



# OPERATIONS REBUTTAL TESTIMONY



## ALLOCATION

- **Variables Include:**
  - Current and Projected Storages
  - Forecasted Runoff
  - Required Feather River flows (FERC, NMFS, DFW)
  - Feather River Settlement Contractor Delivery
  - Anticipated Depletions, Valley and Delta
  - Anticipated Delta Outflow and Salinity Objectives
  - Anticipated Export Restrictions per BiOps
  - Contractor Delivery Requests



# ALLOCATION

- **Uncertainty exists after final Allocation**
  - Runoff forecast is very uncertain
    - Example:
      - Feb. 2012 Bulletin 120 – 3.3 MAF of uncertainty
      - May 2012 Bulletin 120 – 665 TAF of uncertainty
  - Degree of Export Restrictions per BiOp
  - Exact Amount of Water Necessary to Meet D-1641



## ALLOCATION

- **Projects use conservative assumptions for planning future operations**
  - Drier end of Bulletin 120 forecast range
  - Less than minimum BiOp export restriction range
- **Projects operate to real-time conditions**
  - Additional storage, if any, used for project purposes following year

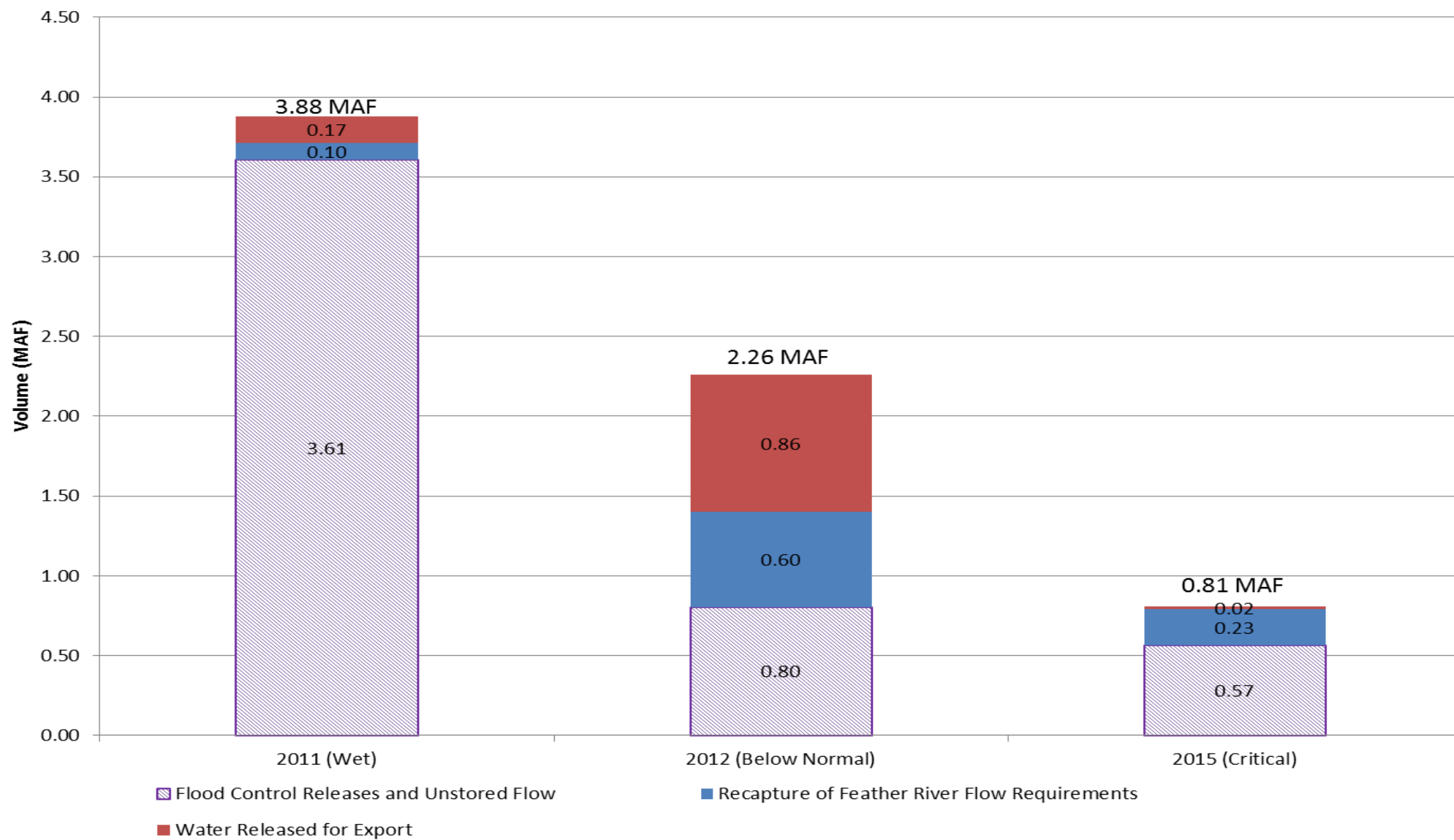


## SOURCE OF WATER FOR EXPORT

- 1. Flood Control Releases and Unstored Flow**
- 2. Recapture of Feather River flow requirements**
- 3. Water Released for Export**



## Primary Sources of Water for SWP Exports (Historical Operations)





# PRIMARY REASON FOR RELEASES FROM LAKE OROVILLE

## **1. Regulatory and other Obligations:**

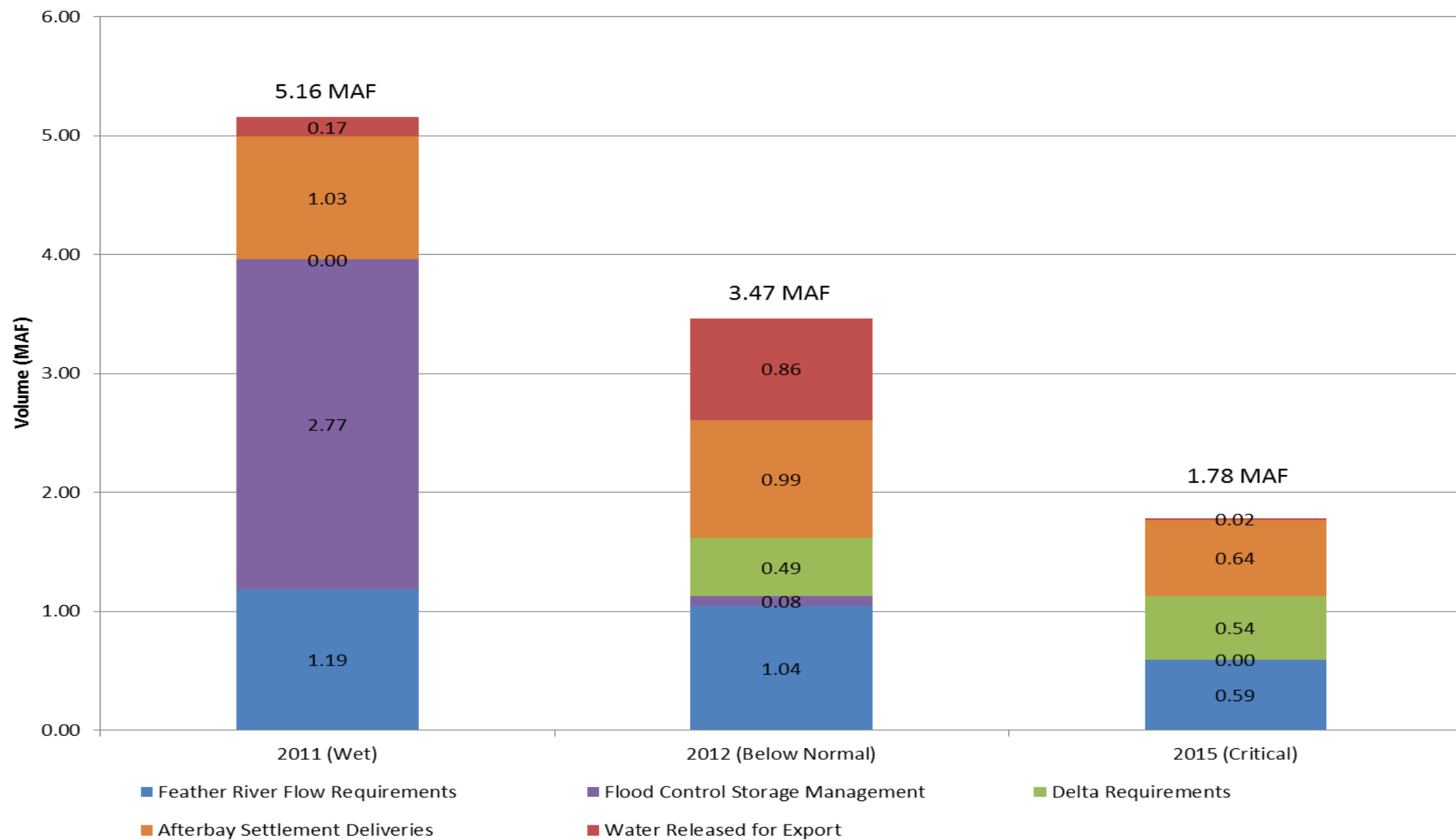
- Feather River Flow Requirements
- Flood Control Storage Management
- Delta Requirements
- Afterbay Settlement Deliveries

