

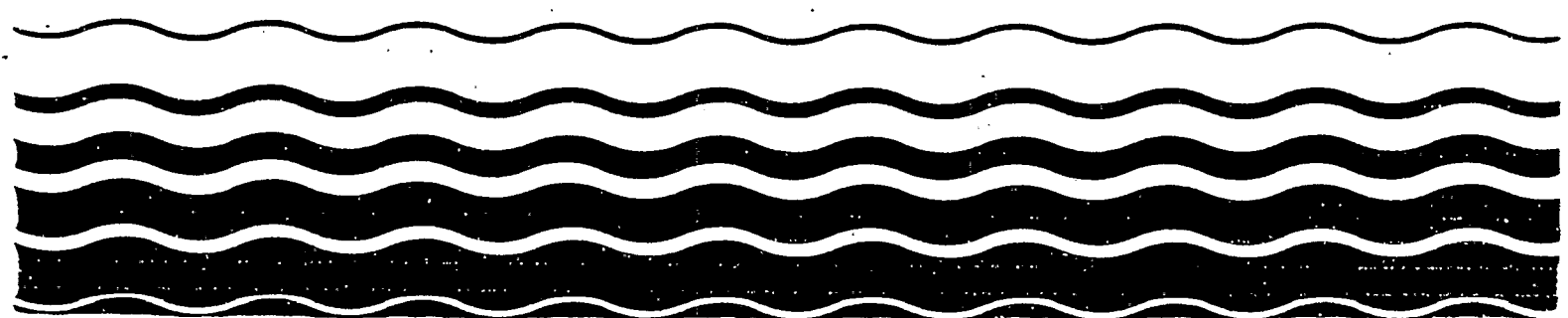


Water

Phosphorus

Water Quality Standards Criteria Summaries: A Compilation of State/Federal Criteria

Reference



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The reader should consult the water quality standards of a particular State for exact regulatory language applicable to that State. Copies of State water quality standards may be obtained from the State's Water Pollution Control Agency or its equivalent.

Additional information may also be obtained from the:

Standards Branch
Criteria and Standards Division (WH-585)
Office of Water Regulations and Standards
U.S. Environmental Protection Agency
Washington, D.C. 20460
202-475-7315

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INTRODUCTION

This digest is compiled to provide general information to the public as well as to Federal, State, and local officials. It contains excerpts from the individual Federal-State water quality standards establishing pollutant specific criteria for interstate surface waters. The water quality standards program is implemented by the U. S. Environmental Protection Agency where responsibility for providing water quality recommendations, approving State-adopted standards for interstate waters, evaluating adherence to the standards, and overseeing enforcement of standards compliance, has been mandated by Congress.

Standards, a nationwide strategy for surface water quality management, contain three major elements: the use (recreation, drinking water, fish and wildlife propagation, industrial, or agricultural) to be made of the navigable water; criteria to protect these uses; and an antidegradation statement to protect existing high quality waters, from degradation by the addition of pollutants. Guidance for the development of standards by individual States is contained in two EPA documents entitled Water Quality Standards Handbook (1983) and Quality Criteria for Water (1986).

Criteria for phosphorus in State water quality standards is the subject of this digest. Phosphorus criteria for water are established to provide a threshold level which when exceeded would most likely result in aquatic life toxicity, due to elemental phosphorus, and excessive aquatic plant growth, caused by phosphate phosphorus which is an essential plant nutrient. Phosphorus and phosphates usually enter a waterbody from land runoff, human and animal excreta, decaying vegetation, and industrial processes and detergents. Once combined with other nutrients in a waterbody, their removal becomes tedious and expensive. The 1986 Quality Criteria for Water recommends a phosphorus criterion of:

0.10 µg/L yellow (elemental) phosphorus for marine and estuarine waters.

No criteria for fresh water.

Since water quality standards experience revisions and upgrading from time to time, following procedures set forth in the Clean Water Act, individual entries in this digest may be superseded. As these revisions are accomplished and allowing for the States to revise their standards accordingly, this digest will be updated and reissued. Because this publication is not intended for use other than as a general information resource, to obtain the latest information and for special purposes and applications, the reader needs to refer to the current approved water quality standards. These can be obtained from the State water pollution control agencies or the EPA or Regional Offices.

