

Connecticut Water Quality Standards

Water Quality
Standards Forum

January 2011

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION



WATER QUALITY STANDARDS



Bureau of Water Protection and Land Reuse
Planning and Standards Division

Surface Water Quality Standards
Groundwater Quality Standards

Submitted to USEPA January 2011
Effective April 12, 1996

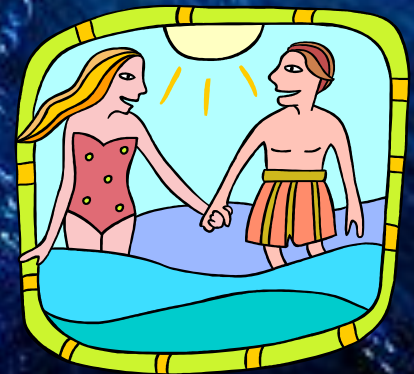
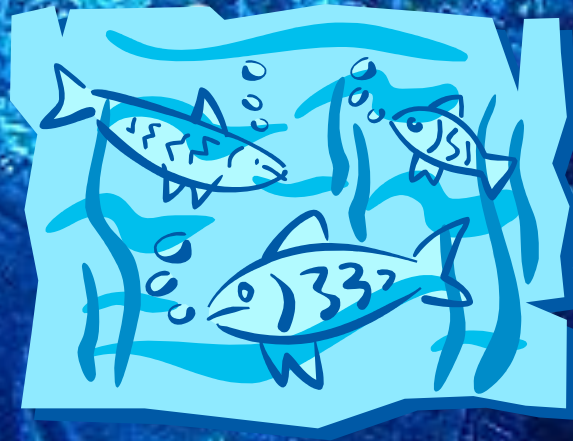
Water Quality Standard Forum

- An opportunity for DEP to provide an overview of the DEP 2011 Amendments to the Water Quality Standards (WQS)
- Public input and comment has substantially shaped the 2011 WQS
- Appreciate public's participation and attendance today
- DEP is available to talk to smaller audiences who are interested in this topic

WQS Presentation Overview

- **Background Information**
 - General information on WQS
 - Summary of Previous Public Process
 - Adoption Process
- **2011 Revisions to WQS**
 - Comparison to 2002 Adopted WQS and 2009 Proposed Revisions
- **Future Revisions to WQS**

WATER QUALITY STANDARDS: BACKGROUND INFORMATION



What are WQS?

- **Foundation of the water quality-based control program mandated by the federal Clean Water Act**
- **Each state develops standards for carrying out their responsibilities under the federal Clean Water Act**
- **Define the goals for a waterbody by**
 - **designating its uses**
 - **setting criteria to protect those uses**
 - **establishing provisions to protect water quality from pollutants**

WQS Review and Revision

- **The Clean Water Act requires States to review their Standards and revise them if appropriate every three year – so called Triennial Review**
- **Consistent with federal and state law, must include consideration of comments from the public**
- **New or revised Water Quality Standards become effective for purposes of the Clean Water Act upon EPA approval.**

WQS Changes & Existing Regulations

- **Changes in the WQS do not change currently adopted state regulations**
 - WQS are policy foundation for water quality programs
 - Existing regulations do not change “automatically” by revision of the WQS unless expressly stated in implementing regulation
 - Changes to existing regulations require following procedures for revising and adopting regulations

Notice of Intent to Conduct a Triennial Review of the WQS

- **Informal Public Comment Period Provided from April 16, 2009 – July 31, 2009**
- **DEP identified 4 major areas it was considering**
 - Antidegradation
 - Dissolved oxygen
 - Nutrient control implementation strategy
 - Updating toxic criteria
- **Comments were received from 13 individuals and organizations, representing concerned citizens, environmental groups, trade organizations and municipalities.**

2009 Proposed WQS Revisions

- **Reviewed comments received and added additional topics**
 - 12 topics addressed in 2009 proposal
- **Proposed Revisions to WQS : December 2009**
- **Public Comment Period**
 - December 22, 2009 – March 17, 2010
 - Extended in response to request
 - Written comments - 25 people
- **Public Hearing**
 - Oral testimony – 9 people

Hearing Officer's Report

- **Summary of public process**
 - From Notice of Intent through to final proposal to EPA
- **Response to Public Comments**
 - Summarize comments
 - Provide responses
 - Identify necessary changes to 2009 proposal in order to address comments

