Proposed Rule Amendment Summary, Supporting Information and the Proposed: CHAPTER 33-16-02.1, STANDARDS OF QUALITY FOR WATERS OF THE STATE

Introduction

The North Dakota Department of Health is required by the Clean Water Act to periodically review the Standards of Quality for Waters of the State of North Dakota. This review is necessary to ensure all designated beneficial uses of the water are maintained at a quality necessary for these purposes.

The Water Quality Standards consist of the following three basic elements:

1. Designated Uses: The designated use describes the existing and/or potential use of the water body. Examples of some designated uses are municipal water supply (after treatment), propagation of aquatic life, water-based recreation, irrigation, and stock watering.

2. Water Quality Criteria: Numeric criteria are established for specific pollutants. If the concentration of a pollutant exceeds the numeric criterion, a designated use is not being maintained. Narrative and general requirements are also included in the Standards. These are referred to as "free form" and include substances, such as garbage, dead animals, oil, scum and materials that produce odors, and substances that render undesirable taste to fish flesh.

3. Antidegradation Policy: This State policy was established to protect, maintain, and improve the water quality necessary for all existing and designated uses.

Summary of Proposed Changes to the Water Quality Standards

A. Designated Uses: No Changes

B. Water Quality Criteria: (1) Changed definition of recreation on page 4, (2) Two edits on page 8 and page 9. On page 11 changed guidelines for lake improvement goals from a nutrient concentration to a seasonal average chlorophyll-a concentration. On page 17 in table 2 added acute and chronic criteria for carbaryl of 2.1 $\mu g\ L^{-1}$ and acrolein of 3.1 $\mu g\ L^{-1}$. On page 17 through 19 added lines to Table 2. On pages 25-32 added 2 lakes and reclassified 1.

    1. 33-16-02.1-04. Definitions:

        a. 10. "Water usage"

            Page 4:

            C. Recreation. Primary recreational waters are suitable for recreation where direct body contact is involved, such as bathing and swimming, and where secondary recreational activities such as boating, fishing, and wading are involved. Natural high turbidities in some waters and physical characteristics of banks and streambeds of many streams are factors that limit their value for bathing.

2. **33-16-02.1-09. Surface water classifications, mixing zones, and numeric standards:**

Page 8:

1. Surface Water Classifications.

Page 9:

2. 33-16-02.1-08

3. **33-16-02.1-09. Surface water classifications, mixing zones, and numeric standards:**

Page 11:

e. Lakes and reservoirs.

(2) In addition, ~~these nutrient parameters~~ a guideline for use as a goal~~s~~ in any lake improvement or maintenance program is a season average Chlorophyll-a concentration of 20.0 µg/L.

~~Parameter~~	~~Limit~~
~~NO3 as N~~	~~0.25 mg/L~~
~~PO4 as P~~	~~0.02 mg/L~~

Page 17 -19:

1. Numeric Criteria Table 2
   a. Added U.S. EPA recommended Aquatic Life Criteria for carbaryl of 2.1 µg L^{-1} and acrolein 3.1 µg L^{-1}, acute and chronic, respectively.
   b. Added lines and borders to table format.

Page 25-32:

Appendix II, LAKE AND RESERVOIR CLASSIFICATION

2. Additions:
   a. Golden Valley County, South Buffalo Gap, Class 4
   b. Morton County, Harmon Lake, Class 3
3. Reclassifications:
   a. Kidder County, Round Lake, Class 2

Aquatic Life Water Quality Criteria for Carbaryl and Acrolein

Background

Aquatic Life Criteria water quality criteria has been published for carbaryl (77 Fed. Reg. 30280-30282, May 22, 2012) and for acrolein (74 Fed. Reg. 46587-46588, September 10, 2009). The U.S. Environmental Protection Agency recommended we adopt the published criteria in support of water quality assessment decisions and discharge permitting actions.

Table 1. Published aquatic life criteria are:

Parameter	Acute (µg/L)	Chronic (µg/L)
Acrolein	3.0	3.0
Carbaryl	2.1	2.1

Support of the Addition and Reclassification of Select North Dakota Lakes

Background

The North Dakota Department of Health (Department) is required by the Clean Water Act to periodically review the Standards of Quality for Waters of the State of North Dakota (Standards). This review is necessary to ensure all designated beneficial uses of the water are maintained at a quality necessary for these purposes. During the review process two unclassified lakes and one misclassified lake were identified (Table 1).

Table 1. Unclassified and Reclassified Lakes

Lake Name	County	Classification	Proposed Classification
Harmon Lake	Morton	None	3
South Buffalo Gap	Golden Valley	None	4
Round Lake	McHenry	3	2

In the Standards (NDDoH, 2010) lakes and reservoirs are classified as follows based on the type of fishery a lake or reservoir may be capable of supporting is based on the lake or reservoir's geophysical characteristics. The capability of a lake or reservoir to support a fishery may be affected by seasonal or climatic variability and/or other natural occurrences which may alter the physical and chemical characteristics of the lake or reservoir.

Class	Characteristics
1	Cold water fishery. Waters capable of supporting growth of cold water fish species (e.g., salmonoids) and associated aquatic biota.
2	Cool water fishery. Waters capable of supporting natural reproduction and growth of cool water fishes (e.g., northern pike and walleye) and associated aquatic biota. These waters are also capable of supporting the marginal growth and survival of cold water species and associated biota.
3	Warm water fishery. Waters capable of supporting natural reproduction and growth of warm water fishes (e.g., largemouth bass and bluegill) and associated aquatic biota. Some cool water species may also be present.
4	Marginal fishery. Waters capable of supporting a fishery on a short-term or seasonal basis (generally a “put and take” fishery.)
5	Not capable of supporting a fishery due to high salinity.

The principle water quality drivers in the lake and reservoir classification system are temperature and dissolved oxygen coupled with the fishery being managed. In summary, both Class 1 and Class 2 lakes and reservoirs must maintain a temperature of 29.44 degrees Celsius and 5 mg L^{-1} dissolved oxygen throughout the water column but 1's are managed for cold water species and 2's are managed for cool. Class 3 and 4 lakes and reservoirs only need to make the temperature criteria of 29.44 degrees Celsius. There is a 5th class of lake "Class 5"that is too saline to support a fishery (Table 2).

Table 2. Classification criteria for lakes and reservoirs.

Lake Class	Epilimnion Temperature[1]	Hypolimnion Temperature[1]	Epilimnion Dissolved 0_2[2]	Hypolimnion Dissolved 0_2[2]	Fishery Management
1	29.44	15.00	5	5	Cold
2	29.44	29.44	5	5	Cool
3	29.44	29.44	5	DA[3]	Warm
4	29.44	29.44	5	DA	Marginal
5	29.44	29.44	5	DA	DA

[1]Temperature in degrees Celsius, [2]Dissolved oxygen in mg L^{-1}, [3]Does not apply

Water quality data collected by the North Dakota Department of Health identified two reservoirs lacking classification and one lake in need of reclassification (Table 3). Of the two waterbodies needing classification, one is a historical reservoir (South Buffalo Gap) and one is a new reservoir (Harmon Lake). The classifications proposed for the water bodies is based on supporting water quality data and the fishery managed on them by the North Dakota Game and Fish Department (NDG&F). Classifications proposed with data results are in Table 3, and supporting data presented in Figures 1 through 6.

Water quality data collected in 2010 on the third waterbody (Round Lake) indicates it would be more accurate to change the Class 3 "Warm Water Fishery" designation to a Class 2 "Cool Water Fishery." This is based on Round Lake maintaining a maximum temperature of less than 29.44 degrees and dissolved oxygen concentrations of 5 mg L^{-1} or greater throughout the entire water column even during periods of thermal stratification (Table 3 and Figures 7 and 8).

