

## GLOSSARY

### Numbers

**8.5-Square Mile Area (SMA):** A residential area in south Miami-Dade County, south of Tamiami Trail and east of Everglades National Park. Until implementation of the 8.5-Square Mile Area Mitigation Plan (part of the Modified Waters Deliveries to Everglades National Park Project), the area had no levee separating it from Everglades National Park.

### A

**Accuracy:** Closeness of a measured value to the true value.

**Acoustic Doppler velocimeter (ADV):** Instrument that records instantaneous velocity components at a single point with a relatively high frequency. Measurements are performed by measuring the velocity of particles in a remote sampling volume based upon the Doppler shift effect. This tool is being used to determine surface flow velocities in the Decomp Physical Model before and during flow releases.

**Acre-foot (ac-ft):** Volume of liquid required to cover 1 acre to a depth of 1 foot, commonly used to express large amounts of water (1 acre-foot = 43,560 cubic feet).

**Ad valorem tax:** Tax imposed on the value of real and personal property, as certified by the property appraiser in each county. The South Florida Water Management District is a special taxing district with the authority to collect ad valorem taxes.

**Adaptive management:** Application of scientific information and explicit feedback mechanisms to refine and improve future management decisions.

**Agricultural privilege tax:** Annual tax levied on farming activities in the Everglades Agricultural Area and C-139 basins to support Everglades restoration.

**Akaike information criterion (AIC<sub>c</sub>):** A measure of the relative quality of statistical models for a given set of data. Given a collection of models for the data, AIC<sub>c</sub> estimates the quality of each model, relative to each of the other models. Hence, AIC<sub>c</sub> provides a means for model selection.

**Alkalinity:** Alkaline nature of a substance (water) derived by measuring its ability to accept hydrogen ions.

**Alternative water supply (AWS):** Supply of water that has been reclaimed after municipal, commercial, or agricultural uses; or a supply of storm water, or brackish or salt water, that has been treated in accordance with applicable rules and standards sufficient to supply an intended use.

**Analysis of variance (ANOVA):** A collection of statistical models used to analyze the differences among group means and their associated procedures such as "variation" among and between groups.

**Analyte:** Substance measured in an analytical procedure.

**Applicant's Handbook:** The full title is the Applicant's Handbook for Water Use Permit Applications within the South Florida Water Management District. This document specifies the general procedures and information used by South Florida Water Management District staff for review of water use permit applications.

**Aquifer:** Underground, water bearing layer of porous rock, sand, or gravel.

**Aquifer storage and recovery (ASR):** Injection of fresh water into a confined saline aquifer during times when supply exceeds demand (wet season), and recovery of the water during times when there is a supply deficit (dry season).

**Arthur R. Marshall Loxahatchee National Wildlife Refuge (LNWR):** A 147,392-acre (596.47 square kilometers) wildlife sanctuary located west of Boynton Beach in Palm Beach County, Florida. It includes the most northern remnant of the historic Everglades wetland ecosystem. LNWR contains Water Conservation Area 1.

**Avian Protection Plan (APP):** A utility-specific program designed to reduce the operational and avian risks that result from avian interactions with utility facilities including stormwater treatment area pump stations.

**Avian vacuolar myelinopathy (AVM):** A recently discovered neurological disease affecting birds in the southern United States. Birds affected with AVM lack muscle coordination and therefore have difficulty flying and swimming. Birds that died from AVM generally appeared to be in good health, with the exception of a characteristic lesion in the myelin of the brain and spinal cord. There is concern that this disease will affect Everglade snail kites and other birds in the South Florida environment.

## B

**Baseline period:** Specified period of time during which collected data are used for comparisons with subsequent data.

**Basin:** A tract of land drained by a surface waterbody or its tributaries.

**Basin management action plan (BMAP):** The "blueprint" for restoring impaired waters by reducing pollutant loadings to meet total maximum daily loads. It should contain a comprehensive set of strategies such as permit limits on wastewater facilities, urban and agricultural best management practices, conservation programs, and financial assistance and revenue generating activities, designed to implement the pollutant reductions. These plans are developed with local stakeholders and they are adopted by the Florida Department of Environmental Protection.

**Before-after-control impact (BACI):** Experimental designs that are commonly used to monitor for potential environmental impacts in which one or more impacts and one or more control sites are identified. Before and after observations are taken at the control and impact sites.

**Before-after-control impact paired series (BACIPS):** Experimental designs that are commonly used to monitor for potential environmental impacts in which each impact site is paired with a control site. Before and after observations are taken at the control and impact sites.

**Benthic:** Pertaining to the bottom or sediment habitats of a body of water.

**Best management practices (BMPs):** Land, agricultural, industrial, and waste management techniques that reduce pollutant export from a specified area.

**Bioaccumulation:** Increase in concentration of a contaminant in an organism relative to its concentration in the environment over time. A bioaccumulation factor is the ratio of a contaminant concentration in living tissue to its concentration in the organism's diet.

**Biogeochemistry:** Study of the chemical, physical, geological, and biological processes and reactions that govern the composition of the natural environment (including the biosphere, the hydrosphere, the pedosphere, the atmosphere, and the lithosphere), and the cycles of matter and energy that transport the Earth's chemical components in time and space.

**Biomagnification:** In a food chain, the process by which contaminants increase progressively in organisms at higher trophic levels.

**Biomass:** Amount of living material in a sample, population, or area, usually measured as dry mass.

**Brackish:** Containing a mixture of salt water and fresh water.

**Broadleaf marsh:** Wetland plant communities dominated by species with flag-like leaves such as bulltongue arrowhead (*Sagittaria lancifolia*), pickerelweed (*Pontederia cordata*), and alligator flag (*Thalia geniculata*). It

was the predominant wetland plant community on the Kissimmee River floodplain prior to channelization and is expected to cover over 50 percent of the floodplain after the Kissimmee River Restoration Project is complete and restoration ensues.

**Bulk density:** Mass of soil in a given volume.

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**Calendar Year (CY):** The period of time that begins on January 1 and ends on December 31 of the same year.

**Carbon-13 (<sup>13</sup>C):** A natural, stable isotope of carbon that is used in tree island studies to determine carbon demand relative to nitrogen demand (and phosphorus availability).

