



RULES AND REGULATIONS  
ESTABLISHING SURFACE WATER QUALITY CRITERIA



June 30, 1971

New Jersey Department of Environmental Protection

Richard J. Sullivan, *Commissioner*

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STATE OF NEW JERSEY  
DEPARTMENT OF ENVIRONMENTAL  
PROTECTION

Office of the Commissioner

FOREWORD

On the following pages surface water quality criteria are set forth which have been adopted by the New Jersey Department of Environmental Protection.

These criteria are definitions of acceptable water quality for the various categories of surface waters in our state. They are not intended to be enforcement standards in their own right. They represent water quality objectives hopefully to be met through a rigorous enforcement program.

The entry of wastes into a stream cannot be permitted if it will cause the quality of the stream to fail to meet the criteria. For waterways that are already polluted all waste treatment effluents and other sources of pollution must be upgraded or eliminated to permit the restoration of quality as defined by the criteria. In all such cases standards are imposed upon the effluent in the form of existing treatment regulations, administrative orders, or where necessary, orders of the court.

Similar control over effluent quality will be imposed as a condition of obtaining the required State permit for the construction of any new industrial or community waste treatment facilities. Such facilities should have incorporated in them pollution control in keeping with the currently accepted state of the art. Only by stringent regulation of effluent quality will we have any chance whatever of causing our waterways to meet these quality criteria.

A handwritten signature in cursive script that reads "Richard J. Sullivan".

Richard J. Sullivan  
Commissioner

Approved: *30 June 1971*

Filed With Secretary of State: 30 June 1971

## I N T R O D U C T I O N

The water resources management concept is vital to an effective water pollution control program. The waters of this State are priceless natural resources which must be properly managed if they are to be retained useable for their best purposes.

The basis for such an effort includes establishing a system of defining the best uses for all surface waters including not only the present but also possible future uses and recognizing the possibility of a variety of compatible uses. This then permits the development of quality values or parameters for such best uses. These two measures are incorporated in the regulations.

The general ranking of uses to be protected for all of New Jersey's fresh, tidal and coastal waters include but are not necessarily limited to the following:

### (1) Fresh Surface Waters

- (a) Those set aside for posterity to represent the natural aquatic environment and its associated biota.
- (b) Public water supply.
- (c) Recreation.
- (d) Maintenance, migration and propagation of natural and established biota.
- (e) Industrial water supply.
- (f) Agricultural water supply.
- (g) Navigation.

### (2) Tidal Waters

- (a) Shellfish harvesting.
- (b) Public water supply.
- (c) Recreation.
- (d) Maintenance, migration and propagation of the natural and established biota.
- (e) Fish passage and survival.
- (f) Industrial water supply.
- (g) Agricultural water supply.
- (h) Navigation.

### (3) Coastal Waters

- (a) Recreation.
- (b) Maintenance, migration and propagation of the natural and established biota.

In the Water Quality Act of 1965, the U. S. Congress authorized the establishment of water quality standards for interstate (including coastal) waters. The purpose of these standards is the protection and enhancement of the quality and productivity of the nation's interstate waters to serve a variety of beneficial uses. This Act, which amended the Federal Water Pollution Control Act, requires that the States establish standards for their interstate waters subject to review and approval by the Secretary of the Interior. The responsibility for this and other water pollution control functions has since

been transferred from the Secretary of the Interior to the Administrator of the U. S. Environmental Protection Agency.

The standards serve as both State and Federal standards which are enforceable under the State water pollution control statutes and the Federal Water Pollution Control Act, as amended (Section 10).

These water quality standards actually consist of the following three major components:

- (a) A statement of policy on the protection and enhancement of water resources including numerical values and narrative descriptions of water quality parameters for specific water uses.
- (b) Classification of surface waters designating specific best uses.
- (c) A plan of implementation and enforcement including treatment and control requirements for all wastewaters discharged into or affecting surface waters.

The State Department of Health, the agency previously responsible for water pollution control, adopted regulations effective September 1, 1964 establishing numerical values and narrative descriptions of water quality parameters for specific water uses. It is these September 1, 1964 regulations that are to be amended and updated and will hereinafter be referred to in this document as "Surface Water Quality Criteria." The other two components of New Jersey's water quality standards (b and c above) will, if necessary, be amended in the future and submitted to the Administrator of the U. S. Environmental Protection Agency for approval.

