APPENDIX J

REGULATORY TOUCHSTONE

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APPENDIX J

1.0 REGULATORY TOUCHSTONE

1.1 INTRODUCTION

This section describes the regulatory context that is relevant to the Arid West Water Quality Research Project Habitat Characterization Study. One component of characterizing habitats included determining use designations of the waters studied. A use designation is one component of a water quality standard, and designates the primary use of water (e.g., drinking water, recreation, etc.).

As part of the Habitat Characterization Study, an inventory of use classifications throughout the western United States was conducted. The findings of this inventory are summarized in Appendix D. In conducting this research, it became clear that there are inconsistent use classifications among the western states.

This Habitat Characterization Study may provide an opportunity to refine use classifications so they are more standardized, descriptive of site-specific uses, and justify more appropriate numeric chemical criteria, and perhaps biocriteria, that fully protect these carefully described uses.

1.2 BASIS FOR ESTABLISHMENT OF SUBCATEGORIES OR REFINED USES

1.2.1 Uses

The Clean Water Act (CWA) empowers the states to define water uses and set criteria to protect these uses in the streams, lakes, wetlands, and dry gullies of the United States. As codified at CWA Section (§) 303(c), 33 U.S. Code (U.S.C.) 1311(c), these uses and criteria constitute "standards" to protect the public health or welfare, enhance the quality of water, and serve the purposes of the CWA. "Such standards shall be established taking into consideration their use and value for public water supplies, propagation of fish and wildlife, recreation purposes, and agricultural, industrial, and other purposes" (§ 303(d)). Defining water uses is the cornerstone to implementing the rest of the CWA.

> The "use" of a waterbody is the most fundamental articulation of its role in the aquatic and human environments, and all of the water quality protections established by the CWA follow from the waters designated use. This approach preserves states and tribes paramount role in establishing water quality standards,

> in this instance, in weighing any available evidence regarding the attainable uses of a particular waterbody. (Advanced Notice of Proposed Rulemaking ([ANPRM]), 63 *Federal Register* [FR] 36742, 36749, July 7, 1998)

While the states may have the initial role of defining such stream uses (Mississippi v. Costle, 625 F.2d 1269 [5th Cir. 1980]), the Environmental Protection Agency (EPA) has an approval authority (§ 303(c)(3)) over these state decisions, which it exercises to attain the objectives and goals of the CWA.

EPA's Water Quality Standards regulation at the 40 Code of Federal Regulations (CFR) 131.3 distinguishes between "designated" (attained and aspirational) uses and "existing" uses. Existing uses are uses actually attained (either actually present or where the water quality would allow the use). For example, conversion of naturally ephemeral or intermittent waters into a perennial flow that results in any aquatic community creates an "existing" aquatic life use. (see ANPRM 63 FR 36742, 36755). The existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected (40 CFR 131.12(a)(1)). According to 40 CFR 131.10(g) an existing use may never be removed, but the designated use may be removed or subcategorized.

1.2.2 Subcategories

The state may adopt subcategories of a use and define appropriate criteria to reflect varying needs of such subcategories (40 CFR 131.10(c)). For example, an existing "aquatic life" use may be subcategorized to a more specifically defined aquatic life use in terms of cold or warm water fishery, invertebrates only, the diversity of species present, as well as perhaps specific communities present (i.e., fish or no fish), community structure, reproductive seasons, frequency of disturbances by flood flows as well as water right diversions and return flows, limiting physical habitat characteristics, and other relevant characteristics of this current biological assemblage, including riparian assemblage. This more specific subcategory can then be reflected in numeric chemical criteria, and perhaps biocriteria, that protect this site-specific use.

EPA's water quality standards guidance (*Water Quality Standards Handbook,* 1994) provides additional considerations for deriving subcategories of aquatic life and wildlife uses, as follows:

- "States are required to designate uses considering, at a minimum, those uses listed in section 303(c) of the Clean Water Act (i.e., public water supplies, propagation of fish and wildlife, recreation, agriculture and industrial purposes, and navigation). However, flexibility inherent in the state process for designating uses allows the development of subcategories of uses within the Act's general categories to refine and clarify specific use

classes. *Clarification of the use class is particularly helpful when a variety of surface waters with distinct characteristics fit within the same use class, or do not fit well into any category. Determination of non-attainment in waters with broad use categories may be difficult and open to alternative interpretations. If a determination of non-attainment is in dispute, regulatory actions will be difficult to accomplish*" (emphasis added) (Section 2.3, page 2-5).

