



# Point Source Reduction Update

BiJay Adams

Liberty Lake Sewer and Water  
District



# *Background*

- The Liberty Lake Sewer and Water District collects and treats the sanitary wastewater from approximately 4,000 Equivalent Residential Units (ERUs) as well as commercial and light industrial dischargers.
- Current average discharge is 0.729 MGD.



# *Background*

- In an effort to improve the water quality of Liberty Lake, the District constructed a wastewater collection and treatment system in 1973 that replaced existing on-site septic systems.
- The treatment facility was completed in August 1982.



## *Previous Upgrades*

- The District completed minor modifications to the facility by replacing the aerobic digester blowers in 1998 and replacing the chlorination system with the ultraviolet disinfection system in 2002.



# *Phase I Upgrades*

- Phase I was completed in spring of 2006
  - The treatment plant was expanded from 1MGD to 2MGD to accommodate growth.
  - Improved biological nitrogen and phosphorus removal.
  - Provisions for subsequent additional physical and chemical phosphorus removal in anticipation of more restrictive limitations resulting out of the Dissolved Oxygen TMDL.



# *Phase II Design*

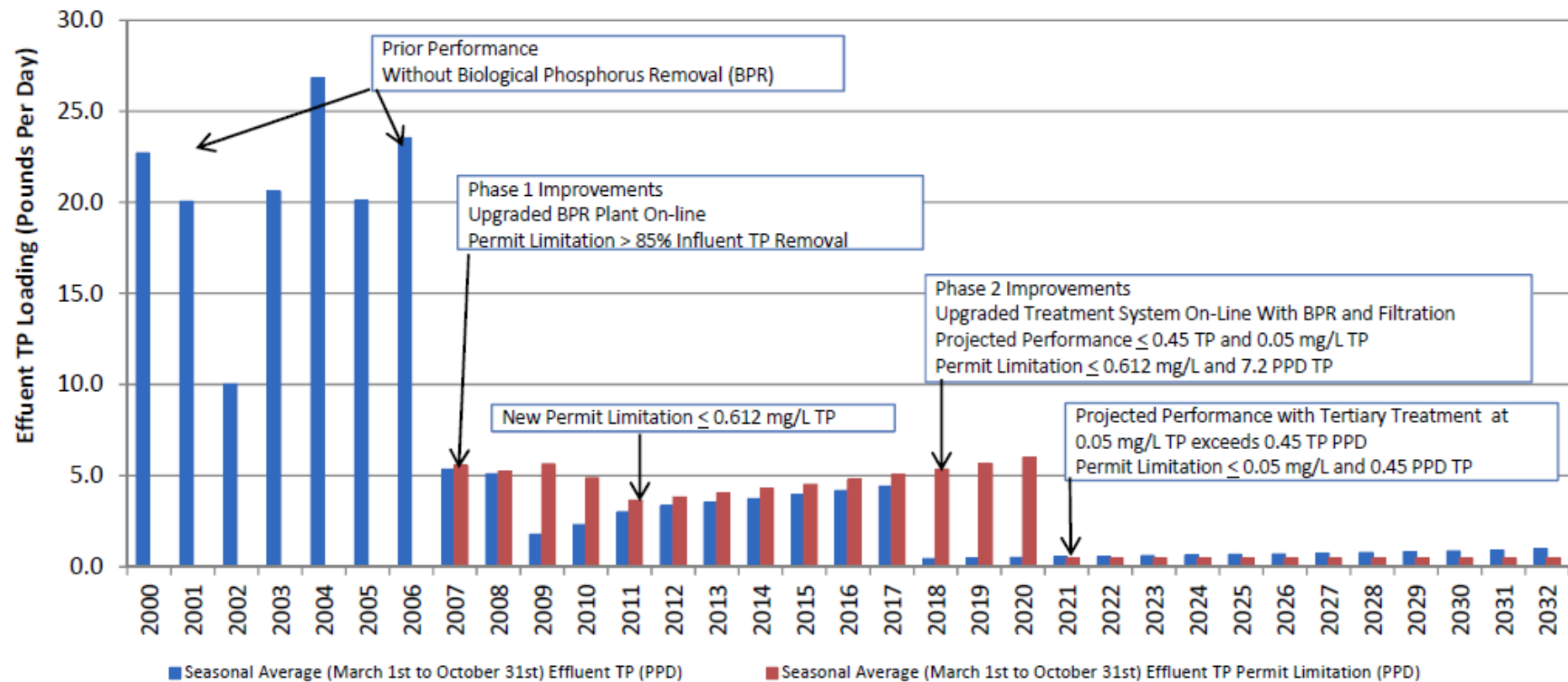
## *In Progress*

- Phase II upgrade includes:
  - First-stage chemical precipitation and settling, second stage chemical precipitation and flocculation, process filtration, and upgrades to the existing ultraviolet disinfection system.
- Tertiary treatment and will need to be completed by March of 2018 at a cost of \$12.6 million.
- Design is currently 50% complete.



