



FAQs: NUTRIENT POLLUTION/POINT SOURCES

INTRODUCTION This factsheet provides background information regarding nutrient pollution, Wyoming's efforts to address nutrient pollution, and what these efforts mean for point sources in Wyoming.

WHAT IS NUTRIENT POLLUTION? Nutrient pollution is excessive amounts of nitrogen and phosphorus in Wyoming's surface waters that can lead to excessive plant growth, [harmful cyanobacterial blooms \(HCBs\)](#), fish kills, and overall degradation of water quality. Nutrient pollution can therefore impact public and private entities dependent on water quality for drinking water supplies, tourism, recreation, and agriculture.

WHAT ARE THE PRIMARY CAUSES OF NUTRIENT POLLUTION? The primary source of excess nutrients are fertilizer, animal waste from pets and livestock, wastewater from treatment plants and septic systems, detergents, stormwater runoff, cars, and fuel burning power plants.

WHAT ARE POINT SOURCES THAT DISCHARGE NUTRIENTS TO SURFACE WATERS? For the purpose of this fact sheet, point sources that discharge nutrients to surface waters are those entities where the discharge of pollutants is regulated under the Wyoming Pollutant Discharge Elimination System (WYPDES) program. These entities include, but are not limited to, wastewater treatment plants, oil and gas development, fish hatcheries, and fertilizer plants.

WHAT IS DEQ DOING TO ADDRESS NUTRIENT POLLUTION? DEQ and the [Wyoming Nutrient Work Group](#) developed the [Wyoming Nutrient Strategy](#) to address nutrient pollution in Wyoming. The strategy identifies priorities for:

- developing numeric nutrient criteria;

- reducing nutrients from point and nonpoint sources in priority watersheds; and
- increasing public awareness about nutrient pollution, including development of a plan to respond to HCBs.

HOW IS WYOMING PRIORITIZING WATERS FOR NUMERIC NUTRIENT CRITERIA DEVELOPMENT?

The Wyoming Nutrient Strategy and [Wyoming Nutrient Criteria Development Plan](#) prioritizes lakes and reservoirs for criteria development, followed by streams and rivers. Criteria will be developed for small to mid-sized reservoirs in south-central Wyoming; then small to mid-sized reservoirs in the Bighorn Basin; Boysen Reservoir; small to mid-sized reservoirs in Southeast Wyoming; and Seminoe Reservoir. Once criteria have been developed for these reservoirs, DEQ will prioritize those waters where nutrient pollution poses the greatest risk to public health.

WILL DISCHARGE PERMITS INCLUDE NUTRIENT EFFLUENT LIMITS? Discharge permits will include water quality based effluent limits for nutrients if:

- they discharge directly to a waterbody that has numeric nutrient criteria adopted in Wyoming's surface water quality standards; or
- the facility receives a waste load allocation as part of a restoration plan (e.g., total maximum daily load).

WHAT WILL NUTRIENT EFFLUENT LIMITS BE?

Nutrient effluent limits are generally site-specific and will depend on the concentrations of nutrients necessary to protect the designated uses of the receiving water, the amount of effluent being discharged, the background concentration of nutrients in the receiving water, as well as the critical low flow of the

receiving water. Even with these site-specific variables, nutrient effluent limits are expected to be very low given that concentrations of nitrogen and phosphorus to protect designated uses such as drinking water, aquatic life, and primary contact recreation are very low (i.e., <0.1 mg/L for total phosphorus and <1.0 mg/L for total nitrogen).

WHAT IF A POINT SOURCE CANNOT AFFORD TO MEET NUTRIENT EFFLUENT LIMITS? Wyoming's surface water quality standards allow point sources to apply for discharge specific variances (DSVs) in circumstances where they cannot afford to meet a water quality based effluent limit. DSVs are time-limited modifications to designated uses and water quality criteria that establish interim effluent limits based on what the permittee can afford. See Section 37 of Chapter 1 of Wyoming's Water Quality Rules and Regulations, Wyoming Surface Water Quality Standards.