## **2. Discretionary:**

- Water Released for Export



## Primary Reasons for Lake Oroville Releases (Historical Operations)





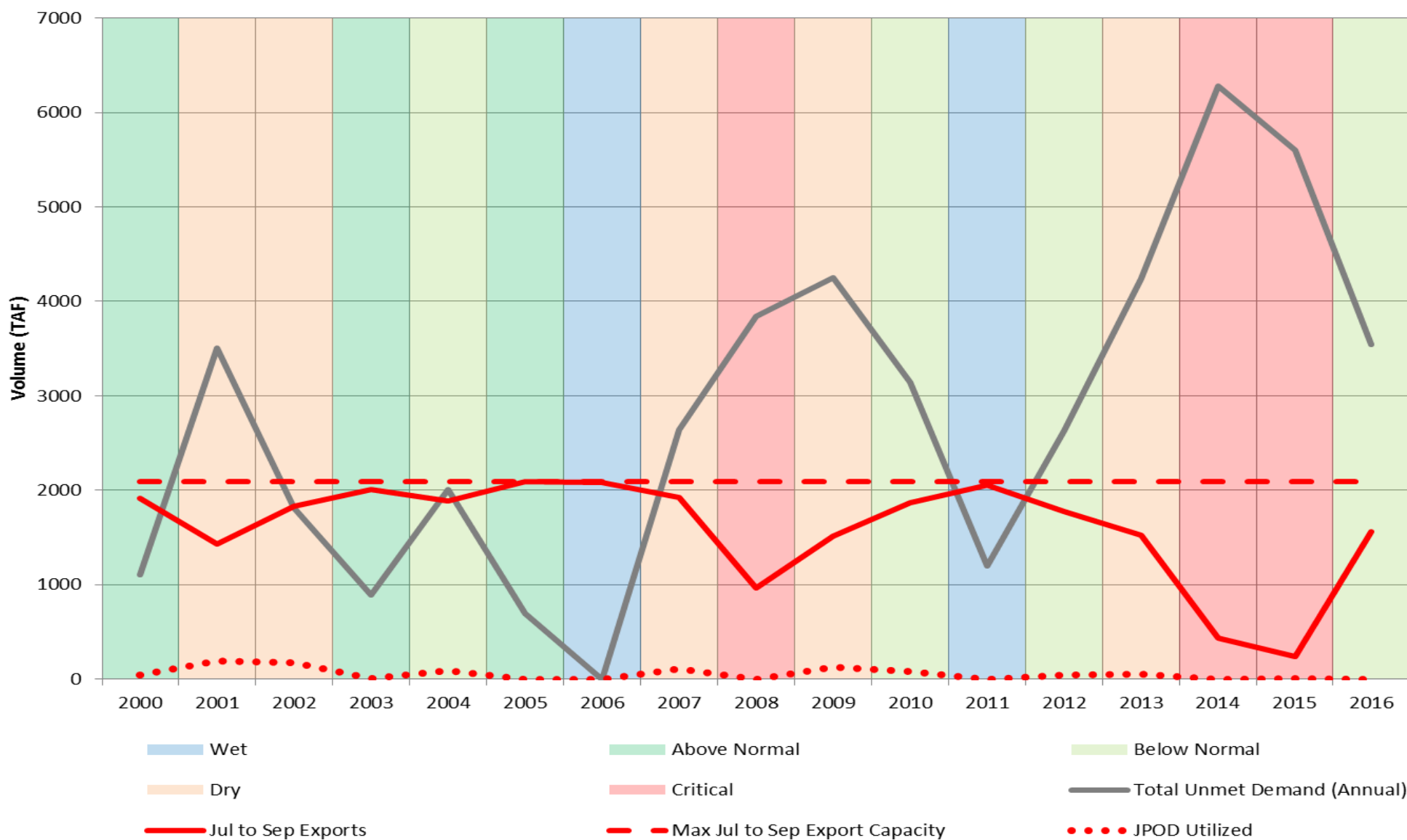


## USE OF EXISTING PUMPING CAPACITY

- **Historical Jul to Sep export capacity indicates:**
  - Full export capacity used only in wetter years
  - In average to drier years:
    - Significant amount of unused capacity remains
    - Capacity for JPOD is available - used sparingly
    - Demand left unmet
  - Projects actively limit amount of stored water for export