# *Water Reclamation Facility Phosphorus Removal and Limits*

Liberty Lake Sewer and Water District  
Treatment Plant Effluent Total Phosphorus Loading





# *Additional Phosphorus Reduction Efforts*

- **December 1989:** The district passed Resolution 40-89 banning phosphorus in laundry detergent.
  - A nationwide ban followed in 1993, while the state of Washington is a year behind with its ban in 1994.
- **July 2005:** The district passed Resolution 23-05 banning phosphorus in automatic dishwasher detergent.
  - Bans in Spokane, Whatcom and Clark counties followed in 2008. A statewide ban took effect in 2010. There are now 16 states with bans against automatic dishwasher detergent containing phosphorous.
- **November 2005:** The district passed Resolution 46-05 banning phosphorus in lawn fertilizer within the watershed of Liberty Lake.
- **2009:** The district amends Resolution 46-05 with Resolution 18-09 banning phosphorus in lawn fertilizer district-wide.
  - In 2011 Washington state passed “Clean Fertilizers, Healthier Lakes and Rivers” legislation (ESHB 1489) into law.

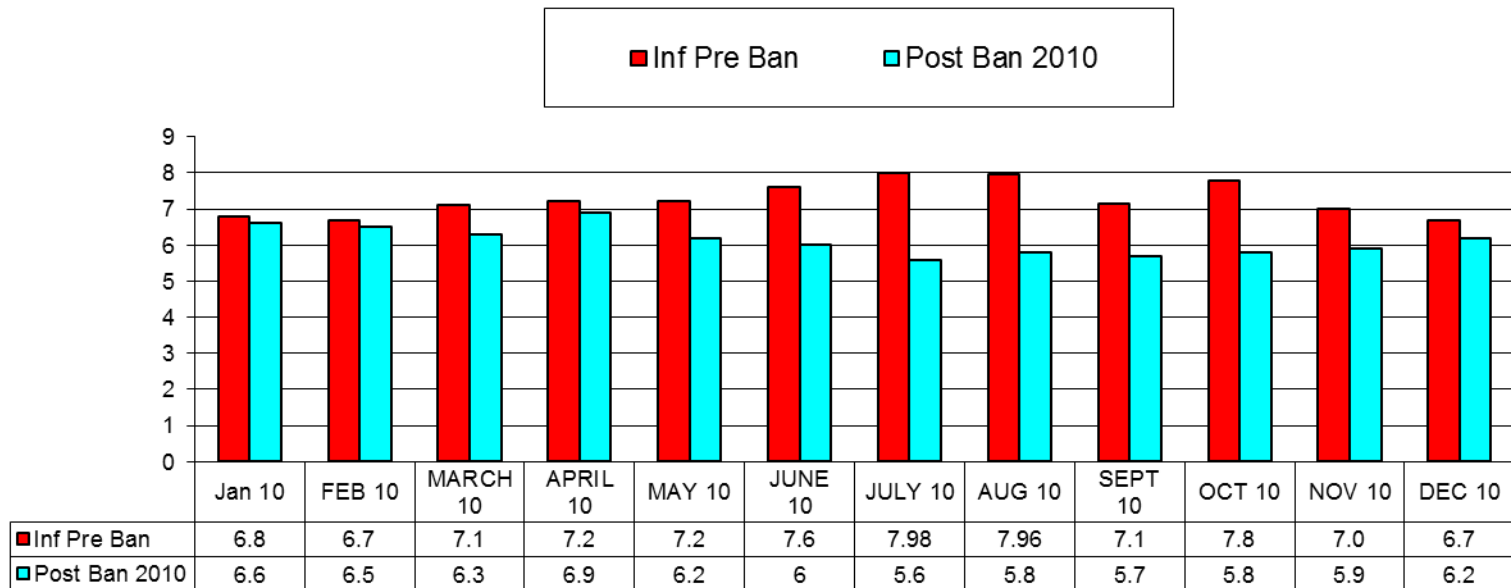




