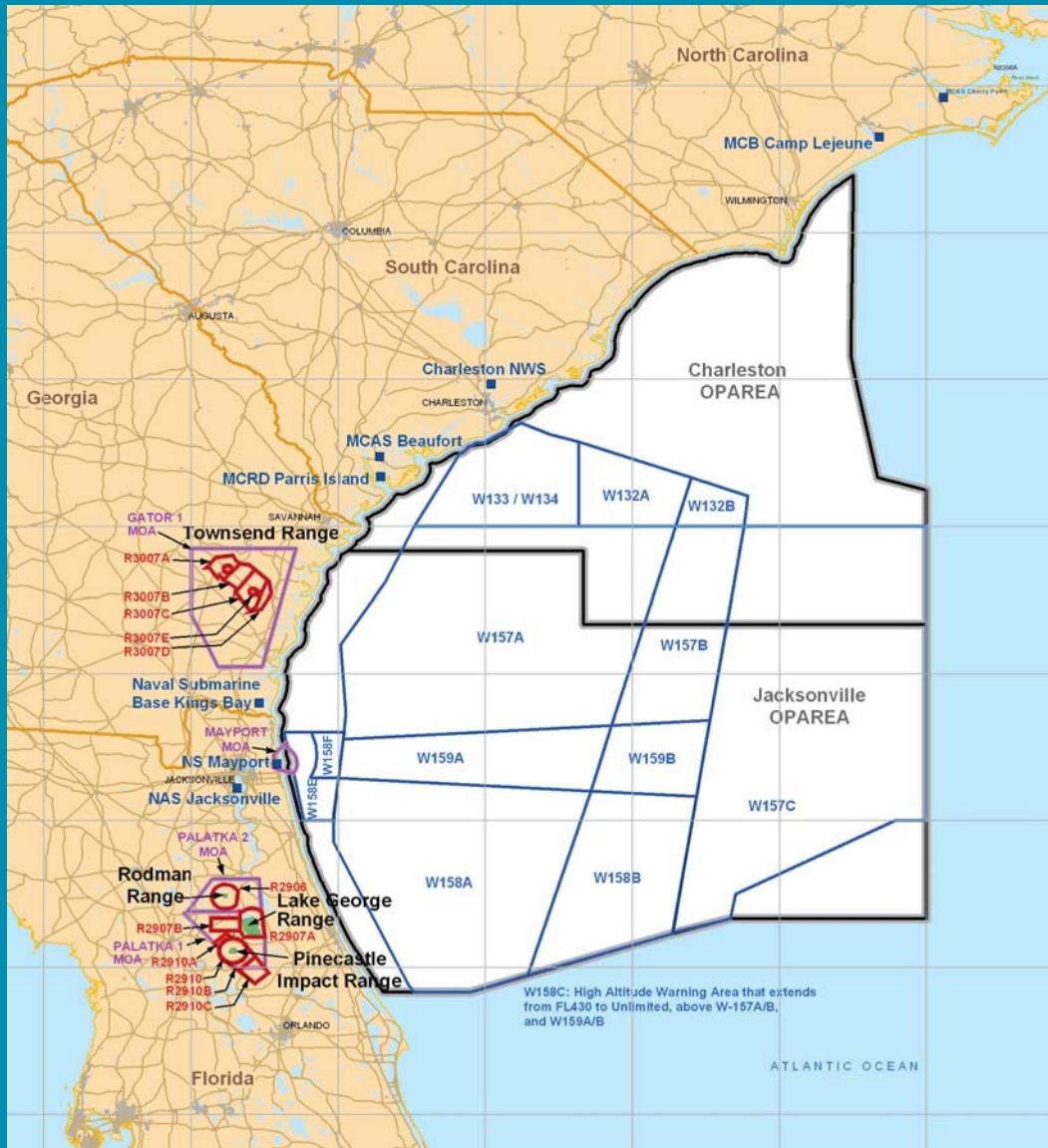


# Jacksonville Range Complex Final Environmental Impact Statement/ Overseas Environmental Impact Statement (EIS/OEIS) Volume 1



Prepared by:  
United States Fleet Forces  
March 2009

This page intentional left blank

## CHAPTER 8 GLOSSARY OF TERMS

**Access**—the right to transit to and from and to make use of an area.

**Accretion**—growth by gradual external addition.

**Activity**—an individual scheduled training function or action such as missile launching, bombardment, vehicle driving, or Field Carrier Landing Practice.

**Advisory Council on Historic Preservation**—a 19-member body appointed, in part, by the President of the United States to advise the President and Congress and to coordinate the actions of Federal agencies on matters relating to historic preservation, to comment on the effects of such actions on historic and archaeological cultural resources, and to perform other duties as required by law (Public Law 89-655; 16 United States Code 470).

**Aeronautical Chart**—a map used in air navigation containing all or part of the following: topographic features, hazards and obstructions, navigation aids, navigation routes, designated airspace, and airports.

**Aesthetic**—a pleasing appearance, effect, or quality that allows appreciation of character-defining features, such as of the landscape.

**Air Basin**—a region within which the air quality is determined by the meteorology and emissions within it with minimal influence on and impact by contiguous regions.

**Air Defense Identification Zone**—the area of airspace over land or water, extending upward from the surface, within which the ready identification, the location, and the control of aircraft are required in the interest of national security.

**Air Route Traffic Control Center (ARTCC)**—a facility established to provide air traffic control service to aircraft operating on Instrument Flight Rules flight plans within controlled airspace and principally during the en route phase of flight. When equipment capabilities and controller workload permit, certain advisory/assistance services may be provided to aircraft operating under Visual Flight Rules.

**Air Traffic Control**—a service operated by appropriate authority to promote the safe, orderly, and expeditious flow of air traffic.

**Air Traffic Control Assigned Airspace (ATCAA)**—Federal Aviation Administration-defined airspace not over an Operating Area (OPAREA) within which specified activities, such as military flight training, are segregated from other Instrument Flight Rules air traffic.

**Airfield**—usually an active and/or inactive airfield, or infrequently used landing strip, with or without a hard surface, without Federal Aviation Administration-approved instrument approach procedures. An airfield has no control tower and is usually private.

**Airport**—usually an active airport with hard-surface runways of 3,000 feet or more, with Federal Aviation Administration approved instrument approach procedures regardless of runway length or composition. An airport may or may not have a control tower. Airports may be public or private.

**Airspace, Controlled**—airspace of defined dimensions within which air traffic control service is provided to Instrument Flight Rules flights and to Visual Flight Rules flights in accordance with the airspace classification. Controlled airspace is divided into five classes, dependent upon location, use, and degree of control: Class A, B, C, D, and E.

**Airspace, Special Use**—airspace of defined dimensions identified by an area on the surface of the earth wherein activities must be confined because of their nature and/or wherein limitations may be imposed upon non-participating aircraft.

**Airspace, Uncontrolled**—uncontrolled airspace, or Class G airspace, has no specific definition but generally refers to airspace not otherwise designated and operations below 1,200 feet above ground level. No air traffic control service to either Instrument Flight Rules or Visual Flight Rules aircraft is provided other than possible traffic advisories when the air traffic control workload permits and radio communications can be established.

**Airspace**—the space lying above the earth or above a certain land or water area (such as the Atlantic Ocean); more specifically, the space lying above a nation and coming under its jurisdiction.

**Airway**—Class E airspace established in the form of a corridor, the centerline of which is defined by radio navigational aids.

**Alert Area**—a designated airspace in which flights are not restricted but there is concentrated student training or other unusual area activity of significance.

