

**Draft: Fawn Lake, Adams County,  
Herbicide Concentration Monitoring Summary, 2013**

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Fawn Lake has an area of 17 acres, and a maximum depth of 14.1 feet. On 16 May 2013 the entire lake was treated with liquid formulations of 2,4-D and endothall (Figure 1) to control Eurasian watermilfoil (*Myriophyllum spicatum*) and curly-leaf pondweed (*Potamogeton crispus*). The 2,4-D was applied to infested areas at a lake wide target concentration of 0.300 mg/L (300 ug/L) acid equivalent (ae), and endothall was applied at a lake wide target concentration of 1.0 mg/L active ingredient (ai) (1000 ug/L ai). Endothall application rates are specified as active ingredient (ai) in the product label, while endothall chemical analysis is specified as acid equivalent (ae). A concentration of 1000 ug/L ai is equal to 710 ug/L ae. The treatment record reported the water temperatures was 62°F (16.7°C) and the wind was 5 mph from the east at the time of treatment. The wind was reported by [www.wunderground.com](http://www.wunderground.com) to be 3 mph from the east.

Water sample sites were established at 4 locations to monitor 2,4-D and endothall dissipation and degradation (Figure 1). Water samples were collected using an integrated water sampler which collects a water samples from the entire water column. Water samples were collected at intervals of approximately 0.25, 1, 2, 3, 5, 7, 10, 14, 21, 28, and 35 days after treatment (DAT). Samples were taken to shore after completion of each sample interval, and 3 drops of muriatic acid were added to each sample bottle to fix the herbicide and prevent degradation. Samples were then stored in a refrigerator, until shipped to the US Army Engineer Research and Development Center (ERDC) laboratory in Gainesville, FL for analysis of 2,4-D and endothall.

#### **2,4-D Results**

Concentrations of 2,4-D in samples collected 0 to 7 DAT ranged from 172 to 652 ug/L ae compared to the lake wide target concentration of 300 ug/L ae (Figure 2). All concentrations of 2,4-D were less than the irrigation standard (100 ug/L ae) by 14 DAT.

The observed mean lake wide 24-D concentration from 0 to 7 DAT was 389 ug/L ae compared to the lake wide target concentration of 300 ug/L ae (Figure 3). The mean concentration of 2,4-D in samples collected at 7 DAT was 375 ug/L ae, but then dropped to 289 ug/L ae at 10 DAT and 24 ug/L ae by 14 DAT.

#### **Endothall Results**

Concentrations of endothall in samples collected 0 to 7 DAT ranged from 479 to 828 ug/L ae compared to the lake wide target concentration of 710 ug/L ae (Figure 4). All concentrations of endothall were less than the base line (100 ug/L ae) by 14 DAT.

The observed mean lake wide endothall concentration from 0 to 7 DAT was 694 ug/L ae compared to the lake wide target concentration of 710 ug/L ae (Figure 7). The mean concentration of endothall in samples collected 7 DAT was 499 ug/L ae, but then dropped to 76 ug/L ae at 10 DAT. The mean lake wide concentration was less than the base line concentration of 100 ug/L ae by 10 DAT.

