Application for a New License
Major Project – Existing Dam

New Bullards Bar Reservoir
Fish Stocking Plan

Security Level: Public

Yuba River Development Project
FERC Project No. 2246

December 2016

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None.

GLOSSARY – DEFINITIONS OF TERMS, ACRONYMS AND ABBREVIATIONS

Term	Definition
CDFW	California Department of Fish and Wildlife
CGFC	California Fish and Game Commission
C.F.R.	Code of Federal Regulations
CPUE	catch per unit effort
F.G.C.	California Fish and Game Code
FERC	Federal Energy Regulatory Commission
Forest Service	United States Department of Agriculture, Forest Service
NFS	National Forest System
Plan	New Bullards Bar Reservoir Fish Stocking Plan
PNF	Plumas National Forest
Project	Yuba River Development Project, FERC Project No. 2246
TNF	Tahoe National Forest
YCWA	Yuba County Water Agency

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SECTION 1.0

INTRODUCTION

In April 2014, the Yuba County Water Agency (YCWA), pursuant to Section (§) 5.18 of Title 18 of the Code of Federal Regulations (C.F.R.), filed with the Federal Energy Regulatory Commission (FERC) an Application for a New License for Major Project – Existing Dam - for YCWA's 361.9 megawatt Yuba River Development Project, FERC No. 2246 (Project). In December 2016, YCWA amended its April 2014 Application for a New License. The initial license for the Project was issued by the Federal Power Commission (FERC's predecessor) to YCWA on May 16, 1963, effective on May 1, 1963. The Federal Power Commission's May 6, 1966, Order Amending License changed the license's effective date to May 1, 1966, Order Amending License changed the license's effective date to May 1, 1966, for a term ending on April 30, 2016.

YCWA included this New Bullards Bar Reservoir Fish Stocking Plan (Plan) in its December 2016 Amended Application for a New License.

The United States Department of Agriculture, Forest Service's (Forest Service) Federal Power Act Section 4(e) authority only applies in this Plan to Project facilities on National Forest System (NFS) land. The Forest Service administers the Plumas National Forest (PNF) in conformance with the PNF Land and Resource Management Plan (USDA Forest Service 1988), as subsequently amended, and administers the Tahoe National Forest (TNF) in conformance with TNF Land and Resource Management Plan (USDA Forest Service 1990), as subsequently amended. When the TNF or PNF Forest Plan revisions occur, those revised plans will supersede the 1990 TNF and 1988 PNF plans.

1.1 Background

1.1.1 Yuba River Development Project

The Project is located in Yuba, Sierra and Nevada counties, California, on the main stems of the Yuba River, the North Yuba River and the Middle Yuba River, and on Oregon Creek, a tributary to the Middle Yuba River. Major Project facilities, which range in elevation from 280 feet to 2,049 feet, include: 1) New Bullards Bar Dam and Reservoir; 2) Our House and Log Cabin diversion dams; 3) Lohman Ridge and Camptonville diversion tunnels; 4) New Colgate and Narrows 2 power tunnels and penstocks; 5) New Colgate, New Bullards Minimum Flow and Narrows 2 powerhouses; and 6) appurtenant facilities and features (e.g., administrative buildings, switchyards, roads, trails and gages). The existing Project does not include any aboveground open water conduits (e.g., canals or flumes) or any transmission lines.

In addition, the Project includes 16 developed recreation facilities. These include: 1) Hornswoggle Group Campground; 2) Schoolhouse Campground; 3) Dark Day Campground; 4)

Cottage Creek Campground;[1] 5) Garden Point Boat-in Campground; 6) Madrone Cove Boat-in Campground; 7) Frenchy Point Boat-in Campground; 8) Dark Day Picnic Area; 9) Sunset Vista Point; 10) Dam Overlook; 11) Moran Road Day Use Area; 12) Cottage Creek Boat Launch;[2] 13) Dark Day Boat Launch, including the Overflow Parking Area; 14) Schoolhouse Trail; 15) Bullards Bar Trail; and 16) floating comfort stations.[3] All of the recreation facilities are located on NFS land, with the exception of the Dam Overlook, Cottage Creek Boat Launch and small portions of the Bullards Bar Trail, which are located on land owned by YCWA. All of the developed recreation facilities are located within the existing FERC Project Boundary, except for a few short segments of the Bullards Bar Trail to the east of the Dark Day Boat Launch. In addition, the Project includes two undeveloped recreation sites at Our House and Log Cabin diversion dams, both located on NFS land and within the existing FERC Project Boundary.

Figure 1.1-1 shows the Project Vicinity,[4] proposed Project, and proposed FERC Project Boundary.[5]

[1] Cottage Creek Campground was burned in 2010 and has not been rebuilt. YCWA is in discussions with the Forest Service regarding rebuilding the burned campground.

[2] Emerald Cove Marina provides visitor services at Cottage Creek Boat Launch, including houseboat and boat rentals, boat slips and moorings, fuel and a general store. The marina is operated under a lease from YCWA by a private company.

[3] The Project recreation facilities included one campground that is no longer part of the Project. Burnt Bridge Campground was closed initially by the Forest Service in 1979 due to low use levels. FERC, in an August 19, 1993 Order, which approved YCWA's Revised Recreation Plan, directed YCWA to remove all improvements and restore the Burnt Bridge Campground to the condition it was in prior to development of the facility. YCWA consulted with the Forest Service and all that remains of Burnt Bridge Campground today is the circulation road and vehicle spurs; all other facilities were removed.

[4] For the purpose of this Plan, "Project Vicinity" refers to the area surrounding the proposed Project on the order of United States Geological Survey (USGS) 1:24,000 quadrangles.

