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”

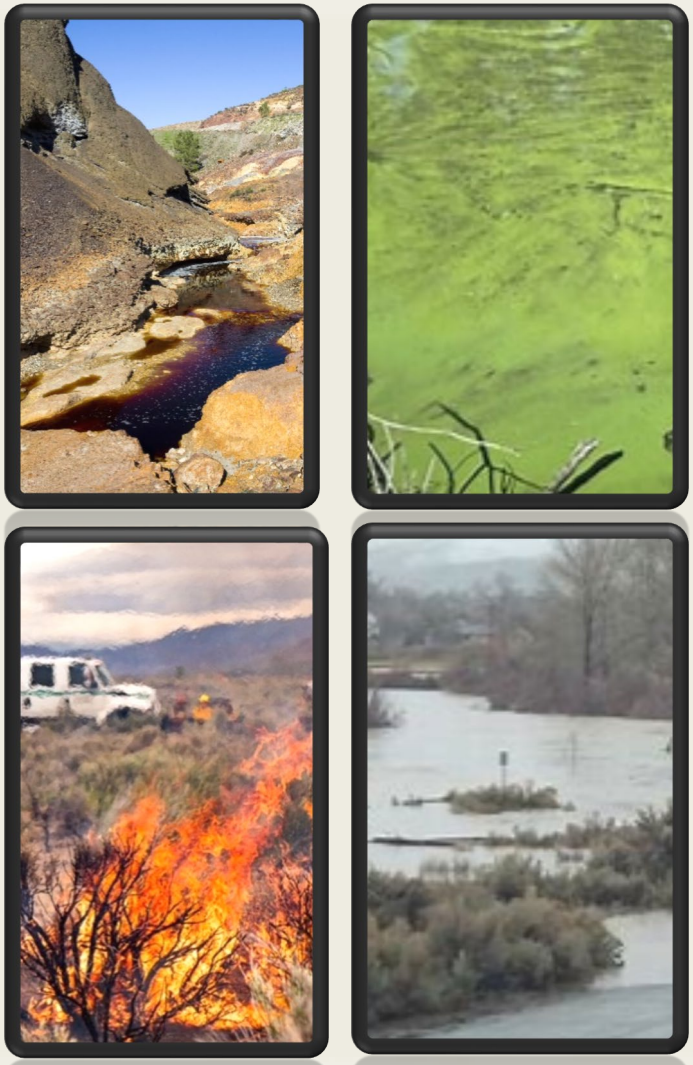
BWQP Introduction-Overview
Who we are and what we do SAM-BAM-NPS-TMDL

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

NDEP

Water Quality Planning

Jason Kuchnicki, *Bureau Chief* | Angele Wetzel, *Budget Analyst*

Nevada Department of CONSERVATION & NATURAL RESOURCES

We protect and improve the quality of Nevada's surface water bodies.

>200
Surface Waters Monitored/Year

$800K
Distributed to Nonpoint Source Pollution Control Projects/Year

60
Water Quality Certifications Issued/Year

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

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

NEVADA HARMFUL ALGAL BLOOM (HAB) ADVISORY LEVEL DETERMINATION

Advisory Level	Visual Presence?	Cyanotoxin Concentration (µg/l)*			Recommended Action
		Microcystin	Cylindrospermopsin	Anatoxin-a	
None	☐	< 4	< 8	< 1	None
HAB WATCH	☑	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	☑	8 to <2000	15 to <17	20 to <90	Above + restrict direct contact with water
HAB DANGER	☑	> 2000	> 17	> 90	Above + close portions/entire waterbody

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

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

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

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

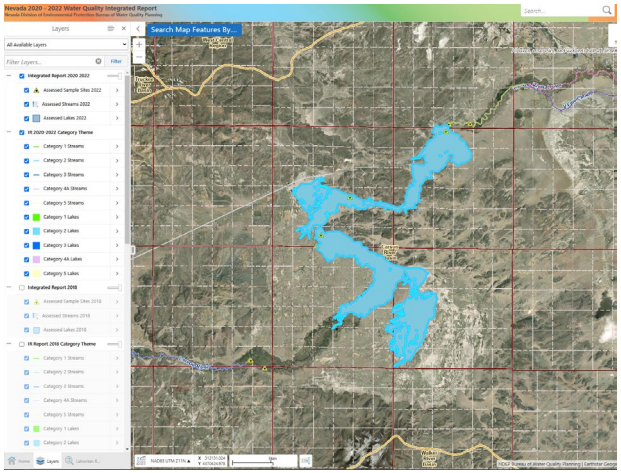
- Carson River West Fork at Muller Lane
- Carson River at Mexican Ditch Gage
- Brockliss Slough

How Can you Help?

Call for Data

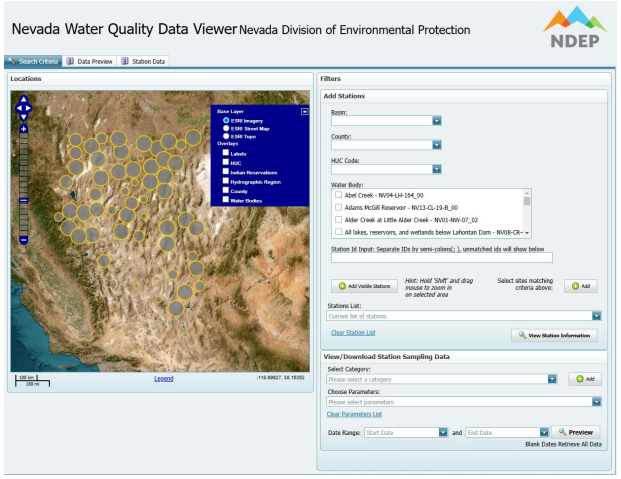
- Electronic surface water quality data
  - Physical, chemical or biological
  - Other information on water quality
- Data between
  - Oct 1, 2019 – Sept 30, 2024
- Collected based on scientific principles
- Preferably in CSV format
- When in doubt, reach out

