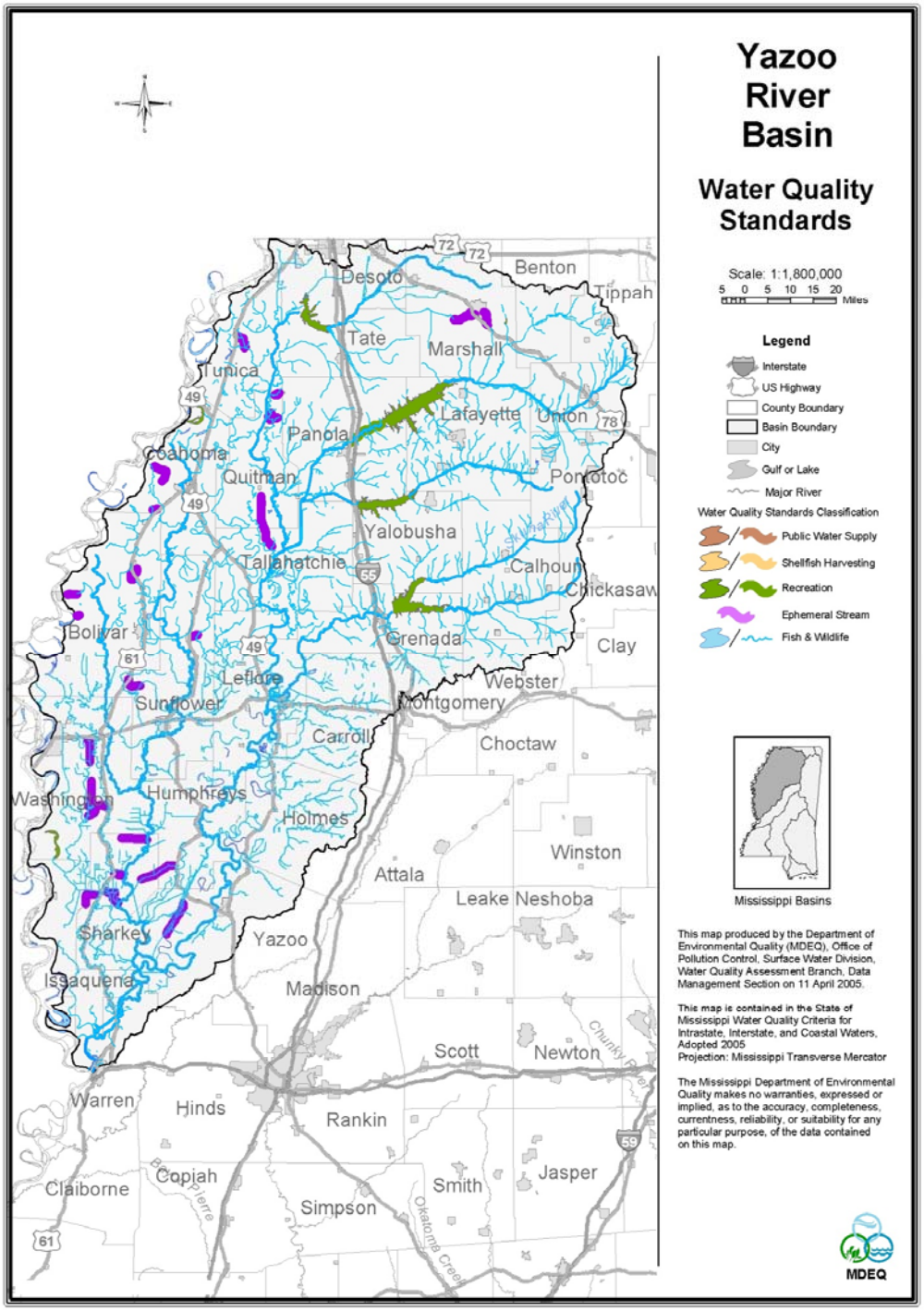
MDEQ

Yazoo River Basin		
Waters	**Location**	**Classification**
Arkabutla Reservoir	DeSoto and Tate Counties	Recreation
Canal #12	From Delta City Utility District (MS0038164) to the Big Sunflower River	Ephemeral
Chewalla Reservoir	Marshall County	Recreation
Drainage Ditch #3	From Rosedale POTW (MS0020630) to Lane Bayou	Ephemeral
Enid Reservoir	Panola, Lafayette, and Yalobusha Counties	Recreation
Grenada Reservoir	Grenada County	Recreation
Lake Dumas	Tippah County	Recreation
Lake Washington	Washington County	Recreation
Little Tallahatchie River	From Sardis Reservoir to US Hwy 51	Recreation
Moon Lake	Coahoma County	Recreation
Sardis Reservoir	Panola and Lafayette Counties	Recreation
Straight Bayou Drainage Main Ditch "A"	From Louise POTW (MS0044512) to Unnamed Tributary of Silver Creek	Ephemeral
Tillatoba Lake	Yalobusha County	Recreation
Unnamed Drainage Canal	From Anguilla POTW (MS0020541) to the Big Sunflower River	Ephemeral
Unnamed Drainage Ditch	From Arcola POTW (MS0037311) to Black Bayou	Ephemeral
Unnamed Drainage Ditch	From Beulah POTW (MS0042285) to Leban Bayou	Ephemeral
Unnamed Drainage Ditch	From Crenshaw POTW (MS0026930) to David Bayou	Ephemeral
Unnamed Drainage Ditch (Hollandale)	From Farm Fresh Catfish POTW (MS0039535) to Black Bayou	Ephemeral
Unnamed Drainage Ditch	From Farrell to POTW (MS0045187) Overcup Slough	Ephemeral
Unnamed Drainage Ditch	From Lambert POTW (MS0020231) to Muddy Bayou	Ephemeral

