

# GLOSSARY- DEFINITIONS OF TERMS, ACRONYMS AND ABBREVIATIONS

Term	Definition
<b>A</b>	
abundance	Refers to the total number of individual organisms in a population or subpopulation. In the context of salmon recovery, abundance refers to the total number of spawning adults within a population.
ac	acre
ac-ft	acre-feet or acre-foot; the amount of water needed to cover one acre to a depth of one foot (43,560 cubic feet or 325,900 gallons)
accretion flow	The incremental flow between two points. Also known as local inflow.
ACID	Anderson-Cottonwood Irrigation District
Action Area	All areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02).
AFRP	Anadromous Fish Restoration Program
afterbay	A reservoir located immediately downstream from a powerhouse, sometimes used to re-regulate flows to the river or stream.
Agreement	1994 USACE and PG&E entered into an Agreement for Operation and Maintenance of Narrows 1 Hydroelectric Project
anadromous fish	Fish that are hatched in freshwater, then spend a part of their life cycle in the sea and return to freshwater to spawn.
ATU	accumulated thermal unit
AVM	acoustic velocity meter
<b>B</b>	
BA	Biological Assessment
BLM	United States Department of the Interior, Bureau of Land Management
BMP	Best Management Practices
BO	Biological Opinion: Document issued under the authority of the federal Endangered Species Act stating the findings of the USFWS and/or the NMFS as to whether or not a federal action is likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of critical habitat. See 16 USCA 1536(b).
broodstock	Mature individuals in a group used for breeding purposes. Populations maintained as a source of population replacement or for the establishment of new populations in suitable habitats.
BRT	Biological Review Team
BVID	Browns Valley Irrigation District
BWD	Brophy Water District
<b>C</b>	
°C	degrees Celsius
CALFED	CALFED Bay-Delta Program
Cal Fish and Wildlife	California Department of Fish and Wildlife
carryover storage	The amount of water stored in reservoirs carried over from one year to another.
CCE	California Current Ecosystem
CCS	California Current System
DWR	California Department of Water Resources
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFM	constant fractional marking
cfs	cubic feet per second. Cubic feet per second (cfs, ft <sup>3</sup> /s) is the rate of flow representing a volume of 1 cubic foot passing a given point in 1 second. It is equivalent to approximately 7.48 gallons per second, 448.8 gallons per minute, or 0.02832 cubic meters per second.
CFTC	California Fish Tracking Consortium
CID	Cordua Irrigation District
climate change	Climate change refers to any significant change in the measures of climate lasting for an extended period of time. In other words, climate change includes major changes in temperature, precipitation, or wind patterns, among others, that occur over several decades or longer.
cm	centimeter
CO <sub>2</sub>	carbon dioxide
Commission	Federal Energy Regulatory Commission; also referred to as FERC.

