

**Project Description for April - September 2015 Drought Response Actions  
To Support Endangered Species Act Consultations**

In order to cope with a fourth consecutive year of drought, the Bureau of Reclamation (Reclamation) and the project applicant, the California Department of Water Resources (DWR), are considering temporary modifications to the operations of the Central Valley Project (CVP) and State Water Project (SWP). Coordinated long-term operation of the CVP and SWP previously underwent Endangered Species Act (ESA) consultation that resulted in biological opinions (BiOps) from the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) in 2008 and 2009, respectively. The project description describes the specific actions that Reclamation and DWR currently propose to implement from April through September 2015 related to changes in D-1641 standards in the Project Description of the 2008 and 2009 BiOps, as well as specific consultation requests not considered in the existing exception procedures of the BiOps driven by human health and safety concerns. In addition, if conditions warrant, future requests for Old and Middle River (OMR) flexibility may be proposed similar to what occurred in February 2015 and as described below. Emergency drought barriers, although not specifically included in this Project Description for April through September, 2015, may also be required to address salinity issues in the Delta. Other possible future actions related to water transfers and the San Joaquin River I:E ratio flexibility may also be proposed and are described below.

**Currently Proposed April through September 2015 Actions**

Reclamation and DWR are using the February 90% exceedance forecast for Central Valley hydrology for the purpose of ESA consultation to predict the actions that are necessary to modify the Project Description and Reasonable and Prudent Alternatives (RPAs) described in the 2008 and 2009 BiOps. The March exceedance forecast is under development and at this time appears to be trending drier than the February 90% exceedance forecast. Reclamation and DWR consider the February 90% exceedance a reasonable hydrologic estimate on which to base the ESA consultation. A summary of the February 2015 Operation Forecasts is included as Attachment A. As conditions materialize, additional coordination with NMFS will be required to address water temperature plans on the upstream tributaries consistent with the RPAs contained in the NMFS Biological Opinion.

The following actions in April through September 2015 are proposed under a critically-dry hydrologic forecast, and may or may not be implemented depending on observed conditions and ability of the applicant to obtain modifications to water rights permits.

- I. Proposed Upstream Tributary Operations - April Through September 2015
  - A. Upper Sacramento River, Trinity River, and Clear Creek Flows and Temperature Management Planning – NMFS RPA Action I.2.3.C

Reclamation intends to integrate to the fullest extent possible the operations of the Trinity, Clear Creek, and Shasta complex to make maximum use of the limited cold water reserves in each reservoir. The highest priority for this ongoing cold water management will be to improve and

maintain cold water temperatures on the upper Sacramento River to protect the endangered Sacramento River winter-run Chinook salmon.

In addition, Reclamation is working with the Sacramento River Settlement Contractors on options to shift a significant portion of their diversions for this year out of the April and May period and into the time frame where Keswick releases are higher to achieve temperature objectives on the upper Sacramento River. The cooperation of the settlement contractors in pursuing this effort would allow a modified diversion pattern and create the benefit of increased Shasta Reservoir storage at the beginning of the temperature control operations while allowing for settlement contractor diversions once the temperature purposes of the flows are achieved.

### Trinity Operations

The Trinity River Restoration Project Record of Decision (ROD) identifies that the flow schedule for the Trinity River be determined based on the April 1, 50% exceedance inflow forecast with adjustments in May, if necessary. The February 2015 90% exceedance forecast would result in a dry-year flow schedule designation; however additional precipitation in March could boost the flow schedule to a normal year designation. Due to persistent drought conditions for the entire State of California and the currently dry forecast, Reclamation's operations forecast includes schedules using the Trinity River Division dry-year flow schedule of the ROD. If the schedule should shift to the normal designation, unavoidable low storage may result in additional adverse effects due to elevated water temperatures for Trinity River salmonids and potentially increased temperatures in the upper Sacramento River. Low-level release from Trinity Reservoir for temperature management will be implemented if necessary to meet species needs and State Water Board basin plan objectives. Pursuant to Government-to-Government obligations, Reclamation will continue to consult with Trinity Basin tribes.

### Clear Creek Operations

The Clear Creek population of spring-run Chinook salmon provides an important buffer to other Central Valley populations, but the limited cold water supplies this year, and the priority to protect winter-run Chinook salmon on the Sacramento River, may limit the ability to manage water temperatures and flows on Clear Creek.

