



NEVADA DIVISION OF
**ENVIRONMENTAL
PROTECTION**



Nevada's 2016-2018 Water Quality Integrated Report

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Environmental Scientist IV

*Bureau of Water Quality Planning -
Standards, Assessment and Monitoring Branch*

CRC Forum, March 10, 2020

Bureau of Water Quality Planning (BWQP)

Standards, Assessment, and Monitoring Branch establishes, reviews, and revises water quality standards for surface water; develops total maximum daily loads (TMDLs); and conducts statewide monitoring (including bioassessment) of Nevada's surface waters.

Non-Point Source Branch reduces surface-water pollution in impaired waters by supporting activities to implement watershed plans and install water quality restoration projects, along with issuing 401 Water Quality Certifications and educating the public.

Lake Tahoe Watershed Program works collaboratively with stakeholders and other agencies to restore, protect, and preserve the Lake Tahoe watershed.





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 - **CWA Objective:** *“Restore and maintain the chemical, physical and biological integrity of the nation's waters”*



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- Nevada's **water quality standards** are provided in **Nevada Administrative Code (NAC) 445A.11704 - 445A.2234**



What Constitutes a Water Quality Standard?





NAC Tables of WQS for Designated Waters, NAC 445A.1252 – 2214

Example (snippet of NAC table):

STANDARDS OF WATER QUALITY Quinn River, East and South Forks

PARAMETER	RMHQs	CRITERIA TO PROTECT BENEFICIAL USES	Beneficial Uses										
			WLS	IRR	AQL	RWC	RNC	MDS	IND	PWL	AES	ENH	MAR
Designated Beneficial Uses			X	X	X	X	X	X		X			
Aquatic Life Species of Concern													
Temperature °C		S.V. ≤ 20° Δ T = 0°			*								
pH - SU		S.V. 6.5 - 9.0			*								
Dissolved Oxygen - mg/L		S.V. ≥ 6.0			*								
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Total Dissolved Solids - mg/L		S.V. ≤ 500						*					
E. coli - cfu/100 mL		G.M. ≤ 126 S.V.≤ 410				*							
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Nevada 2016-2018

Water Quality Integrated Report

Assessment Period - October 1, 2009 through September 30, 2016

Prepared in accordance with the requirements of
Sections 303(d)/305(b)/314 of the Clean Water Act

DRAFT - December 2019





What is the “Integrated Report” and What Does it Do?



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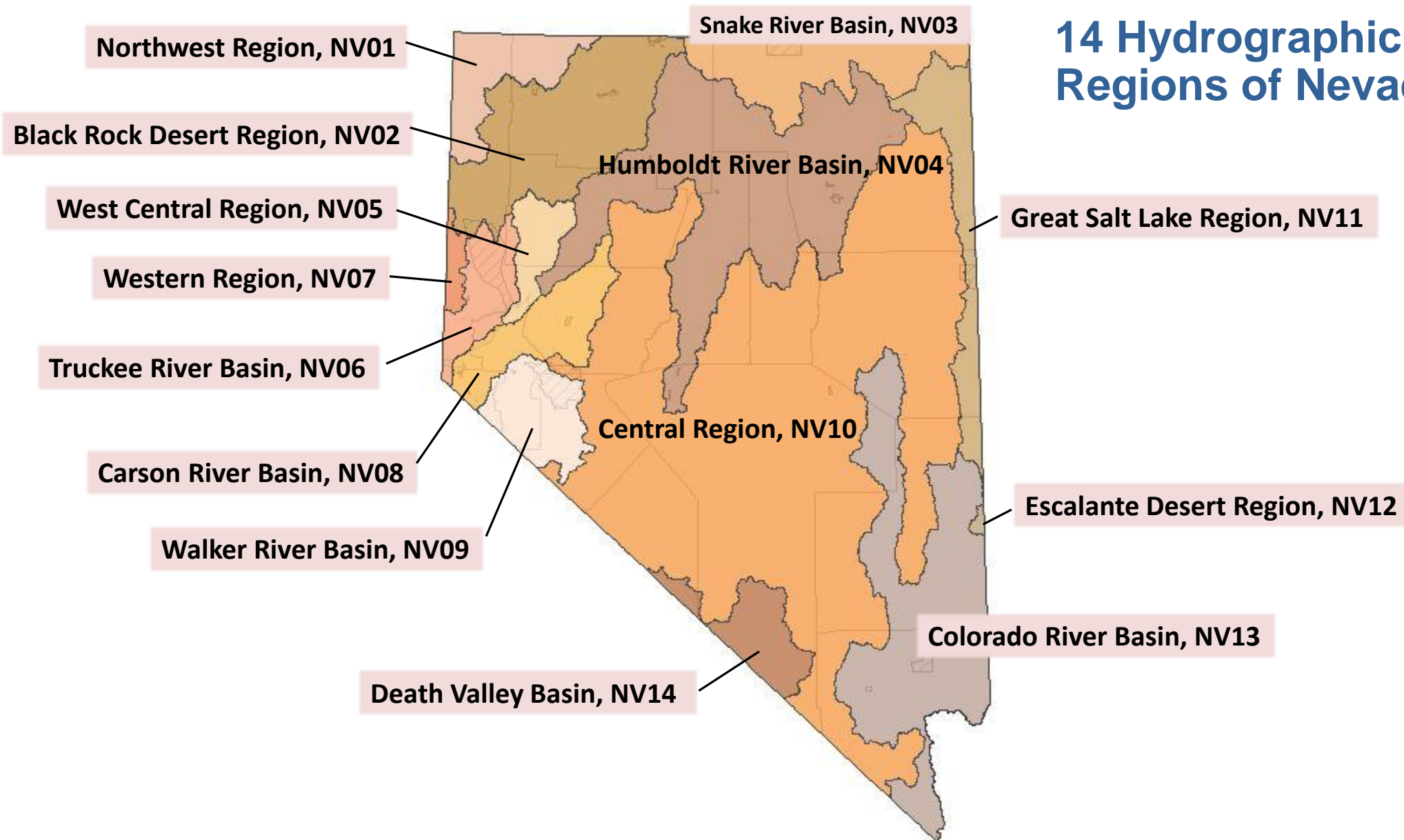
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- Designated waters determined NOT to be WOTUS are excluded from the Integrated Report.

