RECLAMATION
Managing Water in the West

Reinitiation of Consultation on the Coordinated Long-Term Operation of the Central Valley Project and State Water Project

Central Valley Project, California
Mid-Pacific Region

Final Biological Assessment

October 2019

U.S. Department of the Interior
Bureau of Reclamation

Mission Statements

The mission of the Department of the Interior is to protect and manage the Nation's natural resources and cultural heritage; provide scientific and other information about those resources; and honor its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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List of Abbreviations / Acronyms

Abbreviation	Definition
°C	Celsius
°F	Fahrenheit
7DADM	7 day average daily maximum
ACID	Anderson Cottonwood Irrigation District
AFRP	Anadromous Fish Restoration Program
AFSP	Anadromous Fish Screen Program
ARG	American River Group
AT	acoustic tag
AUCo	AUC of the overlapping portions
AUCt	area under the curve
Banks Pumping Plant	Harvey O Banks Pumping Plant
Bay-Delta	San Francisco Bay/Sacramento-San Joaquin- Delta
BMPs	Best Management Practices
BO	Biological Opinion
Caltrans	California Department of Transportation
CAMT	Collaborative Adaptive Management Team's
CCC	Central California Coast
CCF	Clifton Court Forebay
CCR	Clear Creek
CCWD	Contra Costa Water District
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CM1	conceptual model
CNDDB	California Natural Diversity Database
CNFH	Coleman National Fish Hatchery
CNOR	Candidate Notice of Review
CNPS	California Native Plant Society
CNRA	California Natural Resources Agency
COA	Coordinated Operations Agreement
COS	Current Operations
CSAMP	Collaborative Science and Adaptive Management Program
CV	Central Valley
CVO	Central Valley Operations Office
CVP	Central Valley Project
CVPA	Central Valley Project Act
CVPCP	Central Valley Project Conservation Program
CVPIA	Central Valley Project Improvement Act
CVSMP	Central Valley Steelhead Monitoring Program

Abbreviation	Definition
CWT	Coded Wire Tag
DADM	Daily Average Daily Maximum
DAT	Daily Average Temperature
DCC	Delta Cross Channel
Delta	Sacramento-San Joaquin Delta
DFW's	Department of Fish and Wildlife’s
DJFMP	Delta Juvenile Fish Monitoring Program
DLO	driver-linkage-outcome
DMC	Delta-Mendota Canal
DO	dissolved oxygen
dph	days post hatch
DPS	distinct population segment
DWR	Department of Water Resources
EATSM	Enhanced Acoustic Tag Salmonid Monitoring
eDNA	Environmental DNA
EDSM	Enhanced Delta Smelt Monitoring
EFH	Essential Fish Habitat
EMP	Environmental Monitoring Program
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
FCCL	Fish Conservation and Culture Laboratory
FERC	Federal Energy Regulatory Commission
FMS	Flow Management Standard
FMWT	Fall Midwater Trawl
FR	Federal Register
FRFH	Feather River Fish Hatchery
FRWP	Freeport Regional Water Project
GCID	Glenn Colusa Irrigation District
HAB	armful algal blooms
HAPC	Habitat Areas of Particular Concern
HFC	High Flow Channel
HLT	Middle River at Holt
HORB	Head of Old River Barrier
HRP	Habitat Restoration Program
IEP	Interagency Ecological Program
Intertie	Delta-Mendota Canal/California Aqueduct Intertie
IPaC	Information for Planning and Conservation
IPO	Interim Plan of Operations
ISP	Invasive Spartina Project
JSATS	Juvenile Salmon Acoustic Telemetry System
km	kilometers
LFC	Low Flow Channel

Abbreviation	Definition
LOBO	Long-term Operations Biological Opinions
LSNFH	Livingston Stone National Fish Hatchery
LSZ	low-salinity zone
M&I	municipal and industrial
MAF	million acre-feet
MHHW	mean higher high water
MIDS	Morrow Island Distribution System
MMPA	Marine Mammal Protection Act
MOA	Memorandum of Agreement
MRR	Minimum Release Requirement
Napa County FC&WCD	Napa County Flood Control and Water Conservation District
NBA	North Bay Aqueduct
NMFS	National Marine Fisheries Service
NMI	New Melones Index
NOAA	National Oceanic and Atmospheric Administration
O&M	operations and maintenance
OCO	Operations Control Office
OID	Oakdale Irrigation District
OMR	Old and Middle River
OTMI	Oroville Temperature Management Index
PA	proposed action
PAHs	polyaromatic hydrocarbons
PBDEs	polybrominated diphenyl ethers
PBFs	Physical and Biological Features
PBT	parentage based tagging
PCBs	polychlorinated biphenyls
PCEs	primary constituent elements
PFMC	Pacific Fishery Management Council
PG&E	Pacific Gas and Electric Company
PGS	Pittsburg Generating Station
ppt	parts per thousand
PSMFC	Pacific States Marine Fisheries Commission
RBDD	Red Bluff Diversion Dam
Reclamation	United States Department of the Interior, Bureau of Reclamation
RHJV	Riparian Habitat Joint Venture
RPA	reasonable and prudent alternative
RRDS	Roaring River Distribution System
RSFS	Rock Slough Fish Screen
RST	rotary screw trap
SacPAS	Central Valley Prediction and Assessment of Salmon
SAIL	Salmon and Sturgeon Assessment of Indicators by Lifestage
SCARF	San Joaquin River Conservation and Research Facility

Abbreivation	Definition
SCDD	Spring Creek Debris Dam
SCWA	Solano County Water Agency
SDWSC	Sacramento Deepwater Ship Channel
sf	square feet
SJRA	San Joaquin River Agreement
SJRRP	San Joaquin River Restoration Program
SKT	Spring Kodiak Trawl
SMPA	Suisun Marsh Preservation Agreement
SMSCG	Suisun Marsh Salinity Control Gates
SONCC	Southern Oregon/Northern California Coast
SRCD	Suisun Resource Conservation District
SRP	Stepped Release Plan
SRS	Sacramento River Settlement
SRTTG	Sacramento River Temperature Task Group
SRWTP	Sacramento Regional Wastewater Treatment Plan
SSJID	South San Joaquin Irrigation District
SST	Salmonid Scoping Team
Suisun Marsh Plan	Suisun Marsh Habitat Management, Preservation, and Restoration Plan
SWP	State Water Project
SWPAO	State Water Projects Analysis Office
SWRCB	State Water Resources Control Board
TAF	thousand acre-feet
TBP	Temporary Barrier Project
TCD	Temperature Control Device
TFCF	Tracy Fish Collection Facility
TMDLs	total maximum daily load programs
TNS	Townet Survey
TOC	top of conservation pool
Trinity ROD	Trinity River Record of Decision
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WCM	Water Control Manual
WDRs	Waste Discharge Requirements
WERC	Western Ecological Research Center
WIIN Act	Water Infrastructure Improvements for the Nation Act
WOA	Without Action
WQCP	Water Quality Control Plan
WUA	Weighted Usable Area