In addition to the adoption of Surface Water Quality Criteria, the Department has classified New Jersey's waters, interstate and intrastate, as to their best intended uses. The water quality standards were submitted to the Department of Interior on June 27, 1967 for Federal approval in accordance with the statutory timetable. Subsequently, certain revisions were made in the original submission. The Secretary of the Interior on March 13, 1968 approved the standards with certain exceptions.

The exceptions contained in the Secretary's approval have been accommodated in these criteria. The criteria also reflect considerable reliance upon the findings and recommendations in the "Report of the Committee on Water Quality Criteria" published April 1, 1968 by the Federal Water Pollution Control Administration.

The Surface Water Quality Criteria also reflect the efforts and opinions of members of the State Interdepartmental Committee on Surface Water Pollution Abatement. Representation on this Committee includes the Division of Water Resources, Division of Fish, Game and Shellfisheries, Division of Parks and Forests, all within the Department of Environmental Protection, the Division of Rural Resources of the Department of Agriculture, the Division of State and Regional Planning of the Department of Community Affairs, and the Division of Economic Development of the Department of Labor and Industry.

The amended Surface Water Quality Criteria consists of the following:

- (a) Statement of policy on the protection and enhancement of water resources.

- (b) Glossary of terms.
- (c) Parameters of quality consisting of numerical values and narrative descriptions for defined water uses.

These criteria do not describe existing quality conditions of New Jersey's waterways. They do represent objectives of cleanliness which hopefully can be achieved through the administrative and enforcement mechanisms available to the State Department of Environmental Protection.

We believe that these criteria are achievable through rather severe wastewater treatment requirements that are already in effect in addition to the contemplated construction of regional water pollution control projects or the reconstruction and improvement of existing facilities. Additional measures may be required to deal with nonspecific pollution sources.

These criteria will provide the basis for protecting and enhancing the quality of both interstate and intrastate waters; they are compatible with those adopted by our neighboring states.

Considerable water quality data will be gathered and studies made to permit a continuing evaluation of the proposed criteria and effluent regulations. Scientific analyses of such data will, in turn, enable the Department to expand specific wastewater effluent quality standards including equitable load allocation for each approved discharge source. This approach has already been taken in the Delaware River Estuary area.

These criteria may also be utilized to assist in determining the influence of man's activities beyond those involving the discharge of used community or industrial waters. These indirect sources of water pollution include land development, water impoundments, dredging, landfills and agricultural operations.

It should be pointed out that the criteria are not intended to be applicable in instances where water quality does not conform to specified values solely as a result of natural causes.

With the exception of a relatively few toxic substances, tolerable levels of many toxic substances in waters have not been fully established. In addition, toxicity may vary depending upon the presence or interaction of different constituents and the nature or characteristics of the stream or waterway involved. Therefore, maximum permissible limits for toxic substances will be determined by appropriate bioassays in addition to available technical guidance.

Because of the complex interrelationships between the physical, chemical, biological and hydrological factors affecting the aquatic environment, utilization of these criteria, particularly where specific numerical values are involved, must be carried out with great care. Sufficient valid data must be obtained and assessed to determine with reasonable accuracy levels of quality for a particular waterway. This cannot be overemphasized since these criteria will be utilized not only by the State Department of Environmental Protection but by other water pollution control and water resource agencies, local boards of health, private citizens, civic and other groups.

These criteria and other information will guide the Department in determining the required degree of treatment, and therefore the quality of effluent for all waste treatment facilities.