Table 3. Classification and reclassification criteria for select North Dakota lakes and reservoirs.

Lake Name	Proposed Lake Class	Epilimnion Temperature $\leq 29.44^oC$	Hypolimnion Temperature $\leq 29.44^oC$ [1]	Epilimnion Dissolved O_2 ≥ 5 mg L^{-1}	Hypolimnion Dissolved O_2 ≥ 5 mg L^{-1}	Fishery
Harmon Lake	3[1]	Yes	Yes	Yes	No	Warm & Cool
So. Buffalo Gap	4[1]	Yes	Yes	Yes	No	Marginal[3]
Round Lake	2[2]	Yes	Yes	Yes	Yes	Cool

[1]New Classification, [2]Reclassification, [3]History of fish kills

Figure 1. Harmon Lake's 2009 Temperature Profiles.

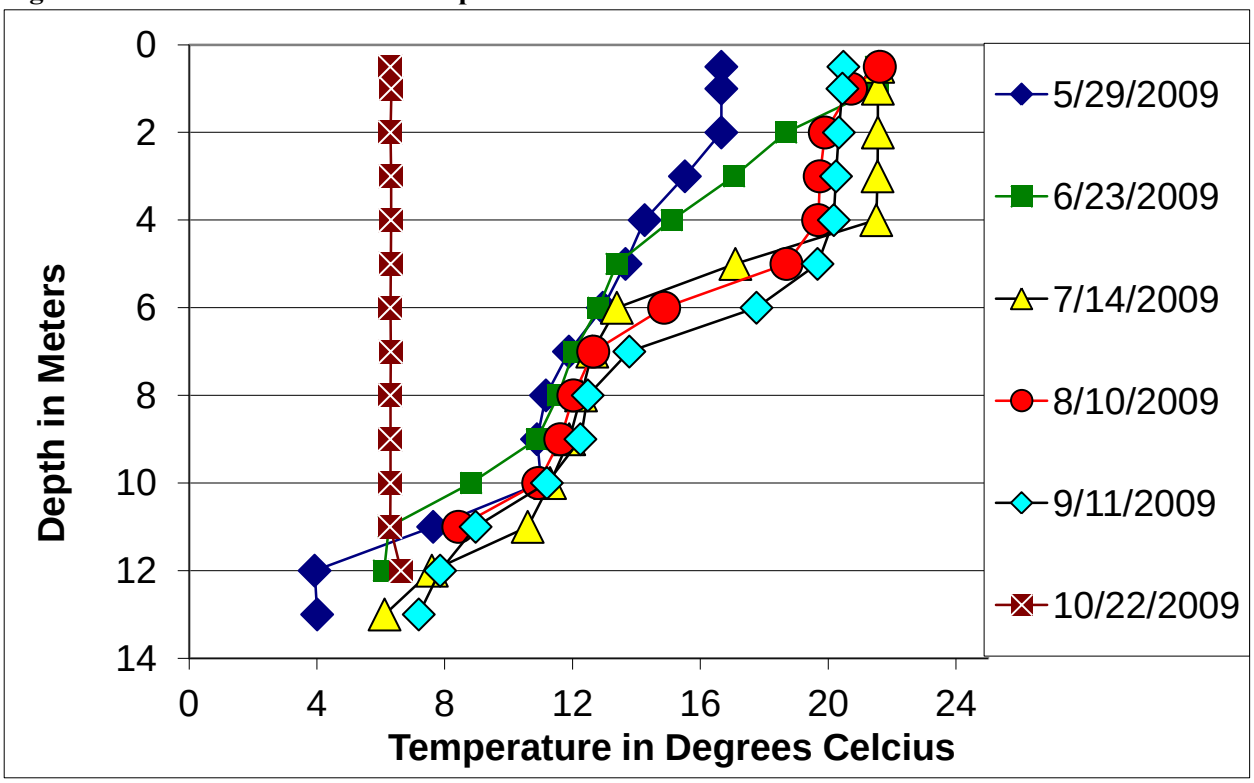


Figure 2. Harmon Lake's 2009 Dissolved Oxygen Profiles.

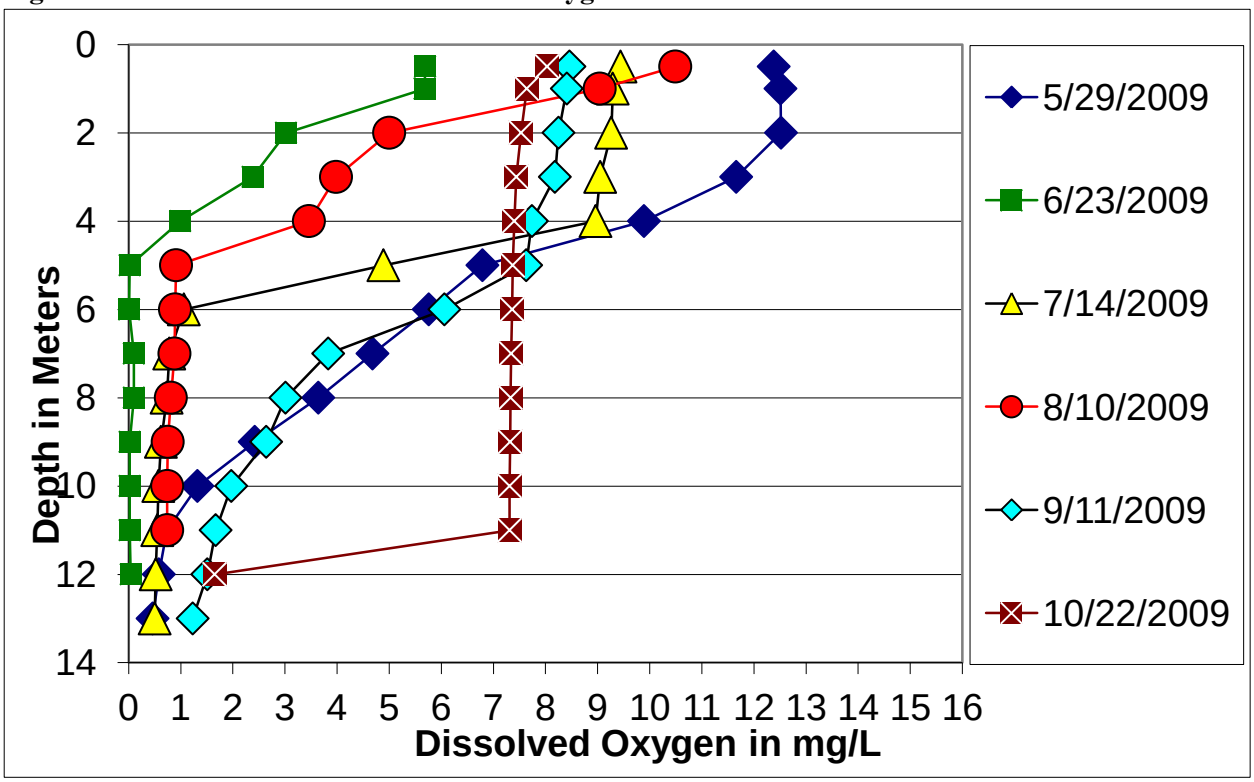


Figure 3. South Buffalo Gap's 1994 and 2011 Temperature Profiles.

