



# NitrOx<sup>®</sup> LAGOON AMMONIA REMOVAL



## Your Lagoon: Our Passion. Our Focus. Our Guarantee.

Lagoons are the least expensive, lowest maintenance method of wastewater treatment. Perfecting lagoons is our singular focus. We develop unique technologies and processes that cost-effectively help your lagoon Do It Better. You can upgrade a lagoon to meet or exceed any discharge requirement and ultimately produce clean water for your environment at a fraction of the cost of a mechanical plant.

The best solution is one tailored to work with your existing infrastructure. Our proven process evaluates the entire lagoon system using our proprietary treatment models to determine the best, most cost-effective solution for your treatment goals. We call it our Lagoons Do It Better Process and we believe in it so much that we guarantee that your system will do what we say it will do.

**Ares**<sup>®</sup> AERATION AND MIXING

**NitrOx**<sup>®</sup> LAGOON AMMONIA REMOVAL

**NitrOx-D**<sup>®</sup> LAGOON NITROGEN REMOVAL

**PhosBox**<sup>®</sup> LAGOON PHOSPHORUS REMOVAL

**LRAS**<sup>™</sup> ADVANCED LAGOON TREATMENT



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**LAGOONS**  
Do it better.





# NitrOx® Lagoon Ammonia Removal

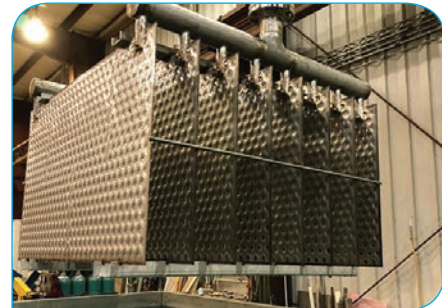
Our patented NitrOx Process cost-effectively retrofits lagoons to meet low ammonia limits, even in cold climates.

NitrOx works by controlling and optimizing conditions for lagoon ammonia removal: providing high surface area media to cultivate the growth of nitrifying bacteria, controlling temperature, and mixing and aerating the water to foster rapid BOD and ammonia removal.

**Low Capital Cost:** The NitrOx Reactor has a small footprint and tucks into your existing site, requiring no additional land. Because NitrOx leverages your existing infrastructure, capital costs are low— $\frac{1}{2}$  to  $\frac{2}{3}$  the cost of other lagoon ammonia removal technologies.

**Low Operating Cost:** Efficient Ares Aeration® mixes and oxygenates to fuel the nitrifying bacteria that remove ammonia—no heat required.

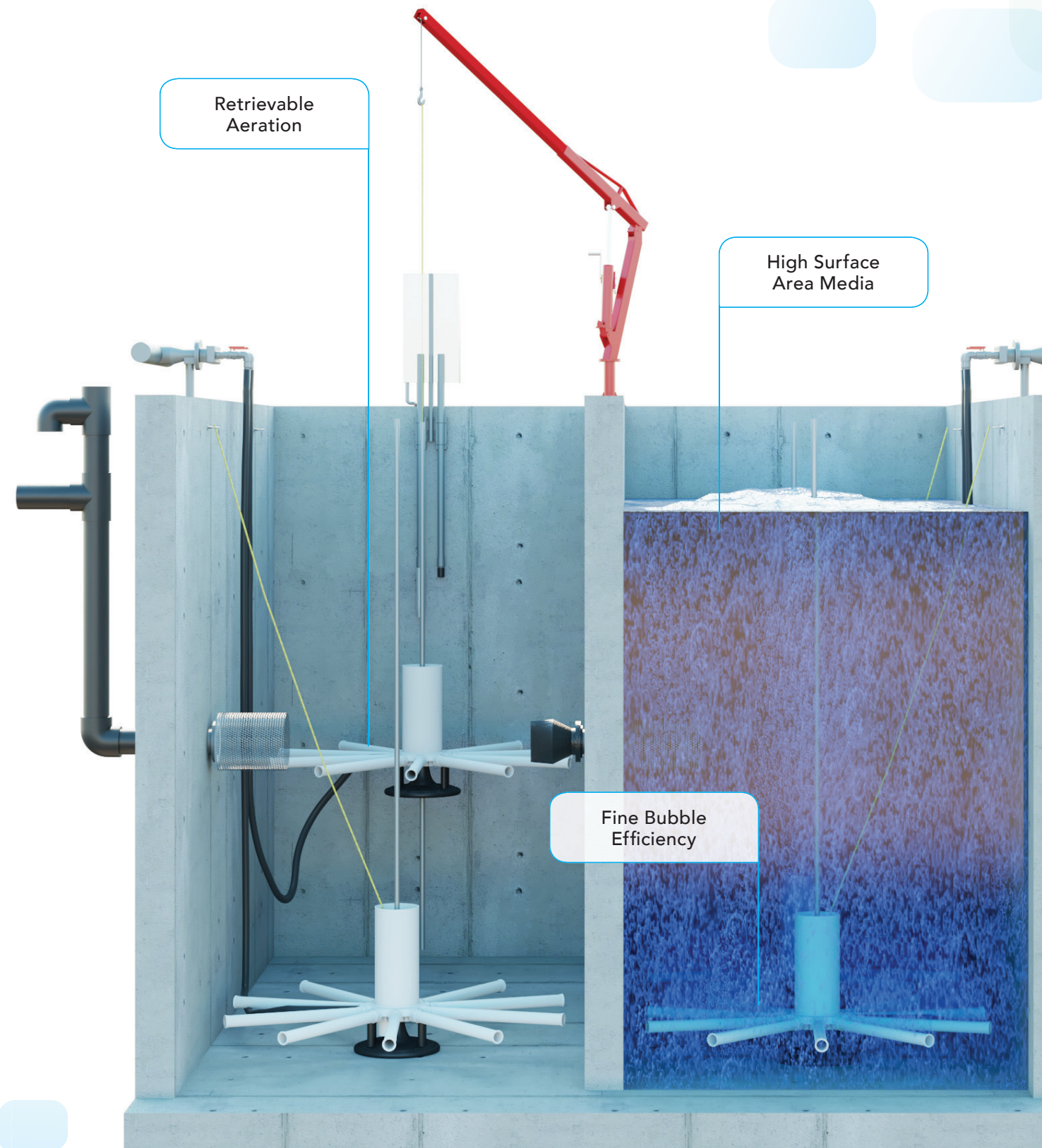
**Nitrification at Any Temperature:** Our proprietary BioChip media cultivates and concentrates nitrifiers—10–20 times more nitrifiers than in a typical MBBR—for supercharged ammonia removal year round, without heat.