Revisions to Connecticut Water Quality Standards

Hearing Officer's Report

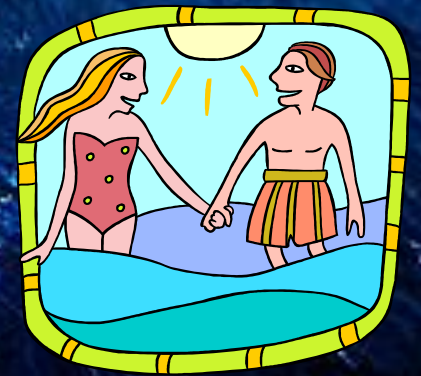
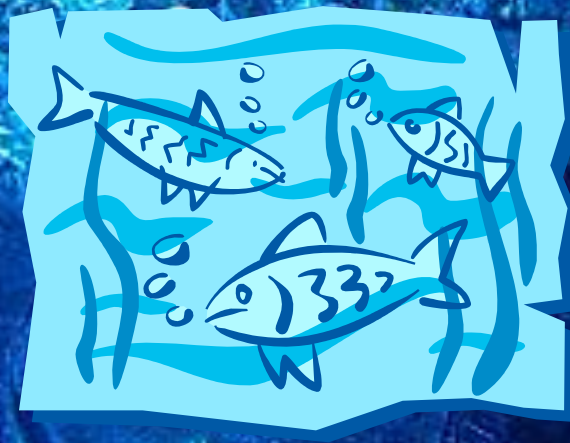
Denise Ruzicka
Director

Inland Water Resources Division
Bureau of Water Protection and Land Reuse
January 4, 2011

Final Adoption Process

- **CTDEP Submits Revised WQS to USEPA**
 - January 4, 2011
- **EPA Review**
 - EPA review with subsequent approval or disapproval generally due within 60 days after state submittal of revisions
- **CTDEP will public notice approved WQS in Connecticut Law Journal**

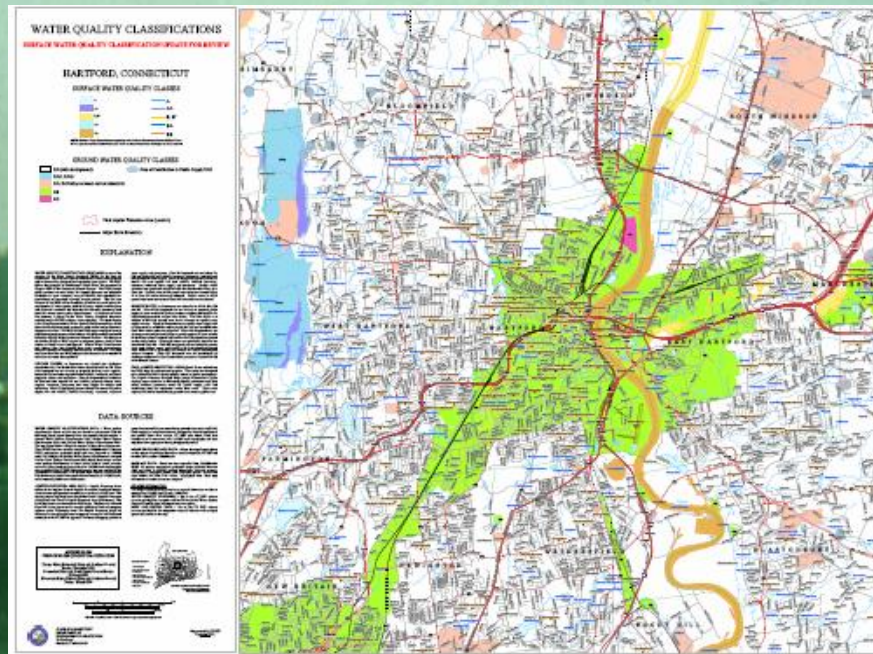
WATER QUALITY STANDARDS: 2011 REVISIONS



General Changes

- **Correct typographical errors**
- **Update definitions**
- **Reorganized document**
 - **For each surface water quality classification combined information on designated uses and criteria**
 - **Grouped surface water quality classifications (fresh and marine) into one section followed by Lake Trophic Information**

Water Quality Classification Maps



- Water Quality Classifications show the Designated Uses for water body
- They do not show water quality

Maps Revised to Show Only Goal Classifications

- Current paradigm of current/goal classification is eliminated from surface water standards
- No effect on WQ related requirements or activities since current WQS require all actions to be consistent with goal classifications

