Hydrobiologic Monitoring Guidelines for Wetlands
Water Use Regulation Division

(Revised June 20, 2007)

The following guidelines have been developed to assist permittees in complying with wetland/water level monitoring requirements associated with water use permits. These guidelines are intended to standardize the methodologies for data collection and presentation in reports submitted to the District.

Prior to developing a monitoring program, the permittee should meet with District staff to discuss the specifics of the project and the goals of the monitoring program. The number of monitoring sites will depend on the size of the project and the number of wetlands that may be affected by the water use. Monitoring programs implemented pursuant to water use permit conditions should be submitted to District staff in the Water Use Division for review and approval prior to implementation. For most projects that require wetland monitoring, the following items should be incorporated into the monitoring program.

1. Establish a vegetative monitoring transect through each wetland to be monitored. Transects must represent a typical section of the wetland and extend from the edge of the wetland, i.e. jurisdictional boundary, to the middle of the wetland unless otherwise specified by District staff. Establish sampling stations in each different vegetative community, e.g. ecotone and at each change in ecotone along transects (see Figure 1). Monitoring of vegetation should be conducted semi-annually during the middle of the wet season (mid August) and the middle of the dry season (mid February).

2. Establish photo stations at wetlands to be monitored so that the photographic record represents the area of the wetland to be monitored. Photographs should be date stamped and of sufficient size, quality and clarity to identify major vegetative communities. Photographs should be taken semi-annually during vegetative monitoring events.

3. Establish land surface elevations across the wetland transect to be monitored beginning at the edge of the wetland, i.e. jurisdictional boundary. Establish elevations at each sampling station to be monitored. Elevations should be surveyed to NAVD 88 (with a conversion factor for the NGVD 29 vertical datum). Provide a cross sectional view of the wetland with elevations and a plan view of the wetland with contours (see Figure 2).

4. Establish staff gauge in deepest portion of wetland to read water level elevations. Staff gauge should be referenced to NAVD 88 (with a conversion factor for the NGVD 29 vertical datum). Provide the elevation of natural ground surface at the staff guage. Surface water levels should

be read and recorded on a weekly basis with data compiled semi-annually and submitted in annual reports.

5. Provide ground water monitoring well(s) in the deepest portion of the wetland. Provide the well depth and diameter, the elevation of natural ground surface at the well and the top of casing elevation referenced to NAVD 88. Ground water elevations should be measured on a weekly basis with data compiled semi-annually and submitted in annual reports.

6. The monitoring wells should be installed by a licensed water well contractor (as required in section 373.336 (1)(b), F.S.), and all monitoring devices shall be surveyed to NAVD 88 to an accuracy of +/- 0.01 foot. With each monitoring report, the permittee shall provide a conversion factor for the NGVD 29 vertical datum. Ground water elevations should be referenced to NAVD 88 and should include measuring device used, description and elevation of measuring point (i.e. top of casing), depth to water from measuring point, and correction factor(s) for converting to NAVD 88.

7. Provide lithologic logs and well construction completion reports for each monitoring well. Additionally, the well contractor shall complete and sign the well completion report (Form 0124). Note: All monitoring wells can be reported in one form.

8. Establish a rain gauge in a convenient and appropriate location on the site. Rainfall totals should be compiled from daily readings and submitted in each annual report.

9. When feasible, conduct baseline monitoring prior to withdrawal of water to establish existing conditions. The collection of hydrological (ground water and surface water) data for at least one year is recommended to establish baseline conditions. One vegetative monitoring event, preferably during the middle of the wet season (mid August), is sufficient to establish baseline conditions.

10. Provide a plan view showing the location of all wetlands, transects, quadrats, staff gauges, rainfall station, photo station, production wells and monitoring wells.

After District staff has approved your plan, you will begin to collect and submit data. Data should be submitted according to the following list.

11. Monitoring shall be performed on a semi-annual basis and submitted on an annual basis at the end of the wet season (September/October) **or** dry season (April/May). All monitoring reports shall be submitted at the same time each year to the Water Use Compliance Supervisor in the Water Use Regulation Division, 3301 Gun Club Road, MSC 4320, West Palm Beach, FL 33406.

12. Compile and submit surface and ground water level data, rainfall data, and pumpage data (required by other limiting conditions) in each annual report.

13. Provide a graphical representation (hydrograph) of rainfall data, surface and ground water level data and well pumpage data compared to the wetland bottom elevation and the normal pool elevation, control elevation if applicable, or wetland edge elevation, over time.

14. Provide results of vegetative monitoring data and an evaluation by comparing to previous monitoring reports. Data should be presented such that a trend analysis over time can be conducted. Percent coverage of dominant species in each sampling station should be presented; hydrographs and data for previous monitoring events and calendar years shall also be displayed consecutively for ease of comparison.

