Proposed Changes to CT Water Quality Standards
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See CTDEP website for Official Document: Proposed Water Quality Standards

Changes to the Connecticut Water Quality Standards as Proposed by the Connecticut Department of Environmental Protection on December 22, 2009

The following document is a courtesy copy intended to facilitate review of the revisions to the Connecticut Water Quality Standards proposed by the Connecticut Department of Environmental Protection (CTDEP) on December 22, 2009. This document is provided to highlight proposed changes to the Water Quality Standards but is not the official document demonstrating the proposed revisions to the Water Quality Standards. The official document may be found on the CTDEP website at:

http://www.ct.gov/dep/lib/dep/water/water_quality_standards/water_quality_standards_proposed_12_22_09.pdf

Please consult the Proposed Water Quality Standards, public noticed on December 22, 2009, when conducting any reviews or providing any comment. This courtesy document is intended to be a fair representation of changes but in the case of any errors or omissions, the official document as public noticed should be followed.

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SURFACE WATER QUALITY STANDARDS

1. It is the State's goal to restore or maintain the chemical, physical, and biological integrity of surface waters. Where attainable, the level of water quality that provides for the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water shall be achieved.

2. The water quality necessary to support ~~E~~existing and designated uses such as propagation of fish, shellfish~~,~~ and wildlife~~,~~; recreation~~,~~; public water supply~~,~~; and agriculture, industrial use and navigation~~,~~; ~~and the water necessary for their protection~~ is to be maintained and protected.

3. Surface waters with an existing quality better than the criteria established in these ~~Water Quality Standards~~WQS shall be maintained at their existing high quality, unless the Commissioner finds, after adequate opportunity for intergovernmental review and public participation, that allowing lower water quality is necessary to accommodate overriding ~~statewide~~ economic or social ~~development~~ benefits to the State and to the area in which the receiving water is located, and that existing and designated uses will be fully protected. The implementation procedures for the anti-degradation provisions of these ~~Water Quality Standards~~WQS are provided in full in Appendix E.

4. For all new and existing discharges to high quality surface waters the Commissioner shall, at a minimum, require ~~National Pollutant Discharge Elimination System (NPDES) discharge permit~~ applicants to meet the highest applicable standards of performance promulgated pursuant to the Federal Clean Water Act ~~as well as Sections 22a-426, 22a-430,~~ and ~~22a-436 of~~ the Connecticut General Statutes, and require additional treatment measures deemed necessary to prevent pollution and maintain high water quality. The Commissioner shall also require the use of appropriate Best Management Practices for control of ~~point and non-point source discharges, dredging activity, and the discharge of dredged or fill materials,~~ discharges and activities to high quality surface waters.

5. If the Commissioner designates a high quality surface water as an Outstanding National Resource Water pursuant to federal regulations at 40 CFR 131.12(a) the high water quality shall be maintained and protected. The lowering of water quality is prohibited for such surface waters except where activities limited in time and scope will result in only temporary and insignificant changes in water quality and the activities will not result in water quality less than necessary to protect existing and designated uses.

6. Standard ~~(~~1~~)~~ shall be met except where (1) a use attainability analysis prepared pursuant to federal regulation at 40 CFR 131.10(g) and (j) demonstrates that the surface water has been irreparably altered to the extent that certain designated uses have been permanently lost; and (2) quality criteria necessary to protect all other existing, and designated uses of the surface water have been adopted by the Commissioner as a revision to these ~~Water Quality Standards~~WQS in accordance with Section 22a-426 of the Connecticut General Statutes. Periodic re-examination of such designated use decisions shall be performed as required by federal regulations (40 CFR 131.20).

7. Any person or municipality requesting a change in Water Quality Classification shall demonstrate to the Commissioner that the proposed new Classification is consistent with all existing or designated uses made of, or presently possible in, such surface waters. Any such change in a Water Quality Classification shall be considered a revision of these ~~Water Quality Standards~~WQS and subject to the public participation requirements of Section 22a-426 of the Connecticut General Statutes. The Commissioner will not approve a reclassification which is not consistent with Standards 3 or 4 of these ~~Water Quality Standards~~WQS.

8. Water Quality Criteria do not apply to certain conditions brought about by natural causes. Natural hydrologic and geologic conditions may cause excursions from established criteria. The meaning of the word 'natural' is not limited to only those conditions which would exist in water draining from pristine land. Conditions which exist in the surface water, in part due to normal uses of the land, may be considered natural, provided best management practices are used. It shall not be considered normal use of the land if excursions from established Criteria adversely impact an existing or designated use.

9. Discharges to surface waters shall be limited as follows:

(A) Class AA, A and SA surface waters: discharges may be permitted by the Commissioner from public or private drinking water treatment systems, dredging activity and dredge material dewatering operations, including the discharge of dredged or fill material and clean water discharges. In Class AA surface waters such discharges shall be subject to the approval of the Commissioner of Public Health~~ Services~~. The Commissioner may authorize other discharges to surface waters with a Classification of SA, A or AA provided the Commissioner finds such discharge will be of short duration and is necessary to remediate surface water or ground water pollution. Any such discharge shall be treated or controlled to a level which in the judgment of the Commissioner, protects aquatic life and public health.

The Commissioner may authorize certain treated domestic sewage discharges to surface waters with a Classification of A or SA provided the Commissioner finds that: 1) such discharge is deemed necessary by the Commissioner to protect the environment and

public health, safety and welfare; 2) such discharge is deemded necessary by the Commissioner to abate ground water or surface water pollution; 3) a demonstration has been made to the satisfaction of the Commissioner that no technically or economically feasible alternative exists for such discharge; 4) that any such discharge shall not support new or increased growth or change in use; and 5) the discharge is treated or controlled to the maximum extent possible and to a level that, in the judgment of the Commissioner, protects the environment and public health, safety and welfare. Nothing in this authorization would preclude the Commissioner from requiring such discharge to be eliminated should future conditions provide a technically or economically feasible alternative to authorizing such discharge to a surface water with a Classification of A or SA.

(B) Class B and SB surface waters: discharges may be permitted for all those allowed in Class AA, A and SA surface waters, cooling water discharges, discharges from municipal and industrial wastewater treatment systems and other discharges subject to the provisions of Section 22a-430 of the Connecticut General Statutes.

~~(C) The designation of surface water as Class C/B, D/B, SC/SB or SD/SB shall not be a reason for authorizing a new discharge that would prevent the attainment of Class B or Class SB designated uses and quality criteria.~~

~~(D)The designation of a surface water as Class B/AA, B/A, C/A, SB/SA, or SC/SA shall not be a reason for authorizing a new discharge that would prevent the attainment of Class AA, A or SA Water Quality Criteria.~~

10. The Commissioner may, on a case-by-case basis, establish zones of influence when authorizing ~~permitting~~ discharges to surface waters under Sections 22a-430 and 22a-133(k) of the Connecticut General Statutes in order to allocate a portion of the receiving surface waters for mixing and assimilation of the discharge. Unless otherwise indicated in these ~~Water Quality Standards~~WQS, the applicable Water Quality Criteria apply outside the zone of influence for a discharge. Establishment of a zone of influence shall not preclude attainment of any existing or designated uses of the receiving surface waters. The area and/or volume of receiving water allocated to zones of influence shall be determined based on the unique physical, chemical and biological characteristics of the receiving surface water body and, if established, shall provide a maximum of 100:1 dilution factor for any discharge. The Commissioner may require ~~Permit~~ applicants to provide information on receiving surface water and waste water characteristics including the volume of flow and area required for mixing and assimilation of waste. The zone of influence for assimilation of a thermal discharge shall be limited to the maximum extent

possible. As a guideline, the zone of influence for assimilation of a thermal discharge shall be no greater than 25% of the cross-sectional area or volume of flow of the receiving water. In establishing a zone of influence the Commissioner shall consider without limitation:

(A) the characteristics of the discharge, such as its volume, strength, temperature and the persistence of any substances in the discharge, potential bioaccumulation or bioconcentration of these substances in aquatic organisms, and the potential for any substances, either singly or in combination with other substances present in the discharge or receiving surface water body to result in an unacceptable risk to human health or the environment.