[5] The FERC Project Boundary is the area that YCWA uses for normal Project operations and maintenance. The Boundary is shown in Exhibit G of YCWA's Application for New License, and may be changed by FERC with cause from time to time during the term of the new license.

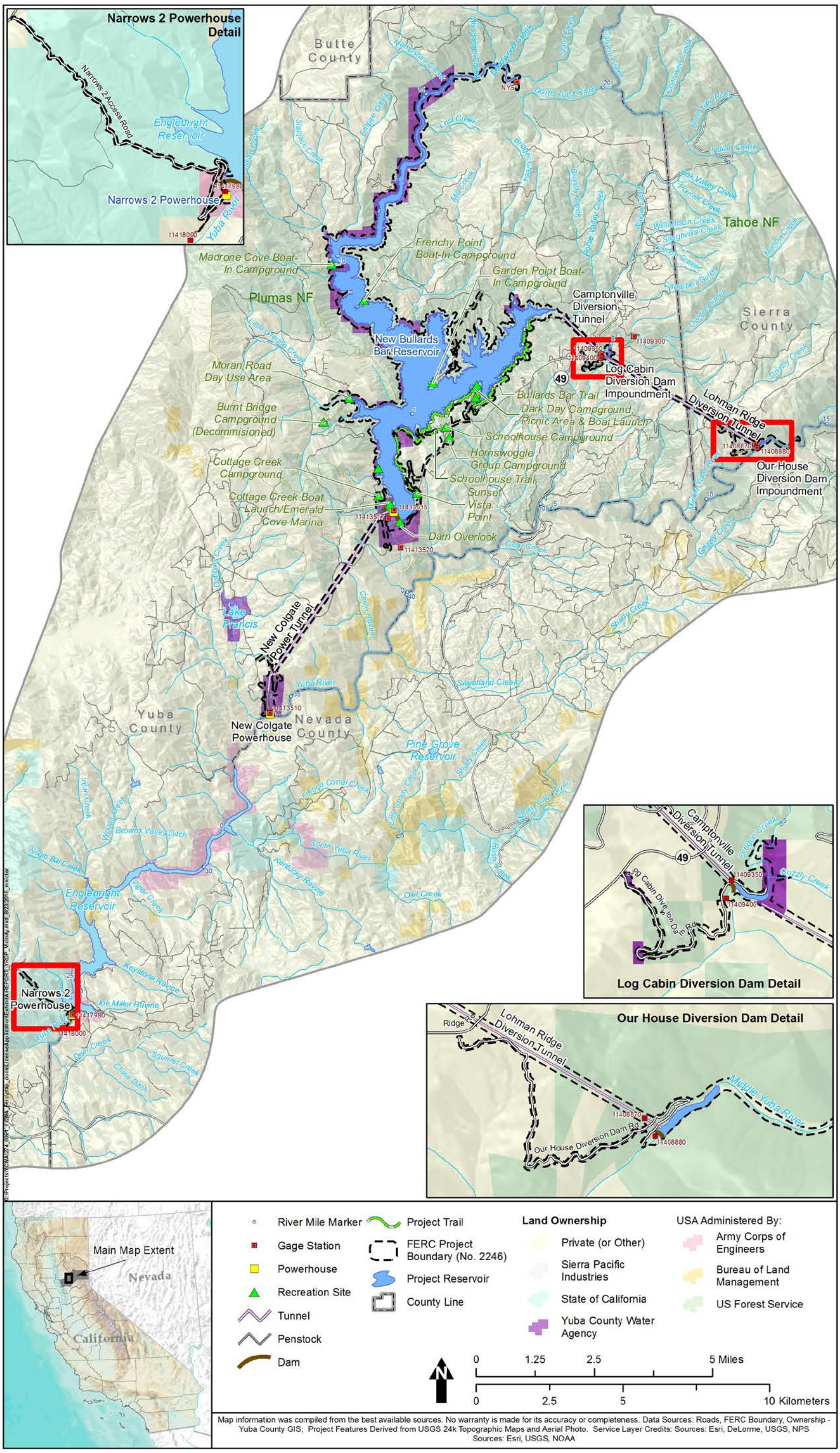

Figure 1.1-1. Yuba County Water Agency's Yuba River Development Project and Project Vicinity.

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1.2 Purpose of the New Bullards Bar Reservoir Fish Stocking Plan

The purpose of the Plan is to establish the fish stocking process, procedures, targets and creel (i.e., angler) surveys that YCWA will follow when stocking fish in New Bullards Bar Reservoir.

YCWA will coordinate, to the extent appropriate, the efforts required under this Plan with other Project resource efforts, including implementation of other resource management plans and measures included in the new license.

1.3 Objectives of the New Bullards Bar Reservoir Fish Stocking Plan

The objective of the Plan is to describe the fish stocking process and procedures, establish stocking targets that YCWA will follow when stocking fish in New Bullards Bar Reservoir, and describe the creel surveys YCWA will perform in association with this fish stocking.

1.4 Contents of the New Bullards Bar Reservoir Fish Stocking Plan

This Plan includes the following:

- Section 1.0. Introduction. This section includes introductory information, including a description of the Project and the purpose and goals of the Plan.
- Section 2.0. Regulatory Framework, Fish Assemblage, and Stocking History. This section describes the fish known to occur in New Bullards Bar Reservoir, the recent history of fish stocking in the reservoir, and the regulations and policies relevant to determining fish stocking allotments at the reservoir.
- Section 3.0. Fish Stocking. This section includes the specific procedures and targets for stocking fish at New Bullards Bar Reservoir.
- Section 4.0. Reporting and Plan Revisions. This section describes reporting, consultation and Plan revisions.
- Section 5.0. References Cited. This section lists references cited in this Plan.