**Alkaline**—basic, having a pH greater than 7.

**Alluvium**—a general term for clay, silt, sand, gravel, or similar unconsolidated material deposited during comparatively recent geologic time by a stream or other body of running water as a sorted or semi-sorted sediment in the bed of the stream or on its floodplain or delta, or as a cone or fan at the base of a maintained slope.

**Altitude Reservation**—altitude reservation procedures are used as authorization by the Central Altitude Reservation Function, an air traffic service facility, or appropriate air route traffic control center, under certain circumstances, for airspace utilization under prescribed conditions.

**Aluminum Oxide (Al<sub>2</sub>O<sub>3</sub>)**—a common chemical component of missile exhaust. Under natural conditions, the chemical is not a source of toxic aluminum; the U.S. Environmental Protection Agency has determined that nonfibrous Al<sub>2</sub>O<sub>3</sub>, as found in solid rocket motor exhaust, is nontoxic.

**Ambient Air Quality Standards**—legal limitations on pollutant concentration levels allowed to occur in the ambient air established by the U.S. Environmental Protection Agency or state agencies. Primary ambient air quality standards are designed to protect public health with an adequate margin of safety. Secondary ambient air quality standards are designed to protect public welfare-related values including property, materials, and plant and animal life.

**Ambient Air**—that portion of the encompassing atmosphere, external to buildings, to which the general public has access.

**Amplitude**—the maximum departure of the value of a sound wave from the average value.

**Anthropogenic**—human-related.

**Applications of Offensive Military Power**—the ability to employ various means of destructive and/or disruptive force which a Naval unit/Strike Group can apply against an opponent at a given time.

**Aquaculture**—the cultivation of the natural produce of water, such as fish or shellfish.

**Archaeology**—a scientific approach to the study of human ecology, cultural history, prehistory and cultural processes, emphasizing systematic interpretation of material remains.

**Area of Potential Effect**—the geographic area within which direct and indirect impacts generated by the Proposed Action and alternatives could reasonably be expected to occur and thus cause a change in historic, architectural, archaeological, or cultural qualities possessed by the property.

**Artifact**—any thing or item that owes its shape, form, or placement to human activity. In archaeological studies, the term is applied to portable objects (*e.g.*, tools and the by-products of their manufacture).

**Attainment Area**—an air quality control region that has been designated by the U.S. Environmental Protection Agency and the appropriate state air quality agency as having ambient air quality levels as good as or better than the standards set forth by the National Ambient Air Quality Standards, as defined in the Clean Air Act. A single geographic area may have acceptable levels of one criteria air pollutant, but unacceptable levels of another; thus, an area can be in attainment and non-attainment status simultaneously.

**Average Daily Traffic (ADT)**—the total volume of traffic passing a given point or segment of a roadway in both directions divided by a set number of days.

**A-weighted Sound Level**—a number representing the sound level which is frequency-weighted according to a prescribed frequency response established by the American National Standards Institute (ANSI 4-1971) and accounts for the response of the human ear.

**Azimuth**—a distance in angular degrees in a clockwise direction from the north point.

**Backyard Range**—a range within a radius of one hour's drive (50-65 miles) of a unit, such that training there can be considered non-deployed for personnel tempo (PERSTEMPO) purposes.

**Benthic Communities**—of or having to do with populations of bottom-dwelling flora or fauna of oceans, seas, or the deepest parts of a large body of water.

**Benthopelagic**—living and feeding near the sea floor as well as in midwaters or near the surface.

**Benthos**—the sea floor.

**Bioaccumulation**—building up of a substance, such as PCBs, in the systems of living organisms (and thus, a food web) due to ready solubility in living tissues.

**Biological Diversity**—the complexity and stability of an ecosystem, described in terms of species richness, species evenness, and the direct interaction between species such as competition and predation.

**Biological Resources**—a collective term for native or naturalized vegetation, wildlife, and the habitats in which they occur.

**Booster**—an auxiliary or initial propulsion system that travels with a missile or aircraft and that may not separate from the parent craft when its impulse has been delivered; may consist of one or more units.

**Brackish**—slightly salty; applicable to waters whose saline content is intermediate between that of streams and sea water.

**Calcareous**—containing calcium carbonate.

**Candidate Species**—a species of plant or animal for which there is sufficient information to indicate biological vulnerability and threat, and for which proposing to list as “threatened” or “endangered” is or may be appropriate.

**Carbon Dioxide**—a colorless, odorless, incombustible gas which is a product of respiration, combustion, fermentation, decomposition and other processes, and is always present in the atmosphere.

**Carbon Monoxide**—a colorless, odorless, poisonous gas produced by incomplete fossil-fuel combustion; it is one of the six pollutants for which there is a national ambient standard (see Criteria Pollutants).

**CATM-9**—Captive Carry Training Missile (Sidewinder). Used for pilot training in aerial target acquisition and use of aircraft controls/displays. All components are inert.

**Carrier Strike Group Composite Training Unit Exercise (CSG COMPTUEX)**—an Integrated Phase, at-sea, major range event that integrates the aircraft carrier and carrier air wing with surface and submarine units in a challenging environment. Commander Strike Force Training Atlantic schedules and conducts the CSG COMPTUEX in accordance with a schedule of events plan. It is nominally 26 days long with two scenario-driven “mini” multi-threat battle problems, one that is about 24 hours long and the other about 18 hours long. Typically, live-fire operations that take place during COMPTUEX include long-range air strikes, naval surface fire support, and other surface gunnery and missile exercises.

**Cetacean**—an order of aquatic, mostly marine, animals including the whales, dolphins, porpoise, and related forms with large head, fishlike nearly hairless body, and paddle-shaped forelimbs.

**Class A Airspace (also Positive Controlled Area)**—airspace designated in Federal Aviation Administration Regulation Part 71 within which there is positive control of aircraft

**Coastal Zone**—a region beyond the littoral zone occupying the area near the coastline in depths of water less than 538.2 feet. The coastal zone typically extends from the high tide mark on the land to the gently sloping, relatively shallow edge of the continental shelf. The sharp increase in water depth at the edge of the continental shelf separates the coastal zone from the offshore zone. Although comprising less than 10 percent of the ocean’s area, this zone contains 90 percent of all marine species and is the site of most large commercial marine fisheries. This may differ from the way the term “coastal zone” is defined in the State Coastal Zone Management Program (Hawaii Revised Statutes Chapter 205 A).

**Community**—an ecological collection of different plant and animal populations within a given area or zone.

**Component (Cultural Resources)**—a location or element within a settlement or subsistence system. Archaeological sites may contain several components that reflect the use of the locality by different groups in different time periods.

**Continental Shelf**—a shallow submarine plain of varying width forming a border to a continent and typically ending in a steep slope to the oceanic abyss.

**Continental Slope**—the steep slope that starts at the shelf break about 492 to 656 feet and extends down to the continental rise of the deep ocean floor.

**Continental United States (CONUS)**—the United States and its territorial waters between Mexico and Canada, but excluding overseas states.

**Control Area (CTA)**—a controlled airspace extending upwards from a specified limit above the earth.

**Controlled Access**—area where public access is prohibited or limited due to periodic training operations or sensitive natural or cultural resources.

**Controlled Airspace**—airspace of defined dimensions within which air traffic control service is provided to Instrument Flight Rules flights and to Visual Flight Rules flights in accordance with the airspace classification. Controlled airspace is divided into five classes, dependent upon location, use, and degree of control: Class A, B, C, D, and E.