(B) an allowance for a continuous zone of passage for free swimming and drifting organisms.

(C) the effect of the discharge on spawning grounds or nursery areas of sensitive aquatic organisms or areas utilized by aquatic organisms for shelter and living space.

(D) the effect of the discharge on the aesthetic quality of the receiving water including but not limited to the potential to cause objectionable deposits, floating debris, oil, scum, and other materials that form nuisances or produce objectionable color, odor, taste, or turbidity, or that may attract undesirable aquatic life or wildlife, or result in the dominance of nuisance species.

(E) the location of other discharges in the receiving surface water body to insure that the cumulative effect of adjacent zones of influence will not significantly reduce the environmental value or preclude any existing or designated uses of the receiving surface water.

Assessment of environmental value will be based on the characteristics of the receiving surface water including but not limited to: type of water body, velocity, depth, number and type of aquatic habitats, migration patterns, nature of the food chain, level of productivity, water temperature, condition of associated biological communities, ability of tributaries to provide biological recruitment, presence of endangered species and value to human uses (aesthetic, commercial, sport fishing and recreational uses).

11. The 7Q10 is the minimum flow to which these Water Quality Standards for surface waters apply, except when a surface water has been historically regulated by dams or water withdrawals sanctioned by law to result in flows below that level. In such cases these Water Quality Standards apply to that low flow determined by the Department's Minimum Flow Regulations as amended (Section 26-141a-1, et seq. of the Regulations of Connecticut State Agencies); the Department's Diversion Permit Program (Section 22a-365 through 22a-378 of the

Regulations of Connecticut State Agencies); or the Federal Energy Regulatory Commission's hydropower licensing process (Federal Power Act 16 USCS SEC 791a et seq). Maintaining a long-term flow of 7Q10 or less may result in significant stress on the physical and biological quality of surface waters. In those surface waters at, near or below the naturally occurring 7Q10 flow, more stringent Water Quality Criteria may be required to achieve and maintain existing and designated uses. The Commissioner may approve discharge limitations based on minimum average daily flow in excess of 7Q10 conditions, provided the Commissioner is satisfied that special measures will be implemented during low flow conditions which provide protection to the environment at least as effective as that protection which would pertain if limitations were based solely on 7Q10 conditions. Surface waters which are influenced by tidal forces or which experience short-term variation in flow due to periodic or irregular water release from upstream diversions or other causes may require special consideration by the Commissioner when establishing a zone of influence or issuing discharge permits under the provisions of Section 22a-430 of the Connecticut General Statutes in order to protect existing and designated uses, including consideration of the minimum flow to which these Water Quality Standards apply. Low flow in a tidal water body shall be evaluated under low tide conditions unless another low flow regime is demonstrated to the Commissioner's satisfaction to be protective of water quality and aquatic resources.

12. The Commissioner, pursuant to Chapter 446k of the Connecticut General Statutes and regulations adopted there under, will regulate discharges to the surface waters to assure that such discharges do not cause acute or chronic toxicity to freshwater and marine aquatic life and wildlife, do not impair the biological integrity of freshwater and marine ecosystems and do not create an unacceptable risk to human health.

(A) (i) In making a determination under Chapter 446k of the Connecticut General Statutes as to whether a discharge will or can reasonably be expected to cause pollution of surface waters, the Commissioner shall consider the numeric criteria for the toxic pollutants listed in Appendix D~~.~~;

(ii) benchmarks for substances not contained in Table 1 of Appendix D, shall be developed on a case by case basis, consistent with the protocols contained in Table 2 of Appendix D of the WQS provided the Commissioner determines such benchmarks are protective of human health and the environment; and

(iii) additional scientific and technical information may be used, as available, for exposures and effects not explicitly addressed through the application of the numeric criteria listed in or developed in accordance with Appendix D.

(B) The Commissioner may amend the numeric criteria for the toxic pollutants listed in Appendix D of these ~~Water Quality Standards~~WQS in accordance with the procedures specified in Section 22a-426 of the Connecticut General Statutes on his or her own initiative, or upon request of any person or municipality that site-specific water quality criteria be adopted or amended, provided such request is supported by sound scientific and technical evidence demonstrating the following:

1. Conditions at the specific site differ significantly from those used in establishing the statewide criteria.

2. The proposed site-specific criteria are sufficiently stringent to protect all existing and designated uses of the water body.

3. The proposed site-specific criteria are derived in a manner consistent with sound scientific and technical principles, giving consideration to all applicable federal guidance.

13. The Commissioner may adopt or amend criteria for any surface water or class of water, in accordance with the procedures specified in the Connecticut General Statutes (Section 22a-426) and in paragraphs (1), (2), and (3) of Standard 12(B) of these ~~Water Quality Standards~~WQS, provided such change is supported by sound scientific and technical evidence, and existing and designated uses are fully protected.

14. Surface waters and sediments shall be free from chemical constituents in concentrations or combinations which will or can reasonably be expected to: result in acute or chronic toxicity to aquatic organisms or otherwise impair the biological integrity of aquatic or marine ecosystems outside of any dredged material disposal area or areas designated by the Commissioner for disposal or placement of fill materials or any zone of influence allowed by the Commissioner, or bioconcentrate or bioaccumulate in tissues of fish, shellfish and other aquatic organisms at levels which will impair the health of aquatic organisms or wildlife or result in unacceptable tastes, odors or health risks to human consumers of aquatic organisms or wildlife unless such sediments are capped with material suitable for unconfined, open water disposal as an appropriate means of ensuring consistency with this standard as approved by the Commissioner in writing. In determining consistency with this Standard, the Commissioner shall at a minimum consider the numeric criteria listed in Appendix D and any other information he or she deems relevant.

15. Except within dredged material disposal areas or areas designated by the Commissioner for disposal or placement of fill materials, surface waters and bottom sediments shall be substantially free of pollutants that: a) unduly affect the composition of bottom fauna; b) unduly affect the physical or chemical nature of the bottom; or c) interfere with the propagation or habitats of shellfish, finfish and wildlife. Dredged materials disposed of at a dredged ~~materiel~~ material disposal area shall not result in: a) floating residues of any sort; b) release of any

substance which may result in long-term or permanent degradation of water quality in surface waters overlying or adjacent to the disposal areas; c) dispersal of contaminated sediments outside a dredged material disposal area other than that occurring as a transient plume during disposal operations; or d) biological mobilization and subsequent transport of toxic substances to food chains. The Commissioner may consider Best Management Practices including but not limited to capping the dredged material with material suitable for unconfined open water disposal as appropriate means of ensuring consistency with this standard.

16. Biological Condition ~~Benthic invertebrate~~ criteria may be utilized where appropriate for assessment of the biological integrity of surface waters. ~~The criteria apply to the fauna of erosional or riffle habitats in lotic waters which are not subject to tidal influences.~~

17. The discharge of radioactive materials to a surface water in concentrations or combinations which would be harmful to human, animal or aquatic life shall not be allowed. The applicable criteria can be found in Title 10, Part 20 of the Code of Federal Regulations.

18. Best Management Practices for control of non-point source pollutants may be required by the Commissioner on a case-by-case basis.

19. ~~Best Management Practices, discharge limitations or other reasonable controls on p~~Point and non-point sources of phosphorus and nitrogen, including sources of atmospheric deposition, which contribute or have the potential to contribute to the impairment of any surface water shall ~~be~~ apply Best Management Practices, discharge limitations or other reasonable controls that may be required by the Commissioner on a case-by-case basis as necessary to ensure maintenance and attainment of existing and designated uses, restore impaired waters, prevent culturally enriched conditions or impair downstream waters.