REFERENCES

- 3 Water Quality Boundaries and Standards (Arizona), Article 2. Surface Water Quality Standards, A.R.S R18.11, 1987.
- 5 California Water Quality Standards by River Basins, ca. 1975

For more detailed information on selected basins, sub-basins and stretches of streams and coastal areas refer to California State Water Quality Standards.
- 9 Florida Administrative Code, Chapter 17-4, 1987 and Florida Administrative Code, Chapter 17-3, 1988.
- 11 Hawaii Administrative Rules, Title II, Hawaii Department of Health, Chapter 54: Water Quality Standards, 1988.
- 31 Water Quality Standards for Interstate and Intrastate Streams in New Mexico, State of New Mexico Water Quality Control Commission, 1988.
- 35 Ohio Water Quality Standards, Chapter 3745-1 of the Administrative Code, Ohio Environmental Protection Agency, 1985.
- 43 Texas Surface Water Quality Standards, Texas Water Commission, Rule Change, 1988.
- 44 Utah Standards of Quality for Waters of the State, Wastewater Disposal Regulations: Part II, State of Utah Department of Health: Division of Environmental Health, 1988.
- 45 Vermont Water Quality Standards, State of Vermont Water Resource Board, 1987.
- 51 Water Quality Standards for American Samoa, 1984, pp. 20-25.
- 53 Revised Guam Water Quality Standards, Guam Environmental Protection Agency, 1984, p. 9.
- 54 Commonwealth of Northern Mariana Islands Marine and Fresh Water Quality Standards, Commonwealth Register, Vol. 8 No. 5, 1986, p. 4465.
- 55 Puerto Rico Water Quality Standards Regulation, Environmental Quality Board, 1983.
- 56 Marine and Fresh Water Quality Standard Regulations, Trust Territory, 1986, p. 6.
- 57 Water Quality Standards for Coastal Waters of the Virgin Islands, Title 12, Chapter 7, Subchapter 186, March 7, 1985, p. 264.

ENVIRONMENT REPORTER, The Bureau of National Affairs, Inc. Washington, D.C.
20037

- 4 Pages 716:1005, August 30, 1985
- 6 Page 726:1011, August 22, 1986
- 8 Pages 736:1002, :1010, March 28, 1986
- 11 Pages 756:1003 - 1008, September 20, 1985
- 12 Pages 761:1026, January 23, 1987
- 13 Pages 766:0505, May 25, 1984
- 14 Pages 771:1002, August 10, 1984; 771:1006.3, November 29, 1985; 771:1002, December 26, 1980; 771:1020, January 10, 1986
- 16 Page 781:1011 - 1012, March 27, 1987
- 17 Page 786:1008, November 29, 1985
- 18 Page 791:1006, January 18, 1985
- 19 Pages 796:0105-0106, April 18, 1986, 796:0522, January 23, 1987
- 21 Pages 806:1002 - 1004, June 21, 1985
- 22 Page 811:1004, February 13, 1987
- 28 Page 841:1001, February 22, 1985; 841:1005 June 29, 1984; 841:1013-1088, February 22, 1985
- 29 Page 846:1002, October 5, 1984
- 30 Pages 851:1013, April 11, 1986
- 32 Pages 861:1010, November 29, 1985
- 33 Page 866:1014, August 29, 1986
- 34 Pages 871:1003 - 1006, June 7, 1985
- 39 Pages 901:1003, August 9, 1985
- 40 Pages 906:1006, :1008, November 29, 1985

State and Water UsePhosphorus Criteria ValuesAlabama¹

Not specified

Alaska²

Not specified

Arizona³

Numeric nutrient standards for total phosphates (mg/L) for certain surface water segments as adopted by the Council are as follows:

Verde River and
Tributaries to
Bartlett Lake

0.10 - annual mean
0.30 - 90 percentile
1.00 - single sample maximum

White River, Black
River, Tonto Creek
and Tributaries

0.10 - annual mean
0.20 - 90 percentile
0.80 - single sample maximum

Salt River and
Tributaries, except
Pinal Creek and
Tributaries, from
confluence of White and
Black Rivers to Theodore
Roosevelt Lake

0.12 - annual mean
0.30 - 90 percentile
1.00 - single sample maximum

Apache, Canyon, Saguaro
and Theodore Roosevelt
Lakes

0.03 - Annual mean of representative
composite samples (taken from
surface and 2 and 5 meter depths).