Reclamation commits to providing the two attraction pulse flows in Clear Creek, per advice from the Clear Creek Technical Team on the timing, duration, and flow, as provided in NMFS RPA Action I.1.1. These pulse flows are, per the RPA Action, requested in April or May and June. However in an effort to preserve cold water pool storage, the technical team may provide recommendations to modify implementation of these pulse flows.

Water temperatures on Clear Creek will be managed at either an alternate compliance point or by modifying the water temperature objective at Igo.

## Shasta Operations/Keswick Release Schedule

A major goal Shasta Reservoir operations is to conserve as much water storage as possible during the winter and spring to provide cold water releases for salmonids later in the season, and provide carryover storage for the next water year. This is especially important in the event of a prolonged drought.

Given the severe drought conditions and limited availability of cold water resources this year, and consistent with NMFS RPA Action I.2.3.C, this project description incorporates the following operational actions:

- Keswick releases will be held to no greater than 3,250 cfs, or as determined necessary to reasonably target no more than 3,800 cfs at Wilkins Slough in April, May and June, unless necessary to meet nondiscretionary obligations or legal requirements;
- Keswick releases will not be increased to directly support CVP Delta diversions;
- Reclamation and DWR have worked with the State Water Board to modify a number of water quality and flow standards that help limit the need for increased Keswick releases to meet Delta objectives. Reclamation will continue to rely on other CVP reservoirs to the extent possible to meet overall CVP obligations;
- Reclamation will bypass the power penstocks at times this year if such operations will help access the remaining cold water pool or would help preserve the cold water pool if blending with warmer water early in the season is appropriate to meet temperature compliance;
- Reclamation will coordinate with the Sacramento River diverters to minimize the impact of any diversions for rice decomposition on Shasta Reservoir operations; and
- Reclamation will continue to develop monthly operational forecasts and temperature analyses to facilitate the ongoing monthly consultation under NMFS RPA Action I.2.3 and I.2.4.

The attached operational forecasts (see Attachment A) were developed, in part, using the estimated Sacramento Valley depletion forecasts calculated by DWR as part of their monthly hydrologic updates. These depletion forecasts are based on a regression analysis of historical accretions and depletions data in the Sacramento Valley.

Based on more current projected inflow data and potential in-basin depletions, productive discussions with Sacramento River Settlement Contractors about significant modifications to diversion patterns, and the bulleted parameters outlined above; a more likely estimated range of average monthly releases from Keswick Reservoir are presented below:

**Estimated Range of Keswick Reservoir Release  
(in cubic feet per second)**

	90% Exceedance	50% Exceedance
April	5500	4000
May	7500	7000

A release of 9,000 cfs is generally considered the minimum flow to reasonably maintain stable water temperatures in June and July due to daily air temperature fluctuations, and given the shutter configuration on the temperature control structure. Using a lower base flow (for example 8,000 cfs) results in needing to release more cold water reducing available cold water reserves and requiring higher releases when air temperatures are high. Higher base flow allows more stable operations and the ability to blend warmer and cooler water, helping to conserve cold water pool longer through the summer.

These flow schedules were calculated based on the estimated Sacramento Valley depletion forecasts developed by DWR as part of their monthly hydrologic updates.

In addition, the cold water and flow management of Shasta, Trinity and Whiskeytown reservoirs will be carried out in coordination with the SRTTG to meet temperature objectives on the Sacramento River, Clear Creek, and the Trinity River, to minimize isolation, dewatering or stranding of salmonids, and to meet in-basin water supply needs. The temperature operations will be conducted in accordance with Water Rights Order 90-05. Reclamation will provide the SRTTG with additional modeling as requested based on shaping of delivering schedules in addition to temperature release locations in order to extend the duration of cold water availability into August and September. Per the RPA, Reclamation will by-pass power generation to improve temperatures if needed for the protection of the winter-run or spring-run Chinook salmon.

As required by the NMFS BiOp, operations of other CVP reservoirs will be scheduled to support Shasta Reservoir cold water pool needs to the extent possible, provided such action would not unnecessarily cause other adverse fishery effect.