20. Use of Best Management Practices and other reasonable controls on non-point sources of nutrients and sediment are preferable to the use of biocides for correction of culturally ~~eutrophic~~ enriched conditions.

21. Surface waters identified as potential drinking water supplies in the Long Range Plan for Management of Water Resources prepared and adopted pursuant to Section 22a-352 of the Connecticut General Statutes shall be designated Class AA. The Commissioner may designate~~d~~ other surface waters as Class AA including surface waters that (1) have been designated a proposed drinking water supply in Connecticut's Conservation and Development Policies Plan, (2) have been recommended for future use as a drinking water supply in a water company's water supply plan, (3) the Commissioner has issued a Diversion Permit authorizing use as a drinking water supply, or (4) have been identified in a request from a municipality for designation as a drinking water supply at a public hearing concerning water quality classifications.

22. Section 22a-417 of the Connecticut General Statutes imposes an absolute restriction on the discharge of sewage to Class AA reservoirs and their tributaries. The existence of a discharge to a surface water which occurs outside the State that then flows into the State shall not be considered a valid reason for either relaxing the restriction in Connecticut or changing the Class AA designation. It is a policy of the State to pursue the adoption of compatible ~~Water Quality Standards~~WQS in neighboring states to assure the protection of Connecticut drinking water supplies.

23. Disinfection shall be required for all treated sewage discharges to surface waters. The period of disinfection shall vary depending on the nature of the receiving surface water as described below:

(A) Continuous disinfection shall be required at all sewage treatment plants located south of Interstate Highway 95 (I-95) to protect shellfish resources.

(B) Disinfection shall be required from May 1 to October 1 at all sewage treatment plants located north of I-95. Seasonal disinfection is intended to protect the sanitary quality of bathing waters, and minimize adverse impacts to aquatic life associated with disinfection. An alternative schedule, including continuous disinfection, may be required if found necessary by the Commissioner to protect existing or designated uses.

(C) For those Class B surface waters located north of Interstate Highway 95 (I-95) and downstream of a sewage treatment plant providing seasonal disinfection as authorized by the Commissioner, criteria for indicator bacteria do not apply during periods when disinfection is not required.

24. The discharge of sewage from ~~boats in all inland fresh~~ any vessel to any water~~s~~ not amenable to interstate navigation is prohibited. Additionally, the discharge of sewage to any coastal water in Connecticut accessible by a vessel with an installed head is prohibited pursuant to Section 312(f)(3) of the federal Clean Water Act. Boat discharges in other surface waters are subject to the legislative provisions of Sections 15-170 through 15-176 of the Connecticut General Statutes and Section 312, entitled Marine Sanitation Devices, of the federal Clean Water Act.

25. Indicator bacteria are used to detect the potential presence of contamination by human or animal wastes. Due to the inherent uncertainty involved in sampling and analytically determining bacteria levels, exce~~e~~dences of water quality criteria does not always indicate a water quality problem and therefore should be investigated by means of a sanitary survey or other appropriate means to determine sources of elevated indicator bacteria levels. (see also Appendix B).

26. Physical obstructions such as dams, which prevent fish migration for spawning and growth, shall not be considered a valid reason for failure to achieve and maintain water quality conditions necessary to support all designated uses of a surface water unless the Commissioner has approved a Use Attainability Analysis documenting that a designated use is not attainable for such surface water.

~~27. The allowable temperature increase resulting from discharges in the estuarine segments of the Housatonic, Connecticut and Thames Rivers shall be consistent with the criteria for the non-tidal segments.~~

~~28~~27. Surface water quality monitoring methods shall be consistent with Title 40 Part 30 of the Code of Federal Regulations or other equivalent monitoring methods approved in writing by the Commissioner.

~~29.~~28Surface waters which are not specifically classified shall be considered as Class A or Class SA.

~~30~~29. Watercourses which are contained in drainage conduits or pipes and which are not assigned a specific class are considered to be the class of the water body segment into which they discharge.

~~31. Where existing water quality may not support the designated uses and quality criteria, the known or presumed existing quality will be identified, followed by the classification (e.g., C/B).~~

~~32~~30. Revisions to the ~~Water Quality Standards~~WQS, including but not limited to the following, shall be subject to the public participation process provided for in Section 22a-426 of the Connecticut General Statutes:

(A) The adoption of a map which depicts the Water Quality Goals and Classifications assigned to any water resource.

(B) Any decisions regarding the lowering of water quality in existing high quality surface waters or a change in the Water Quality Classification of any surface water.

(C) The adoption of any Use Attainability Analysis.

(D) The adoption or amendment of site-specific water quality criteria.

~~33~~31. These ~~Water Quality Standards~~WQS shall apply to all surface waters. Evaluation of a discharge or discharge of dredged or fill material to wetlands shall include consideration of the

manner in which such wetlands support existing and designated uses and protect and maintain downstream water quality.

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INLAND SURFACE WATER CLASSIFICATIONS AND CRITERIA

~~CLASS AA~~

~~Designated Uses - These surface waters are designated for: existing or proposed drinking water supplies; habitat for fish and other aquatic life and wildlife; recreation; and water supply for industry and agriculture.~~

~~Classifications Shown on Maps~~

~~AA Known or presumed to meet Criteria which support the designated uses.~~

~~B/AA or C/AA May not be meeting Class AA Criteria or designated uses. The water quality goal is achievement of Class AA Criteria and attainment of Class AA designated uses.~~

~~CLASS A~~

~~Designated Uses - These surface waters are designated for: habitat for fish and other aquatic life and wildlife; potential drinking water supplies; recreation; navigation; and water supply for industry and agriculture.~~

~~Classifications Shown on Maps~~

~~A Known or presumed to meet Criteria which support designated uses.~~

~~B/A or C/A May not be meeting Criteria or one or more designated uses. The water quality goal is achievement of Class A Criteria and attainment of Class A designated uses.~~

~~CLASS B~~

~~Designated Uses - These surface waters are designated for: habitat for fish and other aquatic life and wildlife; recreation; navigation; and industrial and agricultural water supply.~~

~~Classifications Shown on Maps~~

~~B Known or presumed to meet Criteria which support designated uses.~~

~~C/B or D/B Due to point or non-point sources of pollution, certain Criteria or one or more designated uses assigned to Class B waters may not currently be met. The water quality goal is achievement of Class B Criteria and attainment of Class B designated uses.~~

~~CLASS C~~

~~Class C water quality results from conditions that are usually correctable through implementation of established water quality management programs to control point and non-point sources. Present water quality conditions frequently preclude the attainment of one or more designated uses for Class B waters or one or more Criteria for Class B waters are not being consistently achieved. Class C waters may be suitable for certain fish and wildlife habitat, certain recreational activities, industrial use and navigation. Class C waters may have good aesthetic value. Examples of conditions that warrant a Class C designation include: combined sewer overflows, urban runoff, inadequate municipal or industrial wastewater treatment, and community-wide septic system failures. The minimum acceptable goal is Class B unless a DEP and EPA approved Use Attainability Analysis demonstrates that one or more Class B designated uses are not attainable. In those situations, site specific Quality Criteria will be employed to insure that all existing uses are maintained. Refer to Standard 6.~~

~~Classifications Shown on Maps~~

~~C/B, C/A or C/AA Presently not meeting Criteria or not supporting one or more assigned designated uses due to pollution. The goal for such waters may be Class AA, A or Class B.~~

~~CLASS D~~

~~Class D water quality results from conditions that are not readily correctable through implementation of established water quality management programs to control point and non-point sources. Present water quality conditions persistently preclude the attainment of one or more designated uses for Class B waters or one of more Criteria for Class B waters are not being achieved for prolonged periods. Class D waters may be suitable for bathing or other recreational purposes, certain fish and wildlife habitat, industrial uses and navigation. Class D waters may have good aesthetic value. Examples of conditions which warrant a Class D designation include chemical contamination of bottom sediments, contamination of fish or shellfish with toxic compounds, and pollution caused by out-of-state sources. The minimum acceptable goal is Class B unless a DEP and EPA approved Use Attainability Analysis demonstrates that one or more~~

~~uses are not attainable. In those situations, site specific Quality Criteria will be employed to insure that all existing uses are maintained. Refer to Standard 6.~~

~~Classifications Shown on Maps~~

~~D/B, D/A - Presently not meeting Criteria or not supporting one or more assigned designated uses due to severe pollution or presence of certain persistent contaminants in the sediments which may bioaccumulate in the food chain. The goal for such waters may be Class A or Class B.~~

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CLASS AA DESIGNATED USES AND CRITERIA

CLASS AA

Designated Uses- These surface waters are designated for: existing or proposed drinking water supplies; habitat for fish and other aquatic life and wildlife; recreation; and water supply for industry and agriculture.