# 2010 Dishwasher Detergent ban results

Influent Total Phosphorus

Concentration mg/L

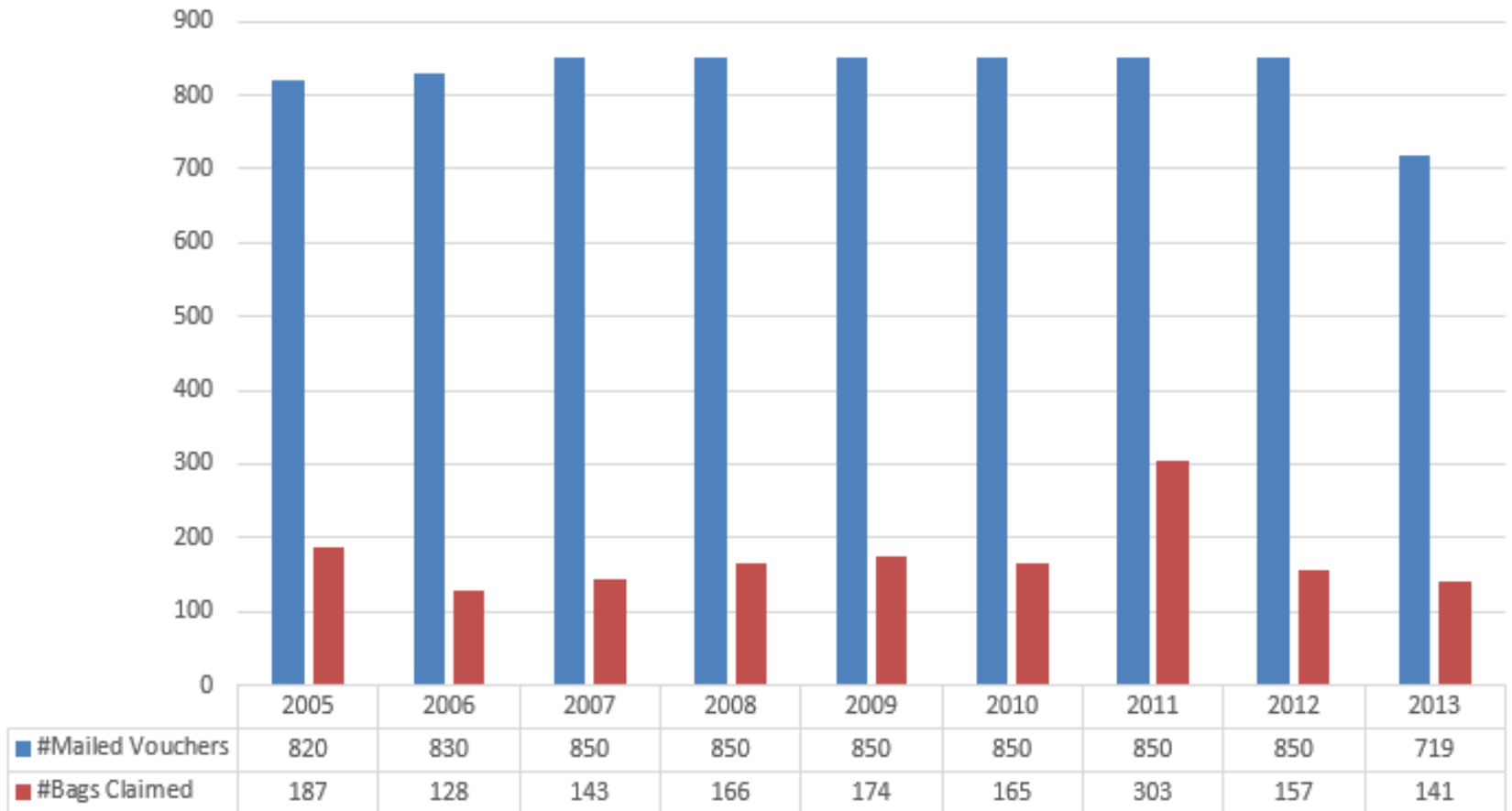


16.84%



# *Phosphorus Free Fertilizer Giveaway*

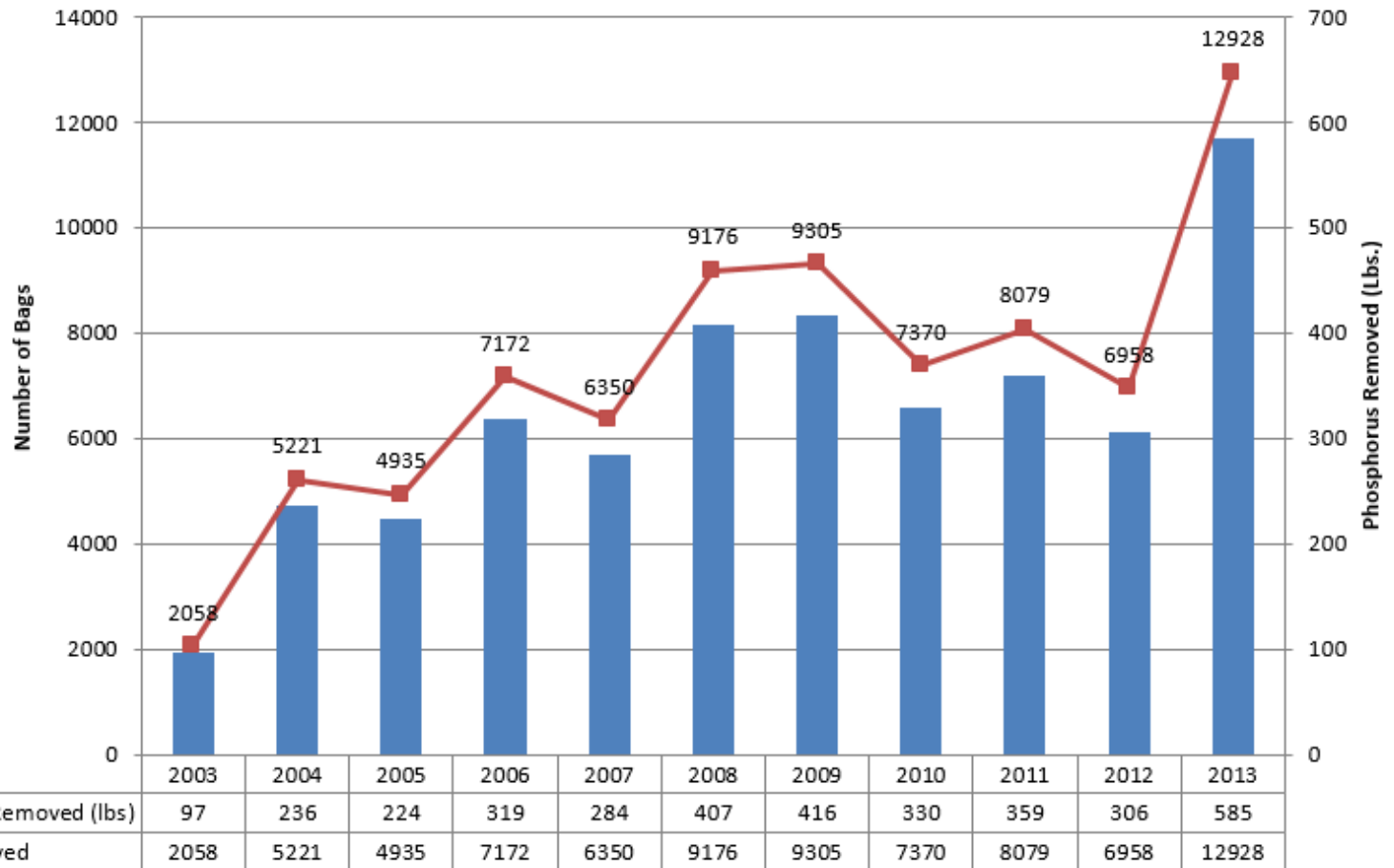
LLSWD/Greenstone P-Free Fertilizer Program  
2005-2013





# *Annual beach and leaf cleanup*

**Liberty Lake Beach and Leaf Cleanup  
2003-2013**





# *Questions*

BiJay Adams

General Manager

Liberty Lake Sewer and Water District

22510 E. Mission Ave

Liberty Lake, WA 99019

Ph: (509) 922-9016

**[bijay@libertylake.org](mailto:bijay@libertylake.org)**