**Glossary (continued)**

Term	Definition
<b>C (cont'd)</b>	
conduit	A pipe, flume or canal used for diverting or moving water from one point to another, usually used when there is no existing streambed or waterway.
conjunctive use	Conjunctive use of surface and groundwater consists of combining the use of both water sources in order to (1) minimize the undesirable physical, environmental, and economical effects of using each and (2) optimize the water demand/supply balance.
Critical Habitat	The specific areas within the geographical area occupied by the listed species, at the time it is listed in accordance with the provisions of the ESA, on which are found those physical or biological features that are essential to the conservation of the species and which may require special management considerations or protection.
CV	Central Valley
CVI	Central Valley Index
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
CWT	coded wire tag
<b>D</b>	
DCC	Delta Cross Channel
DCMWC	Dry Creek Mutual Water Company
DCR	DWR's 2015 Delivery Capability Report
DDR	DWR's 2013 Delivery Reliability Report
DDT	dichlorodiphenyltrichlor
DEM	Digital Elevation Model: The format of the USGS digital elevation data sets containing elevation values that have been primarily derived from the USGS topographic map series.
Dependent Population	Populations that rely upon immigration from surrounding populations to persist. An at risk group that has a substantial likelihood of going extinct within a 100-year time period in isolation due to relatively small population size, but receives sufficient immigration to reduce extinction risk, and presumably increase persistence or occupancy.
DIDSON™	Dual Frequency Identification Sonar
diversity	All the genetic and phenotypic (life history, behavioral, and morphological) variation within a population.
Diversity Group	Population groups or salmonid ecoregions, which are delineated based on climatological, hydrological, and geological characteristics.
DLA	Draft License Application
Dmean	mean substrate diameter
DNA	deoxyribonucleic acid
DO	dissolved oxygen
DoD	DEM of Difference
dph	days post hatch
DPS	Distinct Population Segment: A subdivision of a vertebrate species that is treated as a species for purposes of listing under the Endangered Species Act (ESA). To be so recognized, a potential distinct population segment must satisfy standards specified in a FWS or NOAA Fisheries policy statement (See the February 7, 1996, Federal Register, pages 4722- 4725). A distinct population segment is a population or group of populations that is discrete from other populations of the species and significant in relation to the entire species. NMFS definition of a distinct population segment is the smallest biological unit considered to be a "species" under the ESA.
DWR	California Department of Water Resources
<b>E</b>	
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EMF	electromagnetic field
ENSO	El Niño Southern Oscillation
entrainment	The incidental trapping of fish and other aquatic organisms at water diversions or facilities resulting in the loss of such fish.
ER	Entrenchment Ratio
ERP	Ecosystem Restoration Program
ESA	Federal Endangered Species Act
ESU	Evolutionarily Significant Unit: A salmonid stock that is substantially reproductively isolated from other stocks of the same species and which represents an important part of the evolutionary legacy of the species. Life history, ecological, genetic, and other information can be used to determine whether a stock meets these two criteria. A population is considered to be an ESU if: 1) it is substantially reproductively isolated from other conspecific population units; and 2) represents all important components in the evolutionary legacy of the species.

**Glossary (continued)**

Term	Definition
<b>F</b>	
°F	degrees Fahrenheit
Federal Endangered Species Act	Federal legislation that requires Federal agencies, in consultation with the USFWS and NMFS, to ensure that their actions do not jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of the critical habitat of these species.
FERC	Federal Energy Regulatory Commission; also referred to as Commission
FERC Project Boundary	The area Licensee uses for normal Project operations and maintenance, and is shown on Exhibits G, J, and K of the current license.
fishway	A structure on or around natural or artificial barriers to facilitate fish migration, such as a fish ladder.
FL	Fork Length
flow dependent habitat availability	Flow dependent habitat availability refers to the amount of lifestage-specific habitat, including suitable water depths, velocities and substrate, that is, in part, contingent on stream flow.
FMP	Fishery Management Plan
FOR	Friends of the River
Forest Service	United States Department of Agriculture, Forest Service
Formal Consultation	A process between the NMFS and/or USFWS and the Federal agency that commences with the Federal agency's written request for consultation under section 7(a)(2) of the ESA and concludes with the issuance of a biological opinion by NMFS or USFWS under section 7(b)(3) of the ESA (50 CFR 402.02).
FPIP	Fish Passage Improvement Program
FRFH	Feather River Fish Hatchery
fry	Salmon that have emerged from gravel, completed yolk absorption, remained in freshwater streams, and are less than a few months old.
ft	foot or feet
ft <sup>2</sup>	square feet
ft <sup>3</sup>	cubic foot or cubic feet
ft/s, or fps	feet per second
FWN	Foothills Water Network
Full Bypass	Narrows 2 Powerhouse Full Bypass
<b>G</b>	
GAIP	Gravel Augmentation Implementation Plan
GCID	Glenn-Colusa Irrigation District
GCM	General Circulation Model
genetic drift	The random change of the occurrence of a particular gene in a population; genetic drift is thought to be one cause of speciation when a group of organisms is separated from its parent population.
genetic divergence	The process of one species diverging over time into more than one species. Characteristic changes over time from one generation to the next generations.
genetic introgression	Infiltration of the genes of one population or species into the gene pool of another through repeated backcrossing of an inter-specific hybrid with one of its parents.
GIS	Geographic Information System
<b>H</b>	
HEA	Habitat Expansion Agreement
HEP	Habitat Expansion Plan
HIC	Hallwood Irrigation Company
HPMP	Historic Properties Management Plan
hr	hour
HSC	Habitat Suitability Criteria
HZ	hydrologic zone (or habitat zone)
hybridization	The process of mixing different species or varieties of organisms to create a hybrid.
<b>I</b>	
IEP	Interagency Ecological Program
impingement	Contact or collision with a diversion structure (used to describe deleterious effects of some diversion facilities on aquatic species).
in	inch
inflow	The water entering a reservoir or other waterbody.
inbreeding depression	Reduced fitness in a given population as a result of breeding of related individuals.