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

RULES AND REGULATIONS

SURFACE WATER QUALITY CRITERIA

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## SECTION 1

### A STATEMENT OF POLICY

- 1.1 Chapter 12 of Title 58 of the Revised Statutes of New Jersey (N.J.S.A.) 58:12-3 provides that no plant for the treatment of domestic or industrial wastes or other polluting substance from which the effluent is to flow into any of the waters of this State, shall be constructed except under such conditions as shall be established by the State Department of Environmental Protection.
- 1.2 The protection and enhancement of the quality and function of the waters of this State into which effluents from sewerage facilities are discharged is a principal objective of the State Department of Environmental Protection when considering the approval of designs for proposed sewerage facilities.
- 1.3 Waters which are designated to be retained in their natural state and therefore not subject to any man-made wastewater discharges shall be protected.
- 1.4 The protection and enhancement of the State's waterways shall take precedence over such allowable minimal water quality levels as may be established.
- 1.5 In all situations where there may be an impingement of a lesser quality water upon that of a higher quality of water, the lesser quality of water shall be upgraded in order to protect or improve adjacent higher quality waters.
- 1.6 Existing approved shellfish harvesting areas shall be protected. Tidal waters that now are at levels of quality below acceptable limits for shellfish harvesting shall be restored.
- 1.7 Any industry or community does not have the privilege of utilizing the theoretical capacity of surface waters to receive waste discharges.
- 1.8 Water is vital to life and comprises an invaluable natural resource which is not to be abused by any segment of the State's population or its economy.
- 1.9 Where existing water quality is better than the established criteria, the Department of Environmental Protection in the administration of its regulations shall maintain the quality of such waters unless it can be demonstrated that change is justifiable as a result of necessary economic or social development.
- 1.10 The water quality criteria for the main stem of the Delaware River (fresh and tidal) to and including the Delaware Bay are established in the current Water Quality Standards for the Delaware River Basin adopted by the Delaware River Basin Commission as part of its Comprehensive Plan.
- 1.11 The water quality criteria for the Raritan Bay shall be those established for TW-1 waters, as a minimum, but that the management of the quality of the water system comprising the Raritan Bay shall be such as to

assure that regulations of the Interstate Sanitation Commission with respect to dissolved oxygen will be met.

- 1.12 The levels of quality specified for various water uses, where applicable, are expected to be maintained under conditions comprising minimum consecutive seven day fresh water flows with ten year recurrence intervals.
- 1.13 The minimum degree of wastewater treatment permitted shall consist of the reduction of biochemical oxygen demand by at least 80 percent at all times. Higher treatment requirements will be established where necessary.
- 1.14 Effective year-round disinfection shall be required for all treated wastewater discharges containing pathogenic organisms.

SECTION 2

GLOSSARY OF TERMS

- 2.1 Agricultural Water Supply - Water used for livestock or irrigation.
- 2.2 Anadromous Fish - Fish that spend a part of their lives in the sea or lakes, but ascend rivers to spawn.
- 2.3 Aquatic Substrata - Soil material and attached biota underlying the water.
- 2.4 Biota - The animal and plant life of the region; flora and fauna collectively.
- 2.5 Department - New Jersey State Department of Environmental Protection.
- 2.6 Eutrophic Lake - Lakes with a good supply of nutrients; they may support rich organic production, such as algae blooms and are commonly deficient in dissolved oxygen below the thermocline when stratified.
- 2.7 Industrial Water Supply - Water used for processing and cooling.
- 2.8 Mixing Zones - Localized areas of surface waters, as may be designated by the Department, into which wastewater effluents, including heat, may be discharged for the purpose of mixing, dispersing or dissipating such wastewater without creating nuisances or hazardous conditions.
- 2.9 Natural Temperature - Temperature that would exist in a waterway without the addition of heat of artificial origin.
- 2.10 Nontrout Waters - Waters, that because of their physical and/or chemical and/or biotic characteristics, are not suitable for trout but which, in general, are suitable for a wide variety of other fish species.
- 2.11 Primary Contact Recreation - Recreational activities that involve significant ingestion risks and including but not limited to the following: (1) wading, (2) swimming, (3) diving, (4) surfing, and (5) water skiing.
- 2.12 Secondary Contact Recreation - Recreational activities where the probability of significant contact or water ingestion is minimal and including but not limited to: (1) boating, (2) fishing, (3) and those other activities involving limited contact with surface waters incident to shoreline recreation.
- 2.13 Surface Water Classifications - Surface waters of this State identified as (1) Fresh (FW), (2) Tidal (TW) and (3) Coastal (CW). This includes both interstate and intrastate waters.
- 2.14 Thermocline - The layer in a body of water in which the drop in temperature equals or exceeds 1° C. per meter of depth.
- 2.15 Thermal Alterations - The increase or decrease in temperature of surface waters above or below the natural that may be caused by the activities of man.