WHY IS IT IMPORTANT FOR POINT SOURCES TO REDUCE NUTRIENTS PRIOR TO RECEIVING NUTRIENT EFFLUENT LIMITS? Since nutrient effluent limits will generally be very low, conventional treatment options (e.g., mechanical treatment plants with biological nutrient removal) to meet water quality based effluent limits can be very expensive, and conventional treatment options may not be the most economical way to address nutrient pollution, point sources that begin planning and implementing efforts to address nutrient pollution will be best positioned when nutrient effluent limits are developed for their facility.

WHAT ALTERNATIVES SHOULD POINT SOURCES EXPLORE TO REDUCE NUTRIENTS? Point sources can reduce nutrient pollution to surface waters by re-using wastewater (e.g., irrigation of agricultural fields, golf courses, cemeteries, etc.); optimizing nutrient removal processes; reducing or eliminating the discharge of wastewater

through evaporation ponds or underground injection; mechanical treatment such as biological nutrient removal; regionalizing systems; and/or constructing wetlands.

HOW CAN POINT SOURCES AND NONPOINT WORK TOGETHER TO ADDRESS NUTRIENT POLLUTION? Since nonpoint source nutrient reductions efforts may be more cost-effective than conventional infrastructure upgrades, WDEQ encourages point sources to explore ways to support nonpoint source nutrient reduction efforts in their watershed. For example, a public utility may implement stormwater improvement projects or sponsor implementation of nonpoint source best management practices on nearby agricultural fields.

WHERE IS DEQ WORKING TO PROACTIVELY REDUCE NUTRIENTS? DEQ and the Wyoming Nutrient Work Group developed a prioritization system to identify waters for nutrient reduction, with the highest priority given to those waters where nutrient pollution poses the greatest risk to public health. Boysen Reservoir was selected due to its importance for recreation and drinking water and the potential health risks posed by recurring cyanobacterial blooms in the reservoir.

WHAT IS DEQ DOING TO PROACTIVELY REDUCE NUTRIENTS IN BOYSEN RESERVOIR? DEQ is working with stakeholders, including both point and nonpoint sources of nutrient pollution, in the Boysen Reservoir watershed to begin a 2-3 year planning effort (e.g., Boysen Initiative) that will yield:

- a sampling and analysis plan to identify sources and loads of nutrients in the watershed;
- a sampling and analysis plan to identify concentrations and reductions of nitrogen and phosphorus for Boysen Reservoir that will prevent unsafe densities of

cyanobacteria for recreation and drinking water;

- a watershed plan for addressing nonpoint sources of nutrients in the watershed; and
- discharger specific plans for point sources in the watershed.

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WHAT WILL POINT SOURCES IN THE BOYSEN WATERSHED BE ASKED TO DO AS PART OF THE INITIATIVE? DEQ has been incorporating nutrient monitoring requirements nutrients into Wyoming Pollutant Discharge Elimination System (WYPDES) permits within the Boysen Reservoir watershed as they are renewed. This information will be used to help identify current nutrient loads from point sources in the watershed and to track progress as nutrient reduction efforts are implemented. In addition to monitoring, point sources will be asked to evaluate their current discharge of nutrients, identify interim goals/targets for nutrient reduction; identify financial and technical resources needed to achieve the interim goals/targets; a schedule and milestones from implementation; and a plan to report and/or monitor progress over time. These activities will allow point sources to make progress on nutrient reduction efforts prior to and at the same time as development of numeric nutrient criteria so that facilities will have a path forward to achieve nutrient effluent limits that may be incorporated into discharge permits.

WHEN DOES DEQ ANTICIPATE PROPOSING NUMERIC NUTRIENT CRITERIA FOR BOYSEN RESERVOIR? DEQ anticipates developing numeric nutrient criteria for Boysen Reservoir within the next 10-15 years, depending on resource availability.

WHO DO I CONTACT WITH QUESTIONS? Bill DiRienzo, Wyoming Pollutant Discharge Elimination System Program Manager, at 307-777-7081 or Bill.DiRienzo@wyo.gov