DEPARTMENT OF ENVIRONMENTAL PROTECTION

LAND USE MANAGEMENT

WATER MONITORING MANAGEMENT

Surface Water Quality Standards N.J.A.C. 7:9B

Proposed Amendments: N.J.A.C. 7:9B-1.15

Authorized By:	Bradley M. Campbell, Commissioner, Department of Environmental Protection
Authority:	N.J.S.A. 58:10A-1 *et seq*., 58:11A-1 *et seq*., N.J.S.A. 13:1D-1 *et seq*.
Calendar Reference:	See Summary below for explanation of exception to calendar requirement
DEP Docket Number:	35-02-12/351
Proposal Number:	

Public hearings concerning this proposal will be held at the following location and time:

January 29, 2003
4 P.M. to close of testimony and 6:30 P.M. to close of testimony at:
Morris County Park Commission's
Frelinghuyser Arboretum at the Haggerty Education Center
53 East Hanover Avenue
Morris Township, NJ 07962

Submit written comments by **March 7, 2003**, to:

Gary J. Brower, Esq.

Attn. DEP Docket Number 35-02-12/351

Office of Legal Affairs

New Jersey Department of Environmental Protection

P.O. Box 402

Trenton, NJ 08625-0402

The Department requests that commenters submit comments on 3.5-inch diskettes as well as paper. Submission of a diskette is not required. The Department prefers Microsoft Word, Word Perfect 5.x or 6.0, and ASCII, but can convert and review many other formats as well. MacIntosh formats should not be used. Any commenter who wishes to use software not mentioned above may contact the Department at (609) 292-1623 to check compatibility.

Text enhancements such as underlines, bold, etc., are often not converted correctly between software documents. Therefore, when suggesting text revisions, commenters should show the text, as they desire to see it in the rule.

Comments on the proposal summary should be included with comments on the pertinent section of the rule text, wherever possible, to eliminate duplicative comments and facilitate the Department's task of organizing and responding to comments. Since comments will be sorted electronically, the following format should be used for each comment:

Citation (tab)COMMENT: Comment text (Company Name). For example:

7:9B-1.4 COMMENT: ABC Corp. believes that the definition of "criteria" should also refer to the Ground Water Quality Standards. (ABC Corp.)

Copies of this rule proposal can be downloaded electronically from the Department's web page at http://www.state.nj.us/dep/wmm/sgwqt/sgwqt.html.

The agency proposal follows:

Summary

The Department is proposing amendments to the Surface Water Quality Standards (SWQS) at N.J.A.C. 7:9B, to reclassify nine (9) stream segments and to confirm the current stream classification of three (3) stream segments on the basis of fish assemblage information. The three stream segments proposed for listing consistent with their current classification are currently classified pursuant to N.J.A.C. 7:9B-1.15 solely based upon the classifications of the streams into which they flow. Additionally, the Department is proposing to upgrade the antidegradation designation for a stream segment of Paulins Kill from Category Two (C2) to Category One (C1) on the basis of "exceptional ecological significance," including the need to protect the dwarf wedgemussel, a Federally and State endangered species.

As the Department has provided a 60-day comment period on this notice of proposal, this proposal is excepted from the rulemaking calendar requirement pursuant to N.J.A.C. 1:30-3.3(a)5.

The Department administers the SWQS for the protection of surface water quality of the waters of the State. The Department develops and administers the SWQS pursuant to the Water Quality Planning Act (WQPA), N.J.S.A. 58:11A-1 *et seq*., the New Jersey Water Pollution Control Act, N.J.S.A. 58:10A-1 *et seq*., and in conformance with requirements of the Federal Water Pollution Control Act, 33 U.S.C. §1251 *et seq*., commonly known as the Clean Water Act (CWA), and the Federal regulatory program established by the United States Environmental Protection Agency (USEPA) at 40 CFR 131. The SWQS include general requirements, use designations, classifications, antidegradation categories, and water quality criteria applicable to the surface waters of

the State. The SWQS are established to address the Department's responsibilities to conduct a continuous planning process pursuant to Section 303 of the CWA, 33 U.S.C. § 1313, and the WQPA, N.J.S.A. 58:11A-1 et seq.

The SWQS are intended to aid the Department's implementation of the New Jersey Pollutant Discharge Elimination System (NJPDES) rules at N.J.A.C. 7:14A, Freshwater Wetlands Protection Act rules at N.J.A.C. 7:7A, Flood Hazard Area Control rules at N.J.A.C. 7:13-4, and Water Quality Management Planning rules at N.J.A.C. 7:15.

The following is a summary of the proposed amendments.

N.J.A.C. 7:9B-1.15 Surface water classifications for the waters of the State of New Jersey:

Proposed Reclassifications Based on Fish Assemblage Sampling Data:

The Department is proposing to reclassify nine stream segments and to confirm the current stream classification of three stream segments on the basis of fish assemblage information (see Table A). As previously noted, the three stream segments proposed for listing consistent with their current classification are currently classified pursuant to N.J.A.C. 7:9B-1.15 solely based upon the classifications of the streams into which they flow. Sampling data has confirmed that these current classifications are appropriate and that the segments should be specifically listed to reflect this information.

Stream sampling (fish survey) data are used by the Department to determine whether a waterway should be classified to protect trout production (TP) or trout maintenance (TM) uses. When waterbodies are surveyed and found to have naturally reproduced trout in their first year of life (young of the year or YOY), they are classified as trout production waters or FW2-TP. When adult trout are found in a waterbody, and

YOY trout are absent, the classification of the stream as trout maintenance (FW2-TM) or nontrout (FW2-NT) depends upon the stream's total fish population.