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**

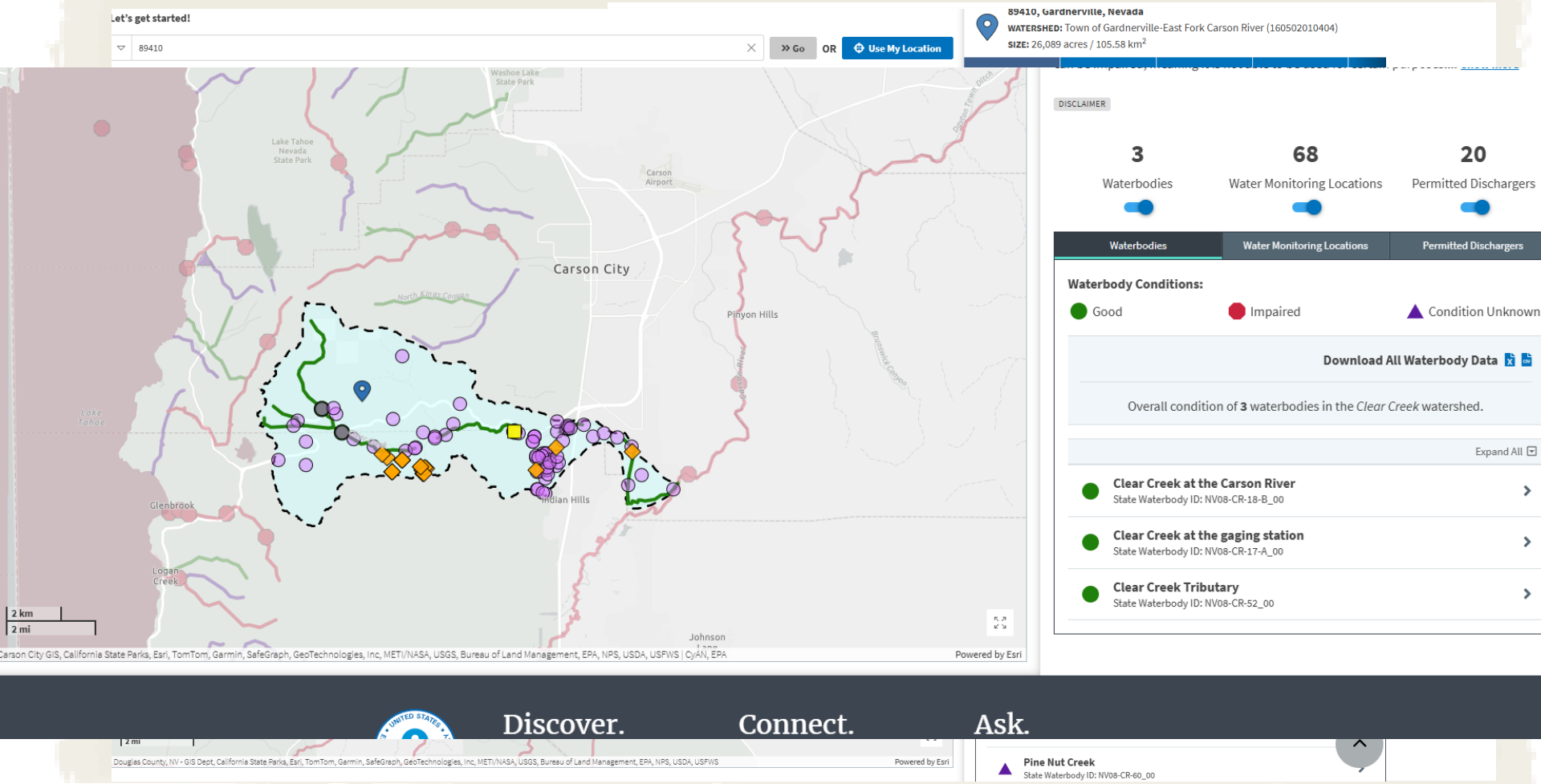


Water Quality Data Warehouse Viewer

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

Resources / Tools

How's My Waterway
https://www.epa.gov/waterdata/hows-my-waterway

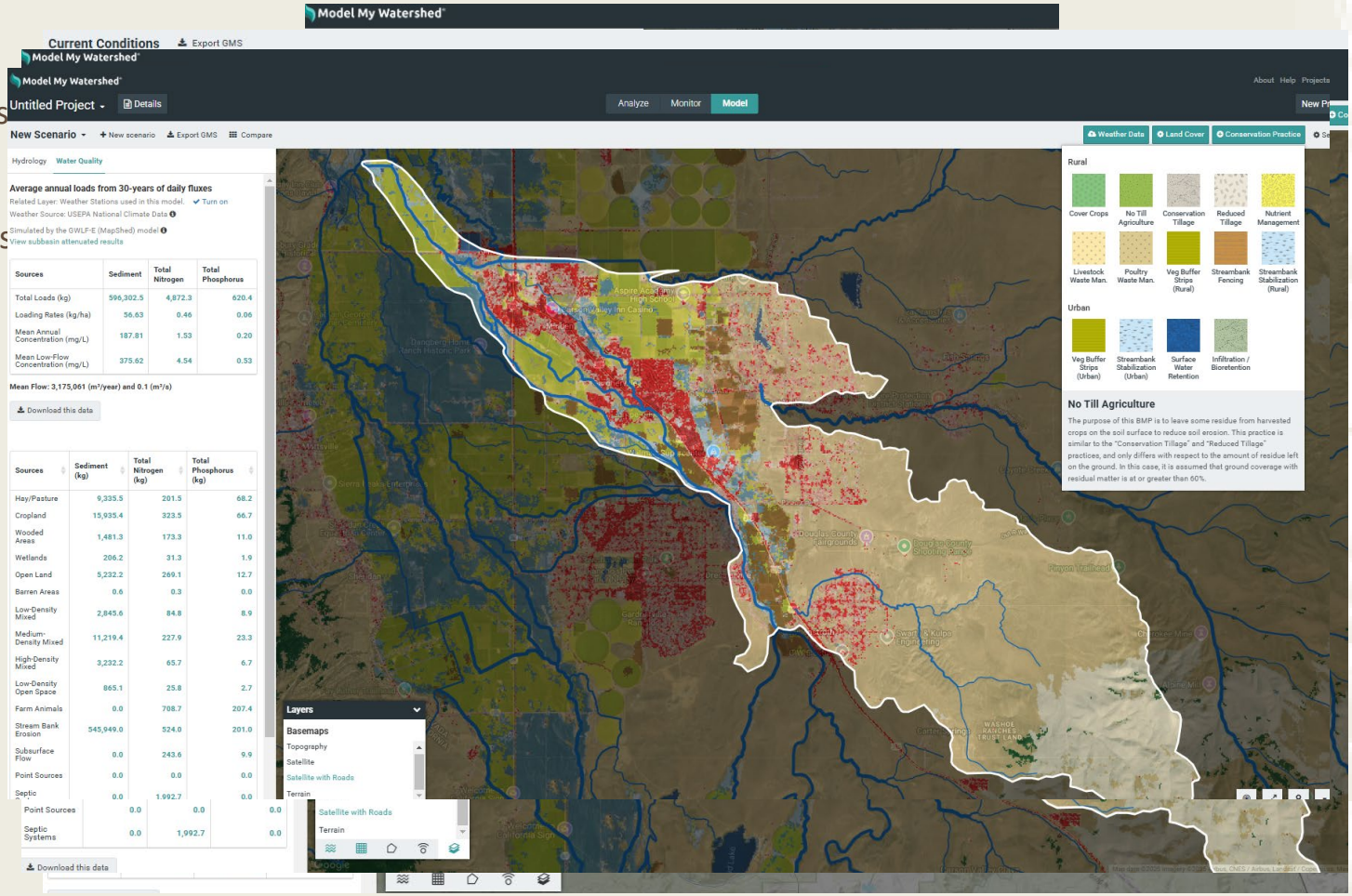


Discover. Connect. Ask.

RESOURCES / TOOLS

Model My Watershed
https://modelmywatershed.org/

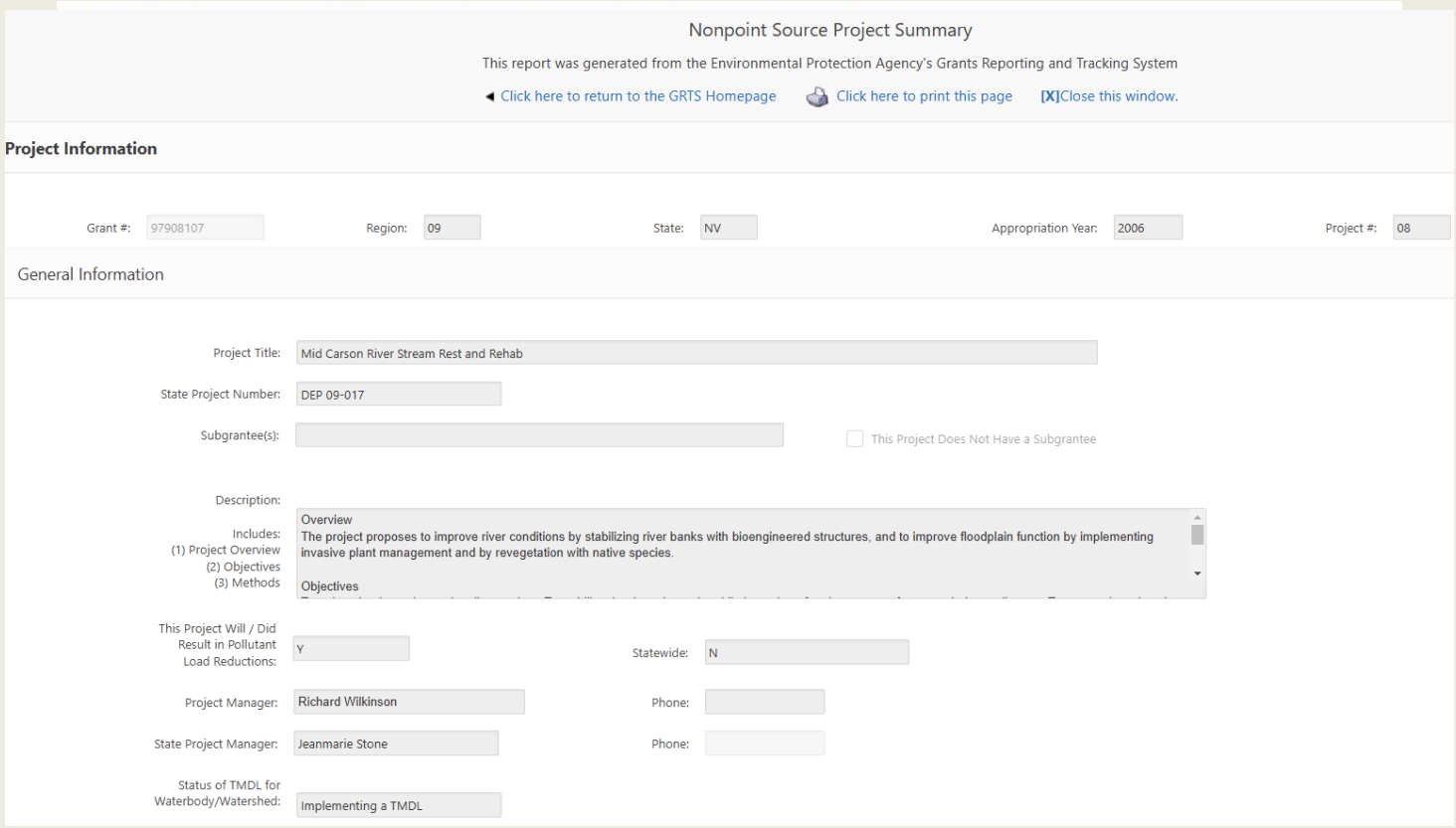
1. Select watershed
- Gives some summary stats
2. Option to Model
3. Water Quality Tabs yields loading estimates by sources
4. Some Options- Layer viewing
5. Can simulate changes in Conservation Practices-



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

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 Statewide: 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

- Create an account
- Create project
- Identify watershed

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

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

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.

