



NEVADA DIVISION OF
**ENVIRONMENTAL
PROTECTION**



Nevada Department of
**CONSERVATION &
NATURAL RESOURCES**

Carson River Forum: Resources and Tools/ NPS Status and Outlook

Presented by

Bureau of Water Quality Planning

NDEP - “hour”

BWQP Introduction-Overview

Who we are and what we do SAM-BAM-NPS-TMDL

SAM:

- Integrated Report Summary
- WQ data access\Data availability
- Call for Data

NPS: Pertinent Tools/Resources:

NDEP: Webmap; Data viewer

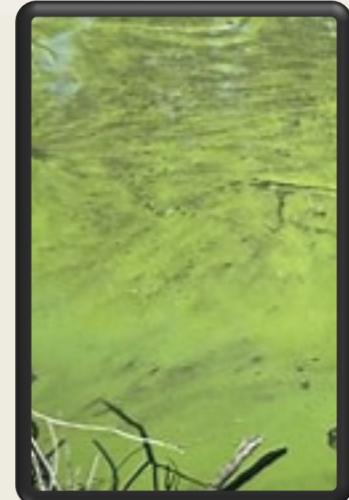
EPA: How's My Waterway; Model My Watershed

EnviroAtlas; PLET;

NPS: Nonpoint Source Program Outlook:

- Overall
- Carson Watershed
- *Current Projects*
- *CRASP evaluation and update*

Upper left photo; Anaconda Copper mine drainage; Upper Right Washoe Lake algal bloom
Lower left photo lighting fire Douglas County; lower right Carson River Flood



WHO WE ARE WHAT WE DO



14 employees

Main Functions



Standards, monitoring & assessment of surface waters across the State



Harmful Algal Bloom Task Force coordination



Restoration plan development for water quality impairments



Nonpoint source pollution mitigation & prevention



401 water quality certification

Water Quality Planning

Jason Kuchnicki, Bureau Chief | Angele Wetzel, Budget Analyst



>200

Surface Waters
Monitored/Year

\$800K

Distributed to Nonpoint Source
Pollution Control Projects/Year

60

Water Quality Certifications
Issued/Year

Recent Successes

- ✓ Established statewide antidegradation protection program to maintain and protect high quality surface waters
- ✓ Developed water quality restoration plan to address 33 bacteria impairments across the state
- ✓ Reduced >1250 lbs of nutrients and >65K lbs of sediment from entering Nevada's surface waters
- ✓ Crafted Harmful Algal Bloom Strategic Response Plan to protect public from exposure to algal toxins

Advisory Level	Visual Presence?	Cyanotoxin Concentration (µg/l)*			Recommended Action
		Microcystin	Cylindrospermopsin	Anatoxin-a	
None	<input type="checkbox"/>	< 4	< 8	< 1	None
HAB WATCH	<input checked="" type="checkbox"/>	4 to <8	8 to <15	1 to <20	Post signage, issue press release, post advisory on Nevada State Health Dept HAB Dashboard
HAB WARNING	<input checked="" type="checkbox"/>	8 to <2000	15 to <17	20 to <90	Above + restrict direct contact with water
HAB DANGER	<input checked="" type="checkbox"/>	> 2000	> 17	> 90	Above + close portions/entire waterbody

* If cyanotoxin concentrations occur within multiple advisory levels, the highest advisory level applies

NRS 445A.300 to 445A.730 | NAC 445A.070 to 445A.2234 | Budget Account: 3193 | 4 EPA Grants 1 DOE Grant

Challenges

- Climate change impacts affecting water quality
- Static federal grant levels despite rising costs & increased requirements

Opportunities

- Coordinate agency and public efforts to address high priority water quality issues
- Investing in water quality improvements to benefit underserved and disadvantaged communities

BUREAU OF WATER QUALITY PLANNING

SAM & BAM BRANCH ROLES AND RESPONSIBILITIES



Standards, Assessment, and Monitoring Branch (SAM)

- Conducts statewide surface water quality monitoring
- Establishes, reviews, and revises water quality standards
- Produces the Triennial Review and Integrated Report which includes the 303(d) list of impaired waters
- Develops Total Maximum Daily Loads (TMDLs)



Biological Assessment and Monitoring Branch (BAM)

- Branch was split from SAM in 2023 to dedicate resources
- Conducts biological assessments to determine the ecological integrity of rivers, streams, lakes, and wetlands throughout the State
- Manages the Harmful Algal Bloom (HAB) program

2024 INTEGRATED REPORT

What is the purpose of the Nevada Water Quality Integrated Report?