A classification system was developed by the Department which utilizes a table of Incidence of Occurrence (I.O.) of other fish species associated with trout, based on data from a statewide survey of freshwater streams. A value of 100% was assigned to each trout species found during the survey. Other nontrout species were assigned an I.O. value based on the percentage of time that the individual species was found in the presence of trout. A figure of 20% was selected by the Department's Bureau of Freshwater Fisheries as the minimum of occurrence with trout that would classify a species as being trout "associated." This 20% figure was also selected as the cutoff figure for determining whether or not a stream should be classified as FW2-TM. The individual percentage figures for an individual stream are added and averaged with the resulting value serving as the basis for the classification. If the average I.O. value is greater than 20%, the stream segment would be classified as trout maintenance. If the average I.O. value is less than 20%, the stream segment would be classified as nontrout. Based on this methodology, the Department is proposing to reclassify nine waterbodies, or portions thereof, as listed in Table A below.

In accordance with the definition of Category One Waters at N.J.A.C. 7:9B-1.4, trout production waters also qualify for a Category One antidegradation designation. Therefore, the Department is also proposing the Category One antidegradation designation for the six waterbodies that are being reclassified as FW2-TP.

The proposed reclassifications of Lopatcong Creek and Peckman River, as listed in Table A below, have been pending while the Department resampled these stream segments to confirm their recommended classifications. A detailed description of the decision-making process for both of these waterbodies is as follows:

Table A - Supporting Data for the Proposed Reclassifications

Basin	Waterbody	Current Classification[1]	Proposed Classification	**Incidence of Occurrence[2]** (trout maintenance) **Young-of-the-Year (YOY) Trout Species Present** (trout production)
Delaware River Basin	Bowers Brook (Hackettstown) Source downstream to Rt. 517	[FW2-TM]	FW2-TP(C1)	YOY Brook trout
	Lopatcong Creek (Phillipsburg) From a point 560 feet upstream of Penn Central railroad track to Delaware River	FW2-NT	FW2-TM	38
	Pequest River trib. (Janes Chapel) Headwater tributaries to the boundary of Pequest Wildlife Management Area	[FW2-TM]	FW2-TM	32.1
	Tunnel Brook (Oxford Mtn.) Entire length	[FW2-TM]	FW2-TP(C1)	YOY Brook trout
Passaic, Hackensack, and New York Harbor Complex Basin	Macopin River (Newfoundland) Echo Lake dam downstream to Pequannock River	FW2-TM	FW2-TP(C1)	YOY Brown trout
	Mill Brook (trib.) (N. of Union Hill) Entire length	[FW2-TM]	FW2-TP(C1)	YOY Brown trout
	Peckman River (Verona) From a point 1,300 feet (straight line distance) upstream of Ozone Avenue bridge to Main Street bridge	FW2-NT	FW2-TM	23.9, 57.7, 37.4, 42.4, 53.8
	Pequannock River (Charlotteburg) Outlet of Charlotteburg Reservoir downstream to, but not including, Macopin Reservoir	FW2-TM	FW2-TP(C1)	YOY Brown trout
	Wallace Brook (Randolph) Source downstream to, but not including, Hedden Park Lake	[FW2-NT]	FW2-TP(C1)	YOY Brown trout
Raritan River Basin	Budd Lake (trib.) (E. of Budd Lake) Entire length	[FW2-NT]	FW2-TM	20.52
	Budd Lake (trib.) (W. of Budd Lake) Entire length	[FW2-NT]	FW2-NT	19.33
	S. Br. Raritan River (trib.) (High Bridge) Entire length	[FW2-TM]	FW2-TM	48.7

1 Brackets around a current classification indicate that the waterbody is not specifically named or listed in the Surface Water Quality Standards and has therefore, by default, assumed the classification given herein.

2 Incidence of Occurrence values $\geq$ 20 result in a trout maintenance classification.

Lopatcong Creek: The Department proposed upgrading the Lopatcong Creek, from Route 22 bridge to the Delaware River, from FW2-NT to FW2-TP in December 1997 (29 N.J.R. 5128(a)). However, as part of its analysis of the December 1997 proposal for adoption, the Department determined that it would only be appropriate to reclassify the portion of Lopatcong Creek from the Rt. 22 Bridge to a point 560 feet upstream of the Penn Central railroad track at that time (see "Summary of Agency - Initiated Changes", 30 N.J.R. 1795, May 18, 1998). The Department decided that additional sampling should be conducted, in the portion of Lopatcong Creek from a point 560 feet upstream of Penn Central railroad track to the Delaware River, to confirm the trout status. The additional sampling conducted by the Bureau of Freshwater Fisheries in the Phillipsburg area during the summer of 1999 supports the upgrade of this portion of Lopatcong Creek from FW2-NT to FW2-TM based on the incidence of occurrence (see Table A).

Peckman River: The Bureau of Freshwater Fisheries conducted stream sampling in October 1997 and the summer of 1998 and found adult trout and other trout associated species in the Peckman River to support the reclassification of a stretch from the Ozone Avenue bridge to the Francisco Avenue bridge from FW2-NT to FW2-TM based on the incidence of occurrence (see Table A).

The Bureau of Freshwater Fisheries sampled the Peckman River in the summer of 1999. The 1999 sampling supports the proposed reclassification of the Peckman River, from a point 1,300 feet (straight-line distance) upstream of the Ozone Avenue bridge to the Main Street bridge, from FW2-NT to FW2-TM.