0.60 - Maximum for any set of representative composite
samples (taken from surface and 2 and 5 meter depths).

Salt River below
Steward Mountain Dam
to above mouth of
Verde River

0.50 - annual mean
0.20 - single sample maximum

Little Colorado River
and Tributaries above
River Reservoir in
Greer, South Fork of
Little Colorado above
South Fork Campground;
Water Canyon Creek
above Apache-Sitgreaves
National Forest boundary

0.08 - annual mean
0.10 - 90 percentile
0.75 - single sample maximum

Little Colorado River
at Apache County Road
No. 124 crossing

0.75 - single sample maximum

State and Water UsePhosphorus Criteria Values

Little Colorado River above Lyman Lake to above Amity Ditch diversion near Arizona Highway 273 crossing (applies only when in- stream turbidity is less than 50 Nephelometric Turbidity Units).	0.20 - annual mean 0.30 - 90 percentile 0.75 - single sample maximum
Oak Creek Canyon and the West Fork.	0.10 - annual mean 0.30 - 90 percentile 0.25 - single sample maximum

Arkansas⁴

All

Not specified

Nutrients - Materials stimulating algal growth shall not be present in concentrations sufficient to cause objectionable algal densities or other nuisance aquatic vegetation. As a guideline, total phosphorus shall not exceed 100 µg/L in streams or 50 µg/L in lakes and reservoirs except in waters highly laden with natural silts or color which reduce the penetration of sunlight needed for plant photosynthesis, or in other waters where it can be demonstrated that algal production will not interfere with or adversely affect designated uses and/or fish and wildlife propagation. The Commission may establish alternative nutrient limitations for lakes, reservoirs and streams, and shall incorporate such limitations into appropriate water quality management plans.

California⁵

Concentrations not to be exceeded:
(Total Phosphorus)

Marine Habitat, Warm Freshwater Habitat (Basin 3)	0.2 mg/l
Cold Freshwater Habitat, Fish Spawning (Basin 3)	0.1 mg/l
Water Contact Recreation or Non- contact Water Recreation (Basin 3)	0.05 mg/l

State and Water Use

Phosphorus Criteria Values

Colorado⁶

Not specified

Connecticut⁷

All

The waters shall be free from chemical constituents in concentrations or combinations which would be harmful to human, animal or aquatic life for the most sensitive and governing water use class. Criteria for chemical constituents contained in guidelines published by the U.S. Environmental Protection Agency shall be considered. In areas where fisheries are the governing consideration and numerical limits have not been established, bioassays may be necessary to establish limits on toxic substances. The recommendations for bioassay procedures contained in "Standard Methods for the Examination of Water and Wastewater" and the application factors contained in EPA water quality guidelines shall be considered.

For surface waters classified for use as public drinking water, the raw water sources must be maintained at a quality as defined by criteria developed by the U.S. EPA in accordance with the Safe Drinking Water Act (P.A. 93-523) or the State of Connecticut (Section 19-13-B102 of the Regulations of Connecticut State Agencies), whichever is more stringent, so that criteria for finished water can be met after conventional treatment.

Class AA, A

Phosphorus - none other than of natural origin.

Class SA

None in concentrations or combinations which would be harmful to human, animal or aquatic life or which would make the waters unsafe or unsuitable for fish or shellfish or their propagation, impair the palatability of same, or impair the waters for any other uses.

