

6. Glossary

Abiotic - non-living elements of the environment; chemical reactions that are not biologically mediated

Aeration - the incorporation of air or oxygen

Aerial survey - an organism count usually conducted in an airplane or from any vantage point above the study area

Algae- diverse single or multi-cellular photosynthetic organisms that live in aquatic or moist environments

Alkalinity - measure of a solution's ability to neutralize an acid

Ammonium - NH_4^+ ; the form of nitrogen that is most abundant in the LSJR

Amphipod - crustacean with seven different pairs of legs

Anadromous - describing fish that travel from saltwater to freshwater to spawn

Anthropogenic - caused or produced by humans

Aquaculture - cultivation of aquatic animals or plants

Aquifer - underground layer of porous rock which supplies water to wells and springs

Artesian spring - the site of water which is released by pressure from between layers of impermeable rock, naturally or via a well system

Assimilation - the process of taking up and incorporating a foreign component into the existing environment without causing a change in the water quality or functioning of the ecosystem

Atlantic Intracoastal Waterway - approximately 1200 mile, non-coastal boating channel that intersects the lower St. Johns River and extends from Key West, FL to Norfolk, VA

Barbel - slender 'feeler' used by certain fish for touch or taste

Barnacle - shellfish that live attached to surfaces like rocks, ships, and pilings

Barrier island - accumulations of sand that are separated from the mainland by open water

Basin Management Action Plan (BMAP) - a comprehensive set of strategies--permit limits on wastewater facilities, urban and agricultural best management practices, conservation programs, financial

assistance and revenue generating activities, etc.-- designed to implement the pollutant reductions established by the TMDL, as described by the DEP

Benthic - bottom-dwelling

Bioaccumulation - the process by which a compound builds up in an organism as it grows older and larger

Bioavailability - the degree to which a compound is readily taken up by organisms in an environment

Biodegradation - breakdown of a substance by microorganisms

Biomagnify - the process by which chemicals stored in the tissues of prey organisms are transferred up the food chain at increasingly higher levels

Biomass - organic material (which can be used as a renewable fuel source) made from plants and microorganisms

Biota - the living elements of the environment

Bivalve - crustaceans with two hinged shells, such as a clam

Brackish - describing water that is salty, but not as salty as seawater

Brood - to sit upon or incubate eggs

Carcinogenic - cancer-causing

Cardiovascular - of or pertaining to the system in the human body which includes the heart and the transport of blood for the exchange of oxygen and carbon dioxide

Carnivore - an organism whose diet primarily or exclusively consists of meat

Carrion - the remains of a dead animal

Carrying capacity - maximum number of individuals an environment can support at a given time and location

Chlorophyll a - light-harvesting pigment molecule that can be used as an indicator for algae concentration

Cirripedians - group of organisms that includes barnacles and their relatives

Clean Water Act (CWA) - was enacted in 1948 as the Federal Water Pollution Control Act, reorganized and expanded in 1972, and amended in 1977; the goal of the act is to implement research, programs, and restrictions in order to maintain the health of the nation's waters (33 U.S.C. 1251 et seq.)

Conductivity - ability of water to conduct electricity and thus an indirect measurement of salinity

Confluence - the place where two water bodies flow together

Coniferous - cone-bearing

Consumption advisory - issued by the Department of Health, a recommendation of the amount of a contaminated fish species that can safely be eaten in a given time

Copepods - tiny freshwater crustaceans with a rudder-like appendage for movement

Creosote - product of coal tar used for wood preservation

Cryptogenic - organism whose status as introduced or native is not known

Cyanobacteria - photosynthetic, aquatic microbes, some of which are linked to human and animal disease and harmful algal blooms

DDT - (Dichlorodiphenyltrichloroethane) a widely used pesticide that was eventually found to cause damage to wildlife and thus banned in 1972

Decapods - crustaceans with five pairs of legs like crabs, lobsters, and shrimp

Degradation product - chemicals resulting from partial decomposition or chemical breakdown of substances

Denitrification - conversion of nitrate (NO₃⁻) to nitrogen gas

Deposition - the transfer of airborne pollutants to the surface of the earth and its water bodies via rain, gases, or gravity

Detritivore - organism whose diet is mostly or exclusively comprised of decayed, organic debris