**Central and Southern Florida Flood Control Project (C&SF Project):** Complete system of canals, storage areas, and water control structures spanning the area from Lake Okeechobee to the east and west coasts and from Orlando south to the Everglades. This was designed and constructed in the 1950s by the United States Army Corps of Engineers to provide flood control and improve navigation and recreation.

**Central Everglades Planning Project (CEPP):** A planning process for key restoration projects in the Everglades. Now under way, CEPP combines a series of Comprehensive Everglades Restoration Plan components into one project implementation report. Through this effort, projects will be identified and planned on land already in public ownership to allow more water to be directed south to the central Everglades, Everglades National Park, and Florida Bay while protecting coastal estuaries.

**Central Florida Water Initiative (CFWI):** A collaborative water supply planning effort among the St. John's River, Southwest Florida, and South Florida water management districts; the Florida Department of Environmental Protection; the Florida Department of Agriculture and Consumer Services; and water utilities, environmental groups, business organizations, agricultural communities, and other stakeholders. The CFWI Planning Area covers five counties: Orange, Osceola, Polk, Seminole, and southern Lake.

**Certificate of participation (COP):** As defined by Florida law (Section 373.584, Florida Statutes), a type of revenue bond that water management districts may issue to finance the undertaking of any capital or other project for purposes permitted by the state's constitution.

**Clean Water Act:** The primary federal law in the United States governing water pollution. Its objective is to restore and maintain the chemical, physical, and biological integrity of the nation's waters by preventing point and non-point pollution sources, providing assistance to publicly-owned treatment works for the improvement of wastewater treatment, and maintaining the integrity of wetlands.

**Code of Federal Regulations (CFR):** The codification of the general and permanent rules and regulations (sometimes called administrative law) published in the Federal Register by the executive departments and agencies of the federal government of the United States.

**Coefficient of variance (CV):** A standardized measure of dispersion of a probability distribution or frequency distribution in probability theory and statistics.

**Compliance monitoring:** In a water quality management program, compliance is associated with meeting permit conditions based on ambient standards. Ongoing monitoring provides periodic water quality data, which are used to assess compliance.

**Comprehensive Everglades Restoration Plan (CERP):** Framework and guide for the restoration, protection, and preservation of the South Florida ecosystem. CERP also provides for water-related needs of the region, such as water supply and flood protection. The plan is being implemented as a 50/50 cost share program between the United States Army Corps of Engineers and the South Florida Water Management District.

**Comprehensive Everglades Restoration Plan Regulation Act (CERPRA):** Regulates Comprehensive Everglades Restoration Plan project components unless they are otherwise subject to the Everglades Forever Act, the

Northern Everglades and Estuaries Protection Program, or the Florida Department of Environmental Protection's rules on reuse of reclaimed water. This regulatory act provides for the protection of water quality and the reduction of the loss of fresh water from the Everglades. It is Section 373.1502 of the Florida Statutes.

**Consumptive Use Permit (CUP):** Permit issued by the South Florida Water Management District under Chapter 40E-2, Florida Administrative Code, allowing withdrawal of water for consumptive use.

**Cooperative invasive species management area (CISMA):** A partnership of federal, state, and local government agencies, tribes, individuals, and various interested groups that manage invasive species in a defined area.

**Corkscrew Regional Ecosystem Watershed (CREW):** A watershed that spans more than 60,000 acres in both Lee and Collier counties and provides natural flood protection, water purification, and critical aquifer recharge.

## D

**DBHYDRO:** The South Florida Water Management District's corporate environmental database that stores hydrologic, meteorologic, hydrogeologic, and water quality data. This database is the source of historical and up-to-date environmental data for the 16-county region covered by the District.

**Debt service:** The cash that is required for a particular time period to cover the repayment of interest and principal on a debt.

**DECOMP Physical Model:** A field-scale test being conducted along a 3,000-foot stretch of the L-67A and L-67C levees and canals in Water Conservation Areas 3A and 3B to determine how best to design and formulate plans for future decompartmentalization of these areas, as visualized in the Comprehensive Everglades Restoration Plan.

**Dichlorodiphenyldichloroethane (DDD):** An insecticide toxic to animals that is no longer used in the United States but persists in the environment.

**Dichlorodiphenyldichloroethylene (DDE):** A common breakdown product of dichlorodiphenyltrichloroethane (DDT). Though DDT is no longer used in the United States, DDE is still widely seen in animal tissue samples.

**Dichlorodiphenyltrichloroethane (DDT):** An insecticide widely used in the United States from the 1940s to 1972. It is toxic to animals and humans and persists in the environment.

**Dichlorophenoxyacetic acid (2,4-D):** A common systemic herbicide used in the control of broadleaf weeds and one of the most widely used herbicides in the world. Some forms are highly toxic to fish and other aquatic life.

**Diel:** Variation that occurs regularly every day.

**Digital aerial sketchmapping (DASM):** The geo-location of features on the ground as observed from the air and the subsequent recording of these features on maps or photographs.

**Discharge (or flow):** Rate of water movement past a reference point, measured as volume per unit time (usually expressed as acre-feet or cubic meters per second).

**Dissolved oxygen (DO):** Concentration of oxygen dissolved in water, often expressed as percent saturation, where saturation is the maximum amount of oxygen that can be dissolved in water at a given altitude and temperature.

**Drawdown:** Lowering of the water level in a reservoir or other body of water.

**Drought:** Extended period of low rainfall, below normal streamflow, and depleted surface and subsurface storage.

**Dynamic Model for Stormwater Treatment Areas (DMSTA):** A model that simulates water and mass balances in the stormwater treatment areas.

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**E**

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**EC<sub>50</sub>:** The concentration of a substance at which 50 percent of the aquatic species tested exhibit a toxic effect short of mortality within a short (acute) exposure period.

**Ecology:** Study of the relationship of plants and animals to their physical and biological environment.

**Ecosystem:** Biological communities together with their environment, functioning as a unit.

**Ecosystem restoration:** The process of reestablishing to as near its natural condition as possible, the structure, function, and composition of an ecosystem.

**Ecotoxicology:** Scientific discipline combining the methods of ecology and toxicology in studying the effects of toxic substances, particularly pollutants, on the environment.

**El Niño-Southern Oscillation (ENSO):** The combination of El Niño and La Niña is an irregularly periodical variation in winds and sea surface temperatures over the tropical eastern Pacific Ocean, affecting much of the tropics and subtropics. The warming phase is known as El Niño and the cooling phase as La Niña. Southern Oscillation is the accompanying atmospheric component.

