



Nutrients and TMDLs

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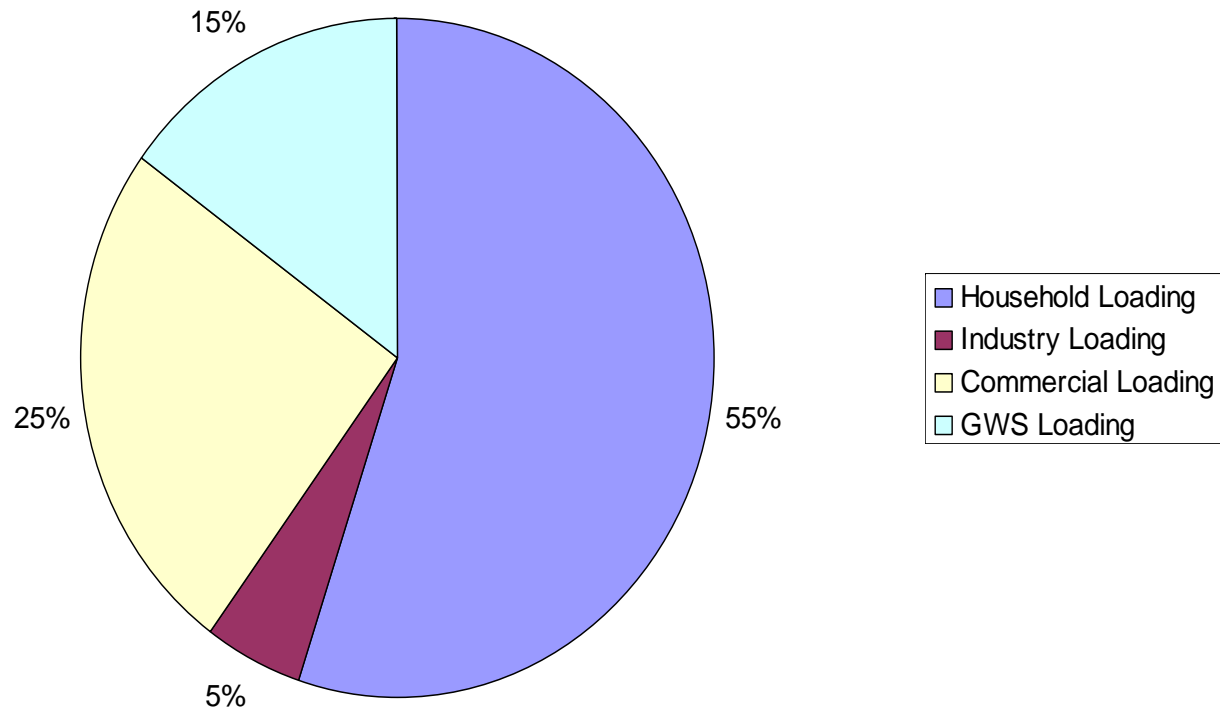
Nutrients

- What are nutrients
- Sources
- How treated
- How much remains in ReWa effluents re future limits
- Options for dealing with future limits



