The Eco DAF® System
Implementation of dissolved air flotation (DAF) technology has experienced a growing resurgence in wastewater applications over recent years. Although DAFs have been around for decades, recent advances in the technology have expanded the range of applications where a DAF would be the most suitable clarification solution.

Blue Water provides the Eco DAF® process as an effective and efficient solution to the challenges burdening industrial dischargers. The Eco DAF® system reduces production costs by integrating the most advanced and innovative techniques for internal recycle and dissolution of air, saving money on power, chemical, and other discharge compliance costs. This new generation of DAF technology utilizes regenerative turbine pumps in the recycle stream to form a distribution of micro air bubbles ranging from 10-30 μm. Conventional systems operate with a typical bubble size of 100-200 μm, often resulting in sheared floc, higher chemical usage, and lowered efficiency. The innovative Eco DAF® design facilitates the most effective removal of suspended solids, phosphorus, oils and greases, and other impurities from water slurries.

The Eco DAF® process is further enhanced by the option to install Blue Water’s Eco MAT™ RBF immediately upstream to remove large and heavy particulate that would interfere or otherwise slow the flotation of solids floc. Integrating the RBF, which reduces 40-70% of the suspended solids in a mechanical process, can significantly increase the hydraulic throughput of the DAF process while reducing chemical treatment costs.

Eco DAF® Process Advantages:
- Removal of difficult solids suspensions
- High removal of nutrients, BOD, & COD
- Sludge dewatering options
- Low chemicals consumption
- Low energy consumption
- Minimized space requirements
- Pre and post treatment options

Effluent from the Eco DAF® process is suitable for further treatment in Blue Water’s Centra-flo® sand filters, which can be configured for the patented Blue PRO® or Blue NITE® processes for enhanced low-level nutrient removal. Effluent from the sand filters is suitable for water reuse.

Combining 20+ years experience in DAF technologies and applications, Blue Water can provide the Eco DAF® process as more than a stand-alone product. Blue Water focuses on offering a treatment package as a flexible tool for cost reduction and increasing profit margins.

How It Works
The Eco DAF® system utilizes a coagulation chamber as the first step in the process. This is a distribution chamber that provides for the mixing and attachment of dissolved air to flocculated particles in the influent wastewater. Water then flows to the flotation chamber where the unit is designed with sufficient surface area for the flotation of air and flocculated particles. A surface skimming system removes the float from the tank for further solids handling and dewatering. Bottoms skimmer or blow-down is also an integral subsystem for the removal of settled solids in the bottom of the unit.

A whitewater system utilizes a recycled percentage of process effluent to provide the required dissolved air to the forward flow. The whitewater system uses regenerative turbine pumps to maximize dissolution of air.
This is an example DAF plant design. The Eco DAF® is often the centerpiece of an effective process design that includes other supporting sub-systems for optimal operation.