**Emergency order (EO):** The Florida Department of Environmental Protection can issue an emergency order instead of a permit when immediate action is needed and the normal procedures for obtaining the necessary authorizations (permits) would not result in timely action to address the emergency.

**Emergent aquatic vegetation (EAV):** Wetland plants that extend above the water surface.

**Encumbrance:** A charge or claim on property or assets.

**Environmental impact statement (EIS):** A document required under United States environmental law by the National Environmental Policy Act for federal government agency actions “significantly affecting the quality of the human environment.” It evaluates the positive and negative environmental effects of a proposed agency action.

**Environmental Resource Permit (ERP):** Permit issued by the South Florida Water Management District under Chapter 40E-4, Florida Administrative Code, to ensure that land development projects do not cause adverse environmental, water quality, or water quantity impacts.

**Estuary:** Part of the wide lower course of a river where its current is met by ocean tides, or an arm of the sea at the lower end of a river where fresh and salt water meet.

**Eutrophication:** Enrichment of aquatic environments with nutrients like phosphorus and nitrogen, typically from mineral and organic runoff originating in the surrounding watershed. This enrichment results in increased growth of plants and algae that may reduce dissolved oxygen content in the water and can result in the die-off of other organisms. The process occurs naturally, but can be accelerated by human activity (known as cultural eutrophication).

**Evapotranspiration (ET):** The loss of water from soil by evaporation and transpiration from the plants growing within it.

**Everglades Agricultural Area (EAA):** Area extending south from Lake Okeechobee to the northern levee of Water Conservation Area-3A, and from its eastern boundary at the L-8 canal to the western boundary along the L-1, L-2, and L-3 levees. The EAA incorporates almost 3,000 square kilometers (1,158 square miles) of highly productive agricultural land.

**Everglades Construction Project (ECP):** The ECP is a requirement of the 1994 Everglades Forever Act and is the foundation of a large ecosystem restoration program, composed of various interrelated construction projects between Lake Okeechobee and the Everglades. This includes the Everglades Stormwater Treatment Areas,

which have a total area with infrastructure components of approximately 68,000 acres, with roughly 57,000 acres of effective treatment area currently operational.

**Everglades Forever Act (EFA):** A 1994 Florida law (Section 373.4592, Florida Statutes), amended in 2003, to promote Everglades restoration and protection through comprehensive and innovative solutions to issues of water quality, water quantity, hydroperiod, and the invasion of nonindigenous species to the Everglades ecosystem. The EFA establishes the plan, the enforceable schedule, and the funding for the various components of the Everglades Program.

**Everglades Program:** Projects, regulations, monitoring efforts, and research associated with restoring and protecting the Everglades. This program was established by the 1994 Everglades Forever Act.

**Everglades Protection Area (EPA):** A region defined in the Everglades Forever Act that includes Water Conservation Areas 1, 2A, 2B, 3A, and 3B, the Arthur R. Marshall Loxahatchee National Wildlife Refuge, and Everglades National Park.

**Everglades Restoration Transition Plan (ERTP):** A plan that defines water management operating criteria for Central and Southern Florida Flood Control Project (C&SF Project) features and the constructed features of the Modified Water Deliveries to Everglades National Park and C-111 Canal South Dade projects until a Combined Operational Plan is implemented. It is the current operating plan.

**Everglades Stormwater Treatment Areas (Everglades STAs):** Large, constructed freshwater treatment wetlands mandated by the Everglades Forever Act (Chapter 373.4592, Florida Statutes) south of Lake Okeechobee to remove excess total phosphorus from surface waters prior to entering the Everglades Protection Area. Currently, the Everglades STAs have a total area with infrastructure components of approximately 68,000 acres, with roughly 57,000 acres of effective treatment area operational.

**Everglades Trust Fund:** A fund created by Florida law (Chapter 97-258, Florida Statutes) to support ecosystem restoration of the Everglades.

**Exceedance (in water quality):** The violation of the water quality criterion or limit for a parameter or constituent as permitted by environmental protection standards.

**Excursion (in water quality):** Constituent concentration that is of potential concern as an exceedance and possible violation of a water quality criterion. “Excursion” indicates some uncertainty in the interpretation of the reported constituent concentration, requiring further evaluation of background conditions, ancillary data, quality assurance, and historical data. These factors must be assessed by the Florida Department of Environmental Protection before being considered an exceedance or violation.

**Expenditure:** Disbursement of appropriated funds to purchase goods or services.

## F

**Fauna:** All animal life associated with a given habitat.

**Federal Emergency Management Agency (FEMA):** An agency of the United States Department of Homeland Security that coordinates the response to a disaster that occurs within the United States and overwhelms the resources of local and state authorities.

**Fiscal Year:** Period of time from October 1 through September 30, during which the South Florida Water Management District’s annual budget is developed and implemented.

**Floating aquatic vegetation (FAV):** Wetland plants that have portions floating at or near the water surface but are rooted in substrate (for example, water lily).

**Flora:** All plant life associated with a given habitat.

**Florida Administrative Code (F.A.C.):** Official compilation of the rules and regulations of Florida's regulatory agencies. The code is organized by titles with each title number representing a department, commission, board, or other agency.

**Florida Department of Agriculture and Consumer Services (FDACS):** The State of Florida agency that supports and promotes Florida agriculture, protects the environment, safeguards consumers, and ensures the safety and wholesomeness of food.

**Florida Department of Environmental Protection (FDEP):** The State of Florida lead agency for environmental management and stewardship. The South Florida Water Management District operates under the general supervisory authority of FDEP, which includes various permits and budgetary oversight.

**Florida Exotic Pest Plant Council (FLEPPC):** A non-profit organization that supports the management of invasive exotic plants in Florida's natural areas by providing a forum for the exchange of scientific, educational, and technical information.

**Florida Fish and Wildlife Conservation Commission (FWC):** The State of Florida agency that manages fish and wildlife resources for their long-term well being and for the benefit of people.

**Florida Forever:** The program that implements the Florida Forever Act (see next item).

**Florida Forever Act:** A 1999 Florida law (Section 259.105, Florida Statutes) authorizing the issuance of bonds to fund land acquisition, water resource development, stormwater management projects, waterbody restoration activities, recreational facilities, public access improvements, and invasive plant removal.