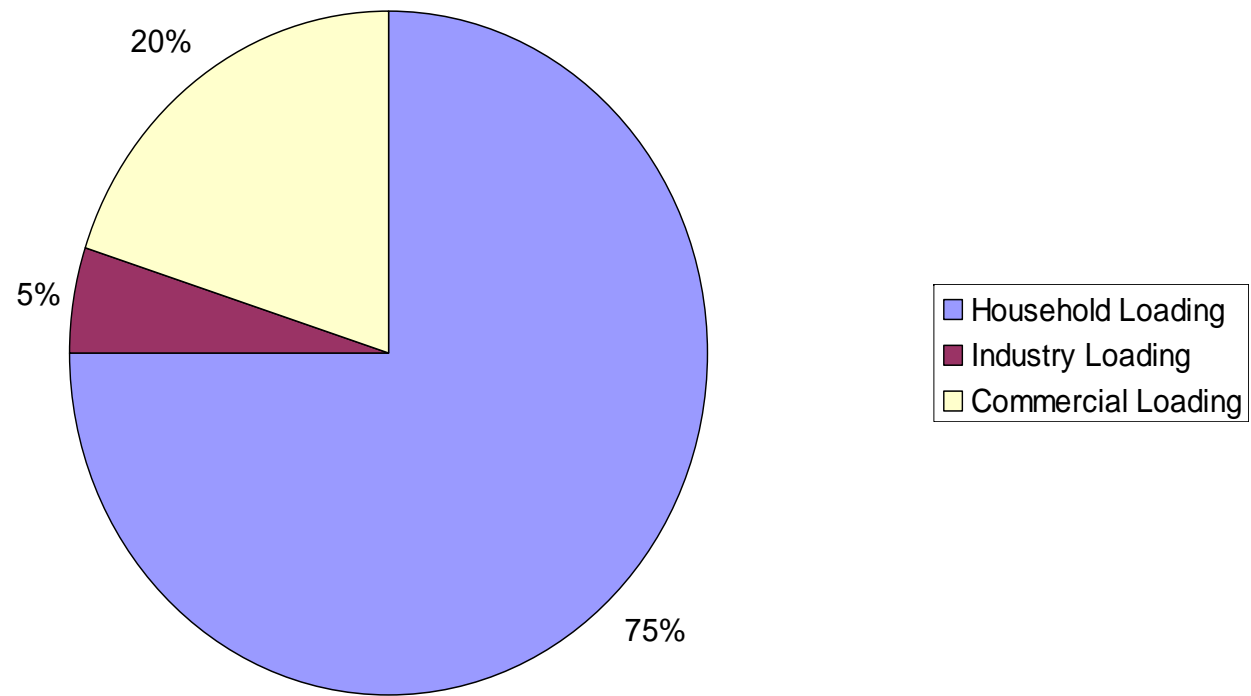


Major Sources of P in Lower Reedy Plant Influent





Major Sources of N in Lower Reedy Plant Influent

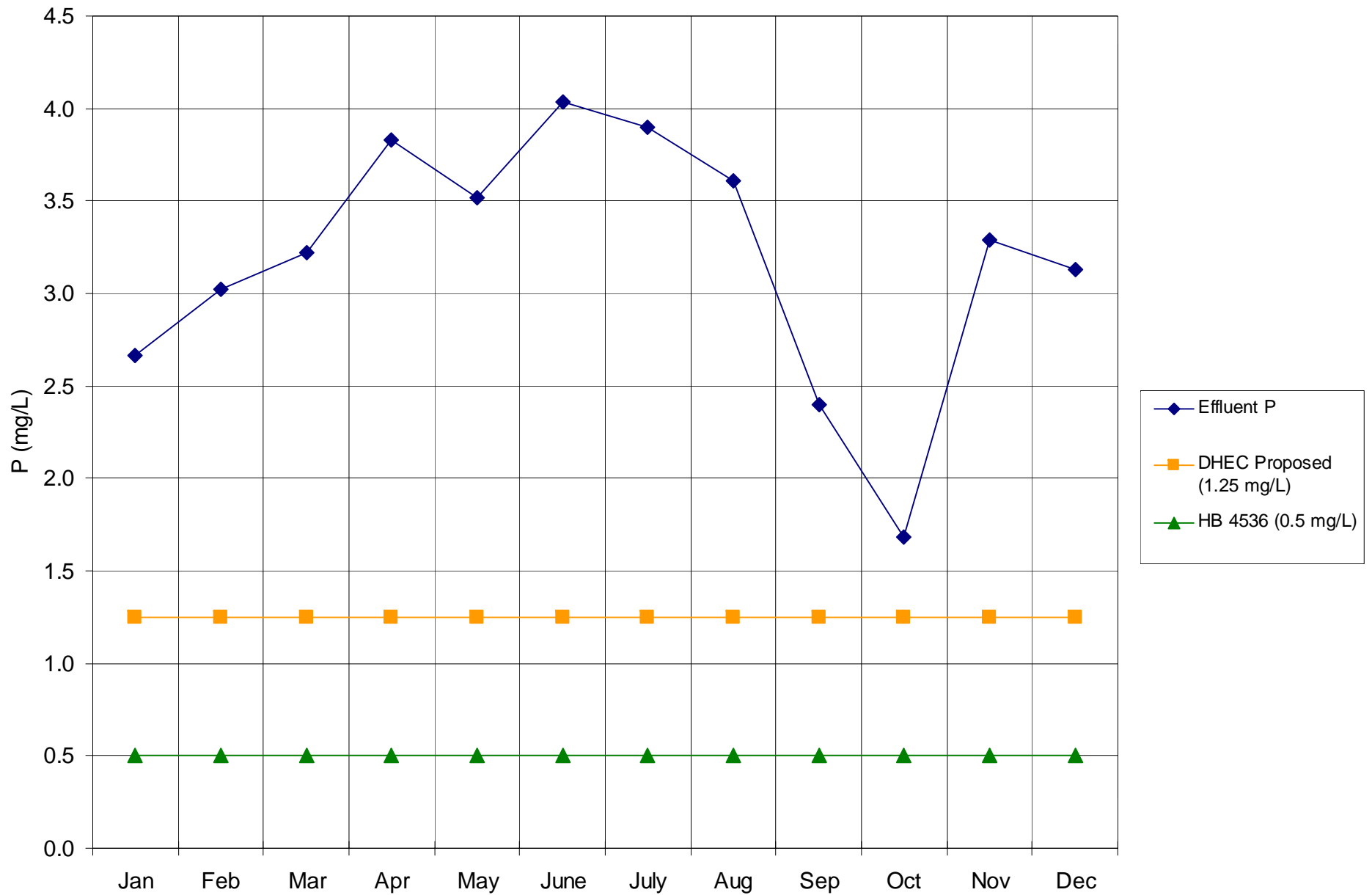