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SECTION 2.0

REGULATORY FRAMEWORK, FISH ASSEMBLAGE, AND STOCKING HISTORY

2.1 Regulatory Framework for Fish Stocking in New Bullards Bar Reservoir

2.1.1 Forest Service and Cal Fish and Wildlife – Memorandum of Understanding

New Bullards Bar Reservoir occupies lands in both the PNF and the TNF. The Forest Service is authorized to manage the wildlife, fisheries, and plant resources in those forests by Acts of Congress and regulations issued by the Secretary of Agriculture (Forest Service 1996). California Department of Fish and Wildlife (Cal Fish and Wildlife) is recognized by the State of California as the trustee for the conservation, protection and management of fisheries and necessary habitat for biologically sustainable fisheries in the State (Forest Service 1996). As a matter of coordination, the Forest Service and Cal Fish and Wildlife established a Memorandum of Understanding in 1996 (Forest Service 1996) to establish Cal Fish and Wildlife as the lead agency for any introduction, stocking, or translocation activities involving wildlife, fish and plants on NFS land in the State of California.

2.1.2 California Fish and Game Code

California Fish and Game Code (F.G.C.) Section 13007 requires that one-third of all fees collected from sport fishing license sales are deposited into the Hatchery and Inland Fisheries Fund within the State Treasury to support Cal Fish and Wildlife's programs related to management, maintenance, and capital improvement of California's fish hatcheries, the Heritage and Wild Trout Program, related enforcement activities, and other eligible activities. With respect to fish hatcheries, this law requires that revenues from sport fishing license sales are used to meet Cal Fish and Wildlife's attainment of a state hatchery production goal of 2.75 pounds of released trout per sport fishing license sold in the calendar year ending 2.5 years earlier.

Beginning January 1, 2015, Cal Fish and Wildlife may obtain hatchery-produced fish from any California-based hatchery if: 1) sporting fishing license revenues are insufficient to obtain the state hatchery production goal; 2) the California-based hatchery is in compliance with operations, management, and monitoring standards that are as stringent as state hatcheries; and 3) the cost of fish or fish per pound provided by the California-based hatchery shall not exceed the cost to Cal Fish and Wildlife of equivalent State hatchery fish, including transportation costs. The current target level of annual production and stocking of trout in California waters is just over 5 million pounds.

Additional relevant F.G.C. sections include:

- F.G.C. Section 2302(d). Any entity that owns or manages a reservoir, as defined in Section 6004.5 of the Water Code, except a privately owned reservoir that is not open to the public for recreational, boating, or fishing activities, may refuse the planting of fish in that reservoir by Cal Fish and Wildlife unless the Cal Fish and Wildlife can demonstrate that the fish are not known to be infected with non-native dreissenid mussels.
- F.G.C. Section 5942. The California Fish and Game Commission (CFGC) may, in lieu of a fishway, hatchery, dwelling, traps or other equipment necessary to operate a hatchery station, order the owner of the dam to plant, under the supervision of Cal Fish and Wildlife, the young of such fish as naturally frequent the waters of the stream or river, at such times, in such places, and in such numbers as the CFGC may order.
- F.G.C. Section 5943(a). The owner of a dam shall accord to the public for the purpose of fishing, the right of access to the waters impounded by the dam during the open season for the taking of fish in the stream or river, subject to the regulations of the CFGC.
- F.G.C. Section 5944. The owner of a dam is not liable in damages to any person exercising the right to fish, who suffers any injury through coming in contact with, or tampering with, any property of the owner of the dam.
- F.G.C. Section 6400. It is unlawful to place, plant, or cause to be placed or planted, in any waters of the State, any live fish, any fresh or salt water animal, or any aquatic plant, whether taken without or within the State, without first submitting it for inspection to, and securing the written permission of Cal Fish and Wildlife.
- F.G.C. Section 6401. Any person may, under the terms of a permit first obtained from Cal Fish and Wildlife, under the regulations the CFGC may prescribe, purchase or receive live fish from any registered aquaculturist, and may stock the fish in a stream or lake.

California Water Code Section 6004.5 defines a "reservoir" as any reservoir which contains or will contain the water impounded by a dam.

2.1.3 California Freshwater Sport Fishing Regulations

New Bullards Bar Reservoir is subject to the California Freshwater Sport Fishing Regulations, which are adopted annually by the CFGC and effective March 1 through February 28 of each year. Fishing is open year-round in New Bullards Bar Reservoir for all species using the legal methods described in the regulations. Daily bag and possession limits vary by species and generally follow the statewide regulations, except for salmon and trout. New Bullards Bar Reservoir is located in Yuba County, which is defined as part of the Valley District of the Trout, Salmon, and Special Regulations (Cal. Code Regs, tit. 14, § 6.36). The Valley District general regulations for lakes and reservoirs daily bag and possession limit of five total salmon and trout applies to New Bullards Bar Reservoir. Additionally, special regulations, including seasons, methods, and daily bag and possession limits for salmon and trout fishing apply to the North

Yuba River from the confluence with Ladies Canyon Creek downstream to New Bullards Bar Reservoir as described in Section 7.50 of the California Freshwater Sport Fishing Regulations.