Parameter	Criteria
Aesthetics	Uniformly excellent.
Dissolved oxygen	Not less than 5 mg/L at any time.
Sludge deposits-solid refuse-floating solids-oils and grease-scum	None other than of natural origin.
Color	None other than of natural origin.
Suspended and settleable solids	None in concentrations or combinations which would impair designated uses; none aesthetically objectionable; none which would significantly alter the physical or chemical composition of the bottom; none which would adversely impact aquatic organisms living in or on the bottom substrate.
Silt or sand deposits	None other than of natural origin except as may result from normal agricultural, road maintenance, construction activity or dredging activity or discharge of dredged or fill materials provided all reasonable controls or Best Management Practices are used in such activities and all designated uses are protected and maintained.
Turbidity	Shall not exceed 5 NTU over ambient levels and none exceeding levels necessary to protect and maintain all designated uses. All reasonable controls or Best Management Practices are to be used to control turbidity.
Indicator bacteria	~~REFER TO APPENDIX B.~~See Appendix B.
Taste and odor	None other than of natural origin.
pH	As naturally occurs.
~~Allowable t~~Temperature ~~increase~~	There shall be no changes from natural conditions that would impair any existing or designated uses assigned to this Class and~~,~~ in no case shall minimum requirements for cold, cool and warm water habitats defined by the presence of indicator fish species or other acceptable measure for each habitat type be exceeded as defined in Appendix F.

~~in no case exceed 85 degrees F, or in any case raise the temperature of surface water more than 4 degrees F.~~

Chemical constituents	None in concentrations or combinations which would be harmful to designated uses. Refer to Standards numbers 10, 11, 12, 13, 14, 17 and 19.
~~Phosphorus~~Nutrients	~~None other than of natural origin.~~ The loading of nutrients, principally phosphorus and nitrogen, to any surface water body shall be limited to that contributed by natural sources including that arising from existing human sources provided sufficient limitations, controls or best management practices have been implemented to protect, maintain or restore designated uses in the water body from the effects of cultural enrichment. See Appendix G for guidance on implementation of this narrative criterion.
Sodium	Not to exceed 20 mg/L.
Biological Condition ~~Benthic invertebrates which inhabit lotic waters~~	Sustainable, diverse biological communities of indigenous taxa shall be present. Moderate changes, from natural conditions, in the structure of the biological communities, and minimal changes in ecosystem function may be evident; however, water quality shall be sufficient to sustain a biological condition assessed along a 6 tier stressor gradient of Biological Condition Gradient tiers 1 through 4 to meet Class AA criteria (See Appendix H). ~~A wide variety of macroinvertebrate taxa should normally be present and all functional feeding groups should normally be well represented. Presence and productivity of aquatic species is not limited except by natural conditions, permitted flow regulation or irreversible cultural impacts. Water quality shall be sufficient to sustain a diverse macroinvertebrate community of indigenous species. Taxa within the Orders Plecoptera (stoneflies), Ephemeroptera (mayflies), Coleoptera (beetles), and Trichoptera (caddisflies) should be well represented.~~

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CLASS A DESIGNATED USES AND CRITERIA

CLASS A

Designated Uses - These surface waters are designated for: habitat for fish and other aquatic life and wildlife; potential drinking water supplies; recreation; navigation; and water supply for industry and agriculture.

Parameter	Criteria
Aesthetics	Uniformly excellent.
Dissolved oxygen	Not less than 5 mg/L at any time.
Sludge deposits-solid refuse-floating solids-oils and grease-scum	None other than of natural origin.
Color	None other than of natural origin.
Suspended and settleable solids	None in concentrations or combinations which would impair designated uses; none aesthetically objectionable; none which would significantly alter the physical or chemical composition of the bottom; none which would adversely impact aquatic organisms living in or on the bottom substrate.
Silt or sand deposits	None other than of natural origin except as may result from normal agricultural, road maintenance, construction activity, dredging activity or the discharge of dredged or fill materials provided all reasonable controls or Best Management Practices are used in such activities and all designated uses are protected and maintained.
Turbidity	Shall not exceed 5 NTU over ambient levels and none exceeding levels necessary to protect and maintain all designated uses. All reasonable controls or Best Management Practices are to be used to control turbidity.
Indicator bacteria	~~REFER TO APPENDIX B.~~See Appendix B.
Taste and odor	None other than of natural origin.
pH	As naturally occurs.

~~Allowable t~~Temperature ~~increase~~	There shall be no changes from natural conditions that would impair any existing or designated uses assigned to this Class and~~,~~ in no case shall minimum requirements for cold, cool and warm water habitats defined by the presence of indicator fish species or other acceptable measure for each habitat type be exceeded as defined in Appendix F. ~~in no case exceed 85 degrees F, or in any case raise the temperature of surface water more than 4 degrees F.~~
Chemical constituents	None in concentrations or combinations which would be harmful to designated uses. Refer to Standards numbers 10, 11, 12, 13, 14, 17, and 19.
~~Phosphorus~~Nutrients	~~None other than of natural origin.~~ The loading of nutrients, principally phosphorus and nitrogen, to any surface water body shall be limited to that contributed by natural sources including that arising from existing human sources provided sufficient limitations, controls or best management practices have been implemented to protect, maintain or restore designated uses in the water body from the effects of cultural enrichment. See Appendix G for guidance on implementation of this narrative criterion.
Sodium	None other than of natural origin.
Biological Condition ~~Benthic invertebrates which inhabit lotic waters~~	Sustainable, diverse biological communities of indigenous taxa shall be present. Moderate changes, from natural conditions, in the structure of the biological communities, and minimal changes in ecosystem function may be evident; however, water quality shall be sufficient to sustain a biological condition assessed along a 6 tier stressor gradient of Biological Condition Gradient tiers 1 through 4 to meet Class A criteria (See Appendix H). ~~A wide variety of macroinvertebrate taxa should normally be present and all functional feeding groups should normally be well represented. Presence and productivity of aquatic species is not limited except by natural conditions, permitted flow regulation or irreversible cultural impacts. Water quality shall be sufficient to sustain a diverse macroinvertebrate community of indigenous species. Taxa within the Orders Plecoptera (stoneflies), Ephemeroptera (mayflies), Coleoptera (beetles), and Trichoptera (caddisflies) should be well represented.~~

CLASS B DESIGNATED USES AND CRITERIA

CLASS B

Designated Uses - These surface waters are designated for: habitat for fish and other aquatic life and wildlife; recreation; navigation; and industrial and agricultural water supply.