The SRTTG will continue to meet and provide advice on how to best meet temperature objectives to WOMT and RTDOT based on updated temperature modeling results from monthly forecast updates through the temperature control season as applicable. The ultimate goal will be to balance the various factors to provide the best possible, given the constraints, conditions on the Sacramento River for winter-run Chinook salmon.

**B. Folsom/American River Operations**

Per the Flow Management Standard included in the NMFS BiOp, the projected March through November unimpaired inflow to Folsom Reservoir of less than 400,000 acre-feet has resulted in water year 2015 being a conference year. Under these conditions spring flows may be reduced to

help conserve Folsom Lake storage. To comply with NMFS RPA Action II.2, Reclamation will coordinate closely with NMFS and the American River Group as conditions materialize to address temperature considerations on the American River.

### C. New Melones/Stanislaus River Operations

The estimated flow schedule for the Stanislaus River is shown in Attachment A. Reclamation is currently estimating that projected inflows would allow for release of the required Appendix 2-E base and pulse flow volume per NMFS RPA Action III.1.3, but inflow forecasts are trending downward and available supplies for release may need to be adjusted in the near future. Once the available volumes are confirmed, the timing of releases will be coordinated with the SOG, with consideration of the other flow actions in the San Joaquin River basin this spring. The Appendix 2-E spring pulse flow will be initiated in March to early April.

To address D-1641 April-June flow requirements in 2015 on the San Joaquin River, Reclamation proposes modifications to the flows at Vernalis as described below under Proposed Delta Operations, D-1641 Provisions.

### D. Feather River Operations

DWR plans to meet all flow requirements on the Low Flow Channel and High Flow Channel on the Feather River and all temperature requirements at the Feather River Fish Hatchery and Robinson's Riffle for all periods as designated in the current FERC license which includes consultation with NMFS and USFWS, and the 1983 agreement between DWR and CDFW.

## II. Proposed Delta Operations - April Through September

### A. D-1641 Provisions

#### Modification of Net Delta Outflow Index

D-1641 requires a Delta outflow minimum monthly average Net Delta Outflow Index (NDOI) of 7,100 cfs 3-day average and salinity requirements during the months of April, May and June. Reclamation and DWR are petitioning the State Water Board to adopt a Delta outflow standard of a minimum monthly NDOI during the months of April, May and June to be no less than 4,000 cfs; for the month of July, the monthly requirement for NDOI shall be no less than 3,000 cfs. The 7 day running average shall be no less than 1,000 cfs below the monthly average.

#### Modification of San Joaquin River Flow

Table 3 of D-1641 specifies San Joaquin River at Airport Way Bridge, Vernalis minimum monthly average flows, and a 31-day pulse flow period in April and May. Reclamation and DWR are petitioning the State Water Resource Control Board to adopt the following San Joaquin River at Airport Way Bridge, Vernalis river flow requirements:

- During the Vernalis 31-day pulse flow period, the monthly average flow to be no less than 710 cfs.
- For the period following the 31-day pulse flow through May 31<sup>st</sup>, the SJ River flow at Vernalis would be no less than 300 cfs on a 30-day running average.
- In June, the SJ River flow at Vernalis would be no less than 200 cfs average for the month.

### Modification of Export Limits

Table 3 of D-1641 describes export limits. Generally, exports are limited to 35% of Delta inflow from February through June of each year, and 65% of Delta inflow from July through January of each year. Reclamation and DWR are petitioning the State Water Resource Control Board to adopt the following, modified from the maximum Export Limits included in Table 3 of D-1641, for the months of April, May, and June,:

- When precipitation and runoff events occur, and allow the DCC Gates to be closed and Footnote 10 of Table 3 of D-1641 is being met [3-day average Delta outflow of 7,100 cfs, or electrical conductivity of 2.64 millimhos per centimeter on a daily or 14-day running average at the confluence of the Sacramento and the San Joaquin Rivers (Collinsville station C2) if applicable], but any additional Delta outflow requirements contained in Table 4 of D-1641 are not being met, then exports of natural and abandoned flows are permitted up to D-1641 Export Limits contained in Table 3 of D-1641 at the SWP Banks Pumping Plant and the CVP Jones Pumping Plant, subject to other applicable laws and regulations including the ESA and California ESA (CESA).
- When NDOI of at least 7,100 cfs is not being met as specified above, or the DCC gates are open, then the combined maximum exports at the SWP Banks Pumping Plant and the CVP Jones Pumping Plant shall be no greater than 1,500 cfs with one exception. DWR and Reclamation may export up to a combined 3,500 cfs of natural and abandoned flows, on a 3-day running average, provided that NDOI is greater than 5,500 cfs and the DCC gates are closed. DWR and Reclamation would consult with the RTDOMT to determine if real-time conditions are consistent with predicted conditions. If consensus to implement is obtained at RTDOMT, then Reclamation or DWR would notify the State Board's Executive Director for final approval.
- During the effective period of any issued Order, if precipitation events occur that enable DWR and Reclamation to fully comply with the Delta outflow, river flows, and DCC Gate Closure requirements contained in D-1641, then D-1641 requirements shall be operative, except that any SWP and CVP exports greater than 1,500 cfs shall be limited to natural or abandoned flow, or transfers as specified in condition 1e of the March 5, 2015 SWRCB modified Order.

### Modifications of DCC Gate Operations

D-1641 and the NMFS Biological Opinion require the closure of the DCC gates from February 1 through May 20. Reclamation and DWR petition the State Water Resource Control Board to modify the DCC gate operation requirements contained in Table 3 of D-1641 such that the DCC gates may be opened during April and May as necessary to reduce intrusion of high salinity water into the Delta while preserving limited storage in upstream reservoirs and reducing impacts to migrating Chinook salmon. The DCC gate triggers matrix (as described in Appendix G of the April 2014 Drought Operations Plan and Operational Forecast) will be used by the Projects to determine operation of the DCC gates. If the Projects determine that the DCC gates must open to provide for salinity management in the Delta during a period that requires closure under D-1641 or the NMFS Biological Opinion, then the Projects, through the RTDOT process, will provide at least a 5-day notice to the fish and wildlife agencies so that enhanced monitoring can begin. The Projects will implement enhanced monitoring and triggers to open and close the gates, as needed for protection of listed species.

### Modification of Rio Vista Flow Requirement

D-1641 Table 3 dictates a minimum monthly Sacramento River flow requirements measured at Rio Vista of 3,000 cfs in the month of September (for critically dry water years). This requirement also states that the 7-day running average Sacramento River flow measured at Rio Vista shall be no lower than 2,000 cfs during this time. Reclamation and DWR are petitioning the State Water Resource Control Board to modify the D-1641 Table 3 Sacramento River at Rio Vista flow requirements to be no less than 2,500 cfs on a monthly average in September. The 7-day running average shall not be less than 2,000 cfs.

### Modification of Western Delta Salinity Compliance Point

In a critical year, D-1641 requires the Agricultural Western Delta Salinity Standard at Emmaton have a 14-day running average of 2.78 millimhos per centimeter from April 1 to August 15. Reclamation and DWR are petitioning the State Water Resources Control Board to modify this requirement by moving the compliance location from Emmaton to Three Mile Slough on the Sacramento River beginning April 1.

### Modification of San Joaquin River Salinity Requirement

In all water year types, D-1641 requires a San Joaquin River at Vernalis salinity limit of 0.7 EC from April through August. Reclamation is petitioning the State Water Resource Control Board to modify the San Joaquin River Salinity at Vernalis requirement from 0.7 EC to 1.0 EC from April to August.

### III. Other Requested Modifications

#### A. Ripon Dissolved Oxygen (DO) Requirement

SWRCB D-1422 requires that water be released from New Melones Reservoir to maintain DO standards in the Stanislaus River. The 1995 revision to the WQCP established a minimum DO concentration of 7 milligrams per liter (mg/L), as measured on the Stanislaus River near Ripon. Reclamation proposes to maintain a minimum DO concentration of 7 mg/L at Orange Blossom Bridge this summer.