**Florida Statutes (F.S.):** Florida Statutes are a permanent collection of state laws organized by subject area into a code made up of titles, chapters, parts, and sections. These statutes are updated annually by laws that create, amend, or repeal statutory material.

**Flow equalization basin (FEB):** A constructed storage feature used to capture and store peak stormwater flows. Water managers can move water from an FEB into a stormwater treatment area (STA) at a steady rate to optimize STA performance and achieve water quality improvement targets.

**Flow-weighted mean concentration (FWMC):** The average concentration of a substance in water, corrected for volume of water flow at the time of sampling. Samples taken when flow is high are given greater weight in the average. FWMCs are used to calculate mass loading at a particular location.

**Full-time equivalent (FTE):** The hours worked by one employee on a full-time basis, expressed in a way that makes workloads comparable.

## G

**Geometric mean:** Statistical average of a set of transformed numbers, often used to represent a central tendency in highly variable data, such as water quality. This is calculated from data transformed using powers or logarithms and then transformed back to original scale after averaging.

**Geographic information system (GIS):** A system designed to capture, store, manipulate, analyze, manage, and present all types of spatial or geographical data.

**Global positioning system (GPS):** A space-based navigation system that provides location and time information in all weather conditions, anywhere on or near the Earth where there is an unobstructed line of sight to four or more GPS satellites.

**Groundwater:** Water beneath the surface of the ground, whether or not flowing through known and definite channels. Specifically, that part of the subsurface water in the saturated zone, where the water is under pressure greater than the atmosphere.

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**H**

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**Harm:** As defined in Chapter 40E-8, Florida Administrative Code, the temporary loss of water resource functions that result from a change in surface or groundwater hydrology and takes a period of one to two years of average rainfall conditions to recover.

**Headwaters:** Water that is typically of higher elevation (with respect to tailwater) or on the controlled side of a structure, or the waters at the highest upstream point of a natural system that are considered the major source waters of the system.

**Headwaters Revitalization Project (HRP):** A project expected to provide the water storage and regulation schedule modifications needed to approximate the historical flow characteristics of the Kissimmee River system.

**Headwaters Revitalization Schedule (HRS):** The regulation schedule that will approximate the historical flow characteristics of the Kissimmee River system.

**Hybrid wetland treatment technology (HWTT):** A process that combines chemical treatment with conventional wetlands treatment, pulling water through a pump station and treating it with a chemical to eliminate as much phosphorus as possible from water. The water is then further polished through floating and submerged vegetation ponds.

**Hydraulic loading rate (HLR):** The ratio of flow divided by the surface area of the basin.

**Hydraulic retention time (HRT):** Length of time that water is retained in a specified area.

**Hydrogeomorphology:** Scientific study of the physical appearance and operational character of a waterbody as it adjusts its boundaries to the magnitude of flow and erosional debris within the watershed.

**Hydrology:** Scientific study of the properties, distribution, and effects of water on the Earth's surface, in the soil and underlying rocks, and in the atmosphere.

**Hydropattern:** Water depth, duration, timing, and distribution of fresh water in a specified area. A consistent hydropattern is critical for maintaining various ecological communities in wetlands.

**Hydroperiod:** Duration and frequency of inundation in a wetland area.

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**I**

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**Impoundment:** Reservoir used for retaining water.

**Inflow:** Act or process of flowing into an area.

**In situ:** In the natural or original position or place. For environmental monitoring, this indicates measurements taken directly at the sampling site, as opposed to samples collected at a site and analyzed at a different location.

**Institute of Food and Agricultural Sciences (IFAS):** A federal-state-county partnership working out of the University of Florida that is dedicated to developing knowledge in agriculture, human and natural resources, and the life sciences, and enhancing and sustaining the quality of human life by making that information accessible.

**Interim Operational Plan (IOP):** Water management operations plan designed to provide water supply to Everglades National Park to create more favorable hydrologic conditions within the park for the protection of the endangered Cape Sable seaside sparrow and its designated critical habitat.

**International System of Units (SI):** A scientific method of expressing the magnitudes or quantities of important natural phenomena based on the meter, kilogram, second, ampere, kelvin, candela, and mole, together with a set of prefixes to indicate multiplication or division by a power of ten.

**Invasive nonindigenous species:** Species of plants or animals that are not naturally found in a region. These species can sometimes aggressively invade habitats and cause multiple ecological changes, including the displacement of native species.

**Ion:** Atom that has acquired a net electric charge by gaining or losing one or more electrons.

## K

**Kissimmee Chain of Lakes (KCOL):** A system of regulated lakes that forms the headwaters of the Kissimmee-Okeechobee-Everglades system. The lakes that form the chain include Lake Tohopekaliga, Lake Kissimmee, Lake Hatchineha, Lake Cypress, East Lake Tohopekaliga, Lake Hart, Lake Mary Jane, Lake Preston, Tiger Lake, and the Alligator Chain of Lakes.

**Kissimmee-Okeechobee-Everglades System:** A system of lakes, rivers, and marshes that was once a single hydrologic unit that extended from present day Orlando to Florida Bay.

**Kissimmee River Restoration Evaluation Program (KRREP):** A performance evaluation program that consist of performance measures that evaluate every component of the restoration, including hydrology, water quality, geomorphology, vegetation, and bird, fish, amphibian, reptile, and invertebrate communities.

**Kissimmee River Restoration Project (KRRP):** A 50/50 cost share project between the United States Army Corps of Engineers and South Florida Water Management District to restore the middle third of the channelized Kissimmee River.

## L

**Lake Okeechobee Protection Act:** Legislation enacted in 2000 that requires the South Florida Water Management District, Florida Department of Agriculture and Consumer Services, and Florida Department of Environmental Protection to develop and implement strategies to restore Lake Okeechobee and its watershed. Authorized in Section 373.4595 of the Florida Statutes.

**Lake Okeechobee Regulation Schedule 2008 (LORS2008):** The current regulation schedule for Lake Okeechobee approved by the United States Army Corps of Engineers on April 28, 2008. One of the primary objectives of LORS2008 is to manage lower lake elevations to reduce risk to the Herbert Hoover Dike and to lessen the likelihood of high, damaging discharges to the Caloosahatchee and St. Lucie estuaries.