Detritus - disintegrated debris from the decay of organic material

Dinoflagellates - diverse group of protists, some of which can produce toxins at high levels due to periods of rapid reproduction

Dioxin - highly toxic by-product of industrial processes involving chlorine

Dip net - a bag net attached to a pole used to scoop objects out of the water

Dipterans - insects with one pair of wings such as gnats, mosquitoes, and flies

Dissolved oxygen - concentration of oxygen that is soluble in water at a given altitude and temperature

Diurnal - describing a cycle that has distinguishable patterns during a duration of twenty-four hours

Drainage basin - the area of land which drains into a specific river or tributary

Dredge - to deepen or widen a body of water by the removal of mud, silt, etc.

Ecosystem - the complex order of interactions between living and non-living components in a certain environment

Effluent - an outflow of treated or non-treated sewage from a wastewater facility or point source

El Niño/La Niña - weather pattern characterized by unusually warm/cool ocean temperatures in the Equatorial Pacific that affects wind and levels of rainfall

Endangered Species Act of 1973 - designed to establish cooperation between Federal and State legislation to support groups whose purpose is to conserve endangered species and their respective ecosystems

(16 U.S.C. 1531)

Endocrine - the system of the body specializing in the delivery of secretions such as hormones

Epilimnion - upper layer of water in a lake

Epiphytic - describing a plant which grows non-parasitically on another plant and derives moisture and nutrients from the air

Erosion - the wearing away of materials, often due to natural processes like wind or water

Estuary - the wide part of a river where it meets the ocean; contains saltwater and freshwater

Eutrophic - nutrient-rich condition resulting in a high concentration of phytoplankton

Eutrophication - increase in organic matter to a system, possibly resulting in a harmful algal bloom-

Exceedance - an instance in which the concentration of a contaminant in sediment is greater than the toxicity measure

Extirpated - locally extinct due to human interference

Extrapolated - extended via estimation

Fauna - all of the animals within a given environment

Fecal coliform bacteria - natural component of digestive systems of birds and mammals, some of which are harmful to humans

Filamentous - describing the long chains of cells into which some algae are divided

Fisheries - designated places for fishing or the fishing industry in general

Fledgling - young bird that has grown enough feathers for flight

Flood plain - area of land surrounding a river that is subject to flooding in periods of high water

Flora - all of the plants in a given environment

Florida Manatee Sanctuary Act of 1978 - protects manatees and their habitats from harm due to motorboat operation and human activity by regulating speed limits in specified areas of frequent manatee sightings (379.2431(2), Florida Statutes)

Fossil fuels - coal, oil, and natural gas, which are major sources of energy

Freshwater - total dissolved solids concentrations less than 1,000 milligrams per liter, as defined by the USGS

Fry - very young fish or small adult fish

Fulvic acid - complex organic molecule derived from decaying organic matter; soluble in any pH

Fungicide - anything that kills fungus or its spores, especially a chemical

Gastrointestinal tract - the organs of the human body involved in digestion, such as the esophagus, stomach, and intestines

Geologic - pertaining to the structure and formation of the earth, as recorded in rocks

Gill net - a net through which a fish is allowed to move forward, but not backward, due to the gills becoming caught in the net

Geographic Information Systems (GIS) - a system that integrates computer hardware and software for the analysis of spatial and non-spatial data

Global Positioning Satellite (GPS) - satellite-based navigation system originally constructed for military use by the U.S. Department of Defense

Ground-truthing - collecting spatial data in the field to support or dispute data collected by satellite or other remote means

Haline - salty or relating to the degree of saltiness

Handline - heavy duty fishing line manipulated by the hands, as opposed to a rod and reel

Hatchery - place for hatching fish that are used to restock streams

Harmful algal bloom - phenomenon that occurs when microscopic algae reproduce rapidly and form visible colonies that can deplete oxygen in the water, inhibit sunlight penetration, or produce toxins thus reducing the water quality of the affected area

Headwaters - source waters of a river

Herbicide - a substance that kills plants, especially weeds

Herbivore - an organism whose diet mostly or exclusively consists of plant matter

High Molecular Weight (HMW) - describing heavier PAH's that settle to the sediment in solid particles and take weeks or months to break down via microorganisms; carcinogenic to lab animals and possibly humans