Parameter	Criteria
Aesthetics	Good to excellent.
Dissolved oxygen	Not less than 5 mg/L at any time.
Sludge deposits-solid refuse floating solids-oils and grease-scum	None except for small amounts that may result from the discharge from a permitted waste treatment facility and none exceeding levels necessary to protect and maintain all designated uses.
Color	None which causes visible discoloration of the surface water outside of any designated zone of influence.
Suspended and settleable solids	None in concentrations or combinations which would impair the most sensitive designated use; none aesthetically objectionable; none which would significantly alter the physical or chemical composition of the bottom; and none which would adversely impact aquatic organisms living in or on the bottom sediments; shall not exceed 10 mg/L over ambient concentrations.
Silt or sand deposits	None other than of natural origin except as may result from normal agricultural, road maintenance, construction activity, dredging activity or discharge of dredged or fill materials provided all reasonable controls or Best Management Practices are used in such activities and all designated uses are protected and maintained.
Turbidity	Shall not exceed 5 NTU over ambient levels and none exceeding levels necessary to protect and maintain all designated uses. All reasonable controls or Best Management Practices are to be used to control turbidity.
Indicator bacteria	REFER TO APPENDIX B.
Taste and	None that would impair any uses specifically assigned to this Class.

odor	
pH	6.5 – 8.0
~~Allowable t~~temperature ~~increase~~	There shall be no changes from natural conditions that would impair any existing or designated uses assigned to this Class and~~,~~ in no case shall minimum requirements for cold, cool and warm water habitats defined by the presence of indicator fish species or other acceptable measure for each habitat type be exceeded as defined in Appendix F. ~~in no case exceed 85 degrees F, or in any case raise the temperature of surface water more than 4 degrees F.~~
Chemical constituents	None in concentrations or combinations which would be harmful to designated uses. Refer to Standards numbers 10, 11, 12, 13, 14, 17, and 19.
Nutrients	The loading of nutrients, principally phosphorus and nitrogen, to any surface water body shall be limited to that contributed by natural sources including that arising from existing human sources provided sufficient limitations, controls or best management practices have been implemented to protect, maintain or restore designated uses in the water body from the effects of cultural enrichment. See Appendix G for guidance on implementation of this narrative criterion.
Biological Condition ~~Benthic invertebrates which inhabit lotic waters~~	Sustainable, diverse biological communities of indigenous taxa shall be present. Moderate changes, from natural conditions, in the structure of the biological communities, and minimal changes in ecosystem function may be evident; however, water quality shall be sufficient to sustain a biological condition assessed along a 6 tier stressor gradient of Biological Condition Gradient tiers 1 through 4 to meet Class B criteria (See Appendix H). ~~Water quality shall be sufficient to sustain a diverse macroinvertebrate community of indigenous species. All functional feeding groups and a wide variety of macroinvertebrate taxa shall be present, however one or more may be disproportionate in abundance. Waters which currently support a high quality aquatic community shall be maintained at that high quality. Presence and productivity of taxa within the Orders Plecoptera (stoneflies), Ephemeroptera (mayflies); and pollution intolerant Coleoptera (beetles) and Trichoptera (caddis-flies) may be limited due to cultural activities. Macroinvertebrate communities in waters impaired by cultural activities shall be restored to the extent practical through implementation of the department's procedures for control of pollutant discharges to surface waters and through Best Management Practices for non-point sources of pollution.~~

LAKE TROPHIC CATEGORIES

~~Criteria for~~ The ranges of Total Phosphorus, Total Nitrogen, Chlorophyll-a, and Secchi Disk Transparency appearing in ~~the table~~ Table 1 below ~~represent acceptable ranges for these parameters within which recreational uses will be fully supported and maintained for lakes in each trophic category.~~ are assessed in conjunction with each other to determine the trophic state of a lake. In conjunction with water column data, the trophic state of a lake is determined by the percent of the surface area covered by macrophytes in accordance with Table 2 below. For the purpose of determining consistency with the water quality standards ~~for lakes classified AA, A or B, an assessment of the natural trophic category of the lake, absent significant cultural impacts, must be performed to determine which criteria apply.~~ the trophic state of a lake must be assessed to determine the attainable trophic state of the lake. Lakes in advanced trophic states beyond thier attainable trophic state are considered to be inconsistent with water quality standards.

Table 1: Parameters and Defining Ranges for Trophic State of Lakes in Connecticut

OLIGOTROPHIC

May be Class AA, Class A, or Class B water. Low in plant nutrients. Low biological productivity characterized by the absence of macrophyte beds. High potential for water contact recreation.

Parameters		~~Criteria~~ Defining Range
1.	Total Phosphorus	0-10 ug/l spring and summer
2.	Total Nitrogen	0-200 ug/l spring and summer
3.	Chlorophyll-a	0-2 ug/l mid-summer
4.	Secchi Disk Transparency	6 + meters mid-summer

MESOTROPHIC

May be Class AA, Class A, or Class B water. Moderately enriched with plant nutrients. Moderate biological productivity characterized by intermittent blooms of algae and/or small areas of macrophyte beds. Good potential for water contact recreation.

Parameters	~~Criteria~~Defining Range
1. Total Phosphorus	10-30 ug/l spring and summer
2. Total Nitrogen	200-600 ug/l spring and summer
3. Chlorophyll-a	2-15 ug/l mid-summer
4. Secchi Disk Transparency	2-6 meters mid-summer

EUTROPHIC

May be Class AA, Class A, or Class B water. Highly enriched with plant nutrients. High biological productivity characterized by frequent blooms of algae and/or extensive areas of dense macrophyte beds. Water contact recreation opportunities may be limited.

Parameters	~~Criteria~~Defining Range
1. Total Phosphorus	30-50 ug/l spring and summer
2. Total Nitrogen	600-1000 ug/l spring and summer
3. Chlorophyll-a	15-30- ug/l mid-summer
4. Secchi Disk Transparency	1-2 meters mid-summer

HIGHLY EUTROPHIC

May be Class AA, Class A, or Class B water. Excessive enrichment with plant nutrients. High biological productivity, characterized by severe blooms of algae and/or extensive areas of dense macrophyte beds. Water contact recreation may be extremely limited.

Parameters	~~Criteria~~Defining Range
1. Total Phosphorus	50 + ug/l spring and summer
2. Total Nitrogen	1000 + ug/l spring and summer
3. Chlorophyll-a	30 + ug/L mid-summer
4. Secchi Disk Transparency	0-1 meters mid-summer

AQUATIC MACROPHYTES

Macrophytes are aquatic plants large enough to be seen without magnification. Macrophyte distribution and abundance data are reviewed in conjunction with the water column data to

determine the trophic states of lakes or ponds. If macrophyte growth is very extensive (75 - 100% of water body area) and dense, the trophic state of a lake or pond is "highly eutrophic" regardless of the water column data. If macrophyte growth is extensive (30 - 75% of water body area) and dense, the trophic state is "mesotrophic" when the water column indication is oligotrophic, and the trophic state is "eutrophic" when the water column indication is mesotrophic or eutrophic.

Table 2 Percent of Macrophyte Coverage Used to Determine Trophic State of Lakes

Trophic State based on water column data	% water body area of lake affected by Macrophytes	Lake Trophic State
Oligotrophic, Mesotrophic or Eutrophic	75-100%	Highly Eutrophic
Oligotrophic	30-75%	Mesotrophic
Mesotrophic or Eutrophic	30-75%	Eutrophic

COASTAL WATERS CLASSIFICATIONS AND CRITERIA

~~CLASS SA~~

~~Designated Uses – These surface waters are designated for: habitat for marine fish, other aquatic life and wildlife; shellfish harvesting for direct human consumption (Appendix G)[Note: Despite the good work of Katie, Erik and others, I don't see a need for complicating the WQS with the new interpretation. I suggest, like for macrophytes, the Appendix they generated be used for assessment in CALM, at least for now.] for direct human consumption; recreation; industrial water supply; and navigation.~~

~~Classifications Shown on Maps~~

~~SA Know or presumed to meet Criteria which support designated uses.~~

~~SB/SA or SC/SA Presently may not be meeting Criteria or one or more designated uses. The water quality goal is achievement of Class SA Criteria and attainment of Class SA designated uses.~~

~~CLASS SB~~

~~Designated Uses – These waters are designated for: habitat for marine fish, other aquatic life and wildlife; commercial commercial shellfish harvesting (Appendix G); recreation; industrial water supply; and navigation.~~