NO CHANGES TO CLASSIFICATIONS HAVE BEEN MADE

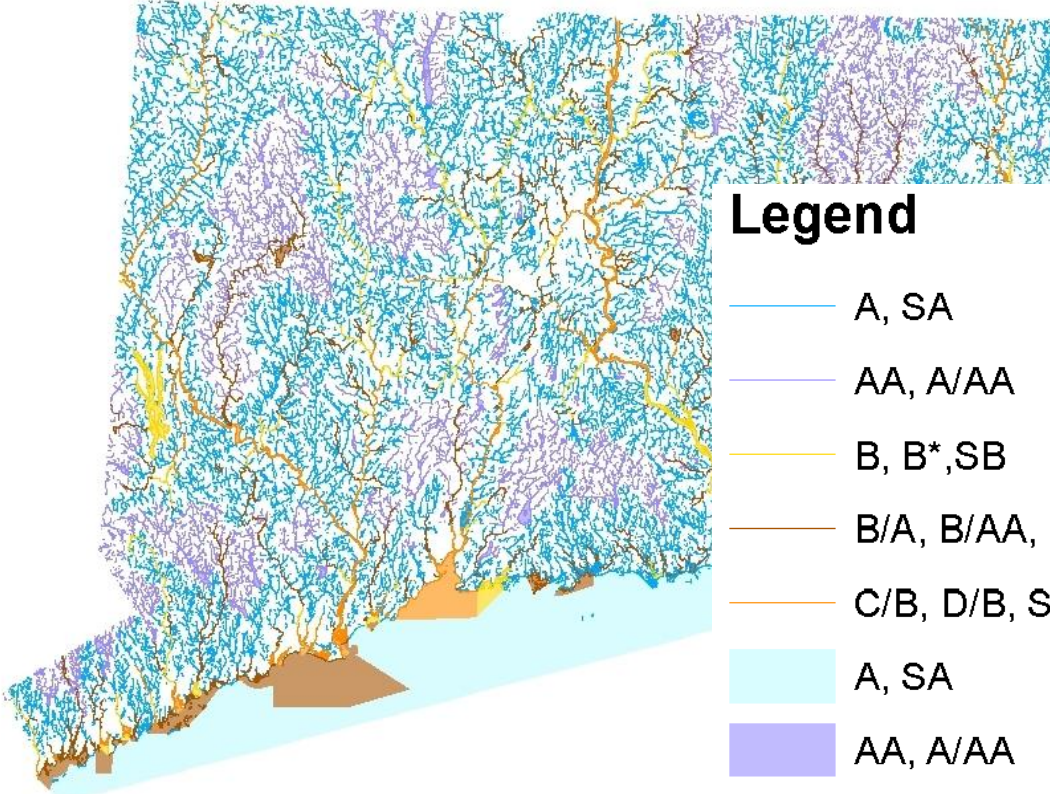
Maps Revised to Show Only Goal Classifications

- 2011 Maps: Revisions retained as proposed
- Change is intended to provide clarity and consistency with CT Groundwater Standards
- No effect on WQ related requirements or activities since current WQS require all actions to be consistent with goal classifications











