

## COMMENT LETTER

## RESPONSES

23

- 166 | Page 3.5-16, 3.5.3.2.1  
paragraph 1: What is the significance of elevation 1205?
- 167 | Page 3.5-18, Table 3.5-5  
This table should be placed closer to the beginning of this section for ease of understanding the dynamics of the reservoir.
- 168 | Page 3.5-22, 3.5.3.3.1.2  
New riparian development at the mouths of tributaries will use more water than at present, thus potentially reducing inflows even further. Water quality under this scenario may not improve as stated in the text.
- 169 | Page 3.5-22, 3.5.3.3.2  
This section is extremely important to the later discussions of effects to important resources and should be more fully explained and used in those discussions.
- Riverflow Issues*
- 170 | This section needs to address more fully the effects to water surface and groundwater elevations below Hoover, Davis and Parker Dams that result from the interim surplus criteria combined with the water transfers from the 4.4 Plan. This lack of discussion does not allow for a full evaluation of the effects.
- 171 | Page 3.6-4, Table 3.6-1  
At least for the 2000-2015 period, it might be instructive to break the time period into 5 year increments to examine when the changes to probabilities do occur. If the largest drop is within a certain segment, then there may be greater potential for adverse effects to the beach building and maintenance program than may appear from the table data.
- 172 | Page 3.6-6, Table 3.6-2  
Please explain more fully the results posted in this table. What causes the decreased probability for the liberal alternatives? Is this the result of less equalization flow needs? Why is this table based on water year, not end of year data and does that have an effect on the results?
- 173 | Page 3.6-6, 3.6.4.1  
Flooding in the river below Hoover Dam include more than only high damaging flows. Any amount of flow over the minimum needed to meet downstream needs has an effect on the physical and biological character of the river ecosystem. Some of these effects are beneficial, some are not, but the changes to all flows that result from this project deserve equal consideration. This section needs to be revised to reflect that.
- 174 | paragraph 2: This is the first mention of the Colorado River Floodway Protection Act and its requirements for maintaining certain floodway levels. This should be more fully explored in light of the reduction in flows foreseen under the proposed project.

166: Elevation 1,205 feet msl is the Hoover Dam spillway crest as identified in Table 3.5-3.

167: Comment noted. The table is located in the appropriate section.

168: Discussion in referenced paragraph has been revised to incorporate this information.

169: Note that additional information has been included in Section 3.5.3 and Reclamation believes that the information presented in the FEIS appropriately identifies the potential water quality effects of interim surplus criteria. Potential effects to important resources are also presented appropriately in other sections of the FEIS.

170: Section 3.6.4 presents analysis of the potential for high flows (based on defined flow thresholds) below Hoover Dam with reference to the potential for causing flood damage, and is not intended to describe the general effects of river flows on resources within the river corridor. As discussed previously, Section 3.8 of the FEIS has incorporated summary information from the BA for interim surplus criteria regarding potential effects from changes in flows on special-status species and their habitat between Hoover Dam and the SIB. Reclamation is also consulting with your agency on the effects of approving the water transfers proposed by California's Plan.

171: A plot of annual BHBf probabilities has been added to Section 3.6.2.

172: The decreased probability of 8.23 maf release years for the "liberal" alternatives is a result of their increased probability of surplus, which results in releases from Glen Canyon Dam in excess of 8.23 maf. Table 3.6.2 is based on water year because the commitment for low steady summer flow releases is governed by annual release volumes from Glen Canyon Dam, which are accounted for by water year under the provisions of the LROC. This has been noted in Section 3.6.2.

173: See response to Comment 57-170.

174: The Colorado River Floodway Protection Act addresses flooding from 40,000 cfs flow events or 1-in-100 year flow events (if greater than 40,000 cfs). It does not address smaller or more frequent events. Table 3.6-4 in the FEIS, Discharge Probabilities from Hoover, Davis and Parker Dam, shows the probabilities of various flow events, including 40,000 cfs, under each alternative.

