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Glossary

acre-foot (af)—Volume of water (43,560 cubic feet) that would cover 1 acre to a depth of 1 foot.

adaptive management—A method for examining alternative strategies for meeting goals and objectives, and then, if necessary, adjusting future management actions according to what is learned.

affected environment—Existing biological, physical, social, and economic conditions of an area that are subject to change, both directly and indirectly, as the result of a proposed human action.

algae—Simple plants containing chlorophyll; most live submerged in water.

allocation, allotment—Refers to a distribution of water through which specific persons or legal entities are assigned individual rights to consume pro rata shares of a specific quantity of water under legal entitlements. For example, a specific quantity of Colorado River water is distributed for use within each Lower Division State through an apportionment. Water available for consumptive use in that state is further distributed among water users in that state through the allocation. An allocation does not establish an entitlement; the entitlement is normally established by a written contract with the United States government. *Refer to* Lower Basin/Lower Division States.

alluvium—Sedimentary material transported and deposited by the action of flowing water.

ambient—Surrounding natural conditions (or environment) in a given place and time.

amphibian—A vertebrate animal that has a life stage in water and a life stage on land. (Examples include salamanders, frogs, and toads.)

annual flow-weighted average concentration—A weighted average of monthly total dissolved solids (TDS) concentrations for a year, where the weight for each month is based on the relative flow for each month.

Annual Operating Plan for Colorado River Reservoirs (AOP)—A document describing how Reclamation will manage Colorado River resources over a 12-month period, consistent with the Long-Range Operating Criteria and the Supreme Court Decree in *Arizona v. California* 1964 . The AOP is prepared annually by Reclamation in cooperation with the Basin States, Mexico, appropriate federal agencies, Indian Tribes, state and local agencies, and the general public, including governmental interests, as required by federal law. As part of the AOP process, the Secretary of the Department of the Interior (Secretary) makes annual determinations regarding the availability of Colorado River water for deliveries to the Lower Division States of the Colorado River Basin. *Refer to* Lower Basin/Lower Division States.

apportionment—Refers to the distribution of water available to each Lower Division State in normal, surplus or shortage condition years, as set forth, respectively, in Articles II(B)(1), II(B)(2),

and II(B)(3) of the 1964 Supreme Court Decree in the case of *Arizona v. California. Refer to* normal, surplus, and shortage.

appropriative rights—The right to divert a specified quantity of water at a specified point of diversion for reasonable and beneficial uses at a specified place of use for a specified manner of use. Appropriative rights are generally "first-in-time, first-in-right" (that is, one appropriative right has priority over appropriative rights established later).

backwater—A relatively small, generally shallow area of a river with little or no current.

banked groundwater—Water that has been stored temporarily in a groundwater aquifer. Banked groundwater can be recovered for use at a later time.

base load—Minimum load in a power system over a given period of time.

Basin States—In accordance with the Colorado River Compact of 1922, the Colorado River Basin within the United States consists of those parts of Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming within and from which waters drain naturally into the Colorado River. These seven states are referred to as the Basin States. *Refer to* Colorado River Compact of 1922.

Binational Intentionally Created Surplus (ICS)—An ICS is a mechanism to encourage and account for augmentation and conservation of water supplies that would minimize the likelihood and severity of potential future shortages. Binational types of ICS are created through the binational agreements of Minutes 319 and 323 to the 1944 Mexican Water Treaty and provide for the development and implementation of water conservation programs located in Mexico with compensation funding provided by partnering organizations in the United States.

biological assessment (BA)—A document identifying the likely effects of a proposed federal action on threatened and endangered species. To facilitate compliance with Section 7(a)(2) of the Endangered Species Act (ESA), federal agencies must prepare a BA pursuant to Section 7(c)(1) of the ESA. *Refer to* Endangered Species Act.

biological opinion (BO)—A document stating the opinion of the United States Fish and Wildlife Service (Service) and/or the National Marine Fisheries Service as to whether a federal action is likely to jeopardize the continued existence of an Endangered Species Act listed threatened or endangered species or result in the destruction or adverse modification of critical habitat.

bypass flows—Saline agricultural return flows from the Wellton-Mohawk Irrigation and Drainage District that are routed to the Cienega de Santa Clara in Mexico to ensure compliance with the salinity provisions of Minute 242 of the 1944 Water Treaty.