Class SB, SC

None in concentrations or combinations which would be harmful to human, animal or aquatic life or which would make the waters unsafe or unsuitable for fish or shellfish or their propagation, or impair the water for any other usage assigned to this class.

Delaware⁸

Not specified

Nutrients - Nutrient overenrichment is recognized as a significant problem in the surface waters of the State. It shall be the policy of this Department to minimize nutrient input to surface waters from any controllable source. The types of and need for

State and Water Use

Phosphorus Criteria Values

nutrient controls shall be established on a site-specific basis. Practices may include discharge limitations, institution of best management practices, or other measures.

Point and non-point source discharges shall not contain those nutrients expected to cause excessive growth of photosynthetic organisms, in concentrations exceeding those representative of local baseflow or shallow groundwater conditions.

Florida⁹

All

Man-induced nutrient enrichment (total nitrogen or total phosphorus) shall be considered degradation in relation to the provisions of section 17-3.041 and section 17-4.242, F.A.C.

Class I

Not specified

Nutrients - In no case shall nutrient concentrations of a body of water be altered so as to cause an imbalance in natural populations of aquatic flora and fauna.

Class II

Phosphorus (elemental) - 0.1 µg/L

Nutrients - In no case shall nutrient concentrations of a body of water be altered so as to cause an imbalance in natural populations of aquatic flora and fauna.

Class III

Phosphorus (elemental) - 0.1 µg/L (marine waters)

Nutrients - In no case shall nutrient concentrations of a body of water be altered so as to cause an imbalance in natural populations of aquatic flora and fauna.

Georgia¹⁰

Specific stream segments and chemical constituents for monitoring shall be determined by the Director on the basis of potential for water quality impacts from pollutants from point or nonpoint waste sources. Singularly or in combination, these constituents may cause an adverse effect on fish propagation at levels lower than the criteria.

State and Water Use

Phosphorus Criteria Values

Hawaii¹¹

Streams

Total Phosphorus ($\mu\text{g P/L}$):

Geometric Mean should not exceed 50.00 in the wet season (Nov. 1 to Apr. 30) and 30.00 in the dry season (May 1 to Oct. 31).

Single value not to exceed 100.00 in the wet season and 60.00 in the dry season more than 10% of the time.

Single value not to exceed 150.00 in the wet season and 80.00 in the dry season more than 2% of the time.

Estuaries

(except Pearl Harbor)

Total Phosphorus ($\mu\text{g P/L}$):

Geometric Mean should not exceed 25.00.

Single value not to exceed 50.00 more than 10% of the time.

Single value not to exceed 75.00 more than 2% of the time.

Pearl Harbor Estuary

Total Phosphorus ($\mu\text{g P/L}$):

Geometric Mean should not exceed 60.00.

Single value not to exceed 130.00 more than 10% of the time.

Single value not to exceed 200.00 more than 2% of the time.

Embayments

Total Phosphorus ($\mu\text{g P/L}$):

Geometric Mean should not exceed 25.00 in the wet season* and 20.00 in the dry season**.

Single value not to exceed 50.00 in the wet season* and 40.00 in the dry season** more than 10% of the time.

Single value not to exceed 75.00 in the wet season* and 60.00 in the dry season** more than 2% of the time.

*"Wet" criteria apply when the average fresh water inflow from the land equals or exceeds 1% of the embayment volume per day.

**"Dry" criteria apply when the average fresh water inflow from the land is less than 1% of the embayment volume per day.

Open Coastal Waters

Total Phosphorus ($\mu\text{g P/L}$):

Geometric Mean should not exceed 20.00 in the wet season* and 16.00 in the dry season**.

Single value not to exceed 40.00 in the wet season* and 30.00 in the dry season** more than 10% of the time.

Single value not to exceed 60.00 in the wet season* and 45.00 in the dry season** more than 2% of the time.

*"Wet" criteria apply when the open coastal waters receive more than three million gallons per day of

State and Water Use

Phosphorus Criteria Values

fresh water discharge per shoreline mile.

**"Dry" criteria apply when the open coastal waters receive less than three million gallons per day of fresh water discharge per shoreline mile.