#### B. NMFS BiOp Provisions

1. NMFS RPA Action IV.2.1 Implementation: NMFS RPA Action IV.2.1 to be implemented by a 1:1 I:E ratio and with the following modification:
  - Prior to and after the Stanislaus River pulse flows and the 31-day Vernalis 1:1 pulse flow/export period as described in D-1641 (likely to be initiated late March to early April, 2015), Action IV.2.1 would be modified as necessary to allow for increased export pumping to capture abandoned or natural flows in the Delta (in the unlikely event that they occur) up to OMR limits, as provided in the NMFS BiOp (Action IV.2.3) and USFWS BiOp (Action 3).
  - Reclamation and DWR will, in a future year when hydrology allows, make an amount of water equivalent to half the volume of any increased exports realized over the April/May 2015 period available to provide for a larger pulse flow, for the fishery agencies to shape, in the next “dry” or better water year type based on the San Joaquin Valley Index. For example, if there is a 60 TAF gain in exports above the minimum health and safety diversion of 1,500 cfs, then 30 TAF of additional water (from some source within the San Joaquin River Basin in addition to the Appendix 2E flows or that required to meet in-river regulatory obligations on the other tributaries) would be made available in a future year for the spring pulse flow on the San Joaquin River. The release timing of this additional flow would be scheduled at the discretion of the fishery agencies in coordination with Reclamation. The additional flows gained in 2015 would be additive to those flows gained in 2014.
  - Preferential pumping of natural or abandoned flow during the 61-day duration of RPA Action IV.2.1 will be at the Jones Pumping Plant up to the federal capacity (either pumping or canal capacity); remainder of exports to be pumped at Banks Pumping Plant up to operable constraint (OMR limit outside of pulse period). Slight adjustments would be allowed to maintain minimal deliveries to the SWP South Bay Aqueduct, if necessary. This export shift will increase survival of salmonids through these facilities, since fewer fish will enter the SWP export facilities, where loss is higher due to substantial pre-screen mortality associated with Clifton Court Forebay. It is likely that shifting exports from the SWP to the CVP would increase overall survival. The amount of shifted pumping from Banks to Jones would be accounted for as part of existing sharing agreements between the two Projects.

2. OMR Flows: All OMR flow related actions, including those based on the NMFS salmonid density triggers, remain in place. Any flexibility that may be proposed based on hydrology will follow the framework outlined below.
3. DCC Gate Operations (NMFS RPA Action IV.1.2): If the Projects determine that the DCC gates must open before May 20, to provide for salinity management in the Delta, the Projects will provide at least a 5-day notice to the fish and wildlife agencies so that enhanced monitoring can begin. The Projects will implement enhanced monitoring and triggers to open and close the gates, as needed for protection of listed species (see D-1641 Provisions above regarding Modifications of DCC Gate Operations).

### C. USFWS BiOp Provisions

Based on forecasts, no additional modifications to the USFWS BiOp RPA actions are currently proposed. All OMR flow related actions, including the potential for USFWS determinations based on entrainment risk, remain in place. Reclamation will formally request that the OMR Index Demonstration Project as implemented in 2014 continue into 2015. Additionally, the RTDOT will continue to meet and if conditions warrant, additional modifications may be proposed in the future consistent with the framework outlined below. Any modifications would be accompanied by real-time monitoring at Prisoners Point and Jersey Point in order to evaluate in real time any changes in distribution or density of Delta Smelt in the Central Delta.

### **Possible Future Conditions Warranting Additional Modifications**

The description below is included to highlight specific actions and factors that may be considered throughout 2015, and identifies actions that may be included in future consultations, if necessary. This is not intended to be a fully inclusive list, nor does inclusion in the list mean the agencies will go forward with any action. Reclamation and DWR are not proposing these actions at this time, however these actions are considered in looking at the future status of the species in light of the actions proposed to date in 2015.

Old and Middle River (OMR) Flow Management Consultation Framework: If conditions warrant, Reclamation and DWR plan to propose short-term flexibilities similar to what occurred in February 2015 and consistent with the Interagency 2015 Drought Strategy for the CVP and SWP (2015 Drought Strategy). These flexibilities would allow OMR exceedances of the 14-day running average, measured using the OMR Index, during sporadic storm events under continued drought conditions. Limited exceedances of the -5,000 cfs OMR flow limit to -6,000 cfs, to be implemented only on the ascending limb of the hydrograph, may be requested to capture natural or abandoned flow in the Delta from sporadic storms (increase exports) under drought conditions. Any short-term flexibility in OMR would off-ramp should NMFS or USFWS determine that less negative OMR is required to protect listed fish species under the RPAs set forth in their respective BiOps, should conditions different from those that were expected during the period of operational flexibility occur. To implement this OMR flexibility, an objective of at least 7,100 cfs NDOI or 2.64 EC at Collinsville, or the objective of 4,000 cfs NDOI in May

and June, whichever is applicable<sup>1</sup>, must be achieved. Additionally, operations will be consistent with the Export Limits described in Table 3 of D-1641. If warranted by continued drought conditions, Reclamation and DWR may seek additional OMR flexibility beyond what is described herein. Implementing these limited exceedances will be evaluated at that time.