NO CHANGES TO GOAL CLASSIFICATIONS HAVE BEEN MADE

2002 WQ Classification Map

Existing Surface Water Quality Classifications pre-2009

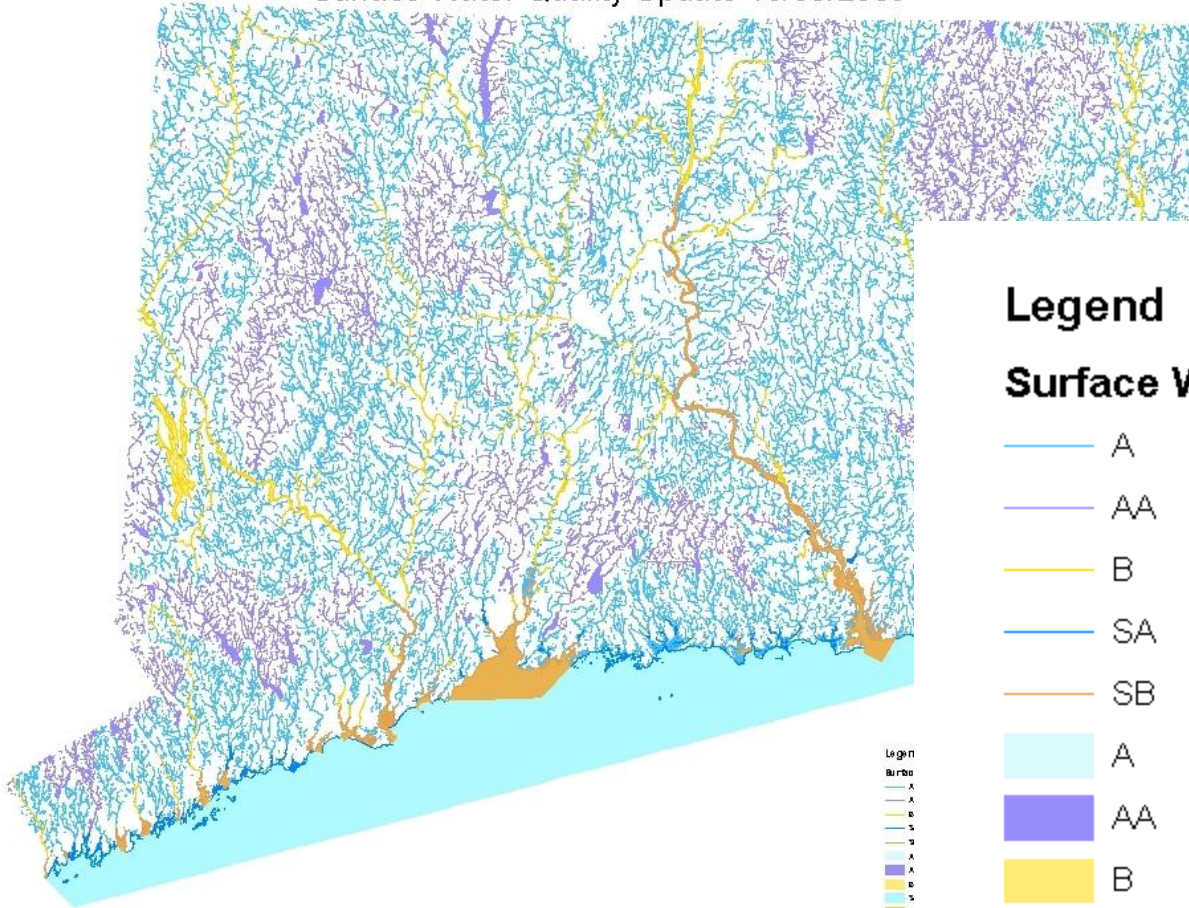


Legend

-  A, SA
-  AA, A/AA
-  B, B*, SB
-  B/A, B/AA, C/A, SB/SA, SC/SA, SD/SA
-  C/B, D/B, SC/SB, SD/SB
-  A, SA
-  AA, A/AA
-  B, B*, SB
-  B/A, B/AA, C/A, SB/SA, SC/SA, SD/SA
-  C/B, D/B, SC/SB, SD/SB

2011 WQ Classification Map

Surface Water Quality Update 10/30/2009



Legend

Surface Water Quality



Water Quality Information

- Integrated Water Quality Report
- Provides WQ Assessment for surface waters
- 2 year cycle
- Public Comment opportunity

2008 STATE OF CONNECTICUT INTEGRATED WATER QUALITY REPORT

FINAL – August 2008

This document has been established pursuant to the requirements of Sections 305(b) and 303(d) of the Federal Clean Water Act

___/___/ Betsy Wingfield _____
Betsy Wingfield, Chief
Bureau of Water Protection and Land Reuse

___08/29/08___
Date



STATE OF CONNECTICUT
DEPARTMENT OF
ENVIRONMENTAL PROTECTION
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(860) 424-3704

Gina McCarthy, Commissioner

Changes to Narrative Standards

- Narrative standards are policy statements that discuss a variety of issues such as the classification of different water resources according to use, desired characteristics of the State's water resources and fundamental principles of waste assimilation

WQS 2 – 5: Antidegradation Policy

- Prevent unacceptable degradation of water resources
- Federally required
- Blueprint for evaluating impact of activities on designated uses
- Policy addresses
 - All waters in general
 - High Quality Waters
 - Outstanding National Resource Waters

WQS 2 – 5: Antidegradation Policy

- 2011 Changes:
 - High Quality Waters: Evaluate social or economic benefit to the State and to the area in which water is located
 - General language changes

Natural Conditions

- **WQS consider the natural environmental conditions associated with the State's water resources**
- **Reference to natural conditions is made in several narrative standards**

2002 WQS 8: Natural Conditions

- 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.