~~Classifications Shown on Maps~~

~~SB Known or presumed to meet Criteria which support designated uses.~~

~~SC/SB or SD/SB Due to point or non-point sources of pollution, certain Criteria or one or more designated uses assigned to Class SB surface waters may not be currently met. The water quality goal is achievement of Class SB criteria and attainment of Class SB designated uses.~~

~~CLASS SC~~

~~Class SC water quality results from conditions that are usually correctable through implementation of established water quality management programs to control point and non-point sources. Present surface water quality conditions frequently preclude the attainment of one~~

~~of more designated uses for Class SB waters or one or more Criteria for Class SB waters are not being consistently achieved. Class SC waters may be suitable for certain fish and wildlife habitat, certain recreational activities, certain aquaculture operations, industrial use and navigation. Class SC waters may have good aesthetic value. Examples of conditions that warrant a Class SC designation include combined sewer overflows, urban runoff, inadequate municipal or industrial wastewater treatment, and community-wide septic system failures. The minimum acceptable goal is Class SB unless a DEP and EPA approved Use Attainability Analysis demonstrates that one or more Class SB uses are not attainable. In those situations, site-specific Quality Criteria will be employed to insure that all existing uses are maintained. Refer to Standard 6.~~

~~Classifications Shown on Maps~~

~~SC/SB or SC/SA Presently not meeting Criteria or not supporting one or more designated uses due to pollution. The goal for such waters may be Class SB, or Class SA.~~

~~CLASS SD~~

~~Class SD water quality results from conditions that are not readily correctable through implementation of established water quality management programs to control point and non-point sources. Present water quality conditions persistently preclude the attainment of one or more designated uses of one or more Criteria for Class SB waters are not being achieved for prolonged periods. Class SD waters may be suitable for certain fish and wildlife habitat, certain recreational activities, certain aquaculture operations, industrial use and navigation. Examples of conditions that warrant a Class SD designation include chemical contamination of bottom sediments, contamination of fish or shellfish with toxic compounds, and pollution caused by out of state sources. The minimum acceptable goal is Class SB unless a DEP and EPA approved Use Attainability Analysis demonstrates that one or more uses are not attainable. In those situations, site-specific Quality Criteria will be employed to insure that all existing uses are maintained. Refer to Standard 6.~~

~~Classifications Shown on Maps~~

~~SD/SB, SD/SA Presently not meeting Criteria or not supporting one or more assigned designated uses due to severe pollution. The goal for such surface waters may be Class SA or Class SB.~~

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CLASS SA DESIGNATED USES AND CRITERIA

CLASS SA

Designated Uses - These surface waters are designated for: habitat for marine fish, other aquatic life and wildlife; shellfish harvesting for direct human consumption; recreation; industrial water supply; and navigation.

Parameter	Criteria
Aesthetics	Uniformly excellent.
Dissolved oxygen	~~Not less than 6.0 mg/L at any time in the nearshore water of Long Island Sound, including harbors, embayments and estuarine tributaries.~~ ~~Not less than 6.0 mg/L at any time in the offshore waters of Long Island Sound, above the seasonal pycnocline and throughout the Sound when no pycnocline is established.~~ Acute: Not less than ~~3.5~~ 3.0 mg/L. ~~for offshore waters within and below the seasonal pycnocline.~~ Chronic: Not less than 4.8 mg/L with c~~C~~umulative periods of dissolved oxygen in the ~~3.5 –~~ 3.0 – 4.8 mg/L range ~~shall not exceed exposure parameters~~ as detailed in Appendix C. ~~Applicable to nearshore and offshore waters of Long Island Sound and throughout the entire water column.~~
Sludge deposits-solid refuse-floating solids-oils and grease-scum	None other than of natural origin.
Color	None other than of natural origin.
Suspended and settleable solids	None other than of natural origin.

Silt or sand deposits	None other than of natural origin except as may result from normal agricultural, road maintenance, construction activity, dredging activity or the discharge of dredged or fill materials provided all reasonable controls or Best Management Practices are used in such activities and all designated uses are protected and maintained.
Turbidity	None other than of natural origin except as may result from normal agricultural, road maintenance, or construction activity, dredging activity or discharge of dredged or fill materials provided all reasonable controls and Best Management Practices are used to control turbidity and none exceeding levels necessary to protect and maintain all designated uses.
Indicator bacteria	~~REFER TO APPENDIX B~~ See Appendix B.
Taste and odor	As naturally occurs.
pH	6.8 – 8.5
~~Allowable t~~Temperature ~~increase~~	There shall be no changes from natural conditions that would impair any existing or designated uses assigned to this Class and~~,~~ in no case exceed a maximum daily mean of 82 ^{o}F and~~,~~ an hourly maximum of 83 ^{o}F ~~and, in any case,~~or raise the temperature of the receiving water more than 2F~~ ^{o}F or in no case exceed 83 degrees F, or in any case raise the temperature of the receiving water more than 4 degrees F. During the period including July, August, and September, the temperature of the receiving water shall not be raised more that 1.5 degrees F~~ unless it can be shown that spawning and growth of indigenous organisms will not be significantly affected.
Chemical constituents	None in concentrations or combinations which would be harmful to designated uses. Refer to Standards numbers 10, 11, 12, 13, 14, 17, and 19.
Nutrients	The loading of nutrients, principally phosphorus and nitrogen, to any surface water body shall be limited to that contributed by natural sources including that arising from existing human sources provided sufficient limitations, controls or best management practices have been implemented to protect, maintain or restore designated uses in the water body from the effects of cultural enrichment. See Appendix G for guidance on implementation of this narrative criterion.

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CLASS SB DESIGNATED USES AND CRITERIA

CLASS SB

Designated Uses - These waters are designated for: habitat for marine fish, other aquatic life and wildlife; commercial shellfish harvesting; recreation; industrial water supply; and navigation.

Parameter	Criteria
Aesthetics	Good to excellent.
Dissolved oxygen	~~Not less than 5.0 mg/L at any time in the nearshore water of Long Island Sound, including harbors, embayments and estuarine tributaries.~~ ~~Not less than 5.0 mg/L at any time in the offshore waters of Long Island Sound, above the seasonal pycnocline and throughout the Sound when no pycnocline is established.~~ Acute: Not less than ~~3.5~~ 3.0 mg/L. ~~for offshore waters within and below the seasonal pycnocline.~~ Chronic: Not less that 4.8 mg/L with c~~C~~umulative periods of dissolved oxygen in the~~ 3.5 –~~ 3.0– 4.8 mg/L range ~~shall not exceed exposure parameters~~ as detailed in Appendix C. ~~Applicable to nearshore and offshore waters of Long Island Sound and throughout the entire water column.~~
Sludge deposits-solid refuse-floating solids-oils and grease-scum	None except for small amounts that may result from the discharge from a grease waste treatment facility providing appropriate treatment and none exceeding levels necessary to protect and maintain all designated uses.
Color	None resulting in obvious discoloration of the surface water outside of any designated zone of influence.