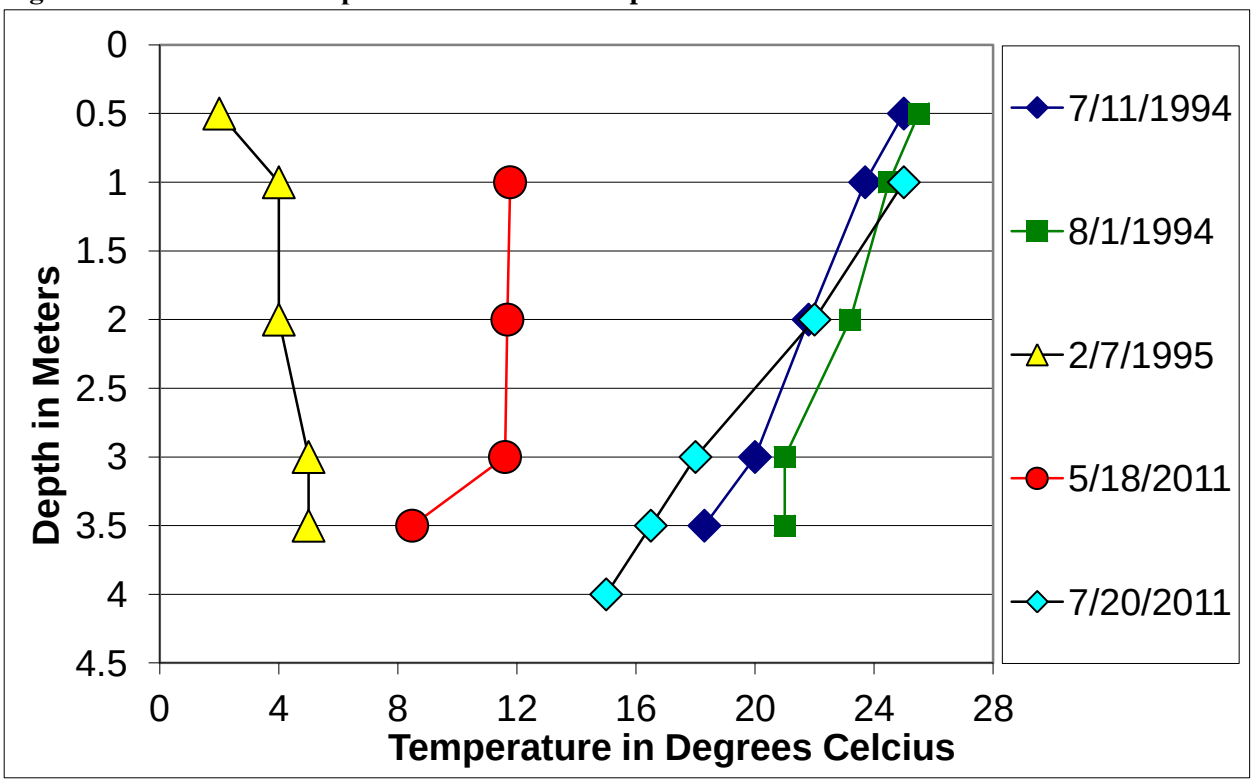


Figure 4. South Buffalo Gap's 1994 and 2011 Dissolved Oxygen Profiles.

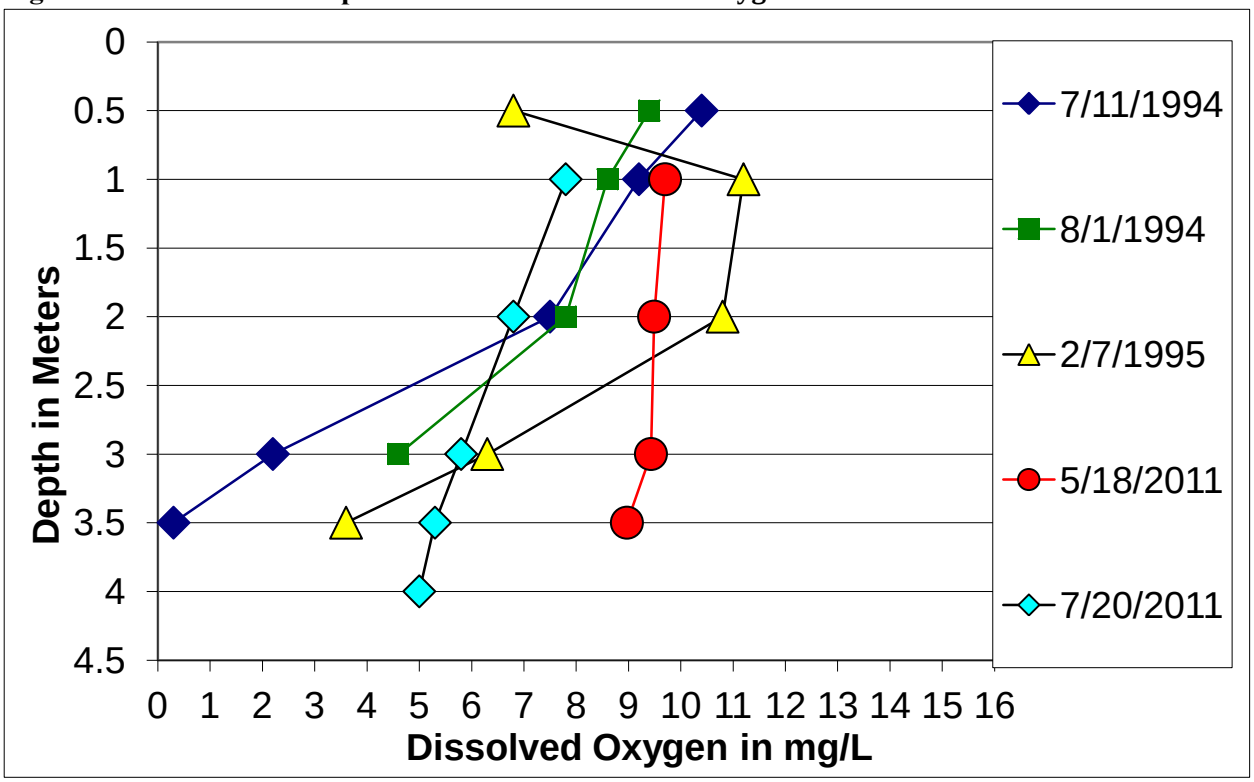


Figure 7. Round Lake's 2010 Temperature Profiles.