bypass tubes—Another term for river outlet works. *Refer to* outlet works.

candidate species—A plant or animal species that is not yet officially listed as threatened or endangered under the Endangered Species Act but is undergoing status review by the Service.

capacity—The maximum amount of energy that can be instantaneously produced.

catch—At a recreational fishery, refers to the number of fish captured, whether they are kept or released.

channel (watercourse)—An open conduit either naturally or artificially created that periodically or continuously contains moving water, or that forms a connecting link between two bodies of water. Some terms used to describe natural channels are river, creek, run, branch, and tributary. Natural channels may be single or braided. Two terms used to describe artificial channels are canal and floodway.

Cladophora—Filamentous green alga important to the food chain in the Colorado River downstream of Glen Canyon Dam.

Colorado River Basin (Basin)—The drainage area of the Colorado River system. The Basin occupies an area of approximately 250,000 square miles in the southwestern United States and 3,500 square miles in northwestern Mexico. The Colorado River Compact of 1922 divided the Colorado River system into two subbasins: the Upper Basin and the Lower Basin. It also divided the seven states within the Basin into the Upper Division and the Lower Division. Upper Division States include Colorado, New Mexico, Utah, and Wyoming; Lower Division States include Arizona, California, and Nevada. Additionally, 30 federally recognized Tribes are in the Basin.

Colorado River Basin Project Act of 1968 (CRBPA)—An act authorizing construction of a number of water development projects, including the Central Arizona Project (CAP), and requiring the Secretary to develop the Criteria for Coordinated Long-Range Operation of Colorado River Reservoirs, or Long-Range Operating Criteria (LROC).

Colorado River Basin Salinity Control Forum—The organization dedicated to controlling Colorado River salinity; it consists of representatives of the seven Basin States. *Refer to* Basin States.

Colorado River Compact of 1922—The agreement concerning the apportionment of the use of the waters of the Colorado River Basin, dated November 24, 1922, and executed by commissioners for Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming. It was approved and proclaimed effective by Herbert Hoover, the president of the United States, and representative of the United States for purposes of the Compact, on June 25, 1929.

Colorado River Simulation System (CRSS)—A core Colorado River system operations tool that provides monthly outputs of key variables including reservoir elevations, releases, river flows, and salinity.

Colorado River system—The portion of the Colorado River and its tributaries within the United States as defined in the Colorado River Compact of 1922. *Refer to* Colorado River Compact of 1922.

compact—The Colorado River Compact of 1922. *Refer to* Colorado River Compact of 1922.

compact point—The reference point designated by the Colorado River Compact of 1922 as dividing the Colorado River Basin into two subbasins, the Upper Basin and the Lower Basin. The

compact point is Lee Ferry, Arizona. *See also* Colorado River Compact of 1922 and Lee Ferry Compact Point.

conductivity—A measure of water's ability to pass an electrical current.

Consolidated Decree—A decree entered by the United States Supreme Court on March 27, 2006, in the case of *Arizona v. California,* 547 US 150 (2006), incorporating all applicable provisions of the earlier-issued decisions and decrees in the matter. The Supreme Court reached a decision in the case of *Arizona v. California* in 1963 and implemented this decision in a 1964 decree, which was supplemented over time after its adoption.

consumptive use—Diversions of water from mainstream Colorado River, including water withdrawn from the mainstream through underground pumping, minus any measured and unmeasured return flows. A use which lessens the amount of water available for another use. Water uses normally associated with man's activities, primarily municipal, industrial, and irrigation uses that deplete water supplies. Water removed from available supplies without direct return to a water resource system, for uses such as manufacturing, agriculture, and food preparation.

contractors—Those who hold entitlements to Colorado River water. Contractors consist of the federal government, states, Indian Tribes, and various public and private entities that are recognized under the Consolidated Decree, hold a Section 5 Contract with the Secretary, or have a Secretarial Reservation of water. *Refer to* Consolidated Decree.

conveyance loss—Water that is lost in transit from a pipe, canal, conduit, or ditch by leakage or evaporation. If the water is lost due to leakage, it may be considered return flow if it percolates to an aquifer and is available for reuse. If the water evaporates, it is considered consumptive use. *Refer to* consumptive use.