**Figure 1. Fawn Lake Herbicide Sample Sites  
2013**



Figure 2

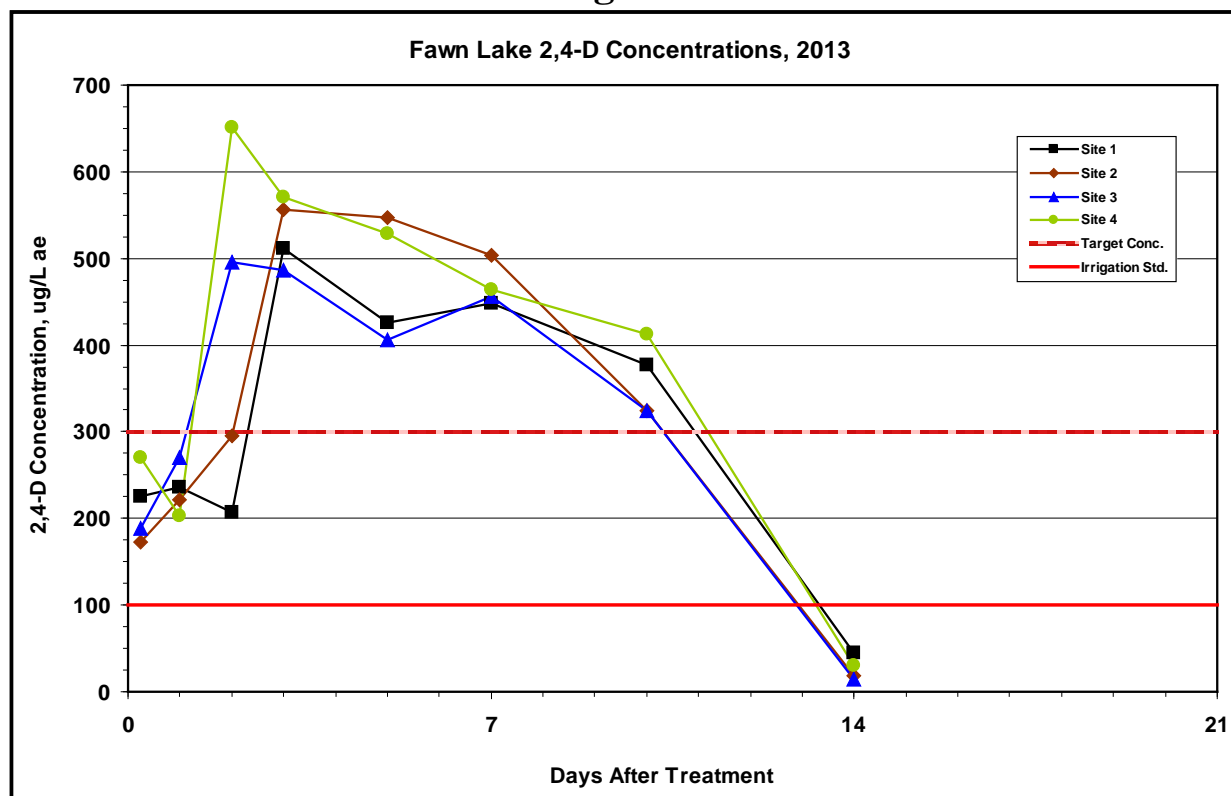