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24

- 175 Page 3.6-7, 3.6.4.1.4  
High groundwater in the Yuma area is the result of what level of flows? Please relate how this groundwater problem relates to normal and higher than normal flows. A discussion of how this will change over time would be appropriate.
- 176 Page 3.6-8, 3.6.4.2  
In Table 3.6-3, is the figure for the Six States under Hoover Dam releases of 19,000 correct? It is lower than all the others in that line, which is different than for the other release levels.
- 177 This table, and the accompanying text, would be more valuable if it looked at flows that were below the damaging levels of the Hoover releases. It also would be more helpful if the data here were integrated with the probabilities of Mexico getting any surplus water in those years.
- Aquatic Resources*
- 178 Page 3.7-1, 3.7-1  
This section is somewhat confusing. Is it to deal strictly with non-native/sport fish concerns or is it to also address native fish? Tighter organization and focus would help this section, as would reference to some of the studies on fluctuating reservoirs that have been done that discuss effects to fish and fish habitat.
- 179 Page 3.7-1, 3.7.2.2.1  
Please place the discussion about the structure of Lake Powell in the previous section where similar attributes of Lake Mead were discussed.
- 180 Page 3.7-4, 3.7.2.2.2  
There are no bonytail in Lake Mead. The discussion in paragraph 2 is not relevant to Lake Mead and should be deleted. Please bring this section into the same format as the one for Lake Powell.
- 181 Page 3.7-4, 3.7.2.2.3  
The effects of fluctuating reservoir levels on fish populations has been widely researched. Centrarchids are affected by it, especially declines during the spawning season. Any effect to striped bass reproduction may be felt by the changes in relation of spawning areas to the length of time eggs need to float to appropriate areas. The arguments in this paragraph need supporting data to be provided.
- 182 cont'd below  
Page 3.7-5, 3.7.2.3  
The analysis of effects to fish populations in the reservoirs needs to focus on the changes to physical habitats from the increase in fluctuations, the timing of fluctuations, underwater topography to assess shallow habitats at varying elevations and other factors. The effects to such things as thermal refuges for threadfin shad is also critical to the sport fishery. It is also

175: Threshold flows are shown in the two bullets included in Section 3.6.4.1.4. Section 3.3.4.5 and Attachment N of the DEIS provide additional comparison of river flows below Hoover Dam.

176: Values in Table 3.6-4 (Table 3.6-3 in the DEIS) have been revised based on modeling performed for the FEIS.

177: Comment noted. This section is intended to address the potential for damaging flows, as discussed in the response to Comment 57-170. Developing a correlation between probabilities of damaging flows and surplus water delivery to Mexico is beyond the needs for evaluating potential effects on resources.

178: Section 3.7 addresses potential effects of interim surplus criteria on lake habitat in Lake Powell and Lake Mead for both native and non-native species, and also addresses potential effects on sport fisheries within and between the two reservoirs. Section 3.8.2.3.3 discusses potential effects on special-status fish species.

179: Discussion of Lake Powell habitat is located appropriately within the document.

180: Revisions have been made to Section 3.7.2.2.2 of the FEIS to discuss that razorback sucker is the only native species with a remnant population in Lake Mead.

181: Section 3.7.2.2.3 discusses the effects of fluctuating reservoir elevations on fish populations, and additional information has been included in the FEIS. It should be noted that although it is recognized that fluctuating water levels can affect fisheries, the alternatives under consideration are expected to result in fluctuations similar to baseline conditions. Historical conditions within Lake Powell and Lake Mead have resulted in those lakes being considered extremely popular striped bass fisheries that also support populations of largemouth bass, smallmouth bass, crappie, catfish, and carp. Both lakes have shown unprecedented natural reproduction and survival of striped bass.

182: The analysis in the EIS is presented to compare the potential effects under the alternatives with those under baseline conditions. Revisions have been made to Section 3.7.3.3.1 to clarify the discussion. It should be noted that modeling indicates that although some alternatives would have increased probabilities for lower reservoir elevations, fluctuations under the alternatives and baseline conditions would be similar. It is acknowledged that management practices being developed for native species indicate a recruitment window may exist if water levels are very low and then rise suddenly. Study of these management strategies is currently underway and will continue. Information on current management strategies can be found in the BA prepared for interim surplus criteria and Secretarial implementation agreements.