DFG March 2012 BDCP EA (Ch.5)
"Red Flag" Review
Partial/Preliminary List

STURGEON

Methodological

- The logic of section 5.5.5.4 (Net Effects) is difficult to follow, and does not attempt to prioritize Plan outcomes relative the magnitude of their likely impacts on sturgeon production. The largely Best Professional Judgment discussion seems to miss rough quantification opportunities that might be derived from flow abundance-relationships, adult migration straying rates into the Yolo Bypass, and known survival and harvest rates (as they might, for example, relate to illegal harvest reduction). The conclusions in the paragraph beginning on line 29 seem essentially unsupported.

- The assessment effects seems to turn the notion of uncertainty on its head. In general, the Plan reduces winter-spring outflow, and in some regards Sacramento River Flow. There is a strong historical association between flow conditions and sturgeon production, which the EA seems to dismiss, citing a lack of understanding of the mechanisms underlying the association. This would seem to be a very risky approach from a species conservation point of view, given that the anticipated offsets to the potential flow impact are Plan attributes that address "stressors" that have not been clearly associated with variation in production (e.g. food supply).

- The EA seems to suggest that a reduction in entrainment of juvenile sturgeon at the south Delta offsets (justifies) the effects of reduction in winter-spring outflows. While the statement that "Entrainment of juvenile sturgeon at the south Delta pumping facilities, however, is considered an important stressor for this life stage." may be true, it is not considered to be a more important stressor on sturgeon than reduced winter-spring outflow. Entrainment of juvenile white sturgeon at the south Delta pumping facilities is not a significant stressor, when compared to the loss of winter-spring outflow. Although entrainment of green sturgeon is a somewhat different matter, reducing it in exchange for reducing winter-spring outflow is still not preferred.

- There is a general tendency section 5.5.5.1 (Beneficial Effects) to overstate Plan benefits. An example, can be found in the sentence beginning at line 8 on page 5.5-114, which concludes that Plan-related changes in DCC operations will reduce entrainment and improve the ability of adult sturgeon to cue in on Sacramento River flows. These conclusions seem to ignore that adult sturgeon

are rarely entrained, and that overall the Plan substantially reduces lower Sacramento River flows.

SALMONIDS

Effects Analysis

- Combining all salmonids into one net effects analysis is not appropriate and "averages" out the adverse effects of individual runs. The net effects analysis needs to differentiate between Sacramento and San Joaquin river salmonids; salmon and steelhead; and individual runs of salmon (i.e. winter-run, spring-run, fall and late fall-run).

- Analysis of the reduction in Sutter Bypass floodplain acreage has not been added to the effects analysis, this issue has been raised previously and not addressed. Data shows that there will be a significant reduction in lower Sutter Bypass floodplain habitat based on the preliminary project due to lowering the river stage at Verona, which will lead to a direct reduction in Butte Creek spring-run rearing habitat (and splittail).

- The rationale for the degree of certainty seems unfounded for some of the stressors (e.g. transport flows, flow regulation, and flow-associated habitat (5.5-55-59)). The tables show a high degree of uncertainty regarding the effects of flow on salmon on the basis that there is no quantitative analysis or little applicable literature, which is unjustified.

- Table 5.5-16 is contradictory to the statements made at spring-run egg mortality and winter-run redd dewatering.

Implementation

- The decision on phasing of proposed North Delta Diversions (NDD) intakes needs to be determined. From a fishery management perspective it would be best to build some (e.g., two) of the intakes and operate them prior to building the rest. This phasing approach would allow us to learn and potentially correct any unforeseen issues.

- The timeline to complete the required environmental documentation and permitting for Conservation Measure 2 is not acceptable. It will most likely take three to five years to finish compliance and two years to acquire the necessary permits.

Upstream

- The preliminary proposal shows a reduction in the cold water pool storage that is unacceptable and needs to be addressed.

- Winter-run redd dewatering and lower weighted usable spawning habitat in the Sacramento River under the preliminary proposal is not acceptable. This would lead to a significant decline in the population (as estimated by the JPE).

- Spring-run egg mortality in the mainstem of the Sacramento River is near 100 percent during dry and critical dry years. This type of egg mortality could lead to the extirpation of spring-run Chinook salmon from the mainstem of the Sacramento River during one drought cycle.

North Delta Flow

- Reduction in flows below proposed NDD could have significant impacts on the transport flows for juvenile fish species and the upstream migration cues of adults.

