

WIIN Act Section 4003 – Storm flexibilities in Old and Middle River Flow Management
NMFS -- August 3, 2018 -- **DRAFT**

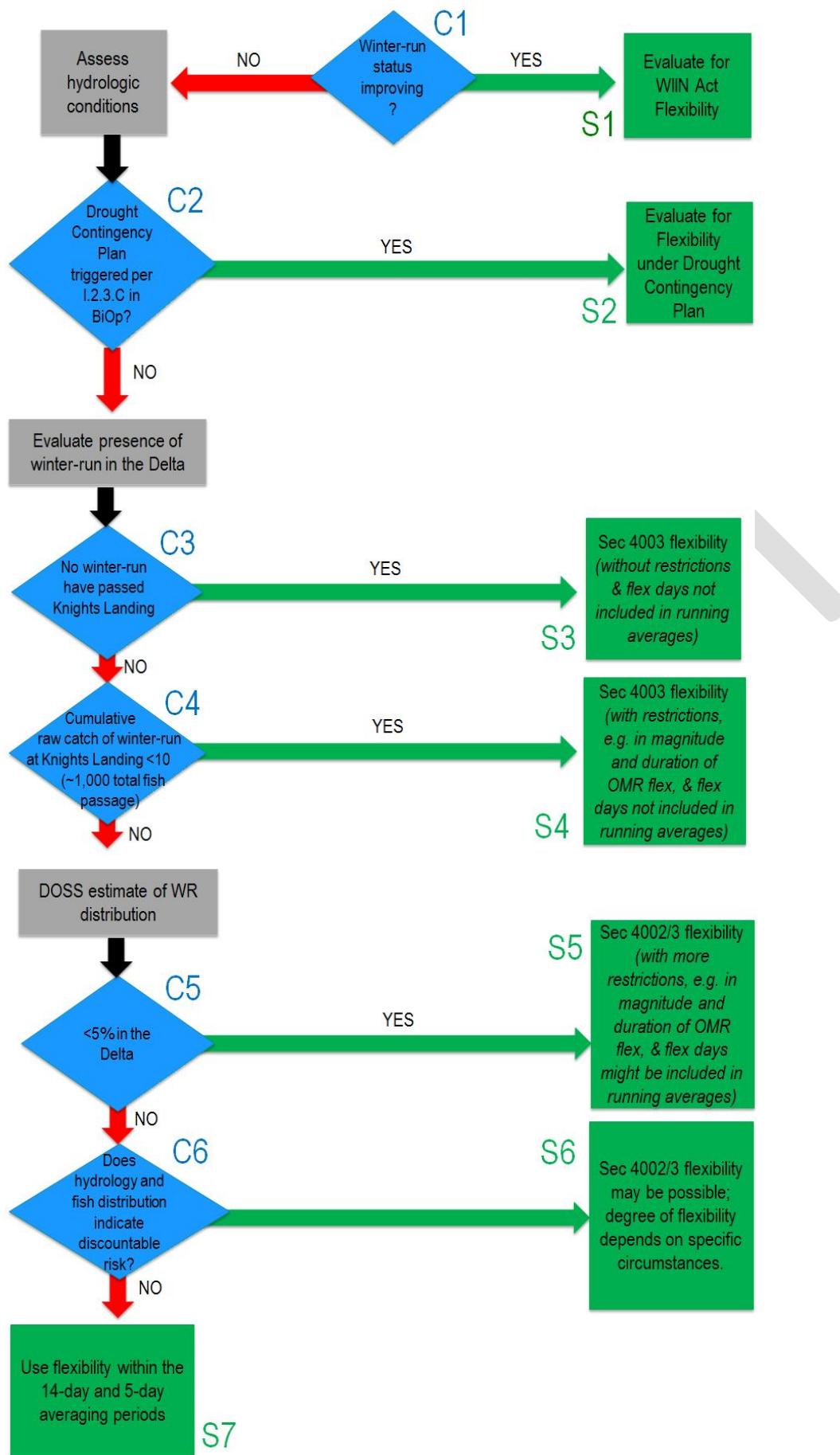
Section 4003 of the WIIN Act directs the Secretary of the Interior and the Secretary of Commerce to manage Old and Middle River (OMR) flows “to maximize water supplies for the Central Valley Project and the State Water Project, unless that management of reverse flow in Old and Middle Rivers to maximize water supplies would cause additional adverse effects on the listed fish species beyond the range of effects anticipated to occur to the listed fish species for the duration of the applicable biological opinion, or would be inconsistent with applicable State law requirements...”

Ideas for OMR management and risk assessment during storms under Section 4003 of the WIIN Act

Summarized below are two examples of a decision tree approach (from October 2017 and January 2018) and a more recent example based on a minimization measure approach (from March 2018).