- 2.16 Trout Maintenance Waters - Waters that support trout throughout the year or which have high potential for such use pending the correction of short term environmental alterations. Waters in which the biotic community is manipulated for the purpose of trout maintenance and which are otherwise not naturally suited for such purposes are not included.
- 2.17 Trout Production Waters - Waters that are used by trout for spawning and/or nursery purposes during their first summer; or which are considered to have high potential for such use pending the correction of short term environmental alterations.
- 2.18 Wildlife - All undomesticated animals and fowl.

## SECTION 3

SURFACE WATER USE DESIGNATIONS AND CRITERIA OF QUALITY  
TO BE MAINTAINED IN WATERS SO DESIGNATED

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## SECTION 3.1 - SURFACE WATER QUALITY CRITERIA FOR FW-1 WATERS

CLASS FW-1 - Fresh waters, including rivers, streams, lakes, or other bodies of water, that because of their clarity, color, scenic setting, or other characteristic of aesthetic value or unique special interest, have been designated by authorized State agencies in conformance with laws pertaining to the use of private lands, are set aside for posterity to represent the natural aquatic environment and its associated biota.

- 3.1.1 These waters shall be maintained as to quality in their natural state and shall not be subject to any man-made wastewater discharges.

## SECTION 3.2 - SURFACE WATER QUALITY CRITERIA FOR FW-2 WATERS

CLASS FW-2 - Fresh surface waters approved as sources of public water supply. These waters shall be suitable for public potable water supply after such treatment as shall be required by the Department.

These waters shall also be suitable for the maintenance, migration and propagation of the natural and established biota; and for primary contact recreation; industrial and agricultural water supply and any other reasonable uses.

3.2.1 FLOATING SOLIDS, SETTLEABLE SOLIDS, OIL, GREASE, COLOR AND TURBIDITY

None noticeable in the water or deposited along the shore or on the aquatic substrata in quantities detrimental to the natural biota. None which would render the waters unsuitable for the designated uses.

3.2.2 TOXIC OR DELETERIOUS SUBSTANCES INCLUDING BUT NOT LIMITED TO MINERAL ACIDS, CAUSTIC ALKALI, CYANIDES, HEAVY METALS, CARBON DIOXIDE, AMMONIA OR AMMONIUM COMPOUNDS, CHLORINE, PHENOLS, PESTICIDES, ETC.

None, either alone or in combination with other substances, in such concentrations as to affect humans or be detrimental to the natural aquatic biota or which would render the waters unsuitable for the designated uses. None which would cause the Potable Water Standards of the Department for drinking water to be exceeded after appropriate treatment.

3.2.3 TASTE AND ODOR PRODUCING SUBSTANCES

None offensive to humans or which would produce offensive tastes and/or odors in water supplies and fauna used for human consumption. None which would render the waters unsuitable for the designated uses.

3.2.4 pH

Between 6.5 and 8.5.

3.2.5 DISSOLVED OXYGEN

- (a) Trout Production Waters - Not less than 7.0 mg/l at any time.
- (b) Trout Maintenance Streams - Daily average not less than 6.0 mg/l. Not less than 5.0 mg/l at any time.
- (c) Trout Maintenance Lakes - Daily average not less than 6.0 mg/l. Not less than 5.0 mg/l at any time.

In eutrophic lakes when stratification is present, not less than 4.0 mg/l in or above the thermocline where water temperatures are below 72° F. At depths where the water is 72° F. or above,

daily average not less than 6.0 mg/l and not less than 5.0 mg/l at any time.

- (d) Nontrout Waters - Daily average not less than 5.0 mg/l. Not less than 4.0 mg/l at any time.

### 3.2.6 TEMPERATURE

- (a) Trout Production Waters - Natural temperatures shall prevail except where properly treated wastewater effluents may be discharged. Where such discharges occur, stream temperatures shall not be raised more than 1° F.
- (b) Trout Maintenance Streams - No heat may be added which would cause temperatures to exceed 2° F. over the natural temperatures at any time or which would cause temperatures in excess of 68° F.

Reductions in temperatures may be permitted where it can be shown that trout will benefit without detriment to other designated water uses. The rate of temperature change in designated mixing zones shall not cause mortality of the biota.

- (c) Trout Maintenance Lakes - No thermal alterations except where it can be shown to benefit the designated uses.
- (d) Nontrout Waters - No thermal alterations, except in designated mixing zones, which would cause temperatures to deviate more than 5° F. at any time from natural stream temperatures or more than 3° F. in the epilimnion of lakes and other standing waters.