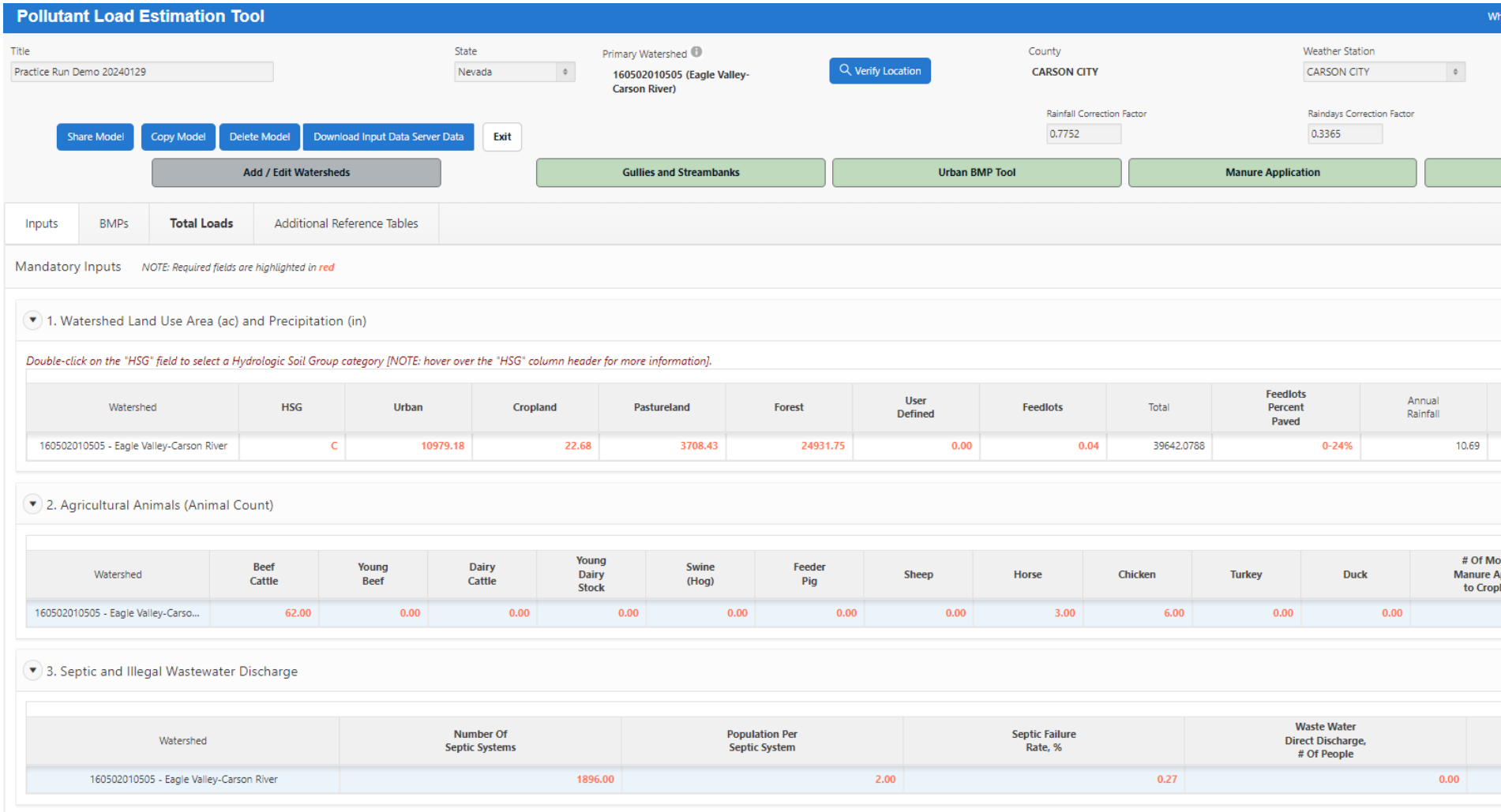
Input Data Server for PLET: The input data server provides initial model input data that can be used as a starting point in populating the PLET model. It provides information on land use acreages, agricultural animals, septic systems, and hydrological soil groups at the HUC12 scale. These data can be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

Model Documentation

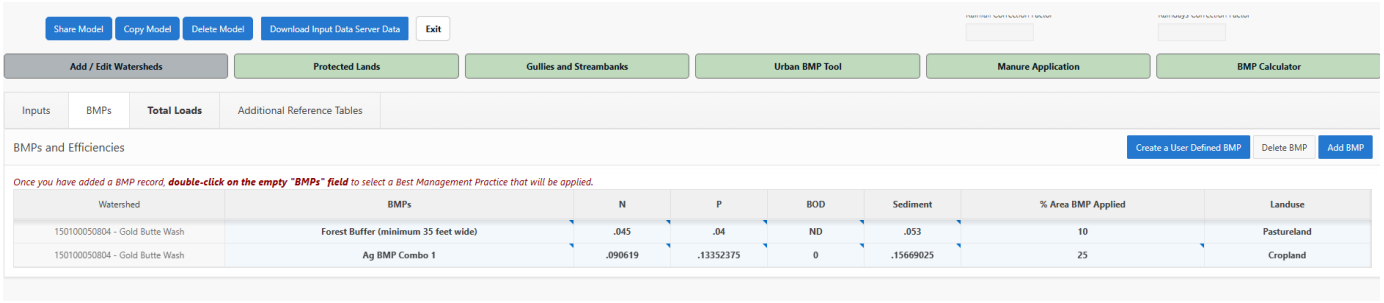
Access PLET!

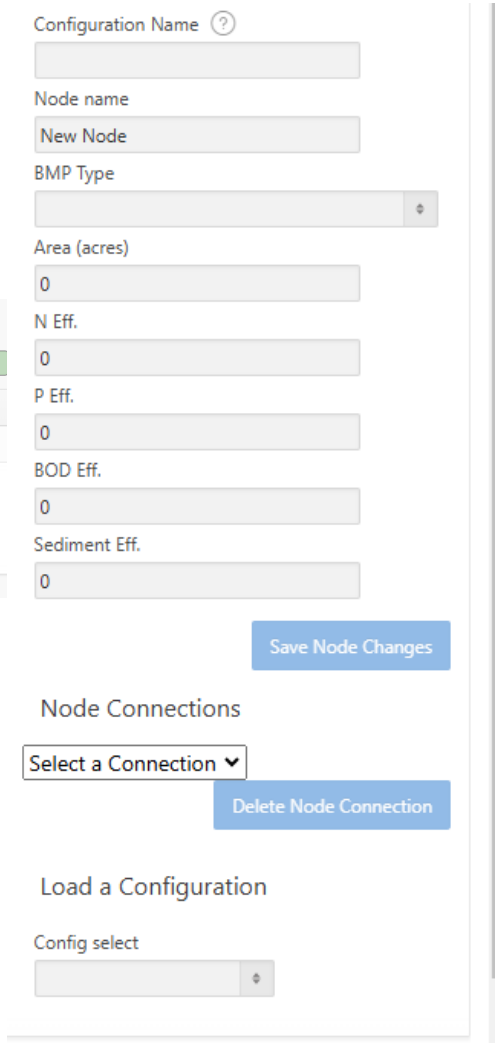
https://www.epa.gov/nps/plet

PLET Interface - Watershed Inputs



Select or Create Best Management Practices (BMPs)





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)