1) Decision Tree #1 (example from November 2017)

See draft flow chart for evaluating Section 4003 WIIN Act flexibility on the next page.



2) Decision Tree #2 (example from January 2018)

When an eligible storm event is identified between January 1 and June 15, 2018 NMFS will conduct a stepwise evaluation of the criteria below to determine whether there is an opportunity to exercise WIIN Act Section 4003 flexibility for an eligible storm.

1. Evaluate presence of winter-run in the Delta: No winter-run have passed Knights Landing.
 - If true-> Section 4003 flexibility could be considered with flex days not included in the running averages.
 - If false-> Evaluate Criteria 2.
2. Evaluate salmonid¹ entrainment at the fish facilities and monitoring data in the South Delta: No salmonids observed at either fish facility or in South Delta monitoring catches in the past two weeks (or only clipped and coded wire tagged salmonids that originated from the San Joaquin River).
 - If true-> Section 4003 flexibility with restrictions² on the magnitude (no more negative than -6,250 cfs), duration (three days with current monitoring, four days with augmented monitoring), and frequency (one OMR flex event per 14 days) of OMR flex, and flex days might need to be included in the running averages. If salmonids are detected in the south Delta or salvage during the WIIN Act flex, then within 24 hours, Project operations shall be adjusted to offset the implemented flex.
 - If false-> No WIIN Act flexibility

3) Minimization measures approach (example from March 2018)

NMFS offered the following measures to minimize the potential effects to listed species during the proposed WIIN Act section 4003 flex in March 2018:

1. Preferential pumping through the CVP

Current (March 20, 2018) and potential exports utilizing preferential pumping through the CVP.

¹ “Salmonid” refers to any salmon or steelhead, except for San Joaquin River origin Chinook salmon that are adipose fin clipped, coded wire tagged, and released pursuant to the San Joaquin River Restoration Program.

² The magnitude, duration, and frequency are defined to meet the WIIN Act goal of maximizing water supply while also satisfying the WIIN Act requirement that no action should result in additional adverse effects to listed species beyond the range of effects anticipated to occur over the duration of the BiOp. The BiOp considered the duration of effects would be averaged over 14 days. Therefore, NMFS is considering flexibility within a 14-day average period as being consistent with our BiOp and with the WIIN Act provision.

Facility	Current Combined Exports (at OMR of -5,000 cfs)	Potential Combined Exports (at OMR of -5,700 ³)	Preferential pumping through the CVP to CVP capacity
CVP-Jones Pumping Plant	2,700 cfs	3,400 cfs	4,200 cfs
SWP-Banks Pumping Plant	3,900 cfs	3,900 cfs	3,100 cfs

Assuming that the split of entrainment into the CVP/SWP is similar to the split of exports at the CVP/SWP, preferential pumping through the CVP would reduce the potential risk of salmonid loss at the SWP since the loss associated with a salvage fish is much higher at the SWP than at the CVP. The following is an example of a simplified loss calculation based on the salvage of a single fish at the CVP and SWP.

Facility	# fish observed (30-minute count)	Expanded salvage (to 2 hours)	Multiplication factor used for rough loss estimate	# fish lost
CVP-Tracy Fish Collection Facility	1	4	0.68	2.72
SWP-Skinner Fish Protection Facility	1	4	4.33	17.33

2. Loss-based offramp from WIIN Act Section 4003 flex

NMFS assumes that recent conditions during March are reasonably representative of conditions during the 5-day flex period. The March 2018 loss to date (3/1/18-3/19/18) of non-adipose-clipped winter-run-sized Chinook salmon is 141, or 7.4 non-adipose-clipped winter-run-sized Chinook salmon per day. To minimize the risk of increasing loss rates during a WIIN Act flex, the following offramp could be adopted:

- If cumulative non-adipose-clipped winter-run-sized Chinook salmon loss over the 5-day duration of the flex period exceeds 37 fish (5 days x 7.4 fish/day), exports will be reduced to achieve daily OMR flows no more negative than -5,000 cfs.

3. Frequency of WIIN Act section 4003 flex: Any OMR flex pursuant to the WIIN Act section 4003 will be limited to one event per 14 days. If a loss-based offramp is not met during the flex period, NMFS may consider and offer additional technical assistance to Reclamation regarding another WIIN Act section 4003 flex within the 14-day period.

4. OMR Flow Management RPA Action IV.2.3 – Loss-density triggers: All action (e.g., loss-density) triggers and associated action responses (i.e., OMR limits of -3,500 cfs or -2,500 cfs) in RPA Action IV.2.3 should remain in effect throughout the implementation of the WIIN Act section 4003 flex.

³ For simple calculation, assumption is that the change in OMR is equal to exports