- To conduct a comprehensive analysis of water quality data associated with Nevada's surface waters.
- Prepared biennially under the Clean Water Act Sections 303(d), 305(b), and 314.
- Helps determine if State surface water quality standards are being met and whether designated uses are being supported.
- Used for water quality management planning purposes by public and private entities.
- 2024 Draft report will be available for public review mid 2025



PRELIMINARY RESULTS: 2024 INTEGRATED REPORT

CARSON RIVER WATERSHED SUMMARY

NV08 - Carson River Region



Total assessment units: 50

- **Rivers and streams:** 334 miles
- **Lakes, reservoirs, and wetlands:** 46,880 acres

• Impaired assessment units: 64% (32 units)

• Top impairment causes:

- Mercury in fish tissue: 16 units
- Mercury in sediment: 13 units
- Temperature: 12 units
- Iron: 11 units

• Most frequently impaired beneficial uses:

- Aquatic Life (AQL): 56% (28 units)
- Fish consumption (FC): 26% (16 units)

PRELIMINARY RESULTS: 2024 INTEGRATED REPORT

CARSON RIVER WATERSHED SUMMARY

Changes in listings IR from 2022 to 2024

New listings in the Carson Region

- Clear Creek at the Carson River NV08-CR-18-B_00
 - Iron 96-hour for Aquatic Life



Delistings in the Carson Region

- Ash Canyon NV08-CR-20-A_00
 - Aquatic Life:
 - Cadmium 1-hour
 - Cadmium 96-hour
 - Silver 1-hour



UPCOMING STANDARDS ACTIONS RELATED TO CARSON RIVER

ALGAL TOXINS R149-24

Proposes numeric criteria for cylindrospermopsin and microcystins (algal toxins) protecting the recreation involving contact with the water beneficial use.

The proposed numeric criteria are for Integrated Reporting and differ from recreational advisory action levels

BACTERIA TMDL

NDEP is currently developing a statewide bacteria TMDL for 33 waters identified as impaired on the *Nevada 2022 Surface Water Quality Integrated Report*.

Carson River Watershed Bacteria Impaired Waters

- Carson River West Fork at Muller Lane
- Carson River at Mexican Ditch Gage
- Brockliss Slough

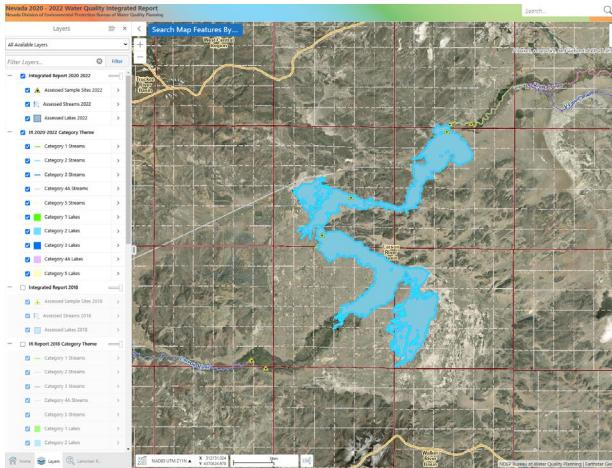
How CAN YOU HELP?

CALL FOR DATA



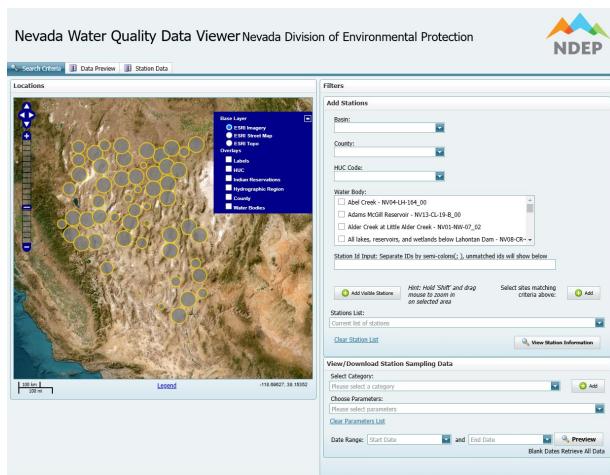
- Electronic surface water quality data
 - Physical, chemical or biological
 - Other information on water quality
- Data between
 - Oct 1, 2019 – Sept 30, 2024
- Collected based on scientific principles
- Preferably in CSV format
- When in doubt, reach out

BWQP DATA AVAILABILITY



Integrated Report Web Map

- Visual representation of assessment results
- View information on historic assessments (selectable layers)
- <https://webgis.ndep.nv.gov/index.htm>



