

UNITED STATES DISTRICT COURT  
 EASTERN DISTRICT OF CALIFORNIA

Pacific Coast Federation of  
 Fishermen's Associations,  
 Institute for Fisheries  
 Resources, et al.,

Plaintiffs,

v.

Carlos M. Gutierrez, in his  
 official capacity as  
 Secretary of Commerce, et  
 al.,

Defendants,

San Luis & Delta-Mendota  
 Water Authority, et al.,

Defendant-Intervenors.

1:06-CV-00245 OWW GSA

FINDINGS OF FACT AND  
 CONCLUSIONS OF LAW RE THE  
 EXISTENCE OF IRREPARABLE HARM  
 DURING THE INTERIM PERIOD AND  
 DENYING PLAINTIFFS' REQUESTS  
 FOR EMERGENCY INTERIM  
 REMEDIES REGARDING FLOWS ON  
 CLEAR CREEK AND GATE  
 OPERATIONS AT RED BLUFF  
 DIVERSION DAM

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1 **I. INTRODUCTION**

2 A memorandum decision and order, issued April 16, 2008 as  
3 amended May 20, 2008, granted in part and denied in part  
4 Plaintiffs' Endangered Species Act ("ESA") challenges to the  
5 2004 biological opinion ("BiOp") issued by the National Marine  
6 Fisheries Service ("NMFS") on the effects of coordinated  
7 operation of two of California's largest water projects, the  
8 federal Central Valley Project ("CVP") and the State Water  
9 Project ("SWP"), on the endangered Sacramento River winter-run  
10 Chinook salmon, the threatened Central Valley spring-run Chinook  
11 salmon, and the threatened Central Valley steelhead. (See Doc.  
12 256.)

13 Plaintiffs move for injunctive relief. The parties  
14 submitted briefs and evidence on whether the species' would be  
15 placed in jeopardy or their critical habitat threatened with  
16 adverse modification or destruction until such time as the new  
17 BiOp is released. (See Doc. 233, filed Apr. 29, 2008.) While  
18 the proceedings were in progress, Plaintiffs moved for emergency  
19 injunctive relief, suggesting the immediate implementation of a  
20 number of interim remedies was necessary to prevent jeopardy.  
21 Plaintiffs identified four remedies for immediate  
22 implementation, and seven additional remedies for implementation  
23 pending the March 2009 completion of the new BiOp. (Doc. 280,  
24 filed May 27, 2008.) An evidentiary hearing commenced June 6,  
25 2008 and concluded July 3, 2008. The hearing focused on the  
26 status of the species, whether Project operations would result  
27 in jeopardy before the new BiOp is issued, and on the four  
28 "immediate" remedies.

1 On June 20, 2008, after eight full days of testimony,  
2 Plaintiffs requested the court expedite decision on emergency  
3 injunctive relief to: (1) increase flows on Clear Creek for the  
4 benefit of those spring-run that spawn there; and (2) raise the  
5 gates at Red Bluff Diversion Dam ("RBDD") through July 15,  
6 2008.<sup>1</sup> (6/20 Tr. 74:4-77:11.)<sup>2</sup> Plaintiffs were concerned that  
7 ongoing adult Chinook migrations, if completed, would diminish  
8 the potential value of any relief. The request was granted, and  
9 focused, supplemental expert testimony and documentary evidence  
10 was received.

11 Comprehensive testimony on the status of the species and  
12 the impacts of Project operations on the three species has been  
13 received from three expert fisheries biologists, Bruce  
14 Oppenheim, employed by NMFS, Dr. Christina Swanson of the Bay  
15 Institute, and Dr. Charles Hanson. Ronald Milligan, the  
16 Bureau's Operations Manager of the CVP, and John Leahigh, Chief  
17 of the Project Operations Planning Branch for the SWP, both of  
18 whom are qualified experts in water project operations  
19 testified. Michael Urkov testified for Defendant-Intervenor  
20 Tehama Colusa Canal Authority, *et al.*, ("TCCA"), and qualified  
21

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22 <sup>1</sup> Plaintiffs do not suggest that the gates should  
23 necessarily be closed again after July 15, 2008. They have  
24 withdrawn their initial request that the gates be opened and  
25 closed in alternating weeks in August. (Doc. 280 at 27.) Their  
26 latest proposal is to keep the gates open for the later part of  
the summer, commencing in August, to protect down-migrating  
juveniles. (6/27 Tr. 104:20-25.)

27 <sup>2</sup> All transcript references are to rough drafts. Final  
28 drafts, which were not available as of the issuance of these  
findings, may change pagination slightly.

1 as an expert regarding fish passage and operations at RBDD.  
2 After considering the testimony of the witnesses, the exhibits  
3 received in evidence, the written briefs of the parties, and  
4 oral arguments, the following findings of fact and conclusions  
5 of are entered.

6 To the extent any finding of fact may be interpreted as a  
7 conclusion of law or any conclusion of law may be interpreted as  
8 a finding of fact, it is so intended.

9 **II. CONCLUSIONS OF LAW**

10 **A. Jurisdiction.**

11 1. Jurisdiction exists under 28 U.S.C. § 1331 (Federal  
12 Question), as this case arises under the ESA, 16 U.S.C. § 1536  
13 *et seq.*, and the Administrative Procedure Act ("APA"), 5 U.S.C.  
14 § 702 *et seq.*

15 2. Defendant-intervenors San Luis & Delta-Mendota Water  
16 Authority, Westlands Water District, State Water Contractors,  
17 and Glenn-Colusa Irrigation District, *et al.*, have voluntarily  
18 submitted themselves to the district court's jurisdiction by  
19 intervening and fully participating in this litigation.  
20 Defendant-Intervenors Department of Water Resources ("DWR") and  
21 TCCA expressly submitted to the Court's jurisdiction as a  
22 condition of their intervention in these interim remedy  
23 proceedings. (Docs. 247 & 248, filed May 15, 2008.) TCCA  
24 agreed to limit their participation to non-duplicative and non-  
25 cumulative issues that are unique to RBDD and TCCA.

26 **B. Agencies' General Obligations Under the ESA.**

27 3. ESA Section 7(a)(2) prohibits agency action that is  
28 "likely to jeopardize the continued existence" of any endangered

1 or threatened species or "result in the destruction or adverse  
2 modification" of its critical habitat. 16 U.S.C. § 1536(a)(2).

3 4. To "jeopardize the continued existence of" means "to  
4 engage in an action that reasonably would be expected, directly  
5 or indirectly, to reduce appreciably the likelihood of both the  
6 survival and recovery of a listed species in the wild by  
7 reducing the reproduction, numbers, or distribution of that  
8 species." 50 C.F.R. § 402.02; see also *Nat'l Wildlife Fed'n v.*  
9 *U.S. Fish & Wildlife Serv.*, 524 F.3d 917 (9th Cir. 2008) ("*NWF v.*  
10 *NMFS II*") (rejecting agency interpretation of 50 C.F.R. § 402.02  
11 that in effect limited jeopardy analysis to survival and did not  
12 realistically evaluate recovery, thereby avoiding an  
13 interpretation that reads the provision "and recovery" entirely  
14 out of the text). An action is "jeopardizing" if it keeps  
15 recovery "far out of reach," even if the species is able to  
16 cling to survival. *Id.* at 931.

17 5. "[A]n agency may not take action that will tip a  
18 species from a state of precarious survival into a state of  
19 likely extinction. Likewise, even where baseline conditions  
20 already jeopardize a species, an agency may not take action that  
21 deepens the jeopardy by causing additional harm." *Id.* at 930.