2.1.4 Strategic Plan for Trout Management

The purpose of the Strategic Plan (CDFG 2003) is to identify key issues and concerns relative to trout resources and fisheries in California and to develop goals and strategies that will address those issues in the future. The goals and strategies of the Trout Plan were developed around two themes: 1) habitat and native species protection and management; and 2) recreational angling – although Cal Fish and Wildlife's primary management objective for trout is to protect, maintain, and restore self-sustaining wild populations, managing trout resources for their use and enjoyment by the public is another important aspect of trout management. Additionally, the primary objective of stocking fish in New Bullards Bar Reservoir is to enhance recreational angling.

The Trout Plan recognizes the important role that fish hatcheries play in trout management. Hatchery trout provide recreational angling opportunities for millions of California's anglers and visitors from other states and countries (CDFG 2003). The goals of the Trout Plan related to recreational angling include: provide, maintain, and enhance diverse trout angling opportunities throughout the state; improve the effectiveness and efficiency of how hatchery trout are utilized for providing angling opportunities; and increase the general public's understanding and appreciation for the State's trout resources and associated recreational opportunities through improved communication and educational sources.

Trout fishery management in California is accomplished by one of three techniques: 1) Self-Sustaining Fisheries, which consist of naturally spawning wild trout that do not need or require hatchery supplementation; 2) Put-and-Grow Fisheries, which is used in waters where spawning habitat is limited and unable to support a satisfactory sport fishery, but fish habitat otherwise supports suitable trout growth and survival; and 3) Put-and-Take Fisheries, which is used to create trout fisheries where they would not naturally exist, or to maintain fisheries where natural production is inadequate to support fishing demand. While YCWA was not able to identify a specific fishing management strategy for New Bullards Bar Reservoir, historic stocking records reviewed later in this document indicate Cal Fish and Wildlife's management approach for New Bullards Bar Reservoir is a combination of Put-and-Take and Put-and-Grow Fisheries for rainbow trout (*Oncorhynchus mykiss*) and a Put-and-Grow Fishery for kokanee (*O. nerka*).

2.1.5 Hatchery EIR/EIS

The Hatchery EIR/EIS (ICF 2010) specifies six factors guiding fish stocking practices:

- State laws and regulations contained in Title 14 of the California Code of Regulations
- CFGC and Cal Fish and Wildlife policies and regulations regarding fish stocking
- Historic fish stocking allotments
- Fisheries management practices

- Fish hatchery capability to produce and deliver stocked fish – number of fish, fish size, fish species, timing of fish plants and locations to be stocked
- Public input – County Fish and Game Commissions, local community stakeholders, non-governmental fishing/fisheries organizations, and concerned individuals

Cal Fish and Wildlife relies heavily on the institutional knowledge of its regional fisheries managers in determining annual fish stocking allotments (ICF 2010). However, stocking allotments are driven by fiscal budgets of the State of California (K. Kundargi, pers. comm., 2013). When feasible, the previous year's allotment provides a baseline for recommended stocking numbers in subsequent years but due to budget constraints recommended target numbers may not be met. When allotments fail to meet expectations, managers are able to make adjustments based on the shortfall and compensate to facilitate better angler experiences. In most cases, this results in changes from year to year in an attempt to track long term trends.

CGFC Trout Policy gives priority to Put-and-Grow Fisheries stocking where feasible and limnological conditions support growth from fingerling or sub-catchable to catchable sizes (ICF 2010). Fingerling stocking occurs where natural fish reproduction is limited or non-existent, but plankton, water quality conditions, and competition/predation factors support growth to catchable sizes (ICF 2010). Subcatchable trout are considered suitable where the growth and survival of fingerling is limited or unsuccessful but growth and survival of larger (i.e., typically 6 inches or greater) subcatchable trout is adequate to provide quality angling (ICF 2010). Catchable trout stocking (i.e., Put-and-Take Fishery management) is used when other methods of fisheries management (e.g., Put-and-Grow) have proven unsuccessful and no other option exists to provide quality recreational trout angling (ICF 2010).

Annual hatchery fish production is also a factor in determining allotments for stocking. Fingerlings are inexpensive and relatively easy to produce in large numbers. This contributes to the general preference for Put-and-Grow Fisheries practices. Limiting factors on fingerling stocking include seasonal availability and locations with appropriate conditions for growth (ICF 2010). Catchable trout require a minimum of 2 years of feeding and care to produce, in addition to initial planning for production. This translates to a 3-year lag time to implement long-term changes in allotments. Short-term changes can be achieved through transfers of allotments between reservoirs, which require sacrifices at one to benefit another (ICF 2010).

Cal Fish and Wildlife also considers public feedback regarding recreational angling on stocked waters. This information is acquired through angler surveys, creel surveys, local fish and game commissions, angler groups and spontaneous encounters with the general public. All of this information is helpful in determining the success or failure of the stocking programs.

2.1.6 California Fish and Game Commission Trout Policy

It is the policy of the CFGC that:

- I. Natural reproduction and rearing of trout will be encouraged to the greatest extent possible by protecting and improving habitat and by affording protection from disease, predators and competing fish species.
- II. Populations of wild trout shall be sustained in suitable waters to provide a diversity of angling opportunities. In some waters it may be necessary to restrict angler harvest to the extent that such harvest has virtually no long-term effect on numbers and sizes of fish in the populations.
- III. Artificial propagation and rearing of trout is a major Cal Fish and Wildlife program, but will be utilized only when necessary to augment natural production. Stocking fingerling and sub-catchable-sized trout shall take priority over planting catchable-sized trout in the hatchery stocking program when the smaller fish will maintain satisfactory fishing.

