



The change in criterion can have a significant effect on the DO trigger level used in the HCSP. The previous 5.0 mg/L criterion was found by FDEP to be overprotective for many fresh waterbodies in Florida (FDEP 2013). The revised criterion reflects a Florida-specific evaluation of the oxygen needs of important macroinvertebrate species. Based on the application of the revised DO saturation criterion versus the previous concentration-based trigger level, the 5.0 mg/L trigger level can result in exceedances for the HCSP that do not violate the current Class III water quality criterion. In practice, continuing with the 5.0 mg/L trigger level would result in an overprotective regulation that does not reflect the state of the science or current water quality criteria.

During the November 9, 2015 Technical Advisory Group (TAG) meeting on the 2013 HCSP Annual Report, there was discussion on the change from concentration in mg/L to percent saturation in the Florida water quality standards, and how that applied to the HCSP trigger levels. All those present (PRMRWSA, Cardno, Mosaic, EarthBalance®, Manatee County, Sarasota County, and Charlotte County) agreed that changing the HCSP DO trigger level to match the revised DO percent saturation criterion was necessary to be in compliance with the new state water quality standards. The new DO trigger level for the HCSP will be revised to comply with the state water quality standard in 62-302.533, F.A.C.: a daily average of 38% for continuous recorder data and time of day translation saturation for all grab samples. This change in trigger level will apply to evaluation of HCSP monthly reports beginning in November 2015. For the purposes of the HCSP annual reports, the 2013 report will contain a discussion of both the previous concentration-based and the new saturation-based trigger levels; the 2014 report will use the new saturation-based trigger level.

Table 1. Time of day translations equations by bioregion as defined in 62-303.320(4)(c).

Region	Equations for Time-of-Day-Specific Translation of the Daily Average DO Criterion-Streams
Northeast + Big Bend	$1.1844 \times 10^{-13} \cdot T^5 - 4.1432 \times 10^{-10} \cdot T^4 + 4.7729 \times 10^{-7} \cdot T^3 - 1.9692 \times 10^{-4} \cdot T^2 + 0.02314 \cdot T + 31.24$
Peninsula + Everglades	$1.9888 \times 10^{-13} \cdot T^5 - 6.8941 \times 10^{-10} \cdot T^4 + 7.8373 \times 10^{-7} \cdot T^3 - 3.1598 \times 10^{-4} \cdot T^2 + 0.03551 \cdot T + 33.43$
Panhandle West	$9.0851 \times 10^{-14} \cdot T^5 - 2.9941 \times 10^{-10} \cdot T^4 + 3.1560 \times 10^{-7} \cdot T^3 - 1.0851 \times 10^{-4} \cdot T^2 + 0.006285 \cdot T + 65.61$

Note: "T" is the time a sample is taken in minutes after midnight.

Table 2. Example of dissolved oxygen saturation criteria using the time of day translation in half hour increments during a normal work day for the Peninsula region.

Minutes Past Midnight	Time	DO %Saturation
420	7:00	31.82
450	7:30	32.24
480	8:00	32.82
510	8:30	33.54
540	9:00	34.39
570	9:30	35.34
600	10:00	36.39
630	10:30	37.49
660	11:00	38.64
690	11:30	39.79
720	12:00	40.93
750	12:30	42.02
780	13:00	43.04
810	13:30	43.96
840	14:00	44.76
870	14:30	45.41
900	15:00	45.90
930	15:30	46.21
960	16:00	46.32
990	16:30	46.23
1020	17:00	45.95
1050	17:30	45.46
1080	18:00	44.78