**Glossary (continued)**

Term	Definition
<b>I (cont'd)</b>	
independent populations	An independent population is any collection of one or more local breeding units whose population dynamics or extinction risk over a 100-year time period is not substantially altered by exchanges of individuals with other populations. In other words, if one independent population were to go extinct, it would not have much impact on the 100-year extinction risk experienced by other independent populations. Independent populations are likely to be smaller than a whole ESU and they are likely to inhabit geographic ranges on the scale of entire river basins or sub-basins.
interbreeding	To breed with another species or population.
Interim Report	Yuba Accord Monitoring and Evaluation Program Interim Report (2013)
introgression	The introduction of genes from one species into the gene pool of another species.
ISO	Independent System Operator
IWM	Instream Woody Material
<b>J</b>	
JSA	Jones and Stokes Associates
<b>K</b>	
kg	kilogram
kV	kilovolt: 1,000 volts
kW	kilowatt: 1,000 watts
<b>L</b>	
Licensee	Yuba County Water Agency
LiDAR	Light Detection And Ranging. LiDAR is an optical remote sensing technology that measures properties of scattered light to find range and/or other information of a distant target.
limiting factor	An environmental factor that limits the growth or activities of an organism or that restricts the size of a population or its geographical range.
LSZ	low salinity zone
LTMS	USACE's Long-term Management Strategy for the Placement of Dredged Material in the San Francisco Bay Region
LWM	Large woody material: Woody material that collects within in stream or river which can vary in size from a few pieces of wood to several dozen large logs. Accumulated woody material provides habitat structure and food sources for a variety of organisms, including escape cover and relief from high current velocities for juvenile salmonids and other fishes.
LYRFTWG	Lower Yuba River Fisheries Technical Working Group
<b>M</b>	
µg	microgram
µg/L	micrograms per liter (equals parts per billion, or ppb)
m	meter (if the letter is used as a unit on its own)
m <sup>3</sup>	cubic meter
mg/L	milligrams per liter (equals parts per million, or ppm)
mi	miles
mm	millimeter
M&E Program	Yuba Accord Monitoring and Evaluation Program
Member Unit	Member Units are water districts, irrigation districts, and mutual water companies responsible for delivering water to end-users. YCWA delivers agricultural water to eight Member Units and, in some cases, directly to Member Unit farmers.
minimum instream flow	A requirement indicating the minimum flow within a Project-affected reach, at a fixed measurement location. A minimum instream flow can be defined as an instantaneous flow or a time period-averaged flow.
m/s	meter per second
MSA	Magnuson-Stevens Fishery Conservation and Management Act: Statute enacted in 1976, primarily to establish an Exclusive Economic Zone in which foreign fishing could be controlled, and to set up a conservation and management structure for United States fisheries.
msl	mean sea level
MU	Morphological Unit
MW	megawatt: 1,000 kilowatts
MWh/yr	megawatt hours per year
<b>N</b>	
Narrows 1 Powerhouse	PG&E's powerhouse located on the south side of the Yuba River below Englebright Dam.
Narrows 2 Powerhouse	YCWA's powerhouse located on the north side of the Yuba River below Englebright Dam.
natal	Of, relating to, or present at birth.
natal stream	The stream where a salmonid was produced and hatched.
NCCP	Natural Community Conservation Plan
NEPA	National Environmental Policy Act