  Hatchery trout shall not be stocked in waters where they may compete or hybridize with trout which are threatened, endangered or species of special concern. Exceptions may be made for stocking waters which are not part of a species recovery program.
- IV. Catchable-sized trout shall be stocked only:

  A. In lakes, reservoirs and streams where natural reproduction and growth are inadequate to maintain populations capable of supporting fishing; and

  B. When it is reasonable to expect at least 50 percent by number or weight will be taken by anglers.

  In stocking catchable-sized trout, lakes and larger streams shall have priority over smaller streams. Suitable waters with heavy fishing pressure compared to the size of planting allotments shall have priority. Trophy fish, weighing one pound or more may constitute up to 10 percent by weight of each load of catchables stocked, if they replace equivalent poundage of catchables in the allotment for the water stocked.
- V. Subcatchable-sized trout may be stocked in lakes, reservoirs and streams where appropriate to augment trout populations in such waters, and to increase fishing opportunities and success. Fingerlings shall be stocked primarily in waters where reproduction is limiting and satisfactory angling can be supported with fingerling stocking, where the population has been destroyed, and in lakes where they will establish a new fishery or augment the existing fishery.
- VI. Water companies, utility districts and other public or private agencies in control of urban lakes shall be encouraged to finance put-and-take trout fishing in such waters when suitable for such purposes. Cal Fish and Wildlife shall provide technical advice and otherwise assist in the development and maintenance of such programs.

2.2 Historic Fish Stocking in New Bullards Bar Reservoir

2.2.1 Fish Stocking Programs

New Bullards Bar Reservoir has a long history of fish stocking activities by Cal Fish and Wildlife dating back to 1959 (Central Valley Fish Hatchery 1959; CDFG 2008). Table 2.2-1 provides relative stocking numbers by species where information was available from 1969 through 2013.

Table 2.2-1. Known stocked fish species in New Bullards Bar Reservoir from 1969 through 2013.

Fish Species		Year(s) Planted	Estimated Yearly Mean	Estimated Total
Common Name	Scientific Name			
Rainbow trout (various origin)	*Onchorhynchus mykiss*	1969 - 2013	50,000	1,800,000
Eagle Lake rainbow trout	*O. mykiss aquilarum*	1979, 1982,1983, 1985, 1999, 2000, 2001, 2007, 2008, 2009, 2011, & 2012	40,704	--
Kamloops rainbow trout	*O. mykiss kamloops*	Unknown	--	--
Kokanee	*O. nerka*	1969 - 2013	75,000	5,200,000
Cutthroat trout	*O. clarkia*	1971	200	200
Brook trout	*Salvelinus fontinalis*	1992	40,215	40,215
Spotted bass	*Micropterus punctulatus*	1984	185	185

Sources: CDFG 2008.

YCWA was unable to locate an official Cal Fish and Wildlife policy for stocking fish at New Bullards Bar Reservoir. However, as mentioned above, historic records (CDFG 2008, CDFW 2013a) indicate that the reservoir is managed as a combination of Put-and-Take and Put-and-Grow Fishery for rainbow trout and kokanee. Table 2.2-2 shows a history, from 2001 and 2013, of fingerling stocking for rainbow trout and kokanee, as well as Eagle Lake trout (*O. mykiss aquilarum*), which is a subspecies of rainbow trout endemic to Eagle Lake, California. However, Cal Fish and Wildlife has historically stocked catchable and subcatchable rainbow trout in New Bullards Bar Reservoir.

Table 2.2-2. Annual fish stocking at New Bullards Bar Reservoir including number, pounds of fish, size, hatchery origin and strain.

Year	Month	Species[1]	Number	Weight (lbs.)	Fish/pound	Size	Hatchery/Strain	Strain
2001	March, May	Kokanee	75,630	273.0	277	F	American River	OR, TC
	June	Eagle Lake trout	50,424	132.0	382	F	American River	H
2002	March, May	Kokanee	82,636	337.0	245	F	American River	SR, TC
	April	Rainbow trout	50,220	2,700.0	18	F[2]	American River	H
2003	May	Kokanee	48,972	252.0	194	F	American River	SR, TC
	September	Rainbow trout	50,000	2,000.0	25	F[2]	Clear Lake	S
2004	May	Kokanee	47,718	280.0	170	F	American River	OR, SR
	February	Rainbow trout	68,000	2,000.0	34	F[2]	American River	H
2005	May	Kokanee	50,165	79.0	635	F	Silverado Fisheries Base	WA
	October	Eagle Lake trout	50,000	1,162.0	43	F	American River	H
2006	April	Kokanee	20,000	31.3	639	F	American River	TC
	August	Eagle Lake trout	50,000	510.2	98	F	American River	H
2007	May	Kokanee	32,896	133.0	247	F	Silverado Fisheries Base	OR, WA
	July	Eagle Lake trout	50,085	477.0	105	F	American River	H
2008	March	Kokanee	50,086	158.5	316	F	American River	SR
	July	Eagle Lake trout	50,020	244.0	205	F	American River	H

Table 2.2-2. (continued)

Year	Month	Species[1]	Number	Weight (lbs.)	Fish/pound	Size	Hatchery/Strain	Strain
2009	April	Kokanee	49,982	221.2	226	F	American River	TC
	June	Eagle Lake trout	49,955	202.0	247	F	American River	H
	April, May	Rainbow trout	7,397	2,998.1	3	C	American River	C, W
2010	May	Kokanee	99,992	540.5	185	F	Silverado Fisheries Base	TC
	June	Rainbow trout	50,040	1,112.0	45	F	American River	C
2011	May	Kokanee	100,096	736.0	136	F	Silverado Fisheries Base	TC
	May	Eagle Lake trout	50,000	171.2	292	F	American River	H
2012	May	Kokanee	99,997	526.3	190	F	Silverado Fisheries Base	TC
	July	Eagle Lake trout	49,911	470.9	106	F	American River	H
2013	May	Kokanee	81,018	693.0	117	F	Silverado Fisheries Base	SR, TC
	May	Rainbow trout	25,000	200.0	125	F	American River	H
Average	--	**Kokanee**	**64,553**	**328**	**197**	--	--	--
		O. mykiss	**50,801**	**875**	**57**	--	--	--