cooperating agency—As described in the National Environmental Policy Act of 1969, as amended, an Federal, State, Tribal, or local agency that has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposal (42 U.S.C. 4321 et seq.)

covered species—Those species addressed in the Lower Colorado River Multi-Species Conservation Program (LCR MSCP) for which conservation measures would be implemented and for which authorization for "take" is being requested under Section 10 of the Endangered Species Act. *See also* take.

criteria—Standards used for making a determination.

critical habitat—As defined by the Endangered Species Act, areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of section 4 of this Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and specific areas outside the geographical area occupied by the species at the time it is listed in accordance with the provisions of section 4 of this Act, upon a determination by the Secretary that such areas are essential for the conservation of the species. (16 U.S.C. 1532.Definitions).

cubic foot per second (cfs)—A measure of water flow equal to 1 cubic foot of water passing a point on the stream in 1 second of time.

cultural resource—A building, site, district, structure, or object significant in history, architecture, archaeology, culture, or science.

dead pool—Elevation at which water cannot be regularly released from a reservoir, which would effectively preclude Colorado River diversions to downstream users.

dead storage—Reservoir space from which stored water cannot be evacuated by gravity.

delta sediment—Deposit formed at the mouth of the Colorado River and other rivers where they enter Lake Powell, Lake Mead, or the Gulf of California.

depletion—Loss of water from a stream, river, or basin resulting from consumptive use. *Refer to* consumptive use.

deposition—Settlement of material out of the water column and on to the streambed. Occurs when the energy of flowing water is unable to support the load of suspended sediment.

discharge (flow)—Volume of water that passes a given point within a given period of time; expressed in cubic feet per second (cfs). *Refer to* cubic foot per second.

dissolved oxygen (DO)—Amount of free oxygen found in water; perhaps the most commonly employed measurement of water quality. Low DO levels adversely affect fish and other aquatic life. The ideal dissolved oxygen for fish life is between 7 milligrams per liter (mg/L) and 9 mg/L; most fish cannot survive when DO falls below 3 mg/L.

diversion(s)—Colorado River water withdrawn from the mainstream, including water diverted from reservoirs or drawn from the mainstream by underground pumping.

domestic use—Refers to the use of water for household, stock, municipal, mining, milling, industrial, and other like purposes; excludes the generation of electrical power.

draw down—Lowering of a reservoir's elevation; process of depleting a reservoir or groundwater storage.

ecosystem—As defined by the United States Geological Survey (USGS), an ecosystem is made up of all of the living and non-living things in a geographic area. Plants, animals, soil, climate, and other features of the environment interact with each other to form an ecosystem.

electric power system—Physically connected facilities for electricity generation, transmission, and distribution that are operated as a unit under one control.

electrical demand—Energy requirement placed upon a utility's generation at a given instant or averaged over any designated period of time.

endangered species—Any species which is in danger of extinction throughout all or a significant portion of its range. as defined by the Endangered Species Act (ESA) of 1973 (16 USC 1532.Definitions). *Refer to* threatened.

Endangered Species Act (ESA)—The Endangered Species Act (ESA) of 1973 (16 USC 1531–1544), establishes protections for fish, wildlife, and plants that are listed as threatened or endangered; provides for adding species to and removing them from the list of threatened and endangered species, and for preparing and implementing plans for their recovery; provides for interagency cooperation to avoid take of listed species and for issuing permits for otherwise prohibited activities; provides for cooperation with States, including authorization of financial assistance; and implements the provisions of the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES).

energy—What is produced by power plants; measured in kilowatt hours.

entitlement—Refers to an authorization to beneficially consume Colorado River water pursuant to a decreed right; a contract with the United States through the Secretary of the Interior or a Secretarial Reservation of water.

epilimnion—Thermal layering of water in lakes and streams. *See also* stratification.

equalization line—the Equalization Tier from the 2007 Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead defined by an elevation schedule that would be used in determining when equalization releases would be made from Lake Powell.