Oceanic Waters

Total Phosphorus ($\mu\text{g P/L}$):

Geometric Mean should not exceed 10.00

Single value not to exceed 18.00 more than 10% of the time.

Single value not to exceed 25.00 more than 2% of the time.

Idaho¹²

As a result of man-caused point or nonpoint source discharge, waters of the State must not contain:

All

Excess Nutrients - Excess nutrients that can cause visible slime growths or other nuisance aquatic growths impairing designated or protected beneficial uses.

Illinois¹³

General Use Water

Phosphorus (STORET number 00665): After December 31, 1983, Phosphorus as P shall not exceed 0.05 mg/L in any reservoir or lake with a surface area of 8.1 hectares (20 acres) or more, or in any stream at the point where it enters any such reservoir or lake. For purposes of this Section, the term "reservoir or lake" shall not include low level pools constructed in free flowing streams or any body of water which is an integral part of an operation which includes the application of sludge on land. Point source discharges which comply with Section 304.123 shall be in compliance with this Section for purposes of application of Section 304.105.

Lake Michigan

Phosphorus (as P) 0.007 mg/L

Indiana¹⁴

All

Minimum Water Quality Conditions: All waters at all times and at all places, including the mixing zone, shall meet the minimum conditions of being free from substances, materials, floating debris, oil or scum attributable to municipal, industrial, agricultural, and other land use practices or other discharges:

Which are in concentrations or combinations that will cause or contribute to the growth of aquatic plants or algae to such a degree as to create a nuisance, be

State and Water Use

Phosphorus Criteria Values

unsightly or deleterious or be harmful to human, animal, plant, or aquatic life or otherwise impair the designated uses.

Rule 5. Phosphates; Permits for Use by Manufacturers and Processors; Detergents. Section 1: Any manufacturer or processor required to use detergents containing phosphorus for cleaning plant or equipment shall obtain a permit therefor from the Commissioner.

a) The application for the permit shall be made on a form provided by the Commissioner and shall include as a minimum the following:

1. Phosphorus content of the detergent by weight and the maximum daily and monthly average quantities used.
2. Description of the use and why a phosphorus detergent is required.
3. The means of treatment that will be installed using the best practicable control technology for removal of phosphorus from the wastewater before discharge directly into the waters of Indiana or into any sewer or drain that enters the waters of the State of Indiana.

b) The Commissioner may issue a permit for a period not to exceed four (4) years, upon a clear indication that the use of phosphorus detergents is necessary with no adequate substitute available and that the best practicable treatment method of removal of phosphorus is accomplished prior to discharge of the treated effluent. Renewal applications must be submitted to the Commissioner at least sixty (60) days in advance of the expiration date of the permit.

Lake Michigan, Inner Harbor, Gary Harbor, and Burns Harbor

Total Phosphorus - 0.03 mg/L (monthly ave.)
0.04 mg/L (Daily max.)

East Branch of Grand Calumet River and Indiana Harbor Ship Canal

Total Phosphorus - 0.10 mg/L

Natural Spawning, Rearing or Imprinting Areas; Migration Routes for Salmonid Fishes

Plant Nutrients: Free from substances attributable to municipal, industrial, agricultural, or other sources in concentrations or combinations which will cause or contribute to the growth of aquatic plants or algae in such degree as to create a nuisance, be unsightly or deleterious, or be harmful to salmonid fishes or the natural biota.

State and Water Use

Phosphorus Criteria Values

Iowa¹⁵

Not specified

Kansas¹⁶

All

Nutrients - Artificial sources of nutrients shall not be detrimental to the designated uses.

Aquatic Life

Nutrients - The discharge of concentrations or loadings of plant nutrients into surface waters from artificial sources shall be controlled to prevent water quality degradation that accelerates the natural succession or replacement of biota, or which produces undesirable quantities or kinds of aquatic life.

Kentucky¹⁷

All

Section 1. Nutrient Limits.

(1) In surface water impoundments and their tributaries where eutrophication problems may exist, nitrogen, phosphorus, carbon, and contributing trace element discharges will be limited as appropriate by the cabinet.