**Glossary (continued)**

Term	Definition
<b>N (cont'd)</b>	
New License	A license issued for a Project for which the Federal Energy Regulatory Commission has issued an initial license.
NFS	National Forest System
NGO	Non-Governmental Organization
NIAP	Forest Service National Inventory and Assessment Procedure
NID	Nevada Irrigation District
NMFS	Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service
NMWSE	Normal Maximum Water Surface Elevation
NOAA	Department of Commerce, National Oceanic and Atmospheric Administration
NOI	Notice of Intent
non-native invasive species	Also called introduced or exotic species; refers to plants or animals that originate elsewhere and are brought into a new area, where they may dominate the local species or in some way negatively impact the environment for native species.
North Canal	Hallwood-Cordua Canal
NPDES	National Pollution Discharge Elimination System
NYI	North Yuba Index: The North Yuba Index provides a measure of available water in the North Yuba River that can be used to meet instream flow requirements and delivery requirements to Member Units on the lower Yuba River. The North Yuba Index is comprised of two components: 1) active storage in New Bullards Bar Reservoir at the start of the current water year (October 1); and 2) total actual and forecasted inflow into New Bullards Bar Reservoir for the current water year, including diversions from the Middle Yuba River and Oregon Creek to New Bullards Bar Reservoir.
<b>O</b>	
O&M	operation and maintenance
OCAP	Operations Criteria and Plan
OLE	Office of Law Enforcement
Operations Model	YCWA's Relicensing Water Balance/Operations Model
ORAR	outdoor recreation access route
<b>P</b>	
PAD	Pre-Application Document
PAH	polycyclic aromatic hydrocarbon
PAOT	people at one time
PBF	Physical or Biological Features: Features that support the life history needs of the species, including but not limited to water characteristics, soil type, geological features, sites, prey, vegetation, symbiotic species, or other features. A feature may be a single habitat characteristic, or a more complex combination of habitat characteristics. Features may include habitat characteristics that support ephemeral or dynamic habitat conditions. Features may also be expressed in terms relating to principles of conservation biology, such as patch size, distribution distances, and connectivity (81 FR 7432, February 11, 2016).
PCB	polychlorinated biphenyl
PCE	Primary Constituent Elements: Physical and biological features essential to the conservation of the species, including but not limited to: 1) space for individual and population growth, and for normal behavior; 2) food, water, air, light, minerals, or other nutritional or physiological requirements; 3) cover or shelter; 4) sites for breeding, reproduction, rearing of offspring, germination, or seed dispersal; and generally 5) habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species (ESA Sec 3; 50 CFR 424.12).
PCM	Parallel Climate Model
PCWA	Placer County Water Agency
PDO	Pacific Decadal Oscillation
penstock	An inclined pipe through which water flows from a forebay or tunnel to the powerhouse turbine.
PFMC	Pacific Fishery Management Council
PG&E	Pacific Gas and Electric Company
pH	The measure of the acidity or alkalinity of a substance or liquid.
phenotype	The observable physical or biochemical characteristics of an organism, as determined by both genetic makeup and environmental influences. Any observable characteristic of an organism, such as its external appearance, development, biochemical or physiological properties, or behavior.
PM&E	Protection, Mitigation & Enhancement
PMF	Potential Maximum Flood