**Controlled Firing Area (CFA)**—airspace wherein activities are conducted under conditions so controlled as to eliminate hazards to non-participating aircraft and to ensure the safety of persons and property on the ground.

**Copepod**—a small, shrimp-like crustacean.

**Coral Reef**—a calcareous organic area composed of solid coral and coral sand.

**Council on Environmental Quality (CEQ)**—established by the National Environmental Policy Act, the CEQ consists of three members appointed by the President. A CEQ regulation (Title 40 Code of Federal Regulations 1500-1508, as of July 1, 1986) describes the process for implementing the National Environmental Policy Act, including preparation of environmental assessments and environmental impact statements, and the timing and extent of public participation.

**Co-Use**—Scheduled uses that safely allow other units to transit the area or conduct activities.

**Criteria Pollutants**—pollutants identified by the U.S. Environmental Protection Agency (required by the Clean Air Act to set air quality standards for common and widespread pollutants); also established under state ambient air quality standards. There are standards in effect for six criteria pollutants: sulfur dioxide, carbon monoxide, particulate matter, nitrogen dioxide, ozone, and lead.

**Cultural Resources**—prehistoric and/or historic sites, structures, districts, artifacts, or any other physical evidence of human activity considered of importance to a culture, subculture, or community for scientific, traditional, religious, or any other reason.

**Culture**—a group of people who share standards of behavior and have common ways of interpreting the circumstances of their lives.

**Cumulative Impact**—the impact of the environment which results from the incremental impact of the action when added to the other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

**Current**—a horizontal movement of water or air.

**C-weighted**—utilized to determine effects of high-intensity impulsive sound on human populations, a scale providing unweighted sound levels over a frequency range of maximum human sensitivity.

**Danger Area**—(1) In air traffic control, an airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times; (2) (DoD only) A specified area above, below, or within which there may be potential danger.

**Decibel (dB)**—the accepted standard unit of measure for sound pressure levels. Due to the extremely large range of measurable sound pressures, decibels are expressed in a logarithmic scale.

**Degradation**—the process by which a system will no longer deliver acceptable performance.

**Demersal**—living close to the seafloor.

**Direct Effects**—immediate consequences of program activities.

**Direct Impact**—effects resulting solely from program implementation.

**District**—National Register of Historic Places designation of a geographically defined area (urban or rural) possessing a significant concentration, linkage, or continuity of sites, structures, or objects united by past events (theme) or aesthetically by plan of physical development.

**Diurnal**—active during the daytime.

**Dunes**—hills and ridges of sand-size particles (derived predominantly from coral and seashells) drifted and piled by the wind. These dunes are actively shifting or are so recently fixed or stabilized that no soil horizons develop; their surface typically consists of loose sand.

**Easement**—a right of privilege (agreement) that a person or organization may have over another's property; an interest in land owned by another that entitles the holder of the easement to a specific limited use; a recorded right of use by the United States over property of the State of Hawaii to limit exposure to safety hazards.

**Ecosystem**—all the living organisms in a given environment with the associated non-living factors.

**Effects**—a change in an attribute, which can be caused by a variety of events, including those that result from program attributes acting on the resource attribute (direct effect); those that do not result directly from the action or from the attributes of other resources acting on the attribute being studied (indirect effect); those that result from attributes of other programs or other attributes that change because of other programs (cumulative impacts); and those that result from natural causes (for example, seasonal change).

**Effluent**—an outflowing branch of a main stream or lake; waste material (such as smoke, liquid industrial refuse, or sewage) discharged into the environment.

**Electromagnetic Radiation (EMR)**—waves of energy with both electric and magnetic components at right angles to one another.

**Electronic Countermeasures (ECM)**—includes both active jamming and passive techniques. Active jamming includes noise jamming to suppress hostile radars and radios, and deception jamming, intended to mislead enemy radars. Passive ECM includes the use of chaff to mask targets with multiple false echoes, as well as the reduction of radar signatures through the use of radar-absorbent material and other stealth technologies.

**En Route Airways**—a low-altitude (up to, but not including 5,486.4 meters [18,000 feet] mean sea level) airway based on a center line that extends from one navigational aid or intersection to another navigational aid (or through several navigational aids and intersections) specified for that airway.

**En Route Jet Routes**—high altitude (above 18,000 feet mean sea level) airway based on a center line that extends from one navigational aid or intersection to another navigational aid (or through several navigational aids and intersections) specified for that airway.

**Encroachment**—the placement of an unauthorized structure or facility on someone's property or the unauthorized use of property.

**Endangered Species**—a plant or animal species that is threatened with extinction throughout all or a significant portion of its range.

**Endemic**—plants or animals that are native to an area or limited to a certain region.

**Environmental Justice**—an identification of potential disproportionately high and adverse impacts on low-income and/or minority populations that may result from proposed federal actions (required by Executive Order 12898).

**Epibenthic**—living on the ocean floor.

**Epipelagic**—living in the ocean zone from the surface to 109 fathoms (656 feet).

**Erosion**—the wearing away of a land surface by water, wind, ice, or other geologic agents.

**Estuary**—a water passage where the tide meets a river current; an arm of the sea at the lower end of a river; characterized by brackish water.

**Event**—a significant operational employment during which training is accomplished. “Event” is a Navy approved employment schedule term. The event may be primarily designated as operational, such as TRANSIT, MIO, or STRIKEOPS during which training may take place. Training events may be periods of operational employment that are also considered major training events such as Composite Training Unit Exercise (COMPTUEX), Joint Training Fleet Exercise (JTSEX), or other exercises such as BRIGHT STAR, COBRA GOLD, or UNIFIED ENDEAVOR.

**Exclusive Use**—scheduled solely for the assigned unit for safety reasons.

**Exotic**—not native to an area.

**Expanded Warfare Mission**—conducting training in a mission area not previously conducted in the range complex, either because it is a new mission area (training associated with MS SSG and OMCM) or it is a pre-existing mission area not previously conducting in a particular range complex but because of force structure changes, will start up in the foreseeable future (CSAR training in VACAPES Range Complex, previously done primarily in JAX Range Complex).

**Expeditionary Strike Group Composite Training Unit Exercise (ESG COMPTUEX)**—an Integrated Phase, at-sea, major range event that is a standard part of every Marine Expeditionary Unit (MEU)'s pre-deployment training program and lasts for about 18 days. The exercise centers on situational training exercises in which the MEU is issued a series of orders that are designed to replicate the types of missions they are likely to face during their deployment. The MEU then quickly plans and executes the missions to test their rapid-response capabilities. Typically, the first half of the ESG COMPTUEX focuses on preparing the amphibious ships of the ESG for the missions they will perform while on deployment. The embarked Marines normally launch ship-to-shore raids and conduct urban-combat training at areas ashore. Over the next several days, the MEU's equipment and its ground combat element are loaded into the amphibious ships of the ESG by landing craft from the beach.

**Explosive Ordnance Disposal (EOD)**—the process of recovering and neutralizing domestic and foreign conventional, nuclear and chemical/biological ordnance and improvised explosive devices; a procedure in Explosive Ordnance Management.

**Explosive Safety Quantity-Distance (ESQD)**—the quantity of explosive material and distance separation relationships providing defined types of protection based on levels of risk considered acceptable.

**Facilities**—physical elements that can include roads, buildings, structures, and utilities. These elements are generally permanent or, if temporary, have been placed in one location for an extended period of time.

**Fathom**—a unit of length equal to 6 feet; used to measure the depth of water.

**Feature**—in archaeology, a non-portable portion of an archaeological site, including such facilities as fire pits, storage pits, stone circles, or foundations.

