

# Class Waters Water Quality Standards Changes

Nevada Water Pollution Control Regulations  
NAC 445A.124 - NAC 445A.127, and  
NAC 445A.146 - NAC 445A.225

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# Class Waters

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Same petition as May 2006

Brief introduction to Water Quality  
Standards

Summary of Class Waters

Proposed Changes

- ◆ Clean Up & Update Class Waters
- ◆ Reorganization All Waters

# Water Quality Standards

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## Key Elements

- Designated beneficial uses
- Criteria to protect beneficial use
- Antidegradation provision

# Water Quality Standards

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## Beneficial Uses, NAC 445A.122

- Municipal or domestic supply
- Irrigation
- Watering livestock
- Propagation of aquatic life (coldwater, warm water fish)
- Propagation of wildlife
- Industrial Supply
- Recreation involving contact with the water (swimming)
- Recreation not involving contact with the water (boating)

# Water Quality Standards

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- Criteria - protect beneficial use
  - ◆ Aquatic life – ammonia
  - ◆ Contact Recreation – E. Coli
- Antidegradation provision (RMHQ)

# Water Quality Standards

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## Types of Standards

- 1) Narrative - NAC 445A.121, apply to all surface waters
- 2) Toxics - NAC 445A.144
- 3) Designated waters - NAC 445A.146 to NAC445A.225
- 4) Class waters - NAC 445A.124 to NAC445A.127

# Class Waters

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## Description

- 4 Classes – A, B, C & D (B and C – Trout)
  - NAC 445A.124 – 445A.127
  - A – Higher Quality
  - B - Trout (T & DO) – Non Trout
  - C - Trout (T & DO) – Non Trout
  - D – Lower Quality

# Class Waters

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## Description

- Each Class:
  - Set of beneficial uses,
  - Set of water quality standards,
  - List of waters that belong in that class (sorted by county).

# Class Waters

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## ■ Issues

- ◆ Inflexible – If change one standard change for all the class
  - ◆ Temperature - Irrigation Reservoir example
- ◆ Antidegradation/RMHQ Standards
- ◆ Adding Parameters - Nutrient

# Class Waters

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- ELIMINATE THE CURRENT CLASS WATERS FORMAT
  - ◆ Create a WQS table for each water of each class

# Class Waters Changes

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- 1) Clean Up & Update “Regulatory”
  - ◆ Remove Beneficial Use qualifiers
  - ◆ Remove Class Narrative standards
  - ◆ Redefine Natural Conditions (TDS & Fecal C)
  - ◆ Add Ammonia & E. Coli to Class Waters
- 2) Reorganization “Non-regulatory”
  - ◆ Eliminate the current class waters format
  - ◆ Adjust reach descriptions (from upstream to down)
  - ◆ Reformat all wqs tables to show beneficial uses
  - ◆ Reorganize and renumber water quality standards tables by Hydrographic Region (NAC 445A.124 through 127 and 146 through 225)

# Class Waters Changes

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## 1) Clean Up & Update

- ◆ Remove Beneficial Use Qualifiers
  - ◆ To match to NAC 445A.122
- ◆ Remove Class Narrative Standards
  - ◆ Redundant with NAC 445A.121
- ◆ Redefine Natural Conditions (TDS & Fecal C)
- ◆ Add Ammonia Standards Referring to NAC 445A.118
- ◆ Add E. Coli Standard

# Class Waters Beneficial Uses

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## ■ Class A

- ◆ Municipal or domestic supply or both, ~~with treatment by disinfection only~~, aquatic life, propagation of wildlife, irrigation, watering of livestock, contact and non-contact recreation.

## ■ Class B

- ◆ Municipal or domestic supply or both, ~~with treatment by disinfection and filtration only~~, aquatic life, propagation of wildlife, irrigation, watering of livestock, contact and non-contact recreation and industrial supply.

## ■ Class C

- ◆ Municipal or domestic supply or both, ~~following complete treatment~~, aquatic life, propagation of wildlife, irrigation, watering of livestock, contact and non-contact recreation and industrial supply.

## ■ Class D

- ◆ Noncontact recreation, aquatic life, propagation of wildlife, irrigation, watering of livestock, and industrial supply ~~except for food processing purposes~~.