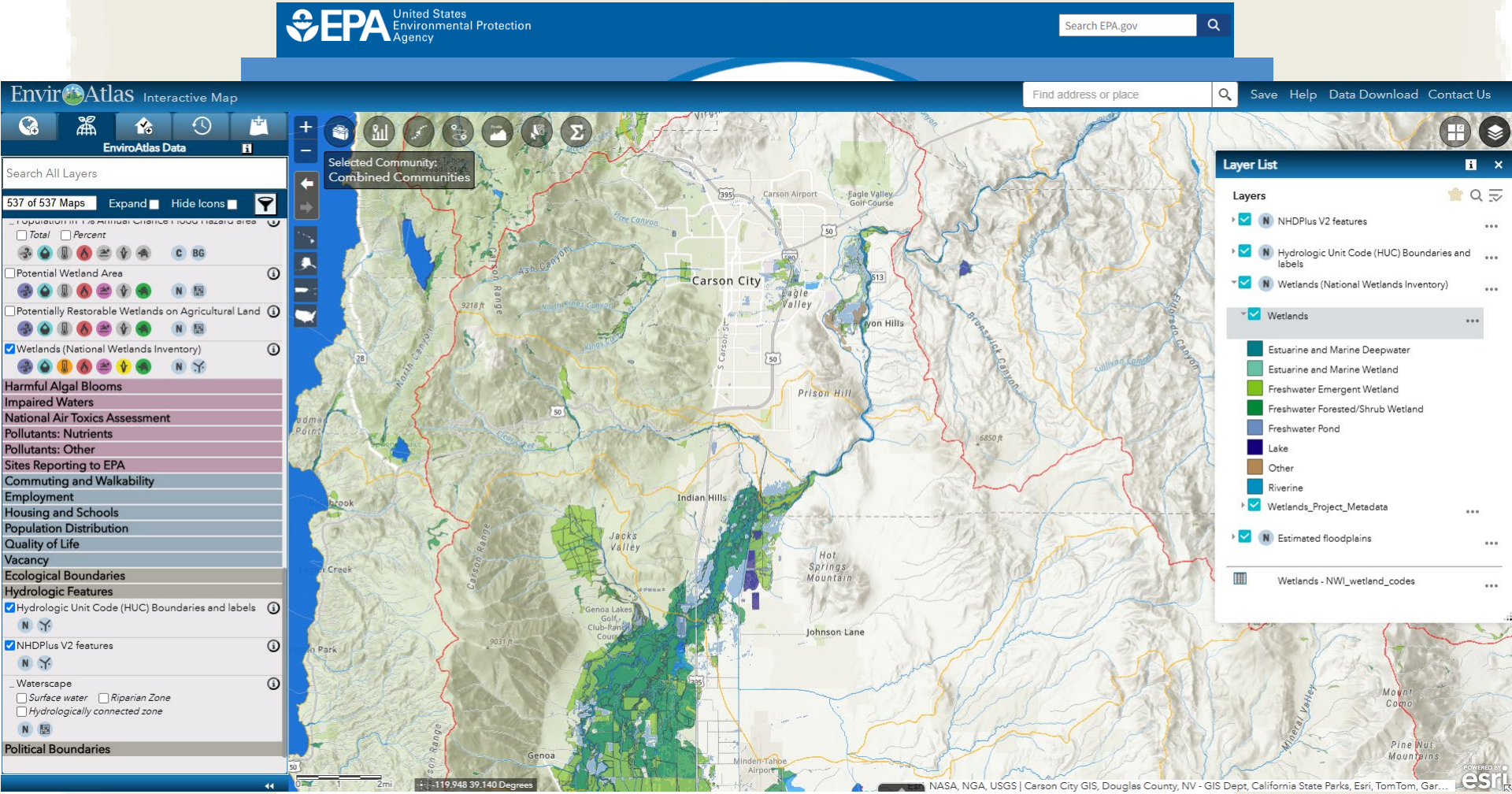
Sources	N Load (lb/yr)	P Load (lb/yr)	BOD Load (lb/yr)	Sediment Load (ton/yr)
Urban	0.00	0.00	0.00	0.00
Cropland	9.40	3.62	18.79	2.94
Pastureland	334.79	128.89	669.58	104.62
Forest	173.80	66.91	347.60	54.31
Feedlots	0.00	0.00	0.00	0.00
User Defined	0.00	0.00	0.00	0.00
Septic	130.99	51.30	534.86	0.00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

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

Resources / Tools (Continued)
EnviroAtlas



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

NPS Outlook, Challenges/Opportunities

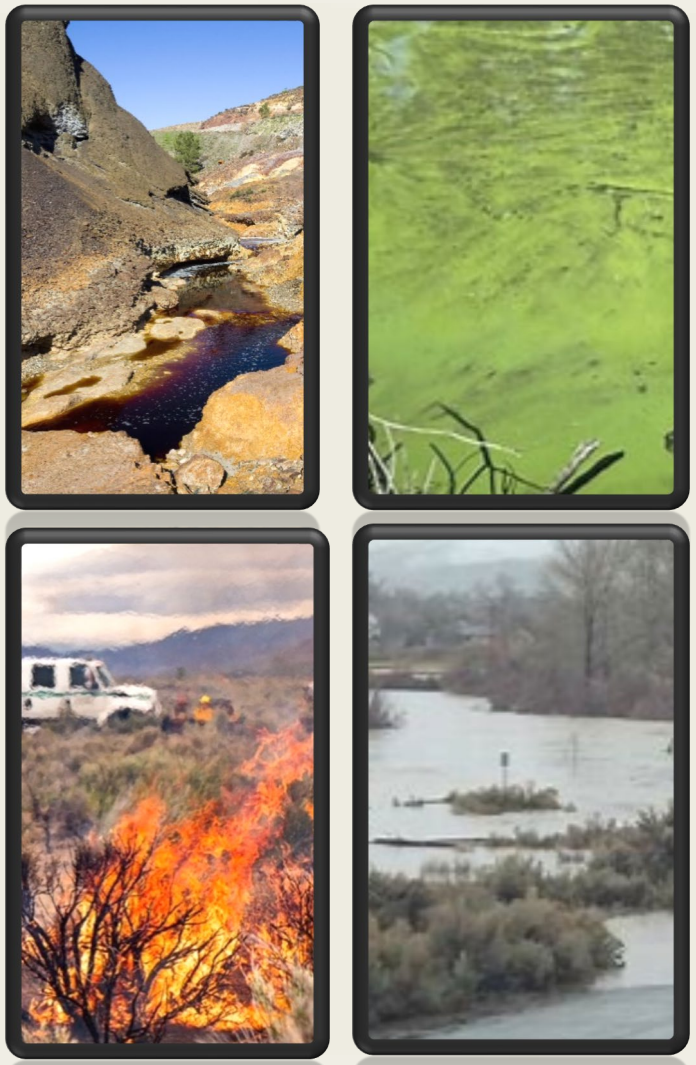
Equitable distribution of resources based on established criteria and plans (e.g. Load Reduction Potential and Potential to help communities across the state)