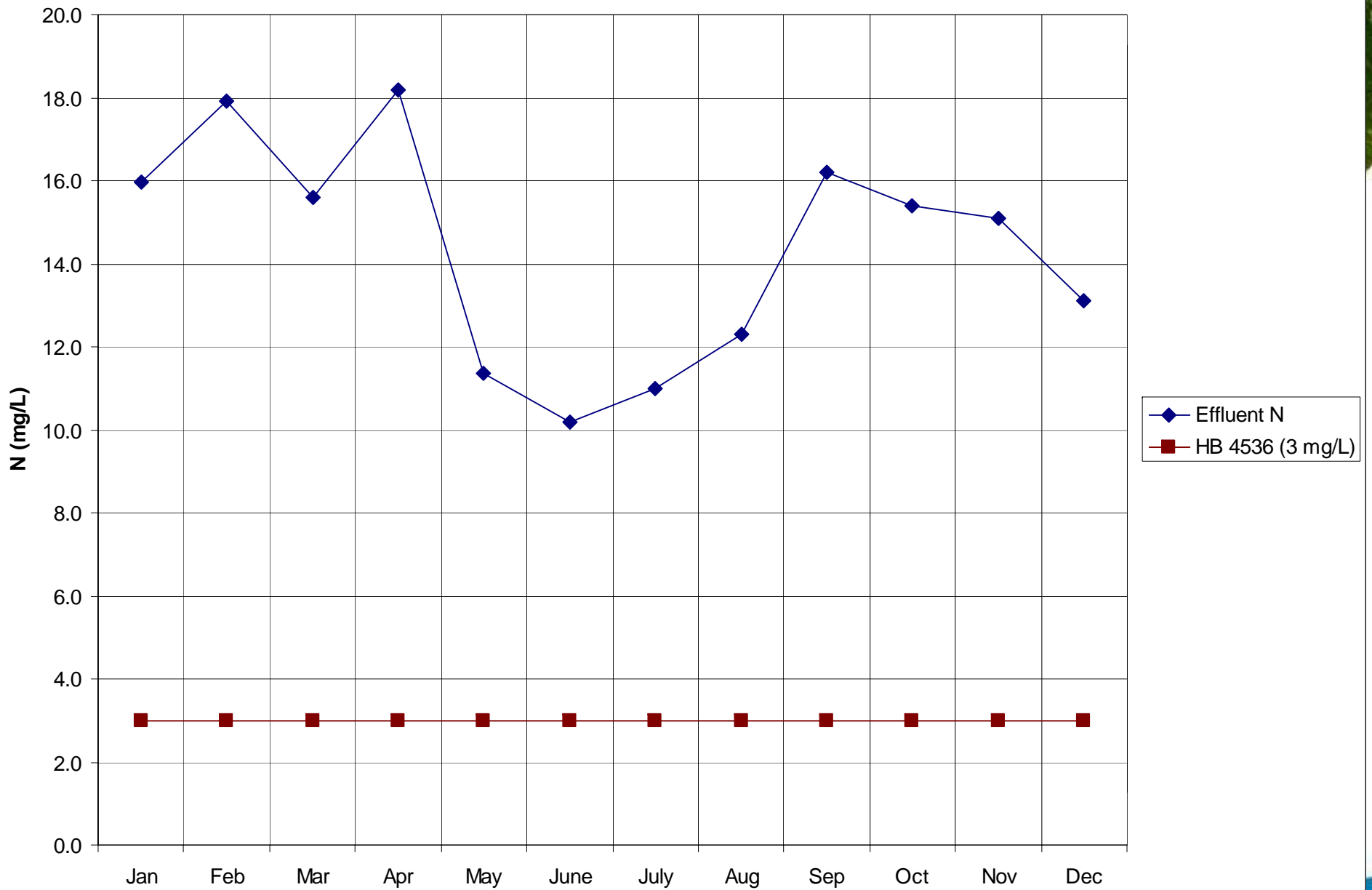
How Are Nutrients Treated

- Bacteria in the Activated Sludge Process
 - Convert the nitrogen in wastewater ammonia to nitrogen gas that bubbles off into the atmosphere
 - Stores wastewater phosphorus into their cells or bodies like humans store fat. When the activated sludge bacteria are removed, the phosphorus goes with them
 - One can be optimized but not both