22 6. The Supreme Court summarizes the operation of ESA  
23 Section 7:

24 Section 7 of the ESA prescribes the steps that federal  
25 agencies must take to ensure that their actions do not  
26 jeopardize endangered wildlife and flora. Section  
27 7(a)(2) provides that "[e]ach Federal agency shall, in  
28 consultation with and with the assistance of the  
Secretary [of Commerce or the Interior], insure that  
any action authorized, funded, or carried out by such  
agency (hereinafter in this section referred to as an  
'agency action') is not likely to jeopardize the

1 continued existence of any endangered species or  
2 threatened species." 16 U.S.C. § 1536(a) (2).

3 Once the consultation process contemplated by §  
4 7(a)(2) has been completed, the Secretary is required  
5 to give the agency a written biological opinion  
6 "setting forth the Secretary's opinion, and a summary  
7 of the information on which the opinion is based,  
8 detailing how the agency action affects the species or  
9 its critical habitat." § 1536(b) (3) (A); see also 50  
10 CFR § 402.14(h). If the Secretary concludes that the  
11 agency action would place the listed species in  
12 jeopardy or adversely modify its critical habitat,  
13 "the Secretary shall suggest those reasonable and  
14 prudent alternatives which he believes would not  
15 violate [§ 7(a) (2)] and can be taken by the Federal  
16 agency...in implementing the agency action." 16 U.S.C.  
17 § 1536(b) (3) (A); see also 50 CFR § 402.14(h) (3).  
18 Regulations promulgated jointly by the Secretaries of  
19 Commerce and the Interior provide that, in order to  
20 qualify as a "reasonable and prudent alternative," an  
21 alternative course of action must be able to be  
22 implemented in a way "consistent with the scope of the  
23 Federal agency's legal authority and jurisdiction." §  
24 402.02. Following the issuance of a "jeopardy"  
25 opinion, the agency must either terminate the action,  
26 implement the proposed alternative, or seek an  
27 exemption from the Cabinet-level Endangered Species  
28 Committee pursuant to 16 U.S.C. § 1536(e).

16 *Nat'l Ass'n of Home Builders v. Defenders of Wildlife*, 127 S.  
17 Ct. 2518, 2526 (2008).

18 7. In making determinations under the ESA, agencies must  
19 "use the best scientific and commercial data available." 16  
20 U.S.C. § 1536(a) (2).

21 **C. ESA § 7(a) Only Applies to Actions that Fall Within a**  
22 **Federal Agency's Discretion.**

23 8. The Supreme Court recently upheld an NMFS/U.S. Fish  
24 and Wildlife Service ("USFWS") regulation interpreting ESA §  
25 7(a) (2) as only applying to actions "in which there is  
26 discretionary federal involvement or control." *Home Builders*,  
27 127 S. Ct. 2518 (interpreting 50 C.F.R. § 402.03). *Home*  
28 *Builders* addressed EPA's decision to transfer to the State of

1 Arizona its National Pollutant Discharge Elimination System  
2 ("NPDES") permitting power under the Clean Water Act. The *Home*  
3 *Builders* Court held that this decision was non-discretionary:

4 While the EPA may exercise some judgment in  
5 determining whether a State has demonstrated that it  
6 has the authority to carry out § 402(b)'s enumerated  
7 statutory criteria, the statute clearly does not grant  
8 it the discretion to add another entirely separate  
9 prerequisite to that list. Nothing in the text of §  
10 402(b) authorizes the EPA to consider the protection  
of threatened or endangered species as an end in  
itself when evaluating a transfer application. And to  
the extent that some of the § 402(b) criteria may  
result in environmental benefits to marine species,  
there is no dispute that Arizona has satisfied each of  
those statutory criteria.

11 *Id.* at 2536; see also *NWF v. NMFS II*, 524 F.3d 917, 927-28 (9th  
12 Cir. 2008) (applying *Home Builders*, holding that despite  
13 existence of broad, unquantified statutory goals in applicable  
14 Reclamation statute, Bureau still retains discretion over  
15 Project operations and those operations are still subject to the  
16 ESA).

17 9. Certain aspects of the management of the CVP/SWP are  
18 non-discretionary as that term is utilized in *Home Builders*.  
19 Most importantly, in this case, federal Reclamation law requires  
20 the Bureau to comply with non-conflicting state water law.  
21 Reclamation Act of 1902, Pub. L. 57-161, 32 Stat. 288 at § 8  
22 (June 17, 1902); Central Valley Project Improvement Act  
23 ("CVPIA") § 3406(b), Pub. L. 102-575, 106 Stat. 4600 (Oct. 30,  
24 1992). Specifically, the Bureau must comply with State Water  
25 Resources Control Board ("SWRCB") water rights and water quality  
26 decisions. See CVPIA § 3406(b) ("The Secretary...shall operate  
27 the [CVP] to meet all obligations under State and Federal law,  
28 including....all decisions of the California State Water

1 Resources Control Board establishing conditions on applicable  
2 licenses and permits for the project....").

3 10. For example, the Bureau has a mandatory (i.e., non-  
4 discretionary) legal obligation to make releases from Shasta  
5 Reservoir for delivery to the Sacramento River Settlement  
6 Contractors. Under the Sacramento River Settlement Contracts,  
7 Settlement Contractors are entitled to 100% of their contractual  
8 supply in all years except so-called "Shasta Critical Years."  
9 In Shasta Critical Years, Settlement Contractors' priority  
10 supply may be reduced by 25 percent. This mandatory obligation  
11 derives from the priority of the Settlement Contractors' water  
12 rights, which facilitated issuance of state water permits to the  
13 Bureau to operate the CVP. The CVP's water rights are subject  
14 to the Settlement Contractors' rights. See e.g., SWRCB D-990  
15 (granting water rights to the United States to operate the CVP,  
16 while also recognizing and prioritizing the protection of  
17 existing rights on the Sacramento River).<sup>3</sup>

18 11. Non-priority water service contracts for irrigation  
19 and municipal and industrial uses by north-of-Delta, in-Delta,  
20 and south-of-Delta CVP contractors are, for the purposes of *Home*  
21 *Builders*, "discretionary" and are subject to the ESA. See *NRDC*  
22 *v. Houston*, 146 F.3d 1118, 1126 (9th Cir. 1998); *O'Neill v.*  
23  
24  
25

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26 <sup>3</sup> The Sacramento-San Joaquin Exchange Contractors also  
27 hold priority water rights to CVP water. See generally *Westlands*  
28 *Water Dist. v. Firebaugh Canal*, 10 F.3d 667, 669, 675-76 (9th  
Cir. 1993).

1 *United States*, 50 F.3d 677, 686 (9th Cir. 1995).<sup>4</sup>

2 12. When Congress authorized the CVP in 1937, it stated  
3 that Project "dams and reservoirs shall be used, first, for  
4 river regulation, improvement of navigation, and flood control;  
5 second, for irrigation and domestic uses; and, third, for  
6 power." Act of Aug. 26, 1937, ch. 832, 50 Stat. 844, 850; see  
7 also *United States v. SWRCB*, 182 Cal. App. 3d 82, 135 (1986).  
8 In 1992, Congress explicitly amended this hierarchy of use by  
9 enacting sections 3406(a) and (b) of the CVPIA, which make  
10 protection of non-ESA listed fish and wildlife co-equal  
11 priorities with irrigation. The CVPIA also expressly reaffirms  
12 the Bureau's obligation to comply with the ESA in operating the  
13 CVP. See CVPIA § 3406(b) ("The Secretary...shall operate the  
14 [CVP] to meet all obligations under State and Federal law,  
15 including....the [ESA]....").

16 13. As a top priority, the Bureau must "insure that  
17 actions authorized funded or carried out by [it] do not  
18 jeopardize the continued existence' of a listed species," even  
19 if doing so would require that the Bureau "alter ongoing  
20 projects in order to fulfill the goals of the Act." *TVA v.*  
21 *Hill*, 437 U.S. 153, 186 (1978) (quoting 16 U.S.C. § 1536(a)(2)).