Integrated Ecological Assessment:

Paulins Kill: The Department is proposing to amend the antidegradation designation from Category Two to Category One for the Paulins Kill from the Route 15 bridge (bench mark 507) to the Balesville dam. This stream segment runs between Lafayette, Frankford and Hampton Townships in the Delaware River basin. The Department received requests from the US Fish and Wildlife Service, the State Endangered and

Nongame Species Program, Endangered and Nongame Species Advisory Committee, and Paulinskill-Pequest Watershed Association, Inc. to upgrade this stream segment of the Paulins Kill from C2 to C1 based on the documented occurrence of dwarf wedgemussel (*Alasmidonta heterodon*).

The SWQS definition for "Category One Waters" at N.J.A.C. 7:9B-1.4 states that this term:

"means those waters designated in the tables at N.J.A.C. 7:9B-1.15(c) through (h), for the purposes of implementing the antidegradation policies set forth at N.J.A.C. 7:9B-1.5(d), for protection from measurable changes in water quality characteristics because of their clarity, color, scenic setting, other characteristics of aesthetic value, exceptional ecological significance, exceptional recreational significance, exceptional water supply significance or exceptional fisheries resource(s). These waters may include, but are not limited to:

1. Waters originating wholly within Federal, interstate, State, county or municipal parks, forests, fish and wildlife lands, and other special holdings that have not been designated FW1 at N.J.A.C. 7:9B-1.15(h) Table 6;

2. Waters classified at N.J.A.C. 7:9B-1.15(c) through (g) as FW2 trout production waters and their tributaries;

3. Surface waters classified in this subchapter as FW2 trout maintenance or FW2 nontrout that are upstream of waters classified in this subchapter as FW2 trout production;

4. Shellfish waters of exceptional resource value; or

5. Other waters and their tributaries that flow through, or border Federal, State, county or municipal parks, forests, fish and wildlife lands, and other special holdings."

Under the antidegradation policies, Category One waters are protected from any measurable changes (including calculable or predicted changes) to the existing water quality.

The Department initiated an integrated ecological assessment utilizing a variety of water quality, biological survey, and environmental indicator information to determine if the Paulins Kill stream segment exhibits characteristics that are of "exceptional ecological significance" and, thus, should be protected as a Category One waterbody. The information used includes the aquatic physical and chemical monitoring data collected in the USGS/NJDEP Cooperative Ambient Surface Water Monitoring Network, the aquatic benthic macroinvertebrate biological monitoring and in-stream habitat quality data collected in the Department's Ambient Biological Monitoring Network, information on threatened and endangered species, and riparian habitat assessments.

The USGS/NJDEP Cooperative Ambient Surface Water Monitoring Network, which was established in 1976 to determine status and trends of ambient surface waters in New Jersey. The network currently consists of 115 stations. A wide range of conventional parameters, metals, pesticides/volatile organic chemicals and sediments are monitored in this program. Network data are available from the following sources:

1. The USGS computerized data system, NWISWeb, available at the following websites: http://wwwnj.er.usgs.gov/, and http://waterdata.usgs.gov/nwis
2. EPA's computerized data system, STORET, available at http://www.epa.gov/storet/dbtop.html, and
3. USGS's annual reports *Water Resources Data-New Jersey*.

Another ecological assessment tool used by the Department was the Ambient Biological Monitoring Network (AMNET). AMNET is an evaluation of the biological health of New Jersey streams, based upon an assessment of the resident in-stream benthic macroinvertebrate community. Macroinvertebrates are larger-than-microscopic,

primarily benthic (bottom-dwelling) fauna, which are generally ubiquitous in freshwater and estuarine environments, and play an integral role in the aquatic food web. Insects (largely immature forms) are especially characteristic of freshwaters; other major groups include worms, mollusks (snails, clams) and crustaceans (scuds, shrimp, water fleas, etc.). Species comprising the in-stream community occupy various niches, based on functional adaptation or feeding mode (for example, predators, filter or detritus feeders, scavengers). Their presence and relative abundance is governed by environmental conditions (which may determine available food supply), and by pollution tolerance levels of the respective species. The overall community thus holistically reflects the conditions in its environment. Each sample is analyzed using the USEPA Rapid Bioassessment Protocol (RBP). This statistical methodology provides a consistent view of stream community health. Stations are ranked and classified as severely impaired, moderately impaired and non-impaired.

The Department also evaluates the quality of in-stream habitat as it relates to viable populations of benthic macroinvertebrates. The physical attributes of habitat play an integral role in the health of the macroinvertebrate community. Stream habitat assessment includes the evaluation of the in-stream substrate, channel morphology, bank structural features, and riparian vegetation. The assessment encompasses an area of 100 to 200 feet around each AMNET sampling site. The qualitative habitat assessment, based on a version of the USEPA RBP calibrated for New Jersey streams, results in each station being assigned one of four condition categories, optimal, sub-optimal, marginal or poor. The Department samples over 800 stations, distributed in a stratified random pattern over every sub-watershed, once every five years. A detailed description of the monitoring program and copies of result reports are available from the Department's website at http://www.state.nj.us/dep/wmm/.

The AMNET site AN0021 on the proposed stream segment of the Paulins Kill indicates no stress to that portion of the aquatic community (non-impaired), while an assessment of the in-stream habitat quality demonstrated an optimal habitat quality. An

assessment of the physical/chemical monitoring data demonstrated that the water quality in this stream segment of the Paulins Kill is "fully attaining" surface water quality standards for phosphorus, pH, dissolved oxygen, nitrate, dissolved solids total suspended solids and unionized ammonia. The assessment also demonstrated that the stream segment is not attaining standards for the fecal coliform, temperature and arsenic criteria.