To complete an ESA consultation in a timely manner, and if flexibilities are warranted, the following OMR consultation process has been developed. This process is intended to explore and evaluate risks associated with any proposal and streamline ESA compliance through ongoing coordination between Reclamation, DWR, and the state and federal fish and wildlife agencies. Any OMR proposal will be discussed as part of the RTDOT process.

Streamlined OMR Consultation Framework:

1. Identify upcoming storm event
2. Evaluate forecasted run-off and anticipated available in-Delta flows
3. Develop and model a specific OMR and outflow proposal, including specific proposed OMR flow and expected duration of action
4. Finalize proposed project description
5. Prepare listed species and critical habitat biological review including:
  - Existing Delta conditions and supporting hydrodynamic modeling
  - Species distribution and risk of entrainment in the South and Central Delta
  - Particle Tracking Model (PTM) results, including enhanced PTM if available for salmonids
  - Discussion of any existing RPA action that may be in place and any associated effects analysis that provides biological support for a deviation from that action

If Reclamation and DWR determine through the described streamlined process that OMR flexibility is warranted, then Reclamation and DWR will describe the requested flexibility in a reinitiation request that provides the information described above. USFWS and NMFS will provide an evaluation of the anticipated effects of the action on listed species and critical habitats. DWR and CDFW will undertake a similar process for CESA.

Temporary Emergency Drought Barriers: If hydrologic forecasts show there will be insufficient water in upstream reservoirs to repel the saltwater and meet health and safety and other critical needs, then installation of Emergency Drought Barriers will be considered to lessen water quality impacts. Excessive salinity increases in the Delta could render the water undrinkable for 25 million Californians and unusable by farms reliant upon this source. Temporary rock (rip-rap) Emergency Drought Barriers may be installed at up to three locations in the Delta during drought conditions in 2015, or in a subsequent year if necessary, to manage salinity in the Delta when there is not enough water in upstream reservoirs

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<sup>1</sup> The 7,100 cfs NDOI or 2.64 EC at Collinsville objective does not apply in May and June if the best available estimate of the Sacramento River Index for the water year is less than 8.1 MAF at the 90% exceedance level. Under this circumstance, a minimum 14-day running average NDOI of 4,000 cfs is required in May and June.

to release to rivers to repel the saltwater. Consultation on installation and operation of the barriers will be conducted on the barriers prior to installation and may require additional adjustments to D-1641.

In addition to the modifications requested above, if Temporary Emergency Drought Barriers are installed, the following preliminary list of modifications will be evaluated and may supersede some of the items described above:

- Minimum monthly NDOI described in Figure 3 of D-1641 during the months of June through October
- Critical year D-1641 Agricultural Western Delta Salinity Standard at Emmaton (14-day running average of 2.78 millimhos per centimeter through August 15)
- Mean monthly Rio Vista flow standard in September, October, and November

Upstream Reservoirs: Upstream reservoirs will be operated through the spring to preserve and build storage. Reclamation and DWR will be trying to develop cold water resources in the spring in those reservoirs where temperature management is needed later in the year. Cold water resources may be developed by continuing on-going discussions with the Sacramento River Settlement Contractors to shift early spring demand later into the year to conserve water in Shasta Reservoir, if warranted.

Water Supply: Throughout dry conditions, CVP and SWP systems will be operated to lessen critical economic losses to agricultural, municipal, and industrial uses due to water shortages through project water deliveries and by facilitating voluntary water transfers and exchanges to the extent possible, while balancing the needs of upstream storage, fishery and wildlife resource protection, and operational flexibility. A key to minimizing water supply shortages for economic purposes will be to take advantage of opportunities to export natural or abandoned flow in the spring while maintaining Delta water quality and minimizing adverse effects to listed fish. Release of stored water in summer and fall will be managed to concurrently benefit in-stream temperature objectives, wildlife objectives, meet Sacramento Valley in-basin needs, and preserve carry over storage to meet objectives in WY 2016.