# Class Waters Narrative Standards

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## Class A (NAC 445A.124)

- Floating solids, sludge deposits, tastes or odor-producing substances.
  - ◆ None attributable to man's activities.
- Sewage, industrial wastes or other wastes.
  - ◆ None.
- Toxic materials, oils, deleterious substances, colored or other wastes.
  - ◆ None.
- Settleable solids.
  - ◆ Only amounts attributable to man's activities which will not make the waters unsafe or unsuitable as a drinking water source or which will not be detrimental to aquatic life or for any other beneficial use established for this class.

# Narrative Standards (NAC 445A.121)

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- 1. Waters must be free from substances attributable to domestic or industrial waste or other controllable sources that will settle to form sludge or bottom deposits in amounts sufficient to be unsightly, putrescent or odorous or in amounts sufficient to interfere with any beneficial use of the water.
- 2. Waters must be free from floating debris, oil, grease, scum and other floating materials attributable to domestic or industrial waste or other controllable sources in amounts sufficient to be unsightly or in amounts sufficient to interfere with any beneficial use of the water.
- 3. Waters must be free from materials attributable to domestic or industrial waste or other controllable sources in amounts sufficient to produce taste or odor in the water or detectable off-flavor in the flesh of fish or in amounts sufficient to change the existing color, turbidity or other conditions in the receiving stream to such a degree as to create a public nuisance or in amounts sufficient to interfere with any beneficial use of the water.

# Natural Conditions

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- Natural Condition references for
  - ◆ TDS
  - ◆ Fecal Coliform
- 95<sup>th</sup> percentile
- The TDS standard for class A, B and C is:
  - ◆  $\leq 500$  mg/l or ~~one-third above that characteristic of natural conditions~~ **the 95<sup>th</sup> percentile** (whichever is less).

# Natural Conditions

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- The Fecal Coliform standard for class C is:

Fecal Coliform. The more stringent of the following apply:

- ◆ 1. The fecal coliform concentration must not exceed a geometric mean of 1000 per 100 milliliters, and not more than 20 percent of total samples may exceed 2400 per 100 milliliters.
- ◆ 2. ~~The annual geometric mean of fecal coliform concentration must not exceed that characteristic of natural conditions by more than 200 per 100 milliliters, and the number of fecal coliform in a single sample must not exceed that characteristic of natural conditions by more than 400 per 100 milliliters.~~ **The fecal coliform concentration must not exceed the 95th percentile of the AGM or the 95th percentile of n, where n equals a number of single value samples as determined by the division.**
- ◆ 3. ~~The fecal coliform concentration, based on a minimum of five samples during any 30-day period, must not exceed a geometric mean of 200 per 100 milliliters, and not more than 10 percent of total samples during any 30-day period may exceed 400 per 100 milliliters. This is applicable only to those waters used primarily for recreation involving contact with the water.~~

# Ammonia – Aquatic Life

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- A standard will be added for total ammonia for each class water. A footnote will reference the total ammonia tables and the algebraic formula in NAC 445A.118.

# E.Coli No./100 ml

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- Contact Recreation – both AGM & SV
  - Class A, B & C
    - ◆ AGM – 126
    - ◆ Single Value
      - ◆ Designated Beach Area - 235
      - ◆ Moderate Body Contact - 298
      - ◆ Lightly Used - 410
      - ◆ Infrequently used - 576
  
- Noncontact Recreation – Class D
  - ◆ AGM - 630

# Class D Waters

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- Class D Waters (7) do not have Contact Recreation as a Beneficial Use
- Clean Water Act – Fishable / Swimmable wherever attainable
- Use Analysis On Class D waters
  - ◆ Workshops May/June 2008
  - ◆ SEC Fall 2008

# Class Water Quality Standards

Parameter	Class A	Class B	Class C	Class D
Temp. (°C)	$\leq 20$			
Trout		$\leq 20$	$\leq 20$	
Non-Trout		$\leq 24$	$\leq 34$	
$\Delta T$	$\leq 0$	$\leq 0$	$\leq 3$	
pH	6.5 – 8.5	6.5 – 8.5	6.5 – 8.5	6.5 – 9.0
D.O.	$\geq 6.0$			
Trout		$\geq 6.0$	$\geq 6.0$	$\geq 3.0$
Non-Trout		$\geq 5.0$	$\geq 5.0$	
T.P.		$\leq 0.30$	$\leq 1.0$	
Stream → Lake	$\leq 0.05$			
Lake	$\leq 0.025$			
stream	$\leq 0.10$			