22 **D. Remand Without Vacatur.**

23 14. All defendants seek to keep the BiOP in place without  
24 vacatur and to retain the BiOp's Incidental Take Permit (and  
25

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26 <sup>4</sup> Although the ESA does not expressly recognize an  
27 exception for human health and safety, Plaintiffs have offered  
28 and it is prudent to apply a human health and safety exception in  
any remedial phase of this interim remedy proceeding.

1 associated take limits) during reconsultation until the new BiOp  
2 is issued.<sup>5</sup>

3 15. The 2004 BiOp has been found unlawful, arbitrary, and  
4 capricious. (Doc. 256 at 146.) The usual remedy under such  
5 circumstances is remand to the agency. See *Florida Power &*  
6 *Light v. Lorion*, 470 U.S. 729, 744 (1985). The court has the  
7 discretionary authority to impose a deadline for remand  
8 proceedings. *Nat'l Org. of Veterans' Advocates v. Sec'y of*  
9 *Veteran's Affairs*, 260 F.3d 1365, 1381 (Fed. Cir. 2001). NMFS  
10 shall complete the new BiOp on or before March 2, 2009.

11 16. If the BiOp and its incidental take statement are  
12 vacated, the Bureau and DWR could be compelled to completely  
13 stop Project operations if they incidentally take one of the  
14 endangered species. Inoperative Projects would not maintain the  
15 status quo, but would instead produce catastrophic results to  
16 the public and all parties in interest. Plaintiffs,

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17  
18 <sup>5</sup> Plaintiffs assert that they "do not seek vacatur provided  
19 that the Court imposes interim remedies that will insure that  
20 Project operations during reconsultation will not cause jeopardy  
21 to the three species or destruction or adverse modification of  
22 their critical habitats and that it orders the Bureau not to make  
23 any irreversible or irretrievable commitment of resources with  
24 respect to Project operations that would have the effect of  
25 foreclosing the formulation or implementation of any reasonable  
26 and prudent alternative measures to the Bureau's proposed Project  
27 operations." (Doc. 341, Pltf's Prop'd Findings, filed June 20,  
28 2008.) Plaintiffs also concede that "vacatur would force the  
Bureau and DWR to operate the Projects during reconsultation  
without any take authority at the risk of incurring criminal  
liability. The 2004 BiOp superseded the 1993 winter-run Chinook  
biological opinion on Project operations, [] as well as all  
previous interim and supplemental OCAP biological opinions for  
the effects of CVP and SWP operations on spring-run Chinook  
salmon and steelhead." (*Id.*)

1 responsibly, have not suggested shutting down the Projects.

2 17. Vacating the BiOp would also remove the beneficial  
3 measures, terms, and conditions of the BiOp, such as numerous  
4 mitigation and adaptive management measures that to some extent  
5 are acknowledged by Plaintiffs as providing protection for the  
6 species. The BiOp also imposes other beneficial non-  
7 discretionary terms and conditions, including temperature  
8 controls on CVP and SWP managed rivers and restrictions on the  
9 operation of the Delta Cross Channel gates and RBDD gates.  
10 (Pltff's Ex. ("PE") 3 at 212-16.)

11 18. Due to the disastrous disruptions that vacatur of the  
12 BiOp would cause to the vital water supply functions the CVP and  
13 SWP serve and the concomitant loss of protective measures for  
14 the species included in the BiOp and Incidental Take Statement,  
15 it appears most reasonable that the BiOp be remanded without  
16 vacatur, once further explanation of the steelhead take limit is  
17 provided. Agency decisions may remain in place, pending the  
18 completion of remand, even where they have been found "arbitrary  
19 and capricious." See *NRDC v. U.S. Dept. of the Interior*, 275 F.  
20 Supp. 2d 1136, 1143 (C.D. Cal. 2002); *Nat'l Wildlife Fed'n v.*  
21 *NMFS*, 254 F. Supp. 2d 1196, 1215-16 (D. Or. 2003) (remanding BiOp  
22 without vacatur).

23 19. Nevertheless, the BiOp is subject to ESA Section 7(d)  
24 requirements.

25 **E. The Bureau's 7(d) Obligations During Re-Consultation.**

26 20. Here, the Bureau voluntarily re-initiated consultation  
27 with NMFS over the 2004 OCAP. ESA section (7) (d) governs the  
28 Bureau's actions during consultation and provides in relevant

1 part:

2 After initiation of consultation required under  
3 subsection (a)(2), the Federal agency and the permit  
4 or license applicant shall not make any irreversible  
5 or irretrievable commitment of resources with respect  
6 to the agency action which has the effect of  
7 foreclosing the formulation or implementation of any  
8 reasonable and prudent alternative measures which  
9 would not violate subsection (a)(2) of this section.

10 16 U.S.C. § 1536(d). "Section 7(d) was enacted to ensure that  
11 the status quo would be maintained during the consultation  
12 process, to prevent agencies from sinking resources into a  
13 project in order to ensure its completion regardless of its  
14 impacts on endangered species." *Washington Toxics Coal. v. EPA*,  
15 413 F.3d 1024, 1034-35 (9th Cir. 2005). "The purpose of the  
16 consultation process...is to prevent later substantive  
17 violations of the ESA." *Id.* at 1034 (*citing Sierra Club v.*  
18 *Marsh*, 816 F.2d 1376, 1389 (9th Cir. 1987)). It is well-settled  
19 that a court can enjoin agency action pending completion of  
20 section 7(a)(2) requirements. *Id.*

21 21. During consultation, only "non jeopardizing" actions  
22 may continue. *Id.* at 1035.

23 **F. Standard for Issuance of Preliminary Injunctive Relief In**  
24 **ESA Cases.**

25 22. In general, "the test for determining if equitable  
26 relief is appropriate is whether an injunction is necessary to  
27 effectuate the congressional purpose behind the statute."  
28 *Biodiversity Legal Found. v. Badgley*, 309 F.3d 1166, 1177 (9th  
Cir. 2002).

29 23. Outside the context of the ESA, the standard for  
30 granting a preliminary injunction balances plaintiff's  
31 likelihood of success against the relative hardship to the

1 parties. The Ninth Circuit recognizes two different sets of  
2 criteria for preliminary injunctive relief. Under the  
3 traditional test, "a plaintiff must show: (1) a strong  
4 likelihood of success on the merits, (2) the possibility of  
5 irreparable injury to plaintiff if preliminary relief is not  
6 granted, (3) a balance of hardships favoring the plaintiff, and  
7 (4) advancement of the public interest (in certain cases)."  
8 *Taylor v. Westly*, 488 F.3d 1197, 1200 (9th Cir. 2007). An  
9 "alternative" test requires that "a plaintiff demonstrate either  
10 a combination of probable success on the merits and the  
11 possibility of irreparable injury or that serious questions are  
12 raised and the balance of hardships tips sharply in his favor."  
13 *Id.* "These two formulations represent two points on a sliding  
14 scale in which the required degree of irreparable harm increases  
15 as the probability of success decreases. They are not separate  
16 tests but rather outer reaches of a single continuum." *Id.*

17 24. In the Ninth Circuit, in ESA cases, the conventional  
18 preliminary injunctive relief standard is substantially  
19 modified. *Nat'l Wildlife Fed'n v. NMFS*, 422 F.3d 782, 793-94  
20 (9th Cir. 2005) (*NWF v. NMFS I*) ("The traditional preliminary  
21 injunction analysis does not apply to injunctions issued  
22 pursuant to the ESA.").