<u>Diverse Projects Across the State:</u>

- 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

<u>Carson-Specific Outlook</u>

- Regenerative agriculture projects
- Continued streambank work
- CRASP update



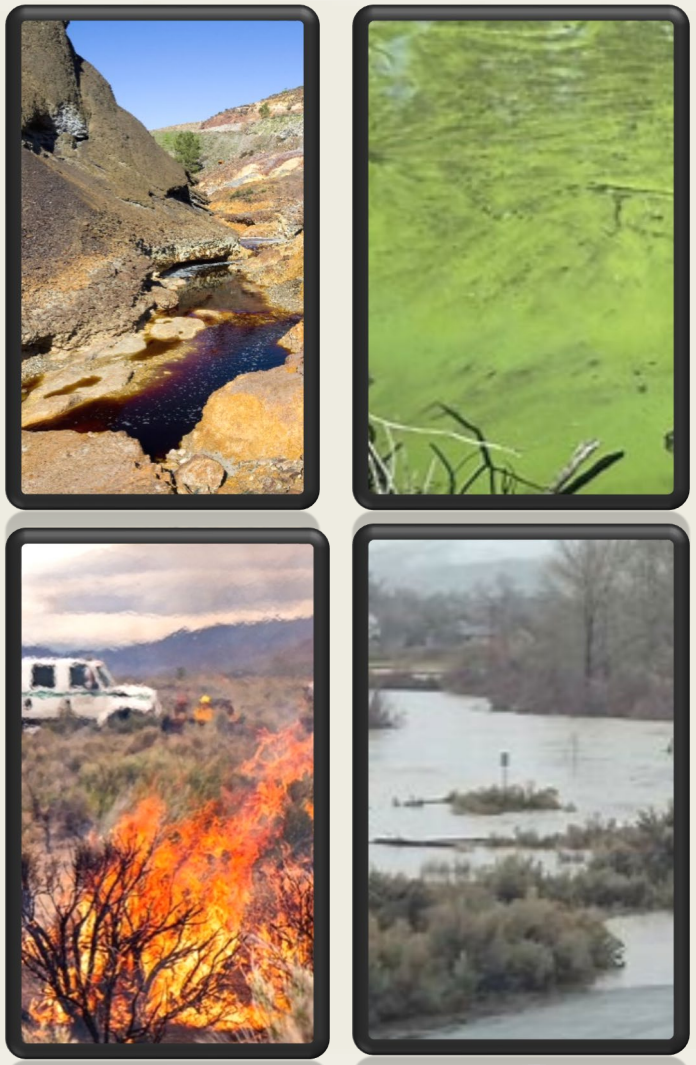
Upper left photo; Anaconda Copper mine drainage; Upper Right Washoe Lake algal bloom Lower left photo lighting fire Douglas County; lower right Carson River Flood

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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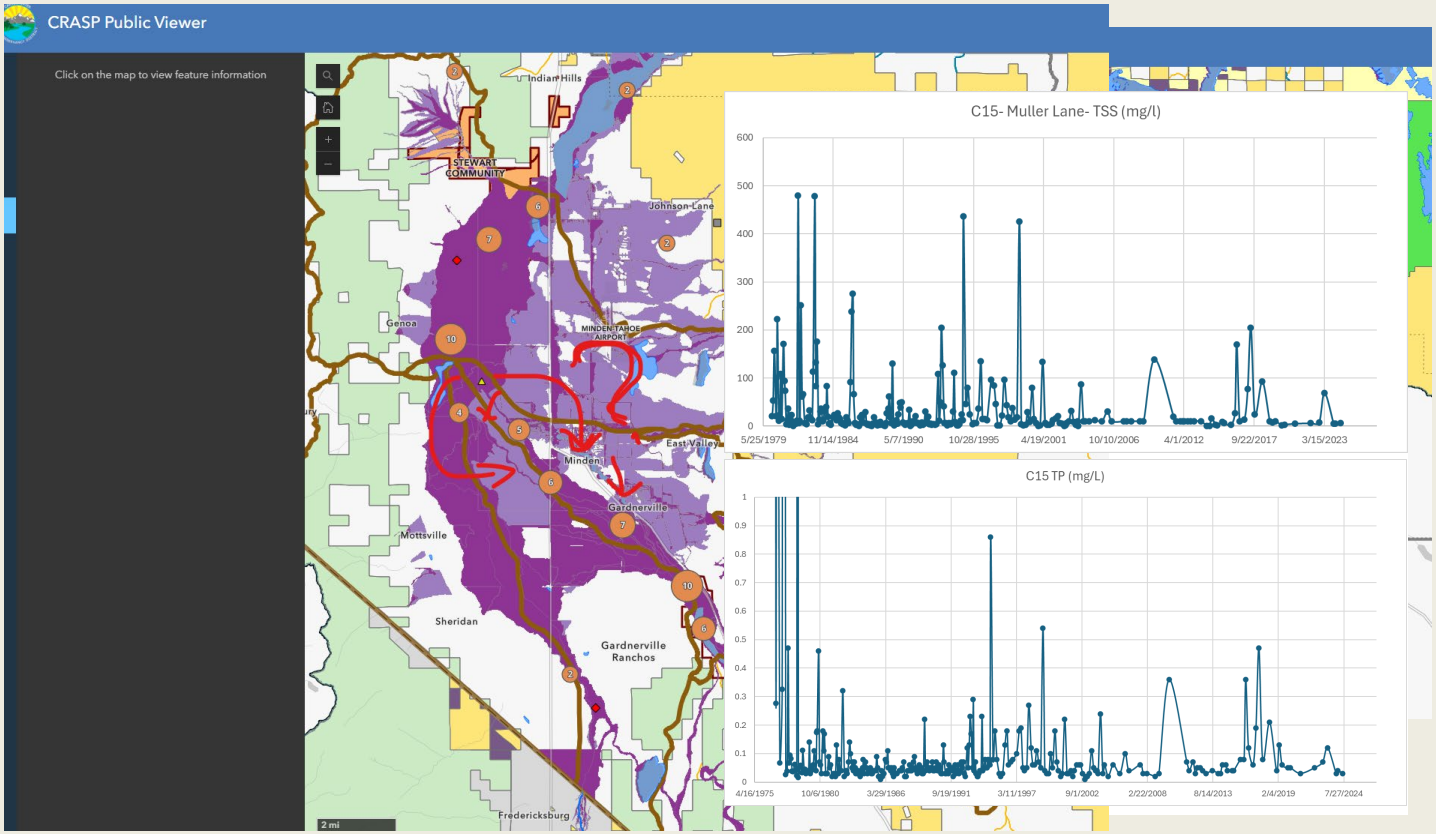
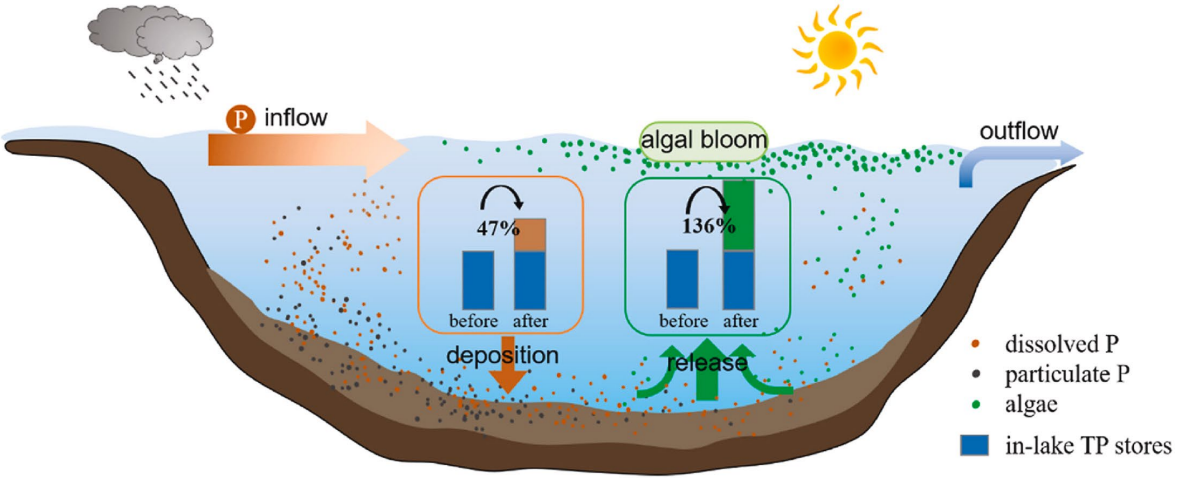
NPS Opportunities/Outlook (continued)