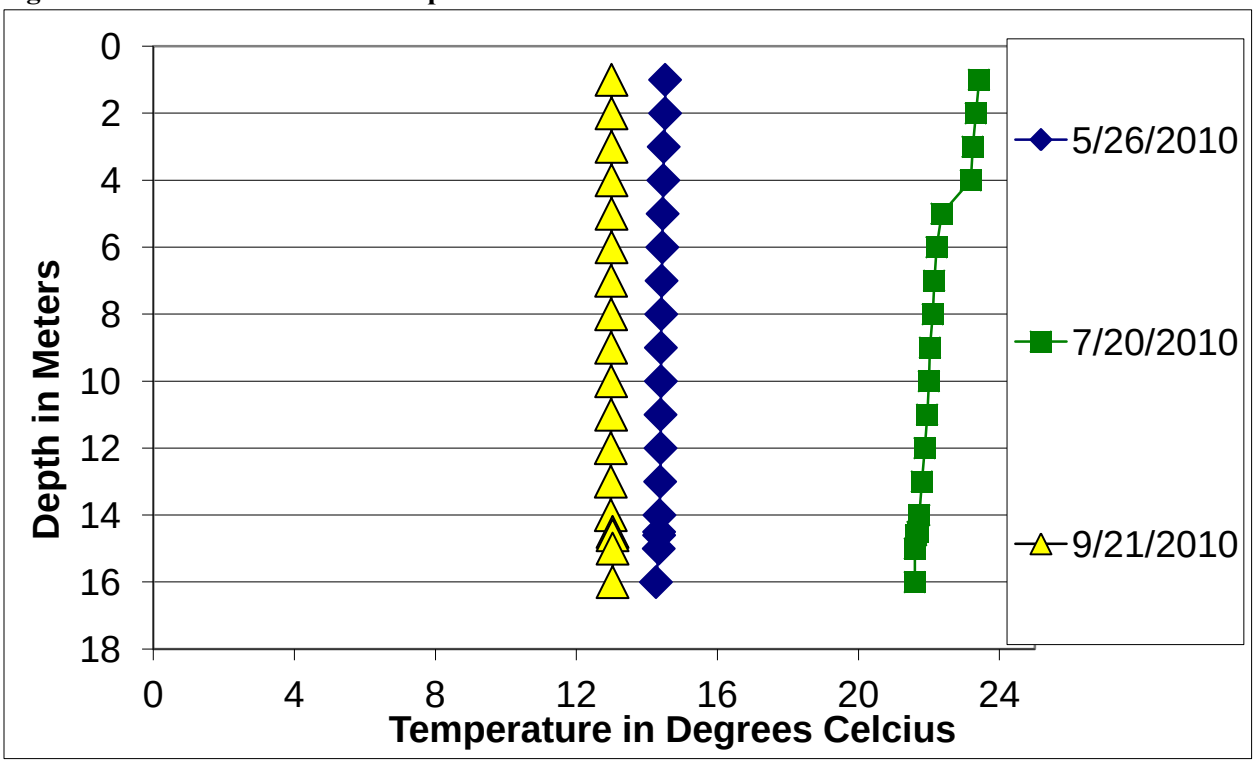
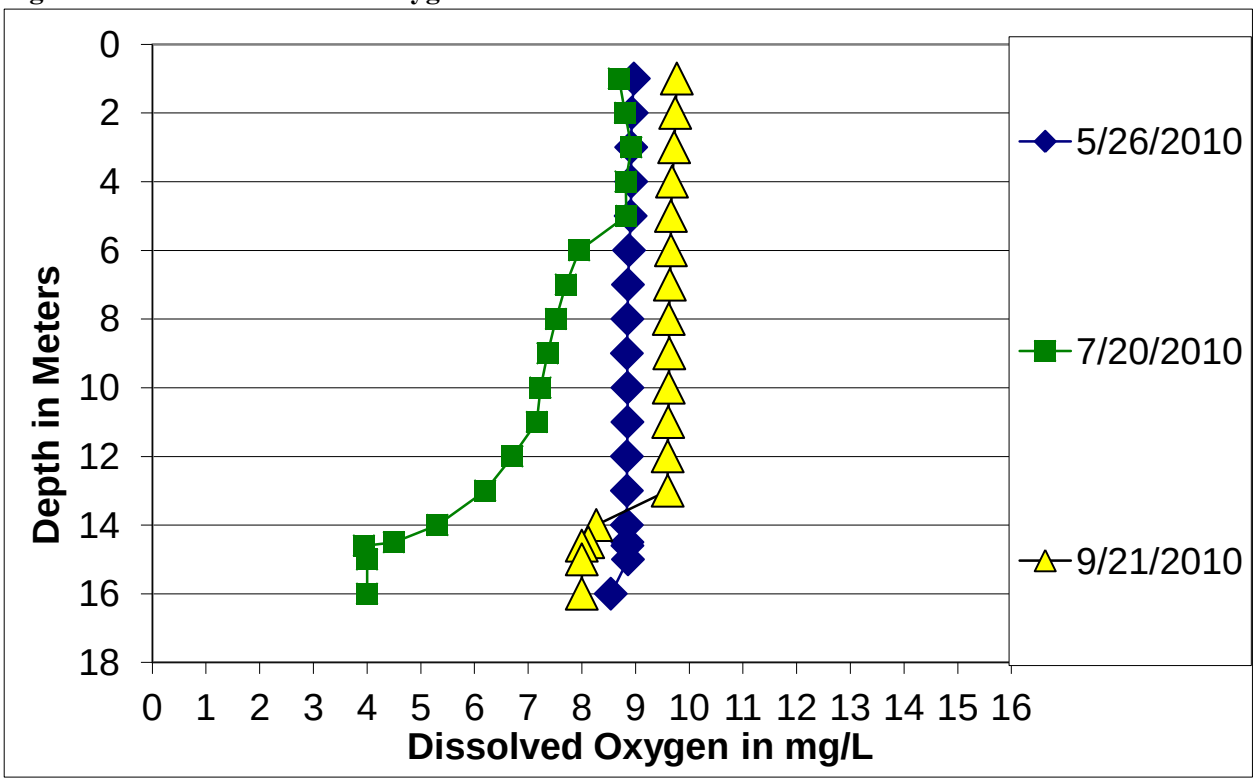


Figure 8. Round Lake's 2010 Oxygen Profiles.



CHAPTER 33-16-02.1
STANDARDS OF QUALITY FOR WATERS OF THE STATE

Subdivision c of subsection 10 of Section 33-16-02.1-04 is amended as follows:

c. Recreation. ~~Waters~~ Primary recreational waters are suitable for recreation where direct body contact is involved, such as bathing and swimming, and where secondary recreational activities such as boating, fishing, and wading are involved. Natural high turbidities in some waters and physical characteristics of banks and streambeds of many streams are factors that limit their value for bathing.

History: Effective June1, 2001; amended effective October 1, 2006; July 1, 2010.
General Authority: NDCC 61-28-04, 61-28-05
Law Implemented: NDCC 23-33, 61-28

Subsection 1 of Section 33-16-02.1-09 is amended as follows:

1. **Surface Water Classifications.**

Procedures for the classifications of streams and lakes of the state shall follow this subsection. Classifications of streams and lakes are listed in appendix I and appendix II, respectively.

a. Class I streams. The quality of the waters in this class shall be suitable for the propagation and/or protection of resident fish species and other aquatic biota and for swimming, boating, and other water recreation. The quality of the waters shall be for irrigation, stock watering, and wildlife without injurious effects. After treatment consisting of coagulation, settling, filtration, and chlorination, or equivalent treatment processes, the water quality shall meet the bacteriological, physical, and chemical requirements of the department for municipal or domestic use.

b. Class IA streams. The quality of the waters in this class shall be the same as the quality of Class I streams, except that where natural conditions exceed Class I criteria for municipal and domestic use, the availability of softening or

other treatment methods may be considered in determining whether ambient water quality meets the requirements of the department.

The Sheyenne River from its headwaters to 0.1 mile downstream from Baldhill Dam is not classified for municipal or domestic use.

c. Class II streams. The quality of the waters in this class shall be the same as the quality of Class I streams, except that additional treatment may be required to meet the drinking water requirements of the department. Streams in this classification may be intermittent in nature which would make these waters of limited value for beneficial uses such as municipal water, fish life, irrigation, bathing or swimming.

d. Class III streams. The quality of the waters in this class shall be suitable for agricultural and industrial uses. Streams in this class generally have low average flows with prolonged periods of no flow. During periods of no flow they are of limited value for recreation, and fish and aquatic biota. The quality of these waters must be maintained to protect secondary contact recreation uses (e.g., wading), fish and aquatic biota, and wildlife uses.

e. Wetlands. These water bodies, including isolated ponds, sloughs, and marshes, are to be considered waters of the state and will be protected under section ~~33-16-02-08~~ 33-16-02.1-08.

f. Lakes and Reservoirs. The type of fishery a lake or reservoir may be capable of supporting is based on the lake or reservoir's geophysical characteristics. The capability of a lake or reservoir to support a fishery may be affected by seasonal or climatic variability and/or other natural occurrences which may alter the physical and chemical characteristics of the lake or reservoir.