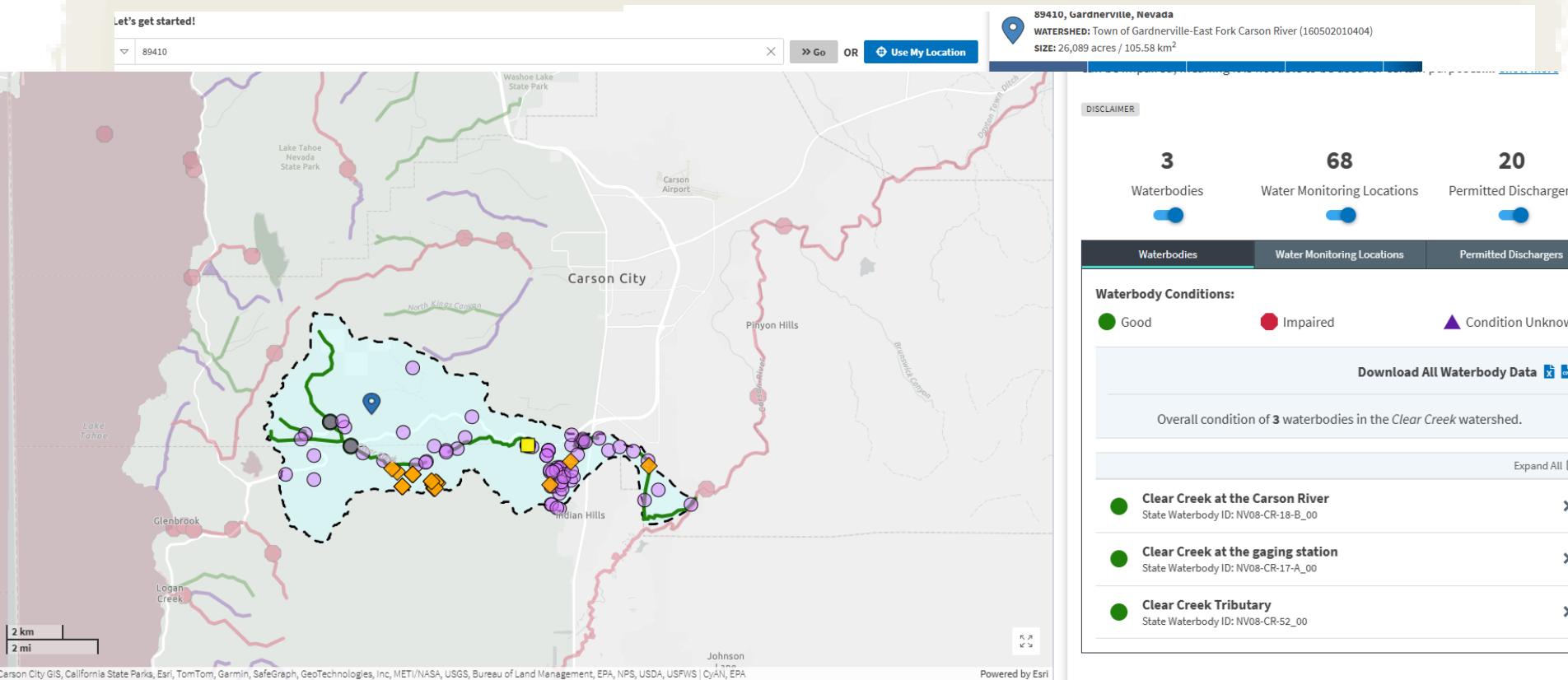
Water Quality Data Warehouse Viewer

- For downloading NDEP WQ data
- <https://nevadawaterquality.ndep.nv.gov>

RESOURCES / TOOLS

How's My Waterway

<https://www.epa.gov/waterdata/hows-my-waterway>



Discover.

Connect.

Ask.

Douglas County, NV - GIS Dept, California State Parks, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS | CyAN, EPA