Refuges: One of the requirements of the Central Valley Project Improvement Act (CVPIA) passed by Congress in 1992 included providing water for state, federal and private managed wetlands in order to maintain and improve wetland habitat areas. For south of Delta refuges, water from San Luis Reservoir can be made available to meet refuge needs when total demand from direct diversions from the Delta are not feasible. The CVPIA and refuge water supply contracts allow for flexibility to transfer water from refuges both within basin as well as north of the Delta to south of the Delta. Water transfers from north of Delta refuges to south of Delta refuges would occur to support priority habitat needs of south of Delta refuges given available capacity to facilitate the transfer. This water would be directly diverted or could be stored in San Luis Reservoir and used when most needed by south of the Delta refuges. Refuge deliveries are included in CVP operational scenarios and forecasts, and calculations regarding anticipated reservoir levels into the late fall and early winter.

Biological Opinion Flexibilities: The specific flexibilities being sought in this consultation for April through September and OMR Flow Management Consultation Framework are described above. The

items included below are potential flexibilities that may be sought through future consultations. Many of these items are further described in the Interagency 2015 Drought Strategy Working Draft dated December 11, 2014.

- NMFS BiOp Provisions
  - Head of Old River Barrier (HORB):
    - The spring HORB, as described in the 2008 Biological Assessment Project Description, will be installed and 90% operational by April 1, 2015, and 100% completed and operational by April 8, 2015. The HORB is intended to prevent downstream-migrating salmonids in the San Joaquin River from entering Old River.
    - Although not described in the NMFS RPA, the fall HORB barrier is typically installed upon the request of CDFW and is similar in design to the spring barrier, but smaller in size. The fall barrier is intended to benefit migrating adult salmon in the San Joaquin River by improving flow and dissolved oxygen conditions in the San Joaquin River downstream of the barrier.
- USFWS BiOp Provisions
  - Fall X2 Action (if Sacramento Valley classification is above normal or wet): This RPA component will not be triggered in WY 2015, however, Reclamation will work with DWR, NMFS, USFWS, CDFW, and others to refine the Fall Outflow Adaptive Management Plan (AMP) based on findings to date, including, if appropriate, proposing new experimental management strategies based on those findings.

D-1641 Related Actions: Reclamation and DWR may seek adjustments under D-1641, including triggers for modified X2 criteria to balance upstream storage and fish protection. Additionally, Reclamation and DWR may exercise the flexibility provided in D-1641 to adjust the E/I ratio's averaging period for sporadic storm events (similar to 2014).

Transfers and Exchanges: Reclamation and DWR will continue to facilitate water transfers and exchanges. If these transfers or exchanges are conveyed through the Delta outside the transfer window described in the 2008 and 2009 BiOps (July-September), Reclamation and DWR will consult with USFWS and NMFS prior to conveyance of the transfer water and DWR will request a consistency determination from CDFW.

**Attachment A**

**February 2015 Operational Forecasts**

DRAFT

# DROUGHT CONTINGENCY PLAN

(April 1, 2015 - September 30, 2015)

## February 1 - 90% HYDROLOGIC EXCEEDENCE

### END OF MONTH STORAGES (TAF)

RESERVOIRS	2015					
	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
Trinity	1178	1017	908	806	702	642
Shasta	2590	2316	2015	1613	1319	1174
Folsom	579	578	498	332	268	238
Oroville	1707	1291	1038	786	628	628
New Melones	518	424	349	268	188	132

### MONTHLY AVERAGE RELEASES (CFS)

RESERVOIRS	2015					
	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
Trinity	550	2900	800	450	450	450
Sacramento	6600	7500	8650	9600	7800	5000
American	800	800	1650	2950	1400	800
Feather	2550	4600	1750	1650	900	800
Stanislaus	500	150	150	150	150	150

### DELTA SUMMARY (CFS)

	2015					
	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
Rio Vista Flows	4850	7170	2700	2150	1200	1900
Sac River at Freeport	6790	9650	7050	7850	6400	6800
SJ River at Vernalis	3030	710	1050	900	750	750
Computed Outflow	7100	7100	4000	4000	3000	3000
Combined Project Pumping	1500	1500	900	900	900	2600