Extraordinary Conservation Intentionally Created Surplus (ICS)—An ICS is a mechanism to encourage and account for augmentation and conservation of water supplies that would minimize the likelihood and severity of potential future shortages. Extraordinary Conservation types of ICS are created through such conservation measures as fallowing, canal lining programs, and desalination programs.

firm energy or power—Non-interruptible energy or power guaranteed by the supplier to be available at all times except for reasons of uncontrollable forces or "continuity of service" contract provisions.

flood—An overflow or inundation that comes from a river or other body of water and causes or threatens damage. Any relatively high streamflow overtopping the natural or artificial banks in any reach of a river or stream. A relatively high flow as measured by either gage height or discharge quantity.

flood control pool—Reservoir volume above the active conservation and joint-use pool that is reserved for flood runoff and then evacuated as soon as possible to keep that space ready for the next flood.

flood control release—The release of water from Lake Mead and the operation of Hoover Dam for flood control purposes pursuant to the reservoir operating criteria specified in the February 8, 1984, Field Working Agreement between the United States Army Corps of Engineers (USACE) and the Bureau of Reclamation (Reclamation), and the USACE regulations contained in 33 Code of *Federal Regulations* (CFR) 208.11.

flow—Volume of water passing a given point per unit of time expressed in cubic foot per second. *See also* cubic foot per second.

forage fish—Generally, small fish that reproduce prolifically and are consumed by predators.

fore bay—Impoundment immediately above a dam or hydroelectric plant intake structure. The term is applicable to all types of hydroelectric developments (storage, run-of-river, and pumped storage).

fry—Life stage of fish between the egg and fingerling stages.

full pool—Volume of water in a reservoir at maximum design elevation.

gaging station—Specific location on a stream where systematic observations of hydrologic data are obtained through mechanical or electrical means.

gigawatt-hour (GWh)—One billion watt-hours of electrical energy.

headwater—The source and upper part of a stream.

High Flow Experiments (HFEs)—Scheduled releases of water from a dam above powerplant capacity to benefit key resources by simulating pre-dam floods.

historic property—Any district, site, building, structure, or object listed on or eligible for listing on the National Register of Historic Places (36 CFR 800.16(l)(1)).

hydropower—The use of water to produce electricity.

hypolimnetic zone—The deep portion of a lake or reservoir volume generally classified as below the level of the thermocline. *Refer to* thermocline.

hypolimnion—Thermal layering of water in lakes and streams; the lower stratum of the water column of a reservoir. This layer is generally undisturbed, and respiration and decomposition predominate. *Refer to* stratification.

important farmlands—Prime farmland, unique farmland, farmland of statewide importance, and farmland of local importance, as defined by the United States Department of Agriculture Natural Resources Conservation Service (formerly the Soil Conservation Service). The categorization of farmland is based on a soil classification system that accounts for the physical and chemical characteristics of the land and the suitability of the land for producing crops. Important farmlands are afforded special protection due to their importance to agricultural production.

Imported Intentionally Created Surplus (ICS)—An ICS is a mechanism to encourage and account for augmentation and conservation of water supplies that would minimize the likelihood and severity of potential future shortages. Imported types of ICS are created by introducing non-Colorado River System water in that entitlement holder's state into the mainstream.

impoundment—Body of water created by a dam.

in situ—In archaeology, and as used in this EIS, an artifact that has not been moved from its original place of deposit.

Indian trust assets (ITAs)—An Indian Trust Asset is something the Federal government holds in trust for the benefit of a Native American individual or Tribe. In the case of trust lands, this means that an individual or Tribe earns money when companies lease rights to that land and earn income.

inflow—Water flowing into a lake or reservoir from a river and/or its tributaries, or water entering a river from tributaries.

irrigated area—The gross farm area upon which water is artificially applied for the production of crops, with no reduction for access roads, canals, or farm buildings.

irrigation—The controlled application of water to arable lands to supply water requirements not satisfied by rainfall.

juvenile—Young fish older than 1 year but not having reached reproductive age.

kilowatt-hour (kWh)—One thousand watt-hours of electrical energy.

land cover type—A classification system to describe vegetation and other habitat types (such as cottonwood willow, honey mesquite, and marsh).

landscape character—Overall visual appearance of a given landscape based on the form, line, color, and texture associated with the landscape's vegetation, landforms/water, and human-made modifications. These factors give the area a distinctive quality that distinguishes it from its immediate surroundings.

Las Vegas Valley—The topographic basin containing the city of Las Vegas, the city of North Las Vegas, the city of Henderson, and certain unincorporated townships of Clark County in the State of Nevada.