No heat may be added, except in designated mixing zones, which would cause temperatures to exceed 82° F. for small mouth bass or yellow perch waters or 86° F. for other nontrout waters.

The rate of temperature change in designated mixing zones shall not cause mortality of the biota.

### 3.2.7 RADIOACTIVITY

Current U. S. Public Health Service Drinking Water Standards shall apply.

### 3.2.8 BACTERIAL QUALITY

Fecal coliform levels shall not exceed a geometric mean of 200/100 ml. Samples shall be obtained at sufficient frequencies and at locations and during periods which will permit valid interpretation of laboratory analyses.

Appropriate sanitary surveys shall also be carried out as a supplement to such sampling and laboratory analyses.

## SECTION 3.3 - SURFACE WATER QUALITY CRITERIA FOR FW-3 WATERS

CLASS FW-3 - Fresh surface waters suitable for the maintenance, migration and propagation of the natural and established biota; and for primary contact recreation; industrial and agricultural water supply and any other reasonable uses.

3.3.1 FLOATING SOLIDS, SETTLEABLE SOLIDS, OIL, GREASE, COLOR AND TURBIDITY

None noticeable in the water or deposited along the shore or on the aquatic substrata in quantities detrimental to the natural biota. None which would render the waters unsuitable for the designated uses.

3.3.2 TOXIC OR DELETERIOUS SUBSTANCES INCLUDING BUT NOT LIMITED TO MINERAL ACIDS, CAUSTIC ALKALI, CYANIDES, HEAVY METALS, CARBON DIOXIDE, AMMONIA OR AMMONIUM COMPOUNDS, CHLORINE, PHENOLS, PESTICIDES, ETC.

None, either alone or in combination with other substances, in such concentrations as to affect humans or be detrimental to the natural aquatic biota or which would render the waters unsuitable for the designated uses.

3.3.3 TASTE AND ODOR PRODUCING SUBSTANCES

None offensive to humans or which would produce offensive tastes and/or odors in fauna used for human consumption. None which would render the waters unsuitable for the designated uses.

3.3.4 pH

Between 6.5 and 8.5.

3.3.5 DISSOLVED OXYGEN

(a) Trout Production Waters - Not less than 7.0 mg/l at any time.

(b) Trout Maintenance Streams - Daily average not less than 6.0 mg/l. Not less than 5.0 mg/l at any time.

(c) Trout Maintenance Lakes - Daily average not less than 6.0 mg/l. Not less than 5.0 mg/l at any time.

In eutrophic lakes when stratification is present, not less than 4.0 mg/l in or above the thermocline where water temperatures are below 72° F. At depths where the water is 72° F. or above, daily average not less than 6.0 mg/l and not less than 5.0 mg/l at any time.

(d) Nontrout Waters - Daily average not less than 5.0 mg/l. Not less than 4.0 mg/l at any time.

3.3.6 TEMPERATURE

- (a) Trout Production Waters - Natural temperatures shall prevail except where properly treated wastewater effluents may be discharged. Where such discharges occur, stream temperatures shall not be raised more than 1° F.
- (b) Trout Maintenance Streams - No heat may be added which would cause temperatures to exceed 2° F. over the natural temperatures at any time or which would cause temperatures in excess of 68° F.

Reductions in temperatures may be permitted where it can be shown that trout will benefit without detriment to other designated water uses. The rate of temperature change in designated mixing zones shall not cause mortality of the biota.

- (c) Trout Maintenance Lakes - No thermal alterations except where it can be shown to benefit the designated uses.

- (d) Nontrout Waters - No thermal alterations, except in designated mixing zones which would cause temperatures to deviate more than 5° F. at any time from natural stream temperatures or more than 3° F. in the epilimnion of lakes and other standing waters.

No heat may be added, except in designated mixing zones, which would cause temperatures to exceed 82° F. for small mouth bass or yellow perch waters or 86° F. for other nontrout waters.

The rate of temperature change in designated mixing zones shall not cause mortality of the biota.

3.3.7 RADIOACTIVITY

Current U. S. Public Health Service Drinking Water Standards shall apply.

3.3.8 BACTERIAL QUALITY

Fecal coliform levels shall not exceed a geometric mean of 200/100 ml. Samples shall be obtained at sufficient frequencies and at locations and during periods which will permit valid interpretation of laboratory analyses.