A significant factor in the selection of the proposed stream segment of Paulins Kill is its ability to support threatened and endangered species. The Department's Endangered and Nongame Species Program (ENSP) monitors the viability of T&E species and their habitat. ENSP also reviews records of other aquatic dependent "Species of Special Concern" associated with the selected stream segment. Species of Special Concern are the species that warrant special attention because of inherent vulnerability to environmental deterioration or habitat modification that would result in their becoming threatened. Also classified as Species of Special Concern are species for which there is little understanding of their current population status in the State. Information regarding the threatened and endangered species can be found at www.njfishandwildlife.com.

The Paulins Kill is home to one of only three populations of the Federally and State endangered dwarf wedgemussel, *Alasmidonta heterodon*. The other two locations have been proposed for similar antidegradation protections in the rule proposal published at 34 N.J.R.3889(a), November 18, 2002. The dwarf wedgemussel is a small, freshwater bivalve mollusk that has experienced dramatic declines during the past 100 years. The species can be found in slow to moderate currents and requires silt-free and well oxygenated, pollutant-free water. It is susceptible to over-collecting and the loss of genetic diversity due to small, geographically isolated, populations.

Dwarf wedgemussel survival depends upon the presence of fish populations. Like most freshwater mussel species, the life cycle includes a larval stage (glochidia) that must attach itself temporarily to a host fish. These free-floating glochidia are

especially vulnerable to environmental toxins. The Paulins Kill provides ideal habitat for the tessellated darter (*Etheostoma olmstedi*), a documented host fish for the dwarf wedgemussel.

Other freshwater mussels found within the aforementioned boundaries include the State threatened triangle floater (*Alasmidonta undulata*) and the Creeper (*Strophitus undulatus*), a State Species of Special Concern. Freshwater mussels are among the most rapidly declining animal groups in the country. Threats to freshwater mussel populations include destruction of habitat and degraded water quality due to dredging, channelization, siltation due to loss of riparian forests, introduction and spread of exotic mollusks, and dam construction. Since they have a low tolerance for waterborne pollutants, freshwater mussels are excellent indicators of water quality and overall stream health.

The stream stretch of the Paulins Kill and its associated woodlands, agricultural fields, wetlands and meadows also provides exceptional habitat for the State threatened wood turtle (*Clemmys insculpta*). Wood turtles of various age classes have been documented at 15 discrete locations within this portion of the Paulins Kill. The frequency of sightings and exemplary quality of the habitat is suggestive of a robust, viable population.

Wood turtles are semi-aquatic turtles preferring clear, well-oxygenated streams surrounded by a mosaic of woodlands, scrub-shrub/herbaceous wetlands, and successional meadows. In New Jersey, wood turtles are almost exclusively associated with water quality sensitive fish such as native brook trout and brown trout. While once ubiquitous throughout northern New Jersey, most of the viable wood turtle populations remain in rural portions of Sussex and Warren counties. Degraded water quality, habitat fragmentation, road mortality and predation are the primary factors behind wood turtle extirpation from developed portions of the State.

A significant concentration of the Federally threatened bog turtle (*Clemmys muhlenbergii*) also occurs within this portion of the Paulins Kill. Bog turtles inhabit fens,

bogs, and wet meadows. Intense land-uses such as urbanization or industrial farming destroy bog turtle habitats through direct wetland alteration or destruction and through secondary impacts such as stormwater inputs, local draw down of water tables, and nutrient enrichment.

Accordingly, the Department has determined that the Paulins Kill is a waterbody of "exceptional ecological significance" and is proposing to amend the antidegradation designation for the stream stretch of Paulins Kill from the Route 15 bridge (bench mark 507) to the Balesville dam, from FW2-NT(C2) to FW2-NT(C1).

Social Impact

The proposed amendments to the stream reclassifications and antidegradation designations allow the Department to continue to protect the surface waters of the State and will, therefore, result in a positive social impact. The proposed antidegradation designations to C1 will help prevent degradation of water quality and may provide increased recreational opportunities and improved health to human and aquatic resources. The maintenance of high quality water resources is important to all residents, particularly to the many communities that depend upon surface waters for public, industrial, and agricultural water supplies, recreation, tourism, fishing, and shellfish harvesting. The proposal will enable the Department to maintain and protect the existing and designated uses of New Jersey's waters for the citizens and ecosystems of New Jersey.

Economic Impact

The proposed amendments concerning stream classifications or antidegradation designations will result in a range of economic impacts, ranging from no economic impact to potentially significant impact. The actual impact depends on the conditions within each segment. Where there are no existing discharges to a segment being proposed for reclassification, no economic impacts are anticipated.

For existing NJPDES dischargers that are not proposing an expansion, the proposed C1 antidegradation designation amendments will not automatically require the existing facility to upgrade its treatment capabilities. However, existing dischargers, upon renewal of their permit, would be subject to any new water quality criteria, such as when reclassifying waters from FW2-NT to FW2-TP, which may or may not require an upgrade of wastewater treatment. The potentially affected facilities discharging to or upstream of the proposed stream segment, that are within the subwatershed (HUC 14), are listed in Table B. In the case of the Paulins Kill, the Department has identified potentially impacted dischargers in the upstream subwatershed because the proposed stream segment is at the upstream boundary of the HUC 14 containing the Paulins Kill segment.

The cost of capital improvements will vary depending upon the current level of treatment, the pollutants involved, the degree of additional treatment required to meet revised effluent limitations, and the treatment technology available. Expanding dischargers may need to incur professional costs such as engineering fees for the redesign of the current treatment systems. Additional costs, if any, would be mainly attributable to additional actions required to consistently comply with effluent limitations based upon more stringent criteria for ammonia, temperature, dissolved oxygen, and total suspended solids as a result of more restrictive use classifications. Concentrations for these substances in many effluents are expected to be already low enough that no additional actions on the part of dischargers will be required to attain the numeric criteria, and they will not, therefore, incur additional costs associated with the proposed stream reclassifications.