Class	Characteristics
1	Cold water fishery. Waters capable of supporting growth of cold water fish species (e.g., salmonoids) and associated aquatic biota.
2	Cool water fishery. Waters capable of supporting natural reproduction and growth of cool water fishes (e.g., northern pike and walleye) and associated aquatic biota. These waters are also capable of supporting the marginal growth and survival of cold water species and associated biota.
3	Warm water fishery. Waters capable of supporting natural reproduction and growth of warm water fishes (e.g., largemouth bass and bluegill) and associated aquatic biota. Some cool water species may also be present.
4	Marginal fishery. Waters capable of supporting a fishery on a short-term or seasonal basis (generally a “put and take” fishery.)
5	Not capable of supporting a fishery due to high salinity.

Subdivision e of subsection 3 of Section 33-16-02.1-09 is amended as follows:

e. Lakes and reservoirs.

(1) The beneficial uses and parameter limitations designated for Class I streams shall apply to all classified lakes or reservoirs. However, specific background studies and information may require that the department revise a standard for any specific parameter.

(2) In addition, ~~these nutrient parameters~~ a guideline for use as ~~goals~~ a goal in any lake improvement or maintenance program~~:~~

~~Parameter Limit~~
~~NO3 as N 0.25 mg/L~~
~~PO4 as P 0.02 mg/L~~
is a season average Chlorophyll-a concentration of 20.0 µg/L.

(3) The temperature standard for Class I streams does not apply to Nelson Lake in Oliver County. The temperature of any discharge to Nelson Lake shall not have an adverse effect on fish, aquatic biota, recreation, and wildlife.

(4) A numeric temperature standard of not greater than fifty-nine (59) degrees Fahrenheit (fifteen [15] degrees Celsius) shall be maintained in the hypolimnion of Class 1 lakes and reservoirs during periods of thermal stratification.

(5) The numeric dissolved oxygen standard of 5 mg/L as a daily minimum does not apply to the hypolimnion of Class 3 and 4 lakes and reservoirs during periods of thermal stratification.

(6) Lake Sakakawea must maintain a minimum volume of water of 500,000-acre feet (61,674 hectare meters) that has a temperature of fifty-nine (59) degrees Fahrenheit (fifteen [15] degrees Celsius) or less and a dissolved oxygen concentration of not less than 5 mg/L.

History: Effective June1, 2001; amended effective October 1, 2006; July 1, 2010.
General Authority: NDCC 61-28-04
Law Implemented: NDCC 23-33, 61-28

Table 2 of Chapter 33-16-02.1 is amended as follows:

TABLE 2

WATER QUALITY CRITERIA [1]
(MICROGRAMS PER LITER)

		Aquatic Life Value		Human Health Value	
		Classes I,IA,II,III		Classes	Class
CAS No.	Pollutant	Acute	Chronic	I,IA,II[2]	III[3]
83-32-9	Acenaphthene			670	990
107-02-8	Acrolein	3.0	3.0	6	9
107-13-1	Acrylonitrile[4]			0.051	0.25
71-43-2	Benzene[4]			2.2	51
92-87-5	Benzidine[4]			0.000086	0.00020
63-25-2	Carbaryl (1-naphthyl-N-methycarbamate)	2.1	2.1		
56-23-5	Carbon tetrachloride[4] (Tetrachloromethane)			0.23	1.6
108-90-7	Chlorobenzene			100[7]	1,600
2921-88-2	Chlorpyrifos (Monochlorobenzene)	0.083	0.041		
120-82-1	1,2,4-Trichlorobenzene			35	70
118-74-1	Hexachlorobenzene[4]			0.00028	0.00029
107-06-2	1,2-Dichloroethane[4]			0.38	37
71-55-6	1,1,1-Trichloroethane			200[7]	
67-72-1	Hexachloroethane[4]			1.4	3.3
79-00-5	1,1,2-Trichloroethane[4]			0.59	16
79-34-5	1,1,2,2-Tetrachloroethane[4]			0.17	4.0
111-44-4	Bis(2-chloroethyl) ether[4]			0.030	0.53
91-58-7	2-Chloronaphthalene			1,000	1,600
88-06-2	2,4,6-Trichlorophenol[4]			1.4	2.4
59-50-7	p-Chloro-m-cresol (4-Chloro-3-methylphenol)			3000	
67-66-3	Chloroform (HM)[4]			5.7	470
	(Trichloromethane)				
95-57-8	2-Chlorophenol			81	150
95-50-1	1,2-Dichlorobenzene[7]			420	1,300
541-73-1	1,3-Dichlorobenzene			320	960
106-46-7	1,4-Dichlorobenzene[7]			63	190
91-94-1	3,3'-Dichlorobenzidine[4]			0.021	0.028
75-35-4	1,1-Dichloroethylene[4]			7[7]	7,100
156-60-5	1,2-trans-Dichloroethylene[7]			100[7]	10,000
120-83-2	2,4-Dichlorophenol			77	290
542-75-6	1,3-Dichloropropylene (1,3-Dichloropropene) (cis and trans isomers)			0.34	21
78-87-5	1,2-Dichloropropane			0.50	15
105-67-9	2,4-Dimethylphenol			380	850

		Aquatic Life Value		Human Health Value	
		Classes I,IA,II,III		Classes	Class
CAS No.	Pollutant	Acute	Chronic	I,IA,II[2]	III[3]
121-14-2	2,4-Dinitrotoluene[4]			0.11	3.4
122-66-7	1,2-Diphenylhydrazine[4]			0.036	0.20
160-41-4	Ethylbenzene[7]			530	2,100
206-44-0	Fluoranthene			130	140
39638-32-9	Bis(2-chloroisopropyl) ether			1400	65,000
75-09-2	Methylene chloride (HM)[4] (Dichloromethane)			4.6	590
74-83-9	Methyl bromide (HM) (Bromomethane)			47	1,500
75-25-2	Bromoform (HM)[5] (Tribromomethane)			4.3	140
75-27-4	Dichlorobromomethane (HM)[5]			0.55	17
124-48-1	Chlorodibromomethane (HM)[5]			0.40	13
87-68-3	Hexachlorobutadiene[4]			0.44	18
77-47-4	Hexachlorocyclopentadiene			40	1,100
78-59-1	Isophorone[4]			35	960
98-95-3	Nitrobenzene			17	690
51-28-5	2,4-Dinitrophenol			69	5,300
534-52-1	4,6-Dinitro-o-cresol (4,6-Dinitro-2-methylphenol)			13	280
62-75-9	N-Nitrosodimethylamine[4]			0.00069	3.0
86-30-6	N-Nitrosodiphenylamine[4]			3.3	6.0
621-64-7	N-Nitrosodi-n-propylamine[4]			0.005	0.51
87-86-5	Pentachlorophenol	19[9]	15[9]	0.27	3.0
108-95-2	Phenol			10,000	860,000
117-81-7	Bis(2-ethylhexyl)phthalate[4]			1.2	2.2
85-68-7	Butyl benzyl phthalate			1,500	1,900
84-74-2	Di-n-butyl phthlate			2,000	4,500
84-66-2	Diethyl phthalate			17,000	44,000
131-11-3	Dimethyl phthalate			270,000	1,100,000
56-55-3	Benzo(a)anthracene (PAH)[4] (1,2-Benzanthracene)			0.0038	0.018
50-32-8	Benzo(a)pyrene (PAH)[4] (3,4-Benzopyrene)			0.0038	0.018
205-99-2	Benzo(b)fluoranthene (PAH)[4] (3,4-Benzofluoranthene)			0.0038	0.018
207-08-9	Benzo(k)fluoranthene (PAH)[4] (11,12-Benzofluoranthene)			0.0038	0.018
218-01-9	Chrysene (PAH)[4]			0.0038	0.018
120-12-7	Anthracene (PAH)[5]			8,300	40,000
86-73-7	Fluorene (PAH)[5]			1,100	5,300
53-70-1	Dibenzo(a,h)anthracene (PAH)[4] (1,2,5,6-Dibenzanthracene)			0.0038	0.018