- The net effects analysis shows that there would be reverse flows in the Sacramento River below the proposed NDD (5.3-4, line 10-13), this is not acceptable.

Entrainment Issues

- Increasing entrainment in the south delta compared to EBC in dry and critical years is not acceptable. Due to the lack of discussion on this issue, it leads the reader to believe that there will be more water export then existing conditions under the preliminary proposal.

SMELT(S)

Partial/Preliminary Comments (Delta Smelt, Section 5.5.1)

Methodological

- The paragraph beginning at the bottom of page 5.5-24 (and at other locations in Section 5.5.1) notes that there is no change anticipated in Fall abiotic habitat when comparing the PP with EBC1 (existing condition, sans the Fall X2 RPA action). This may be a problematic PP outcome in the context of a NCCP. Reasonable arguments have been made that recent changes in Delta water management have substantially degraded Fall abiotic habitat conditions, particularly in Falls following Above Normal and Wet water years (roughly half

of all years, historically), contributing to the POD condition for delta smelt. This suggests that the "no change" outcome produced by the PP would make it difficult to demonstrate a PP contribution to species recovery.

- The paragraph beginning at line 16 on page 5.5-17 introduces the approach of examining Plan Fall abiotic habitat effects based on Feyrer et al. (2011). The text then goes on to identify several "concerns" DWR and applicants have regarding the approach. This expression of concern is reasonably presented, other than the fact that the similar concerns of other parties regarding the investigations critical of Feyrer et al. are not presented. The overarching "red flag" here is that the key technical concerns surrounding this aspect of the effects analysis are not be addressed in a systematic way, other than through non-collaborative production of "combat science." This approach is not effectively reducing uncertainty about Plan outcomes, and places a particular burden on permitting agencies who will have no choice but to assess the uncertainties and conservatively mold the permits around their perception of uncertainty.

Plan Concerns

- As Figure 5.5-1 clearly shows, the role up for delta smelt is about balancing the uncertain benefits of food , predation, and tidal habitat benefits against the uncertain negative effects of Fall abiotic habitat degradation. This is not a very comfortable assessment for such a key species. Some improvement of the Fall habitat situation would go a long way towards improving the permitability of the project.

- Table 5.5-4 (and other similar tables) shows essentially no existing habitat in the southern Delta. This is counter-intuitive, given that the same southern Delta had lots of smelt in it in the early 1970s. This is part of a general problem that the southern Delta may be getting short shrift in considering potential restoration potential.

Longfin smelt

- population effect of reduced winter-spring outflow identified in the effects analysis
- On line 11 of page 5.5-48 the text raises the notion of "bottlenecks" between lifestages. The examination of existing data does not suggest the existence of such a population dynamics effect. Age 2 fish appear to be suffering the greatest effects of food limitation, but it is still the case that there is roughly a linear stock-recruitment relationship between the two age classes. It should not be assumed that benefits to one lifestage will not be realized in subsequent stages.

- The conclusion of "no net effect" with "low certainty" found at line 4 on page 5.5-50 does not quite capture the essence of the accompanying analysis. Although the statement is not entirely unreasonable, it does not capture the notion of species RISK when an easily foreseeable negative outcome is matched against a pretty speculative benefit. Whereas it may suffice in the EA to have a best guess as to the net effect of the project, I think the NCCP will have to grapple with the downside risk of a likely flow impact, which is to be offset by reasonable, but highly uncertain speculation about food supply improvements.

- Section 5.5.2 devotes considerable space to discussing the expansion of subtidal ("suitable") habitat and its potential benefitis. Given the severe decline in species abundance it seems highly unlikely that expanding the amount of this very general habitat type will benefit the species. To be fair, the characterizes this attribute as only a slightly positive benefit.

TERRESTRIAL

Swainson's Hawk

- The conservation strategy for Swainson's hawk might be inadequate. The current approach attempts to identify an acreage target for protection that would mitigate "habitat suitability units" at a 1:1 ratio. There are inconsistencies in the assumptions used to identify impacts and the assumptions used in developing acreage targets for protection. The strategy lacks any geographic commitment to protect lands that are located in high use areas and that are not susceptible to the effects of sea level rise. Because of this a potential outcome of implementation could be the protection of lands that currently have little use by Swainson's hawk and lands that are in the deeply subsided portion of the Delta (e.g. see assumptions on land acquisition used in determining funding).

Greater Sandhill Crane

- Since the last draft reviewed by the Agencies the Sandhill Crane strategy has had a large reduction in the portion of conservation to be "very high" value (reduced from 80% to 30%).