Suspended and settleable solids	None in concentrations or combinations which would impair the designated uses; none aesthetically objectionable; none which would significantly alter the physical or chemical composition of bottom sediments; none which would adversely impact organisms living in or on the bottom sediment.
Silt or sand deposits	None other than of natural origin except as may result from normal agricultural, road maintenance, construction activity, dredging activity or discharge of dredged or fill materials provided all reasonable controls or Best Management Practices are used in such activities and all designated uses are protected and maintained.
Turbidity	None other than of natural origin except as may result from normal agricultural, road maintenance, or construction activity, or discharge from a waste treatment facility providing appropriate treatment, dredging activity or discharge of dredged or fill materials provided all reasonable controls and Best Management Practices are used to control turbidity and none exceeding levels necessary to protect and maintain all designated uses.
Indicator bacteria	~~REFER TO APPENDIX B.~~ See Appendix B.
Taste and odor	As naturally occurs. None that would impair any uses specifically assigned to this Class.
pH	6.8 – 8.5
~~Allowable t~~Temperature ~~increase~~	There shall be no changes from natural conditions that would impair any existing or designated uses assigned to this Class and~~,~~, in no case exceed a maximum daily mean of 82 ^{o}F~~,~~ and an hourly maximum of 83 ^{o}F ~~and, in any case,~~or raise the temperature of the receiving water more than 2F~~-^{o}F ~~in no case exceed 83 degrees F, or in any case raise the temperature of the receiving water more than 4 degrees F. During the period including July, August, and September, the temperature of the receiving water shall not be raised more that 1.5 degrees F~~ unless it can be shown that spawning and growth of indigenous organisms will not be significantly affected.
Chemical constituents	None in concentrations or combinations which would be harmful to designated uses. Refer to Standards numbers 10, 11, 12, 13, 14, 17, and 19.
Nutrients	The loading of nutrients, principally phosphorus and nitrogen, to any surface water body shall be limited to that contributed by natural sources including that arising from existing human sources provided sufficient limitations, controls or best management practices have been implemented to protect, maintain or restore designated uses in the water body from the effects of cultural enrichment. See Appendix G for guidance on implementation of this narrative criterion.

APPENDIX A
DEFINITIONS

Acute Toxicity
means adverse effect such as mortality or debilitation caused by a brief exposure to a toxic substance.

Aesthetics
means the appearance, odor or other characteristics of a surface water which impact human senses and enjoyment of such surface water.

Anti-degradation Policy
means a statement of practice required by federal law which protects existing uses and prohibits a state from lowering high quality surface water quality in order to accommodate activities which impact a particular surface water unless a lowering of surface water quality is determined, following intergovernmental coordination and public participation, to be necessary to accommodate important economic or social development in the area where the water is located.

Arithmetic Mean
means the number, calculated by dividing the sum of all values by the number of values to be averaged.

Atmospheric Deposition
means the delivery of airborne substances of both natural and human origin to land and water surfaces which can be deposited with or without rainfall.

Benthic
means associated with the bottom of a surface water body.

Benthic Macroinvertebrates ~~Macro Invertebrates~~
means animals which are large enough to be seen by the unaided eye and which can be retained by a U. S. standard No. 30 sieve (28 meshes per inch, 0.595 mm openings), and which live at least part of their life cycle within or upon submerged substrates in a body of water. These animals usually consist of the aquatic life stages of various insects and arthropods, mollusks, leeches and worms.

Best Management Practices

means those practices which reduce pollution and which have been determined by the Commissioner to be acceptable based on, but not limited to, technical, economic and institutional feasibility.

Bioaccumulation

means the uptake and retention of substances by an organism from its surrounding medium and/or from food.

Bioconcentration

means the uptake and retention of substances by an organism from its surrounding medium.

Biological Condition Gradient Model

means a descriptive model that describes how ecological attributes change in response to increasing levels of stressors.

Biological Integrity

means the ability of an aquatic ecosystem to support and maintain a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of the natural habitats of a region.

Biotic Community (Aquatic)

means a population of interacting organisms in a given water body, such as benthic macroinvertebrate and fish assemblages.

Biotic Community Structure

means the taxonomic composition of the biotic community typically including reference to the number of organisms present and their ecological function.

Chronic Toxicity

means an adverse effect, such as reduced reproductive success or growth or poor survival of sensitive life stages occurring as a result of exposure to a substance for a period of time related to the life span of an organism and usually longer than that which causes acute toxicity.

Classification

means the designation of the proposed uses of surface and ground waters with alphabetic characters. Where classifications appear as alphabetic characters separated by a diagonal line, the first classification indicates known or presumed existing water quality and the second classification indicates the goal for the subject water.

Clean Water

means water which in the judgment of the Commissioner is of a quality substantially similar to that occurring naturally in the receiving stream under consideration. Clean water may include minor cooling waters, residential swimming pool water, and stormwater.

Coastal Waters

means as defined by Section 22a-93 of the Connecticut General Statutes and means those waters of Long Island Sound and its harbors, embayments, tidal rivers, streams and creeks, which contain a salinity concentration of at least five hundred parts per million under the low flow stream conditions as established by the Commissioner.

Commissioner

means the Commissioner of Environmental Protection or his designated agent as set forth in Section 22a-423 of the Connecticut General Statutes.

Criteria

means components of these Water Quality Standards, expressed in chemical, physical, or biological parameters and their concentrations, or levels, or by narrative statements, representing a quality of water that supports a particular use.

Cultural Enrichment

means the addition of excess nutrient input into surface waters from human sources in combination with other habitat factors that may cause high biological productivity, characterized by severe blooms of algae and/or extensive areas of dense macrophyte beds.

Department

means the Connecticut Department of Environmental Protection.

Designated Use

means those uses specified in these Water Quality Standards for each surface water (or ground water) classification, whether or not they are being attained.

Discharge

means as set forth in Sec. 22a-423 of the Connecticut General Statutes.

Discharge Toxicity Evaluation

means a structured scientific analysis of the toxicity and discharge rate of effluent relative to available dilution in the receiving surface water which is prepared as described in the Department's guidance document, Guidelines for Preparation of Discharge Toxicity Evaluations.

Domestic Sewage

means waste water which consists of water and human excretions or other waterborne wastes incidental to the occupancy of a residential building or a non-residential building but not including manufacturing process water, cooling water, wastewater from water softening equipment, commercial laundry wastewater, blowdown from heating or cooling equipment, water from cellar or floor drains or surface water from roofs, paved surfaces, or yard drains.

Dredging Activity

means the excavation, removal or redistribution of sediment from surface waters.

Dredged Material

means sediment that is excavated or dredged from surface waters.

Dredged Material Disposal Area

means an area which has been approved by the Commissioner for disposal of dredged material, including but not limited to federally designated dredged material disposal areas in Long Island Sound.

Ecosystem Function

means the physical, chemical and biological processes that operate within an ecosystem and are essential for the continuing existence of the ecosystem.

Effluent

means treated waste process waters or cooling waters discharged from a waste treatment or manufacturing facility.

~~Eutrophication~~

~~means the process of enrichment of surface waters with plant nutrients which may cause nuisance algae blooms and excessive growth of aquatic weeds.~~

Existing uses

means those uses actually attained in a water body on or after November 28, 1975, whether or not they are included in water quality standards as defined in Federal Water Quality Standards Regulation (40 CFR Part 131.3).

Fill material

means any material deposited or placed which has the effect of raising the level of the ground surface, whether such surface is above, at, or below the water table, or to replace surface waters

with dry land. This term includes, but is not limited to consolidated material such as concrete and brick and unconsolidated material such as sand, gravel and stone.

Functional Feeding Group

means a category of benthic macroinvertebrates based on similarities in feeding mechanisms.

Geometric Mean

means a measure of central tendency calculated by determining the anti-log of the mean of the logarithms of the values to be averaged.

Ground Waters

means waters flowing through earth materials beneath the ground surface.

Ground Water of Natural Quality

means ground water which is free from pollution by solid waste, wastewater discharges, chemical spills or leaks, pesticides or other anthropogenic sources of water pollution other than acid rain.

High Quality Waters

means surface waters where the water quality is better than necessary to meet the minimum criteria established in these Water Quality Standards for the applicable classification and related designated uses. ~~or which may sustain a sensitive use designated for a higher classification.~~ Factors that may be given consideration when identifying High Quality Waters include but are not limited to the Biological Condition Gradient, fisheries resources and recreational uses.

Indicator

means a metric or combination of metrics~~parameter or value derived from a parameter,~~ which provides a measure or estimate of the physical, chemical or biological condition.~~information about the environment with significance extending beyond that which was measured. It is intended as a surrogate to evaluate other unmeasured conditions.~~

Indicator bacteria

means a species or group of microbes which are used to conduct microbiological examinations of water in order to determine its sanitary quality and ~~. The primary function of these indicators is to~~ provide evidence of recent fecal contamination from warm blooded animals. ~~They serve as surrogates for pathogens which may be present in sewage.~~

Indigenous

means animal or plant life which naturally occurs in a particular geographic region.