Powered by Esri

Pine Nut Creek
State Waterbody ID: NV08-CR-60_00

RESOURCES / TOOLS

Model My Watershed

<https://modelmywatershed.org/>

1. Select watershed

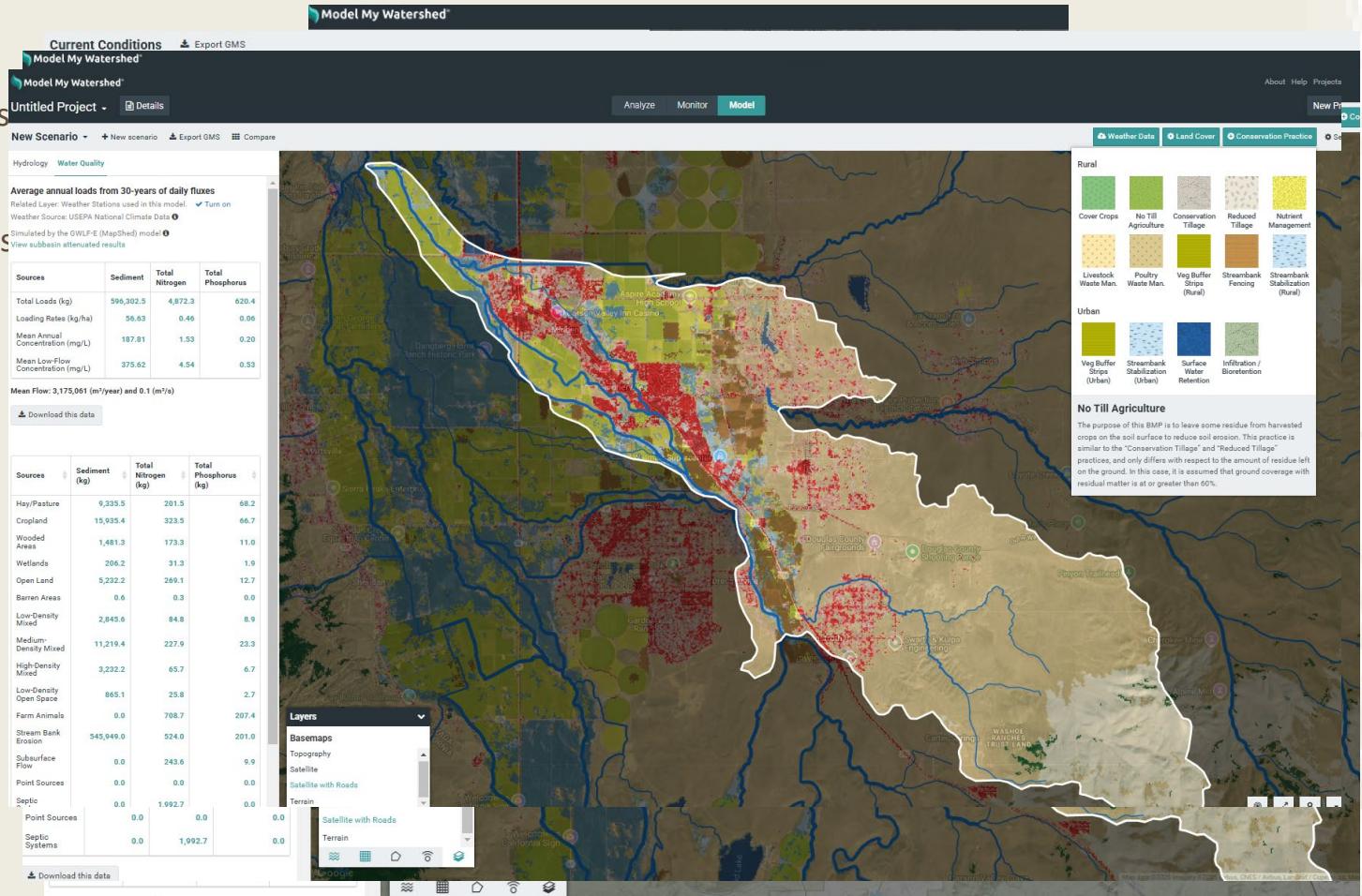
- Gives some summary stats

2. Option to Model

3. Water Quality Tabs
yields loading estimates
by sources

4. Some Options- Layer viewing

5. Can simulate changes in
Conservation Practices-



RESOURCES / TOOLS (CONTINUED)

Nonpoint Source (NPS) Projects Data Explorer

- Allows finding projects reported through the GRTS of EPA

Nonpoint Source Project Summary

This report was generated from the Environmental Protection Agency's Grants Reporting and Tracking System

[◀ Click here to return to the GRTS Homepage](#) [Click here to print this page](#) [\[X\]Close this window.](#)

Project Information

Grant #:	97908107	Region:	09	State:	NV	Appropriation Year:	2006	Project #:	08
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General Information

Project Title: Mid Carson River Stream Rest and Rehab

State Project Number: DEP 09-017

Subgrantee(s): This Project Does Not Have a Subgrantee

Description:

Includes:
(1) Project Overview
(2) Objectives
(3) Methods

Overview
The project proposes to improve river conditions by stabilizing river banks with bioengineered structures, and to improve floodplain function by implementing invasive plant management and by revegetation with native species.

Objectives

This Project Will / Did Result in Pollutant Load Reductions: Y N

Project Manager: Richard Wilkinson Phone:

State Project Manager: Jeanmarie Stone Phone:

Status of TMDL for Waterbody/Watershed: Implementing a TMDL

RESOURCES / TOOLS (CONTINUED)

POLLUTANT LOAD ESTIMATION TOOL

Pollutant Load Estimation Tool (PLET)

The [Pollutant Load Estimation Tool \(PLET\)](#) is a planning level web-based model used to estimate long-term nutrient and sediment loads from different land uses and the load reductions resulting from the implementation of best management practices.

On this page:

- [What is PLET?](#)
- [Model Documentation](#)
- [Training Materials](#)
- [Questions and Answers about the PLET model](#)

What is PLET?

PLET provides a user-friendly web interface to create a customized model at the watershed, field, or site scale. For the HUC 12 watershed scale data inputs are auto populated by the [input data server](#).

PLET considers urban, cropland, pastureland, feedlot, forest and user defined land uses. The nonpoint sources include cropland, pastureland, farm animals, feedlots, urban runoff, and failing septic systems. In addition to estimating annual load reductions as a result of BMP implementation, PLET estimates nutrient and sediment loads prevented as a result of forested land protection.

PLET employs simple algorithms to compute surface runoff, nutrient loads and sediment delivery based on various land uses and best management practices. The annual nutrient loading is calculated based on the runoff volume and the pollutant concentrations in surface runoff as influenced by factors such as the land use distribution and management practices. The annual sediment load from sheet and rill erosion is calculated based on the Revised Universal Soil Loss Equation Version 2 (RUSLE2) methodology and the sediment delivery ratio.

Input Data Server for PLET: The input data server provides initial model input data that can be used as a starting point in populating the PLET model. It provides information on land use acreages, agricultural animals, septic systems, and hydrological soil groups at the HUC12 scale. These data can be downloaded for use in other applications, or the data can be applied automatically to a PLET model as it is developed.

Questions or Comments?