- "Subcategories of aquatic life uses may be on the basis of attainable habitat (e.g., coldwater versus warmwater habitat); innate differences in community structure and function (e.g., high versus low species richness or productivity); or fundamental differences in important community components (e.g., warmwater fish communities dominated by bass versus catfish). Special uses may also be designated to protect particularly unique, sensitive, or valuable aquatic species, communities, or habitats" (Section 2.3, page 2-5).

- "Data collected from biosurveys as part of a developing biocriteria program may assist states in refining aquatic life use classes by revealing consistent differences among aquatic communities inhabiting different waters of the same designated use. Measurable biological attributes could then be used to divide one class into two or more subcategories" (Section 2.3, page 2-5).

EPA's ANPRM 63 FR 36742 (July 7, 1998), at 36749 discusses the value of more refined designated uses. General "aquatic life" uses, EPA states, should be refined to more clearly articulate and differentiate intended levels of protection. This can result in avoiding under or over protection in establishing criteria to fully protect the use.

Refined uses could include an effluent-dominated aquatic life use or urban watershed use. For example, an urban watershed aquatic use is supported by EPA's *Draft Guidance on Implementing the Water Quality-Based Provision on the CSO Control Policy*, EPA-823-13-00-003, May 9, 2000 (as updated EPA 833-D-00-002, December 20, 2000). It proposes "qualitative use subcategories could be established for urban areas based on biological goals that could reasonably be achieved in urban-impacted waters." Arizona's "effluent-dominated" use is one nomenclature for such an urban watershed subcategory.

1.3 USE ATTAINABILITY ANALYSIS

Deriving aquatic life subcategories under certain circumstances does not require a Use Attainability Analysis (UAA), but such a UAA or other rationale may be worthwhile on a

regional or ecoregional basis. A UAA is a structured scientific analysis that normally includes habitat, species, and chemical quality data collection and evaluation. EPA water quality standards regulation at 40 CFR 131.10(j) states the following about subcategorization: "A state must conduct a use attainability analysis…whenever…(2) the state wishes…to adopt subcategories of uses specified in Section 101(a)(2) of the Act which require less stringent criteria." This regulation is discussed in the following manner in the EPA's water quality standards guidance:

> "If states adopt subcategories that do not require criteria sufficient to fully protect the goal uses in section 101(a)(2) of the Act…, a use attainability analysis pursuant to 40 CFR 131.10(j) must be conducted for waters to which these subcategories are assigned" (Section 2.3, page 2-5).
>
> "States are not required to conduct UAAs when designating uses that include those specified in section 101(a)(2) of the Act, although they may conduct these or similar analyses when determining the appropriate subcategories of section 101(a)(2) goal uses" (Section 2.9, page 2-9).

Therefore, the regulation indicates that a UAA is required if the subcategories "require less stringent criteria." The guidance states, "if…subcategories…do not require criteria sufficient to fully protect the goal uses in Section 101(a)(2) of the Act." "Aquatic life" use is a §101(a)(2) goal use under the CWA. Therefore, it can be concluded that if the criteria adopted for the subcategory fully protect that defined aquatic life use, then a UAA is not necessary, but may be conducted. No UAA is necessary if the new criteria are sufficiently stringent to fully protect the refined subcategory use, particularly if it is a refinement describing the existing use. This includes specific species or a regional suite of species. A UAA may be necessary if a potential use, beyond the existing use (i.e., designated use) is being eliminated as infeasible.

According to the ANPRM (which is not a regulation, policy, or guidance document), where a new subcategory has less stringent criteria, use attainability requirements are triggered, unless the subcategorization or refined description reflects a natural-state reference condition or the criteria are otherwise scientifically defensible. "A proposal to refine use categories will have to be accompanied by a rationale explaining how it was determined that the proposed biological description appropriately reflects the potential for waters to which the new subclassification is to be applied." (ANPRM at 36751). Where existing effluent-dominated created aquatic uses occur, the current designated use may not be aspirational but descriptive of existing conditions; a subcategory may be a more precise description of existing conditions; and thus not less than the current designation, in which case, no UAA is required.

1.4 DOWNGRADING CRITERIA

This UAA or rationale is necessary to demonstrate that a downgrading criterion of 40 CFR 131.10(g) is met. No designated use may be subcategorized unless one of six downgrading criteria demonstrates it is infeasible to attain the designated use. In the arid and semi-arid west, the following two downgrading criteria are most frequently applicable:

- Criterion No. 5 (40 CFR 131.10(g) (5): that the physical features that normally apply to aquatic life environment are absent and preclude this perennial flow from fully supporting a "balanced population" of reproducing aquatic life. [In other words, the absence of these physical features limits the number of species and their density per acre.]