Appropriate sanitary surveys shall also be carried out as a supplement to such sampling and laboratory analyses.

## SECTION 3.4 - SURFACE WATER QUALITY CRITERIA FOR TW-1 WATERS

CLASS TW-1 - Tidal waters approved as sources of public potable water supply. These waters shall be suitable for public potable water supply after such treatment as shall be required by the Department.

These waters shall be suitable for shellfish harvesting where permitted.

These waters shall also be suitable for the maintenance, migration and propagation of the natural and established biota; and for primary contact recreation; industrial and agricultural water supply and any other reasonable uses.

3.4.1 FLOATING SOLIDS, SETTLEABLE SOLIDS, OIL, GREASE, COLOR AND TURBIDITY

None noticeable in the water or deposited along the shore or on the aquatic substrata in quantities detrimental to the natural biota. None which would render the waters unsuitable for the designated uses.

3.4.2 TOXIC OR DELETERIOUS SUBSTANCES INCLUDING BUT NOT LIMITED TO MINERAL ACIDS, CAUSTIC ALKALI, CYANIDES, HEAVY METALS, CARBON DIOXIDE, AMMONIA OR AMMONIUM COMPOUNDS, CHLORINE, PHENOLS, PESTICIDES, ETC.

None, either alone or in combination with other substances, in such concentrations as to affect humans or be detrimental to the natural aquatic biota or which would render the waters unsuitable for the designated uses. None which would cause the Potable Water Standards of the Department for drinking water to be exceeded after appropriate treatment.

3.4.3 TASTE AND ODOR PRODUCING SUBSTANCES

None offensive to humans or which would produce offensive tastes and/or odors in water supplies and biota used for human consumption. None which would render the waters unsuitable for the designated uses.

3.4.4 pH

Between 6.5 and 8.5

3.4.5 DISSOLVED OXYGEN

(a) Trout Maintenance Waters - Daily average not less than 6.0 mg/l. Not less than 5.0 mg/l at any time.

(b) Nontrout Waters - Daily average not less than 5.0 mg/l. Not less than 4.0 mg/l at any time.

**3.4.6 TEMPERATURE**

- (a) Trout Maintenance Streams - No heat may be added which would cause temperatures to exceed 2° F. over the natural temperatures at any time or which would cause temperatures in excess of 68° F.

Reductions in temperatures may be permitted where it can be shown that trout will benefit without detriment to other designated water uses. The rate of temperature change in designated mixing zones shall not cause mortality of the biota.

- (b) Nontrout Waters - No heat may be added except in designated mixing zones, which would cause temperatures to exceed 85° F., or 82° F. in yellow perch waters, or which will cause the monthly mean of the maximum daily temperature at any site, prior to the addition of any heat, to be exceeded by more than 4° F. during September through May, or more than 1.5° F. during June through August. The rate of temperature change in designated mixing zones shall not cause mortality of the biota.

**3.4.7 RADIOACTIVITY**

Current U. S. Public Health Service Drinking Water Standards shall apply.

**3.4.8 BACTERIAL QUALITY**

- (a) Approved Shellfish Harvesting Waters - Where harvesting of shellfish is permitted, requirements established by the National Shellfish Sanitation Program as set forth in its current manual of operations shall apply.
- (b) All Other Waters - Fecal coliform levels shall not exceed a geometric mean of 200/100 ml.

Samples shall be obtained at sufficient frequencies and at locations and during periods which will permit valid interpretation of laboratory analyses.

Appropriate sanitary surveys shall be carried out as a supplement to such sampling and laboratory analyses.

## SECTION 3.5 - SURFACE WATER QUALITY CRITERIA FOR TW-2 WATERS

CLASS TW-2 - Tidal waters suitable for secondary contact recreation but not primary contact recreation; the maintenance of fish populations; the migration of anadromous fish; the maintenance of wildlife and any other reasonable uses.

3.5.1 FLOATING SOLIDS, SETTLEABLE SOLIDS, OIL, GREASE, COLOR AND TURBIDITY

None noticeable in the water or deposited along the shore or on the aquatic substrata in quantities detrimental to the natural biota. None which would render the waters unsuitable for the designated uses.