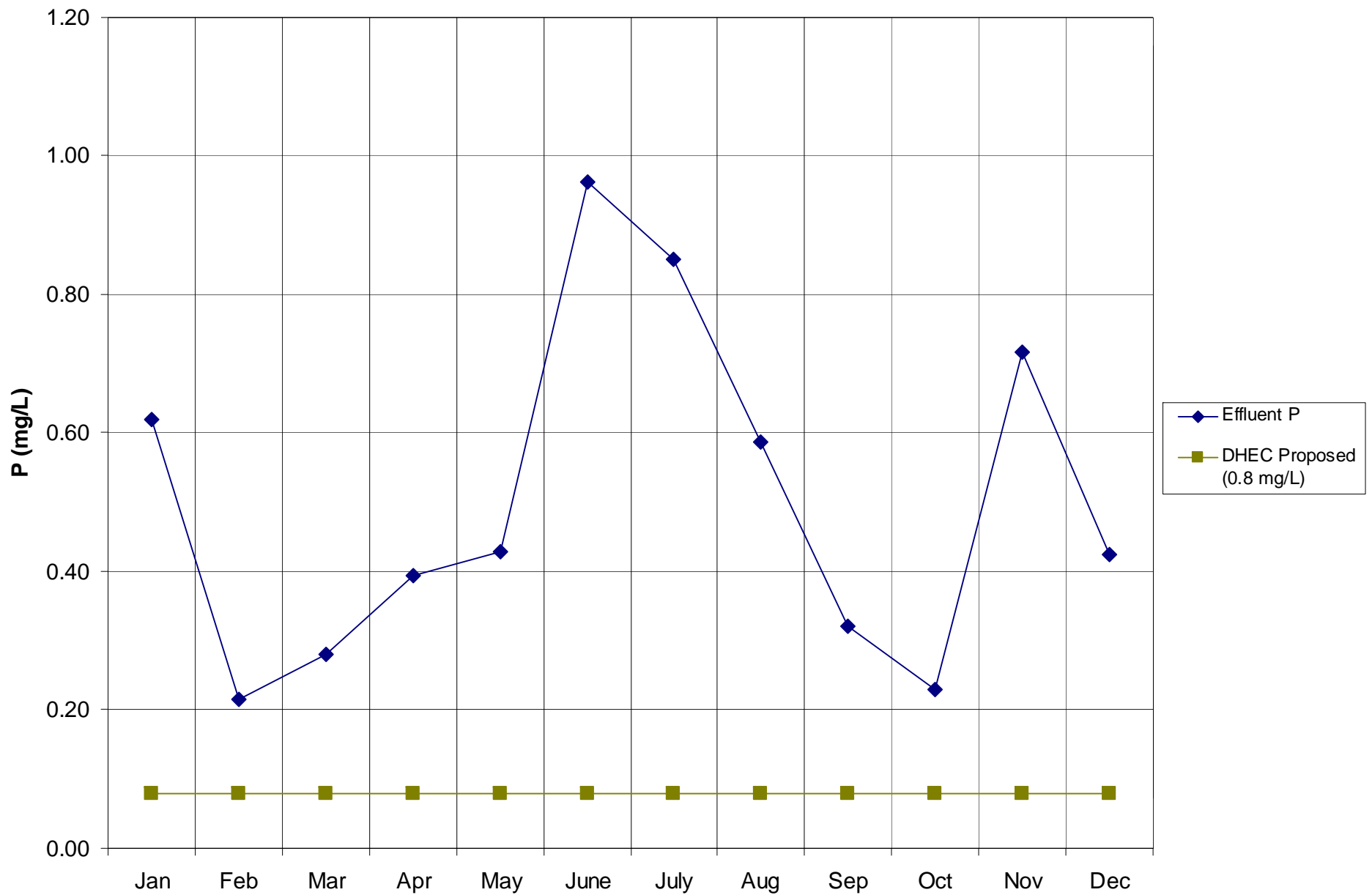
Monthly Effluent P Georges Creek Compared to Proposed Limits