**Federal Candidate Species**—taxa for which the U.S. Fish and Wildlife Service has on file sufficient information on biological vulnerability and threat(s) to support proposals to list them as endangered or threatened species.

**Fee Simple Land**—land held absolute and clear of any condition or restriction, and where the owner has unconditional power of disposition.

**Feral**—having escaped from domestication and become wild.

**Fleet Area Control and Surveillance Facility (FACSFAC)**—Navy facility that provides air traffic control services and controls and manages Navy-controlled offshore operating areas and instrumented ranges.

**Fleet Response Training Plan (FRTP)**—the 27-month cycle that replaces the Interdeployment Training Cycle. The FRTP includes four phases prior to deployment: Maintenance, Unit Level Training, Integrated Training, and Sustainment.

**Fleet Response Plan/Fleet Readiness Program (FRP)**—the Fleet Response Plan was the Navy's response to the 2002/2003 international situations in Afghanistan and Iraq. The Fleet Readiness Program was later developed by the Fleet commanders. Both names refer to the same operational construct. The FRP is designed to more rapidly develop and then sustain readiness in ships and squadrons so that, in a national crisis or contingency operation, the Navy can quickly surge significant combat power to the scene.

**Flight Information Region (FIR)**—an airspace of defined dimensions within which flight information service and alerting service are provided. Flight information service is provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights, and alerting service is provided to notify appropriate organizations regarding aircraft in need of search and rescue aid and to assist such organizations as required.

**Flight Level**—a level of constant atmospheric pressure related to a reference datum of 29.92 inches of mercury stated in three digits that represent hundreds of feet. For example, flight level 250 represents a barometric altimeter indication of 25,000 feet; flight level 255 represents an indication of 25,500 feet.

**Flight Termination**—action taken in certain post-launch situations, such as a missile veering off of its predicted flight corridor; accomplished by stopping the propulsive thrust of a rocket motor via explosive charge. At this point, the missile continues along its current path, falling to earth under gravitational influence.

**Floodplain**—the lowland and relatively flat areas adjoining inland and coastal waters including flood prone areas of offshore islands; includes, at a minimum, that area subject to 1 percent or greater chance of flooding in any given year (100-year floodplain).

**Force Structure Changes**—improvements and/or modifications to Naval operational forces based on personnel changes, equipment/platform upgrades and weapons modernization.

**Free Flight**—a joint initiative of the aviation industry and the Federal Aviation Administration to allow aircraft to take advantage of advanced satellite voice and data communication to provide faster and more reliable transmission to enable reductions in vertical, lateral, and longitudinal separation of aircraft, more direct flights and tracks, and faster altitude clearance. It will allow pilots, whenever practicable, to choose their own route and file a flight plan that follows the most efficient and economical route, rather than following the published preferred instrument flight rules routes.

**Frequent User**—a unit that conducts training and exercises in the training areas on a regular basis but does not maintain a permanent presence.

**Fugitive Dust**—any solid particulate matter that becomes airborne, other than that emitted from an exhaust stack, directly or indirectly as a result of the activities of man. Fugitive dust may include emissions from haul roads, wind erosion of exposed soil surfaces, and other activities in which soil is either removed or redistributed.

**Global Commons**—Areas established by treaty or recognized under customary international law that are beyond the territorial jurisdiction of any nation. The High Seas (Global Commons) do not include EEZs established and recognized under international law as set forth in reference (i). In addition, although the Antarctica continental land mass is part of the global commons, by court decision, NEPA (and not E.O. 12114), applies to U.S. actions that would impact the environment of the continental land mass of Antarctica.

**Ground Hazard Area**—the land area contained in an arc within which all debris from a terminated launch will fall. For example, the arc for a Strategic Target System launch is described such that the radius is approximately 10,000 feet to the northeast, 9,100 feet to the east, and 9,000 feet to the south of the launch point. For the Vandal launch, the arc is 6,000 feet.

**Groundwater Table**—the highest part of the soil or underlying rock material that is wholly saturated with water.

**Groundwater**—water within the earth that supplies wells and springs; specifically, water in the zone of saturation where all openings in rocks and soil are filled, the upper surface of which forms the water table.

**Habitat**—the area or type of environment in which a species or ecological community normally occurs.

**Hazardous Air Pollutants**—other pollutants, in addition to those addressed by the NAAQS, that present the threat of adverse effects to human health or to the environment as covered by Title III of the Clean Air Act. Incorporates, but is not limited to, the pollutants controlled by the National Emissions Standards for Hazardous Air Pollutants program.

**Hazardous Material**—generally, a substance or mixture of substances capable of either causing or significantly contributing to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness; it may pose a threat or a substantial present or potential risk to human health or the environment. Hazardous material use is regulated by the U.S. Department of Transportation, the Occupational Safety and Health Administration, and the Emergency Right-to-Know Act.

**Hazardous Waste**—a waste, or combination of wastes, which, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may either cause or significantly contribute to an increase in mortality or an increase in serious irreversible illness or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

**Hertz (Hz)**—the standard radio equivalent of frequency in cycles per second of an electromagnetic wave. Kilohertz (kHz) is a frequency of 1,000 cycles per second. Megahertz (MHz) is a frequency of 1 million cycles per second.

**High Explosive**—used when describing explosive ordnance, *i.e.*, ordnance typically used in combat or possessing same or similar explosive-filler as combat ordnance; example - 20MM through 2,000LB MK-80 series HE.

**Historic Properties**—under the National Historic Preservation Act, these are properties of national, state, or local significance in American history, architecture, archaeology, engineering, or culture, and worthy of preservation

**Host**—the Facilities Host holds plant account of all Class I (Land) and most Class II (Buildings) property. The Operational Host determines and executes operational policy for the range/range complex.

**Hydraulic Conductivity**—the rate in gallons per day water flow through a cross section of one square foot under a unit hydraulic gradient, at the prevailing temperature.

**Hydrocarbons**—any of a vast family of compounds containing hydrogen and carbon, including fossil fuels.

**Hydrochloric Acid**—a common chemical component of missile exhaust believed to injure plant leaves and affect wildlife.

**Hydrology**—the science dealing with the properties, distribution, and circulation of water on the face of the land (surface water) and in the soil and underlying rocks (groundwater).

**Hydrophone**—an instrument for listening to sound transmitted through water.

**Impact Area**—the identified area within a range intended to capture or contain ammunition, munitions, or explosives and resulting debris, fragments, and components from various weapon system employments.

**Impacts (effects)**—an assessment of the meaning of changes in all attributes being studied for a given resource; an aggregation of all the adverse effects, usually measured using a qualitative and nominally subjective technique. In this Environmental Impact Statement, as well as in the Council on Environmental Quality regulations, the word impact is used synonymously with the word effect.

**Implementing Enhanced Range Complex Capabilities**—warfare training and doctrine improvements that result from the modernization and replacement of range support infrastructure and instrumentation at Naval air, sea and subsurface tactical ranges.

**Indurated**—rendered hard, as in dunes where surface sand is loose, but subsurface areas become increasingly compact (see lithified).

**Infrastructure**—the system of public works of a country, state, or region, such as utilities or communication systems; physical support systems and basic installations needed to operate a particular area or facility.

**Inhibited Red Fuming Nitric Acid (IRFNA)**—a liquid hypergolic propellant utilized as an oxidizer (as in the Lance). This reddish-brown acid is highly corrosive, spontaneously reacting with UDMH and certain other organic substances. It also dissolves in water, and care must be taken regarding its induced boiling effects. Its highly toxic, characteristically pungent vapors irritate skin and eyes.