3.5.2 TOXIC OR DELETERIOUS SUBSTANCES INCLUDING BUT NOT LIMITED TO MINERAL ACIDS, CAUSTIC ALKALI, CYANIDES, HEAVY METALS, CARBON DIOXIDE, AMMONIA OR AMMONIUM COMPOUNDS, CHLORINE, PHENOLS, PESTICIDES, ETC.

None, either alone or in combination with other substances, in such concentrations as to be detrimental to fish or inhibit their natural migration or which would render the waters unsuitable for the designated uses.

3.5.3 TASTE AND ODOR PRODUCING SUBSTANCES

None offensive to humans or which would produce offensive tastes and/or odors in biota used for human consumption. None which would render the waters unsuitable for the designated uses.

3.5.4 pH

Between 6.5 and 8.5.

3.5.5 DISSOLVED OXYGEN

Not less than 4.0 mg/l at any time.

3.5.6 TEMPERATURE

No heat may be added, except in designated mixing zones, which would cause temperatures to exceed 85° F., or which would cause the monthly mean of the maximum daily temperature at any site, prior to the addition of any heat, to be exceeded by more than 4° F. during September through May, or more than 1.5° F. during June through August. The rate of temperature change in designated mixing zones shall not cause mortality of the biota.

3.5.7 RADIOACTIVITY

Current U. S. Public Health Service Drinking Water Standards shall apply.

3.5.8 BACTERIAL QUALITY

Fecal coliform levels shall not exceed a geometric mean of 770/100 ml. Samples shall be obtained at sufficient frequencies and at locations and during periods which will permit valid interpretation of laboratory analyses.

Appropriate sanitary surveys shall also be carried out as a supplement to such sampling and laboratory analyses.

SECTION 3.6 - SURFACE WATER QUALITY CRITERIA FOR TW-3 WATERS

CLASS TW-3 - Tidal waters used primarily for navigation, not recreation. These waters shall be suitable for fish survival and the passage of anadromous fish and for any other reasonable uses.

3.6.1 FLOATING SOLIDS, SETTLEABLE SOLIDS, OIL, GREASE, COLOR AND TURBIDITY

None noticeable in the water or contributing to the formation of sludge deposits.

3.6.2 TOXIC OR DELETERIOUS SUBSTANCES INCLUDING BUT NOT LIMITED TO MINERAL ACIDS, CAUSTIC ALKALI, CYANIDES, HEAVY METALS, CARBON DIOXIDE, AMMONIA OR AMMONIUM COMPOUNDS, CHLORINE, PHENOLS, PESTICIDES, ETC.

None, either alone or in combination with other substances, in such concentrations as to cause fish mortality or inhibit their natural migration or which would render the waters unsuitable for the designated uses.

3.6.3 TASTE AND ODOR PRODUCING SUBSTANCES

None offensive to humans or which would produce offensive tastes and/or odors in fauna used for human consumption. None which would render the waters unsuitable for the designated uses.

3.6.4 pH

Between 6.5 and 8.5.

3.6.5 DISSOLVED OXYGEN

Not less than 3.0 mg/l at any time.

3.6.6 TEMPERATURE

No heat may be added, except in designated mixing zones, which would cause temperatures to exceed 85° F., or which would cause the monthly mean of the maximum daily temperature at any site, prior to the addition of any heat, to be exceeded by more than 4° F. during September through May, or more than 1.5° F. during June through August. The rate of temperature change in designated mixing zones shall not cause mortality of the biota.

3.6.7 RADIOACTIVITY

Current U. S. Public Health Service Drinking Water Standards shall apply.

3.6.8 BACTERIAL QUALITY

Fecal coliform levels shall not exceed a geometric mean of 1500/100 ml. Samples shall be obtained at sufficient frequencies and at locations and during periods which will permit valid interpretation of laboratory analyses.

Appropriate sanitary surveys shall also be carried out as a supplement to such sampling and laboratory analyses.

SECTION 3.7 - SURFACE WATER QUALITY CRITERIA FOR CW-1 WATERS

CLASS CW-1 - The waters of the Atlantic Ocean within 1500 feet from mean low tide shoreline or to a bottom depth of 15 feet below the mean low tide elevation, whichever is more distant from the mean low tide shoreline.

These waters shall be suitable for primary contact recreation; the maintenance, migration and propagation of the natural and established biota and any other reasonable uses.