- Criterion No. 3 (40 CFR 131.10(g)(3): that 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. [In other words, to restore a perennial stream to its original dry streambed or intermittent conditions by dewatering and diverting sources of perennial flow would cause more environmental damage than to leave the water in place. The environmental benefits of perennial flow (new riparian wildlife habitat, limited aquatic life, aesthetics, groundwater recharge) are environmentally more important than requiring dewatering and returning to dry streambed or intermittent conditions. This is also an accommodation to water rights management systems per CWA § 101(g).]

Weighed with these two criteria is the opportunity for enhancement to a better human-created condition rather than restoration to a dry pristine but irretrievable condition. EPA's *Guidance on Ecological Restoration*, (EPA 841-F-95-007, November 1995) "recognizes" this restoration is actually a "balancing and integrating of upstream, riparian and surrounding watershed approaches." An example of such balancing is using concrete drop structures on the South Platte River to re-aerate the stream where urban landscape precludes more natural channel configuration. This integration and balancing of stream and riparian approaches on a human-created urban stream system is to recognize the limited potential for enhancement of aquatic diversity, and the greater potential for other environmental benefits such as improved riparian and related wildlife uses simply due to the presence of water.

A designated use subcategory of an "existing aquatic and enhanced riparian" condition may be defined in terms of actual species and or specific habitat areas or other definition of the level of

protection that constitutes the desired full protection of this specific use as well as the riparian biological assemblage desired goals.

1.5 SITE-SPECIFIC CRITERIA

"Criteria" under the CWA refers to the 304(a) criteria. At 40 CFR 131.3(c), EPA defines Section 304(a) criteria as follows: "Section 304(a) criteria are developed by EPA under authority of section 304(a) of the Act based on the latest *scientific information* on the relationship that the effect of a constituent concentration has on *particular aquatic species* and/or human health. This information is issued periodically to the States as *guidance for use in developing criteria*" [emphases added].

At 40 CFR 131.3(b) EPA defines "criteria" as "elements of state water quality standards, expressed as constituent concentrations, levels or narrative statements, *representing a quality of water that supports a particular use* [emphasis added]. When criteria are met, water quality will generally protect the designated use." EPA by regulation 40 C.F.R. 131.11 (b) requires criteria to protect the uses or their subcategories based upon the following:

- Section 304(a) guidance documents for individual criteria
- Section 304(a) guidance modified to reflect site-specific conditions
- other scientifically defensible methods

EPA's *Water Quality Standards Handbook* interprets this regulation and provides the following additional basis for establishing site-specific criteria:

- "Site-specific criteria are allowed by regulation and are subject to EPA review and approval. The federal water quality standards regulation at section 131.11(b)(1(ii) provides states with the opportunity to adopt water quality criteria that are '…modified to reflect site-specific conditions.' Site-specific criteria, as with all water quality criteria, must be based on a sound scientific rationale in order to protect the designated use. Existing guidance and practice are that EPA will approve site-specific criteria developed using appropriate procedures" (Section 3.7, page 3-38).
- "A site-specific criterion is intended to come closer than the national criterion to providing the intended level of protection to aquatic life at the site, usually by taking into account the biological and/or chemical conditions (i.e., the species composition and/or water quality characteristics) at the site" (Section 3.7, page 3-38).

- "National water quality criteria for aquatic life may be under- or over-protective if: 1) the species at the site are more or less sensitive than those included in the national criteria data set…, or 2) physical and/or chemical characteristics of the site alter the biological availability and/or toxicity of the chemical…" (Section 3.7.1, pages 3-38, 3-39).

- "In the early 1980's, EPA recognized that laboratory-derived water quality criteria might not accurately reflect site-specific conditions and, in response, created three procedures to derive site-specific criteria [Recalculation Procedure, Water-Effect Ratio Procedure and Resident Species Procedure]" (Section 3.7.1, page 3-39).

EPA has also defined what constitutes a "site" when one develops site-specific criteria. The definition is very broad and allows for the establishment of criteria that apply to whole stream types (e.g., ephemeral or effluent-dependent):

> "In the general context of site-specific criteria, a 'site' may be a state, region, watershed, waterbody, or segment of a waterbody. The site-specific criterion is to be derived to provide adequate protection for the entire site, however the site is defined" (Section 3.7.3, page 3-41).