2011 WQS 8: Natural Conditions

- Natural means the biological, chemical and physical conditions and communities that occur within the environment which are unaffected or minimally affected by human influences
- Reference to BMPs removed from WQS 8

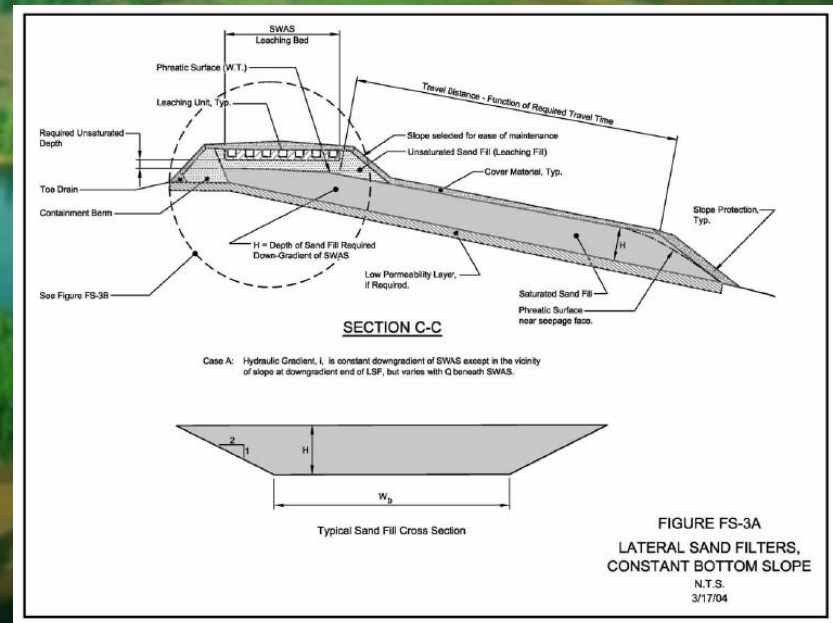
WQS 9: Allowable Discharges

- **B***
 - Existing classification for Candlewood Lake
 - Added to WQS to provide clarity
 - Discharge limitation established in 1985 hearing
 - Only discharges consistent with Class AA, A and SA are allowed



WQS 9: Allowable Discharges

- Treated domestic sewage discharges
- New exemption for limited situations
 - Current failing septic systems in Class A or SA waters
 - Not possible to fully treat discharge in subsurface
 - No options to eliminate discharge



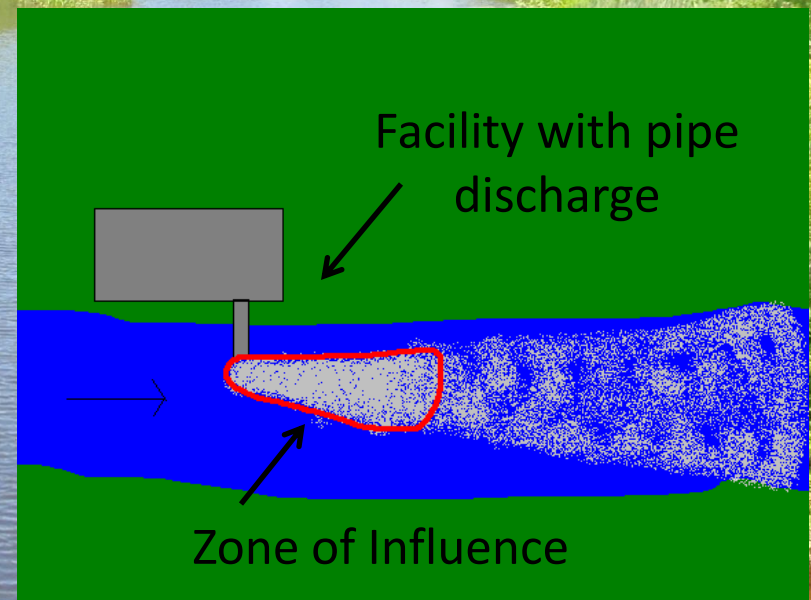
Lateral Sand Filter

WQS 9: Allowable Discharges

- Necessary to abate Groundwater or Surface Water pollution
- Treatment system in use prior to February 28, 2011
- Discharge controlled in subsurface to max extent practical
- Discharge quality protective of health and environment
- Consultation with CT Department of Public Health
- Not a community pollution problem
- No feasible alternative exists
- Not to support new or expanded building/development
- Discharge to be eliminated in future if conditions permit