23 In cases involving the ESA, Congress removed from the  
24 courts their traditional equitable discretion in  
25 injunction proceedings of balancing the parties'  
26 competing interests. As the Supreme Court has noted,  
27 "Congress has spoken in the plainest of words, making  
28 it abundantly clear that the balance has been struck  
in favor of affording endangered species the highest  
of priorities." *TVA v. Hill*, 437 U.S. 153, 194 (1978).  
Accordingly, courts "may not use equity's scales to  
strike a different balance." *Sierra Club v. Marsh*, 816  
F.2d 1376, 1383 (9th Cir. 1987); see also *Marbled*

1            *Murrelet v. Babbitt*, 83 F.3d 1068, 1073 (9th Cir.1996)  
2            ("Congress has determined that under the ESA the  
3            balance of hardships always tips sharply in favor of  
4            endangered or threatened species.").

5            *Id.* (citations omitted); see also *TVA*, 437 U.S. at 187-88  
6            (concluding that Congress determined in the ESA that the value  
7            of endangered species is "incalculable" and prohibiting the  
8            balancing of economic harms against the Congressionally  
9            determined public interest in preserving endangered species);  
10           *Home Builders*, 127 S. Ct. at 2537 (reaffirming holding from *TVA*  
11           *v. Hill* that economic burden of enforcing the ESA cannot be  
12           considered by the courts, concluding that "the ESA's no-jeopardy  
13           mandate applies to every discretionary agency action-regardless  
14           of the expense or burden its application might impose"); *Nat'l*  
15           *Wildlife Fed'n v. Burlington N. R.R., Inc.*, 23 F.3d 1508, 1510-  
16           11 (9th Cir. 1994) ("In cases involving the ESA, Congress removed  
17           from the courts their traditional equitable discretion in  
18           injunction proceedings of balancing the parties' competing  
19           interests."); *Sierra Club v. Marsh*, 816 F.2d 1376, 1383 (9th  
20           Cir. 1987) (courts "may not use equity's scales to strike a  
21           different balance"); *Marbled Murrelet v. Babbitt*, 83 F.3d 1068,  
22           1073 (9th Cir. 1996) ("Congress has determined that under the  
23           ESA the balance of hardships always tips sharply in favor of  
24           endangered or threatened species.").<sup>6</sup>

---

25           <sup>6</sup> Defendant Intervenor's point to several non-ESA cases for  
26           the proposition that the district court must consider the "public  
27           interest" in determining whether injunctive relief is  
28           appropriate. (See Doc. 309 at 8 (citing *Weinberger v. Romero-  
Barcelo*, 456 U.S. 305, 312 (1982) (evaluating request for  
injunctive relief under the Clean Water Act); *Am. Motorcyclist  
Ass'n v. Watt*, 714 F.2d 962, 967 (9th Cir. 1983) (applying the

1           25. Under this modified standard, plaintiffs must  
2 nevertheless demonstrate (1) a likelihood of success on the  
3 merits, and (2) a "reasonable likelihood" of irreparable harm.  
4 See *NWF v. NMFS I*, 422 F.3d at 794; *NWF v. Burlington*, 23 F.3d  
5 at 1511 (re-affirming that non-traditional injunctive relief  
6 standard applies, but finding that Plaintiffs still need to show  
7 likelihood of future injury to members of the endangered  
8 species).

9           **(1) Likelihood of Success on the Merits.**

10           26. With respect to likelihood of success, Plaintiffs have  
11 already succeeded on the merits of their ESA claims regarding  
12 the legality of the 2004 BiOp.

13           26.1. TCCA suggests that at least with respect to the  
14 request for modifications to the operations of RBDD, Plaintiffs

15 \_\_\_\_\_  
16 National Environmental Policy Act ("NEPA"), the Federal Land  
17 Policy and Management Act, and related Bureau of Land Management  
18 Regulations); *United States v. Oakland Cannabis Buyer's*  
19 *Cooperative*, 532 U.S. 483 (2001) (interpreting the federal  
20 Controlled Substances Act)); see also Doc. 359 (citing *Lands*  
21 *Council v. U.S. Forest Serv.*, --- F.3d ---, 2008 WL 2640001 (9th  
22 Cir. 2008) (holding in a NEPA case that a court "must also  
23 consider the public interest")). These cases are not instructive  
24 regarding the district court's discretion to consider public  
25 interest or other related evidence in the context of the ESA,  
26 under which judicial discretion is severely constrained by  
27 binding Ninth Circuit precedent.

28           It appears that the Ninth Circuit is the only circuit to  
articulate a standard that arguably completely precludes the  
balancing of relative harms. District courts in other circuits  
have, in an abundance of caution, applied the traditional  
approach to injunctive relief, while at the same time recognizing  
the balancing of the equities and the determination of the public  
interest already performed by Congress. See, e.g., *Alabama v.*  
*U.S. Army Corps of Eng'rs*, 441 F. Supp. 2d 1123, 1131-32 (N.D.  
Ala. 2006); *Am. Rivers v. U.S. Army Corps of Eng'rs*, 271 F. Supp.  
2d 230, 238-49 (D.D.C. 2003).

1 "cannot establish any likelihood of success on the merits"  
2 because the district court ruled in favor of the federal  
3 defendants on the issue of sufficiency of the adaptive  
4 management plan and mitigation measures for RBDD. TCCA assigns  
5 too much significance to the summary judgment ruling on that  
6 issue. The summary judgment decision found serious substantive  
7 errors throughout the BiOp. For example, NMFS failed to explain  
8 contradictory evidence as to the survival and recovery of the  
9 species and their habitat; failed to analyze the effect of the  
10 Projects on critical habitat; failed to evaluate the impact of  
11 the Projects in light of the species' life cycles; failed to  
12 properly evaluate the baseline; and failed to evaluate the  
13 effects of climate change. (Doc. 256, filed May 20, 2008.)

14 26.2. With respect to the mitigation measures,  
15 Plaintiffs raised essentially the same challenge in this case as  
16 in the smelt case, arguing that the mitigation measures are not  
17 sufficiently definite and enforceable. Although the salmonid  
18 mitigation measures were found sufficiently certain and  
19 mandatory to be enforceable, the decision did not validate all  
20 mitigation measures as applied or find that the measures fully  
21 satisfy NMFS' and the Bureau's Section 7(a)(2) responsibilities  
22 with respect to any aspect of ongoing joint Project operations.  
23 Such a finding would directly conflict with the holding that  
24 NMFS failed to adequately analyze critical factors, like the  
25 impact of Project operations, including RBDD operations, on the  
26 species' recovery and critical habitat. Rather, the summary  
27 judgment decision determined that the mitigation measures  
28 identified in the BiOp were sufficiently certain to occur to be

1 enforceable and implementable, and were distinguishable from the  
2 Delta Smelt Risk Assessment Matrix, which required no more than  
3 that agency scientists and representatives consult, and, despite  
4 ascertained action triggers and catastrophic conditions, the  
5 mitigation measures had never been implemented to protect the  
6 smelt.

7 **(2) "Reasonable Likelihood" of Irreparable Harm.**

8 **(a) Injunctive Relief is Not Automatic.**

9 27. Plaintiffs assert that, in light of Congressional  
10 pronouncements regarding the primacy of preserving endangered  
11 species, whenever an ESA violation has been conclusively  
12 established, as here, the "appropriate remedy" is to enjoin  
13 agency action until there has been "substantial compliance with  
14 [the ESA's] procedural requirements." *Thomas v. Peterson*, 753  
15 F.2d 754, 764 & n.8 (9th Cir. 1985).