14 Hydrographic Regions of Nevada



What is the Process to Prepare the Integrated Report?



Waterway in the Las Vegas Valley
Photo credit: Southern Nevada Water Authority

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- Staff in the Bureau of Water Quality Planning (BWQP) compile all water quality data for the assessment period
 - Most data for Nevada's surface waters are collected by BWQP staff, but additional data come from the USGS, BLM, SNWA, USFWS, and other entities



Waterway in the Las Vegas Valley
Photo credit: Southern Nevada Water Authority

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 - About 150 parameters

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 - Water-quality Assessment and Reporting Tool (WART)
- The ***2016-2018 Water Quality Integrated Report*** was prepared using the results from **WART**



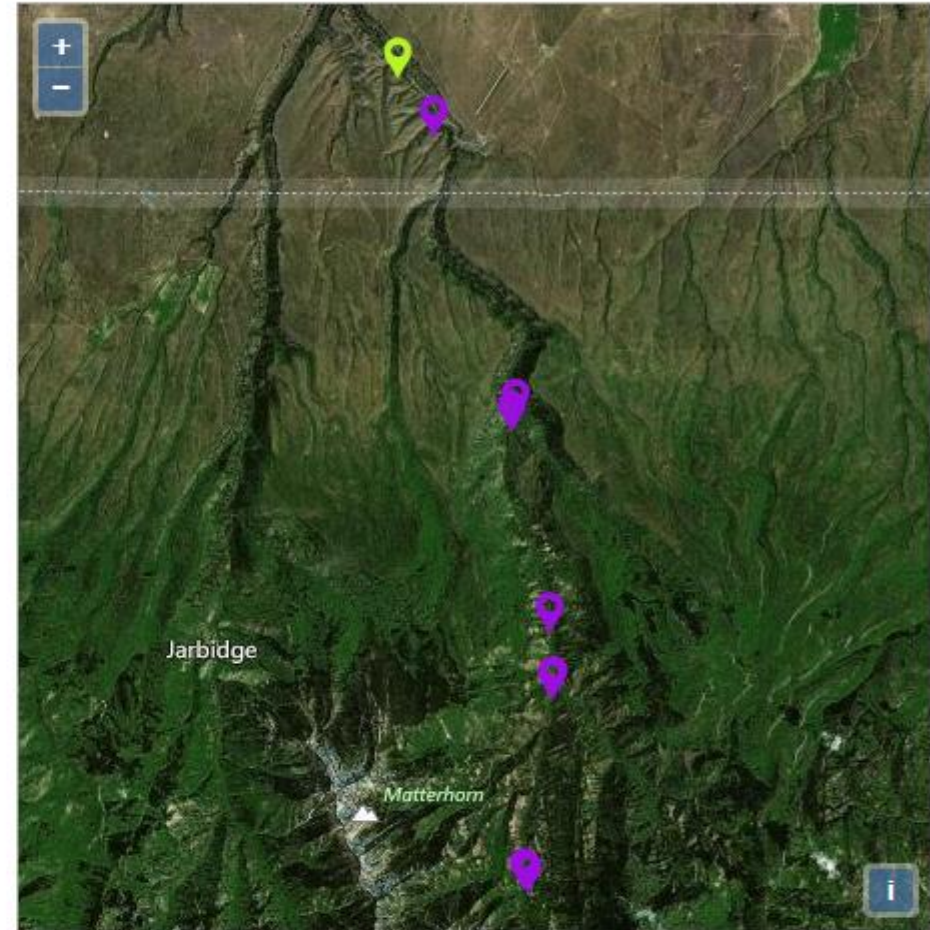
NV03-JR-12_00 Jarbidge River, East Fork

Identity

Hydrographic Region	Snake River Basin
Segment Type	River/Stream
County	Elko
NAC	1344
Description	From its origin to the Nevada-Idaho state line
Size	18.28 Miles
Tributary of	_NOTRIB _Waterbody is Not A Tributary

Assessment

Assessment Status	Final
Assessment Type	Physical/Chemical
Assessor Name	DAS / MAS
Attainment Category	5 - TMDL Needed
Export to Attains	Yes
Comment	Not meeting criteria - Cadmium 96-hour AQL (new listing); Lead 96-hour AQL (new listing); Silver 1-hour AQL (new listing); Temperature SV AQL; Beryllium MDS (new listing)



Screen shot from WART, showing results of assessment, along with a map of sampling sites.



Screen shot from WART, showing the water quality standard for pH for NAC 445A.1344, East Fork of the Jarbidge River

Overview

Name	pH SV AQL	Criteria Type	Simple
Group	NV03 Snake	Parameter	Analysis pH
Set	1344	Sample Value	Simple
Beneficial Use	Aquatic Life	Calculation	
		Impairment Determination	Binomial
		Max Depth	

Details

Operator	Values	Start	End
Between	6.5 - 9	Oct	Sep





Assessment Results from WART

Waterbody and Attainment

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NV03-JR-14_00	1348	Jarbidge River, below Jarbidge	Physical/Chemical	Final	5 - TMDL Needed
NV03-JR-15-A_00	1384	Bear Creek	Physical/Chemical	Final	3 - Insufficient Data
NV03-JR-64_00	1422	Jack Creek	Physical/Chemical	Final	1 - All Supported