The magnitude of the economic impacts of the new stream classification on potential dischargers will be determined, in part, by the severity of the site-specific conditions and the approaches chosen to comply with effluent limitations. Possible approaches for meeting effluent limitations include: construction and operation of

additional treatment units; relocation of the outfall, pretreatment at the source(s) of the pollutant(s); effluent reuse; pollution prevention; and source reduction.

For existing NJPDES dischargers that are seeking to expand their discharge in the waterbody segments upgraded for C1, such expansions will be limited to those that result in no additional pollutant loading to the waterbodies. The antidegradation provision at N.J.A.C. 7:9B-1.5(d) protects Category One waters from measurable changes to existing water quality. Therefore, additional treatment technologies or

Table B - Potentially impacted NJPDES dischargers

	Waterbody	Current Classification[1]	Proposed Classification	Facilities
Delaware River Basin	Bowers Brook	[FW2-TM]	FW2-TP(C1)	None
	Lopatcong Creek	FW2-NT	FW2-TM	NJ0024716 Phillipsburg STP
	Paulins Kill	FW2-NT	FW2-NT(C1)	NJ0022063 Sussex County MUA service center The following dischargers are in the upstream HUC 14 from the proposed C1 designation: NJ0005711 Scherring Corp. NJ0066184 Sussex Co. MUA site 1-E NJ0050580 Sussex Co. MUA Hampton Commons NJ0024163 Big N Shopping Kennedy Construction NJ0020184 Town of Newton WTP NJ0004791 Southdown, Inc.
	Pequest River (trib)	[FW2-TM]	FW2-TM	None
	Tunnel Brook	[FW2-TM]	FW2-TP(C1)	None
Passaic River Basin	Macopin River	FW2-TM	FW2-TP(C1)	None
	Mill Brook (trib.)	[FW2-TM]	FW2-TP(C1)	None
	Peckman River	FW2-NT	FW2-TM	NJ0024490 Verona STP, NJ0025330 Cedar Grove STP
	Pequannock River	FW2-TM	FW2-TP(C1)	NJ0063711 Newark-Pequannock WTP NJ0069582 Newark-Charlotteburg WTP
	Wallace Brook	[FW2-NT]	FW2-TP(C1)	None
Raritan River Basin	Budd Lake (trib.) (E. of Budd Lake)	[FW2-NT]	FW2-TM	None currently. All previous permits have been terminated.
	Budd Lake (trib.) (W. of Budd Lake)	[FW2-NT]	FW2-NT	None
	S. Br. Raritan River (trib.) (High Bridge)	[FW2-TM]	FW2-TM	None

MUA Municipal Utilities Authority
STP Sewage treatment plant
WTP Water treatment plant

changes in operation and maintenance may be necessary in order to maintain the existing permitted effluent loadings at the increased wastewater flows. The cost of capital improvements and/or operation and maintenance will vary depending upon the current level of treatment, the pollutants involved, the degree of additional treatment required, and the treatment technology available. Expanding dischargers may also need to incur professional costs such as engineering fees for the redesign of the current treatment systems. Table C below represents an estimate of the capital, operational, and maintenance costs for wastewater treatment technologies, which can be used to assist in the calculation of additional costs.

Potential dischargers to waterbodies proposed to receive the C1 antidegradation designation will be required to demonstrate “no measurable change in water quality”. The economic costs to meet this standard will vary based on the relative size of the proposed discharge to the size of the receiving water. The larger the stream, relative to the discharge, the smaller the economic impact will be based on variations in existing compliance requirements, the size of the discharge, and the current levels of these pollutants in the wastewater.

Wetlands associated with waters classified as trout production are deemed "exceptional resource value" wetlands in accordance with the Freshwater Wetlands Protection Act (FWPA) at N.J.S.A. 13:9B-1 et seq. The FWPA rules at N.J.A.C. 7:7A-2.5(d) require a 150 foot transition area for exceptional resource value wetlands. Accordingly, any estimation of economic impact would have to include these transition areas.

Table C: Capital Costs for Wastewater Treatment Technologies (In Millions of 2002 Dollars)						
	FLOW[a], MGD					
	0.01	0.1	0.5	1.0	5.0	10.0
Activated Sludge[b]	0.86	2.30	4.75	7.92	19.44	28.36
Air Stripping	0.1	0.3	0.81	1.58	3.89	7.37
Equalization	0.19	0.35	1.05	1.35	2.92	5.1
Neutralization	0.12	0.25	0.48	0.63	1.36	1.99
Chemical Precipitation	0.33	0.92	2.0	3.17	7.77	12.2
Filtration	0.16	0.46	0.71	1.03	2.33	3.12
Chemical Oxidation (peroxide)	0.17	0.39	0.81	1.35	3.69	6.24
Chemical Oxidation (ozone)	0.34	0.69	1.47	2.38	5.05	8.22
Granular Activated Carbon Columns[c]	0.32	0.64	1.19	1.74	4.86	6.52
Powdered Activated Carbon[c] Treatment[d]	0.1	0.21	0.62	0.79	1.55	1.99
Powdered Activated Carbon[c] Regeneration	NA	NA	2.09	3.33	9.33	13.33
Anaerobic Biological Treatment	0.52	1.96	4.28	7.13	17.9	25.8
Operation and Maintenance Costs for Wastewater Treatment Technologies (In Millions of 2002 Dollars)						
Activated Sludge[b]	0.101	0.23	0.72	0.936	2.303	3.484
Air Stripping	0.015	0.058	0.144	0.159	0.415	0.592
Equalization	0.002	0.007	0.022	0.056	0.138	0.244
Neutralization	0.007	0.028	0.115	0.187	0.737	1.185
Chemical Precipitation	0.016	0.046	0.144	0.225	0.760	0.470
Filtration	0.002	0.016	0.050	0.094	0.184	0.488
Chemical Oxidation (peroxide)	0.015	0.058	0.158	0.271	0.990	1.568
Chemical Oxidation (ozone)	0.005	0.021	0.108	0.215	1.037	2.090
Granular Activated Carbon Columns	0.010	0.028	0.072	0.094	0.207	0.314
Granular Activated Carbon Regeneration	0.014	0.028	0.115	0.168	0.714	1.080
Powdered Activated Carbon[c] Treatment[e]	0.035[f]	0.099[f]	0.05[g]	0.103[g]	0.207[g]	0.279[g]
Powdered Activated Carbon[c] Regeneration	NA	NA	0.158	0.197	0.369	0.592
Anaerobic Biological Treatment	0.014	0.044	0.216	0.318	0.852	1.254