**Lake Okeechobee Watershed (LOW):** The watershed that includes Lake Okeechobee, its marshes, and part or all of Glades, Okeechobee, Martin, Palm Beach, and Hendry counties.

**Landscape pattern:** In the Everglades, the large-scale organization of features such as tree islands, ridges, and sloughs (including vegetation).

**LC<sub>50</sub>:** The concentration of a substance at which 50 percent of the aquatic animals tested die within a short (acute) exposure period.

**Light detection and radar (LiDAR):** A remote sensing method that uses light in the form of a pulsed laser to measure ranges (variable distances) to the Earth. These light pulses—combined with other data recorded by the airborne system—generate precise, three-dimensional information about the shape of the Earth and its surface characteristics.

**Limnology:** Scientific study of bodies of fresh water for their biological, physical, geological, and hydrological properties.

**Littoral:** Region of water close to shore that is home to the most aquatic plant life (both rooted and floating) in a pond or lake, because of the relatively high amount of sunlight that can penetrate, allowing for significant photosynthetic activity.

**Loading (or mass loading):** Amount of material carried by water into a specified area, expressed as mass per unit of time. One example is total phosphorus loading into Water Conservation Area 2A, measured in metric tons per year.

**Long-Term Plan for Achieving Water Quality Goals in the Everglades Protection Area (Long-Term Plan):** Plan published in 2003 for achieving and maintaining water quality goals for all discharges to the Everglades Protection Area. It contains activities to achieve these goals, and to permit the State of Florida and South Florida Water Management District to fulfill their obligations under the Everglades Forever Act.

**Lower Kissimmee Basin (LKB):** The lower part of the Kissimmee Basin, which includes portions of Okeechobee, Highlands, and Glades counties.

**Loxahatchee Impoundment Landscape Assessment (LILA):** Large-scale physical reproduction of the Everglades, located at the Arthur R. Marshall Loxahatchee National Wildlife Refuge, used to conduct eco-hydrology experiments. LILA consists of four 17-acre macrocosms and a recirculating water system that prevents nutrient pollution and provides control over flow rates and water levels. Each macrocosm mimics the Everglades landscape pattern of tree islands, ridges, and sloughs.

## M

**Macrophytes:** Visible (non-microscopic) plants found in aquatic environments.

**Marsh:** Area of soft, wet, low-lying land, characterized by grassy vegetation and often forming a transition zone between water and land.

**Median:** Middle value in a set of ordered data. The median is often used to express the typical (central tendency) value of a group of water quality data, because the median is less influenced than the arithmetic average by outlying values routinely seen in such data.

**Memorandum of agreement (MOA):** A written document describing a cooperative relationship between two parties wishing to work together on a project or to meet an agreed upon objective. An MOA serves as a legal document and describes the terms and details of the partnership.

**Memorandum of understanding (MOU):** A formal agreement between two or more parties that is not legally binding.

**Method detection limit (MDL):** The smallest concentration of an analyte that can be measured and reported with 99 percent confidence that the concentration is greater than zero. MDLs are determined from the analysis of a sample in a given matrix, using accepted sampling and analytical preparation procedures, containing the analyte at a specified level. The MDL is determined by the protocol defined in the Code of Federal Regulations (CFR) section 40 CFR, Part 136, Appendix B, as established by the United States Environmental Protection Agency.

**Methylmercury (MeHg):** Highly toxic form of mercury that is readily accumulated by living organisms. Inorganic mercury is converted to methylmercury by sulfate-reducing bacteria in aquatic sediments, such as those present in marshes of the Everglades.

**Micromhos ( $\mu\text{mhos}$ ):** A unit of measurement of electrical conductance, equivalent to microsiemens and equal to the reciprocal of the ohm, which is the derived unit of electrical resistance.

**Micromoles ( $\mu\text{M}$ ):** The base unit in the International System of Units for the amount of pure substance that contains the same number of elementary entities as there are atoms in exactly 12 grams of the isotope carbon-12.

**Microsiemens ( $\mu\text{S}$ ):** The International System of Units unit of measurement of electrical conductance, equivalent to micromhos and equal to the reciprocal of the ohm, which is the derived unit of electrical resistance.

**Minimum flows and levels (MFLs):** Florida law (Chapter 373, Florida Statutes) requiring the state's water management districts to set water levels for each major body of water "...at which further withdrawals would be significantly harmful to the water resources or ecology of the area."

**Mitigation:** Acquisition, creation, restoration, or enhancement of wetlands to compensate for permitted wetland impacts.

**Mitigation banking:** Process providing a unit of currency (or credit) that represents an increase in ecological benefit or value resulting from restoration, enhancement, preservation, or creation.

**Mobile irrigation lab (MIL):** A vehicle furnished with irrigation evaluation equipment that is used to carry out on-site evaluations of irrigation systems and to provide recommendations on improving irrigation efficiency.

**Model:** A computer model is a representation of a system and its operations, and provides a cost-effective way to evaluate future system changes, summarize data, and help understand interactions in complex systems. Hydrologic models are used for evaluating, planning, and simulating the implementation of operations within South Florida Water Management District's water management system under different climatic and hydrologic conditions. Water quality and ecological models are also used to evaluate other processes vital to the health of ecosystems.

**Modified Water Deliveries to Everglades National Park (MWD) Project:** Structural and operational features that will allow the incremental increase in water flow into Northeastern Shark River Slough within Everglades National Park.

**Moving average:** Arithmetic average of a sequence of data in a data set, moved and calculated sequentially to smooth the data and reveal trends (e.g., 12-month moving average total phosphorus concentration).

**Muck:** Dark, organic soil derived from well decomposed plant biomass.

## N

**National Geodetic Vertical Datum of 1929 (NGVD29):** Reference for elevation data that was established within the United States in 1929.

**National Oceanic and Atmospheric Administration (NOAA):** Federal agency within the United States Department of Commerce that focuses on the conditions of the oceans and the atmosphere.

**National Park Service (NPS):** Federal scientific agency that preserves unimpaired the natural and cultural resources of the United States for the enjoyment, education, and inspiration of this and future generations.

**National Pollution Discharge Elimination System (NPDES):** A permitting system that translates general requirements of the Clean Water Act into specific provisions tailored to the operations of each entity discharging pollutants so that the discharge does not hurt water quality or people's health. The Clean Water Act prohibits anybody from discharging pollutants through a point source into water of the United States unless they have an NPDES permit.