3.7.1 FLOATING SOLIDS, SETTLEABLE SOLIDS, OIL, GREASE, COLOR AND TURBIDITY

None noticeable in the water or deposited along the shore or on the aquatic substrata in quantities detrimental to the natural biota. None which would render the waters unsuitable for the designated uses.

3.7.2 TOXIC OR DELETERIOUS SUBSTANCES INCLUDING BUT NOT LIMITED TO MINERAL ACIDS, CAUSTIC ALKALI, CYANIDES, HEAVY METALS, CARBON DIOXIDE, AMMONIA OR AMMONIUM COMPOUNDS, CHLORINE, PHENOLS, PESTICIDES, ETC.

None, either alone or in combination with other substances, in such concentrations as to affect humans or be detrimental to the natural aquatic biota or which would render the waters unsuitable for the designated uses.

3.7.3 TASTE AND ODOR PRODUCING SUBSTANCES

None offensive to humans or which would produce offensive tastes and odors in biota used for human consumption. None which would render the waters unsuitable for the designated uses.

3.7.4 pH

Between 6.5 and 8.5.

3.7.5 DISSOLVED OXYGEN

Not less than 5.0 mg/l at any time.

3.7.6 TEMPERATURE

No heat may be added directly to these waters. As a result of any heat which may be added elsewhere, the temperature at any given site may not exceed 80° F., nor may the monthly mean of the maximum daily temperature, prior to the addition of any heat, be exceeded by more than 4° F. during September through May or more than 1.5° F. during June through August.

3.7.7 RADIOACTIVITY

Current U. S. Public Health Service Drinking Water Standards shall apply.

**3.7.8 BACTERIAL QUALITY**

Fecal coliform levels shall not exceed a geometric mean of 50/100 ml. Samples shall be obtained at sufficient frequencies and at locations and during periods which will permit valid interpretation of laboratory analyses.

Appropriate sanitary surveys shall also be carried out as a supplement to such sampling and laboratory analyses.

## SECTION 3.8 - SURFACE WATER QUALITY CRITERIA FOR CW-2 WATERS

CLASS CW-2 - Atlantic Ocean waters beyond those established under CW-1 to the three mile limit.

These waters shall be suitable for secondary contact recreation; the maintenance, migration and propagation of the natural and established biota and any other reasonable uses.

3.8.1 FLOATING SOLIDS, SETTLEABLE SOLIDS, OIL, GREASE, COLOR AND TURBIDITY

None noticeable in the water or deposited on the aquatic substrata in quantities detrimental to the natural biota. None which would render the waters unsuitable for the designated uses.

3.8.2 TOXIC OR DELETERIOUS SUBSTANCES INCLUDING BUT NOT LIMITED TO MINERAL ACIDS, CAUSTIC ALKALI, CYANIDES, HEAVY METALS, CARBON DIOXIDE, AMMONIA OR AMMONIUM COMPOUNDS, CHLORINE, PHENOLS, PESTICIDES, ETC.

None, either alone or in combination with other substances, in such concentrations as to affect humans or be detrimental to the natural aquatic biota or which would render the waters unsuitable for the designated uses.

3.8.3 TASTE AND ODOR PRODUCING SUBSTANCES

None offensive to humans or which would produce offensive tastes and odors in fauna used for human consumption. None which would render the waters unsuitable for the designated uses.

3.8.4 pH

Between 6.5 and 8.5.

3.8.5 DISSOLVED OXYGEN

Not less than 5.0 mg/l at any time.

3.8.6 TEMPERATURE

No heat may be added, except in designated mixing zones, which would cause the temperature to exceed 80° F., or which would cause the monthly mean of the maximum daily temperature at any site, prior to the addition of any heat, to be exceeded by more than 4° F. during September through May; or more than 1.5° F. during June through August. The rate of temperature change in designated mixing zones shall not cause mortality of the biota.

3.8.7 RADIOACTIVITY

Current U. S. Public Health Service Drinking Water Standards shall apply.

3.8.8 BACTERIAL QUALITY

Fecal coliform levels shall not exceed a geometric mean of 200/100 ml. Samples shall be obtained at sufficient frequencies and at locations and during periods which will permit valid interpretation of laboratory analyses.

Appropriate sanitary surveys shall also be carried out as a supplement to such sampling and laboratory analyses.