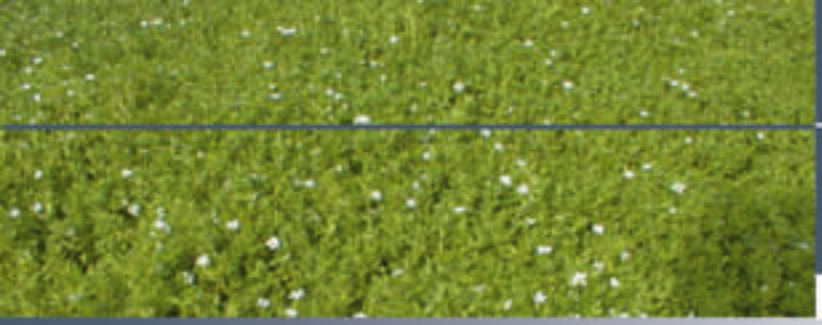

Ocean Arks INTERNATIONAL

LAGOON RESTORERS

Tyson Foods
Berlin, Maryland, USA

case study

Description of Problem:

The poultry processing facility acquired by Tyson Foods Inc. in Berlin, Maryland came with a wastewater treatment system that was known to be one of the worst in the state. The one million gallon per day treatment system discharges to Chincoteague Bay, a protected bay used for fishing and harvesting of crabs and scallops.

The existing wastewater treatment facility did not meet the high compliance standards demanded by the State of Maryland in order to protect the downstream aquatic ecosystems. The system consisted of two DAF units connected in series, which in turn discharged into a 13.5-million gallon lagoon. The lagoon was divided into a 4.5-million gallon basin run as a sequencing batch reactor followed by a 9-million gallon lagoon used as a decant pond. The SBR utilized approximately 280 hp of aeration equipment.

Restorers as a Solution:

Tyson Foods Inc. employed floating Restorer technologies on the existing 9-million gallon lagoon, to treat water to a high standard using less energy and producing less sludge than the former SBR system.

Twelve Restorers run 140 feet each across the lagoon and are planted with twenty-five species of plants (25,000 individuals). Fine bubble linear aerators installed at the bottom of the lagoon provide energy efficient aeration and gentle mixing. The center zones of the Restorers, with fixed-film media, are submerged, aerobic reactors.

The Restorers and fabric baffles are arranged to create a serpentine flow pattern which, combined with the gentle rolling action of the linear fine bubble aeration, forces the water to continually roll past four distinct aquatic ecologies: plant root zones, fabric media, sludge mounds, and open water. This spiraling flow pattern mimics the natural movement of water in streams and maximizes the exposure of waste particles to diverse biological communities.

The entire wastewater treatment system also incorporates the following components: dissolved air floatation, anoxic denitrification, an aerated lagoon, a clarifier, and disinfection.