## Historical Unused CVP/SWP Export Capacity (July - Sept)





## INCREASED OPPORTUNITIES TO CAPTURE EXCESS FLOWS AS A SUBSTITUTE FOR STORED WATER WITH CWF

- **Petitioners modeling**

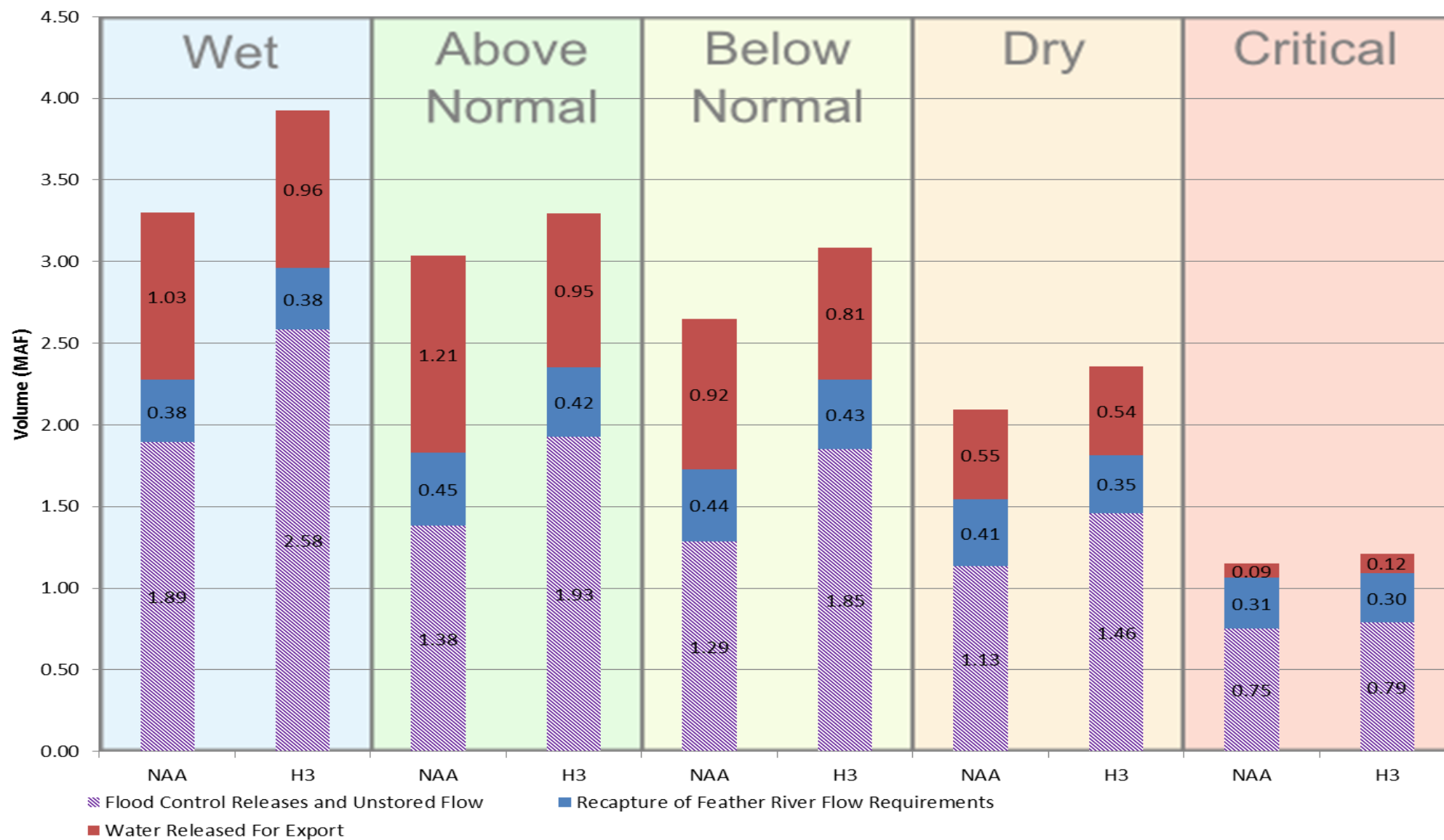
- Increased reliance on unstored flow
- Decreased reliance on stored releases
- Consistent with SWP policy