**In-Shore**—lying close to the shore or coast.

**Instrument Flight Rules (IFR)**—rules governing the procedures for conducting instrument flight; it is a term used by pilots and controllers to indicate type of flight plan.

**Interdeployment Readiness Cycle**—the period by which Naval units progress through maintenance/unit level training, integrated training, and sustainment training stages prior to being deployed with the Fleet to support the gaining CINC.

**Intermittent User**—a unit that conducts training and exercises in the training areas throughout the year, but not on a regularly scheduled basis, and does not maintain a permanent presence.

**International Waters**—sea areas beyond 12 nm of the U.S. shoreline.

**Intertidal Zone**—occupies the space between high and low tide, also referred to as the littoral zone; found closest to the coastal fringe and thus only occurring in shallow depths.

**Ionizing Radiation**—particles or photons that have sufficient energy to produce direct ionization in their passage through a substance. X-rays, gamma rays, and cosmic rays are forms of ionizing radiation.

**Isobath**—the line on a marine map or chart joining points of equal depth, usually in fathoms below mean sea level.

**Jet Routes**—a route designed to serve aircraft operating from 5,486 meters (18,000 feet) up to and including flight level 450, referred to as J routes with numbering to identify the designated route.

**Joint Task Force Exercise (JTFEX)** —a scenario-driven, sea control, power projection exercise with the purpose of evaluating the readiness of naval forces and testing the interoperability and proficiency of these forces in realistic scenarios ranging from military operations other than war to armed conflict. JTFEX typically encompasses operations from in port to sea-air-land combat, to special warfare, to humanitarian assistance operations. JTFEX is a dynamic and complex major range event that is the culminating exercise in the Sustainment Phase training for the Carrier Strike Group (CSG) or Expeditionary Strike Group (ESG). JTFEX is nominally 10 days long, not including a 3-day in port Force Protection Exercise, and can be the last at-sea exercise for the CSG prior to deployment.

**Land/Sea Use**—the exclusive or prioritized commitment of a land/sea area, and any targets, systems, and facilities therein, to a continuing purpose that could include a grouping of operations, buffer zone, environmental mitigation, *etc.* The land/sea area may consist of a range/range complex, grouping of similar facilities, or natural resource-based area with no facilities.

**Lead**—a heavy metal which can accumulate in the body and cause a variety of negative effects; one of the six pollutants for which there is a national ambient air quality standard (see Criteria Pollutants).

**Lead-based Paint**—paint on surfaces with lead in excess of 1.0 milligram per square centimeter as measured by X-ray fluorescence detector, or 0.5 percent lead by weight.

**Leptocephalic**—small, elongate, transparent, planktonic.

**Level of Service (LOS)**—describes operational conditions within a traffic stream and how they are perceived by motorists and/or passengers; a monitor of highway congestion that takes into account the average annual daily traffic, the specified road segment's number of lanes, peak hour volume by direction, and the estimated peak hour capacity by a roadway's functional classification, area type, and signal spacing.

**Lithified**—the conversion of a newly deposited sediment into an indurated rock.

**Littoral**—species found in tide pools and near-shore surge channels.

**Loam**—a loose soil composed of a mixture of clay, silt, sand, and organic matter.

**Long-Term Sustainability of Department of Defense Ranges**—the ability to indefinitely support national security objectives and the operational readiness of the Armed Forces, while still protecting human health and the environment.

**Major Exercise**—a significant operational employment of live, virtual, and/or constructive forces during which live training is accomplished. A Major Exercise includes multiple training objectives, usually occurring over an extended period of days or weeks. An exercise can have multiple training operations (sub-events each with its own mission, objective and time period. Examples include C2X, JTFEX, SACEX, and CAX. Events (JTFEX) are composed of specific operations (*e.g.*, Air-to-Air Missile), which consist of individual activities (*e.g.*, missile launch).

**Maneuver Area**—range used for maneuver element training.

**Maneuver Element**—basic element of a larger force independently capable of maneuver. Normally, a Marine Division recognizes its infantry battalions, tank battalion, and light armored reconnaissance (LAR) battalion as maneuver elements. A rifle (or tank/LAR) battalion would recognize its companies as maneuver elements. A rifle (or tank/LAR) company would recognize its platoons as maneuver elements. Maneuver below the platoon level is not normally possible since fire and movement can be combined only at the platoon level or higher. The Army and National Guard recognize a squad and platoon as maneuver elements.

**Maneuver**—employment of forces on the battlefield through movement in combination with fire, or fire potential, to achieve a position of advantage with respect to the enemy in order to accomplish the mission.

**Marine Corps Ground Unit**—Marine Expeditionary Unit Ground Combat Element, or Battalion Landing Team, composed of an infantry battalion of about 1,200 personnel reinforced with artillery, amphibious assault vehicles, light armored reconnaissance assets and other units as the mission and circumstances require. (The analysis will scale units of different size or composition from this Battalion Landing Team standard unit to include a 12-man Special Operations platoon.)

**Maritime**—of, relating to, or bordering on the sea.

**Material Safety Data Sheet**—presents information, required under Occupational Safety and Health Act standards, on a chemical's physical properties, health effects, and use precautions.

**Medical Evacuation**—emergency services, typically aerial, designed to remove the wounded or severely ill to medical facilities.

**Mesopelagic**—the oceanic zone from 109 to 547 fathoms (656 to 3,280 feet).

**Migration**—repeated departure and return of individuals and their offspring to and from an area.

**Migratory Birds**—birds characterized by their practice of passing, usually periodically, from one region or climate to another.

**Military Operating Area**—airspace below 18,000 feet used to separate or segregate certain non-hazardous military flight activities from Instrument Flight Rules traffic and to identify for Visual Flight Rules traffic where these activities are conducted.

**Military Training Route**—an airspace corridor established for military flight training at airspeeds in excess of 250 nautical miles/hour.

**Minority**—minority populations, as reported by the 2000 Census of Population and Housing, includes Black, American Indian, Eskimo or Aleut, Asian or Pacific Islander, Hispanic, or other.

**Mitigation**—a method or action to reduce or eliminate adverse environmental impacts. Such measures may avoid impacts by not taking a certain action or parts of an action; minimize impacts by limiting the magnitude of an action; rectify impacts by restoration measures; reduce or eliminate impacts over time by preservation or maintenance measures during the action; or compensate for impacts by replacing or providing substitute resources or environments.

**Mobile Sources**—any movable source that emits any regulated air pollutant.

**Mortality**—the number of deaths in a given time or place.

**Munitions Constituents**—any material originating from unexploded ordnance, discarded military munitions, or other military munitions, including explosive and non-explosive material, and emission, degradation, or breakdown elements of such ordnance or munitions.

**National Airspace System**—the common network of U.S. airspace; air navigation facilities, equipment and services, airports or landing areas; aeronautical charts, information and services; rules, regulations and procedures, technical information, and manpower and material. Included are system components shared jointly with the military.

**National Ambient Air Quality Standards (NAAQS)**—as set by the Environmental Protection Agency under Section 109 of the Clean Air Act, nationwide standards for limiting concentrations of certain widespread airborne pollutants to protect public health with an adequate margin of safety (primary standards) and to protect public welfare, including plant and animal life, visibility and material (secondary standards). Currently, six pollutants are regulated by primary and secondary NAAQS: carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter, and sulfur dioxide (see Criteria Pollutants).