16 28. This is not the approach the Ninth Circuit took in  
17 reviewing a district court's issuance of injunctive relief under  
18 the ESA in *NWF v. NMFS I*, 422 F.3d at 793, where the district  
19 court invalidated the controlling BiOp, and then heard  
20 plaintiffs' request for injunctive relief pending completion of  
21 a new BiOp. *Id.* at 796-97. The district court analyzed whether  
22 irreparable harm would result from Columbia River Power System  
23 operations pending completion of the remand. *Id.* The Ninth  
24 Circuit affirmed this approach, holding that "[a]lthough not  
25 every statutory violation leads to the 'automatic' issuance of  
26 an injunction in the context of the ESA, 'the test for  
27 determining whether equitable relief is appropriate is whether  
28 an injunction is necessary to effectuate the congressional

1 purpose behind the statute.'" *Id.* at 795 (quoting *Badgley*, 308  
2 F.3d at 1177) (emphasis added).<sup>7</sup> *Cf. Lands Council v. U.S.*  
3 *Forest Serv.*, --- F.3d ---, 2008 WL 2640001 (9th Cir.  
4 2008) (declining, in a NEPA case, "to adopt a rule that any  
5 potential environmental injury automatically merits an  
6 injunction....").

7 29. Plaintiffs correctly assert that in every published  
8 ESA case in which likelihood of success was established, an  
9 injunction issued. However, Plaintiffs' conclusion that an ESA  
10 violation automatically, *a fortiori*, requires injunctive relief  
11 is overstated. In each case cited by the parties, including  
12 those in which some language suggests injunctive relief must  
13 follow an ESA violation,<sup>8</sup> the existence of irreparable harm was  
14 evaluated.

15 30. There is considerable disagreement and confusion about  
16

17 <sup>7</sup> Plaintiffs' attempt to distinguish this precedent on  
18 the ground that the Ninth Circuit was engaging in "limited  
19 appellate review" is not persuasive, particularly given the  
20 absence of relevant contrary authority.

21 <sup>8</sup> Plaintiffs also cite *Pac. Coast Fed'n of Fishermen's*  
22 *Ass'ns v. U.S. Bureau of Reclamation*, 2006 WL 798920, at \*1 (N.D.  
23 Cal. Mar. 27, 2006) (*aff'd* 226 F. App'x 715 (9th Cir. 2007)),  
24 which held that where plaintiffs prevailed on an ESA challenge to  
25 the Bureau's planned operation of the Klamath Irrigation Project,  
26 "a court's inquiry is largely at an end[, and]... 'the remedy must  
27 be an injunction of the project pending compliance with the ESA'"  
28 (*quoting Thomas*, 753 F.2d at 765). Critically, in that case,  
despite its broad pronouncements that injunctive relief should be  
automatic, the district court nevertheless looked for evidence of  
irreparable harm, see *id.* \*6, finding such harm was evidenced by  
the fact that NMFS had concluded that the proposed operations  
would jeopardize affected species. Here, there is no such  
conclusive evidence from the expert agency. In fact, NMFS's  
official position is that interim operations will not jeopardize  
the species.

1 what should be considered "irreparable harm" for purposes of  
2 these injunctive relief proceedings. The Ninth Circuit has not  
3 articulated a standard or threshold at or above which ESA "harm"  
4 is considered "irreparable."<sup>9</sup>

5 **(b) Likely Extirpation Is Not the Standard.**

6 31. Federal Defendants and Defendant Intervenors  
7 repeatedly refer to the species' "extirpation" or extinction as  
8 the benchmark for determining the necessary irreparable harm to  
9 justify interim injunctive relief. A court need not wait until  
10 the species is immediately threatened with extirpation to issue  
11 injunctive relief. See *Am. Rivers v. U.S. Army Corps of Eng'rs*,  
12 271 F. Supp. 2d 230, 258-59 (D.D.C. 2003) (injunction may issue  
13 if the number of individuals likely to be taken as a result of  
14 agency action during the time it will take to conclude  
15 litigation will cause "significant" harm to the species, even if  
16 there is "not the remotest possibility that the planned agency  
17 activity...would eradicate the species"); *Swan View Coal., Inc.*  
18 *v. Turner*, 824 F. Supp. 923, 938 (D. Mont. 1992) (threatened  
19 extinction not necessary for a finding of harm under the ESA).

20  
21  
22 \_\_\_\_\_  
23 <sup>9</sup> A different approach has been taken in other  
24 jurisdictions. For example, irreparable injury justifying  
25 preliminary injunctive relief in the D.C. Circuit is injury that  
26 is great, certain, and actual, not merely theoretical.  
27 *Chaplaincy of Full Gospel Churches v. England*, 454 F.3d 290, 297-  
28 98 (D.C. Cir. 2006) (quoting *Wisconsin Gas Co. v. Fed. Energy*  
*Regulatory Comm'n*, 758 F.2d 669, 674 (D.C. Cir. 1985)) ("The  
injury complained of must be of such imminence that there is a  
clear and present need for equitable relief to prevent  
irreparable harm.").

1 (c) Reduce Appreciably the Likelihood of Survival or  
2 Recovery/Appreciably Diminish the Value of  
3 Critical Habitat.

4 32. The Ninth Circuit test requires that agencies not take  
5 actions as to species that will reduce appreciably their  
6 likelihood of survival or recovery or appreciably diminish the  
7 value of their critical habitat.

8 32.1. "Jeopardize the continued existence" of means  
9 "to engage in an action that reasonably would be expected,  
10 directly or indirectly, to reduce appreciably the likelihood of  
11 both the survival and recovery of a listed species in the wild,  
12 by reducing the reproduction, numbers, or distribution of that  
13 species," 50 C.F.R. § 402.02 (emphasis added), while prohibited  
14 "destruction or adverse modification" is "any direct or indirect  
15 alteration that appreciably diminishes the value of critical  
16 habitat for both the survival and recovery of a listed species."  
17 *Id.* (emphasis added).

18 32.2. Plaintiffs argue that any harm that is  
19 "appreciable" justifies equitable intervention. Plaintiffs  
20 maintain that under certain circumstances this standard is  
21 satisfied by the loss of one female salmon or steelhead capable  
22 of reproducing.

23 32.3. Plaintiffs assert that the term "appreciably"  
24 in the jeopardy context means "capable of being perceived or  
25 recognized by the senses; perceptible," citing Black's Law  
26 Dictionary.<sup>10</sup> Plaintiffs argue that the meaning of "appreciably"

---

27 <sup>10</sup> By contrast, Dictionary.com defines appreciable as:  
28 "Sufficient to be readily perceived or estimated; considerable"  
giving the example of "there is an appreciable difference between

1 is informed by the Ninth Circuit's recent decision in *NWF v.*  
2 *NMFS II*, 524 F.3d 917, which held that an agency may not  
3 "gradually destr[o]y" a listed species or its critical habitat  
4 just because "each step on the path to destruction is  
5 sufficiently modest." However, Plaintiffs quote *NWF v. NMFS II*  
6 out of context. That decision examines whether the agency was  
7 required to incorporate degraded biological conditions into the  
8 baseline for a jeopardy analysis. The Ninth Circuit reasoned:

9 To "jeopardize the continued existence of" means "to  
10 engage in an action that reasonably would be expected,  
11 directly or indirectly, to reduce appreciably the  
12 likelihood of both the survival and recovery of a  
13 listed species in the wild by reducing the  
14 reproduction, numbers, or distribution of that  
15 species." 50 CFR § 402.02; 16 U.S.C. § 1536(a)(2).  
16 NMFS argues that, under this definition, it may  
17 satisfy the ESA by comparing the effects of proposed  
18 [project] operations on listed species to the risk  
19 posed by baseline conditions. Only if those effects  
20 are "appreciably" worse than baseline conditions must  
21 a full jeopardy analysis be made. Under this approach,  
22 a listed species could be gradually destroyed, so long  
23 as each step on the path to destruction is  
24 sufficiently modest. This type of slow slide into  
25 oblivion is one of the very ills the ESA seeks to  
26 prevent.

18 *Id.* at 929-30 (emphasis added). This language does not define  
19 the term "appreciably" in the jeopardy inquiry, rather it  
20 considers the cumulative effects of incremental actions in light  
21 of baseline conditions.