An optional backup heater can be deployed during the coldest winter months for maximum process control or system expansion.



BioChip media supercharges the growth of nitrifying bacteria for reliable ammonia removal, no matter the temperature.



Less than  
**1/20th**  
size of lagoon

Up to  
**20%**  
more efficient

Average  
**0.3 mg/L**  
ammonia effluent

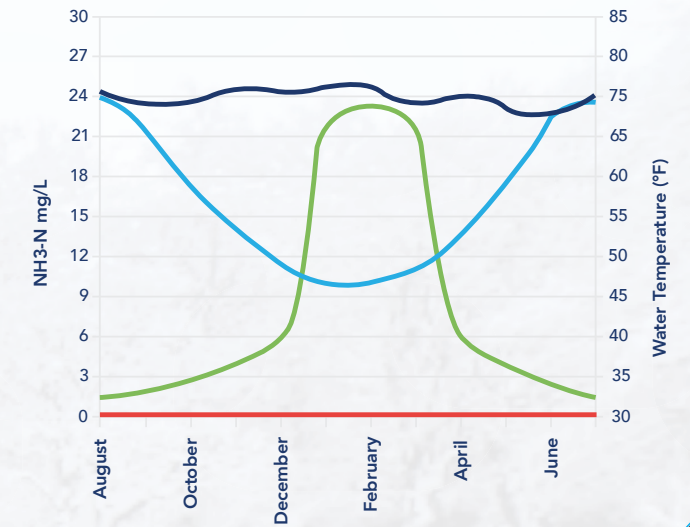


Small footprint. Easy operation.  
No clarification necessary.

### NitrOx Treatment Performance

Typical nitrification performance for a lagoon wastewater system

- Lagoon Influent NH<sub>3</sub>-N
- Lagoon Effluent NH<sub>3</sub>-N
- NitrOx NH<sub>3</sub>-N Effluent
- Lagoon Temperature