- **MBK modeling**

- Increased reliance on both stored releases and unstored flow
- Aggressive use of stored water inconsistent with SWP policy

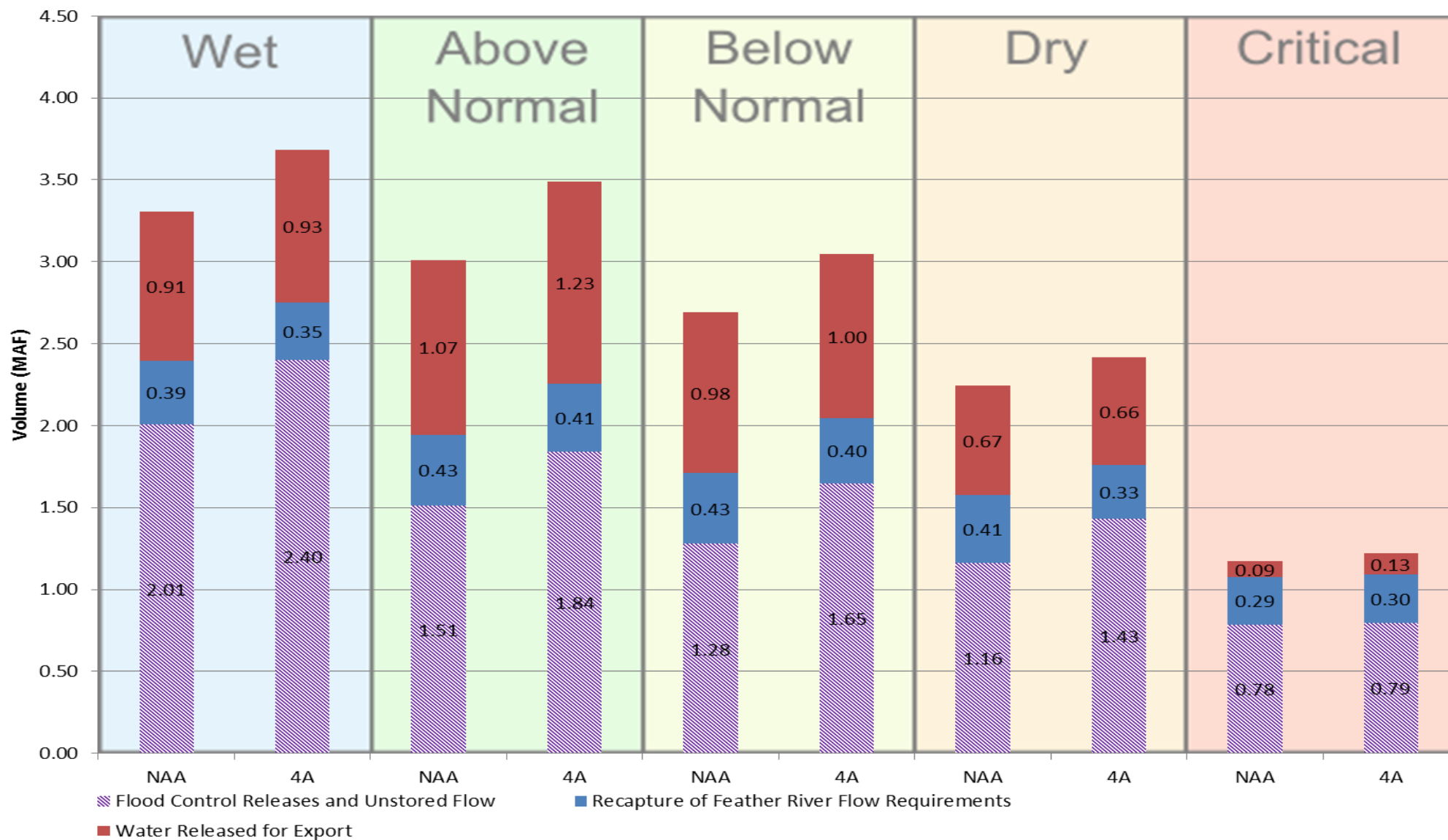


## Primary Sources of Water for SWP Exports (DWR Modeling for Petition)





## Primary Sources of Water for SWP Exports (MBK Modeling)



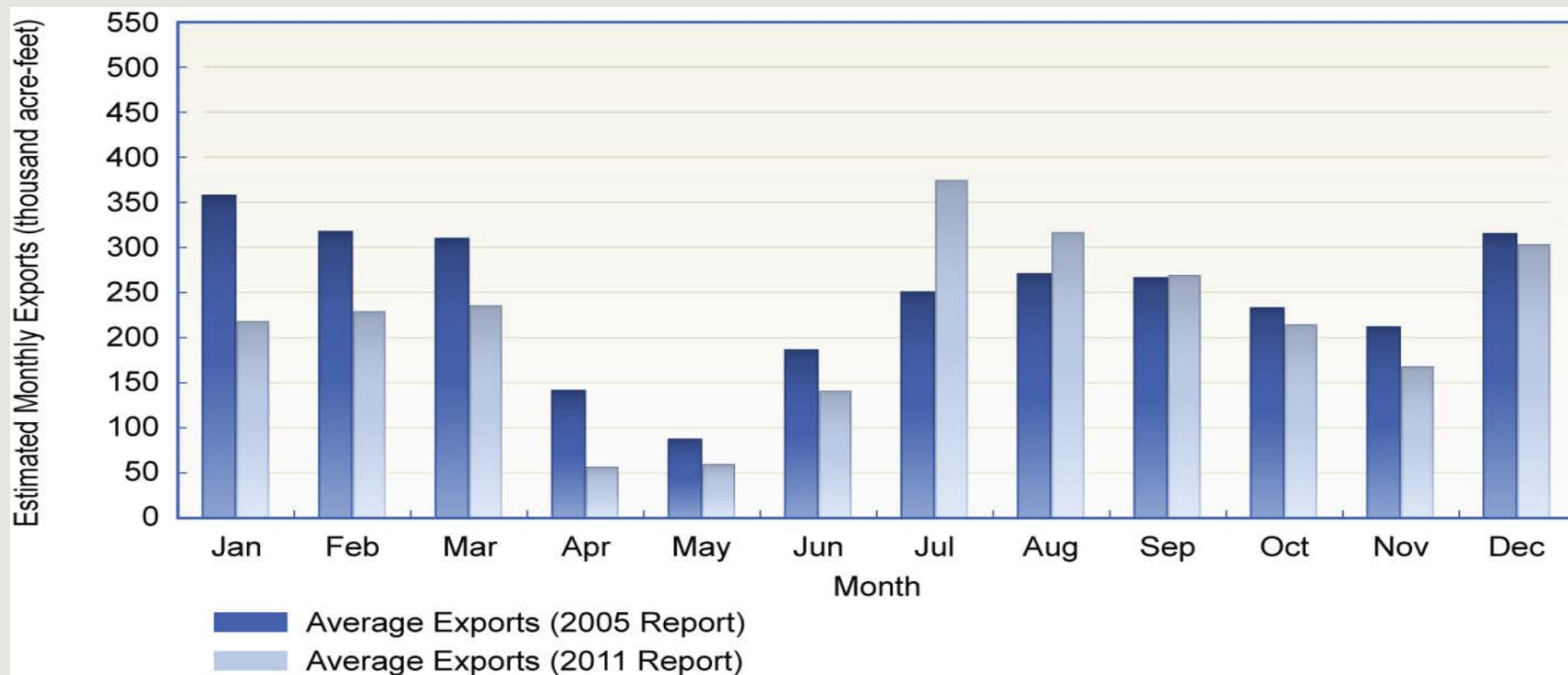


## INCREASED OPPORTUNITIES TO CAPTURE EXCESS FLOWS AS A SUBSTITUTE FOR STORED WATER WITH CWF

- **Pre-BiOps (prior to 2008)**
  - Ability to capture some spring runoff events for beneficial uses
- **Post-BiOps (2008 to present)**
  - Exports during the spring severely limited by OMR restrictions
- **CWF will return some pre-existing ability to export excess flows**



## AVERAGE MONTHLY SWP EXPORTS (PRE AND POST BIOPS)



Source: [http://baydeltaoffice.water.ca.gov/swpreliability/FINAL\\_2011\\_DRR.pdf](http://baydeltaoffice.water.ca.gov/swpreliability/FINAL_2011_DRR.pdf)



## DIFFICULTIES IN MEETING STANDARDS IN SOME YEARS

- **TUCPs are rare and are only implemented under extreme conditions**
- **Last years 2013 to 2015 were extreme:**
  - 2013: lowest precipitation on record
  - 2014: warmest on record
  - 2015: the lowest snow pack on record
  - TUCPs were one of several emergency management actions taken to balance shortages among beneficial uses