**Next Generation Radar (NEXRAD):** A network of 160 high-resolution S-band Doppler weather radars that detect precipitation and atmospheric movement (wind) operated by the National Weather Service, an agency of the National Oceanic and Atmospheric Administration.

**Nitrogen-15 ( $^{15}\text{N}$ ):** A rare stable isotope of nitrogen used in tree island studies to determine nitrogen demand and phosphorus availability in relation to carbon demand.

**Non-Everglades Construction Project (Non-ECP):** All water control structures associated with the Everglades Protection Area outside the Everglades Construction Project.

**North American Vertical Datum of 1988 (NAVD88):** Reference for elevation data that was established within the United States in 1988, and which is used for CERP projects. The migration of the South Florida Water Management District's elevation data from the National Geodetic Vertical Datum of 1929 to NAVD88 is underway to establish a common spatial data framework compatible with federal, state, and local governmental agencies.

**Northern Everglades:** Northern extent of the South Florida Water Management District covering the Kissimmee, Lake Okeechobee, Caloosahatchee River, and St. Lucie River watersheds. The main features are Kissimmee lakes and rivers, Lake Okeechobee, and the Caloosahatchee and St. Lucie rivers and estuaries.

**Northern Everglades and Estuaries Protection Program (NEEPP):** As defined by Florida law (Section 373.4595, Florida Statutes), an initiative to holistically restore the Everglades through increased focus and integration of regional projects in the Northern Everglades, including the Lake Okeechobee Watershed, and the Caloosahatchee and St. Lucie river watersheds and estuaries.

**Nutrient loading:** Discharging of nutrients from a watershed (basin) into a receiving waterbody, such as a lake, stream, or wetland.

**Nutrients:** Organic or inorganic compounds essential for the survival of an organism. In aquatic environments, nitrogen and phosphorus are key nutrients that affect the growth rate of plants.

## O

**Office of General Counsel:** State of Florida office that provides advice and counsel to the Florida Secretary of State and departmental managers on a broad range of administrative, legislative, and policy matters. The office also provides advice, oversight, and representation with regard to Florida Department of State litigation.

**Oligotrophic:** Aquatic environment depleted of nutrients, resulting in low plant productivity.

**Outflow:** Act or process of flowing out of an area.

## P

**Parameter:** A variable or constant that represents a characteristic of interest. For example, conductance is a water quality parameter. Use of this term is highly subjective and varies greatly across disciplines.

**Parts per billion (ppb):** Unit of measure for concentration, equivalent to micrograms per liter (1 ppb = 1 µg/L).

**Passive integrated transponder (PIT):** An electronic tag for fish measuring 12 millimeters long by 2.1 millimeters in diameter. It can be coded with one of 35 billion unique codes. The tag can be automatically detected and decoded in situ, eliminating the need to sacrifice, anesthetize, handle, or restrain fish during data retrieval.

**Performance measure:** Quantifies how well an alternative meets a specific objective. Good performance measures are quantifiable, have a specific target, indicate when a target has been reached, and measure the degree to which the goal has been met.

**Periphyton:** Biological community of microscopic plants and animals attached to surfaces in aquatic environments. Algae are the primary component in these assemblages, which naturally reduce phosphorus levels in water and serve a key function in the Everglades Stormwater Treatment Areas.

**pH:** A numeric, unitless scale used to specify the acidity or basicity (alkalinity) of water or aqueous solution.

**Phosphorus (P):** An element that is essential for life. In freshwater aquatic environments, P is often in short supply; increased levels can promote the growth of algae and other plants.

**Picocurie (pCi):** The curie is a standard measure for the intensity of radioactivity contained in a sample of radioactive material. The basis for the curie is the radioactivity of one gram of radium. Radium decays at a rate

of about 2.2 trillion disintegrations ( $2.2 \times 10^{12}$ ) per minute. A picocurie is one trillionth of a curie. Thus, a picocurie represents 2.2 disintegrations per minute.

**Pollutant loading:** Influx of a chemical or nutrient mass that can contaminate air, soil, or water.

**Porewater:** Water contained in the spaces between particles within sediments.

**Potential evapotranspiration (ETp):** The amount of evaporation that would occur if a sufficient water source were available.

**Practical quantitation limit (PQL):** The smallest concentration of an analyte that can be quantitatively reported with a specific degree of confidence. The PQL is verified for each matrix, technology, and analyte. The validity of the PQL is verified by analysis of a quality control sample containing the analyte of concern.

**Precision:** Degree of reproducibility of a measurement. Low precision yields high scatter in data.

**Preservation 2000 (P2000):** A public land acquisition program for the purpose of managing the lands for conservation. A precursor to Florida Forever.

**Probability (p):** A measure of the likelihood that an event will occur. Probability is quantified as a number between 0 and 1 (where 0 indicates impossibility and 1 indicates certainty).

**Programmable logic controller (PLC):** An industrial computer control system used for automation that continuously monitors the state of input devices and makes decisions based upon a custom program to control the state of output devices.

**Project implementation report (PIR):** A planning document required for Comprehensive Everglades Restoration Plan projects to be authorized by the United States Congress.

## Q

**Quality assurance (QA):** The planned and systematic activities implemented so that quality requirements for a product or service will be fulfilled.

**Quality control (QC):** The observation techniques and activities used to ensure that quality standards are met.

## R

**Regional Environmental Monitoring and Assessment Program (REMAP):** A United States Environmental Protection Agency program that measures current and changing conditions for water quality and ecological resources. It combines a probability-based sampling approach, which permits quantitative spatial statements about ecosystem health, an extensive 2,000-square mile coverage that includes all of the Everglades, and a multi-media aspect (water, sediment, fish, algal communities, and plants).

**Regional water supply plan:** Any detailed water supply plan developed by a Florida water management district under Section 373.0361, Florida Statutes, providing an evaluation of available water supply and projected demands at the regional scale. The planning process projects future demand for 20 years and develops strategies to meet identified needs.

**Remote phosphorus analyzer:** A portable autonomous phosphorus analyzer system that can collect and analyze samples in situ at remote locations and be deployed for up to three months of continuous operation.