- [Contact email-based Help Desk for PLET Model support.](#)

Related Information

- [Nutrient and Sediment Estimation Tools for Watershed Protection \(PDF\)](#) (Last updated: 03/15/2018)
- [Grants Reporting and Tracking System \(GRTS\) for CWA Section 319](#)

- Create an account
- Create project
- Identify watershed



Model Documentation

Access [PLET!](#)

<https://www.epa.gov/nps/plet>

PLET INTERFACE - WATERSHED INPUTS

Pollutant Load Estimation Tool

Title: Practice Run Demo 20240129 | State: Nevada | Primary Watershed: 160502010505 (Eagle Valley-Carson River) | County: CARSON CITY | Weather Station: CARSON CITY

Buttons: Share Model, Copy Model, Delete Model, Download Input Data Server Data, Exit, Verify Location

Correction Factors: Rainfall Correction Factor: 0.7752, Raindays Correction Factor: 0.3365

Tool Buttons: Add / Edit Watersheds, Gullies and Streambanks, Urban BMP Tool, Manure Application

Inputs	BMPs	Total Loads	Additional Reference Tables																																																										
<p>Mandatory Inputs <small>NOTE: Required fields are highlighted in red</small></p> <p>1. Watershed Land Use Area (ac) and Precipitation (in)</p> <p>Double-click on the "HSG" field to select a Hydrologic Soil Group category [NOTE: hover over the "HSG" column header for more information].</p> <table border="1"> <thead> <tr> <th>Watershed</th> <th>HSG</th> <th>Urban</th> <th>Cropland</th> <th>Pastureland</th> <th>Forest</th> <th>User Defined</th> <th>Feedlots</th> <th>Total</th> <th>Feedlots Percent Paved</th> <th>Annual Rainfall</th> </tr> </thead> <tbody> <tr> <td>160502010505 - Eagle Valley-Carson River</td> <td>C</td> <td>10979.18</td> <td>22.68</td> <td>3708.43</td> <td>24931.75</td> <td>0.00</td> <td>0.04</td> <td>39642.0788</td> <td>0-24%</td> <td>10.69</td> </tr> </tbody> </table> <p>2. Agricultural Animals (Animal Count)</p> <table border="1"> <thead> <tr> <th>Watershed</th> <th>Beef Cattle</th> <th>Young Beef</th> <th>Dairy Cattle</th> <th>Young Dairy Stock</th> <th>Swine (Hog)</th> <th>Feeder Pig</th> <th>Sheep</th> <th>Horse</th> <th>Chicken</th> <th>Turkey</th> <th>Duck</th> <th># Of Manure Acres to Cropland</th> </tr> </thead> <tbody> <tr> <td>160502010505 - Eagle Valley-Carson River</td> <td>62.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>3.00</td> <td>6.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> </tr> </tbody> </table> <p>3. Septic and Illegal Wastewater Discharge</p> <table border="1"> <thead> <tr> <th>Watershed</th> <th>Number Of Septic Systems</th> <th>Population Per Septic System</th> <th>Septic Failure Rate, %</th> <th>Waste Water Direct Discharge, # Of People</th> </tr> </thead> <tbody> <tr> <td>160502010505 - Eagle Valley-Carson River</td> <td>1896.00</td> <td>2.00</td> <td>0.27</td> <td>0.00</td> </tr> </tbody> </table>				Watershed	HSG	Urban	Cropland	Pastureland	Forest	User Defined	Feedlots	Total	Feedlots Percent Paved	Annual Rainfall	160502010505 - Eagle Valley-Carson River	C	10979.18	22.68	3708.43	24931.75	0.00	0.04	39642.0788	0-24%	10.69	Watershed	Beef Cattle	Young Beef	Dairy Cattle	Young Dairy Stock	Swine (Hog)	Feeder Pig	Sheep	Horse	Chicken	Turkey	Duck	# Of Manure Acres to Cropland	160502010505 - Eagle Valley-Carson River	62.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	6.00	0.00	0.00	0.00	Watershed	Number Of Septic Systems	Population Per Septic System	Septic Failure Rate, %	Waste Water Direct Discharge, # Of People	160502010505 - Eagle Valley-Carson River	1896.00	2.00	0.27	0.00
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SELECT OR CREATE BEST MANAGEMENT PRACTICES (BMPs)

Share Model Copy Model Delete Model Download Input Data Server Data Exit

Add / Edit Watersheds Protected Lands Gullies and Streambanks Urban BMP Tool Manure Application BMP Calculator

Inputs BMPs Total Loads Additional Reference Tables

BMPs and Efficiencies Create a User Defined BMP Delete BMP Add BMP

Once you have added a BMP record, double-click on the empty "BMPs" field to select a Best Management Practice that will be applied.

Watershed	BMPs	N	P	BOD	Sediment	% Area BMP Applied	Landuse
150100050804 - Gold Butte Wash	Forest Buffer (minimum 35 feet wide)	.045	.04	ND	.053	10	Pastureland
150100050804 - Gold Butte Wash	Ag BMP Combo 1	.090619	.13352375	0	.15669025	25	Cropland

Configuration Name ?

Node name

BMP Type

Area (acres)

N Eff.

P Eff.

BOD Eff.

Sediment Eff.