		Aquatic Life Value		Human Health Value	
		Classes I,IA,II,III		Classes	Class
CAS No.	Pollutant	Acute	Chronic	I,IA,II[2]	III[3]
193-39-5	Indeno(1,2,3-cd)pyrene (PAH)[4]			0.0038	0.018
129-00-0	Pyrene (PAH)[5]			830	4,000
127-18-4	Tetrachloroethylene[4]			0.69	3.3
108-88-3	Toluene			1,000[7]	15,000
79-01-6	Trichloroethylene[4]			2.5	30
75-01-4	Vinyl chloride[4] (Cloroethylene)			0.025	2.4
309-00-2	Aldrin[4]	1.5		0.000049	0.000050
60-57-1	Dieldrin[4]	0.24	0.056	0.000052	0.000054
57-74-9	Chlordane[4]	1.2	0.0043	0.00080	0 00081
80-29-3	4,4'-DDT[4]	0.55[13]	0.001[13]	0.00022	0.00022
75-55-9	4,4'-DDE[4]			0.00022	0.00022
72-54-8	4,4'-DDD[4]			0.00031	0.00031
115-29-7	alpha-Endosulfan	0.11[12]	0.056[12]	62	89
115-29-7	beta-Endosulfan	0.11[12]	0.056[12]	62	89
1031-07-8	Endosulfan sulfate			62	89
72-20-8	Endrin	0.09	0.036	0.059	0.060
7421-93-4	Endrin aldehyde			0.29	0.30
76-44-8	Heptachlor[4]	0.26	0.0038	0.000079	0.000079
1024-57-3	Heptachlor epoxide[4]	0.26	0.0038	0.000039	0.000039
319-84-6	alpha-BHC[4] (Hexachlorocyclohexane-alpha)			0.0026	0.0049
319-85-7	beta-BHC[4] (Hexachlorocyclohexane-beta)			0.0091	0.017
58-89-9	gamma-BHC (Lindane)[4] (Hexachlorocyclohexane-gamma)	0.95		0.2[7]	1.8
319-86-8	delta-BHC[4] (Hexachlorocyclohexane-delta)				
1336-36-3	PCB 1242 (Arochlor 1242)[4]		0.014[11]	0.000064[11]	0.000064[11]
1336-36-3	PCB-1254 (Arochlor 1254)[4]		0.014[11]	0.000064[11]	0.000064[11]
1336-36-3	PCB-1221 (Arochlor 1221)[4]		0.014[11]	0.000064[11]	0.000064[11]
1336-36-3	PCB-1232 (Arochlor 1232)[4]		0.014[11]	0.000064[11]	0.000064[11]
1336-36-3	PCB-1248 (Arochlor 1248)[4]		0.014[11]	0.000064[11]	0.000064[11]
1336-36-3	PCB-1260 (Arochlor 1260)[4]		0.014[11]	0.000064[11]	0.000064[11]
1336-36-3	PCB-1016 (Arochlor 1016)[4]		0.014[11]	0.000064[11]	0.000064[11]

		Aquatic Life Value		Human Health Value	
		Classes I,IA,II,III		Classes	Class
CAS No.	Pollutant	Acute	Chronic	I,IA,II[2]	III[3]
8001-35-2	Toxaphene[4]	0.73	0.0002	0.00028	0.00028
7440-36-0	Antimony			5.6	640
7440-38-2	Arsenic[7]	340[10]	150[10]	10[7]	
1332-21-4	Asbestos[4 7]			7,000,000 f/l	
7440-41-7	Beryllium[4]			4[7]	
7440-43-9	Cadmium	2.1[6]	0.27[6]	5[7]	
7440-47-3	Chromium (III)	1800[6]	86[6]	100(total)[7]	
	Chromium (VI)	16	11	100(total)[7]	
7440-50-8	Copper	14.0[6]	9.3[6]	1000	
57-12-5	Cyanide (total)	22	5.2	140	140
7439-92-1	Lead	82[6]	3.2[6]	15[7]	
7439-97-6	Mercury	1.7	0.012	0.05	0.051
7440-02-0	Nickel	470[6]	52[6]	100[7]	4,200
7782-49-2	Selenium	20	5	50[7]	
7440-22-4	Silver	3.8[6]			
7440-28-0	Thallium			0.24	0.47
7440-66-6	Zinc	120[6]	120[6]	7,400	26,000
56-39-9	Tributyltin	0.46	0.072		
1746-01-6	Dioxin (2,3,7,8-TCDD)[4]			5.0E-9	5.1E-9
15972-60-8	Alachlor			2[7]	
1912-24-9	Atrazine			3[7]	
56-38-2	Parathion	0.065	0.013		
1563-66-2	Carbofuran			40[7]	
94-75-7	2,4-D			70[7]	
75-99-0	Dalapon			200[7]	
103-23-1	Di(2-ethylhexyl)adipate			400[7]	
333-41-5	Diazinon	0.17	0.17		
84852-15-3	Nonylphenol (Isomer mixture)[14]	28	6.6		
*67708-83-2	Dibromochloropropane			0.2[7]	
156-59-2	Dichloroethylene (cis-1.2-)			70[7]	
88-85-7	Dinoseb			7[7]	
85-00-7	Diquat			20[7]	
145-73-3	Endothall			100[7]	
106-93-4	Ethylene dibromide (EDB)			0.05[7]	
107-83-6	Glyphosate			700[7]	
72-43-5	Methoxychlor			40[7]	
23135-22-0	Oxamyl (Vydate)			200[7]	
1918-02-1	Picloram			500[7]	
122-34-9	Simazine			4[7]	
100-42-5	Styrene			100[7]	
1330-20-7	Xylenes			10,000[7]	

		Aquatic Life Value		Human Health Value	
		Classes I,IA,II,III		Classes	Class
CAS No.	Pollutant	Acute	Chronic	I,IA,II[2]	III[3]
7782-41-4	Fluoride			4,000[7]	
14797-65-0	Nitrite			1,000[7]	
12587-47-2	Beta/photon emitters			4 mrem/yr[7]	
7440-61-1	Uranium			30[7]	
15541-45-4	Bromate			10[7]	
	Chlorite			1,000[7]	
	Halocetic acids[15]			60[7]	

CAS No. Chemical Abstracts Service Registry Number

[1] Except for the aquatic life values for metals, the values given in this appendix refer to the total (dissolved plus suspended) amount of each substance. For the aquatic life values for metals, the values refer to the total recoverable method for ambient metals analyses.

[2] Based on two routes of exposure - ingestion of contaminated aquatic organisms and drinking water.

[3] Based on one route of exposure - ingestion of contaminated aquatic organisms only.

[4] Substance classified as a carcinogen, with the value based on an incremental risk of one additional instance of cancer in one million persons.

[5] Chemicals which are not individually classified as carcinogens but which are contained within a class of chemicals, with carcinogenicity as the basis for the criteria derivation for that class of chemicals; an individual carcinogenicity assessment for these chemicals is pending.

