

# CASE STUDY: Glens Falls, New York Wastewater Treatment Plant



Application:	Two (2) Anoxic Selectors
Design Flow (ADF):	9.5 MGD
Mixing Efficiency:	≈ 0.10 HP/1000 FT <sup>3</sup>
Compressors:	Two (2) Quincy QSLP-15
Design Engineer:	Arcadis



*BioMix nozzles and headers easily integrate with aeration equipment in the anoxic zones.*

## BioMix Supports Denitrification with Minimal Maintenance

To remain compliant with New York's Department of Environmental Conservation, the city of Glens Falls upgraded the 9.5 MGD Glens Falls Wastewater Treatment Plant (WWTP) in 2015. The plant historically struggled with high nitrate levels due to an industrial contributor, so the upgrade included the incorporation of biological nutrient removal (BNR). Two existing aeration basins were modified to incorporate anoxic selectors designed to facilitate denitrification, enabling the facility to meet a stringent future effluent total nitrogen limit.

**The city and their design consultant Arcadis chose EnviroMix's BioMix Compressed Gas Mixing System to mix the anoxic selectors** because of the technology's ability to provide energy efficient mixing with no in-basin maintenance.

Offering the ability to modify mixing parameters based on process demands, the BioMix system delivers the flexibility needed to produce ideal mixing conditions that enhance the denitrification process. In addition, BioMix provides 50-60% energy savings compared to mechanical mixing.

**In 2025, when asked what he likes most about the BioMix technology after a decade of operation, maintenance manager Jason Vilander stated, "Simplicity. Durability. Ease of operation."**



### ENERGY EFFICIENCY

**50-60% energy  
savings compared to  
mechanical mixing**



### STRAIGHTFORWARD OPERATION

In-tank components  
are maintenance free  
  
Minimal maintenance  
of out-of-tank  
components



### PROCESS OPTIMIZATION

**Optimizes  
denitrification process**  
  
Provide complete  
mixing with negligible  
oxygen transfer



### UNPARALLELED FLEXIBILITY

**Easily integrates with  
aeration equipment**  
  
Compatible with any  
tank geometry or  
configuration



*BioMix provides complete mixing with negligible oxygen transfer.*

### “Simplicity. Durability. Ease of operation.”

Jason Vilander, Glens Falls Maintenance Manager

To optimize the denitrification process, an anoxic environment with minimal dissolved oxygen is required, along with the proper level of mixing to promote increased contact between denitrifying bacteria, organic carbon, and nitrate. BioMix is a key part of this process due to its ability to provide complete mixing with proven negligible oxygen transfer.

Regarding process benefits, Mr. Vilander said “All of the nitrogen gas bubble symptoms that we were having prior to the introduction of the anoxic zones have gone away and not come back.” He continued, “Our sludge used to float in the primaries until we put the system in. Also, [the industrial contributor] built a holding tank and chemical system on our property where their waste comes directly in, and then it goes into our anoxic zones. So, it doesn't go to our primary clarifiers anymore, and it doesn't cause any problems. I know that BioMix was not exclusively responsible, but it's a big piece of the puzzle.”

Since 2015, the team at Glens Falls has operated their BioMix system with excellence, finding that the technology keeps solids suspended with minimal maintenance. **Mr. Vilander stated about the straightforward system, “It just works,” adding, “It's easy to recommend when it's been a good system and it's operated well.”**



*A tank side valve module controls mixing parameters.*



*BioMix is powered by a duty and standby compressor system housed in a controlled environment.*



Contact [sales@enviro-mix.com](mailto:sales@enviro-mix.com) today to discuss the ways EnviroMix can optimize your mixing and process solutions.