Source: CDFW 2013a
Key:
Size: C=Catchable, F=Fingerling
Strain: C= Coleman, H=Hatchery, OR=Oregon, S=Shasta, SR=Stampede Reservoir, TC=Tailor Creek, W=Whiskeytown, WA=Washington
[1] Eagle Lake trout and rainbow trout were aggregated to yield a single annual average.
[2] These fish may have been in the sub-catchable size category, but this was not reflected in the records provided by Cal Fish and Wildlife.

From 2001 through 2013, Cal Fish and Wildlife annually stocked New Bullards Bar with an average of 49,512 trout (i.e., Eagle Lake or other rainbow trout strain) and 64,553 fingerling kokanee (CDFW 2013a). In 2009, Cal Fish and Wildlife released trout from two different size classes; 49,955 fingerling Eagle Lake trout and 7,397 catchable rainbow trout. In records provided by Cal Fish and Wildlife, catchable trout were considered larger than three fish per pound (Table 2.2-2). Rainbow trout fingerling and sub-catchable fish averaged 57 fish per pound (range = 18 to 382) and kokanee fingerling averaged 197 (range = 117 to 639) (CDFW 2013a).

The American River Hatchery was the primary source of fish, with additional fish coming from the Crystal Lake Hatchery and the Silverado Fish Base. Stocked kokanee were of the Oregon, Taylor Creek, Stampede Reservoir and Washington strains. Rainbow trout were from the Coleman, Eagle Lake (hatchery), Shasta and Whitney strains. Kokanee were stocked in March, April or May. Rainbow trout were generally stocked in the spring, but occasionally as late as October (CDFW 2013a).

2.3 New Bullards Bar Reservoir Fish Assemblage

The fish assemblage of New Bullards Bar Reservoir is dominated by non-native species (Table 2.3-1). Of the 26 reported species, only six are native to California (YCWA 2013a). Hardhead (*Mylopharodon conocephalus*) is the only fish reported to occur in the reservoir that is listed by Cal Fish and Wildlife as a Species of Special Concern and by the Forest Service as a Sensitive Species (CDFW 2012).

Table 2.3-1. Fishes reported to occur in New Bullards Bar Reservoir.

Fish Species		Origin
Common Name	**Scientific Name**	**Native (N) or Introduced (I) to Yuba River Watershed**
SUCKERS (CATASTOMIDAE)		
Sacramento sucker	*Catostomus occidentalis*	N
SUNFISHES (CENTRARCHIDAE)		
Black crappie	*Pomoxis nigromaculatus*	I
White crappie	*P. annularus*	I
Bluegill	*Lepomis macrochirus*	I
Warmouth	*L. gulosus*	I
Green sunfish	*L. cyanellus*	I
Redear sunfish	*L. microlophus*	I
Largemouth bass	*Micropterus salmoides*	I
Spotted bass[1]	*M. punctulatus*	I
Smallmouth bass	*M. dolomieu*	I
HERRINGS (CLUPEIDAE)		
Threadfin shad	*Dorosoma petenense*	I
MINNOWS (CYPRINIDAE)		
Common carp	*Cyprinus carpio*	I
Fathead minnow	*Pimephales promelas*	I
Golden shiner	*Notemigonus crysoleucas*	I
Hardhead[2]	*Mylopharodon conocephalus*	N
Sacramento pikeminnow	*Ptychocheilus grandis*	N
CATFISHES (ICTALURIDAE)		
Brown bullhead	*Ameiurus nebulosus*	I
White catfish	*A. catus*	I
Channel catfish	*Ictalurus punctatus*	I
TROUTS AND SALMON (SALMONIDAE)		
Brook trout[1]	*Salvelinus fontinalis*	I
Cutthroat trout[1, 3]	*Onchorhynchus clarkia*	I
Kokanee[1]	*O. nerka*	I
Rainbow trout[1]	*O. mykiss*	N
Rainbow trout – Eagle Lake subspecies[1, 3]	*O. mykiss aquilarum*	I
Rainbow trout - Kamloops strain[1]	*O. mykiss gairdneri (Kamloops strain)*	I
Brown trout	*Salmo trutta*	I
	Subtotal – Native	*4*
	Subtotal – Introduced	*22*
	Subtotal - Stocked	*5*
	Total	**26**

1 Stocked in New Bullards Bar Reservoir by Cal Fish and Wildlife (see Table 2.2-1).
2 Hardhead is listed as a Species of Special Concern by Cal Fish and Wildlife and a Sensitive Species by the Forest Service.
3 Species is Native to California, but introduced to the Yuba Watershed.

2.4 Fishing at New Bullards Bar Reservoir

2.4.1 Creel Surveys

Creel survey data can provide information regarding the level of fishing pressure, the degree to which stocked fish return to anglers' creels, and angler's satisfaction with the fishery. This information is of most importance in years when hatchery production is unable to fully meet demand. Cal Fish and Wildlife (K. Kundargi, pers. comm., 2013) allotments for a given reservoir may be adjusted in any given year depending on the supply of hatchery fish and the relative level of fishing pressure.

YCWA obtained creel survey[6] information from Cal Fish and Wildlife for the years 2000 through 2009. Survey efforts were focused on anglers targeting kokanee; information regarding other target species was not collected during the survey. The resulting information is summarized in Table 2.4-1.