(2) The affected surface waters will be designated as nutrient limited.

Louisiana¹⁸

All

Nutrients - The naturally occurring nitrogen-phosphorus ratio shall be maintained. Because regulation of nitrates and phosphates alone may not be adequate to protect waters from eutrophication, no substance shall be added to any surface water which produces aquatic growth to the extent that such growths create a public nuisance or interfere with designated water uses. Detailed studies of the naturally occurring levels of the various macro- and micronutrients will be utilized by the state to establish numerical limits for nutrients. This shall not apply to those waterbodies determined to be intermittent or man-made as defined in the Standards.

Maine¹⁹

Class GP-A

Total phosphorus concentration shall not exceed 15 per billion as measured in samples taken at or near the surface of the water.

State and Water Use

Phosphorus Criteria Values

Class GP-B

The total phosphorus concentration shall not exceed 50 parts per billion as measured in samples taken at or near the surface of the water.

All

1. Phosphorus - There shall be no additional discharge of phosphorus to any lake or pond or tributary thereto which discharge does not employ best available technology for phosphorus removal.

2. Existing Discharges - Existing discharges of phosphorus to any lake, pond or tributary thereto shall, on or before October 1, 1976, be treated to remove phosphorus to the maximum extent technically feasible.

3. Phosphorus Concentrations in Tributaries to Great Ponds - Notwithstanding Sections 1. and 2. (above) the ambient concentration for total phosphorus in all tributaries to Great Ponds shall not exceed 50 ug/l.

Maryland²⁰

Not specified

Massachusetts²¹

All

Nutrients - Shall not exceed the site-specific limits necessary to control accelerated or cultural eutrophication.

Control of Eutrophication - The discharge of nutrients, primarily phosphorus or nitrogen to surface waters will be limited or prohibited by the Division (Massachusetts Division of Water Pollution Control) as necessary to prevent excessive eutrophication of such waters. There shall be no new or increased discharges of nutrients into lakes and ponds, or tributaries thereto. Existing discharges containing nutrients which encourage eutrophication or growth of weeds or algae shall be treated. Activities which may result in non-point discharges of nutrients shall be conducted in accordance with the best management practices reasonably determined by the Division to be necessary to preclude or minimize such discharges of nutrients.

Michigan²²

All

Plant Nutrients. Rule 60. (1) Consistent with Great Lakes protection, phosphorus which is or may readily become available as a plant nutrient shall be controlled from point source discharges to achieve 1

State and Water UsePhosphorus Criteria Values

milligram per liter of total phosphorus as a maximum monthly average effluent concentration unless other limits, either higher or lower, are deemed necessary and appropriate by the commission.

In addition to the protection provided under subrule (1) of this rule, nutrients shall be limited to the extent necessary to prevent stimulation of growths of aquatic rooted, attached, suspended, and floating plants, fungi or bacteria which are or may become injurious to the designated uses of the waters of the state.

Minnesota²³

Not specified

Mississippi²⁴

Not specified

Missouri²⁵

Not specified

Montana²⁶

Not specified

Nebraska²⁷

Not specified

Nevada²⁸

Class A

Total phosphate must not exceed 0.15 mg/L in any stream at the point where it enters any reservoir or lake, not 0.075 mg/L in any reservoir or lake, nor 0.30 mg/L in streams and other flowing waters.

Class B

Total phosphates - 0.3 mg/L

Various Control Point locations

Total Phosphates (PO_4)
Annual Average - 0.03 to 1.0 mg/L
Single Value - 0.04 to 2.0 mg/L

Single values and annual average values shown here represent the range of criteria presented for all control points (sampling sites) in Nevada. Please refer to tables in section 445.134.

Lake Tahoe

Soluble Phosphorus - 7.0 ug/L (Annual Average)

State and Water Use

Phosphorus Criteria Values

New Hampshire²⁹

Class A

no phosphorus unless naturally occurring

Class B and C

None (phosphorus) in such concentrations that would impair any usage assigned to the specific class involved. Where treatment to remove phosphorus is required under this rule, such treatment shall remove phosphorus to the extent feasible.