# Class Water Quality Standards

Parameter	Class A	Class B	Class C	Class D
Ammonia	<b>Footnote for 445A.118</b>	<b>Footnote for 445A.118</b>	<b>Footnote for 445A.118</b>	<b>Footnote for 445A.118</b>
TDS	$\leq 500$ or <del><math>1/3</math> Natural Condition</del> <b>95<sup>th</sup> %</b>	$\leq 500$ or <del><math>1/3</math> Natural Condition</del> <b>95<sup>th</sup> %</b>	$\leq 500$ or <del><math>1/3</math> Natural Condition</del> <b>95<sup>th</sup> %</b>	
Fecal Coliform  Nat Cond.  Contact Rec.	$\leq 200/400$	$\leq 200/400$	$\leq 1000/2400$  <del><math>\leq 200/400</math></del> <b>95<sup>th</sup> Percentile</b>  $\leq 200/400$	$\leq 1000/2400$
E. Coli  AGM SV	$\leq 126$ <b>Add</b>	$\leq 126$ <b>Add</b>	$\leq 126$ <b>Add</b>	$\leq 630$

# Class Waters

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1. Class Waters Changes
  - Questions?
2. Reorganizing the Water Quality Standards Tables

# Class Waters Reorganization

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- 2) Reorganizing the Water Quality Standards Tables
  - ◆ Eliminate the current class waters format and create an individual table showing water quality standards for each waterbody in each class.
  - ◆ Adjust reach descriptions
  - ◆ Reformat all water quality standard tables to show beneficial uses
  - ◆ Reorganize water quality standards tables by Hydrographic Region and renumber all the waterbody tables (NAC 445A.124 through 127 and 146 through 225);

# Reasons for Reorganization

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- Class Waters, Inflexible – If change one standard change for all the class
- Waters “Out of Order”
  - ◆ Muddy, 209 – 211 – Uses for 211 in 174
  - ◆ Virgin River in w/ Creeks, not with the Colorado or Muddy
- Adding Waters
- Proposing to Reorder All Waters by Hydrographic Basin
  - ◆ Northwest
  - ◆ Black Rock
  - ◆ Snake

# Class Waters Reorganization

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- Adjust reach descriptions
  - ◆ Some reach descriptions are described from downstream to upstream others are described from upstream to down.
- Describe all reaches from upstream to down.
  - ◆ ~~Control Point at Dayton Bridge. The limits of this table apply from Dayton Bridge to New Empire.~~ **The Carson River from New Empire to the Dayton Bridge**

Waterbody Name	Segment Description	Beneficial Uses											Aquatic Species of Concern	Water Quality Standard NAC Reference	
		Livestock	Irrigation	Aquatic	Contact	Noncontact	Municipal	Industrial	Wildlife	Aesthetic	Enhance	Marsh			
Boulder Reservoir	The entire reservoir.	X	X	X	X	X	X		X						445A.149001
Blue Lakes	Entire area.	X	X	X	X	X	X		X						445A.149002
Catnip Reservoir	The entire reservoir.	X	X	X	X	X	X		X						445A.149003
Wall Canyon Reservoir	The entire reservoir.	X	X	X	X	X	X	X	X					Trout	445A.149004
Knott Creek Reservoir	The entire reservoir.	X	X	X	X	X	X	X	X					Trout	445A.149005
Onion Valley Reservoir	The entire reservoir.	X	X	X	X	X	X	X	X					Trout	445A.149006
Livestock	Watering of livestock														
Irrigation	Irrigation														
Contact	Recreation involving contact with the water														
Noncontact	Recreation not involving contact with the water														
Industrial	Industrial supply														
Municipal	Municipal or domestic supply, or both														
Wildlife	Propagation of wildlife														
Aquatic	Propagation of aquatic life														
Aesthetic	Waters of extraordinary ecological or aesthetic value														