Table 2.4-1. Creel survey data for anglers targeting Kokanee at New Bullards Bar for the period 2000 through 2009.

Year	Days Sampled	Anglers	Total Hours Fished	Total Catch	Number Kept	Number Released	CPUE
2000	13	135	628.00	368	259	109	0.59
2001	16	86	366.50	182	144	38	0.50
2002	16	109	467.50	527	387	140	1.13
2003	28	225	931.50	870	713	157	0.93
2004	30	269	1,134.00	854	757	97	0.75
2005	24	173	717.75	586	443	143	0.82
2006	18	99	385.00	318	282	36	0.83
2007	15	49	254.50	83	59	24	0.33
2008	No surveys conducted						
2009	16	2	9.00	0	0	0	0.00
Average	**20**	**127**	**544**	**421**	**338**	**83**	**0.77**

Source: CDFW 2013b

During the 9 years sampled, the number of days sampled ranged from 13 through 30 days with an average of 20 days. Surveyors interviewed an average of 127 anglers per year (range = 2 through 269) and found that anglers caught an average of 0.65 kokanee per hour (range = 0.00 through 1.13). Additional information recorded included the total hours fished, total kokanee caught, number of kokanee kept, and number of kokanee released (CDFW 2013b).

No other creel surveys have been performed in New Bullards Bar Reservoir in the past 15 years.

2.4.2 Fisherman Use and Preferences

YCWA's recreation surveys during 2012 collected information regarding user activities during their visit to New Bullards Bar facilities. Forty-three percent of overnight visitors reported that they had fished during their stay although only 6 percent indicated that fishing was the primary purpose of their visit. Among day-use visitors, 36 percent participated in fishing and 26 percent claimed that was the primary reason for their visit to New Bullards Bar. Fishing was the number one "primary reason" for day-use visitors among those surveyed. Target species were not specified by these surveys (YCWA 2013b).

Local fishermen also report fishing for black bass. These anecdotal reports are supported by data from YCWA's Study 3.7, *Reservoir Fish Populations*, which showed that spotted bass made up 66.7 percent of the fish captured in New Bullards Bar Reservoir during the study as compared to

[6] A creel survey is the collection of data concerning the number of fish caught by sport fishermen on a particular stream or in a particular reservoir for the purpose of determining the effects of fish stocking and planning future catch limits for various fishes.

the next most abundant species (i.e., bluegill), which made up 8.1 percent of the catch during the study.

SECTION 3.0

FISH STOCKING

3.1 Fish Stocking at New Bullards Bar Reservoir

YCWA reviewed historic stocking allotments, creel census data, relevant regulations and policies, and coordinated with Cal Fish and Wildlife and Forest Service fisheries biologists to estimate target levels for fish stocking at New Bullards Bar Reservoir. Cal Fish and Wildlife annual stocking allotments for kokanee ranged from 20,000 to 100,096 fingerlings (average: 64,553) between 2001 and 2013 (CDFW 2013b). Cal Fish and Wildlife also stocked trout, alternating between Eagle Lake and rainbow trout, in most years. Trout allotments, ranged from 25,000 to 68,000 fingerlings from 2001 to 2013 (average: 50,801) (CDFW 2013a). Creel survey data for fishermen targeting kokanee from 2000 to 2009 showed a variable level of effort and satisfactory catch rates (0.77 fish per hour) (CDFW 2013b). Cal Fish and Wildlife uses a catch per unit effort of 0.5 fish per hour as a benchmark for acceptable creel returns for a put-and-grow stocking program (K. Thomas, pers. comm., 2013). In addition, fishing was the most common primary activity of day use visitors at New Bullards Bar (YCWA 2013b).

After consulting with Cal Fish and Wildlife and the Forest Service, it was agreed that, beginning in the first full calendar year after licensing issuance and annually thereafter, YCWA will stock New Bullards Bar with:

- 65,000 fingerling kokanee (i.e., approximately 200 fish per pound)
- 3,000 catchable rainbow trout (i.e., approximately 2 fish per pound)

These numbers are average annual targets that may fluctuate from year to year, but will be restricted within the historic ranges mentioned above, and these averages will be measured on a 5-year running average in order to ensure consistent stocking over the term of the new license. While it is YCWA's intention to stock the average numbers in any given year, the supply of fish in any given year is subject to a degree of uncertainty that YCWA cannot control.

These allotments are consistent with the Trout Plan (CDFG 2003) and the Hatchery EIR-EIS (ICF 2010).

Historic fish stocking events have fluctuated between the beginning of March and the end of October. YCWA will stock fish in:

- two to four events between March 1 and October 31 of each year (one to two events per species) alternating between the Cottage Creek Boat Launch and the Dark Day Boat Launch.

3.2 Hatchery Considerations

YCWA's preferred approach is to contract with Cal Fish and Wildlife to raise and plant the average target number and weight of fish each year. It is not currently Cal Fish and Wildlife's preference to enter into these contracts, so if a contract cannot be established, YCWA will acquire fish from one or more State-registered private hatcheries. If fish are supplied by private hatcheries, YCWA will ensure that fish are drawn from at least one of four rotations of different strains for each species to maintain the genetic variation practiced by Cal Fish and Wildlife. Eagle Lake trout will be included, if available, as an additional strain of rainbow trout used for stocking.

YCWA reserves the right to deny delivery of any fish, regardless of the sources, if YCWA suspects the fish contain harmful pathogens, parasites or aquatic invasive species that could impact resident fish or other aquatic populations at New Bullards Bar Reservoir. YCWA will notify Cal Fish and Wildlife, Forest Service and FERC if a stocking allotment is rejected for these reasons.