a - Wastewater: 1,000 mg/L COD, 500 mg/L BOD.
b - Includes sludge handling, dewatering, and disposal.
c - Based on carbon utilization rate of 2 lbs. carbon/1,000 gallons.
d - Based on 250 mg/L carbon dose.
e - Powdered Activated Carbon[c] dose of 250 mg/L.
f - Includes cost of makeup carbon with no regeneration.
g - Assumes on-site Powdered Activated Carbon regeneration as a separate cost.
Engineering News Record Construction Cost Index = 6579.14 (October 2002)
NA = Not Applicable

Source: Lankford, P.W. and Eckenfelder, W.W., editors, Toxicity Reduction in Industrial Effluents, Van Nostrand Reinhold, New York, 1990.

Environmental Impact

The proposed stream reclassifications provide beneficial environmental impact because they establish more protective criteria for new or expanded discharges to these waterbodies to assure that water quality is maintained at a level necessary to support trout and related species. The proposed antidegradation designations will have a positive effect on the environment by helping prevent degradation to existing water quality. Implementation of these rules through permitting and planning programs will specifically restore, maintain, and enhance the chemical, physical, and biological integrity of the proposed C1 waters.

Federal Standards Analysis

Executive Order 27 (1994) and N.J.S.A. 52:14B-1 et seq. (P.L. 1995, c.65) require that State agencies which adopt, readopt, or amend State regulations that exceed any Federal standards or requirements include in the rulemaking document a Federal standards analysis.

The Federal Clean Water Act (CWA), 33 U.S.C. 1251 et seq., as amended by the Water Quality Act of 1987 (PL 100-4), requires the establishment of water quality standards for all surface waters of the United States. (The Water Quality Act of 1987 amended the CWA to require the adoption of criteria for toxic pollutants identified as causing or contributing to an impairment of a waterbody's designated use(s).) Individual states are given the primary responsibility for developing and adopting surface water quality standards applicable to their waters. The USEPA is given responsibility to oversee and approve state water quality standards, provide guidance on the content of the standards and to develop water quality criteria guidance documents. Key elements of the surface water quality standards program required under the CWA are: a classification system establishing designated beneficial uses of the waters; ambient water quality criteria necessary to protect those uses; minimum uses to be attained, which reflect the fishable and swimmable goals of the CWA; and antidegradation

policies to prevent water quality from deteriorating. Furthermore, the CWA includes provisions requiring the USEPA to promulgate superseding Federal standards where the USEPA concludes that a State's standards are not consistent with the requirements of the CWA or where Federal requirements are necessary to meet the requirements of the CWA.

The SWQS amendments being proposed are required by and consistent with the Federal statutes, regulations and guidance.

N.J.A.C. 7:9B-1.15 contains specific waterbody classification listings and antidegradation designations, arranged by major drainage basin, and instructions for the use of the classification tables. The Federal water quality regulations at 40 CFR 131.10 require that states specify appropriate water uses to be achieved and protected. The Department’s SWQS waterbody classification listing is a tool to identify these designated uses such as protection and propagation of fish, shellfish, and wildlife, recreation in and on water, public water supplies, agricultural, industrial, etc. Therefore, these waterbody classifications are consistent with the Federal regulations.

In addition, 40 CFR 131.12 establishes requirements for the states to develop and adopt antidegradation policies and implementation procedures to ensure that the level of water quality needed to protect existing uses is maintained, and that water quality better than necessary to protect existing uses is maintained and protected unless demonstrations are made in support of lowering the water quality. The proposed changes in antidegradation designation identify the level of protection and implementation procedures that must be followed. The antidegradation designations are consistent with and do not exceed Federal standards, therefore, no further analysis is required.

Jobs Impact

Pursuant to N.J.S.A. 52:14B-1 et seq. (P.L. 1995, c. 166), all rule proposals must contain a jobs impact statement assessing the number of jobs to be generated or lost if the proposed rule takes effect.

The proposed higher trout water classifications and antidegradation categories are not expected to create any additional jobs or cause any jobs to be lost. Losses of existing jobs would only occur in the event that a discharger to one of the waterbodies proposed for reclassification would curtail or cease operations rather than provide the necessary measures to abate NJPDES regulated discharges so as to comply with any new permit requirements based on the SWQS.