Horticulture - division of agriculture which studies the cultivation of gardens

Humic acid - complex organic molecule derived from decaying organic matter; soluble only at pH > 2

Hydrologic - pertaining to water and its properties

Immunological - of or pertaining to the science of disease

Impoundment - collection of water in a reservoir for irrigation

Indicator species - organism whose chemical or physical properties can be used as a partial determinant of environmental health

Inert - pertaining to a compound that does not readily take part in chemical reactions

Infrastructure - basic framework of facilities serving a certain area, such as roads or sewer systems

Inorganic - pertaining to a chemical compound which does not contain carbon

Invertebrate - animal without a backbone

Isopod - crustacean with protective body-plates, two pairs of antennae, seven pairs of short legs, and the ability to curl into a ball; lives in moist environments

Jetty - structure in a body of water used to divert a current and protect a harbor

Kendall tau correlation analysis - statistical test which measures the strength of the relationship between two

ordinal variables when the data is ranked from lowest to highest

Lacustrine - of or pertaining to a lake

Lagoon - a shallow body of fresh or salt water connected to a larger water body

Landing - fish and shellfish that are caught and sold, or the physical structure where boats are launched or docked

Lift station - machinery used to move wastewater uphill

Ligand - ion or molecule that bonds to the central metal atom in a compound

Limestone bedrock - calcium carbonate-rich layer beneath the looser materials of the earth's surface

Littoral - of or pertaining to the shallow, shore region of a body of water

Low Molecular Weight (LMW) - describing lighter PAH's that can evaporate into the air, breaking down in days or weeks by reacting with sunlight and other chemicals; less toxic to humans and are not carcinogenic

Macroinvertebrate - animal lacking a backbone (like worms, snails, and insects) that can be seen without a microscope; often used to determine the health of an aquatic ecosystem

Macrophytes - plants that are either rooted or free-floating and large enough to be seen without a microscope

Mainstem - the principal channel within a given drainage basin into which all the tributaries flow

Malathion - organophosphate insecticide used in public health pest control programs

Mariculture - farming of aquatic plants and animals in saltwater

Marine - of or pertaining to the sea, usually denoting saltwater

Marine Mammal Protection Act of 1972 - legislation that recognizes the importance of marine mammals, their endangering factors and, subsequently, encourages research and conservation (16 U.S.C. 1361)

Maritime - of or pertaining to the sea

Marsh - low land characterized by fluctuating fresh or saltwater levels, lack of trees, abundance of grasses, and nutrient rich soil

Mesohaline - water with a salinity range of 5-18 ppt

Metabolism - physical and chemical processes of an organism which use energy to build materials or produce energy by breaking down materials

Metadata - information about certain items of data, such as (provide a couple of examples)

Meteorological - of or pertaining to weather-related science

Methyl mercury - neurotoxin formed by the transformation of elemental mercury by bacteria in sediment

Microbes - microscopic organisms abundant in the environment; some are capable of causing diseases, but many are essential to life

Microhabitat - a small, specialized habitat usually within a larger habitat

Midden - mound formed by generations of natural waste, such as oyster shells, being deposited in the same spot by local inhabitants

Millinery - industry of women's hats and bonnets

Mineral - inorganic, naturally occurring substance that has specific chemical and physical properties

Mitigation bank - wetland, stream, or other aquatic resource area that has been restored, established, enhanced, or preserved for the purpose of providing compensation for unavoidable impacts to aquatic resources; banks are approved, reviewed, and overseen by an Interagency Review Team (IRT)

Molluscans - invertebrates that are protected by a shell, such as snails, mussels, and oysters

Molt - in birds, the shedding of feathers in preparation for the growth of new feathers

Municipal Solid Waste (MSW) - nonhazardous, household and commercial refuse that is regularly disposed of and usually processed by a city facility

Native - species which originated from its current habitat

Naturalized - an adapted, non-native species which grows or multiplies as if native

Nemertean - flatworms

Nestling - bird too young to leave the nest

Neurotoxin - substance which damages the central nervous system, i.e., the brain or spinal cord

Nitrification - process that results in nitrogen being more readily available in the environment

Nitrogen fixation - converting non-reactive nitrogen to reactive nitrogen

Non-native - any species or other biological material that enters an ecosystem beyond its historic, native range