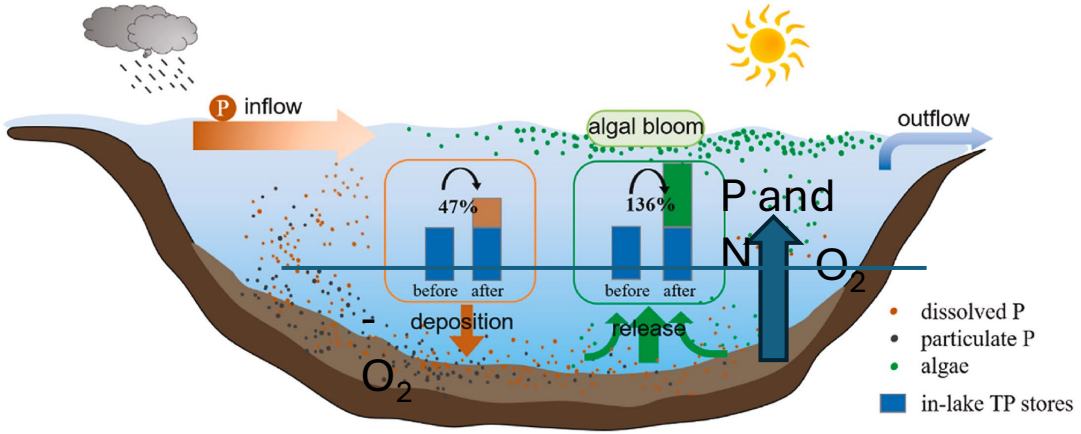
Specific Considerations- Carson Watershed