1.6 RECALCULATION PROCEDURE

EPA has established three methods for developing site-specific criteria. The Recalculation Procedure allows for the establishment of criteria based on resident species as follows:

> "The Recalculation Procedure is intended to take into account relevant differences between the sensitivities of the aquatic organisms in the national dataset and the sensitivities of organisms that occur at the site" (Section 3.7.1, page 3-39).
>
> "If water quality effects on toxicity are not a consideration, the site can be as large as a generally consistent biogeographic zone permits. For example, large portions of Chesapeake Bay, Lake Michigan, or the Ohio River may be considered as one site if their respective aquatic communities do not vary substantially. However, when a site-specific criterion is derived using the Recalculation Procedure, all species that 'occur at the site' need to be taken into account when deciding what species, if any, are to be deleted from the dataset. Unique populations or less sensitive uses within sites may justify a designation as a distinct site" (Section 3.7.3, page 3-40). "The definition of the 'site' can be extremely important when using the Recalculation Procedure. For example, the number of the taxa that occur at the site will generally decrease as the size of the site decreases." (*Interim Guide on Determination & Use of the Water-Effect Ratio in Water Quality Standards* (EPA-823-B-94-001, 1994), Appendix B page 91). This Appendix B supplants the Water Quality Standards Handbook on Water-Effect Ratios.)

"The Recalculation Procedure is intended to cause a site-specific criterion to appropriately differ from a national aquatic life criterion if justified by demonstrated pertinent toxicological differences between the aquatic species that occur at the site and those that were used in the derivation of the national criterion. There are at least three reasons why such differences might exist between the two sets of species.

- First, the national dataset contains aquatic species that are sensitive to many pollutants, but these and comparably sensitive species might not occur at the site.

- Second, a species that is critical at the site might be sensitive to the pollutant and require a lower criterion.

- Third, the species that occur at the site might represent a narrower mix of species than those in the national dataset due to a limited range of natural environmental conditions" (Section 3.7.4, page 3-42). (See *Interim Guide on Determination & Use of the Water-Effect Ratio in Water Quality Standards, Appendix B page 90* (EPA-823-B-94-001, 1994).

For example, if trout and lake-type organisms (i.e., plankton) are removed from the database to more reflect a warm and not a cold water fishery and the standards are recalculated based on a hardness of 400 milligrams per liter (mg/L), which is common in arid situations, cadmium acute/chronic criteria change from 21/7 mg/L to 52/21 mg/L, and copper changes from 50/29 mg/L to 80/47 mg/L.

Experience with the recalculation procedure in the West has been that, when species not representative of the site are deleted from the dataset, then the lack of data for the western species at the site results in more restrictive concentrations as a safety factor for the lack of data. Thus, even deletion of cold water species from the database for warm water streams can result in more conservative values. Indeed, EPA states: " [t]he Recalculation Procedure is more likely to result in lowering a criterion if the net result of addition and deletion is to decrease the number of genera in the dataset, whereas the procedure is more likely to result in the raising a criterion if the net result of the addition and deletion is to increase the number of genera in the dataset." (*Interim Guide on Determination & Use of the Water-Effect Ratio in Water Quality Standards* (EPA-823-B-94-001, 1994)

The solution may be to increase the database with more western species for many criteria. It also may be to reevaluate from a biocriteria perspective how much of a safety factor for uncertainty is appropriate. Adjusting the recalculation procedure to fit western streams may be appropriate if

feasible. Other scientifically defensive methods may corroborate or demonstrate that less conservative concentrations are protective of the refined use.

1.7 WATER EFFECT RATIOS

For metals, the water-effect ratio (WER) methodology is a scientifically accepted but expensive method for adjusting a national criterion to reflect site-specific conditions. To make the method more cost-effective, the larger the area and the more segments included in the analysis, the better. The feasibility of effluent-dominated stream ratios in a region should be explored. To determine a WER, side-by-side toxicity tests are performed to measure the toxicity of the metal in two dilution wastes. One of the wastes has to be a water sample that would be acceptable for use in laboratory toxicity tests conducted for the derivation of national water quality criteria for aquatic life. The second dilution will be a simulated downstream water that is prepared by mixing upstream water and effluent in an appropriate ratio; in some situations, the second dilution water will be a sample of the actual site water to which the site-specific criterion is to apply. The WER is calculated by dividing the endpoint obtained in the site water by the endpint obtained in the laboratory dilution water. The WER can be based upon the "total recoverable" or "dissolved" metals fraction. The specific procedure is in the *Interim Guide on Determination & Use of the Water-Effect Ratio in Water Quality Standards* (EPA-823-B-04-001, 1994).