WQS 10: Zone of Influence

- Zone of Influence
 - Allocation within water body for assimilation of a discharge
- Clarifications made:
 - Reference to Remediation Standard Regulations for consistency
 - ZOI to be limited to maximum extent



WQS 11: Minimum Flow for Applying WQS

- **2011 Language:**
 - **Low flow in a tidal water body is low tide unless otherwise acceptable to Commissioner**

WQS 12: Water Quality Criteria

- **2009: Language proposed in WQS12 for clarification.**
 - **No Toxics in Toxic Amounts**
 - Requirement of Federal CWA
 - Existing provisions in 2002 WQS
 - **Additional considerations may be needed beyond those addressed directly by WQC**
 - Example: Endocrine disruption
- **2011 Clarifying language removed. Revert to 2002 language**
 - **Note that consistent with the federal Clean Water Act, CTDEP will continue to address No Toxics in Toxic Amounts and other specific issues as they arise**

WQS 16: Biological Integrity

- Data on biological communities are used to assess biological integrity of surface waters
 - Current focus on benthic invertebrate community
 - Revision to use of general Biological Condition criteria

23.7.2004

WQS 19 & 20: Discharges of Nutrients

- **2011 Language**
 - Focus on Excessive Anthropogenic Inputs of Nutrients
- **Clarify goals:**
 - Maintenance and protection of designated uses
 - Restoration of impaired waters
 - Prevent excessive anthropogenic inputs
 - Prevent impairment of downstream waters

WQS 21: Drinking Water Supplies

- Describes considerations for designating drinking water resources
- 2011 Language:
 - Concurrence with CTDPH for designating new drinking water supplies
 - For future drinking water supplies, consider those identified in an Water Supply Plan approved pursuant to Section 25-32d RCSA

WQS 24: Discharge from Vessels

- Updated provision to reflect current State and Federal regulatory requirements
- 2011 language:
 - Discharge of sewage from any vessel to any water is prohibited

Water Quality Classifications

- The classifications identify the designated uses assigned to the various groups of water bodies and establishes applicable standards and criteria necessary for the support of those uses

WQ Classifications: Narrative Criteria

- **2011 Language: Nutrients**
 - Shift from phosphorus to general nutrients
 - Nitrogen and phosphorus
 - Added to marine classifications
 - Acceptable levels tied to designated uses

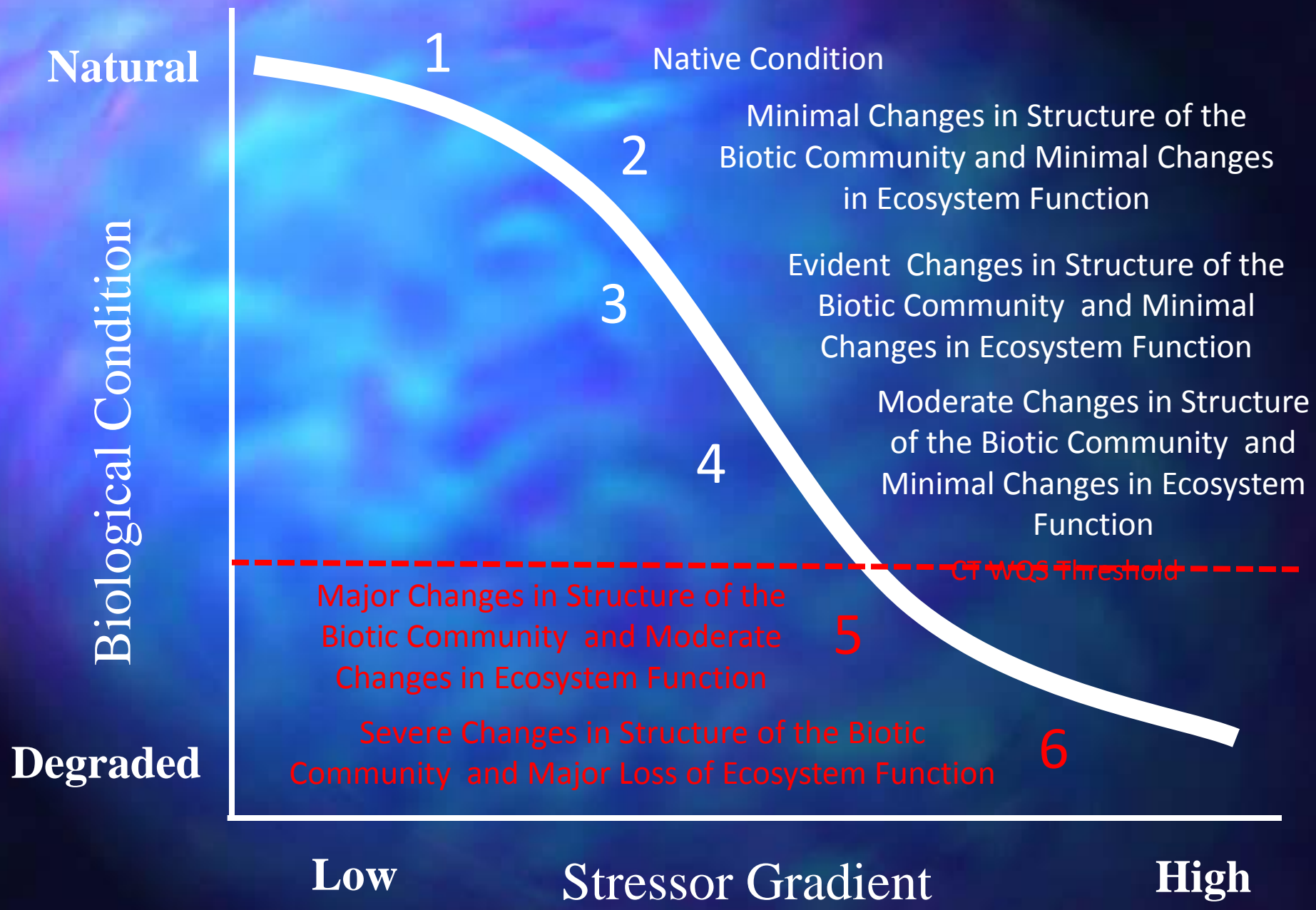
The loading of nutrients, principally phosphorus and nitrogen, to any surface water body shall not exceed that which supports maintenance or attainment of designated uses