Class A, B, and C
Streams and Saline
Waters

There shall be no phosphorus in such concentrations that would impair any usage assigned to the specific class involved. Where treatment to remove phosphorus is required under this rule, such treatment shall remove phosphorus to the extent feasible.

Lakes and Ponds

There shall be no new point discharges of water containing phosphorus to lakes or ponds. In addition, there shall be no new discharge of wastewater containing phosphorus to tributaries of lakes or ponds that would encourage eutrophication or growth of weeds or algae in such lakes and ponds.

All

Any point discharge of wastewater existing as of the effective date of these rules and containing phosphorus in concentrations which encourage eutrophication or growth of weeds or algae, shall be treated to remove such phosphorus to the maximum extent feasible.

New Jersey³⁰

Lakes (FW2)

Phosphorus as total P shall not exceed 0.05 in any lake, pond or reservoir, or in a tributary at the point where it enters such bodies of water, except where site-specific criteria are developed pursuant to N.J.A.C. 7:9-4.5(g)3.

Streams

Except as necessary to satisfy the more stringent criteria in paragraph above (Lakes) or where site-specific criteria are developed pursuant to N.J.A.C. 7:9-4.5(g)3, phosphorus as total P shall not exceed 0.1 in any stream, unless it can be demonstrated that total P is not limiting nutrient and will not otherwise render the waters unsuitable for the designated uses.

New Mexico³¹

All

Plant Nutrients from other than natural causes shall not be present in concentrations which will cause undesirable productivity in receiving waters.

State and Water Use

Phosphorus Criteria Values

Coldwater Fishery
(High Quality)

Total phosphorus - 0.1 mg/L

As the need arises, the State shall determine, for specified stream segments or relevant portions thereof, whether the limiting nutrient for the growth of aquatic plants is nitrogen or phosphorus. Upon such a determination, the waters in question shall be exempt from the standard for the nutrient found to be not limiting. Until such a determination is made, standards for both nutrients shall apply. If co-limitation is found, the waters in question shall be exempt from the total inorganic nitrogen standard. The State shall make available, upon request, a list of those waters for which the limiting nutrient has been determined.

New York³²

Inter. Boundary Waters

Concentrations should be limited to the extent necessary to prevent nuisance growths of algae, weeds and slimes that are or may become injurious to any beneficial water use.

North Carolina³³

Nutrient Sensitive
Waters

No increase in nutrients over background levels unless it is shown to the satisfaction of the director that the increase:

1. is the result of natural variations; or
2. will not endanger human health, safety or welfare and that preventing the increase would cause a serious economic hardship without equal or greater benefit to the public.

North Dakota³⁴

Class I, IA, II
and III Streams

Phosphates (P)(Diss) - 0.1 mg/L

The standards for nitrates (N) and phosphates (P) are intended as interim guideline limits. Since each stream or lake has unique characteristics which determine the levels of these constituents that will cause excessive plant growth (eutrophication), the department reserves the right to review these standards after additional study and to set specific limitations on any waters of the state. However, in no case shall the standard for nitrates (N) exceed ten mg/L for any waters used as a municipal or domestic

State and Water Use

Phosphorus Criteria Values

drinking water supply.

All Lakes

Generally, the parameter limitations designated for Class I streams shall apply to all classified lakes.

PO₄ as P - 0.025 mg/L

Ohio³⁵

Warmwater, Exceptional
Warmwater, Seasonal
Salmonid, Coldwater,
Nuisance Prevention,
Public Water Supply,
and Lake Erie

Total phosphorus as P shall be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that result in a violation of the water quality criteria set forth in Chapter 3745-1-04 (E) of the Ohio Administrative Code or, for public water supplies, that result in taste or odor problems. In areas where such nuisance growths exist, phosphorus discharges from point sources determined significant by the Ohio Environmental Protection Agency shall not exceed a daily average of one milligram per liter as total P, or such stricter requirements as may be imposed by the Ohio environmental protection agency in accordance with the International Joint Commission (United States - Canada agreement).