Lagoon BOD Removal

Polishing

NitrOx Reactor

Direct Discharge

NitrOx Process: BOD Removal → Polishing → NitrOx → Direct Discharge

**NitrOx** LAGOON AMMONIA REMOVAL

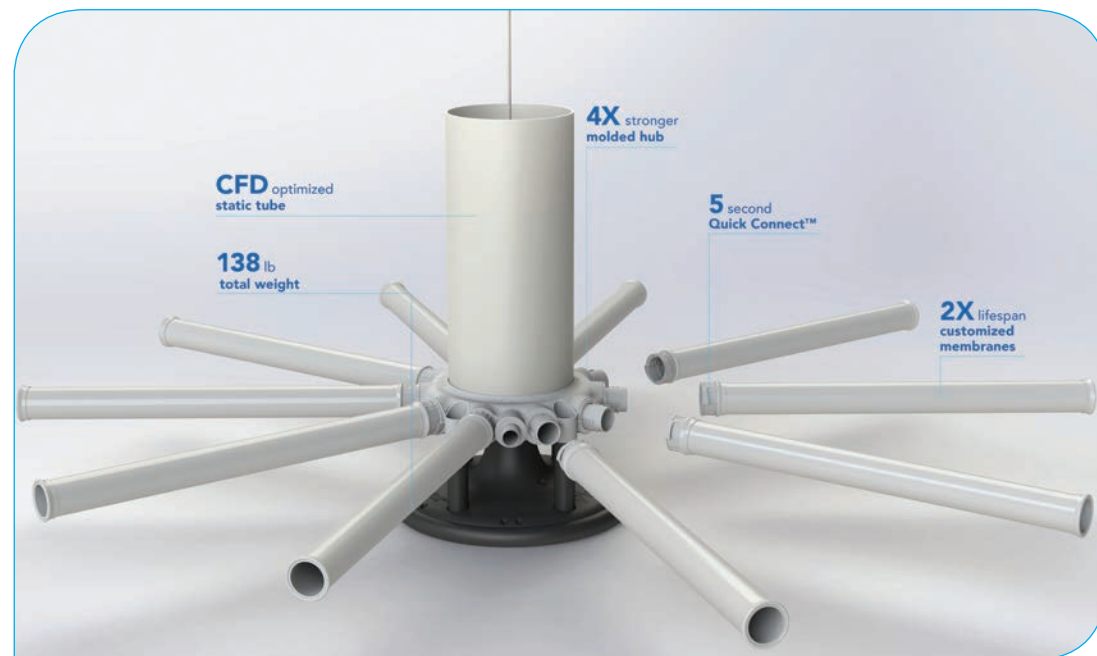


# NitrOx<sup>®</sup> with Ares Aeration<sup>®</sup>

Precision built. User friendly. Tailored for you.

Triplepoint's Ares Aerators create an ideal environment for rapid ammonia reduction with robust mixing and aeration. Each retrievable unit combines fine bubble efficiency with coarse bubble mixing to keep the media, oxygen, and nitrifiers in constant contact for rapid ammonia removal.

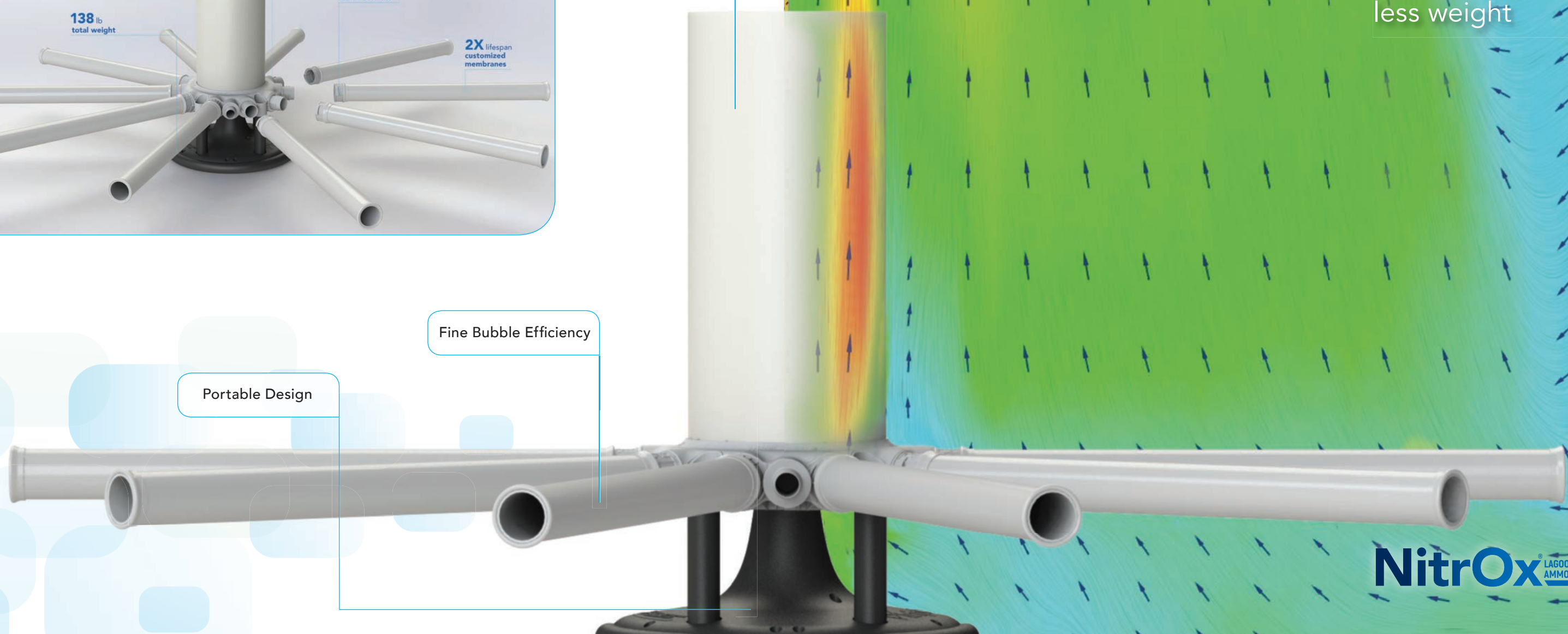
NitrOx was designed with the operator in mind: It is simple to operate, automated, and reliable. With no moving parts in the water and easily accessible controls, maintenance is minimal.



Draft Tube Mixing

Fine Bubble Efficiency

Portable Design



Up to  
**2.4%/ft**  
SOTE

Up to  
**7,800 gpm**  
pumpage

Up to  
**30%**  
less weight

**NitrOx**  
LAGOON  
AMMONIA REMOVAL