1.8 RESIDENT SPECIES PROCEDURE

Resident species are tested in bioassays for acute and perhaps chronic toxicity in site water. This is to account for differences in resident species sensitivity and differences in biological availability and/or toxicity of a material due to variability in physical and chemical characteristics of a site water. The minimum data set of eight families is to be developed. If all of the families at the site are tested and still do not constitute the eight-family minimum required, then the most sensitive resident family acute mean value is the site-specific Final Acute Value. This is divided in half to derive the regulatory acute value. Chronic values are derived using a water effect ratio procedure. Clearly, the resident species procedure is expensive and requires a large common set of species among effluent-dominated streams in the Southwest to make it cost-effective (see *Water Quality Standards Handbook*, page 3-44).

1.9 OTHER SCIENTIFICALLY DEFENSIBLE METHODS

The following is a listing of some other scientific methods used under limited circumstances to determine site-specific standards.

- Ambient-based criteria: Natural background quality may be a site-specific standard if the use is still protected. Ambient conditions can be the basis for standards where human-caused conditions cannot be remedied or would cause more damage to correct (see 63 FR 36742, 36761).

- Net environmental benefit: Where a discharge in primarily an arid area supports or enhances riparian or aquatic habitat whose ecological benefits exceed the ecological benefits of removal of the discharger's flow, the water quality criteria may be adjusted to avoid removal of the discharge. This rests on a real risk that a discharger can avoid discharging by piping its effluent for use elsewhere. This adjustment to criteria is authorized by 40 CFR 131.10(g)(3), and the resulting definition of the subcategory use. The criteria should achieve the highest level of water quality that can be achieved through reasonable and economically feasible improvements in water quality control such as pollution prevention efforts (including pretreatment, risk minimization, and source reduction). Where appropriate, stream or riparian enhancement efforts, such as channel modification or seed planting, may be performed in lieu of efforts to improve water quality. (See *Guidance for Modifying Water Quality Standards and Protecting Effluent-Dependent Ecosystems*, EPA Region IX Guidance, June 1992.)

- Watershed Ecological Risk Assessment: Using techniques of various EPA guidelines on ecological risk assessment and management, derive numeric standards for multiple stressors based on estimated risk through integration of exposure and stressor-response profiles. See *Guidelines for Ecological Risk Assessment*, 63 FR 26846; *Watershed-Scale Ecological Risk Assessment* (Water Environment Research Foundation, Project 93-IRM-4(A) 1998, Butcher.) Most recently, the 1999 Ammonia Criteria Document used an effect concentration of 20 percent based upon a risk management approach leading to determining the final acute and chronic standards. More broadly, a site-specific risk assessment may mean characterizing the differences in alkalinity, temperature, total organic carbon, or other chemical constituents as well as the species, their recovery intervals, exposure patterns, etc. This may mean evaluating the relative risks of numerous chemical, physical, and biological stressors. For example, the sandy streambed sediment in western streams in both a natural and human-impacted condition may more significantly limit the diversity and abundance of the species as compared to water quality. Ecological risk assessment methodology may be an approach for comparing and weighing relative chemical concentrations risks and benefits with physical stressors risks and benefits. A risk assessment could determine that more restrictive or even less restrictive water quality is not material as compared to the physical stressors and

limitations of habitat. This ecosystem-based approach of recognizing tradeoffs between water quality and habitat and riparian conditions is not clearly authorized under the CWA as related to restoration but may be justified under the concept of enhancement of the rivers of the United States. In any case, EPA's watershed approach expands the focus from water quality to physical habitat and that in turn expands to watershed riparian, land use, and terrestrial inputs. How that mix is integrated and balanced to attain realistic stream uses and their standards is uncertain. This uncertainty will have to be addressed incrementally in a series of studies. Biocriteria is a biological integrity standard in addition to the chemical standards. The relationship between and among these standards is not clear. However, biocriteria standards in attainment can justify relaxation of chemical criteria if the scientific linkage can be shown.