Agricultural

This criterion is determined by the Aquatic Life Habitat or the Nuisance Prevention use designation assigned to the stream segment.

Oklahoma³⁶

Not specified

Oregon³⁷

Not specified

Pennsylvania³⁸

Not specified

Rhode Island³⁹

None in such concentrations that would impair any usages specifically assigned to said Class. New discharges of wastes containing phosphates will not be permitted into or immediately upstream of lakes or ponds. Phosphates shall be removed from existing discharges to the extent that such removal is or may become technically and reasonably feasible.

South Carolina⁴⁰

Class AA and SAA

Standards narrative - Natural conditions will be maintained and protected as feasible, within the Departments statutory authority.

State and Water UsePhosphorus Criteria ValuesSouth Dakota⁴¹

Not specified

Tennessee⁴²

Not specified

Texas⁴³

Nutrient Parameters. Generally applicable criteria for nitrogen, phosphorus, carbon, and trace elements cannot be established because sufficient information on nutrient cycling in Texas waters and cause-effect relationships between nutrient concentrations and water quality is not presently available. Site-specific nutrient criteria and/or permit limitation, where appropriate, will be established as information becomes available and after public participation and proper hearing. Nutrients from permitted discharges or other controllable sources shall not cause excessive growth of aquatic vegetation which impairs an existing or designated use.

Utah⁴⁴

2A, 2B, 3A, 3B

Phosphate as P - 0.05 mg/L
Used as a pollution indicator only. Where values exceed 0.05 (0.25 for lakes) further investigations should be conducted.

Vermont⁴⁵

Nutrients - No increase which would accelerate eutrophication or result in concentrations that may stimulate the growth of aquatic plants, fungi or bacteria, in a manner which has an undue adverse effect on any beneficial values or uses.

Virginia⁴⁶

Nutrient Rich Waters

Effluent not to exceed 2 mg/l.

Washington⁴⁷

Not specified

West Virginia⁴⁸

Not specified

Wisconsin⁴⁹

Not specified

Wyoming⁵⁰

Not specified

State and Water UsePhosphorus Criteria ValuesAmerican Samoa⁵¹

All Fresh Water

Total phosphorous median not to exceed - 150 ug P/L
Not to exceed 250 ug P/L 10% of the time
Not to exceed 350 ug P/L 2% of the time

Open Coastal
Nearshore Waters

Total phosphorus median not to exceed - 15 ug P/L
Not to exceed 30 ug P/L 10% of the time
Not to exceed 50 ug P/L 2% of the time

Oceanic Water

Total phosphorous median not to exceed - 11 ug P/L
Not to exceed 23 ug P/L 10% of the time
Not to exceed 35 ug P/L 2% of the time

Criteria values for specific water bodies can be found
in Water Quality Standards for American Samoa.

District of Columbia⁵²

Not specified

Guam⁵³
M-1

Orthophosphate (PO_4 -P) shall not exceed:
0.025 mg/L

M-2, S-1

0.05 mg/L

M-3, S-2, S-3

0.10 mg/L

N. Mariana Islands⁵⁴
AA

Total phosphorus shall not exceed:
0.026 mg/L

A

0.050 mg/L

1, 2

0.100 mg/L

Puerto Rico⁵⁵

Total Phosphorus should not exceed 1 ppm, except when
it is demonstrated to the satisfaction of the Board
that a higher value of total phosphorus in combination
with prevailing nitrogen derived nutrients will not
contribute to eutrophic conditions in downstream
reservoirs or surface water segments.

Trust Territory⁵⁶

AA, A

Total Phosphorus as P shall not exceed:
0.025 mg/L

B

0.500 mg/L

1,2

0.200 mg/L

State and Water Use

Phosphorus Criteria Values

Fresh waters entering
lakes or reservoirs
(at point of entry)
and lakes and reservoirs

0.050 mg/L

Virgin Islands⁵⁷

Phosphorous as total P shall not exceed 50 ug/L in any coastal waters.