**Glossary (continued)**

<b>Term</b>	<b>Definition</b>
<b>P (cont'd)</b>	
PNF	Plumas National Forest
poaching	The illegal hunting, killing or capturing of fish or game from private or public property.
population	A group of individuals of the same species that live in the same place at the same time and exhibit some level of reproductive isolation from other such groups. In some contexts, a randomly mating group of individuals that is reproductively isolated from other groups.
ppb	part per billion
ppt	parts per thousand
Project	YCWA's Yuba River Development Project, FERC Project No. 2246. Specifically, the Project facilities and features identified in the existing FERC license.
Project Area	The area within the FERC Project Boundary and the land immediately surrounding the FERC Project Boundary (i.e., within about 0.25 mile of the FERC Project Boundary) and including Project-affected reaches between facilities and downstream to the next major water controlling feature or structure.
Project Boundary	FERC Project Boundary: The FERC Project Boundary is intended to consist of all lands necessary for the safe operations and maintenance of the Project and other purposes, such as recreation, shoreline control, and protection of environmental resources. For the Project, the existing boundary encompasses 7,815.3 acres (ac) of land in Yuba, Nevada and Sierra counties, California. The existing FERC Project Boundary includes a zone of area that encloses all Project facilities and features. The width of the zone around a facility or feature varies depending on the type of Project facility or feature and the activities associated with it.
Project Vicinity	The area surrounding the Project on the order of a United States Geological Survey 1:24,000 topographic quadrangle.
Proposed Action	For this Applicant-Prepared Draft BA and consultation, the Proposed Action is the issuance by FERC of a new license to YCWA for the continued O&M of the Yuba River Development Project as described in YCWA's Application for New License.
PSMFC	Pacific States Marine Fisheries Commission
PVA	population viability assessment
<b>R</b>	
ramping	The act of increasing or decreasing stream flows from a powerhouse, dam or diversion structure.
ramping criteria	Ramping criteria are operating rules intended to minimize or avoid in-river flow fluctuations. Flow reduction and fluctuation criteria for the lower Yuba River were established in the 2005 FERC Order Modifying and Approving Amendment of License for the Yuba River Development Project (FERC No. 2246).
ramping rates	The rate of water discharge from a powerhouse, dam, or diversion structure, prescribed by the License or other regulatory-driven rule.
RBDD	Red Bluff Diversion Dam
reach	A stretch of stream defined for the purposes of communication, usually defined between readily identifiable endpoints (such as structures or stream confluence).
Reclamation	United States Department of the Interior, Bureau of Reclamation
redd dewatering	A redd is a nest of fish eggs consisting of gravel, typically formed by digging motion performed by an adult female salmon. Redd dewatering occurs when water levels fall below the level of egg deposition, which potentially could result in egg and alevin mortality.
refugia	An area where special environmental circumstances occur, enabling a species to survive in specific lifestages.
Relicensing	The process of acquiring a new license for a Project that has an existing license from the Federal Energy Regulatory Commission.
Relicensing Participants	Interested Parties, which include YCWA, that routinely and actively take part (i.e., attend meetings/workshops and make filings) in the Relicensing proceedings.
reservoir	The water retained by a dam. Also referred to as headwater, storage, forebay, or head pond.
riparian	Riparian applies to the vegetation zone and other biological resources adjacent to and hydrologically affected by neighboring riverine (lotic) and reservoir (lentic) waterbodies.
riparian habitat	Transitional habitat between terrestrial and aquatic ecosystems found adjacent to a natural watercourse such as a river or stream. Riparian areas support vegetation that provides important wildlife and fish habitat.
riverine habitat	The aquatic habitat within streams and rivers.
RM	River Mile
RMF	Yuba Accord River Management Fund
RMT	Yuba Accord River Management Team