3.3 Creel Surveys

YCWA will conduct creel surveys at New Bullards Bar Reservoir beginning in the first full calendar year after license issuance for three consecutive years. The creel survey will focus on kokanee and rainbow trout, the stocked species. A creel survey will occur thereafter in the calendar year prior to each year in which YCWA is required to file with FERC a Form 80, *Licensed Hydropower Development Recreation Report* (18 C.F.R. § 8.11).[7,8] Each creel survey will be conducted as described below.

The survey will be performed from June 1 through September 30. Surveys will be performed on a total of 24 days, with six days in each of the four months, for a total of 24 survey days. The specific days to be surveyed in each month will be selected using the random stratified sampling technique described by Malvestuto (1996), with two strata and three days in each stratum: 1) high use (i.e., Saturday, Sunday and federal holidays); and 2) low use (i.e., Monday through Friday, excluding federal holidays). Further, the time that the survey will begin each day will be randomly selected between an AM start (i.e., start at 10:00 AM) and a PM start (i.e. start four hours prior to sunset). For most waters, there is a peak of anglers concluding their fishing trip for the day in the AM between 9:30 and 12:30, and another around sunset. Last, the location at which the survey will be conducted each day will be randomly selected between either the Cottage Creek Boat Ramp or the Dark Day Boat Ramp. The duration of each survey will be 4 hours.

[7] Form 80 reports are due by April 1 every 6 years, with the next Form 80 due in 2015. The Form 80 must include "*data compiled in the previous calendar year.*" (18 C.F.R. 8.11(a)(2))

[8] For instance, assuming a new license is issued in 2016 with a term of 30 years, creel surveys would occur in 7 years: 2017, 2018 and 2019, which would be the first three full calendar years after license issuance; and 2026, 2032, 2038 and 2044, which would be the full calendar year before a year in which a Form 80 Report is required to be filed with FERC.

The creel surveyor will ask anglers who return to the boat launch at the end of their fishing day a standard series of questions to determine angling effort (i.e., hours fished per angler that day), catch rate (i.e., the number of fish caught, including fish kept and released, by hours fished), size of fish (i.e., in millimeters), and species caught (i.e., rainbow trout or kokanee). In addition, each angler will be asked one to three standard questions, to which they will be asked to reply either "yes" or "no," to determine their angling satisfaction. The standard question will be: "*Were you satisfied with your angling experience today?*" The other two questions will be asked if the angler reports catching one or more trout and/or kokanee. In that case, the angler will be asked: "*Were you satisfied with the number of fish caught?*" and "*Were you satisfied with the size of fish caught?*" YCWA may add other questions at its discretion (e.g., questions related to species sought, gear used to fish, how many fish were caught and then released and why, number of anglers in party, how often the anglers fish at New Bullards Bar Reservoir, timing and duration of fishing trips, if the anglers are camping or just at New Bullards Bar Reservoir for the day, and where the anglers live).

3.4 Fee Option

If YCWA at some time in the future enters into a Cooperative Stocking Program with CDFW, then YCWA reserves the right to implement a fee for anglers at New Bullard Bar Reservoir to support the fish stocking program. As per the CFGC policy *Stocking Fish in Waters Where Anglers Pay Fee Access* the primary use of collected fees will be the purchase of fish for stocking. Surplus annual fees, if any, will be used for the purchase of fish in subsequent years or the improvement of services and facilities at New Bullards Bar Reservoir as they relate to fishing. YCWA will utilize these funds in the manner that best supports the fish stocking program and the angling experience at New Bullards Bar Reservoir.

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SECTION 4.0

REPORTING AND PLAN REVISIONS

4.1 Reporting

By December 31 of each year during the term of the new license, YCWA shall make available a brief report documenting New Bullards Bar Reservoir fish stocking in that calendar year, reporting on any YCWA-conducted creel surveys in that calendar year, and any YCWA recommended changes. Electronic copies will be made available to Cal Fish and Wildlife and the Forest Service, and filed with FERC. For each stocked species, the report will include strain, size class, total number of fish stocked, when they were stocked, where they were stocked, method of stocking (e.g., truck), the hatchery(ies) of origin, and compliance with the 5-year running average stocking requirement. The report will also include YCWA plans for stocking in the next calendar year.

If a creel survey was performed in the previous year, the above report will include the results of the creel survey including: when and where surveys were conducted, number of anglers surveyed; total hours fished; total number of fish caught by stocked species (i.e., rainbow trout and kokanee); catch rate (i.e., fish caught by hours fished) by stocked species; length-frequency of caught fish; angler satisfaction results (i.e., response to three standard questions described in Section 3.3); and other information.

YCWA will review the results of the report with Cal Fish and Wildlife and the Forest Service at the annual meeting (see YCWA Proposed Condition GEN1).

4.2 Plan Revisions

YCWA, in consultation with Cal Fish and Wildlife and the Forest Service, will review, update and/or revise the Plan, as needed (e.g., changes in occurrence of special-status species and their habitat, and changes in state or federal laws, regulations and management plans). Sixty days will be allowed for Cal Fish and Wildlife and the Forest Service to provide written comments and recommendations before YCWA files an updated Plan for FERC's approval. YCWA will include all relevant documentation of coordination and consultation with the updated Plan filed with FERC. If YCWA does not adopt a particular recommendation by Cal Fish and Wildlife or the Forest Service, the filing will include Project-specific reasoning for the decision. YCWA will implement the Plan as approved by FERC.[9]

[9] The Plan will not be considered revised until FERC issues its approval.

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SECTION 5.0

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