# INCREASED EFFICIENCY OF DELTA FLOW REGIME WITH CWF

- **Cross Delta Flow**
  - Required to meet D1641 water quality standards in central and south Delta
- **Negative OMR Flow**
  - Required to meet D1641 water quality standards at CCWD and other M&I locations
- **Negative Western Delta Flow**
  - Source of salinity intrusion for the central Delta
  - Caused by heavy south Delta pumping
  - Countered with increased Delta outflow



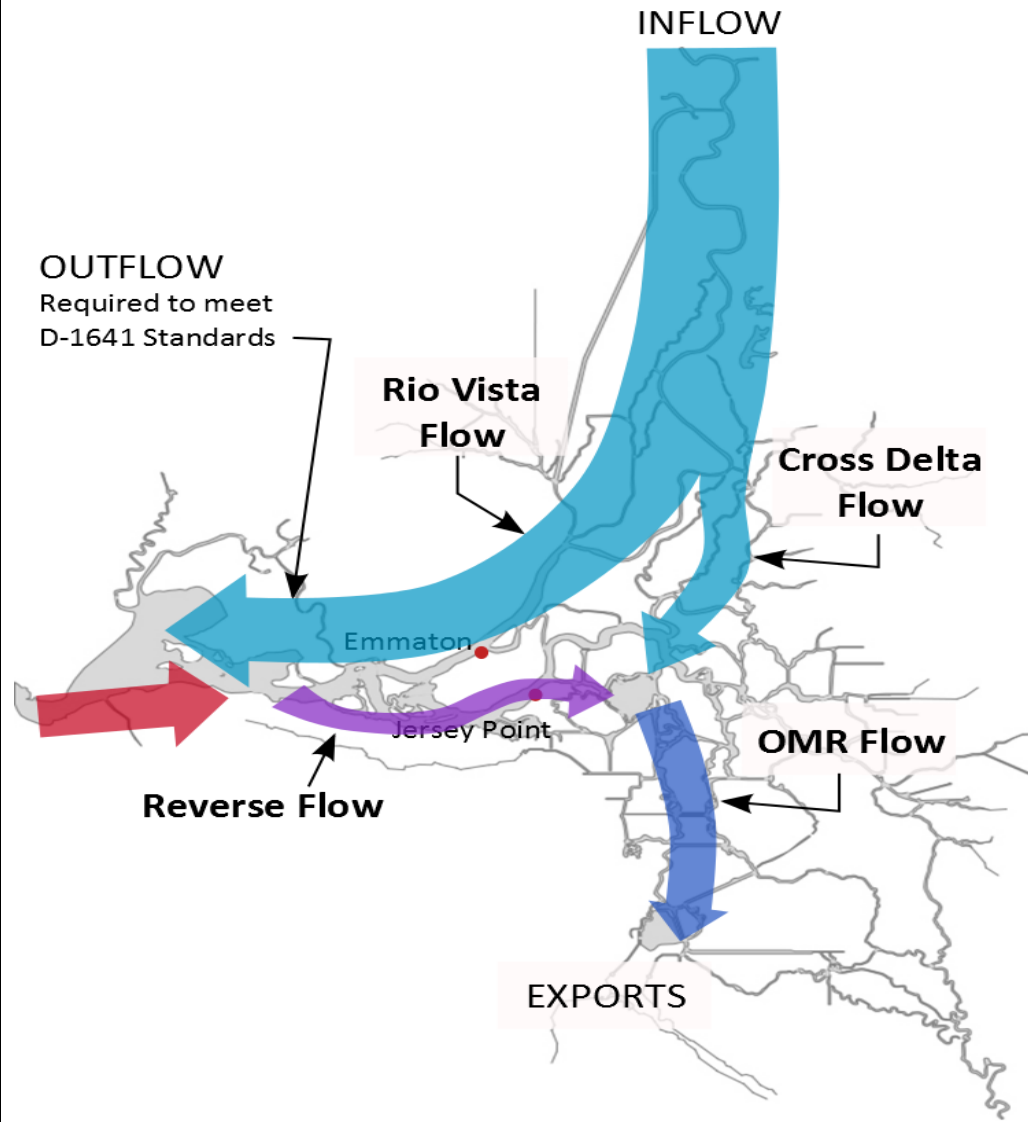
# INCREASED EFFICIENCY OF DELTA FLOW REGIME WITH CWF

- **Operations with CWF**
  - Require continued export out of south Delta to maintain interior water quality
  - Allow for higher export rates without increasing reverse flows in western Delta
  - Allow capture of storm events
- **The core hydrodynamics in the Delta will not change**