**Reservoir:** Man-made or natural waterbody used for water storage.

**Restoration Coordination and Verification Program (RECOVER):** Interagency, interdisciplinary program and team sponsored by the United States Army Corps of Engineers and South Florida Water Management District. The role of RECOVER is to organize and apply scientific and technical information in ways that are most

effective in supporting objectives of the Comprehensive Everglades Restoration Plan, and to ensure that the plan's systemwide goals and purposes are achieved.

**Restoration Strategies for Clean Water for the Everglades (Restoration Strategies):** Strategies developed by the South Florida Water Management District and agreed to by the United States Environmental Protection Agency that will expand water quality improvement projects in South Florida to achieve the phosphorus water quality standard established for the Everglades Protection Area.

**Restoration Strategies Regional Water Quality Plan:** A document published by the South Florida Water Management District in 2012 that describes a suite of projects to achieve the Water Quality Based Effluent Limit (WQBEL) for Phosphorus in Discharges to the Everglades Protection Area.

**Restricted allocation area:** An area designated within a Florida water management district boundary for which allocation restrictions are applied with regard to the use of specific sources of water. The water resources in these areas are managed in response to specific sources of water in the area for which there is a lack of water availability to meet the projected needs of the region from that specific source of water.

**Reuse (water reuse):** The deliberate application of reclaimed water for a beneficial purpose. Criteria used to classify projects as "reuse" are contained in Rule 62-610.810, Florida Administrative Code.

**Revenue:** Monies received from all sources (with the exception of fund balances) that are used to fund expenditures in a fiscal year.

**Ridge:** Raised area of land, typically elongated and vegetated with sawgrass, which forms an alternating pattern with sloughs within the Everglades.

**Runoff:** The component of rainfall that is not absorbed by soil, intercepted and stored by surface waterbodies, evaporated to the atmosphere, transpired and stored by plants, or infiltrated to groundwater, but which flows to a watercourse as surface water flow.

## S

**Salinity:** Total amount of dissolved salt in grams in one kilogram of seawater. Salinity is typically defined as the conductivity ratio of a seawater sample to a standard potassium chloride solution. A seawater sample with a conductivity ratio of 1.0 at 15 degrees Celsius with a potassium chloride solution containing a mass of 32.4356 grams of potassium chloride in 1 kilogram of solution has a practical salinity of 35. Salinity as presented in this report is based on the Practical Salinity Scale, which is unitless.

**Saltwater intrusion:** Invasion of a body of fresh water by a body of salt water, due to its greater density. It can occur in surface water and groundwater bodies, including through the flooding of freshwater marshes by sea water, the upward migration of sea water into rivers and navigation channels, and the movement of sea water into freshwater aquifers along coastal regions.

**Save Our Rivers (SOR):** A program created by the Florida legislature in 1981 for the water management districts to acquire environmentally sensitive land. The legislation produced Section 373.59, Florida Statutes, known as the Water Management Lands Trust Fund.

**Science Plan for the Everglades Stormwater Treatment Areas (Science Plan):** Document published by the South Florida Water Management District in 2013 that is part of the Restoration Strategies Regional Water Quality Plan. The Science Plan was developed to identify studies that investigate the critical factors that collectively influence ultralow treatment performance and phosphorus reduction in the Everglades Stormwater Treatment Areas. Results from Science Plan studies will be used to inform the design and operation of water quality projects and modeling tools to meet the phosphorus standard for the Everglades.

**Scientifically defensible:** Information that is supportable using accepted scientific methods of data collection, analysis, and reporting.

**Serious harm:** As defined in Chapter 40E-8, Florida Administrative Code, the long-term, irreversible, or permanent loss of water resource functions resulting from a change in surface water or groundwater hydrology.

**Significant harm:** As defined in Chapter 40E-8, Florida Administrative Code, the temporary loss of water resource functions that result from a change in surface water or groundwater hydrology and takes more than two years to recover, but which is considered less severe than serious harm.

**Site-specific alternative criterion (SSAC):** A SSAC replaces a criterion applicable statewide in cases where site specific information supports a different numeric criterion. Any SSAC must fully support and protect the designated use of the waterbody. A SSAC has been developed for dissolved oxygen for projects operating within South Florida.

**Slough:** Depression associated with swamps and marshlands as part of a bayou, inlet, or backwater. It contains areas of slightly deeper water and a slow current, and can be thought of as the broad, shallow rivers of the Everglades.

**Species richness:** Number of species occurring in a particular area for a specified sampling period.

**Specific conductance (or conductivity):** Ability of an aqueous solution to carry an electric current; the higher the concentration of ionic (dissolved) constituents, the higher the conductivity.

**South Florida Environmental Report (SFER):** Comprehensive report prepared by the South Florida Water Management District, along with the Florida Department of Environmental Protection and other collaborating agencies and organizations, and submitted annually by March 1, in accordance with Chapter 2005-36, Laws of Florida, and Section 373.036(7), Florida Statutes. In three volumes, the SFER consolidates over 75 individual reports to efficiently satisfy many statutorily mandated reporting and permit requirements and to provide technical and financial information for the reporting period.

**Southern Everglades:** Southern extent of the South Florida Water Management District encompassing the watersheds south of Lake Okeechobee to the Florida Keys. Key features include the water conservation areas, Big Cypress National Preserve, Everglades National Park, Florida Bay, and coastal bays and estuaries south of Lake Okeechobee.

**Stage:** Height of a water surface above an established reference point (datum or elevation). This vertical control measurement is usually expressed as feet National Geodetic Vertical Datum of 1929 or feet North American Vertical Datum of 1988.

**Standard deviation (SD or std dev):** Measure that is used to quantify the amount of variation or dispersion of a set of data values from its mean.

**Standard error (S.E.):** The standard deviation of the sampling distribution of a statistic, most commonly of the mean. The term may also be used to refer to an estimate of the standard deviation derived from a particular sample used to compute the estimate.

**Standard operating procedure (SOP):** Established or prescribed method to be followed routinely for the performance of a designated operation or in a designated situation.

**Statement of work:** A document that defines project-specific activities, deliverables, and their respective timelines, all of which form a contractual obligation upon the vendor, in providing services to the client.

**STORET:** A storage and retrieval database that is a repository for water quality, biological, and physical data. It is used by state environmental agencies, the United States Environmental Protection Agency and other federal agencies, universities, private citizens, and many others.