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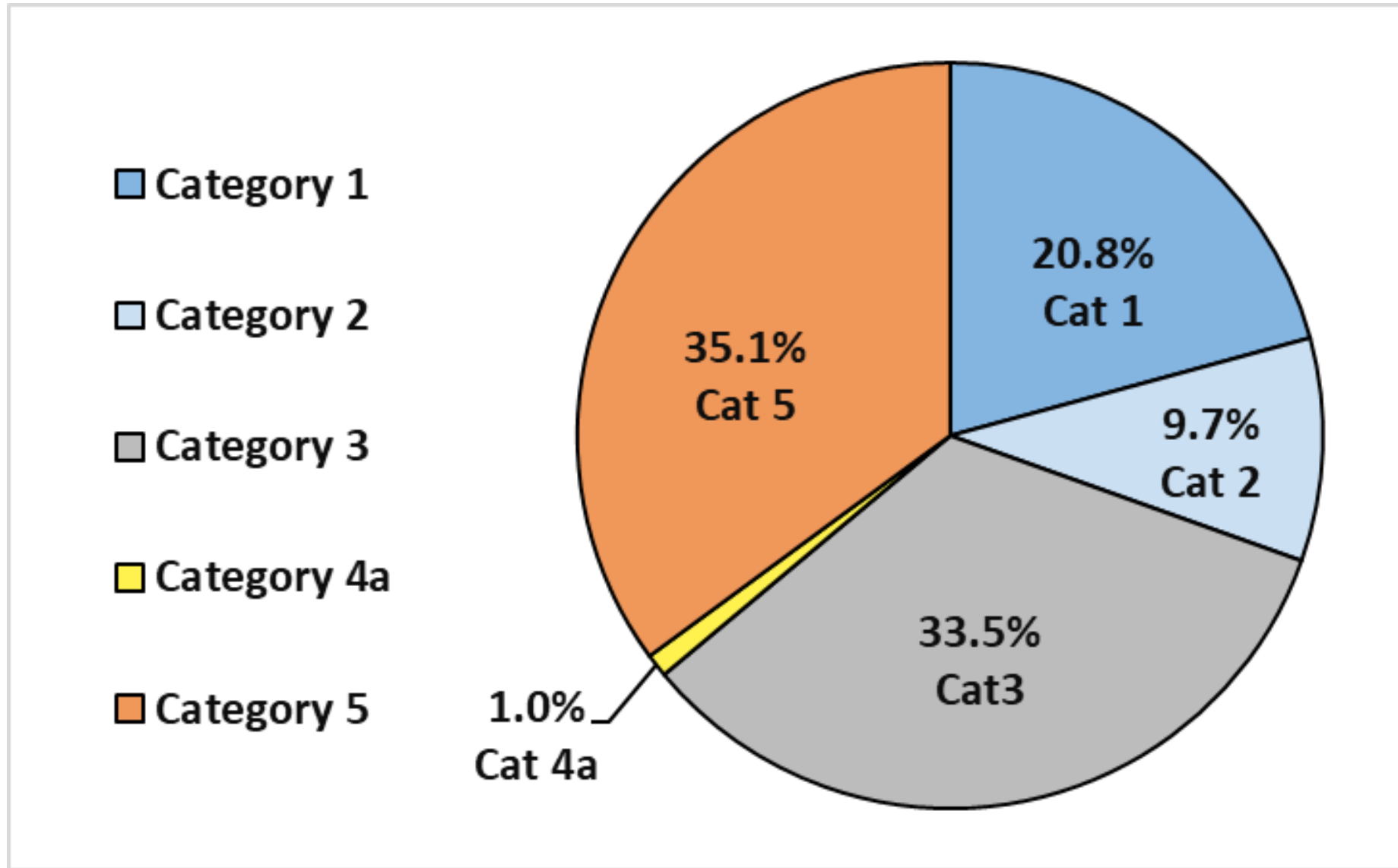
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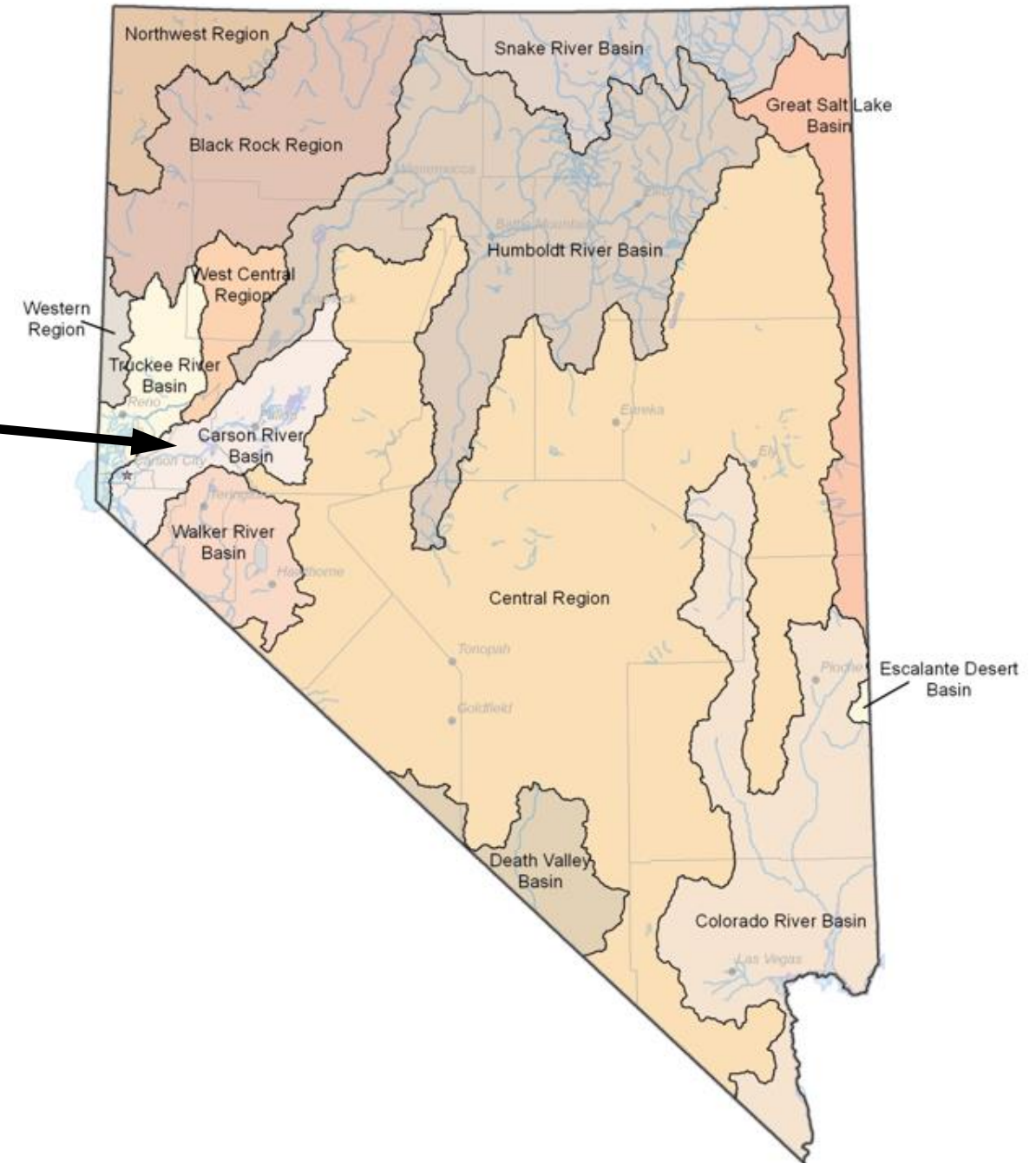
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 - 5 – **Not meeting criteria** for at least one beneficial use
- Assessment results provide information for Nevada to set priorities for protecting and restoring water quality