Las Vegas Wash—The natural drainage channel for the entire Las Vegas Valley. It is dominated by wastewater flows from the city of Las Vegas, Clark County Sanitation District, and city of Henderson wastewater treatment plants. It terminates in the Las Vegas Bay of Lake Mead in the State of Nevada.

Law of the River—As applied to the Colorado River, a body of documents the Secretary of the Interior (Secretary) uses to carry out the responsibility to manage the mainstream waters of the Lower Basin pursuant to applicable federal law. The Secretary is vested with this responsibility. This

collective set of documents is comprised of numerous operating criteria, regulations, and administrative decisions from federal and state statutes, interstate compacts, court decisions and decrees, an international treaty, and contracts. The Secretary apportions the Colorado River waters and regulates the use and management of the Colorado River among the seven Basin States and Mexico. *Refer to* Colorado River Compact of 1922 and Basin States.

lead agency—An agency initiating and overseeing the preparation of an EIS. For this EIS, Reclamation is the lead agency for compliance with NEPA.

Lee Ferry Compact Point—Identified reference point that marks the division between the two subbasins—the Upper Basin and the Lower Basin—created by the division of the Colorado River Basin in the Colorado River Compact of 1922. This reference point is in the mainstream Colorado River in Arizona, one mile below the confluence of the Colorado River with the Paria River. *Refer to* Colorado River Compact of 1922.

Lees Ferry Gaging Station—The site of the United States Geological Survey (USGS) stream gage (Lees Ferry Gaging Station) in Arizona on the Colorado River upstream of its confluence with the Paria River, downstream of Glen Canyon Dam. Also, the location of Colorado River ferry crossings (1873 to 1928).

limnology—Scientific study of physical characteristics and the biology of lakes, ponds, and streams.

load—Amount of electrical power or energy delivered or required at a given point.

Lower Basin (States)—Those parts of the states of Arizona, California, Nevada, New Mexico, and Utah within and from which waters drain naturally into the Colorado River below the Lee Ferry Compact Point in Arizona. The Colorado River Compact of 1922 divided the Colorado River system into two subbasins: the Upper Basin and the Lower Basin. *See also* Lee Ferry Compact Point.

Lower Division (States)—Arizona, Nevada, and California. The Colorado River Compact of 1922 divided the seven Colorado River Basin states into two groups: Upper Division States and Lower Division States. The Lower Division States are Arizona, Nevada, and California. *See also* Basin States.

magnitude—A number characteristic of a quantity and forming a basis for comparison with similar quantities, such as flows. *Refer to* flows.

mean monthly flow—Average flow for the month, usually expressed in cubic feet per second.

mean sea level (msl)—The average height of the surface of the oceans and seas measured throughout all stages of the tidal cycle, determined from hourly readings of tidal height, and computed over a long (usually 19-year) period. It is used as a datum plane (that is, it serves as the reference surface from which elevations and depths are measured).

median—Middle value in a distribution, above and below which lie an equal number of values.

megawatt (MW)—One million watts of electrical power (capacity).

megawatt-hour (MWh)—One million watt-hours of electrical energy.

Mesozoic era—The second-to-last era of earth's geological history, lasting from about 252 to 66 million years ago, comprising the Triassic, Jurassic, and Cretaceous periods.

metalimnion—Thermal layering of water in lakes and streams. *Refer to* stratification.

milligram per liter (mg/L)—As defined by the United States Geological Survey (USGS), a unit of the concentration of a constituent in water or wastewater. It represents 0.001 gram of a constituent in 1 liter of water. It is approximately equal to one part per million (PPM).

minimum power pool—The reservoir elevation below which water can no longer produce power because the water does not reach the intakes for hydropower generation.

National Critical Infrastructure—those assets, systems, and networks, whether physical or virtual, are considered so vital to the United States that their incapacitation or destruction would have a debilitating effect on security, national economic security, national public health or safety, or any combination thereof. Presidential Policy Directive 21 (PPD-21): Critical Infrastructure Security and Resilience advances a national policy to strengthen and maintain secure, functioning, and resilient critical infrastructure.