Save Node Changes

Node Connections

Select a Connection ▼

Delete Node Connection

Load a Configuration

Config select

OUTPUTS

Pollutant Load Estimation Tool

Loads Calculated

Groundwater load calculation

Treat all subwatersheds as part of a single watershed

1. Total load by subwatershed(s)

Watershed	N Load (No BMP) (lbs/year)	P Load (No BMP) (lbs/year)	BOD Load (No BMP) (lbs/year)	Sediment Load (No BMP) (tons/year)	N Reduction (lbs/year)	P Reduction (lbs/year)	BOD Reduction (lbs/year)	Sediment Reduction (tons/year)	N Load (With BMP) (lbs/year)	P Load (With BMP) (lbs/year)	BOD Load (With BMP) (lbs/year)	Sediment Load (With BMP) (tons/year)	% N Reduction	% P Reduction	% BOD Reduction	% Sediment Reduction
160502010505 - Eagle Valley- Carson River	729.68	281.80	1732.25	210.81	24.61	9.47	49.21	7.69	705.07	272.33	1683.03	203.12	3.37	3.36	2.84	3.65
TOTAL	729.68	281.80	1732.25	210.81	24.61	9.47	49.21	7.69	705.07	272.33	1683.03	203.12	3.37	3.36	2.84	3.65

2. Total load by land uses (with BMP)

Sources	N Load (lb/yr)	P Load (lb/yr)	BOD Load (lb/yr)	Sediment Load (ton/yr)
Urban	0.00	0.00	0.00	0.00
Cropland	9.40	3.62	18.79	2.94
Pastureland	334.79	128.89	669.58	104.62
Forest	173.80	66.91	347.60	54.31
Feedlots	0.00	0.00	0.00	0.00
User Defined	0.00	0.00	0.00	0.00
Seplic	130.99	51.30	534.86	0.00
Gully	0.00	0.00	0.00	0.00
Streambank	56.10	21.60	112.20	41.25

Pollutant load and load reduction estimates

- Nitrogen
- Phosphorus
- Sediment

RESOURCES / TOOLS (CONTINUED)

ENVIROATLAS

The figure is a screenshot of the EnviroAtlas Interactive Map, a web-based tool for environmental data. The map displays a detailed view of the Carson City area in Nevada, showing a mix of urban and rural landscapes. Overlaid on the map are numerous green and blue shaded areas representing different wetland and water body types. A sidebar on the left lists various environmental datasets, and a layer list on the right provides a detailed breakdown of the wetland types and their codes.

EnviroAtlas Interactive Map

Search EPA.gov

Find address or place

Save Help Data Download Contact Us

EnviroAtlas Data

Selected Community: Carson City
Combined Communities

Search All Layers

537 of 537 Maps Expand Hide Icons

Population & Annual Change 1000+ Residential Areas

Total Percent

Potential Wetland Area

Potentially Restorable Wetlands on Agricultural Land

Wetlands (National Wetlands Inventory)

Harmful Algal Blooms

Impaired Waters

National Air Toxics Assessment

Pollutants: Nutrients

Pollutants: Other

Sites Reporting to EPA

Commuting and Walkability

Employment

Housing and Schools

Population Distribution

Quality of Life

Vacancy

Ecological Boundaries

Hydrologic Features

Hydrologic Unit Code (HUC) Boundaries and labels

NHDPlus V2 features

Waterscape

Surface water Riparian Zone

Hydrologically connected zone

Political Boundaries

Find address or place

Save Help Data Download Contact Us

Layer List

Layers

- NHDPlus V2 features
- Hydrologic Unit Code (HUC) Boundaries and labels
- Wetlands (National Wetlands Inventory)
- Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine
- Wetlands_Project_Metadata
- Estimated floodplains

Wetlands - NWI_wetland_codes

POWERED BY **esr**

<https://www.epa.gov/enviroatlas/enviroatlas-interactive-map>

NPS OUTLOOK, CHALLENGES/OPPORTUNITIES

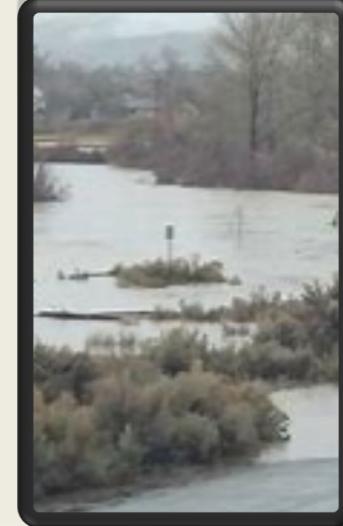
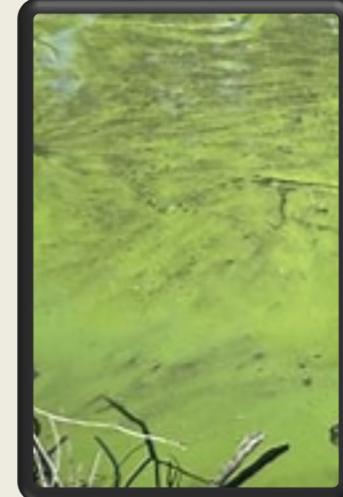
Equitable distribution of resources based on established criteria and plans (e.g. Load Reduction Potential and Potential to help communities across the state)

Diverse Projects Across the State:

- Land use changes
- Regenerative Ag
- LID installations
- Erosion controls
- Bioengineered solutions
- NRCS practices that work in Nevada
- Post fire mitigation
- Noxious weeds to established Vegetation
- Abandoned Mine Drainage (AMD) mitigation

Carson-Specific Outlook

- Regenerative agriculture projects
- Continued streambank work
- CRASP update



Upper left photo; Anaconda Copper mine drainage; Upper Right Washoe Lake algal bloom
Lower left photo lighting fire Douglas County; lower right Carson River Flood

NPS OUTLOOK, CHALLENGES/OPPORTUNITIES

New GFO (Coming Soon!)