Yazoo River Basin Continued		
Waters	**Location**	**Classification**
Unnamed Drainage Ditch	From Leland POTW (MS0020761)to Black Bayou	Ephemeral
Unnamed Drainage Ditch	From Lurand Utility District (MS0045080)to the Big Sunflower River	Ephemeral
Unnamed Drainage Ditch	From Rolling Fork POTW (East Lagoon) (MS0025585) to the Little Sunflower River	Ephemeral
Unnamed Drainage Ditch	From Rolling Fork POTW (West Lagoon) (MS0025593) to Indian Bayou	Ephemeral
Unnamed Drainage Ditch	From Ruleville POTW (MS0024945) to the Quiver River	Ephemeral
Unnamed Drainage Ditch	From Shaw POTW (MS0024953) to Porter Bayou	Ephemeral
Unnamed Drainage Ditch	From Shelby POTW (MS0025089) to Mound Bayou	Ephemeral
Unnamed Drainage Ditch	From Simmons Farm Raised Catfish (Yazoo County) (MS0039403) to Unnamed Tributary of Lake George	Ephemeral
Unnamed Drainage Ditch	From Sledge POTW (MS0021016) to David Bayou	Ephemeral
Unnamed Drainage Ditch	From Tunica POTW (MS0042323) Unnamed Tributary of White Oak Bayou	Ephemeral
Unnamed Drainage Ditch	From Winstonville POTW (MS0026450 to the ephemeral ditch west of Winstonville	Ephemeral
Wall Doxey State Park Reservoir (Spring Lake)	Marshall County	Recreation


Yazoo River Basin
Water Quality Standards
Scale: 1:1,800,000
5 0 5 10 15 20
Miles
Legend
Interstate
US Highway
County Boundary
Basin Boundary
City
Gulf or Lake
Major River
Water Quality Standards Classification
Public Water Supply
Shellfish Harvesting
Recreation
Ephemeral Stream
Fish & Wildlife
Mississippi Basins
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MDEQ
DeSoto
Benton
Tippah
Tate
Marshall
Tunica
Lafayette
Union
Panola
Coahoma
Quitman
Pontotoc
Yalobusha
Tallahatchie
Calhoun
Chickasaw
Bolivar
Grenada
Clay
Leflore
Webster
Sunflower
Montgomery
Carroll
Choctaw
Washington
Humphreys
Holmes
Winston
Attala
Leake
Neshoba
Sharkey
Yazoo
Issaquena
Madison
Scott
Newton
Warren
Hinds
Rankin
Claiborne
Copiah
Smith
Jasper
Simpson
72
49
78
55
61
59

Source Miss. Code Ann. *§§ 49-2-9, 49-17-17, 49-2-1, et seq. and 49-17-1, et seq.*

Page 2: [1] Commented [PL10] **Petter, Lauren** **6/25/2020 12:18:00 PM**

WQS handbook:

EPA interprets this provision to mean no new or increased discharges to ONRWs and no new or increased discharge to tributaries to ONRWs that would result in lower water quality in the ONRWs. The only exception to this prohibition, as discussed in the preamble to the Water Quality Standards Regulation (48 F.R. 51402), permits States to allow some limited activities that result in temporary and short-term changes in the water quality of ONRW. Such activities must not permanently degrade water quality or result in water quality lower than that necessary to protect the existing uses in the ONRW… intent of EPA's provision clearly is to limit water quality degradation to the shortest possible time. …During any period of time when, after opportunity for public participation in the decision, the State allows temporary degradation, all practical means of minimizing such degradation shall be implemented.

Page 23: [2] Commented [ZE77] **Zimmerman, Eve** **8/7/2020 8:22:00 AM**

We understand that the intent is to have something that is even more limited/impacted than the "Modified" classification above, perhaps something like "Highly Modified Fish, Aquatic Life and Wildlife" could be appropriate. Essentially, we would like the state to think about a different title for this use that both captures their intent and makes clear it is not "waste assimilation."

Page 23: [3] Commented [ZE78] **Zimmerman, Eve** **8/7/2020 8:24:00 AM**

To insure that no waste assimilation is allowed in this class, we will recommend adding language to clarify that the industrial discharges of cooling water should not contain other pollutants.

Page 23: [4] Commented [ZE80] **Zimmerman, Eve** **8/7/2020 8:36:00 AM**

We suggest adding information that the existing population will be protected. The second sentence could be revised to indicate some use lower than regular modified applies for this category but whatever uses are present will be protected.

Page 23: [5] Commented [PL83] **Petter, Lauren** **6/29/2020 10:06:00 AM**

This language aligns with ONRW characterization at the beginning of the document/

Should there be a separate section for ONRWs?

Page 23: [6] Commented [ZE84] **Zimmerman, Eve** **8/7/2020 8:45:00 AM**

We understand that the antidegradation requirements will be addressed in the antidegradation implementation procedures that are located in the permitting regs. Currently, the permitting regs are being revised on a slightly delayed schedule. We will provide comments during the review of procedures.