**Stormwater treatment areas (STAs):** Large, constructed wetlands designed to remove pollutants, particularly nutrients, from stormwater runoff using natural processes.

**Structure:** A constructed feature. Examples include man-made pump stations, reservoirs, channel improvements, canals, levees, and diversion channels.

**Submerged aquatic vegetation (SAV):** Wetland plants that exist completely below the water surface.

**Surface water:** Water above the soil or substrate surface, whether contained in bounds (i.e., lake or reservoir), created naturally (i.e., lake) or artificially (i.e., reservoir), or diffused (i.e. marsh).

**Surface Water Improvement and Management (SWIM) Plan:** A comprehensive statewide program established under Chapter 373.451–373.4595, Florida Statutes, for restoring and protecting priority surface waters of state or regional significance.

<b>T</b>
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**Tailwater:** Water that is typically of lower elevation or on the discharge side of the structure.

**Total carbon:** Estimated carbon concentration in both inorganic and organic forms in a soil sample.

**Total maximum daily load (TMDL):** Maximum allowed level of pollutant loading for a waterbody, which still protects its uses and complies with water quality standards of the Clean Water Act.

**Total nitrogen (TN):** Estimated nitrogen concentration in both inorganic and organic forms in a water sample.

**Total phosphorus (TP):** Estimated phosphorus concentration in both organic and inorganic forms in a water sample.

**Tree island:** Raised area, typically surrounded by water, that supports a woody vegetation community and is a site of high biodiversity. Two types of tree islands typical of the Everglades are strand islands, which are usually tear-drop shaped, and pop-up islands, which are usually round.

**Tributary:** Stream that flows into a larger stream or other body of water.

**Trichlorophenoxyacetic acid (2,4,5-T):** An herbicide used to defoliate broad-leaved plants that was widely used in the agricultural industry from the 1940s to late 1970s and was phased out due to toxicity concerns. It was used on rice crops until 1985.

**Trophic levels:** Distinct levels at which groups of organisms use or produce energy. Plants, the primary producers of energy, are in the lowest trophic level. Predators, such as bass and wading birds, are in the highest trophic level. Some metals, such as mercury, accumulate at higher trophic levels.

**Turbidity:** Measure of suspended material in a liquid (typically in nephelometric turbidity units, or NTUs).

<b>U</b>
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**Uncertainty:** The range of values within which the true value is estimated to lie. It is a best estimate of possible inaccuracy due to both random and systematic error.

**United States Army Corps of Engineers (USACE):** Federal public engineering, design, and construction management agency under the Department of Defense, which is a major Army command.

**United States Department of Agriculture (USDA):** Federal agency that provide leadership on food, agriculture, natural resources, rural development, nutrition, and related issues based on public policy, best available science, and effective management.

**United States Environmental Protection Agency (USEPA):** Federal agency with the mission to protect human health and the environment.

**United States Fish and Wildlife Service (USFWS):** Federal agency dedicated to the management of fish, wildlife, and natural habitats.

**United States Geological Survey (USGS):** A federal science organization that provides impartial information on the health of the ecosystems and environment, natural hazards, natural resources, impacts of climate and land use change, and core science systems.

**Upper Kissimmee Basin (UKB):** Part of the Kissimmee Basin that includes portions of Orange, Osceola and Polk counties.

## W

**Water budget:** An accounting of total water use or projected water use for a given location or activity.

**Water conservation:** The permanent, long-term reduction of daily water use.

**Water conservation areas (WCAs):** Diked areas of the remnant Everglades that are hydrologically managed for flood control and water supply purposes. These are among the primary targets of Everglades restoration and are the major components of the Everglades Protection Area.

**Water Management Lands Trust Fund:** A non-lapsing fund for the purposes of land acquisition, management, maintenance, capital improvements of land titled to the State of Florida water management districts, payments in lieu of taxes, or debt service on bonds.

**Water preserve areas (WPAs):** Multipurpose water-holding areas.

**Water quality:** The physical, chemical, and biological condition of water as applied to a specific use, typically propagation of fish and wildlife, public water supply, industry, or recreation.

**Water quality based effluent limit (WQBEL):** WQBELs are calculated in order to ensure that discharges to waters of the state are in compliance with water quality standards. They may take the form of limits on specific pollutants, calculated to make sure the discharges are in compliance with criteria for a particular use designation after mixing with an appropriate streamflow rate or dilution factor in a waterbody.

**Water Quality Based Effluent Limit (WQBEL) for Phosphorus in Discharges to the Everglades Protection Area:** A limit calculated to ensure the State of Florida water quality criterion for total phosphorus in the receiving waters of the Everglades is met. This WQBEL has two components, both of which must be met: total phosphorus concentrations in the discharge from each Everglades Stormwater Treatment Area may not exceed either (1) 10 parts per billion (ppb) as an annual geometric mean in more than two consecutive years and (2) 18 ppb as an annual flow-weighted mean.

**Water quality criteria:** Constituent concentrations based on scientific data and judgments on the relationship between pollutant concentrations and environmental and human health effects.

**Water quality standards:** State-mandated water quality levels composed of a beneficial use classification, water quality criteria applicable to that classification, Florida antidegradation policy, and several provisions in other rules.

**Water reservation:** As defined by Florida law [Subsection 373.223(4), Florida Statutes], water set aside or designated from use by the South Florida Water Management District's Governing Board or the Florida Department of Environmental Protection, in such locations and quantities and for such seasons of the year, as may be required for the protection of fish and wildlife, or public health and safety.

**Water Resources Advisory Commission (WRAC):** A commission of the South Florida Water Management District that serves as an advisory body to the Governing Board. The WRAC is the primary forum for conducting workshops, presenting information, and receiving public input on water resource issues affecting Central and South Florida.

**Water Year (WY):** Period of time from May 1 through April 30, which is used as the basis in the South Florida Environmental Report for reporting on water quality and other data collected.

**Watershed:** A region or area of land bounded peripherally by a water parting and draining ultimately to a particular watercourse or body of water.

**Wetland:** Area that is inundated or saturated by surface water or groundwater and has vegetation adapted for life under those soil conditions (for example, swamps, bogs, and marshes).

**Wildlife management area (WMA):** Mostly undeveloped land in Florida that is managed by the Florida Fish and Wildlife Conservation Commission and is available for recreational activities.