National Environmental Policy Act of 1969, as amended (NEPA) (43 U.S.C. 4321 et seq.)—As described on the Department of Energy's NEPAnet web site, NEPA requires Federal agencies to assess the environmental effects of proposed major Federal actions prior to making decisions. Section 101 of NEPA sets forth a national policy "to use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans." 42 U.S.C. 4331(a). Section 102 of NEPA establishes procedural requirements, applying that national policy to proposals for major Federal actions significantly affecting the quality of the human environment by requiring Federal agencies to prepare a detailed statement on: (1) the environmental impact of the proposed action; (2) any adverse effects that cannot be avoided; (3) alternatives to the proposed action; (4) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity; and (5) any irreversible and irretrievable commitments of resources that would be involved in the proposed action. (42 U.S.C. 4332(2)(C)).

National Register of Historic Places (NRHP)—The Nation's official list of historic places worthy of preservation. Authorized under the National Historic Preservation Act of 1966, the NRHP is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect our historic and archaeological resources. Properties listed on the NRHP include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archaeology, engineering, and culture.

natural flow—The flow of any stream un-depleted by human activities.

non-system water—Waters originating from outside the Colorado River system.

normal condition—When the Secretary has determined that there is available for annual release 7.5 million acre-feet (maf) to satisfy consumptive use in the Lower Division States pursuant to Article II(B)(1) of the Consolidated Decree. *Refer to* Lower Division States and Consolidated Decree.

oligotrophic—A body of water characterized by low dissolved plant nutrient and organic matter, and rich in oxygen at all depths.

outlet works—A combination of structures and equipment required for the safe operation and control of water released from a reservoir to serve various purposes, i.e., regulate stream flow and quality; release floodwater; and provide irrigation, municipal, and/or industrial water. Included in the outlet works are the intake structure, conduit, control house-gates, regulating gate or valve, gate chamber, and stilling basin. A series of components located in a dam through which normal releases from the reservoir are made. A device to provide controlled releases from a reservoir. A pipe that lets water out of a reservoir, mainly to supply downstream demands.

Paleontological resources—Any fossilized remains, traces, or imprints of organisms preserved in or on the earth's crust.

Paleozoic era (541–252 million years ago)—Means ancient life. The oldest animals on earth appeared just before the start of this era.

Pangea—A supercontinent that existed from about 300 to 200 million years ago and included most of the continental crust of the earth.

peak flow—Maximum instantaneous flow in a specified period of time.

peak load—Maximum electrical demand in a stated period of time.

penstock—Conduit pipe used to convey water from the reservoir through the dam under pressure to the turbines of a hydroelectric plant.

percentile—A statistical term. A descriptive measure that splits ranked data into 100 parts, or hundredths. For example, the 10th percentile is the value that splits the data in such a way that 10 percent of the values are less than or equal to the 10th percentile.

piscivorous—Habitually feeding on fish.

PM_{10} (PM10)—Particulate matter (PM) (dust particles) standard that includes particles with a diameter of 10 micrometers or less.

$PM_{2.5}$ (PM2.5)—Particulate matter (PM) (dust particles) standard that includes particles with a diameter of 2.5 micrometers or less.

power—Electrical capacity generated, transferred, or used.

Present Perfected Right (PPR)—Many Colorado River water rights that originated as "perfected rights" specified in the 1964 United States Supreme Court Decree in the case of *Arizona v. California.* PPRs are the highest-priority Colorado River water rights that the 1964 Decree defines as those perfected rights existing on June 25, 1929 (the effective date of the Boulder Canyon Project Act of 1928). *Refer to* Consolidated Decree.

priority—A ranking with respect to diversions of water relative to other water users.

pro rata shortage distribution—distribution of policy shortages on a proportional basis (i.e., at the same percentage reduction from each user's entitlement) across all Lower Basin water users, including Mexico

probability—The relative frequency with which a range of modeled values occurs.

public involvement—Process of obtaining citizen input into each stage of development of planning documents. For EISs, NEPA requires Federal agencies, "…*request public comment on alternatives or impacts and on relevant information, studies, or analyses with respect to the proposed agency action."* (43 U.S.C. 4321 et seq).

