



Gliding Along the Everglades

A Wisconsin company offers an innovative way to clean Miami-area waterways of troublesome vegetative growth

Cruise the canals of Miami, Fla., and you may come across an unusual-looking, low-profile vessel canvassing the area. Like an inconspicuous alligator hunting the Everglades, the WT-34 glides across the water with an insatiable appetite for aquatic growth.

The role of the WT-34 is an important one, because if aquatic weeds are not removed from the canal system, water flow becomes constricted, creating floods in and around the Miami area. The South Florida Water Management District has relied on vessels of this type for years, but recently turned to Aquarius Systems, a division of D&D Products, Inc., of North Prairie, Wis., to engineer and build a better product.

And they did. The WT-34 makes a splash with a new, innovative design. The vessel features a compact, porpoise-style hull measuring 6.10 meters (20 ft.) long, and a beam that is just 2.44 meters (8 ft.). It also features a low-profile deck that is a mere .61 meters (2 ft.) above the waterline, giving it easy clearance under low-lying bridges.

Needing ample horsepower in a small package, Aquarius Systems turned to the John Deere PowerTech 4045TFM marine diesel engine as the power source. "After researching engine brands, we found that

the John Deere engine had the best power-to-weight ratio," says chief engineer Mike Rizzo. "The base line vessel was designed around this engine. It was the fit that we needed for this boat."

And this is no measly workload. Mounted to the boat's stern is a winch that pulls a 408-kilogram (900 lb.) triangle-shaped drag cutter that rips and shreds weeds, often at depths of 6 meters (20 ft.) deep, along the canal floor. Once a swath is cut, the operator of the WT-34 retraces the path and scoops up the dislodged plant material with a 2.44 meter (8 ft.) wide bow-mounted basket. The vessel runs back and forth, eight hours a day, five days a week. "Dragging a 900-pound (408 kg) weight behind you requires a lot of muscle," explains company vice president Dave Dauffenbach. "The engine works hard."

Yet it's no problem for the 101-kW (135 hp) John Deere engine. Mounted to a Twin Disc transmission, the engine turns a 71-centimeter (28 in.), three-blade workboat propeller – a solid match for its low-end torque capabilities. Still, there is ample power to run its hydraulic functions, including the power steering, tow winch, and a lift. Aquarius Systems knows hydraulics, and they use a lot of it on other water-maintenance equipment, too. In fact,

the company has relied on Funk hydraulic pump drives for more than two decades. "We never had a problem mounting pumps to a Funk pump drive," says Rizzo. "Pump drives have to be reliable, and the Funk gear boxes have always worked well."

This type of dependable, reliable performance keeps customers coming back for more. Such is the case for the WT-34s powered by John Deere. The South Florida Water Management District now owns and operates four of the vessels, with plans to add at least four more to the fleet in the coming months. "They love the engine," says Rizzo. "Engine maintenance is easy, and they have a John Deere dealer network there to service them."

And watch out. With the population of these alligator-like vessels growing in south Florida, don't be surprised to find one of them sneaking up, quietly – a favored attribute considering the vessels often work in inner-city areas and residential neighborhoods. Compared to the two-stroke engines that powered the older vessels, says Rizzo, "John Deere engines are half the noise."

Engine: John Deere PowerTech 4045T – a 101-kW (135 hp), 4-cylinder, 4.5L, turbocharged diesel engine. **Distributor:** Superior Diesel, Rhinelander, Wis., (715) 365-0500.

The WT-34 features a low-profile, compact design, making it highly maneuverable within the confines of a canal. Aquarius Systems selected the power-dense 4045T engine to drive the aquatic-weed towboat.