22 32.4. Plaintiffs' interpretation of "appreciably" to  
23 mean any "perceptible" effect would lead to irrational results,  
24 making any agency action that had any effects on a listed  
25

26 \_\_\_\_\_  
27 socialism and communism." Available at  
28 "<http://dictionary.reference.com/browse/appreciable>" (last  
visited July 2, 2008) (emphasis added).

1 species a "jeopardizing" action. This is not the law, as such  
2 an interpretation conflicts with other provisions of the ESA  
3 that permit incidental take of a listed species. See 16 U.S.C.  
4 §§ 1536(b) (4) (describing procedure for issuance of incidental  
5 take statements), 1539(1) (B) (permitting incidental take).

6 32.5. Federal Defendants correctly note that NMFS and  
7 USFWS have interpreted the term "appreciably diminish" to mean  
8 "considerably reduce." USFWS/NMFS, ESA Section 7 Consultation  
9 Handbook (March 1998), at 4-34. The Consultation Handbook  
10 states:

11 Adverse effects on individuals of a species or  
12 constituent elements or segments of critical habitat  
13 generally do not result in jeopardy or adverse  
14 modification determinations unless that loss, when  
15 added to the environmental baseline, is likely to  
16 result in significant adverse effects throughout the  
17 species range, or appreciably diminish the capability  
18 of the critical habitat to satisfy essential  
19 requirements of the species.

20 *Id.* at 4-34 (emphasis added). The following definition for  
21 "appreciably diminish" is provided:

22 Appreciably diminish the value: to considerably reduce  
23 the capability of designated or proposed critical  
24 habitat to satisfy requirements essential to both the  
25 survival and recovery of a listed species.

26 *Id.* (emphasis added).

27 32.6. While not entitled to *Chevron* deference, the  
28 interpretations in the Consultation Handbook "are made in  
pursuance of official duty, based upon more specialized  
experience and broader investigations and information than is  
likely to come to a judge in a particular case," and "constitute  
a body of experience and informed judgment to which courts and  
litigants may properly resort for guidance." *Skidmore v. Swift*

1 & Co., 323 U.S. 134, 139-40 (1944).

2 32.7. The Consultation Handbook's treatment of the  
3 term "appreciably" is NMFS's interpretation of 50 C.F.R.  
4 § 402.02, and is "controlling" unless "plainly erroneous or  
5 inconsistent with the regulation." *Robertson v. Methow Valley*  
6 *Citizens Council*, 490 U.S. 332, 359 (1989); see also *Webber v.*  
7 *Crabtree*, 158 F.3d 460, 461 (9th Cir. 1998) (agency's  
8 interpretation of its own regulation is accorded a "high degree"  
9 of deference unless plainly erroneous or inconsistent with  
10 regulation). Moreover, the Consultation Handbook was prepared  
11 ten years ago and is not a "post hoc rationalization[n]." *Auer*  
12 *v. Robbins*, 519 U.S. 452, 462 (1997). The Court has "no reason  
13 to suspect that the interpretation does not reflect the agency's  
14 fair and considered judgment on the matter in question." *Id.*

15 32.8. NMFS's interpretation of the term appreciably  
16 is entitled to *Skidmore* deference. Plaintiffs' overly expansive  
17 definition of "appreciably" reads the term out of the statute.  
18 See *Forest Guardians v. Veneman*, 392 F. Supp. 2d 1082, 1092 (D.  
19 Arizona 2005) (refusing to apply dictionary definitions of  
20 appreciably and instead deferring to the Consultation Handbook's  
21 interpretation of appreciably to mean significant or  
22 considerable biological effects).<sup>11</sup>

---

24 <sup>11</sup> DWR advocates the adoption of a different standard from  
25 *NWF v. NMFS II*, 524 F.3d at 930, that would prohibit only those  
26 actions that would "tip a species from a state of precarious  
27 survival into a state of likely extinction." For several  
28 reasons, this language is not helpful as a litmus test for the  
issuance of injunctive relief. First, *NWF v. NMFS II* was not  
concerned with the issuance of injunctive relief. Rather, the  
Court reviewed a challenge on the merits to a biological opinion.

1 33. The Handbook definition of "appreciably" is also  
2 consistent with how the concept of irreparable harm has been  
3 applied in practice. *In NWF v. NMFS I*, 422 F.3d 782, 795 (9th  
4 Cir. 2005), the Ninth Circuit affirmed the issuance of a  
5 preliminary injunction where the district court found that the  
6 operation of the Columbia and Snake River dams "strongly  
7 contribut[ed]" to the endangerment of listed species, citing the  
8 government's own data showing "that between 78-92% of juvenile  
9 fall chinook salmon that remain in-river for their migration are  
10 killed by the operation of the dams even with mitigation  
11 measures, with a mean estimated kill of 86% of the salmon  
12 migrating in-river."

13 34. *American Rivers v. U.S. Army Corps of Engineers*, 271  
14 F. Supp. 2d 230 (D.D.C. 2003), defined "irreparable injury" as  
15 that which would result in significant take of the species

16 \_\_\_\_\_  
17 Second, DWR takes this language out of context. The entire  
18 passage reads:

19 [A]n agency may not take action that will tip a species  
20 from a state of precarious survival into a state of  
21 likely extinction. Likewise, even where baseline  
22 conditions already jeopardize a species, an agency may  
not take action that deepens the jeopardy by causing  
additional harm.

23 *Id.*

24 Plaintiffs argue that the second sentence provides the  
25 applicable standard, namely, that when baseline conditions  
26 already jeopardize a species, the agency cannot take any action  
27 that "deepens" that jeopardy in any respect. Neither sentence is  
28 controlling in the issuance of injunctive relief, particularly  
given that they both contravene the approach taken by other  
courts in deciding the basis for injunctive relief under the ESA  
as well as the NMFS interpretation of "appreciable" found in the  
Consultation Handbook.

1 and/or delays in implementing a recovery plan that would have  
2 significant impacts on the species. In *American Rivers*, for a  
3 population of plovers numbering approximately 2,000 and a  
4 population of terns numbering approximately 7,000, a delay in  
5 implementing a recovery program for the birds was found to  
6 constitute "irreparable injury" to their recovery and continued  
7 existence. *Id.* at 259. *American Rivers* also examined a  
8 population of sturgeon that numbered fewer than 2,000 and held  
9 that "any potential harm from delaying implementation [of the  
10 recovery action] is irreparable and must be avoided." *Id.*; see  
11 also, *Water Keeper Alliance v. U.S. Dept. of Defense*, 271 F.3d  
12 21, 34 (1st Cir. 2001) (requiring a "concrete showing of probable  
13 deaths during the interim period and how those deaths might  
14 impact the species" (emphasis added)).<sup>12</sup>

15 35. The approach taken in *NWF v. NMFS I* and *American*  
16 *Rivers*, that identifies "irreparable harm" as "significant" vis-

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18 <sup>12</sup> Other district courts have issued injunctive relief  
19 where an agency action would cause harm to a small number of  
20 individual species' members, but always under circumstances in  
21 which the loss of those individuals would be significant for the  
22 species as a whole. For example, in *Humane Society v.*  
23 *Kemphorne*, 481 F. Supp. 2d 53, 69-70 (D.D.C. 2006), the district  
24 court enjoined implementation of a program that would have  
25 permitted the lethal take of 43 gray wolves, a number that  
26 constituted ten percent of the remaining gray wolf population in  
27 Wisconsin. See also *Defenders of Wildlife v. Martin*, 454 F.  
28 Supp. 2d 1085, 1099 (E.D. Wash. 2006) (activity that would cause  
"any harm" during consultation to the few animals that remain in  
an endangered population sufficient to justify injunctive  
relief); *Marbled Murrelet v. Babbitt*, 83 F.3d 1060 (9th Cir.  
1996) (showing of imminent threat of future harm sufficient for  
injunction under the ESA where listed birds were known to breed  
in area that would be impacted by logging activities, and logging  
activities would impair ability to breed).