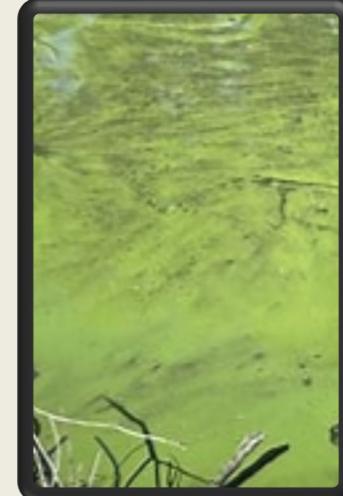
- incorporating guidance on timelines for field work w/ permitting, QAPPS, etc...

Clean Water Act Section 401 Certification

- Water Quality Certification Improvement Rule published in 2023 (40 CFR 121)
- Latest guidance, application, and additional resources available on NDEP webpage

State Management Plan Update

- Protection and Prioritization work
- Incorporation of Traditional Ecological Knowledge (TEK)
- Abandoned Mines
- Springs and Wetlands
- Education within Context of Implementation Projects
- Post Fire Recovery
- HABS

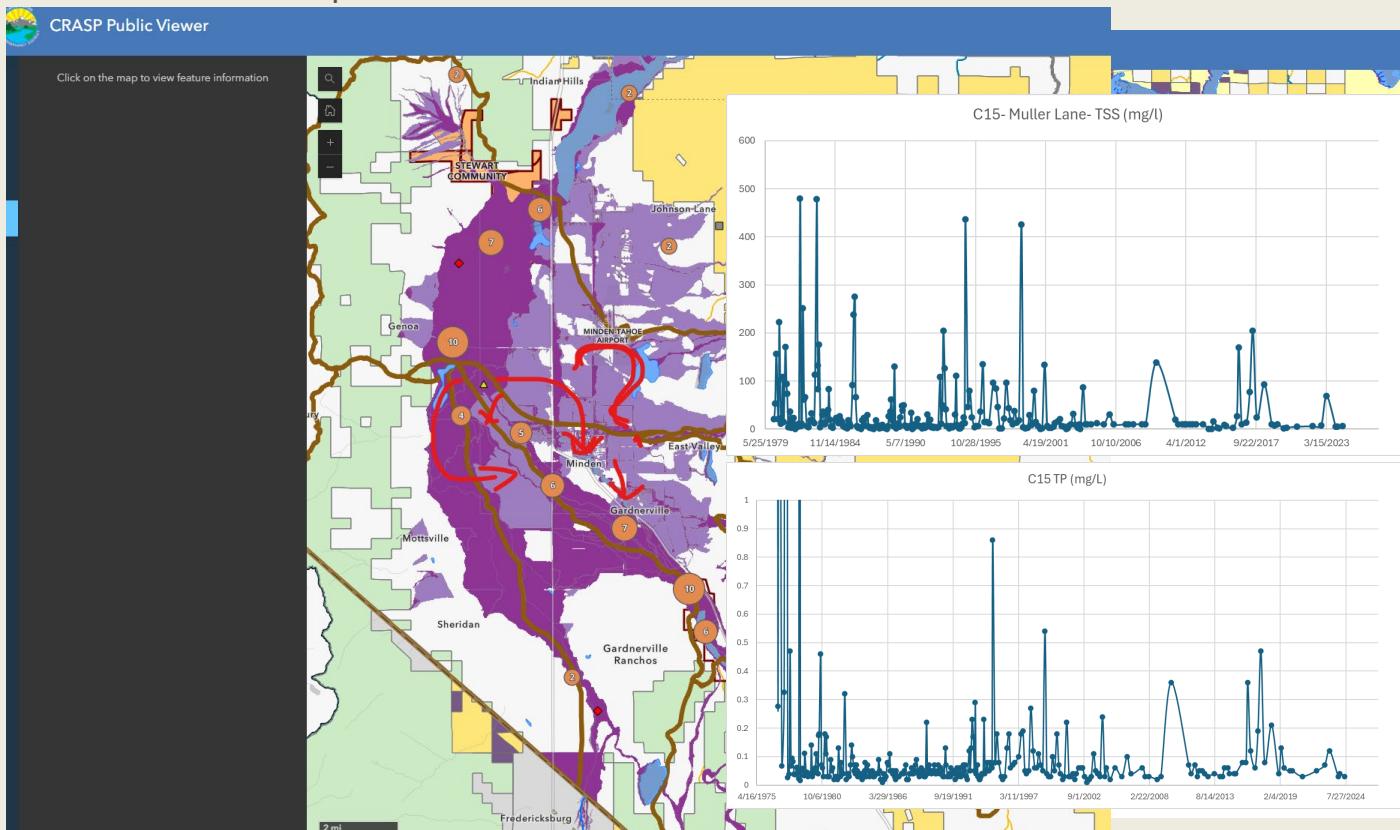


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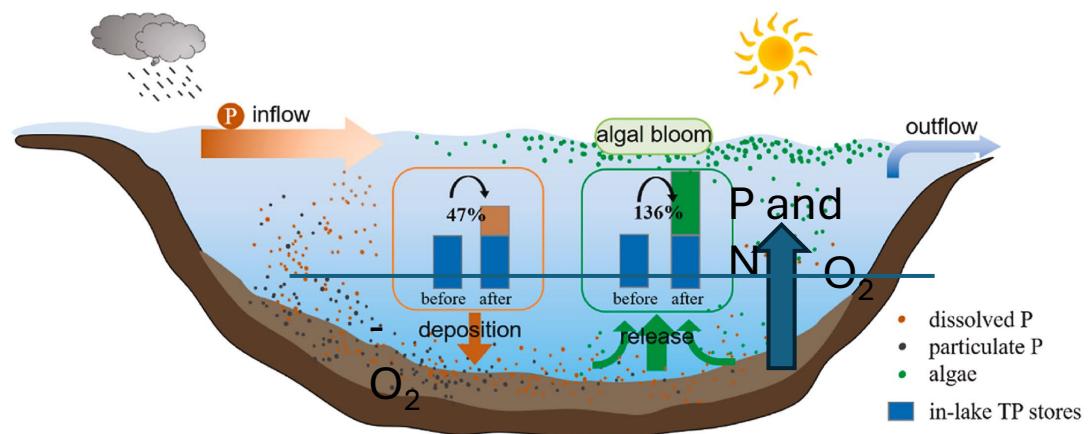
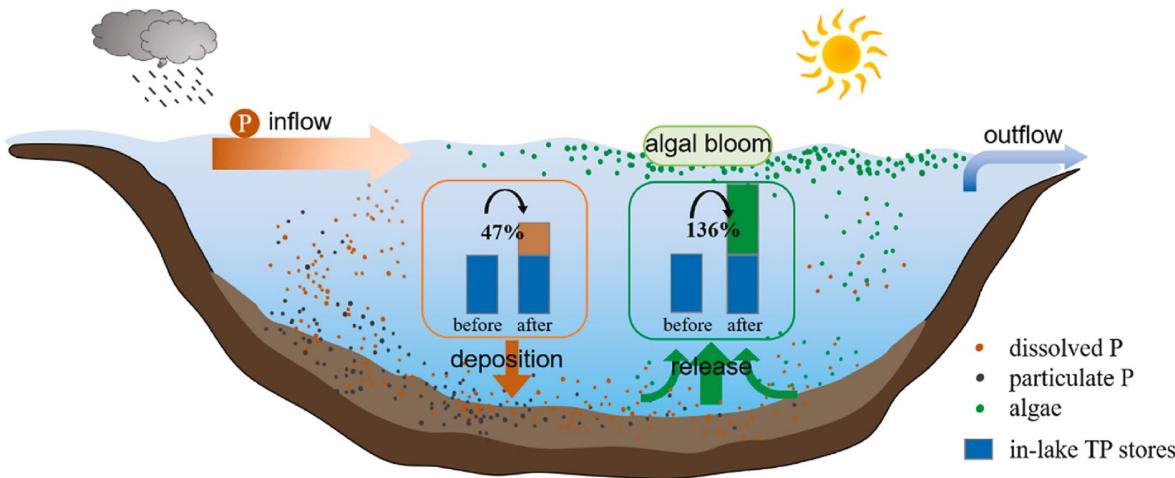
NPS OPPORTUNITIES/OUTLOOK (CONTINUED)

Specific Considerations- Carson Watershed

- CRASP Evaluation and Update



A BRIEF NOTE ON HABS



After Kang et al 2023 Env. Res v231(3)

SUMMARY

Resources and Tools

- Integrated Report Web Map
- Water Quality Data Warehouse Viewer
- How's My Waterway
- Model My Watershed
- NPS Tracker
- EnviroAtlas
- PLET
- and more...

Outlook

- Diversification of Projects - types and locations (requires investment in development of WBPs- underway)