Non-parametric statistics - statistical methods that do not rely on the estimation of the mean or standard deviation that describe the distribution of the variable of interest in the population

Non-point source - indirect origin of pollution, such as runoff or dust and rain deposition

Oligochaetes - segmented worms, such as the earthworm

Oligohaline - water with a salinity of 0.5-5 ppt

Omnivorous - organism whose diet is comprised of both meat and plants

Organic - pertaining to a chemical compound containing carbon

Organochlorine compounds - molecules containing carbon and chlorine

Organophosphate - an organic compound containing phosphorous derived from phosphoric acid (H_3PO_4)

Orthophosphate - PO_4^{3-} ; in water, exists as $H_2PO_4^-$ in acidic conditions or as HPO_4^{2-} in alkaline conditions

Overexploitation - the overuse of natural resources for human applications, usually resulting in environmental damage

Oxidant - a chemical compound that readily gains electrons or transfers oxygen atoms to other chemical species

Oxidize - to chemically combine with oxygen

Particulate - extremely tiny particles (diameter of 10 micrometers or less) of solid or liquid whose harm lies in the potential to pass through air to the lungs

Perinatal - relating to a certain period of time before and after birth

Periphyton - community of tiny plants and animals that attach to the surface of rocks or larger aquatic plants; often used to determine water quality due to their sensitivity to the environment

Peroxide - highly reactive compound containing two single-bonded oxygen atoms in the -1 oxidation state

Petrogenic - generated by the accidental or purposeful release of oil

Petroleum - oil formed, after millions of years, from pressurized decomposed organic matter; source of many fuels, such as gasoline

pH - a measure of the acidity of a compound on a scale of one to fourteen (1-14), one (1) being the most acidic

Photosynthesis - the cellular process by which energy is produced via light absorption

Physiognomy - the outward appearance of a thing

Phytoplankton - microscopic aquatic plants

Planktivores - organisms whose diet mostly or exclusively consists of phytoplankton or zooplankton

Planktonic - describing that which is numerous, aquatic, microscopic and free floating

Plumage - all of the feathers on a bird

Point source - direct source of pollution with a continuous flow

Pollutant - physical or chemical substance which impairs the health of water, soil, or atmosphere

Pollutant Load Reduction Goal (PLRG) - amount that pollution needs to be decreased in order to meet the TMDL of a certain area

Polyaromatic Hydrocarbons (PAHs) - chemical compounds consisting of fused aromatic rings produced by the incomplete combustion of wood, petroleum, and coal or by the release of oil

Polychaetes - marine worms

Polychlorinated biphenyls (PCBs) - two bonded benzene rings with at least two chlorines at any of certain numbered positions

Population - the collective of a certain species living in a designated area and time

Ppt, ppm, ppb - parts per thousand, million, and billion, respectively; ppm is milligrams per liter (mg/L), and ppb is micrograms per liter ($\mu\text{g/L}$) in aqueous solution

Predatory/Predaceous - describing an organism that lives by hunting and eating other organisms

Prehensile - adapted for grasping or holding

Prey - animal hunted and eaten by another animal

Probable Effects Level (PEL) - concentration of contaminant above which many aquatic species are likely to be affected

Productivity - the fixation of solar energy by plants and the subsequent use of that energy by other trophic levels; measure of efficient output of a system

Pyrethroids - synthetic insecticide whose chemical composition is modeled after natural insecticides found in plants

Pyrogenic - generated as the byproduct of the incomplete combustion of wood, petroleum, or coal

Quadrat - a tool divided into squares used to assess concentration of a species over a certain surface area

“Red tide” - discoloration of water due to prolific reproduction of toxin-producing dinoflagellates

Reference dose - amount of a compound which generally causes no ill effect to humans

Refinery - facility where a crude product is purified

Regression analysis - statistical method that attempts to measure the link between two or more phenomena

Respiration - the process by which an organism takes in oxygen and gives off carbon dioxide

Rookery - breeding place of birds

Runoff - water moving downhill under the influence of gravity to replenish rivers or lakes; can move via streams, sewers, or drains and is affected by rainfall and weather

Salinity - a measure of saltiness

Sand pine scrub - uplands dominated by pine trees and interspersed with bare areas of sand or other plants suited for a dry, sandy environment; fires are important for the maintenance of this ecosystem