1 a-vis the overall population, applies here.

2 36. However, the terms "significant" and "considerable"  
3 are imprecise and conclusory. Here, Plaintiffs expert opined  
4 that the combined effect of Project operations through the  
5 interim period are significant to the three species overall.  
6 The Defendants' two experts opined that interim Project  
7 operations would not result in extinction during the interim  
8 period.

9 **(3) Burden Shifting.**

10 37. *Washington Toxics* placed the burden of demonstrating  
11 that an action is non-jeopardizing on the acting agency.

12 Placing the burden on the acting agency to prove the  
13 action is non-jeopardizing is consistent with the  
14 purpose of the ESA and what we have termed its  
15 "institutionalized caution mandate[ ]." *Sierra Club v.*  
16 *Marsh*, 816 F.2d at 1389. We said as much in *Thomas v.*  
17 *Peterson*, where the defendant, the U.S. Forest  
18 Service, urged the district court to conclude that  
19 absent proof by the plaintiffs to the contrary, a  
20 proposed project was not likely to affect an  
21 endangered or threatened species. 753 F.2d at 765. We  
22 held that this was an inappropriate finding for the  
23 district court to make. *Id.* "It is not the  
24 responsibility of the plaintiffs to prove, nor the  
25 function of the courts to judge, the effect of a  
26 proposed action on an endangered species when proper  
27 procedures have not been followed." *Id.* The district  
28 court correctly assigned EPA the burden of proving  
that its actions were non-jeopardizing.

413 F.3d at 1034-35.<sup>13</sup>

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13 Defendant Intervenors suggest that the Supreme Court  
overruled the use of this burden-shifting approach. (See Doc.  
309 at 4.) However, the Supreme Court case they cite for this  
proposition does not address burden shifting; rather, it reverses  
the Ninth Circuit for applying a presumption of "irreparable  
harm" whenever an agency fails to adequately evaluate  
environmental impacts under NEPA, not the ESA, calling this  
"contrary to equitable principles." *Amoco Prod. Co. v. Village*  
*of Gambell, Alaska*, 480 U.S. 531, 545 (1987).

1           38. After *Washington Toxics*, the ESA injunctive relief  
2 standard has been modified to place on the federal defendants  
3 the burden to demonstrate that their action will be "non-  
4 jeopardizing."<sup>14</sup>

5           39. The jurisprudence on this issue lacks clarity, because  
6 of a parallel line of cases that look for proof of "irreparable  
7 harm" rather than "no-jeopardy" before an injunction may issue.  
8 See, e.g., *NWF v. NMFS I*, 422 F.3d 782 (requiring showing of  
9 irreparable harm before enjoining agency conduct during an  
10 interim period while consultation was ongoing). Does the burden  
11 of showing "non-jeopardy" equate to a burden to show that  
12 Project operations will cause no "irreparable harm"? If so,  
13 then according to the definition of "irreparable harm"  
14 articulated above, Federal Defendants bear the burden of showing  
15 that Project operations will not considerably reduce the  
16 species' chances of survival or recovery or considerably reduce  
17 the value of their critical habitat.

18           40. In the only published case that specifically  
19 recognizes the burden-shifting approach of *Washington Toxics*,  
20 *Defenders of Wildlife v. Martin*, 454 F. Supp. 2d 1085, 1097  
21 (E.D. Wash. 2006), the district court acknowledged the burden  
22 shifting holding, but then largely ignored it, placing the  
23 burden upon Plaintiffs to show irreparable harm. *Id.* at 1098-

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24  
25           <sup>14</sup> Defendant Intervenors tautologically maintain that  
26 there is no such burden of proof where an invalidated BiOp has  
27 not been vacated. This ignores that the fact that no decision  
28 regarding vacatur or the sufficiency of interim protections had  
been finalized prior to the commencement of evidentiary  
proceedings in this case.

1 99.

2 41. No further treatment of the burden-shifting issue is  
3 required, because Federal Defendants, despite Defendant  
4 Intervenor's contrary contention, accepted the burden of proving  
5 their actions are non-jeopardizing. Applying the NMFS/USFWS  
6 definition of "appreciable," in order to show that their actions  
7 are non jeopardizing, the Federal Defendants must prove that  
8 Project operations during the interim period will not  
9 significantly or considerably reduce the species' chances of  
10 survival and recovery and will not significantly or considerably  
11 reduce the value of their critical habitat.

12 **(4) Should Evaluation of "Significance" Occur at the ESU**  
13 **or Population Level?**

14 42. The evidence regarding the significance of impacts to  
15 the spring-run has been presented in two ways: (1) relative to  
16 the entire evolutionarily significant unit ("ESU") for each  
17 species; and (2) relative to those populations of each species  
18 that spawn above RBDD and/or within Clear Creek.

19 43. The parties agreed in open court that jeopardy should  
20 be determined at the level of each species' entire ESU. (6/27  
21 Tr. 100:1-101:16.) This is consistent with the interpretation  
22 of "jeopardy or adverse modification" set forth in the  
23 Consultation Handbook, at p. 4-34:

24 The determination of **jeopardy** or **adverse modification**  
25 is based on the effects of the action on the continued  
26 existence of the **entire** population of the listed  
27 species or on a listed population, and/or the effect  
28 on critical habitat as designated in a final  
rulemaking. When multiple units of critical habitat  
are designated for particular purposes, these units  
may serve as the basis of the analysis if protection  
of different facets of the species' life cycle or its  
distribution is essential to both its survival and

1           recovery. Adverse effects on individuals of a species  
2           or constituent elements or segments of critical  
3           habitat generally do not result in jeopardy or adverse  
4           modification determinations unless that loss, when  
5           added to the environmental baseline, is likely to  
6           result in significant adverse effects throughout the  
7           species' range, or appreciably diminish the capability  
8           of the critical habitat to satisfy essential  
9           requirements of the species.

10           (emphasis added).<sup>15</sup>

11           44. No evidence was offered that separate populations of  
12           spring-run or steelhead have been designated by final  
13           rulemaking. It is recognized that separate geographical  
14           locations for these species provide spatial diversity, which  
15           contributes to their survival and recovery. (See PE 1.) In  
16           contrast, the winter-run are a single geographical population in  
17           the mainstem upper Sacramento River. (PE 9 at 5:17-18.)

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18           <sup>15</sup> At least one case suggests an alternative approach,  
19           that focuses on discrete populations within an ESU. In *Humane*  
20           *Society of U.S. v. Kempthorne*, 481 F. Supp. 2d 53 (D.D.C. 2006),  
21           after finding likelihood of success on the merits, the district  
22           court found irreparable harm where 43 wolves would be  
23           exterminated by a Wisconsin program aimed at eliminating  
24           depredating wolves. The 43 wolves amounted to ten percent of the  
25           total population of wolves in Wisconsin. Although the district  
26           court decision did not discuss whether the Wisconsin population  
27           represented the entire ESU. A subsequent D.C. Circuit opinion,  
28           considering a later appeal in the same case suggests that, at the  
          time the question of injunctive relief was before the district  
          court, the Wisconsin population was only part of a larger ESU.  
          The D.C. Circuit found the pending challenge to the depredation  
          program moot because, subsequent to the issuance of injunctive  
          relief, USFWS designated the "Western Great Lakes" population of  
          gray wolves as a "distinct population segment" ("DPS") and  
          simultaneously de-listed that population. *Humane Soc. of U.S. v.*  
          *Kempthorne*, 527 F.3d 181 (D.C. Cir. 2008). It can be inferred  
          that prior to the designation of the DPS and the associated  
          delisting of that population, the Wisconsin population of wolves  
          referenced in the 2006 district court opinion was part of a  
          larger gray wolf ESU.