- Allowable effect concentration - EPA's *Guidelines for the Derivation of Ambient Water Quality Criteria for the Protection of Aquatic Organism and Their Uses,* PB 85-227049, see also *Water Quality Standards Handbook,* Appendix H, recommends use of regression analysis in evaluating concentration-effect relationships for toxicity data in criteria derivation. Whole Effluent Toxicity testing can use an end point of 25 percent effect (i.e., IC-25. EPA's 1999 Ammonia Criteria Update used a 20 percent effect concentration [EC20] for evaluating chronic toxicity). Recently, the state of Colorado adopted a cold water manganese standard based on new trout species data and using a 10 percent effect concentration.

- Biocriteria-defining expected biological health may influence specific chemical thresholds, if a scientific linkage can be established.

- Project XL is presented by EPA as an opportunity for regulatory flexibility and innovation. There is no specific legal or statutory authority for Project XL. It is available where there is opportunity to interpret existing environmental statutes. There have been a number of FR notices on the elements of Project XL. The November 1, 1995 notice (60 FR 55569) is the best explanation of the criteria. The April 23, 1997 notice (62 FR 19871-19882) amends those criteria and elements. Subsequent guidance has been issued, which includes a *Best Practices Guide for Proposal Development*, and *A Guide to Writing Final Project Agreements Under Project XL* dated September 1999. See generally www.epa.gov/projectxl/guidexl.htm. Tradeoffs may be allowed among different loadings that produce different environmental outcomes (i.e., waste minimization technology that increases waterborne pollutant discharge) where there is a demonstrable net benefit to public health and the environment. However, EPA will not

approve projects that threaten ecological health or risk based environmental standards i.e. water quality standards (see 62 *Federal Register* 19871 at 19874). This includes a shifting of risk burden such as from one area of the stream to another. It is EPA's intent to produce clear risk reduction, but not to shift risk.

- EPA has been sponsoring the development of a Biotic Ligand Model (BLM) that will allow users to better quantify the bioavailability and acute toxicity of metals in surface waters by accounting for site-specific water chemistry parameters such as calcium, pH, alkalinity, and dissolved organic carbon. EPA expects the BLM to address the concerns of the regulated community, states, regions, environmental groups, and academia that aquatic life criteria for certain metals may not accurately reflect the toxicity of metals in ambient waters. In April 1999, the Science Advisory Board (SAB) reviewed the BLM and its application to both copper and silver. The SAB Review Report (EPA-SAB-EPEC-00-006) was issued in February 2000, and can be accessed at: www.epa.gov/sab/fiscal00.htm. Based on the SAB's comments, EPA has been coordinating research efforts on the copper BLM to validate the model for wider variety of aquatic organisms over a broader range of water chemistry.

1.10 DERIVATION OF EFFLUENT LIMITS

The following are some opportunities in the permitting process that can provide some site-specific flexibility by using data from the Habitat Characterization Study:

- Definition of nonattainment: Where a subcategory defines the use in terms of the kind of species, a weight of the evidence determination of attainment shall consider instream monitored water column concentrations, biosurvey and biocriteria evaluations, and any other indicators of biological health related to the definition of the subcategory. If there is attainment of the use, this avoids total metal detection limits (TMDLs) and resulting effluent limits.

- TMDL development and implementation: Allocation of loading can be based upon the fate and effect of the discharge relative to specific areas of habitat as defined in the subcategory or biocriteria as the areas of protection and enhancement. This may also enable trading of loading relative to specific habitat areas. Specific point source or nonpoint source loading may be mitigated or offset through other biological/physical enhancements to ensure the goal of the number of species and perhaps their density.

- Mixing zone adjustments: A chronic mixing zone or area of impact may be expanded from a default limited area. This expanded area of mixing can relax any effluent limit necessary to ensure compliance with a water quality standard. Expansion of the mixing zone may be premised upon net environmental benefit considerations or other environmental mitigation consistent with the definition of the use. Such mitigation should be to retain the diversity and approximate density of species defined in the use of definition.

- For pollutants other than toxics, upon demonstration of no reasonable relationship between the economic and social costs and the benefits to be obtained by achieving proposed effluent limitations. The EPA Administrator, with the concurrence of the state, may modify the limitations. (CWA § 302(b)(2)(B).

1.11 CONCLUSION

The ANPRM announced an anticipated integration of assessments of both chemical and nonchemical stressors and watershed-specific decision-making, 63 FR 36742 at 36749. The Habitat Characterization Study may provide some data and linkages to support more specific aquatic use denominations, more appropriate chemical criteria to fully protect those uses, and biocriteria that define a human-created aquatic and riparian habitat and uses to be maintained in integrated balance.