What is the Current Status of Nevada's Surface Waters?



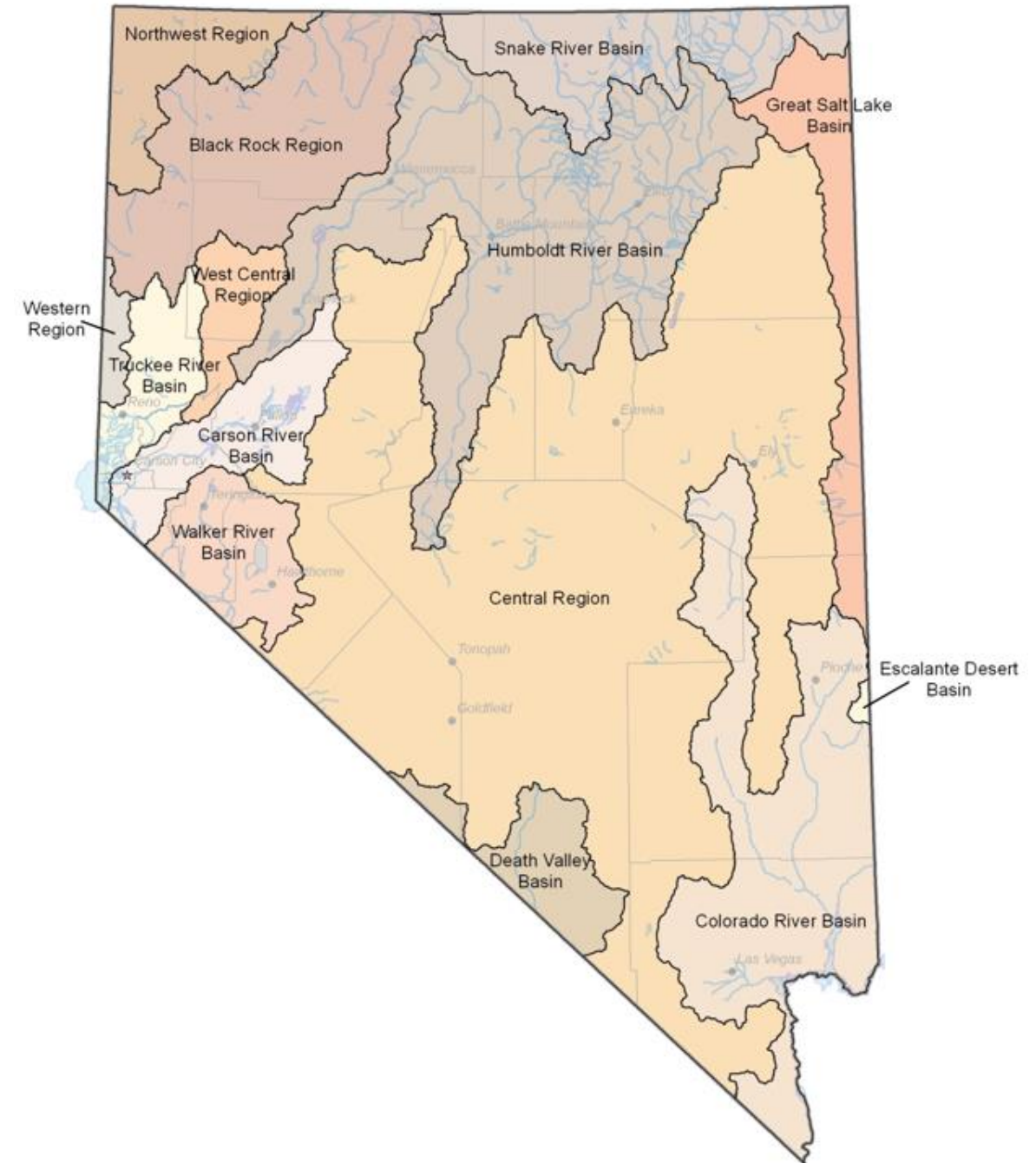
2016-2018 Assessment

- In the **Carson River Basin**, 50 waterbodies were assessed.