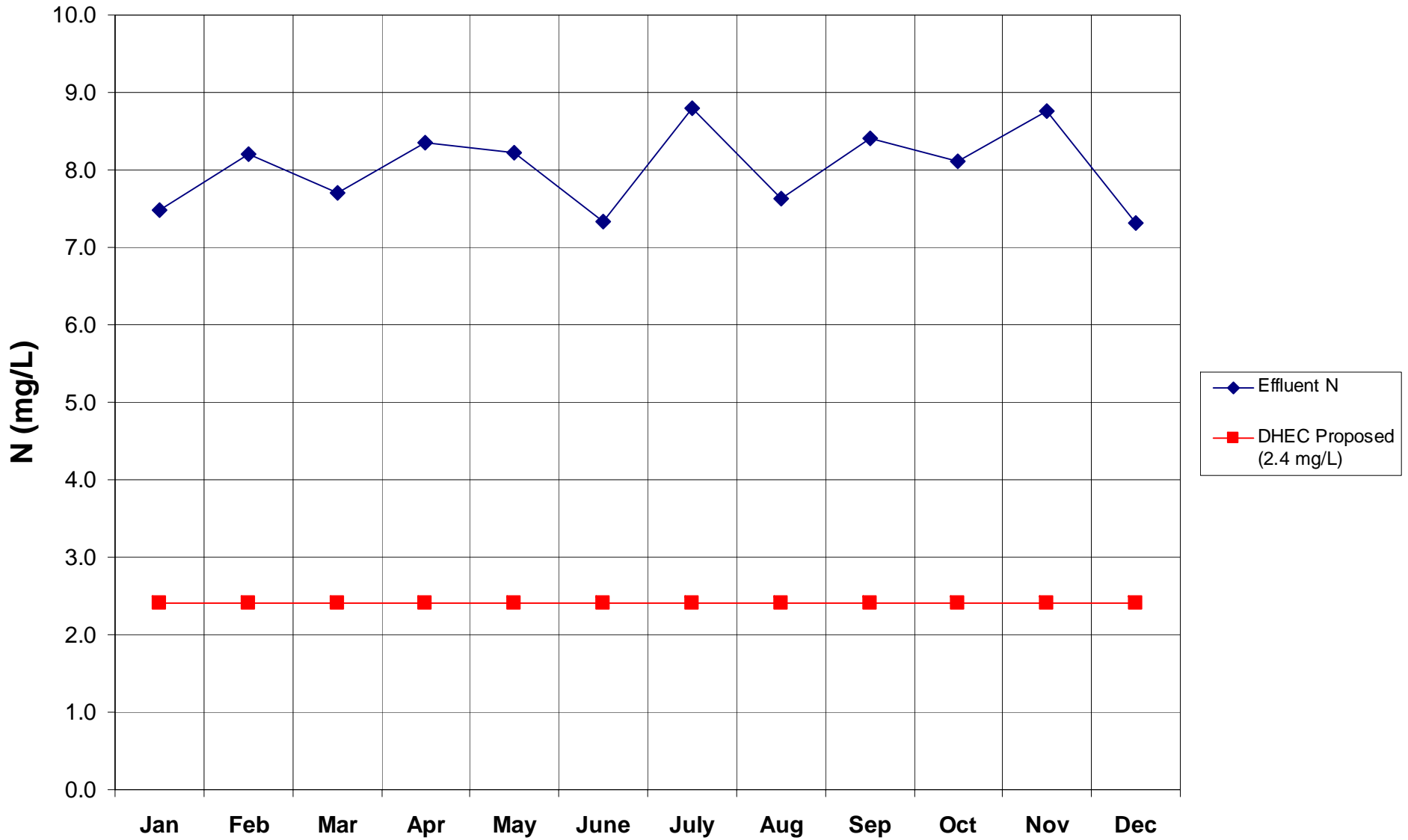
Monthly Effluent N Georges Creek Compared to Proposed Limits



Monthly Effluent P Lower Reedy Compared to Proposed Limits



Current Monthly Effluent N at Lower Reedy Compared to Proposed Limits



TMDL

- What is it?
- How is it established?
- What has been proposed?
- How will it affect ReWa?
- Options for involving urban and rural non point sources



What Is a TMDL

Amount of a pollutant, e.g. phosphorus that can enter a waterbody on daily basis and still meet DHEC water quality standards.

Also refers to the document that includes:

- the pollutant calculation,
- source assessments,
- land use information,
- allocation information,
- implementation, and
- relevant maps, figures, and pictures.



How Is It Established

- If water body on the “black list” (303d list)
- Calculated using a computer model to determine all point and nonpoint sources of the pollutant causing the impairment.
- In ReWa’s case: used to determine the effect of phosphorus in the Reedy River on the phosphorus in Boyd Mill Pond upstream of Lake Greenwood
- Reduction Needed = Current amount – Safe Amount



What Is Proposed

- Keep P in Boyd Mill Pond at 0.06 mg/L 90% of the time
- ReWa reduce current loading by 90%
- Urban Non Point Sources, developed part of Greenville County by 60%
- Rural Greenville and Laurens County by 40%



Effect and Options

- Will need to achieve much higher level of treatment and/or develop non discharge options
- Treatment methods could ultimately cost \$175-250 million
- ReWa believes an equal reduction by all three sources is more fair
- Need to work with non point dischargers and DHEC to find something workable



Questions?