As discussed in the Economic Impact statement, the imposition of requirements based on the SWQS is waterbody and facility specific. Failure to implement the proposed amendments could result in lost employment opportunities in businesses and industries that are water quality dependent, such as tourism and fishing. The implementation of the SWQS through the NJPDES permitting and other NJDEP programs will continue to result in job opportunities in analytical and environmental consulting services to assess permit compliance and evaluate and design the most cost effective abatement measures to achieve permit compliance. Should such abatement measures involve new capital improvements, job opportunities related to construction contracting services and operation and maintenance of these improvements would be created. Implementation of actions to achieve the SWQS will result in more of the State's waters achieving designated uses which will enhance job opportunities in industries and businesses that are directly and indirectly water related.

Agriculture Industry Impact

Pursuant to P.L. 1998, c.48, adopted on July 2, 1998, the Department has evaluated this rulemaking to determine the nature and extent of the impacts of the

proposed rules on the agriculture industry. Because agricultural operations generally do not require NJPDES permits, the proposed rules are not expected to have a significant impact upon the agriculture industry. Concentrated Animal Feeding Operations (CAFO) may have to install hydraulic controls to maintain the existing water quality of the receiving waterbody. However, the Department is not aware of any CAFOs that are located on the proposed C1 designated waterbodies.

Regulatory Flexibility Analysis

The proposed amendments might affect small businesses engaging in activities that affect the quality or uses of the surface waters of the State through pollutant discharges. As a result of the proposed change in the antidegradation designation for the waterbodies covered by this proposal, new or expanded NJPDES dischargers to these waterbodies will have to demonstrate that their discharge will not impact water quality in the Category One waterbody. Additionally, new or expanded dischargers to Category Two streams upstream of the Category One waterbody will be required to demonstrate that their discharge does not impact water quality at the Category One boundary. In order to meet these more stringent standards, dischargers may have to hire consultants, provide a higher level of pollutant removal by building additional treatment units, expanding existing treatment units, or changing to a treatment technology that can remove more pollutants. In addition to any capital costs, there may be annual operating costs such as, increased use of chemicals, increased electrical costs, increased costs for sludge handling/disposal, etc. The cost to small businesses, where there are costs incurred, is expected to vary from several thousand dollars to several million dollars, depending on facility specific factors such as type of activity, size of the discharge relative to the receiving stream, classification and antidegradation designation of waterbody affected, and required level of pollutant reduction. In proposing these amendments, the Department has balanced the need to protect the environment and the public health and to comply with the Federal law against any expected economic impacts of the rules upon small businesses and has determined

that to exempt them from any requirements or reduce the requirements for them would endanger the environment, public health, and safety.

Smart Growth

Executive Order No. 4 (2002) requires State agencies which adopt, amend or repeal any rule adopted pursuant to N.J.S.A. 52:14B-4(a) of the Administrative Procedure Act to describe the impact of the proposed rule on the achievement of smart growth and implementation of the New Jersey State Development and Redevelopment Plan (State Plan), N.J.S.A. 52:18A-196 et seq. The Department has evaluated this rulemaking to determine the nature and extent of the proposed amendments' impact on smart growth and implementation of the State Plan. Smart growth discourages development where it may impair or destroy natural resources or environmental qualities that are vital to the health and well being of the present and future citizens of New Jersey. The proposed amendments regarding the upgrading of use classifications and antidegradation designations will likely impact decisions concerning land use and infrastructure development because wastewater discharges will have to meet the antidegradation policies at N.J.A.C. 7:9B-1.15(d). Category One antidegradation designation requires that discharges are regulated to ensure that the quality of the Category One waters are protected from changes in water quality. The amendments are intended to conserve the State's natural resources, namely, its surface waters and associated biota, which implements State Planning Goal 2: Conserve The State's Natural Resources and Goal 4: Protect The Environment. Goal 2 provides that the State's natural resources (including - rivers, fresh and saltwater wetlands, habitats of unique flora and fauna) have significant intrinsic value as critical elements of the State's quality of life. The implementing strategy calls for conserving the State's natural resources. Goal 4 provides that "A clean, safe and attractive environment is essential to assuring the health of our citizens. Sustainable supplies of clean water, clean air and an abundance of open space and recreational opportunities also will assure a sustainable economy." The implementing strategy is to "Protect the environment by

planning for growth in compact forms, at locations and densities of use that make efficient use of existing and planned infrastructure and by increasing infrastructure capacities and growth potential in areas where development will not damage water resources, critical habitats or important forests…" This proposal advances the goals of the plan by designating waters which support unique flora/fauna, and other selected water resources, for additional protections. This also provides a database, to be used in planning, which identifies resources to be protected from the adverse impacts of growth.

These amendments will additionally discourage development where it would impair or destroy natural resources and environmental qualities vital to the health and well being of the citizens of New Jersey consistent with Executive Order No. 4 (2002).

Full text of the proposal follows (additions indicated in boldface **thus**; deletions indicated in brackets [thus]:

THIS IS A COURTESY COPY OF THIS RULE PROPOSAL. THE OFFICIAL VERSION IS SCHEDULED TO BE PUBLISHED IN THE JANUARY 6, 2003, NEW JERSEY REGISTER. SHOULD THERE BE ANY DISCREPENCIES BETWEEN THIS TEXT AND THE OFFICIAL VERSION OF THE PROPOSAL, THE OFFICIAL VERSION WILL GOVERN.

CHAPTER 9B SURFACE WATER QUALITY STANDARDS

SUBCHAPTER 1. SURFACE WATER QUALITY STANDARDS

7:9B-1.15 Surface water classifications for the waters of the State of New Jersey

(a) (No change.)

(b) (No change.)

(c) (No change.)