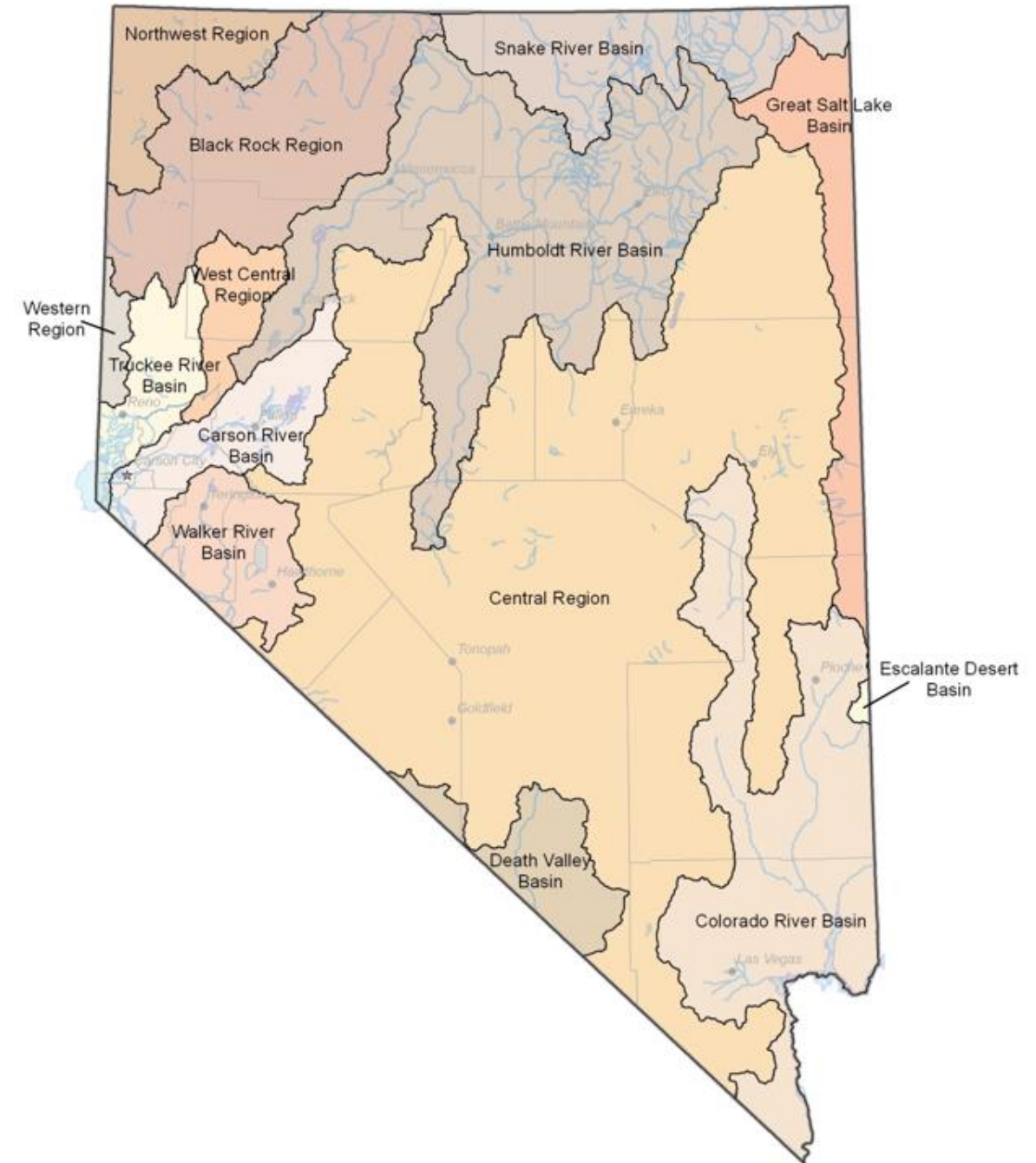
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2016-2018 Assessment

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- So, what are the most common impairments in the Carson River Basin?