**National Environmental Policy Act (NEPA)**—Public Law 91-190, passed by Congress in 1969. The Act established a national policy designed to encourage consideration of the influences of human activities, such as population growth, high-density urbanization, or industrial development, on the natural environment. The National Environmental Policy Act procedures require that environmental information be made available to the public before decisions are made. Information contained in the National Environmental Policy Act documents must focus on the relevant issues in order to facilitate the decision-making process.

**National Register of Historic Places Eligible Property**—property that has been determined eligible for the National Register of Historic Places listing by the Secretary of the Interior, or one that has not yet gone through the formal eligibility determination process but which meets the National Register of Historic Places criteria for section review purposes; eligible properties are treated as if they were already listed.

**National Register of Historic Places**—a register of districts, sites, buildings, structures, and objects important in American history, architecture, archaeology, and culture, maintained by the Secretary of the Interior under authority of Section (b) of the Historic Sites Act of 1935 and Section 101 (a)(1) of the National Historic Preservation Act of 1966, as amended.

**National Wildlife Refuge**—a part of the national network of refuges and wetlands managed by the U.S. Fish and Wildlife Service in order to provide, preserve, and restore lands and waters sufficient in size, diversity and location to meet society's needs for areas where the widest possible spectrum of benefits associated with wildlife and wildlands is enhanced and made available. This includes 504 wildlife refuges nationwide encompassing 92 million acres and ranging in size from one-half acre to thousands of square miles. Dedicated to protecting wildlife and their habitat, U.S. refuges encompass numerous ecosystems and are home to a wide variety of fauna, including large numbers of migratory birds and some 215 threatened or endangered species.

**Native Americans**—used in a collective sense to refer to individuals, bands, or tribes who trace their ancestry to indigenous populations of North America prior to Euro-American contact.

**Native Species**—plants or animals living or growing naturally in a given region and often referred to as indigenous.

**Native Vegetation**—often referred to as indigenous, these are plants living or growing naturally in a given region without agricultural or cultivational efforts.

**Navigational Aid**—any visual or electronic device, airborne or on the surface, which provides point-to-point guidance information or position data to aircraft in flight.

**Near-Shore**—an indefinite zone that extends seaward from the shoreline.

**Neritic**—relating to the shallow ocean waters, usually no deeper than 109 fathoms (656 feet).

**Nitrogen Dioxide**—gas formed primarily from atmospheric nitrogen and oxygen when combustion takes place at high temperatures.

**Nitrogen Oxides**—gases formed primarily by fuel combustion and which contribute to the formation of acid rain. In the presence of sunlight, hydrocarbons and nitrogen oxides combine to form ozone, a major constituent of photochemical smog.

**Nitrogen Tetroxide**—a dark brown, fuming liquid or gas with a pungent, acrid odor, utilized in rocket fuels.

**Nonattainment Area**—an area that has been designated by the U.S. Environmental Protection Agency or the appropriate state air quality agency as exceeding one or more of the national or state ambient air quality standards.

**Non-directional Radio Beacon**—a radio beacon transmitting non-directional signals whereby the pilot of an aircraft equipped with direction finding equipment can determine the aircraft's bearing to or from the radio beacon and “home” on or track to or from the station.

**Non-explosive, Practice Munitions (NEPM)**—used when describing most common types of practice ordnance. Non-explosive practice munitions have no explosive filler but may contain spotting charges or signal cartridges for impact locating purposes (smoke charges for daylight spotting, flash charges for night spotting); example - MK-76, BDU-45. Some non-explosive, practice munitions may also contain unburned propellant (such as rockets).

**Non-ionizing Radiation**—electromagnetic radiation at wavelengths whose corresponding photon energy is not high enough to ionize an absorbing molecule. All radio frequency, infrared, visible, and near ultraviolet radiation are non-ionizing.

**Non-Point Source Pollution**—diffuse pollution; that is, from a combination of sources; typically originates from rain and melted snow flowing over the land (runoff). As runoff contacts the land's surface, it picks up many pollutants in its path: sediment, oil and grease, road salt, fertilizers, pesticides, nutrients, toxics, and other contaminants. Runoff also originates from irrigation water used in agriculture and on landscapes. Other types of non-point pollution include changes to the natural flow of water in stream channels or wetlands.

**Notice to Airmen (NOTAM)**—a notice containing information, not known sufficiently in advance to publicize by other means, the establishment, condition, or change in any component (facility, service, or procedure of, or hazard in the National Airspace System), the timely knowledge of which is essential to personnel concerned with flight operations.

**Notice to Mariners (NOTMAR)**—a periodic notice regarding changes in aids to navigation, dangers to navigation and other information essential to mariners.

**Offshore**—open-ocean waters over the continental slope which are deeper than 200 meters, beyond the continental shelf break.

**Operating Area (OPAREA)**—ocean area not part of a range used by military personnel or equipment for training and weapons system Research, Development, Test & Evaluation (RDT&E).

**Operation**—A combination of activities accomplished together for a scheduled period of time for an intended military mission or task. An operation can range in size from a single unit exercise to a Joint or Combined event with many participants (*e.g.*, aircraft, ships, submarines, troops).

**Operational Range**—a range that is under the jurisdiction, custody, or control of the Secretary of Defense and is used for range activities; or although not currently being used for range activities, that is still considered by the Secretary to be a range and has not been put to a new use that is incompatible with range activities.

**Ordnance**—military supplies including weapons, ammunition, combat vehicles, and maintenance equipment.

**OTTO Fuel**—a torpedo fuel.

**Ozone (O<sub>3</sub>)**—a highly reactive form of oxygen that is the predominant component of photochemical smog and an irritating agent to the respiratory system. Ozone is not emitted directly into the atmosphere but results from a series of chemical reactions between oxidant precursors (nitrogen oxides and volatile organic compounds) in the presence of sunlight.

**Ozone Layer**—a naturally occurring layer of ozone 7 to 30 miles above the earth's surface (in the stratosphere) which filters out the sun's harmful ultraviolet radiation. It is not affected by photochemical smog found in the lower atmosphere, nor is there any mixing between ground level ozone and ozone in the upper atmosphere.

**Paleontological Resources**—fossilized organic remains from past geological periods.

**Paleontology**—the study of life in the past geologic time, based on fossil plants and animals.

**Participant**—an individual ship, aircraft, submarine, amphibious vehicle, or ground unit.

**Particulate Matter, Fine Respirable**—finely divided solids or liquids less than 10 microns in diameter which, when inhaled, remain lodged in the lungs and contribute to adverse health effects.

**Particulate Matter, Total Suspended**—finely divided solids or liquids ranging from about 0.1 to 50 microns in diameter which comprise the bulk of the particulate matter mass in the atmosphere.

**Particulate Matter**—particles small enough to be airborne, such as dust or smoke (see Criteria Pollutants).

**Payload**—any non-nuclear and possibly propulsive object or objects, weighing up to 272.2 kilograms (600 lbs), which are carried above the Strategic Target System third stage.

**Pelagic Zone**—commonly referred to as the open ocean.

**Pelagic**—of the ocean waters.

**Peninsula**—a portion of land nearly surrounded by water and generally connected with a larger body by an isthmus, although the isthmus is not always well defined.

**Per Capita**—per unit of population; by or for each person.

**Permeability**—a quality that enables water to penetrate.

**Pesticide**—any substance, organic, or inorganic, used to destroy or inhibit the action of plant or animal pests; the term thus includes insecticides, herbicides, fungicides, rodenticides, miticides, fumigants, and repellents. All pesticides are toxic to humans to a greater or lesser degree. Pesticides vary in biodegradability.