WQ Classifications: Narrative Criteria

- **2011 Language: Biological Condition**
 - Shift from benthic invertebrates to general biological communities
 - Added to Marine Classifications
 - Biological Condition Gradient added to new appendix

Sustainable, diverse biological communities of indigenous taxa shall be present.

15.6.2010



Trophic Guidance for Lakes

- 2011 Language: Lakes in advanced trophic states which exceed their natural trophic state due to anthropogenic sources are considered to be inconsistent with WQS. (Clarification from 2002)
 - Clarify that #s for Total Nitrogen, Total Phosphorous, Chlorophyll A, and Secchi disk transparency, are guidance values
 - Add guidance to use % macrophyte coverage as a means to determine lake trophic status

Appendix B: Bacterial Indicators

- **2011 Changes to criteria for shellfishing protection**
- **Update criteria and language to be consistent with the regulatory program administered by Bureau of Aquaculture/Dept of Agriculture**

Appendix B: Bacterial Indicators

Saltwater Shellfishing ⁽⁶⁾			2011	2002
Direct Harvest in Approved and Conditionally Approved Areas for recreational and commercial use as determined by the Department of Agriculture, Bureau of Aquaculture	SA	Fecal coliform Geometric Mean 90% of Samples	less than 14/100ml less than 31/100ml	less than 14/100ml less than 43/100ml
Harvest by licensed operations for indirect consumption as determined by the Department of Agriculture, Bureau of Aquaculture	SB	Fecal coliform Geometric Mean 90% of Samples	less than 88/100ml less than 260/100ml	less than 88/100ml less than 260/100ml

(6) Criteria are based on utilizing the mTec method as specified in the U.S. Food and Drug Administration National Shellfish Sanitation Program-Model Ordinance (NSSP-MO) document *Guide for the Control of Molluscan Shellfish 2007*. See Appendix G for additional details.

Appendix C: Marine Dissolved Oxygen

- **2011 Revised DO criteria**
 - protective of marine resources
 - consistency throughout LIS
 - Both the LISS and NYS use an acute DO criteria of 3.0 mg/l. CT DEP has continued to track compliance with the 3.0 mg/l criteria.
- **Revise the criteria to be applicable to all estuarine waters (inshore and offshore).**

Appendix D: Chemical Criteria

- 2011 Revised criteria for consistency with EPA table of national criteria guidance values
- Retain CT criteria if more restrictive
- Add criteria for
 - Aluminum
 - Chloride
 - Formaldehyde

