

62-302.533 Dissolved Oxygen Criteria for Class I, Class II, Class III, and Class III-Limited Waters.

(1) Class I, Class III predominantly freshwaters, and Class III-Limited predominantly freshwaters.

(a) No more than 10 percent of the daily average percent dissolved oxygen (DO) saturation values shall be below the following values:

1. 67 percent in the Panhandle West bioregion,

2. 38 percent in the Peninsula and Everglades bioregions, or

3. 34 percent in the Northeast and Big Bend bioregions. A map of the bioregions is contained in *SCI 1000: Stream Condition Index Methods* (DEP-SOP-003/11 SCI 1000) dated March 1, 2014 (<http://www.flrules.org/Gateway/reference.asp?No=Ref-06039>), which is incorporated by reference herein.

(b) For lakes, the daily average DO level shall be calculated as the average of measurements collected in the upper two meters of the water column at the same location on the same day. For all other freshwaters, the daily average freshwater DO level shall be calculated as the average of all measurements collected in the water column at the same location and on the same day.

(c) In the portions of the Suwannee, Withlacoochee (North), and Santa Fe Rivers utilized by the Gulf Sturgeon, and in the portions of the Santa Fe and New Rivers utilized by the Oval Pigtoe Mussel, DO levels shall not be lowered below the baseline distribution such that there is 90 percent confidence that more than 50 percent of measurements are below the median of the baseline distribution or more than 10 percent of the daily average values are below the 10th percentile of the baseline distribution for the applicable waterbody.

(d) In the portions of the St. Johns River utilized by the Shortnose or Atlantic Sturgeon, the DO shall not be below 53 percent saturation during February and March. During other times of the year, the criteria specified in paragraph 62-302.533(1)(a), F.A.C., shall apply.

(e) The baseline distributions and maps showing the specific areas utilized by the Gulf Sturgeon and the Oval Pigtoe Mussel are provided in Appendix I of the *“Technical Support Document for the Derivation of Dissolved Oxygen Criteria to Protect Aquatic Life in Florida’s Fresh and Marine Waters”* (DEP-SAS-001/13), dated March 2013 (<http://www.flrules.org/Gateway/reference.asp?No=Ref-02955>), which is incorporated by reference herein. Copies of Appendix I may be obtained by writing to the Florida Department of Environmental Protection, Water Quality Standards Program, 2600 Blair Stone Road, MS #6511, Tallahassee, FL 32399-2400.

(2) Class II, Class III predominantly marine waters, and Class III-Limited predominantly marine waters.

(a) Minimum DO saturation levels shall be as follows:

1. The daily average percent DO saturation shall not be below 42 percent saturation in more than 10 percent of the values,

2. The seven-day average DO percent saturation shall not be below 51 percent more than once in any twelve week period; and,

3. The 30-day average DO percent saturation shall not be below 56 percent more than once per year.

(b) To calculate a seven-day average DO percent saturation, there shall be a minimum of three full days of diel data collected within the seven-day period, or a minimum of ten grab samples collected over at least three days within that seven-day period, with each sample measured at least four hours apart.

(c) To calculate a 30-day average DO percent saturation, there shall be a minimum of three full days of diel data with at least one day of data collected in three different weeks of the 30-day period, or grab samples collected from a minimum of ten different days of the 30-day period.

(d) A full day of diel data shall consist of 24 hours of measurements collected at a regular time interval of no longer than one hour.

(3) If it is determined that the natural background DO saturation in the waterbody (including values that are naturally low due to vertical stratification) is less than the applicable criteria stated above, the applicable criteria shall be 0.1 mg/l below the DO concentration associated with the natural background DO saturation level.

(4) For predominately marine waters, a decrease in magnitude of up to 10 percent from the natural background condition is allowed if it is demonstrated that sensitive resident aquatic species will not be adversely affected using the procedure described in the DEP document titled Appendix H of the *“Technical Support Document for the Derivation of Dissolved Oxygen Criteria to Protect Aquatic Life in Florida’s Fresh and Marine Waters: Determination of Acceptable Deviation from Natural Background Dissolved Oxygen Levels in Fresh and Marine Waters”* (DEP-SAS-001/13), dated March 2013 (<http://www.flrules.org/Gateway/reference.asp?No=Ref-02956>), which is incorporated by reference herein. Copies of Appendix H may be obtained by writing to the Florida Department of Environmental Protection, Water Quality Standards Program, 2600 Blair

Stone Road, MS #6511, Tallahassee, FL 32399-2400.

(5) Ambient DO levels above the minimum criteria specified in subsections 62-302.533(1) and (2), F.A.C., shall be maintained in accordance with and subject to Rules 62-302.300 and 62-4.242, F.A.C. Ambient DO levels will be considered to have declined, for purposes of this subsection if, after controlling for or removing the effects of confounding variables, such as climatic and hydrologic cycles, quality assurance issues, and changes in analytical methods, a waterbody segment is shown to have a statistically significant decreasing trend in DO percent saturation or an increasing trend in the range of daily DO fluctuations at the 95 percent confidence level using the one-sided Seasonal Kendall test for trend, as described in Helsel, D.R. and R.M. Hirsch, 2002, Statistical Methods in Water Resources, USGS, pages 338 through 340 (<http://www.flrules.org/Gateway/reference.asp?No=Ref-02957>), which is incorporated by reference herein, or an alternative statistically valid trend at a one-sided confidence level of 95 percent. It must be demonstrated that the data satisfy all statistical assumptions of any alternative method used, including residual distribution, variance, and shape of relationship.

Rulemaking Authority 403.061, 403.062, 403.087, 403.504, 403.704, 403.804 FS. Law Implemented 403.021(11), 403.061, 403.087, 403.088, 403.141, 403.161, 403.182, 403.502, 403.702, 403.708 FS. History—New 8-1-13, 2-17-16.