## 445A.149 Carson River: East Fork at the state line.

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	BENEFICIAL USES
Temperature °C- Maximum  DT <sup>a</sup>	DT = 0°C	Nov.-May : <13°C June : <17°C July : <21°C Aug.-Oct. : <22°C DT <2°C	Aquatic life <sup>b</sup> and recreation involving contact with the water.
pH Units		S.V. : 6.5 - 9.0 DpH : ±0.5 Max.	Recreation involving contact with the water, <sup>b</sup> propagation of wildlife, <sup>b</sup> aquatic life, irrigation, watering of livestock, municipal or domestic supply and industrial supply.
Total Phosphates (as P) - mg/l	AAvg. : <.03 S.V. : <.065	A-Avg. : <0.10	Aquatic life, <sup>b</sup> recreation involving contact with the water, <sup>b</sup> municipal or domestic supply and recreation not involving contact with the water.
Nitrogen Species (N) - mg/l	Total Nitrogen : <0.5 A-Avg. : <1.1  S.V.	Nitrate S.V. : <10 Nitrite S.V. : <.06	Aquatic life, <sup>b</sup> municipal or domestic supply, <sup>b</sup> recreation involving contact with the water, watering of livestock, propagation of wildlife and recreation not involving contact with the water.
Total Ammonia (as N) - mg/l		e	Aquatic life. <sup>b</sup>
Dissolved Oxygen - mg/l		S.V. Nov.-May : >6.0 Jun.-Oct. : >5.0	Aquatic life, <sup>b</sup> recreation involving contact with the water, propagation of wildlife, watering of livestock, municipal or domestic supply and recreation not involving contact with the water.