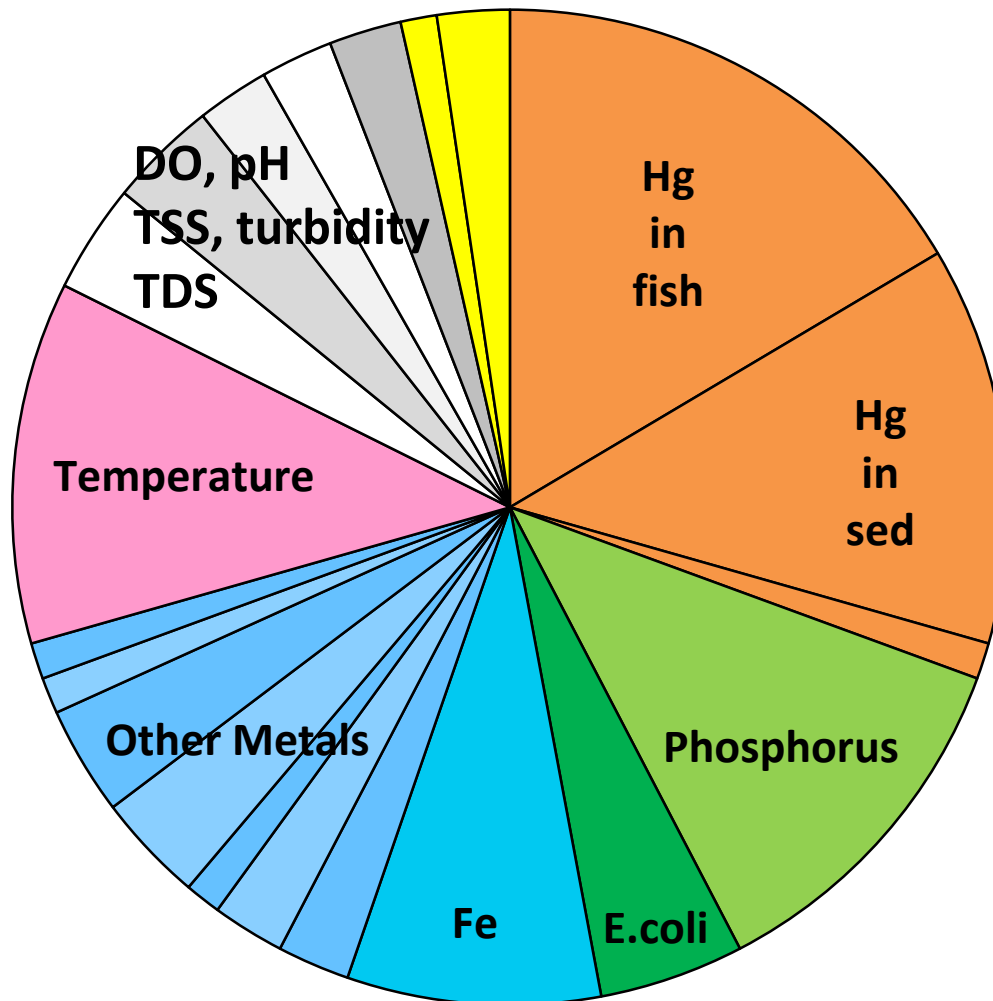
Mercury in fish tissue is the parameter that impairs more waterbodies than any other parameter in the Carson River Basin, followed by mercury in sediment

Basin	Waters “Overlisted” for Mercury in Fish Tissue, Fish Consumption
Snake - NV03	Jakes Creek Reservoir, Owyhee River, above Mill Creek, Owyhee River, South Fork, Wild Horse Reservoir
Humboldt - NV04	Barth Pit, Chimney Reservoir, Humboldt River at Imlay, Humboldt River at Palisade, Humboldt River at Woolsey, Humboldt River, South Fork at the Humboldt River, Little Humboldt River, North Fork at the national forest boundary, Rye Patch Reservoir, South Fork Reservoir
Truckee, NV06	Washoe Lakes
Carson - NV08 NV fish tissue = 1.0 mg/kg EPA fish tissue = 0.3 mg/kg	Carson River at Dayton Bridge, Carson River at Lahontan Reservoir, Carson River near New Empire, Carson River, Lower, Diagonal Drain, Harmon Reservoir, Indian Lakes, Lahontan Reservoir, Lower Carson River, Rattlesnake Reservoir, South Carson Lake, Stillwater Marsh east of Westside Road, Stillwater Marsh west of Westside Road, V-Line Canal, all lakes, reservoirs, and wetlands below Lahontan Dam, all stream/rivers below Lahontan Dam in Lahontan Valley
Walker - NV09	Bodie Creek, Rough Creek, Topaz Lake, Walker River, East Fork at Bridge B-1475
Central - NV10	Comins Reservoir, Overland Lake, Ruby Marsh, Warm Springs Pond
Colorado - NV13	Echo Canyon Reservoir, Nesbitt Lake