**pH**—a measure of the acidity or alkalinity of a solution, numerically equal to 7 for neutral solutions, increasing with increasing alkalinity and decreasing with increasing acidity.

**Photosynthesis**—the plant process by which water and carbon dioxide are used to manufacture energy-rich organic compounds in the presence of chlorophyll and energy from sunlight.

**Physiography**—geography dealing with the exterior physical features and changes of the earth (also known as physical geography).

**Phytoplankton**—plant-like organisms that drift with the ocean currents, with little ability to move through the water on their own. Predominately one-celled, phytoplankton float in the photic zone (sunlit surface waters of the ocean, which extends to only about 100 meters (330 feet) below the surface), where they obtain sunlight and nutrients, and serve as food for zooplankton and certain larger marine animals.

**Pinniped**—having finlike feet or flippers, such as a seal or walrus.

**Plankton**—free-floating, usually minute, organisms of the sea; includes larvae of benthic species.

**Pliocene**—of, relating to, or being the latest epoch of the Tertiary Period or the corresponding system of rocks; following the Pleistocene and prior to the Miocene.

**PM-2.5 and PM-10**—standards for measuring the amount of solid or liquid matter suspended in the atmosphere; refers to the amount of particulate matter less than or equal to 2.5 and 10 micrometers in diameter, respectively. The PM-2.5 and PM-10 particles penetrate to the deeper portions of the lungs, affecting sensitive population groups such as children and people with respiratory or cardiac diseases.

**Point Source**—a distinct and identifiable source, such as a sewer or industrial outfall pipe, from which a pollutant is discharged.

**Population Density**—the average number of individuals or organisms per unit of space or area.

**Potable Water**—water that is safe to drink.

**Potentially Hazardous Debris**—inert debris impacting the earth with a kinetic energy equal to or greater than 11 foot-pounds.

**Prehistoric**—literally, "before history," or before the advent of written records. In the old world writing first occurred about 5400 years ago (the Sumerians). Generally, in North America and the Pacific region, the prehistoric era ended when European explorers and mariners made written accounts of what they encountered. This time will vary from place to place.

**Prohibited Area**—designated airspace where aircraft are prohibited, except by special permission. Can also apply to surface craft.

**Radar**—a radio device or system for locating an object by means of radio waves reflected from the object and received, observed, and analyzed by the receiving part of the device in such a way that characteristics (such as distance and direction) of the object may be determined.

**Range**—a land or sea area designated and equipped for any or all of the following reasons:

**Range Activity**—an individual training or test function performed on a range or in an Operating Area. Examples include missile launching, bombardment, and vehicle driving. Individual RDT&E functions are also included in this category.

**Range Complex**—a geographically integrated set of ranges, operational areas, and associated special use airspace, designated and equipped with a command and control system and supporting infrastructure for freedom of maneuver and practice in munitions firing and live ordnance use against scored and/or tactical targets and/or Electronic Warfare tactical combat training environment.

**Range Operation**—a live training exercise, RDT&E test, or field maneuver conducted for a specific strategic, operational or tactical military mission, or task. A military action. Operations may occur independently, or multiple operations may be accomplished as part of a larger event. One operation consists of a combination of activities accomplished together. The type of operation can include air, land, sea, and undersea warfare training or testing. Participants can include a specific number and type of aircraft, ships, submarines, amphibious or other vehicles and personnel. Ordnance broadly encompasses all weapons, missiles, shells, and expendables (chaff and flares). An individual operation occurs over a given geographic footprint for a scheduled period of time. An example is a Mining Operation. Each Mining Operation is discrete and relatively short in duration, but it may be combined with other operations in a single, larger exercise, like a JTFEX, which lasts for several days or weeks.

**Range Safety Zone**—area around air-to-ground ranges designed to provide safety of flight and personnel safety relative to dropped ordnance and crash sites. Land use restrictions can vary depending on the degree of safety hazard, usually decreasing in magnitude from the weapons impact area (including potential ricochet) to the area of armed over flight and aircraft maneuvering.

**Readiness**—the ability of forces, units, weapon systems, or equipment to deliver the outputs for which they were designed (includes the ability to deploy and employ without unacceptable delays).

**Region of Influence**—the geographical region that would be expected to be affected in some way by the Proposed Action and alternatives.

**Relative Humidity**—the ratio of the amount of water vapor actually present in the air to the greatest amount possible at the same temperature.

**Relief**—the difference in elevation between the tops of hills and the bottoms of valleys.

**Remediation**—all necessary actions to investigate and clean up any known or suspected discharge or threatened discharge of contaminants, including without limitation: preliminary assessment, site investigations, remedial investigations, remedial alternative analyses and remedial actions.

**Restricted Area**—a designated airspace in which flights are prohibited during published periods of use unless permission is obtained from the controlling authority.

**Runoff**—the portion of precipitation on land that ultimately reaches streams, often with dissolved or suspended material.

**Safety Zone**—administratively designated/implied areas designated to limit hazards to personnel and the public, and resolve conflicts between operations. Can include range safety zones, ESQDS, surface danger zones, special use airspace, HERO/HERP areas, *etc.*

**Saline**—consisting of or containing salt.

**Sampling**—the selection of a portion of a study area or population, the analysis of which is intended to permit generalization of the entire population. In archaeology, samples are often used to reduce the amount of land area covered in a survey or the number of artifacts analyzed from a site. Statistical sampling is generally preferred since it is possible to specify the bias or probability of error in the results, but judgmental or intuitive samples are sometimes used.

**Scoping**—a process initiated early during preparation of an Environmental Impact Statement to identify the scope of issues to be addressed, including the significant issues related to the Proposed Action. During scoping, input is solicited from affected agencies as well as the interested public.

**Seamount**—a peaked, underwater mountain that rises at least 3,281 feet above the ocean floor.

**Seawall**—a wall or embankment to protect the shore from erosion or to act as a breakwater.

**Security Zone**—area where public or non-operational support access is prohibited due to training operations of a classified or hazardous nature.

**Seduction Chaff**—radar confusion reflectors, consisting of thin metallic strips, which are used to reflect electronic signals for confusion purposes. A defensive electronic countermeasures system designed/intended to hide or obscure the launch platform from air-to-surface or surface-to-surface attack.

**Sensitive Habitats**—areas of special importance to regional wildlife populations or protected species that have other important biological characteristics (for example, wintering habitats, nesting areas, and wetlands).

**Sensitive Receptor**—an organism or population of organisms sensitive to alterations of some environmental factor (such as air quality or sound waves) that undergo specific effects when exposed to such alteration.

**Short-Term Public Exposure Guidance Level**—an acceptable concentration for unpredicted, single, short-term, emergency exposure of the general public, as published by the National Research Council.

**Site**—in archaeology, any location where human beings have altered the terrain or have discarded artifacts.

**Solid Waste**—municipal waste products and construction and demolition material; includes non-recyclable material with the exception of yard waste.

**Sonobuoy**— A floating sensor (sonar) device fitted with sensitive microphones and a radio used for searching, localization, tracking, and communication. Sonobuoys can be active or passive. Active sonobuoys can provide either a deployable acoustical signal source (DICASS) or an explosive signal source (IEER/AEER/EER). All sonobuoys receive underwater signals of interest and relay the signals..

**Sortie**—a single operational training or RDT&E event conducted by one aircraft in a range or operating area. A single aircraft sortie is one complete flight (*i.e.*, one take-off and one final landing).