STANDARDS OF WATER QUALITY

Carson River

The limits of this table apply only to the west fork at the state line

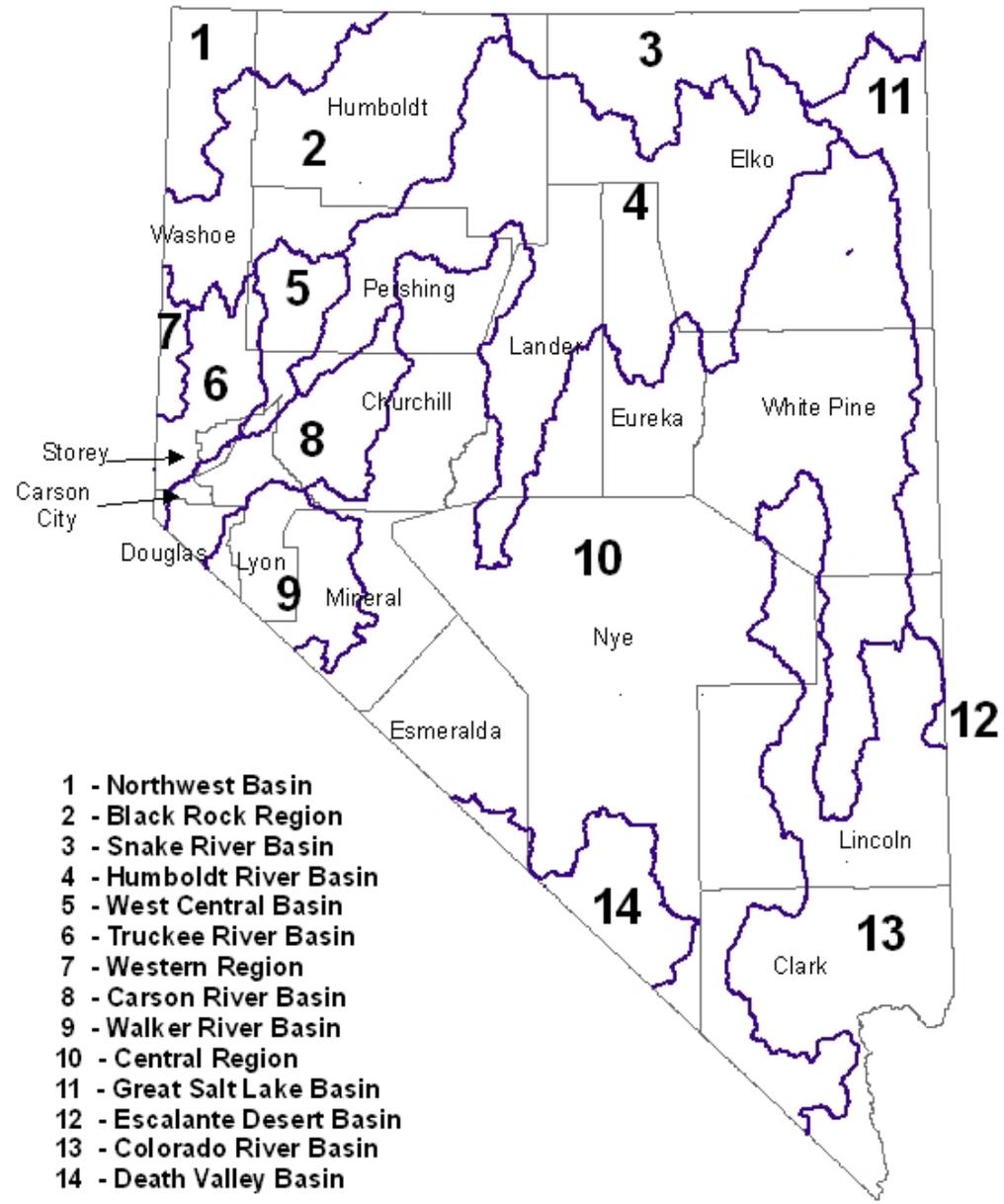
PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	Beneficial Use <sup>a</sup>											
			Livestock	Irrigation	Aquatic	Contact	Noncontact	Municipal	Industrial	Wildlife	Aesthetic	Enhance	Marsh	
Beneficial Uses for NAC 445A. 163001			X	X	X	X	X	X	X	X				
Aquatic Life Species of concern			rainbow trout and brown trout.											
Temperature °C- Maximum ΔT <sup>b</sup>		Nov.-May : ≤13°C June : ≤17°C July : ≤21°C Aug.-Oct. : ≤22°C Δ T : ≤2°C			*	X								
pH Units	7.4 - 8.4	S.V. : 6.5 - 9.0 ΔpH : ±0.5 Max.	X	X	X	*		X	X	*				
Total Phosphates (as P) - mg/l	A-Avg. : ≤.016 S.V. : ≤.033	A-Avg. : ≤0.10			*	*	X	X						
Nitrogen Species (N) - mg/l	A-Avg. : ≤0.4 S.V. : ≤0.5	Nitrate S.V. : ≤10 Nitrite S.V. : ≤0.6	X		*	X	X	*		X				
Total Ammonia (as N) - mg/l		c			*									
Dissolved Oxygen - mg/l		S.V. : Nov.-May : ≥5.0 Jun.-Oct. : ≥6.0	X		*	X	X	X		X				

**NAC 445A. 149001 Boulder Reservoir: the entire reservoir.**  
**STANDARDS OF WATER QUALITY**  
**Boulder Reservoir**

The limits of this table apply to the entire reservoir.

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	Beneficial Use										
			Livestock	Irrigation	Aquatic	Contact	Noncontact	Municipal	Industrial	Wildlife	Aesthetic	Enhance	Marsh
Beneficial Uses for NAC 445A. 149001			X	X	X	X	X	X		X			
Aquatic Life Species of concern													
Temperature °C $\Delta T^a$		SV $\leq 20$ 0			*	X							
pH Units		S.V. 6.5 - 9.0	X	X	*	*		X		*			
Total Phosphorous (as P) - mg/l		S.V. $\leq 0.05^b$ S.V. $\leq 0.025^b$ S.V. $\leq 0.10^b$			*	*	X	X					
Dissolved Oxygen - mg/l		S.V. $\geq 6.0$	X		*	X	X	X		X			
Total Ammonia (as N) - mg/l		$\leq 1.0^c$			*								
Total Dissolved Solids - mg/l		SV. $\leq 500$ or the 95 <sup>th</sup> percentile (whichever is less).	X					*					
E coli - No./100 ml		AGM $\leq 126$ SV $\leq 410$				*	X						
Fecal Coliform- No./100 ml		$\leq 200/400^d$	X	X		*	X	X		X			