Impairments in the Carson River Basin

(by impairment parameter)

- Hg fish
- Hg water
- E. coli
- As
- Ag
- Mn
- B
- DO
- pH
- TSS
- SO4
- Hg sed
- TP
- Fe
- Cd
- Be
- Ni
- Temp
- Turbid
- TDS
- Alkalinity



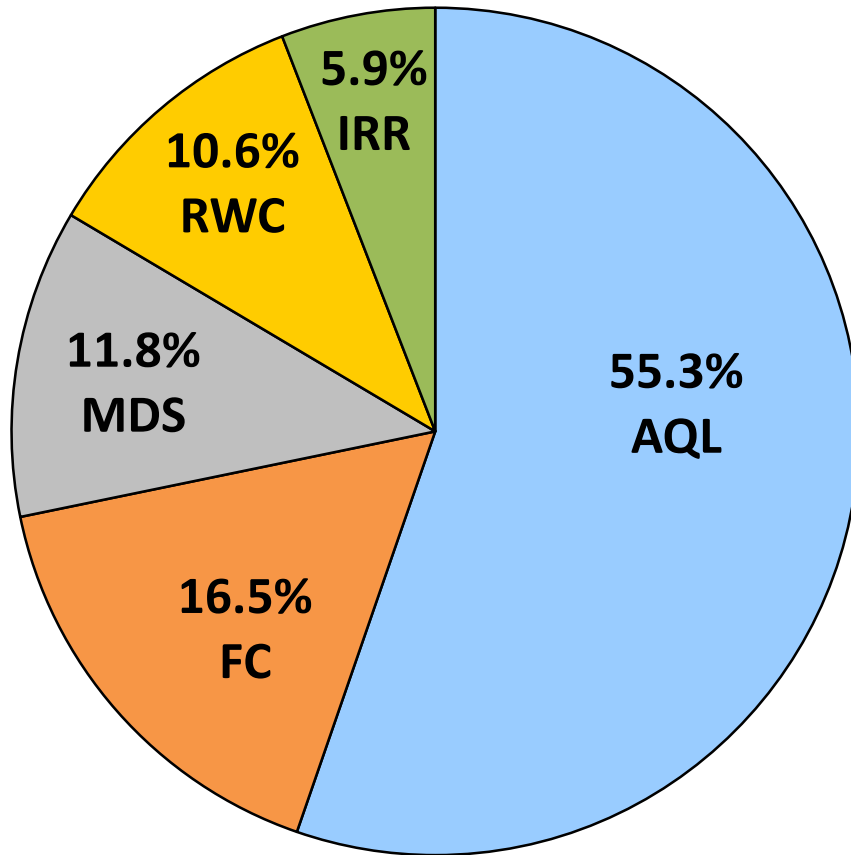
>30% Mercury
(legacy pollution)

~12% Phosphorus
~5% E. coli

~24% Metals
(>8% Fe)

~12% Temperature

Impairments in the Carson River Basin (by beneficial use impaired)



55.3% AQL (Hg_{sed} , temp, Fe, DO, TP, turbidity, metals, TSS, pH)

16.5% FC (Hg in fish)

11.8% MDS (metals, SO_4 , TDS)

10.6% RWC (TP, *E. coli*)

5.9% IRR (Mn, Fe, B)

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- **Watershed management plans**, BMPs, voluntary measures, and restoration (grant funding available)





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- 8 of these 22 “not meeting” in 2006, were meeting in 2016



Watershed Management Plans



Watershed Management Plans

- *2020-2024 Nonpoint Source State Management Plan* (draft)
- Carson Water Subconservancy District – implement the *Carson River Adaptive Stewardship Plan*
- Douglas County, Washoe County and NDOT - implement the Lake Tahoe TMDL
- Southern Nevada Water Authority and Las Vegas Wash Coordination Committee – implement the *Las Vegas Wash Comprehensive Adaptive Management Plan*
- Virgin River Coalition – implement *Virgin River Watershed Plan*

Watershed Management Plans

- Reno, Sparks, Washoe County, and other stakeholders – implement the *One Truckee River Management Plan*
- Conservation Districts (Carson Valley, Dayton Valley, Smith Valley and Mason Valley) – restore riparian habitats, stabilize riverbanks, educate the public







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Nevada 2016-2018

Water Quality Integrated Report

Assessment Period - October 1, 2009 through September 30, 2016

QUESTIONS?

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