**Glossary (continued)**

Term	Definition
<b>R (cont'd)</b>	
RPA	Reasonable and Prudent Alternative: Alternative actions identified during formal consultation (under Section 7 of the ESA) that can be implemented in a manner consistent with the intended purpose of the action and with the scope of the Federal agency's legal authority and jurisdiction, that are economically and technologically feasible, and that USFWS or NMFS believes would avoid the likelihood of jeopardizing the continued existence of listed species or resulting in the destruction or adverse modification of designated critical habitat (50 CFR 402.02).
RPM	Reasonable and Prudent Measure: Actions necessary to minimize the impacts of incidental take that is anticipated to result from implementing a project that USFWS or NMFS regard as not likely to jeopardize the species or adversely modify designated critical habitat.
RST	Rotary Screw Trap: A non-destructive collection device employed to sample a portion of downstream migrating juvenile anadromous salmonids.
RV	Recreational Vehicle
RWD	Ramirez Water District
RWQCB	Regional Water Quality Control Board
<b>S</b>	
salmonids	Any member of the taxonomic family Salmonidae, which includes all species of salmon, trout, char, whitefish, and grayling. In general usage, the term typically refers to salmon and steelhead.
SCADA	Supervisory Control and Data Acquisition
Section 7 Consultation	The required formal consultation required under the federal Endangered Species Act between the Licensee and the United States Fish and Wildlife Service and/or the National Marine Fisheries Service.
self-sustaining population	A population that perpetuates itself without human intervention, without chronic decline, and in its natural ecosystem. The population maintains a minimum adult annual spawning abundance, and contains a high level of genetic diversity representative of the donor stock, and requires little or no additional transfers.
SEWD	Sutter Extension Water District
SFWPA	South Feather Water and Power Agency
smolt	A juvenile salmonid migrating to the ocean and undergoing physiological changes (called smoltification) to adapt from a freshwater to a saltwater environment.
SMSCG	Suisun Marsh Salinity Control Gates
South Canal	South Yuba Canal
spatial structure	Distribution among available or potentially available habitats. Characteristics of a fish population's geographic distribution. Current spatial structure depends upon the presence of fish, not merely the potential for fish to occupy an area.
spill	Water that passes over a spillway or dam without being utilized for power generation.
spillway	A constructed passage for releasing surplus water from a reservoir or release water, not used for power generation, as otherwise necessary for safe project operation
sq mi or mi <sup>2</sup>	square mile
SRA	shaded riverine aquatic
SRH-2D	RMT's Sedimentation and River Hydraulics Two-Dimensional Model
SSI	Sierra Streams Institute
stage	A water surface elevation based on a local datum.
straying	Occurs when some adult spawners spawn in a stream other than the one they were produced in. Straying may be influenced by hatchery practices, water quality or water diversions.
sub-basin	An area drained by a stream and all its tributaries that is contained within a larger basin or watershed.
SWP	State Water Project
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
SYRCL	South Yuba River Citizens League
SYWD	South Yuba Water District
<b>T</b>	
TAF	thousand acre-feet
TAG	Technical Advisory Group
taxon	A term used in animal and plant classification. One or more organisms that are classified as being members of the same group, related to each other.
TDS	Tailwater Depression System
thalweg	The lowest elevation within the cross-section of a natural or artificial water conveyance channel.
TNF	Tahoe National Forest

**Glossary (continued)**

Term	Definition
<b>T (cont'd)</b>	
turbidity	In waterbodies, the condition of having suspended particles that reduce the ability of light to penetrate beneath the surface. Some rivers and streams are naturally more turbid than others; soil erosion and runoff into streams can increase turbidity.
<b>U</b>	
UC Davis	University of California, Davis
USACE	United States Department of Defense, Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Department of the Interior, Fish and Wildlife Service
USGS	United States Geological Survey
USR	Updated Study Report
<b>V</b>	
VSP	Viable Salmonid Population: An independent population of any salmonid that has a negligible risk of extinction due to threats for demographic variation (random or directional), local environmental variation, and genetic diversity changes (random or directional) over a 100-year time frame.
<b>W</b>	
W	channel width(s)
Wheatland Project	Yuba Wheatland In-Lieu Groundwater Recharge and Storage Project
WSE	water surface elevation
WSEL	water surface elevation
WSI	Watershed Sciences Inc.
WTI	water temperature index
WUA	Weighted usable area: The relationship between instream flow and the quantity and quality of instream habitat expressed in terms of WUA produced by a particular flow level.
WWD	Wheatland Water District
WY	water year
WYT	water year type
<b>Y</b>	
YCWA	Yuba County Water Agency
yd	yard
yd <sup>3</sup>	cubic yard(s)
YOY	young-of-the-year
YRI	Yuba River Index
YSF	Yuba Salmon Forum
YSP	Yuba Salmon Partnership
Yuba Accord	Lower Yuba River Accord: A comprehensive, consensus-based program to protect and enhance aquatic habitat in the Yuba River downstream of Englebright Dam, comprised of a Lower Yuba River Fisheries Agreement, Water Purchase Agreement and Conjunctive Use Agreements.

<sup>1</sup> Interagency committee with management and regulatory responsibility for Bay-Delta Estuary.