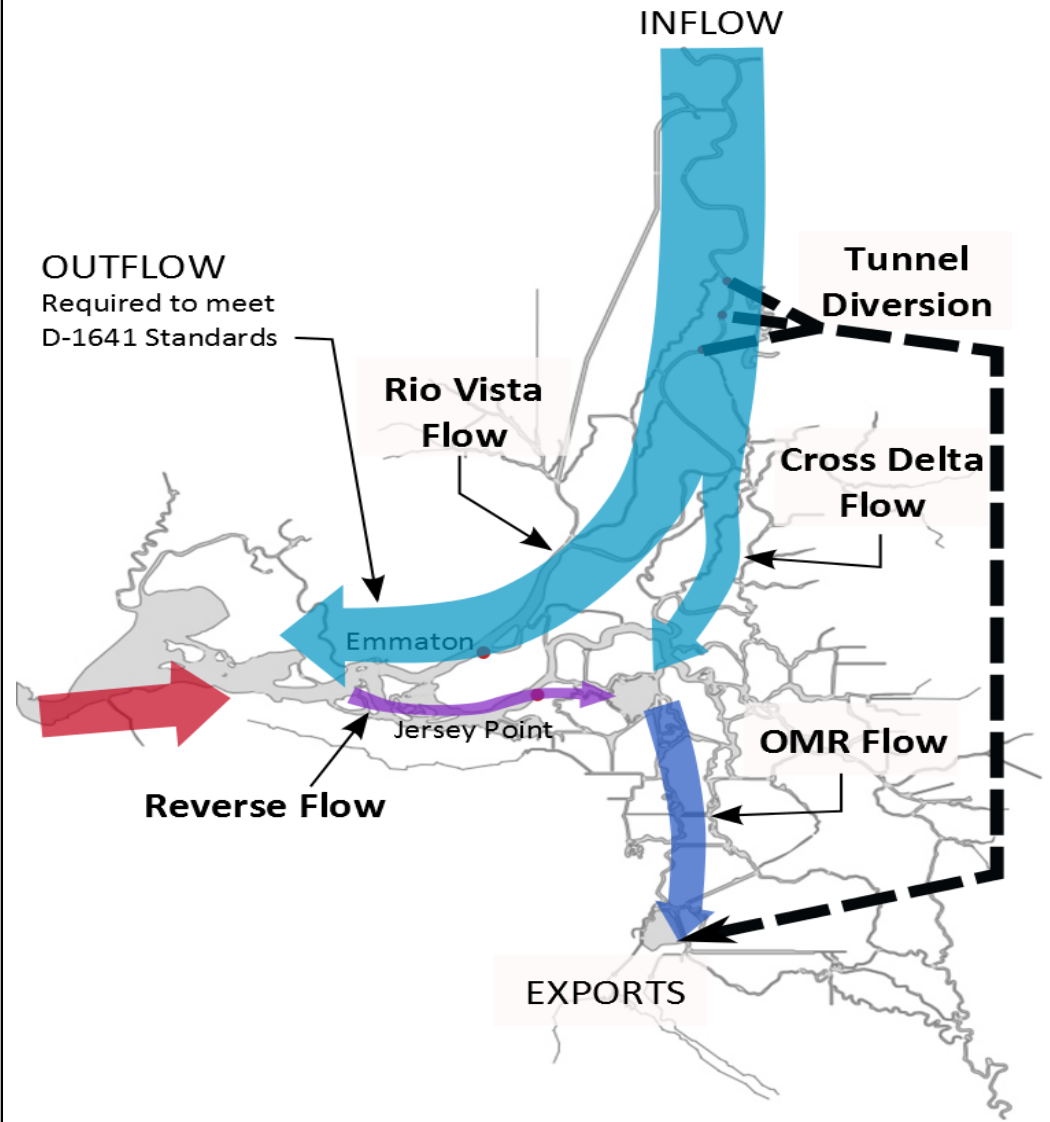


# DELTA HYDRODYNAMICS

## Without CWF



## With CWF





## TERM 91 NOT EXPECTED TO CHANGE WITH CWF OPERATION

- **Term 91 is a condition determined by SWRCB where:**
  - In-basin uses and Delta water quality are exceeding the available natural flows and must be supplemented by project storage



## TERM 91 NOT EXPECTED TO CHANGE WITH CWF OPERATION

- **In-basin use is not expected to change with the CWF**
- **Changes in Delta requirements are expected to limit project diversion out of the south Delta**
- **The frequency of Term 91 is not expected to change**