- CRASP Evaluation and Update



A Brief Note on HABS





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

SUMMARY

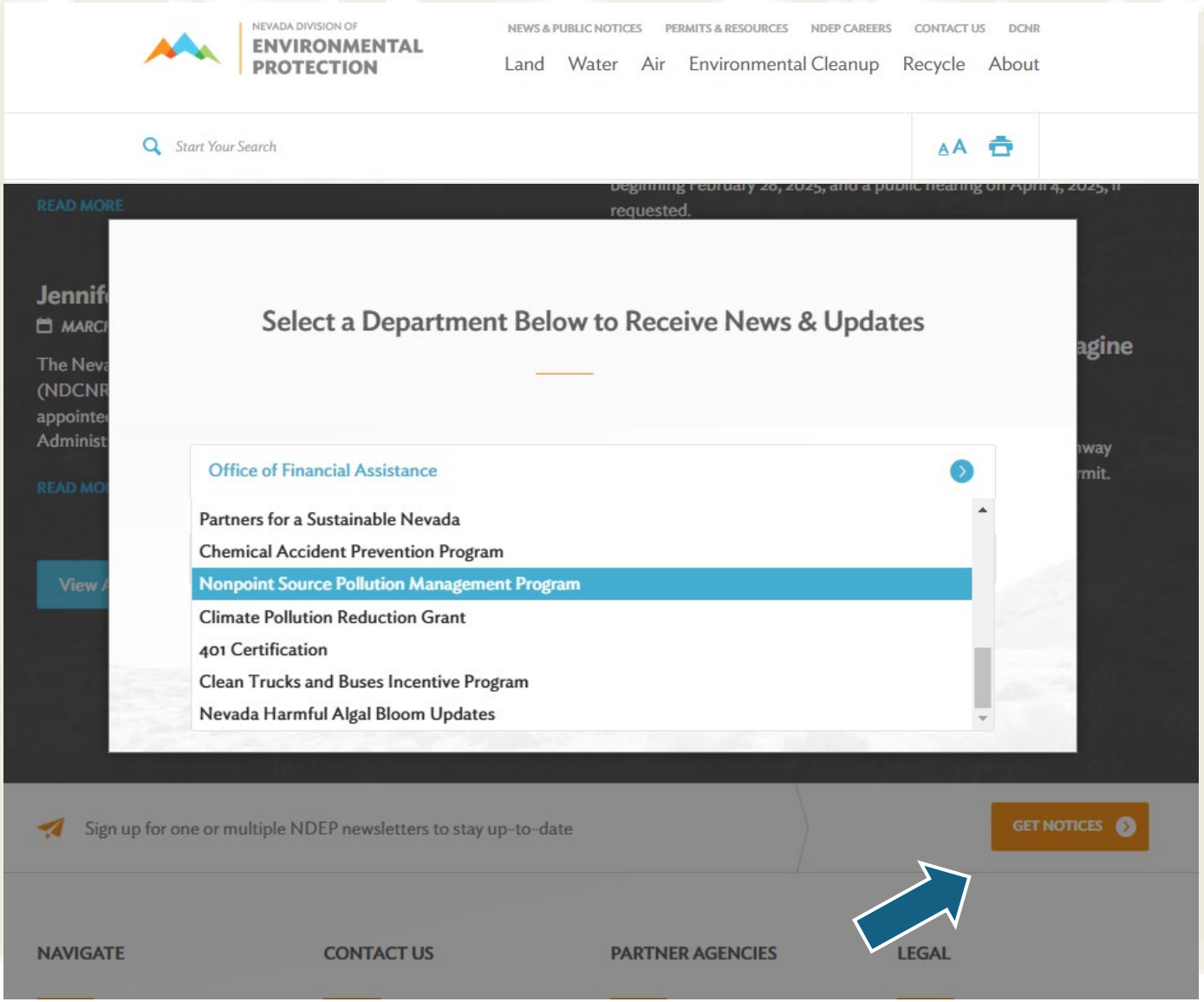
Resources and Tools

- 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



Questions?

Presenter Contacts

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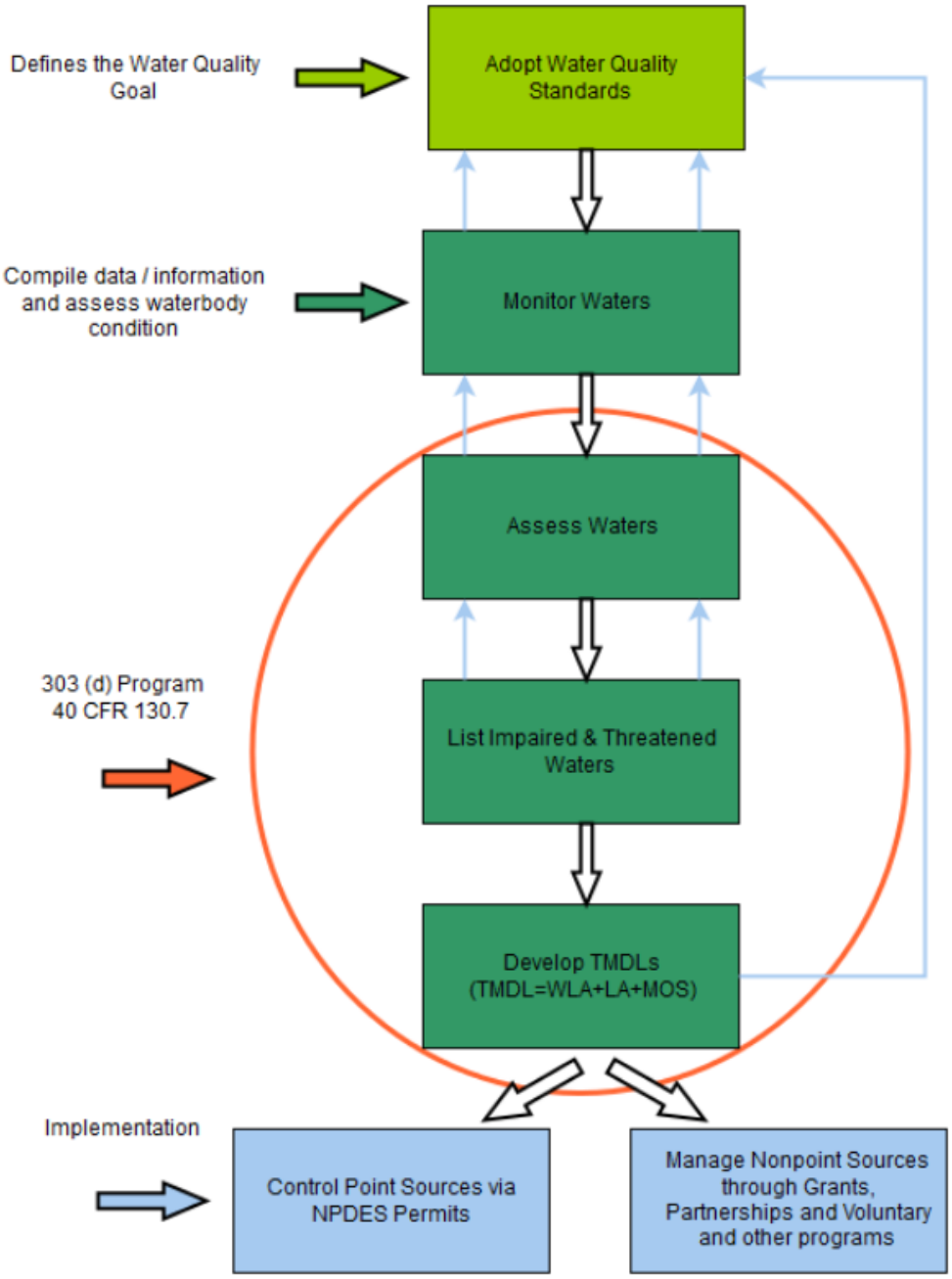
Following Slides are for potential discussion- if need arises


Defines the Water Quality Goal
Adopt Water Quality Standards
Compile data / information and assess waterbody condition
Monitor Waters
Assess Waters
303 (d) Program 40 CFR 130.7
List Impaired & Threatened Waters
Develop TMDLs (TMDL=WLA+LA+MOS)
Implementation
Control Point Sources via NPDES Permits
Manage Nonpoint Sources through Grants, Partnerships and Voluntary and other programs