15. Provide a narrative summary of the overall ecological condition of the monitored wetlands and the effect of the water use withdrawals on the hydrologic regime. Please identify wetlands that are experiencing declines in their ecological health, provide an explanation of the cause of the decline, and include any recommendations for improving the health and function of the monitored wetlands.

If you have any questions regarding your limiting conditions requiring wetland/water level monitoring please contact the staff in the Water Use Division. If you need additional information on the biological aspects of setting up a monitoring program, refer to the *Environmental Monitoring Guidelines* established by the Natural Resource Management Division. Monitoring programs implemented pursuant to water use permit conditions should be submitted to District staff in the Water Use Division for review and approval prior to implementing a monitoring program.

SFWMD

Water Use Division

Example of Wetland Plan View

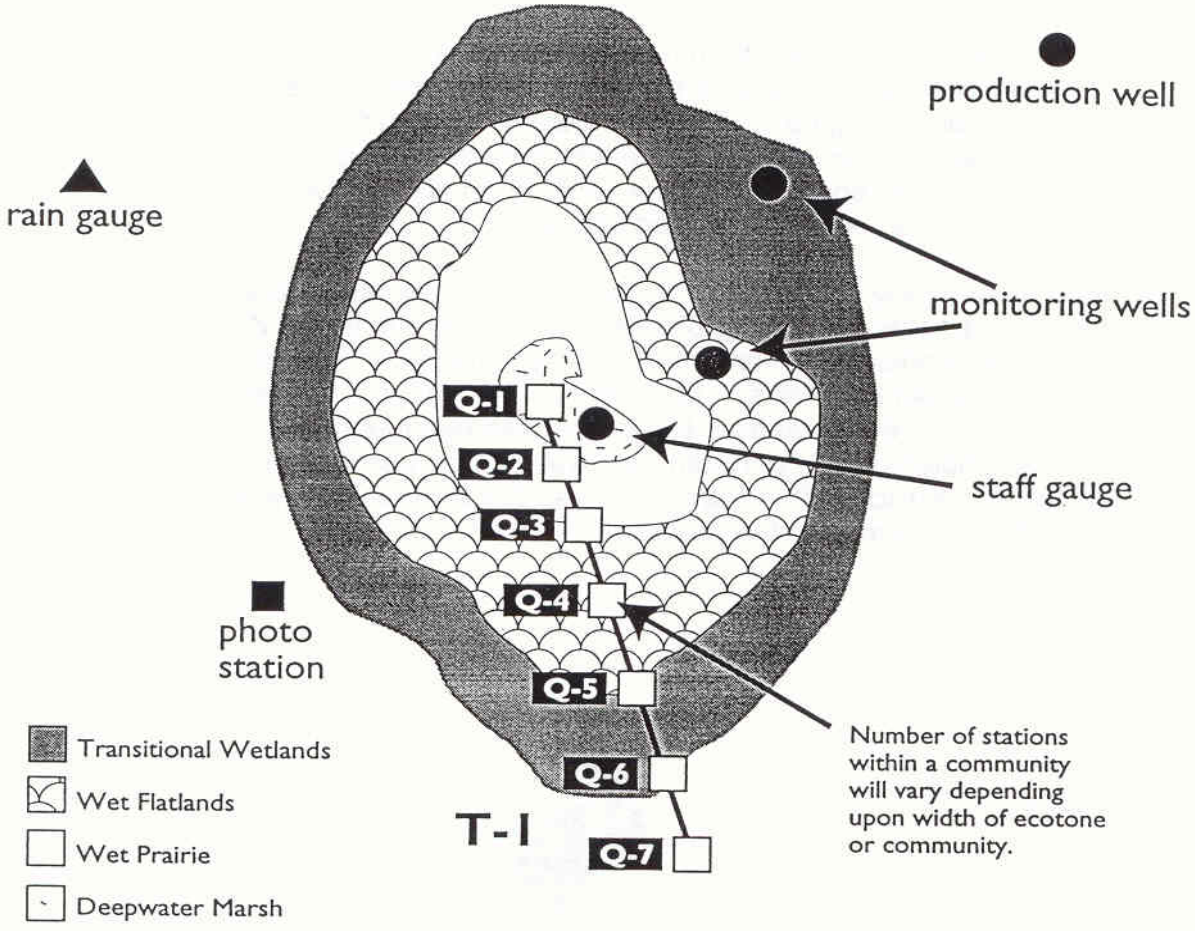

Table applies for each wetland and quadrat to be monitored.