17. 6. 2010

Revisions to WQC

- 2009 WQC proposal set aside
- 2011 WQC
 - New chemicals
 - Public noticed 89 new chemicals
 - 2011: 3 new chems (Aluminum, Chloride, Formaldehyde)
 - Updating WQC
 - Postpone revisions as proposed
 - Update WQC to be equal to federal criteria where 2002 CT criteria is less restrictive

Appendix E: Antidegradation

- **2011 Restructure 2002 Implementation Policy**
 - 2002 structured based on WQ classification
 - 2011 revised to reflect tiers used by EPA
- **Make consistent with current EPA guidance**
- **Standards include general policy for how to implement-will continue to work with regulatory program staff on implementation**

17.6.2010

Antidegradation Tiers

– Tier 1

- For all waters: maintain minimum WQ and Designated Uses

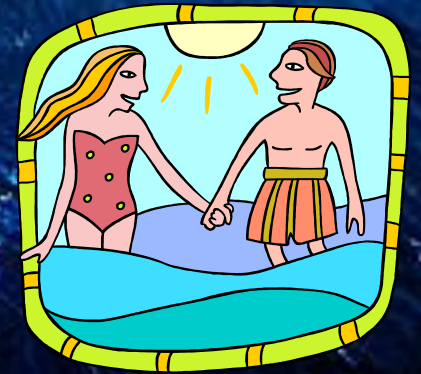
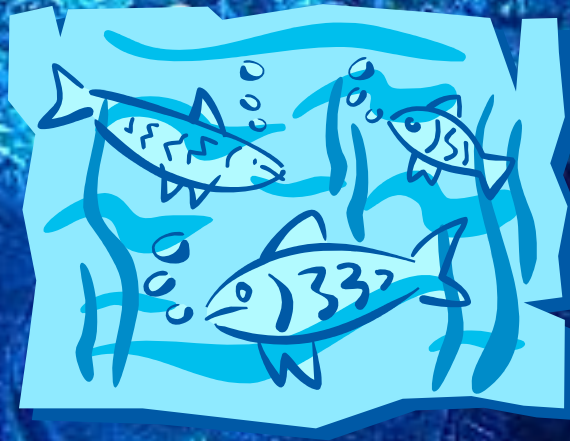
– Tier 2

- For High Quality Waters: Protect and maintain higher levels of WQ unless lowering WQ is necessary to accommodate overriding statewide economic or social development

– Tier 3

- Protection of Outstanding National Resource Waters

WATER QUALITY STANDARDS: ITEMS DEFERRED TO NEXT TRIENNIAL REVIEW



WQS: Where do we go from here?

- **Continue to address open issues**
 - **Nutrients**
 - **Toxics**
 - **Temperature**
- **Work collaboratively within DEP and with stakeholders**
- **Improve communication on WQS issues, underlying science and management challenges**

Nutrients: National Focus

- EPA is requiring States to adopt numeric criteria for nutrients (nitrogen and phosphorus) in surface waters
- EPA has published Eco Regional Criteria for Phosphorus based on a statistical evaluation of surface water data
- EPA will impose criteria when it is dissatisfied with State progress on this issue

Nutrient Criteria

- DEP is developing numeric biologically based water quality criteria for phosphorus based on sound science and ongoing research and analysis
- Focus: Periphyton Community Response
- DEP will develop other criteria for nutrients in the future as necessary

23. 7. 2004

Update of Criteria for Toxic Substances

- Provide opportunities to continue public discourse on water quality criteria
- CTDEP to revise criteria in the future consistent with federal Clean Water Act responsibilities

2011 Temperature Criteria

- 2009 proposed revisions set aside
- 2002 criteria & language retained
- Concern
 - Implementation of temperature criteria
- Future
 - DEP will propose revisions to temperature criteria
 - Work on classification of surface waters
 - Work on implementation

Future Changes Proposed to Temperature Criteria

- **Freshwater:**
 - CT criteria based on the temperature sensitivity of 3 key grouping of fish species
 - **Cold Water Species**
 - Trout, Slimy Sculpin
 - **Cool Water Species**
 - Pike, Native Minnows, Darters, Suckers
 - **Warm Water Species**
 - Perch, Sunfish

WQS as Regulations

- Public Act 10-158 requires that after March 1, 2011, WQS to be adopted as a regulation
- CTDEP will begin by translating existing WQS into regulation structure, then conduct review and public process to define what other changes are appropriate at that time



For More Detail:

- Visit DEP web site: WQS, Hearing Officer's Report, supporting material
- Ask for a CTDEP speaker to come talk to interested stakeholders