Scrubby flat woods - a habitat dominated by oaks (live, Chapman's, myrtle, scrub), but pines (slash, sand, longleaf) may be present along with wiregrass, fetterbush, wax myrtle, and gallberry

Seawall - barricade which protects the shore from the force of ocean waves

Sediment - organic and inorganic material that settles to the bottom of a body of water

Seine - long net with weights at the bottom and floats on the top edge, which is hauled by its ends to close around a group of fish

Septic system - sewage system consisting of an underground tank where human waste is collected and purified by specialized bacteria

Shannon-Wiener diversity index - a statistical measurement which compares the species abundance and richness (number of species) of two distinct habitats

Single Highest Day Count - record highest total number of manatees observed on a single aerial survey during the year, providing a conservative indication of the maximum number of manatees in the study area

Sinkholes - a natural cavity in the earth created by the erosion of rock, especially limestone

Slough - stagnant swamp in which water collects

Smelting - the process of obtaining metal from an ore by melting it at high temperatures

Solubility - the degree to which a compound dissociates in a certain solution

Sorption - process by which molecules of one compound take up and hold the molecules of another substance

Spawn - to deposit eggs

Stock assessment model - a business decision-making tool for fishery managers that utilizes recent and historical data to predict future fishery trends

Submerged Aquatic Vegetation (SAV) - rooted plants that do not grow above the surface of the water

Tactolocation - process of locating food by touch or vibrations

Tannic acid - phenolic compounds (those containing C₆H₅OH) found in plant parts; water-soluble at most pH's; bind to toxic metal ions, reducing their availability

Taxa - groups of organisms with common characteristics and designated by a shared name (singular: *taxon*)

Taxonomic - of or pertaining to the systematic arrangement of organisms according to shared characteristics

Telemetry - technology for the remote transmission of data

Temporary wetlands - isolated shallow pools that dry up and expose fish for birds to eat

Threshold Effects Level (TEL) - concentration at which a contaminant begins to affect species that have low tolerances for that contaminant

Topographical - pertaining to the representation of physical features on a map

Total Maximum Daily Load (TMDL) - calculation of the maximum amount of a pollutant that a waterbody can receive and still safely meet water quality standards, as defined by the EPA

Toxicity pressure - concentration of a contaminant in the sediment divided by the PEL value

Toxicology - the study of the effects of contaminants on ecosystem inhabitants, from individual species to whole communities

Toxin - poison naturally produced by a living organism

Trace metals - metallic elements that are found in small amounts in the natural environment and some organisms, but can be very harmful at high levels, such as copper, zinc, or nickel

Transect - conceptual lines, perpendicular to the shore, along which data is collected at regular intervals

Tributary - a stream or creek which flows into the mainstem river

Trophic State Index - indicator of the productivity and balance of the food chain in an ecosystem

Trophic status - the position of an organism on the food chain

Turbidity - measure of the light scattered by suspended particles in water, high levels of which can diminish the health of estuarine ecosystems

Ulcerative disease syndrome (UDS) - in reference to fish, the appearance of external lesions usually caused by some contaminant or extreme change in water quality

Ultraviolet light - high frequency light waves invisible to the human eye that can sometimes enable chemical reactions

Urbanization - process by which the proportion of people living in cities increases

Van Veen grab - sampler with weighted jaws, chain suspension, powering cable, doors, and screens designed to take large samples of sediment in soft bottoms

Vector - any agent that acts as a carrier or transporter

Vermiculated - worm-like markings

Water column - a conceptual term used to describe the vertical area of water from the surface to the sediment; water quality varies throughout the depths of the column

Watershed - the whole region from which a river receives its supply of water

Watershed Approach Framework - environmental management strategy that utilizes public and private sector efforts to address the highest priority problems within hydrologically-defined geographic areas, considering ground and surface water flow

Water table - sub-surface layer of the earth which contains water but is not as saturated as the groundwater layer beneath it; depth varies according to topography and recent weather

Wetland - broadly used to describe a transitional area between aquatic and terrestrial ecosystems

Wet prairies - freshwater wetland dominated by grasses with characteristically high species diversity and rich soil

Whorl - a set of leaves in a circular pattern

Xeric oak scrub - patches of low growing oaks interspersed with bare areas of white sand

Zooplankton - microscopic aquatic animals