Wetland "X"	Baseline	1st Annual	2nd Annual	3rd Annual	4th Annual	5th Annual
COVERAGE						
T1-Q1						
Spp. 1	%	%	%	%	%	%
Spp. 2	%	%	%	%	%	%
Spp. 3	%	%	%	%	%	%
Spp. 4 (etc.)	%	%	%	%	%	%
T1-Q2 (etc.)						

Comments for Wetland "X": Comments should reflect overall condition of the wetland for each reporting period.

Figure 1. Wetland Plan View showing location of transect through wetland areas to be monitored. (Location of rain gauge, photo station, production wells, monitoring wells, quadrats and staff gauge should be provided with each report.)

Example of Wetland Cross Section

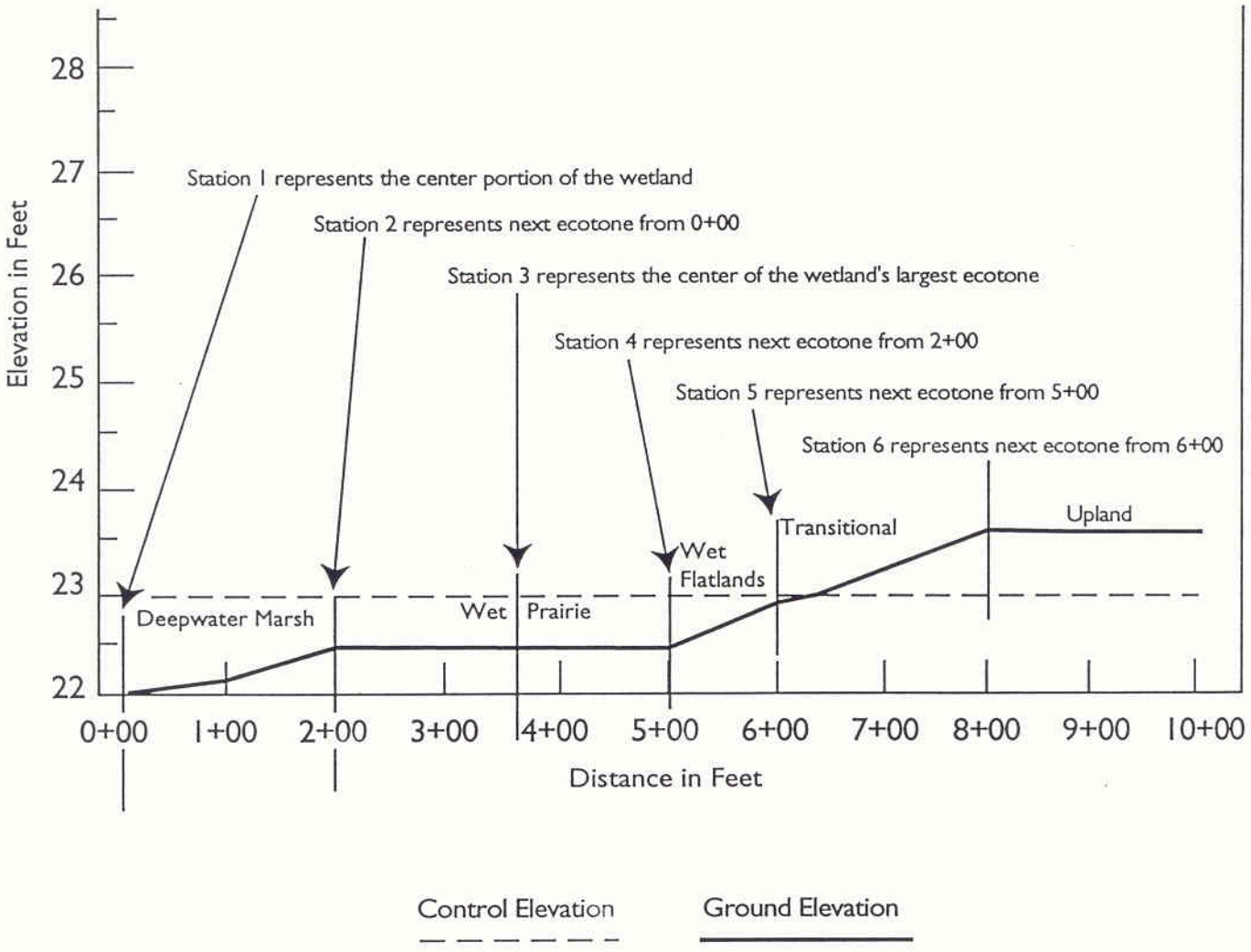

Figure 2. Transect-Elevation Cross-Section Relative to Control Elevation of Wetlands