- State Management Plan update
- CRASP evaluation and update



PUBLIC NOTICE SIGNUP



NEVADA DIVISION OF
**ENVIRONMENTAL
PROTECTION**

NEWS & PUBLIC NOTICES PERMITS & RESOURCES NDEP CAREERS CONTACT US DCNR

Land Water Air Environmental Cleanup Recycle About



Start Your Search

▲ A A ▼

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Jennife

✉ MARCH

The Nevada
(NDCNR
appointed
Administrator

[READ MORE](#)

[View A](#)

beginning February 28, 2025, and a public hearing on April 4, 2025, if
requested.

Select a Department Below to Receive News & Updates

Office of Financial Assistance

Partners for a Sustainable Nevada

Chemical Accident Prevention Program

Nonpoint Source Pollution Management Program

Climate Pollution Reduction Grant

401 Certification

Clean Trucks and Buses Incentive Program

Nevada Harmful Algal Bloom Updates



Sign up for one or multiple NDEP newsletters to stay up-to-date

[GET NOTICES](#) ▶

NAVIGATE

CONTACT US

PARTNER AGENCIES

LEGAL



Questions?



Presenter Contacts

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Zack Carter

Phone: (775) 687-9456

Email: zcarter@ndep.nv.gov

Following Slides are for potential discussion-
if need arises