Quaternary period—A geologic time period that encompasses the most recent 2.6 million years, including the present day.

ramp rate—The rate of change in instantaneous output from a powerplant. The ramp rate is established to prevent undesirable effects due to rapid changes in loading or, in the case of hydroelectric plants, discharge.

rated head—Water depth for which a hydroelectric generator and turbines were designed.

reach—A specified segment of a river, stream, channel, or other water conveyance.

recruitment—Survival of young plants and animals from birth to a life stage less vulnerable to environmental change.

reregulating reservoir—A reservoir for reducing diurnal fluctuations resulting from the operation of an upstream reservoir for power production.

resampling—The digital process of changing the sample rate or dimensions of sampled data (for example, digital imagery or audio) by temporarily or areally analyzing and sampling the original data.

reserved water—In the case of Indian reservations, rights based on the doctrine of Indian reserved rights; in the case of federal establishments other than Indian reservations, a federal reservation of water for use on property under federal jurisdiction.

reservoir—A pond, lake, or basin, either natural or artificial, for the storage, regulation, and control of water.

return flow—The portion of water previously diverted from a river or stream and subsequently returned to that river or stream and is available for consumptive use by others. *Refer to* consumptive use.

return flow credit—In the accounting of consumptive use in the Lower Basin, Colorado River water that is returned to the river and is available for consumptive use by others in the year in which it was diverted and is credited against a water user's total diversions. *Refer to* consumptive use.

riffle—A stretch of choppy water caused by an underlying rock shoal or sandbar.

riparian—Of, on, or pertaining to the bank of a river, pond, or lake.

river mile (RM)—A unit of measurement (in miles) used on rivers. For the purposes of this EIS, river miles are numbered along the Colorado River from south to north starting with RM 0.0 at the Southerly International Boundary (SIB) with Mexico. Dam locations are noted at their respective river miles.

river outlet works—Dam structures that conduct water from the reservoir to the river without passing through a powerplant; also referred to as jet tubes, bypass tubes, or outlet works. *Refer to* bypass tubes and outlet works.

river stage—Water surface elevation of a river above a datum. As described by the United States Geological Survey, river stage is an important concept when analyzing how much water is moving in a stream at any given moment. Stage is the water level above some arbitrary point, usually with the zero height being near the river bed, in the river and is commonly measured in feet.

RiverWare™—A commercial river system simulation computer program that was configured to simulate operation of the Colorado River.

runoff—That part of the precipitation that appears in surface streams. It is the same as streamflow unaffected by artificial diversions, storage, or other works of humans in or on the stream channels.

sacred site—A specific location identified by a Native American Tribe as sacred for its religious significance to, or ceremonial use by, a Native American religion.

salinity—Saltiness. The relative concentration of dissolved salts, usually sodium chloride, in a given water supply. A measure of the concentration of dissolved mineral substances in water.

sandbar—A long, narrow deposition of sediment within a river.

Secretary—The Secretary of the Department of the Interior.

sediment—Any finely divided organic and/or mineral matter deposited by air or water in nonturbulent areas. Unconsolidated solid material that comes from weathering of rock and is carried by, suspended in, or deposited by water or wind.

sediment load—Mass of sediment passing through a stream section in a specified period of time, expressed in millions of tons (mt). Amount of sediment carried by running water. The sediment that is being moved by a stream.

seepage—The slow movement or percolation of water through soil or rock. Movement of water through soil without formation of definite channels. The movement of water into and through the soil from unlined canals, ditches, and water storage facilities. The slow movement or percolation of water through small cracks, pores, interstices, etc., from an embankment, abutment, or foundation.

shortage condition—When the Secretary of the Interior has determined that there is available for annual release less than 7.5 maf to satisfy consumptive use in the Lower Division States pursuant to Article II(B)(3) of the Consolidated Decree. *Refer to* Lower Division States and Consolidated Decree.

spawn—To lay eggs, especially fish.

spills—Water releases from a dam in excess of powerplant capacity.

spillway—A structure that passes normal and/or flood flows in a manner that protects the structural integrity of the dam. Overflow channel of a dam or impoundment structure. A structure over or through which flow is discharged from a reservoir. If the rate of flow is controlled by mechanical means such as gates, it is considered a controlled spillway. If the geometry of the spillway is the only control, it is considered an uncontrolled spillway. Any passageway, channel, or structure designed to discharge surplus water from a reservoir.

spinning reserves—Available capacity of generating facilities synchronized to the interconnected electric system so that it can be called upon for immediate use in response to system problems or sudden load changes.

stage—Same as elevation or depth of water. The height of a water surface above an established datum.

standards—A means established by authority as a rule for the measure of quality, such as cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water.