**Special Use Airspace**—consists of several types of airspace used by the military to meet its particular needs. Special use airspace consists of that airspace wherein activities must be confined because of their nature, or wherein limitations are imposed upon aircraft operations that are not a part of these activities, or both. Special use airspace, except for Control Firing Areas, are chartered on instrument flight rules or visual flight rules charts and include hours of operation, altitudes, and the controlling agency.

**Species**—a taxonomic category ranking immediately below a genus and including closely related, morphologically similar individuals which actually or potentially interbreed.

**Specific Absorption Rate**—the time rate at which radio frequency energy is absorbed per unit mass of material, usually measured in watts per kilogram (W/kg).

**Stakeholder**—those people or organizations that are affected by or have the ability to influence the outcome of an issue. In general this includes regulators, the regulated entity, and the public. It also includes those individuals who meet the above criteria and do not have a formal or statutorily defined decision-making role.

**State Historic Preservation Officer (SHPO)**—the official within each state, authorized by the state at the request of the Secretary of the Interior, to act as liaison for purposes of implementing the National Historic Preservation Act.

**State Jurisdictional Waters**—sea areas within 3 nm of a state’s continental and island shoreline.

**Stationary Source**—any building, structure, facility, installation, or other fixed source that emits any regulated air pollutant.

**Stormwater**—runoff produced during storms, generally diverted by rain spouts and stormwater sewerage systems. Stormwater has the potential to be polluted by such sources as yard trimmings and pesticides. A stormwater outfall refers to the mouth of a drain or sewer that channels this runoff.

**Subsistence Economy**—a community, usually based on farming and/or fishing, that provides all or most of the basic goods required by its members for survival, usually without any significant surplus for sale.

**Subsistence**—the traditional harvesting of natural resources for food, clothing, fuel, transportation, construction, art, crafts, sharing, and customary trade.

**Subspecies**—a geographically defined grouping of local populations which differs taxonomically from similar subdivisions of species.

**Substrate**—the layer of soil beneath the surface soil; the base upon which an organism lives.

**Sulfur Dioxide**—a toxic gas that is produced when fossil fuels, such as coal and oil, are burned.

**Sustainable Range Management**—management of an operational range in a manner that supports national security objectives, maintains the operational readiness of the Armed Forces, and ensures the long-term viability of operational ranges while protecting human health and the environment.

**Sustaining the Capability**—maintaining necessary skills, readiness and abilities.

**Symbiotic**—living in or on the host.

**System of Systems**—all communications, electronic warfare, instrumentation, and systems linkage supporting the range/range complex.

**Taking**—to harass, harm, pursue, hunt, shout, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct. Taking can involve harming the habitat of an endangered species.

**Targets**—earthwork, material, actual or simulated weapons platforms (tanks, aircraft, EW systems, vehicles, ships, *etc.*) comprising tactical target scenarios within the range/range complex impact areas. Could also include SEPTAR, AQM, BQM, MQM, *etc.*

**Tenant**—a unit that has an Inter-Service Support Agreement with the host for use of the training areas and that maintains a permanent presence.

**Thermocline**—a thin, narrow region in a thermally stratified body of water which separates warmer, oxygen-rich surface water from cold, oxygen-poor deep water and in which temperature decreases rapidly with depth. In tropical latitudes, the thermocline is present as a permanent feature and is located 200 to 1,000 feet below the surface.

**Threatened Species**—a plant or animal species likely to become endangered in the foreseeable future.

**Topography**—the configuration of a surface including its relief and the position of its natural and man-made features.

**Traditional Resources**—prehistoric sites and artifacts, historic areas of occupation and events, historic and contemporary sacred areas, material used to produce implements and sacred objects, hunting and gathering areas, and other botanical, biological, and geographical resources of importance to contemporary groups.

**Transient**—remaining a short time in a particular area.

**Troposphere**—the atmosphere from ground level to an altitude of 6.2 to 9.3 miles (see stratosphere).

**Turbid**—the condition of being thick, cloudy, or opaque as if with roiled sediment; muddy.

**Uncontrolled Airspace**—airspace of defined dimensions in which no air traffic control services to either instrument flight rules or visual flight rules aircraft will be provided, other than possible traffic advisories when the air traffic control workload permits and radio communications can be established.

**Understory**—a vegetal layer growing near the ground and beneath the canopy of a taller layer.

**Unique and Sensitive Habitats**—areas of special importance to regional wildlife populations or protected species that have other important biological characteristics (for example, wintering habitats, nesting areas, and wetlands).

**Unsymmetrical Dimethyl Hydrazine (UDMH)**—a liquid hypergolic propellant utilized as a missile fuel (as in the Lance); clear and colorless, UDMH has a sharp ammonia-like or fishy odor, is toxic when inhaled, absorbed through the skin, or taken internally. It is dissolvable in water, but not sensitive to shock or friction; however, when in contact with IRFNA, or any other oxidizing material, spontaneous ignition occurs. In addition, UDMH vapors greater than 2 percent in air can be detonated by electric spark or open flame.

**Upland**—an area of land of higher elevation.

**Upwelling**—the replenishing process of upward movement to the surface of marine often nutrient-rich lower waters (a boon to plankton growth), especially along some shores due to the offshore drift of surface water as from the action of winds and the Coriolis force.

**U.S. Territorial Waters**—sea areas within 12 nm of the U.S. continental and island shoreline.

**Viewshed**—total area seen within the cone of vision from a single observer position, or vantage point; a collection of viewpoints with optimal linear paths of visibility.

**Vista**—a distant view through or along an avenue or opening.

**Visual Flight Rules (VFR)**—rules that govern the procedures for conducting flight under visual conditions; used by pilots and controllers to indicate type of flight plan.

**Volatile Organic Compound (VOC)**—one of a group of chemicals that react in the atmosphere with nitrogen oxides in the presence of heat and sunlight to form ozone; it does not include methane and other compounds determined by the Environmental Protection Agency to have negligible photochemical reactivity. Examples of volatile organic compounds include gasoline fumes and oil-based paints.

**Warfare Mission**—referring to one of the eight Primary Mission Areas (MIW, AMW, SUW, AW, STW, EC, NSW) as further broken down into sub-events (MCM, amphibious assault, GUNEX(S-S), TRACKEX(Sub), MISSILEX(A-A), BOMBEX(A-G), CHAFFEX, CSAR).

**Warning Area**—a designated airspace in which flights are not restricted but avoidance is advised during published times of use.

**Wastewater**—water that has been previously utilized; sewage.

**Wetlands**—lands or areas that either contain much soil moisture or are inundated by surface or groundwater with a frequency sufficient to support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include such areas as bogs, marshes, mud and tidal flats, sloughs, river overflows, seeps, springs, or swamps.

**Wholly Inert**—ordnance with no explosive, propellant, or pyrotechnic component (non-reactive); example: BDU-50, BDU-56 (both are non-reactive heavy-weights with no explosive charges).

**Yearly Average Day-Night Sound Level (DNL or L<sub>dn</sub>)**—utilized in evaluating long-term environmental impacts from noise, this is an annual mean of the day-night sound level.

**Zoning**—the division of a municipality (or county) into districts for the purpose of regulating land use, types of buildings, required yards, necessary off-street parking, and other prerequisites to development. Zones are generally shown on a map, and the text of the zoning ordinance specifies requirements for each zoning category.

**Zooplankton**—animals that drift with the ocean currents, with little ability to move through the water on their own, ranging from one-celled organisms to jellyfish up to 1.8 meters (6 feet) wide. Zooplankton live in both surface and deep waters of the ocean; crustaceans make up about 70 percent. While some float about freely throughout their lives, many spend only the early part of their lives as plankton.