Figure 3

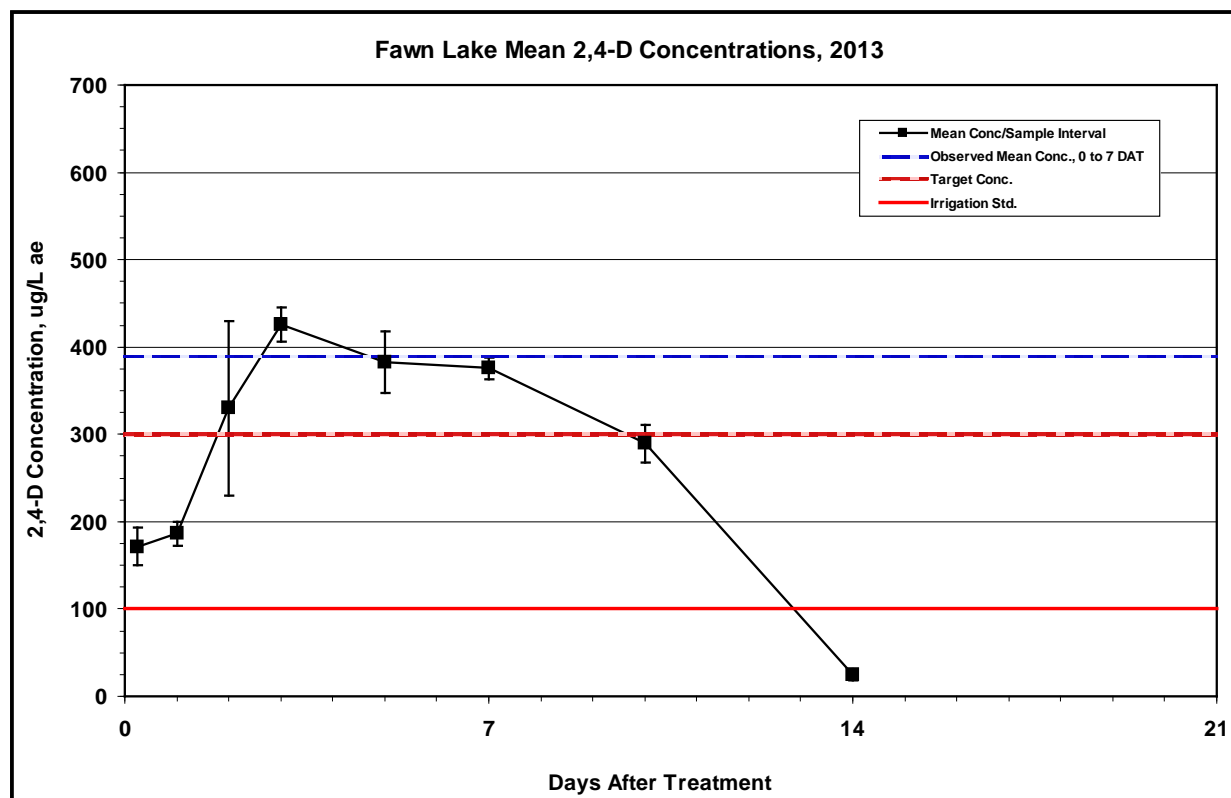


Figure 4

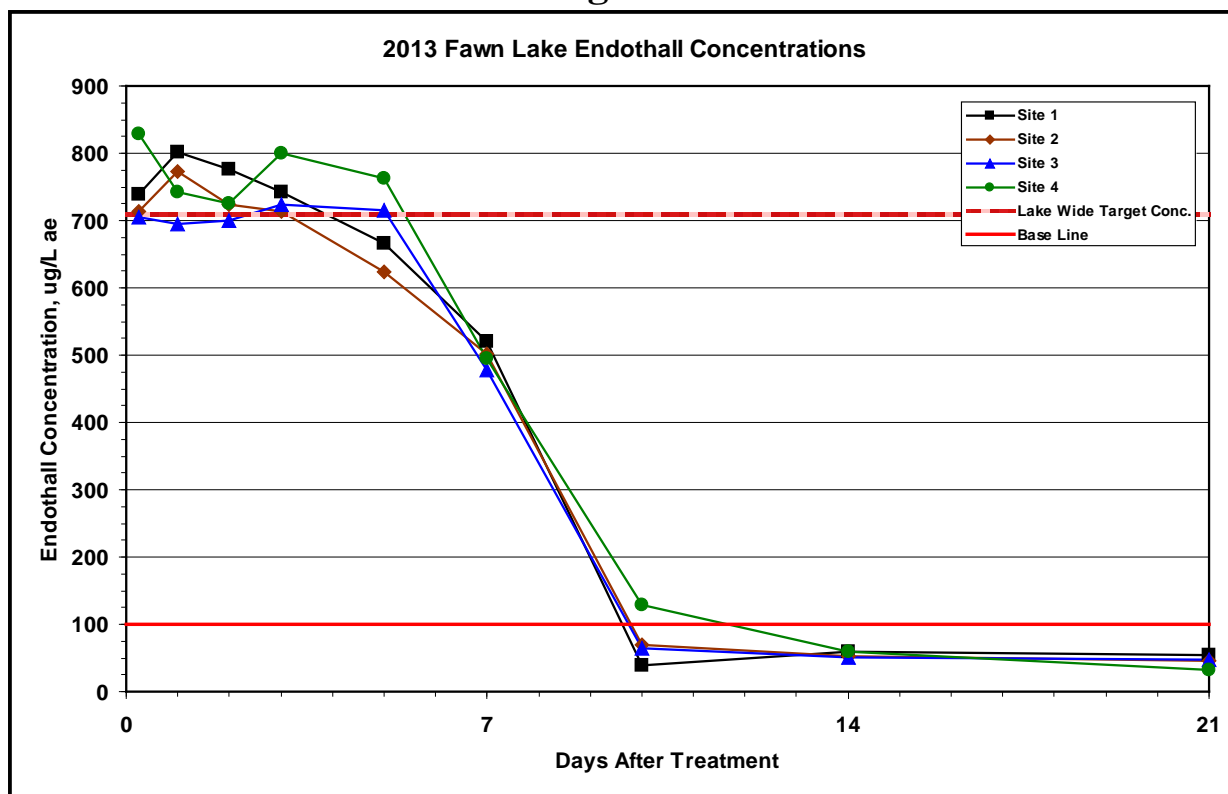


Figure 5