storage—Water artificially impounded in surface or underground reservoirs for future use. Water naturally detained in a drainage basin, such as groundwater, channel storage, and depression storage. The term "drainage basin storage" or simply "basin storage" is sometimes used to refer collectively to the amount of water in natural storage in a drainage basin. *See also* conservation storage and dead storage.

stormwater—Consists of water that originates from precipitation, such as heavy rain or snow.

stratification—Thermal layering of water in lakes and streams. Lakes usually have three zones of varying temperature: (1) epilimnion—top layer with essentially uniform warmer temperature, (2)

metalimnion—middle layer of rapid temperature decrease with depth, and (3) hypolimnion—bottom layer with essentially uniform colder temperatures.

streamflow—The discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word streamflow uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than runoff, as streamflow may be applied to discharge whether it is affected by diversion or regulation.

suspended load—Sediment that is supported by the upward components of turbulence in a stream and that stays in suspension for an appreciable length of time.

surplus condition—When the Secretary of the Interior has determined that there is available for annual release more than 7.5 maf to satisfy consumptive use in the Lower Division States pursuant to Article II(B)(2) of the Consolidated Decree. *Refer to* Lower Basin/Lower Division States and Consolidated Decree.

system conservation—A voluntary reduction of consumptive use of Colorado River water that can be estimated or measured. *Refer to* consumptive use.

System Efficiency Intentionally Created Surplus (ICS)—An ICS is a mechanism to encourage and account for augmentation and conservation of water supplies that would minimize the likelihood and severity of potential future shortages. System Efficiency types of ICS are created when an entitlement holder makes a capital contribution to the Secretary of the Interior for use in funding projects designed to realize system efficiencies that save water that would otherwise be lost from the mainstream of the United States.

system storage—The total volume of water available in the Colorado River Basin at a specific point in time.

system water—Waters originating from the Colorado River system. *Refer to* Colorado River system.

tail water—Water immediately downstream of the outlet from a dam or hydroelectric powerplant where the water is more similar to that in the reservoir than farther downstream.

take—To harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct as defined by the Endangered Species Act (ESA) of 1973 (16 U.S.C. 1532.Definitions).

thermocline—The zone of maximum change in temperature in a waterbody, separating upper (epilimnetic) from lower (hypolimnetic) zones.

threatened species—A species or subspecies that is likely to become endangered in the foreseeable future throughout all or a significant portion of its range as defined by the Endangered Species Act (ESA) of 1973 (16 USC 1532.Definitions). *Refer to* endangered.

total dissolved solids (TDS)—Dissolved materials in the water, including ions such as potassium, sodium, chloride, carbonate, sulfate, calcium, and magnesium. In many instances, the term "TDS" is used to reflect salinity, since these ions are typically in the form of salts.

traces—Multiple time series of forecasted streamflow used in hydrological modeling. Multiple traces are sometimes referred to as an ensemble.

traditional cultural place—A type of historic property that is rooted in a community's history and important to that community's cultural identity.

tributary—River or stream flowing into a larger river or stream.

turbidity—Cloudiness of water, measured by how deeply light can penetrate into the water column from the surface.

turbine—A rotary mechanical device that uses water flow to turn and convert it into energy.

Upper Basin (States)—Those parts of the states of Arizona, Colorado, New Mexico, Utah, and Wyoming within and from which waters drain naturally into the Colorado River above the Lee Ferry Compact Point in Arizona. The Colorado River Compact of 1922 divided the Colorado River system into two subbasins: the Upper Basin and the Lower Basin. *Refer to* Lee Ferry Compact Point.

Upper Colorado River Commission—Commission established by the Upper Colorado River Compact of appointed members from the Upper Division States whose purpose is to secure the storage of water for beneficial consumptive use in the Upper Basin.

Upper Division (States)—Colorado, New Mexico, Utah, and Wyoming. The Colorado River Compact of 1922 divided the seven Colorado River Basin states into two groups: Upper Division States and Lower Division States. The Upper Division States are Colorado, New Mexico, Utah, and Wyoming. *Refer to* Basin States and Lower Division (States).

Visual resources—Physical features that make up the visible landscape (features such as land, water, vegetation, topography, and human-made features such as buildings, roads, utilities, and structures) as well as the response of viewers to those features.

Water Year (WY)—Period of 12 months ending September 30 of each year.

watershed—The drainage area upstream of a specified point on a stream.

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