[6] Hardness dependent criteria. [16]Value given is an example only and is based on a $CaCO_3$ hardness of 100 mg/L. Criteria for each case must be calculated using the following formula:

CMC = exp (ma [ln (hardness)] + ba)

	ma	ba
Cadmium	1.0166	-3.924
Copper	0.9422	-1.700
Chromium (III)	0.8190	3.7256
Lead	1.273	-1.460
Nickel	0.8460	2.255
Silver	1.72	-6.59
Zinc	0.8473	0.884

CMC = Criterion Maximum Concentration (acute exposure value)
The threshold value at or below which there should be no unacceptable effects to freshwater aquatic organisms and their uses if the one-hour concentration does not exceed that CMC value more than once every three years on the average.

CCC = exp (mc [ln (hardness)] + bc)

	mc	bc
Cadmium	0.7409	-4.719
Copper	0.8545	-1.702
Chromium	0.8190	0.6848
Lead	1.273	- 4.705
Nickel	0.8460	0.0584
Silver	------	------
Zinc	0.8473	0.884

CCC = Criterion Continuous Concentration (chronic exposure value)
The threshold value at or below which there should be no unacceptable effects to freshwater aquatic organisms and their uses if the four-day concentration does not exceed that CCC value more than once every three years on the average.

[7] Safe Drinking Water Act (MCL).

[8] pH dependent criteria. Value given is an example only and is based on a pH of 7.8. Criteria for each case must be calculated using the following formula:

[9] Freshwater aquatic life criteria for pentachlorophenol are expressed as a function of pH. Values displayed in the table correspond to a pH of 7.8 and are calculated as follows:

CMC = exp [1.005 (pH) - 4.869] CCC = exp [1.005 (pH) - 5.134]

[10] This criterion applies to total arsenic.

[11] This criterion applies to total PCBs (i.e., the sum of all congener or all isomer or homolog or Arochlor analyses).

[12] This criterion applies to the sum of alpha-endosulfan and beta-endosulfan.

[13] This criterion applies to DDT and its metabolites (i.e., the total concentration of DDT and its metabolites should not exceed this value).

[14] The nonylphenol criteria address CAS numbers 84852-15-3 and 25154-52-3.

[15] The criterion is for a total measurement of 5 haloacetic acids, dichloroacetic acid, trichloroacetic acid, monochloroacetic acid, bromoacetic acid, and dibromoacetic acid.

[16] Hardness values shall be no greater than 400 mg/L. For waters with hardness levels greater than 400 mg/L. The actual ambient hardness may be used where a site-specific WER has been determined consistent with EPA's water effect ratio procedure.

Appendix II of Chapter 33.16-02.1 is amended as follows:

APPENDIX II

LAKE AND RESERVOIR CLASSIFICATION

Lakes are classified according to the water characteristics which are to be maintained in the specified lakes. The beneficial water uses and parameter limitations designated for Class I streams shall apply to all classified lakes. For lakes not listed, the following default classification applies: Class 4.

COUNTY	LAKE	CLASSIFICATION
Adams	Mirror Lake	3
Adams	N. Lemmon Lake	1
Barnes	Lake Ashtabula	3
Barnes	Moon Lake	2
Barnes	Clausen Springs	3
Benson	Wood Lake	2
Benson	Graves	3
Benson	Reeves	3
Bottineau	Lake Metigoshe	2
Bottineau	Long Lake	2
Bottineau	Pelican Lake	3
Bottineau	Carbury Dam	2
Bottineau	Cassidy Lake	4
Bottineau	Strawberry Lake	2
Bowman	Bowman-Haley Dam	3
Bowman	Gascoyne Lake	3
Bowman	Kalina Dam	3
Bowman	Lutz Dam	2
Bowman	Spring Lake	3
Burke	Powers Lake	3

COUNTY	LAKE	CLASSIFICATION
Burke	Short Creek Dam	2
Burke	Smishek Dam	2
Burke	Northgate Dam	2
Burleigh	McDowell Dam	3
Burleigh	Mitchell Lake	3
Burleigh	New Johns Lake	2
Cass	Casselton Reservoir	3
Cass	Brewer Lake	2
Cavalier	Mt. Carmel Dam	2
Dickey	Moores Lake	3
Dickey	Pheasant Lake	3
Dickey	Wilson Dam	3
Divide	Baukol-Noonan Dam	2
Divide	Skjermo Dam	2
Dunn	Lake Ilo	3
Eddy	Battle Lake	3
Eddy	Warsing Dam	3
Emmons	Braddock Dam	3
Emmons	Nieuwsma Dam	2
Emmons	Rice Lake	3
Foster	Juanita Lake	3
Golden Valley	South Buffalo Gap Dam	4
Golden Valley	Camel Hump Dam	1

COUNTY	LAKE	CLASSIFICATION
Golden Valley	Odland Dam	3
Grand Forks	Fordville Dam	2
Grand Forks	Kolding Dam	3
Grand Forks	Larimore Dam	2
Grand Forks	Niagara Dam	3
Grant	Heart Butte Dam (Lake Tschida)	2
Grant	Raleigh Reservoir	2
Grant	Sheep Creek Dam	2
Griggs	Carlson-Tande Dam	3
Griggs	Red Willow Lake	2
Hettinger	Blickensderfer Dam	2
Hettinger	Castle Rock Dam	4
Hettinger	Indian Creek	2
Hettinger	Kilzer Dam	3
Hettinger	Larson Lake	3
Hettinger	Mott Watershed Dam	3
Kidder	Alkaline	2
Kidder	Cherry Lake	3
Kidder	Crystal Springs	3
Kidder	~~Frettum~~ Frettim Lake	2
Kidder	George Lake	5
Kidder	Horsehead Lake	2
Kidder	Lake Isabel	3
Kidder	Lake Josephine	2
Kidder	Lake Williams	3

COUNTY	LAKE	CLASSIFICATION
Kidder	Round Lake	~~3~~2
LaMoure	Heinrich-Martin Dam	3
LaMoure	Kalmbach Lake	3
LaMoure	Kulm-Edgeley Dam	3
LaMoure	Lake LaMoure	3
LaMoure	Lehr Dam	3
LaMoure	Limesand-Seefeldt Dam	3
LaMoure	Schlect-Thom Dam	3
LaMoure	Schlect-Weix Dam	3
Logan	Beaver Lake	3
Logan	Mundt Lake	3
Logan	Rudolph Lake	3
McHenry	Cottonwood Lake	3
McHenry	George Lake	3
McHenry	Round Lake	3
McHenry	Buffalo Lodge Lake	3
McIntosh	Blumhardt Dam	2
McIntosh	Clear Lake	3
McIntosh	Coldwater Lake	3
McIntosh	Dry Lake	2
McIntosh	Green Lake	2
McIntosh	Lake Hoskins	2
McKenzie	Arnegard Dam	4
McKenzie	Leland Dam	2
McKenzie	Sather Dam	2
McLean	Brush Lake	3

COUNTY	LAKE	CLASSIFICATION
McLean	Crooked Lake	3
McLean	Custer Mine Pond	2
McLean	East Park Lake	2
McLean	Lake Brekken	2
McLean	Lake Holmes	2
McLean	Lake Audubon	2
McLean	Lightning Lake	1
McLean	Long Lake	4
McLean	Riverdale Spillway Lake	1
McLean	Strawberry Lake	3
McLean	West Park Lake	2
Mercer	Harmony Lake	3
Morton	Crown Butte Dam	3
Morton	Danzig Dam	3
Morton	Fish Creek Dam	1
Morton	Harmon Lake	3
Morton	Nygren Dam	2
Morton	Sweetbriar Dam	3
Mountrail	Clearwater Lake	3
Mountrail	Stanley Reservoir	3
Mountrail	White Earth Dam	2
Nelson	McVille Dam	2
Nelson	Tolna Dam	2
Nelson	Whitman Dam	2