# Nevada Water Resources Hydrographic Regions



# Designated Waters Index

## INDEX TABLE – By Region

Waterbody Name	Waterbody Description	County	NAC445A.XXXXX	
			Beneficial Use	Water Quality Standards
<b>NORTHWEST BASIN</b>				
Boulder Reservoir	The entire reservoir.	Washoe	445A.148	445A.149001
Blue Lakes	Entire area.	Humboldt	445A.148	445A.149002
Catnip Reservoir	The entire reservoir.	Washoe	445A.148	445A.149003
Wall Canyon Reservoir	The entire reservoir.	Washoe	445A.148	445A.149004
Knott Creek Reservoir	The entire reservoir.	Humboldt	445A.148	445A.149005
Onion Valley Reservoir	The entire reservoir.	Humboldt	445A.148	445A.149006
<b>BLACK ROCK BASIN</b>				
Smoke Creek	Approximately 30 miles east of Susanville California.	Washoe	445A.150	445A.151001
Squaw Creek Reservoir	The entire reservoir.	Washoe	445A.150	445A.151002
Negro Creek	From its origin to the first irrigation diversion, near west line of section 28, T. 36 N., R. 23 E, M.D.B. & M.	Washoe	445A.150	445A.151003
Summit Lake	The entire lake.	Humboldt	445A.150	445A.151004
Mahogany Creek	From its origin to Summit Lake.	Humboldt	445A.150	445A.151005
Leonard Creek	From its origin to the first point of diversion, near the south line of section 12, T. 42 N., R. 28 E, M.D.B. & M.	Humboldt	445A.150	445A.151006
Bilk Creek	From its origin to its intersection with the south line of section 35, T. 45 N., R. 32 E., M.D.B. & M.	Humboldt	445A.150	445A.151007

INDEX TABLE - ALPHABETICALLY

Waterbody Name	Waterbody Description	County	Hydrographic Region	NAC445A.XXXXX	
				Beneficial Use	Water Quality Standards
76 Creek	Its entire length.	Elko	Snake	445A.152	445A.153021
Adams McGill Reservoir	The entire reservoir.	Nye	Colorado	445A.172	445A.173019
Angel Lake	The entire lake. .	Elko	Central	445A.166	445A.167027
Ash Canyon	From its origin to the first point of diversion of the Carson City water department, near the west line of section 12, T. 15 N., R. 19 E, M.D.B. & M.	Carson City	Carson	445A.162	445A.163020
Baker Creek	From its origin to the national forest boundary	White Pine	Great Salt Lake	445A.168	445A.169003
Barley Creek	From its origin to the first point of diversion, near the national forest boundary.	Nye	Central	445A.166	445A.167019
Bear Creek	From its origin to the point of diversion for the Jarbidge municipal water supply, near the east line of section 17, T. 46 N., R. 58 E, M.D.B. & M.	Elko	Snake	445A.152	445A.153020
Beaver Dam Wash	Above Schroeder Reservoir	Lincoln	Colorado	445A.172	445A.173013
Berry Creek	From its origin to pipeline intake near the national forest boundary.	White Pine	Central	445A.166	445A.167038
Big Creek	From its origin to the east boundary of United States Forest Service Big Creek Campground	Lander	Humboldt	445A.154	445A.155053
Big Creek	From the east boundary of the United States Forest Service Big Creek Campground to the first diversion dam, near the west line of section 4, T. 17 N., R. 43 E, M.D.B. & M.	Lander	Humboldt	445A.154	445A.155054
Big Goose Creek		Elko	Snake	445A.152	445A.153001

# Class Waters

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1. Class Waters Changes
2. Reorganizing the Water Quality Standards Tables
  - Questions?

# Class Waters

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- NDEP Accepting Written Comments

# Water Quality Standards

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## Adoption Process

- NDEP proposes water quality standards
- Public workshops conducted
- Public comment received, reviewed and incorporated, if appropriate
- State Environmental Commission
- Submittal to EPA for approval

# Class Waters

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- Nevada Administrative Code – Water Controls
  - ◆ <http://www.leg.state.nv.us/NAC/NAC-445A.html>
- NDEP Website
  - ◆ <http://ndep.nv.gov/index.htm>
- Public Notices Website
  - ◆ <http://ndep.nv.gov/admin/public.htm>
    - ◆ See Water Quality Planning
  - ◆ Draft Petition
  - ◆ Draft Rationale

# Class Waters

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## ■ Questions?

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