(d) The surface water classifications in Table 2 are for waters of the Delaware River Basin:

TABLE 2

Waterbody	Classification
...	
BOWERS BROOK (Hackettstown) - Source downstream to Rt. 517	**FW2-TP(C1)**
...	
LOPATCONG CREEK	
(Allens Mills) - Source to Decker Rd. bridge	FW2-TP(C1)
(Herkers Hollow) - Decker Rd. bridge to Rt. 57 bridge	FW2-TM
(Phillipsburg) - Rt. 57 bridge to a point 560 feet (straight line distance) upstream of the Penn Central railroad track	FW2-TP(C1)
(Phillipsburg) - From a point 560 feet (straight line distance) upstream of the Penn Central railroad track downstream to the confluence with the Delaware River	[FW2-NT] **FW2-TM**
TRIBUTARY	
(Uniontown) - Entire length	FW2-TP(C1)
...	
PAULINS KILL	
EAST BRANCH	(No Change.)
TRIBUTARY EAST BRANCH	(No Change.)

WEST BRANCH	(No Change.)
MAIN STEM	
(Blairstown) - Confluence of East and West branches to Rt. 15 bridge (bench mark 507)	FW2-TM
(Hampton) - Rt. 15 bridge **(bench mark 507)**	FW2-NT**(C1)**
[to Paulins Kill Lake dam] **to Balesville dam**	
(Hampton) - Balesville dam to Paulins Kill Lake dam	**FW2-NT**
(Paulins Kill Lake) - Paulins Kill Lake dam to Delaware River, except tributaries described separately below	FW2-TM
TRIBUTARIES, MAIN STEM	(No Change.)

...

PEQUEST RIVER	
(No Change.)	
TRIBUTARIES	
(Janes Chapel) - Headwater and tributaries downstream to the upstream boundary of Pequest Wildlife Management Area	**FW2-TM**
(Petersburg) - Headwaters and tributaries downstream to Ryan Road bridge	FW2-TP(C1)

...

TUNNEL BROOK (Oxford Mtn.) - Entire length, including all tributaries	**FW2-TP(C1)**

...

(e) The surface water classifications in Table 3 are for waters of the Passaic, Hackensack and New York Harbor Complex Basin:

TABLE 3

Waterbody	Classification

...

MACOPIN RIVER	
(Newfoundland) - Source to Echo Lake dam	FW2-NT
(Newfoundland) - Echo Lake dam **downstream** to Pequannock River	[FW2-TM] **FW2-TP(C1)**
...	
MILL BROOK	
(Randolph) - Source to Rt. 10 bridge	FW2-TP(C1)
(Randolph) - Rt. 10 bridge to Rockaway River[, including] [the easterly tributary]	FW2-TM
TRIBUTARIES	
(N. of Union Hill) - Entire length	**FW2-TP(C1)**
...	
PECKMAN RIVER	
(Verona) - [Entire length] **Source to a point 1,300 feet (straight line distance) upstream of Ozone Avenue bridge**	FW2-NT
(Cedar Grove) - From a point 1,300 feet (straight line distance) upstream of Ozone Avenue bridge to Main Street bridge	**FW2-TM**
(Little Falls) - Main Street bridge to Passaic River	**FW2-NT**
PEQUANNOCK RIVER	
MAIN STEM	
(Vernon) - Source to confluence with Pacock Brook	FW1(tp)
(Hardyston) - River and the easterly tributary from Pacock Brook to, but not including, Oak Ridge Reservoir	FW2-TP(C1)
(Newfoundland) - Outlet of Oak Ridge Reservoir downstream to, but not including Charlotteburg Reservoir	FW2-TP(C1)
(Charlotteburg) - Outlet of Charlotteburg Reservoir to, but not including, Macopin Reservoir or the tributaries described separately below	[FW2-TM] **FW2-TP(C1)**
(Kinnelon) - Macopin Reservoir outlet to Hamburg Turnpike bridge in Pompton Lakes Borough	FW2-TP(C1)
(Riverdale) - Hamburg Turnpike bridge in Pompton	FW2-TM

Lakes Borough to confluence with Wanaque River	
(Pompton Plains) - Confluence with Wanaque River downstream to confluence with Pompton River	FW2-NT
TRIBUTARIES	(No Change.)

...

WALLACE BROOK (Randolph) - Source downstream to, but not Including Hedden Park Lake	**FW2-TP(C1)**

...

(f) The surface water classifications in Table 4 are for waters of the Raritan River and Raritan Bay Basin:

TABLE 4

Waterbody	Classification
...	
BUDD LAKE (Mt. Olive)	FW2-NT(C1)
TRIBUTARIES	
(E. of Budd Lake) - Entire Length	**FW2-TM**
(W. of Budd Lake) - Entire Length	**FW2-NT**
...	
RARITAN RIVER	
NORTH BRANCH	(No Change.)
SOUTH BRANCH RARITAN RIVER	(No Change.)
TRIBUTARIES, SOUTH BRANCH RARITAN RIVER	
(Long Valley) - Entire length	FW2-TP(C1)
(High Bridge) - Entire length	**FW2-TM**
(S. of Hoffmans) - Entire length	FW2-TP(C1)
(S. of Schooley's Mt.) - Entire length	FW2-TP(C1)
MAIN STEM RARITAN RIVER	(No Change.)
...	

(g) (No Change.)

(h) (No Change.)

Based on consultation with staff, I hereby certify that the above statements, including the Federal standards analysis addressing the requirements of Executive Order 27 (1994), permit the public to understand accurately and plainly the purposes and expected consequences of these proposed amendments. I hereby authorize this proposal.

Date:_____

_____

Bradley M. Campbell, Commissioner

Department of Environmental Protection