COUNTY	LAKE	CLASSIFICATION
Oliver	East Arroda Lake	2
Oliver	Nelson Lake	3
Oliver	West Arroda Lake	2
Pembina	Renwick Dam	3
Pierce	Balta Dam	3
Pierce	Buffalo Lake	3
Ramsey	Devils Lake	2
Ramsey	Cavanaugh Lake	3
Ransom	Dead Colt Creek Dam	3
Renville	Lake Darling	2
Richland	Lake Elsie	3
Richland	Mooreton Pond	3
Rolette	Belcourt Lake	2
Rolette	Carpenter Lake	2
Rolette	Dion Lake	2
Rolette	Gordon Lake	2
Rolette	Gravel Lake	2
Rolette	Hooker Lake	2
Rolette	Island Lake	3
Rolette	Jensen Lake	3
Rolette	School Section Lake	2
Rolette	Upsilon Lake	2
Rolette	Shutte Lake	2
Sargent	Alkali Lake	3
Sargent	Buffalo Lake	3

COUNTY	LAKE	CLASSIFICATION
Sargent	Lake Tewaukon	3
Sargent	Silver Lake	3
Sargent	Sprague Lake	3
Sheridan	Hecker Lake	2
Sheridan	South McClusky Lake (Hoffer Lake)	2
Sioux	Froelich Dam	2
Slope	Cedar Lake	3
Slope	Davis Dam	2
Slope	Stewart Lake	3
Stark	Belfield Pond	1
Stark	Dickinson Dike	1
Stark	Patterson Lake	3
Steele	North Golden Lake	3
Steele	North Tobiason Lake	3
Steele	South Golden Lake	3
Stutsman	Arrowwood Lake	4
Stutsman	Bader Lake	3
Stutsman	Barnes Lake	3
Stutsman	Clark Lake	3
Stutsman	Crystal Springs	3
Stutsman	Hehn-Schaffer Lake	3
Stutsman	Jamestown Reservoir	3
Stutsman	Jim Lake	4
Stutsman	Spiritwood Lake	3
Stutsman	Pipestem Reservoir	3
Towner	Armourdale Dam	2

COUNTY	LAKE	CLASSIFICATION
Towner	Bisbee Dam	2
Walsh	Bylin Dam	3
Walsh	Homme Dam	3
Walsh	Matejcek Dam	3
Ward	Hiddenwood Lake	3
Ward	Makoti Lake	4
Ward	North-Carlson Lake	3
Ward	Rice Lake	3
Ward	Velva Sportsmans Pond	1
Wells	Harvey Dam	3
Wells	Lake Hiawatha (Sykeston Dam)	4
Williams	Blacktail Dam	3
Williams	Cottonwood Lake	3
Williams	East Spring Lake Pond	3
Williams	Epping-Springbrook Dam	3
Williams	Iverson Dam	2
Williams	Kettle Lake	2
Williams	Kota-Ray Dam	1
Williams	McCloud (Ray) Reservoir	2
Williams	McGregor Dam	1
Williams	Tioga Dam	2
Williams	Trenton Lake	2
Williams	West Spring Lake Pond	3
	Lake Oahe	1
	Lake Sakakawea	1

N.D.A.C. Chapter 33-16-02.1
Standards of Quality of Waters of the State
Fiscal Note and Regulatory Analysis

I. Fiscal Note

Background

North Dakota Century Code (N.D.C.C.) §28-32-08.2, requires the North Dakota Department of Health to provide the Administrative Rules Committee with a fiscal note reflecting the effect of the rules changes on state revenues and expenditures, including any effect on funds controlled by the agency, or a statement that the rules have no fiscal effect.

Assessment

The proposed changes will require no additional staff time to implement and enforce.

II. Regulatory Analysis

Background

N.D.C.C. § 28-32-08.2 requires that the North Dakota Department of Health (Department) to issue a regulatory analysis on any rule revision if a request for the analysis is filed by the Governor or a member of the Legislative Assembly within 20 days after the last published notice of the proposed rule hearing or if the proposed rule is expected to have an impact on the regulated community in excess of $50,000. The following analysis is prepared to comply with the requirements for that section, and is being prepared to comply with the requirements for changes to the North Dakota Administrative Code (D.D.A.C.) Chapter 33-16-02.1, Standards of Quality for Water of the State. The Department was not required to issue a regulatory analysis under N.D.C.C. §28-32-08 but decided to do so anyway.

Classes of People Probably Affected

The proposed amendments to the Standards of Quality for Waters of the State have the minimal potential to affect new industries, existing industries, municipalities that plan to significantly increase discharges, or groups involved in lake improvement or maintenance projects.

> New and existing industries or municipalities that plan to significantly increase discharges might be affected with the new aquatic life standards for the pesticide carbaryl and acrolein. The potential is considered minimal as neither of the two chemicals compounds were found in the North Dakota Department of Agriculture's pesticide monitoring in 2008, 2009, and 2010.
>
> Groups or communities involved in lake improvement or maintenance would be positively affected by changing the suggested guidelines for these type of projects from

nutrient based limits of NO_3 as N of 0.25 mg/L and PO_4 as P of 0.02 mg/L to a trophic response based guideline of 20 µg/L of Chlorophyll-a.

The adding of Harmon Lake (Morton County), South Buffalo Gap (Golden Valley County) and the reclassification of Round Lake Kidder County in Appendix II is not expected to have any effect as all three meet the classification assigned, and the changes do not affect how they are currently being managed or use.

All other changes are editorial corrections or clarifications.

Probable Impact Including Economic Impact

The changes proposed will have minimal or no effect on point source discharges and other regulated entities.

Probable Costs to the Department

Additional staff time required to implement and enforce the changes to the rules will be minimal.

Alternative Methods Considered

The Department could choose to not adopt the changes. If this occurred, the U.S. Environmental Protection Agency could establish water quality standards for North Dakota and enforce them.

III. Takings Assessment

Background

N.D.C.C. §28-32-09 requires the Department to prepare a written assessment of the constitutional takings implication of a proposed rule that may limit the use of private real property. The assessment must:

1) Analyze the likelihood that the proposed rule may result in a taking of regulatory taking.

2) Clearly and specifically identify the purpose of the proposed rule.

3) Explain why the proposed rule is necessary to substantially advance that purpose and why no alternative action is available to achieve the agencies goals while reducing the impact on private property owners.

4) Estimate the potential cost to the government if a court determines that the proposed rule constitutes a taking or regulatory taking.

5) Identify the source of payment within the agency's budget for any ordered compensation.

6) Certify that the benefits of the proposed rule exceed the estimated compensation costs.

Assessment

1) The proposed rules update the Standards for Quality for Waters of the State to be consistent with the Federal Clean Water Act and the federal rules promulgated thereunder. The proposed rules will not limit the use of a landowner's private real property and will therefore not result in a regulatory taking.

2) The purpose of the proposed rules is to update the state water quality standards

3) No alternative is available. The Department is required to update the state's water quality standards every three years under the federal Clean Water Act.

4) There will be no additional costs since the comparable federal rules are already in place.

5) There will be no additional costs since the comparable federal rules are already in place.

6) Since there will be no cost associated with the rules, any benefits achieved will exceed the costs.

IV. Small Entity Regulatory Analysis

1) There are no small entities to the proposed rule.

V. Small Entity Economic Impact Statement

1) There are no small entities impacted by the proposed rule.