Invertebrates
means animals lacking a backbone.

Lentic
means non flowing surface water such as lakes and ponds.

Lotic
means flowing surface water such as streams or rivers.

Marine Sanitation Device or MSD
means a device installed or used on watercraft for the collection, treatment or disposal of human wastes.

Most Sensitive Use
means the designated use (drinking, swimming, boating, fish and aquatic life propagation, irrigation etc.) which is most susceptible to degradation by a specific pollutant.

Moving Average
means the mean of consecutive values in a time series of a specified duration. For example, a 12 month moving average is calculated by averaging the monthly values for a parameter for the most recent 12 consecutive months; thus as time progresses and more new values are available, old values are dropped resulting in an average value which is always based on the 12 most recent consecutive monthly values.

Native
means indigenous to an area.

Nearshore
means coastal waters of Long Island Sound that are generally less than 5 meters in depth at mean low water and include embayments and harbors.

Non-point source
means any unconfined and diffuse source of pollution such as stormwater or snowmelt runoff, atmospheric deposition, or groundwater not conveyed to a surface water discharge point within a discrete conveyance.

Offshore
means coastal waters of Long Island Sound that are greater than 5 meters in depth at mean low water.

Point source

means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, or vessel or other floating craft, from which pollutants are or may be discharged. ~~This term does not include agricultural stormwater discharges and return flows from irrigated agriculture.~~

Pycnocline

means a steep density gradient in an estuary caused by differences in temperature or salinity between the bottom and surface layers of water that limits mixing of the two layers.

Recreational use

means active or passive water-related leisure activities such as fishing, swimming, boating, and aesthetic appreciation.

Sanitary Survey

means an investigation of a particular geographic area to determine if unlawful or inadequately treated discharges of sewage or other sources of indicator bacteria are present.

Sediments

means any natural or artificial materials which constitute all or part of the banks, bed or bottom of an intermittent or perennial surface water.

Sensitive-rare taxa

means taxonomic groups of organisms that are sensitive to pollution and occur in low numbers in natural aquatic communities.

Sensitive-ubiquitous taxa

means taxonomic groups of organisms that are sensitive to pollution and are typically common and abundant in natural aquatic communities.

Sewage

means as defined in Sec. 22a-423 of the General Statutes and means "human and animal excretions and all domestic and such manufacturing wastes as may tend to be detrimental to the public health.≅

Special Aquatic Sites

means wetlands (inland and salt marsh), mud flats, vegetated shallows (permanently inundated areas that support rooted aquatic vegetation such as eel grass, celery grass, tape grass), coral reefs, and riffle and pool complexes. [Refer to 40 CFR Part 230 Subpart E]

Special Wetlands

means vernal pools, bogs, fens, cedar swamps, spruce swamps, calcareous seepage swamps, and wetlands which provide habitat for threatened or endangered species or species of special concern as designated by the State of Connecticut Natural Diversity Database. The following definitions for bogs, calcareous seepage wetlands, cedar swamps, fens, spruce swamps, and vernal pools are relevant:

Bog: a peat accumulating wetland dominated by sphagnum moss.

Calcareous Seepage Swamp: a forested wetland characterized by the discharge of groundwater with a chemistry influenced by the underlying limestone geology.

Cedar Swamp: a forested wetland characterized by the presence of Northern White Cedar or Atlantic White Cedar.

Fen: a peat accumulating wetland dominated by sedges and/or ericaceous shrubs.

Spruce Swamp: a forested wetland characterized by the presence of Red or Black Spruce.

Vernal Pool: an often temporary body of water occurring in a shallow depression of natural or human origin that fills during spring rains and snow melt and typically dries up during summer months. Vernal pools support populations of species specially adapted to reproducing in these habitats. Such species may include wood frogs, mole salamanders (*Ambystoma* sp.), fairy shrimp, fingernail clams, and other amphibians, reptiles and invertebrates. Vernal pools lack breeding populations of fish.

Streamflow Regulation

means control of the rate of stream flow by means of dams withdrawals, or diversions of water.

Surface Water

means the waters of Long Island Sound, its harbors, embayments, tidal wetlands and creeks; rivers and streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs, federal jurisdictional wetlands, and other natural or artificial, public or private, vernal or intermittent bodies of water, excluding groundwater.

Taxon (pl. Taxa)

means a biological classification category, usually the most specific division attainable in taxonomy.

Technically Practicable

means with respect to ground water remediation, the greatest degree of remediation that can be achieved using sound engineering and hydrogeologic practices.

Technology - Based Treatment

means a level and type of treatment required by Section 301(b) and 304(b) of the Federal Clean Water Act, which is based on the particular manufacturing process used and type of waste generated.

Threatened, Endangered or Special Concern Species; Significant Natural Communities

means species listed by CT DEP pursuant to Chapter 495 of the Connecticut General Statute as threatened or endangered species or species of special concern. Known locations of threatened and endangered species and species of special concern, and significant natural communities are identified on maps entitled "State and Federal Listed Species and Significant Natural Communities", as amended. These maps are available at city or town clerk offices and in the CT DEP File Room located on the store level of 79 Elm Street, Hartford.

Tolerant Taxa

means taxonomic groups of organisms that are resistant to a variety of pollution or habitat stressors. Typically, tolerant taxa are the last survivors in severely polluted waters.

Toxic Substance

means any substance which can adversely affect the survival, growth or reproduction of fish, other forms of aquatic life, other wildlife or humans exposed thereto either by direct contact or through consumption.

Trophic ~~Condition~~ State

means the state of enrichment of surface waters with plant nutrients.

Use Attainability Analysis

means a structured scientific assessment of the physical, chemical, biological, and economic factors affecting the ability of a surface water to achieve and support uses as described in federal regulation at 40 CFR 131.10.

Water Quality

means the physical, chemical and biological characteristics of surface or ground waters.

Zone of Influence

means an area or volume of surface water or ground water within which some degradation of water quality or inconsistency with water quality criteria is anticipated as a result of a pollutant

discharge. The term zone of influence may be used to describe an area impacted by thermal, conventional, or toxic pollutants.

Zone of Passage

means an area or volume of flow in surface water within which pollutants, including temperature will not impede or prohibit the passage of free swimming or drifting aquatic organisms.

7Q10 or Seven-Day, Ten Year Low Flow

means the lowest seven consecutive-day mean stream flow with a recurrence interval of ten years.

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Summary of Major Changes to Appendices

The appendices to the proposed Water Quality Standards general are either new or contain substantial revision. Major changes are highlighted below.

Appendix B: Water Quality Criteria for Bacterial Indicators of Sanitary Quality

- Change in bacteria criteria for Saltwater for shellfishing
- Added reference to mTec method as specified by the U.S. Food and Drug Administration National Shellfish Sanitation Program

Appendix C: Dissolved Oxygen (DO) Criteria for Coastal Waters

- Changes to the areas affected by the criteria
- Changes to numerical criteria for dissolved oxygen

Appendix D: Numerical Water Quality Criteria for Chemical Constituents

- Changes to numerical criteria in accordance with EPA guidance
- Additional chemicals added to the criteria table
- Changes to application of freshwater and saltwater criteria (see table notes)
- Additional surface waters added to site-specific criteria for copper
- Added methodology for deriving water quality criteria for substances not explicitly included in table of numeric criteria

Appendix E: Connecticut Antidegradation Implementation Policy

- Policy was restructured and updated for consistency with current EPA guidance

Appendix F: Temperature Criteria for Connecticut Waters

- New
- Criteria modified consistent with EPA guidance

Appendix G: Nutrient Criteria and Implementation Policy

- New

Appendix H: Connecticut Biological Condition Gradient Model

- New