1           **(5) The Impacts of Project Operations Must be Evaluated in**  
2           **the Context of Baseline Conditions.**

3           45. Plaintiffs place great weight on language from *NWF v.*  
4 *NMFS II*: "where baseline conditions already jeopardize a  
5 species, an agency may not take action that deepens the jeopardy  
6 by causing additional harm." 524 F.3d at 930. In *NWF v. NMFS*  
7 *II*, the agency failed to incorporate degraded baseline  
8 conditions into its baseline analysis. *Id.* at 929. Plaintiffs  
9 are correct that the "[t]he proper baseline analysis is not the  
10 proportional share of responsibility the federal agency [action]  
11 bears for the decline in the species, but what jeopardy might  
12 result from the agency's proposed actions in the present and  
13 future human and natural contexts." *Pac. Coast Fed'n of*  
14 *Fishermen's Assoc. v. U.S. Bureau of Reclamation*, 426 F.3d 1082,  
15 1093 (9th Cir. 2005).

16           46. The jeopardy and habitat destruction determinations  
17 cannot be based upon piecemeal evaluations of incremental  
18 actions above the baseline. *NWF v. NMFS II*, explains "[u]nder  
19 this approach, a listed species could be gradually destroyed, so  
20 long as each step on the path to destruction is sufficiently  
21 modest. This type of slow slide into oblivion is one of the  
22 very ills the ESA seeks to prevent." 524 F.3d at 930; see also  
23 *Am. Rivers*, 271 F. Supp. 2d at 258-59 (holding that jeopardy  
24 determination must "consider the...proposed action in the  
25 context of [agency's] overall management" of the action area and  
26 rejecting as invalid USFWS's "'incremental-step approach.'"   
27 (quoting *Conner v. Burford*, 848 F.2d 1441, 1457-58 (9th Cir.  
28 1988))).

1           47. However, Plaintiffs take these holdings too far by  
2 suggesting that whenever a listed species is in a state of  
3 "jeopardy," an agency is prohibited from taking any action that  
4 would cause any further "deterioration in the species'  
5 pre-action condition," *NWF v. NMFS II*, 524 F.3d at 930, even if  
6 that further deterioration is *de minimus*. The relevant inquiry  
7 is whether the "action effects, when added to the underlying  
8 baseline conditions," in the present and future human contexts,  
9 are cumulatively such that they would cause jeopardy as that  
10 term is defined by law and agency regulation. *Id.* The seminal  
11 holding of *NWF v. NMFS II* is that baseline conditions must be  
12 factored into the jeopardy analysis, cumulatively with the  
13 entirety of agency actions.

14           48. Irreparable harm to justify injunctive relief is shown  
15 when the agency action causes appreciable (i.e., considerable or  
16 substantial) harm to the species or its critical habitat, as  
17 measured by the combined effects of the action and underlying  
18 baseline conditions.

19           **(6) Consideration of Recovery.**

20           49. Recovery of the three salmonid species must be  
21 considered as part of the jeopardy and adverse modification  
22 analyses. *NWF v. NMFS II*, 524 F.3d at 931-32; *Gifford Pinchot*  
23 *Task Force v. U.S. Fish and Wildlife Serv.*, 378 F.3d 1059, 1070  
24 (9th Cir. 2004). Recovery means "improvement in the status of  
25 listed species to the point at which listing is no longer  
26 appropriate under the criteria set out in section 4(a)(1) of the  
27 [ESA]." 50 C.F.R. § 402.02.

28           50. However, "recovery impacts alone will not often prompt

1 a jeopardy finding." *NWF v. NMFS II*, 524 F.3d at 932. Only in  
2 "exceptional circumstances" could injury to recovery prospects  
3 result in a jeopardy finding. *Id.* at 931-32.

4 (7) **Economic Harm May Not Be Considered, But Public Safety**  
5 **is Relevant and Injunctive Relief Must Be Narrowly**  
6 **Tailored.**

7 51. The district court is constrained from balancing the  
8 competing interests of protecting endangered species against the  
9 economic costs of an injunction, because "Congress has decided  
10 that under the ESA, the balance of hardships always tips sharply  
11 in favor of the endangered or threatened species." *Washington*  
12 *Toxics*, 413 F.3d at 1035; see also *United States v. Glenn-Colusa*  
13 *Irrig'n Dist.*, 788 F. Supp. 1126, 1132 (E.D. Cal. 1992)  
14 (declining to consider the "social utility" of ordering  
15 defendant to cease operation of a pumping facility that was  
16 taking listed salmonids without a take permit).

17 52. During the *Kemphorne* (Delta smelt) remedies hearing,  
18 objections were sustained to evidence of "pure economic harm,"  
19 but evidence was admitted about risks to human health and safety  
20 (including evidence regarding the health and safety effects of  
21 secondary adverse impacts like land subsidence, land fallowing  
22 leading to air quality impacts, and community dislocations  
23 arising from job losses).<sup>16</sup> Further evidence was admitted to

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24 <sup>16</sup> The *Kemphorne* remedies decision found:

25 Although the ESA does not expressly recognize an exception  
26 for human health and safety, Plaintiffs have offered it is  
27 prudent to apply a human health and safety exception as part  
28 of [any] relief granted in this case. Risks that will be  
created by implementation of the interim remedial actions to  
be imposed, include, but are not limited to:

1 show the "water costs" of various remedial actions, as resulting  
2 water unavailability related to impacts on endangered species,  
3 safety consequences to communities (including to emergency  
4 services), and effects upon the structural integrity of Project  
5 facilities.

6 53. No party has presented any legal authority providing  
7 that purely economic interests may be balanced in an ESA  
8 injunctive relief case.

9 **(8) Judicial Non-Intervention.**

10 54. Concomitant with the requirement for narrow  
11 tailoring, the district court is bound by the general rule that  
12 a court should not substitute its judgment for that of the  
13 administrative agency. *NWF v. NMFS I*, 422 F.3d at 798-99; see  
14 also *Lands Council*, --- F.3d ---, 2008 WL 2640001, \*9 (holding  
15 that when reviewing an agency decision, courts are to be "most  
16 deferential" when an agency is "making predictions within its  
17

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18 a. Adverse impacts affecting [reduced] deliveries of  
19 water necessary for water service districts, emergency  
20 water supplies, municipal water supplies, and  
21 industrial power and related energy sources;

22 b. Adverse effects on agriculture including, but not  
23 limited to, loss of jobs, increased groundwater  
24 pumping, fallowed land [and] subsidence.

25 c. Air pollution [caused by] from heavier reliance on  
26 groundwater pumping and decrease in surface irrigation  
27 and moisture content in the soil; and

28 d. Damage to the structural integrity of CVP or SWP  
facilities including reservoirs or dams, causing, for  
example, significant damage to the earthen walls of the  
San Luis Reservoir, if that reservoir is drawn down too  
rapidly.

1 area of expertise"). A federal court lacks the expertise and/or  
2 background in fish biology, hydrology, hydraulic engineering,  
3 water project operations, and related scientific and technical  
4 disciplines that are essential to determining how the water  
5 projects should be operated on a real time, day-to-day basis.  
6 The scientific, engineering, and operational constraints under  
7 which the Projects are managed on a day-to-day basis are of  
8 mind-boggling complexity and sensitivity, requiring the highest  
9 level of skill, competence, and experience. Plaintiffs did not  
10 offer an operations expert, nor do they profess to have such  
11 competence.

12 55. However, judicial deference is not unlimited. In *NWF*  
13 *v. NMFS I*, where NMFS's BiOp had already been invalidated, the  
14 agency nevertheless argued that the district court was required  
15 to defer to its expertise. 422 F.3d at 798. The Ninth Circuit  
16 disagreed, finding that, because the district court had already  
17 invalidated NMFS's BiOp "in large part because it omitted  
18 factors essential to the analysis," there was no formal agency  
19 findings to which deference was owed. *Id.* at 799. The agency  
20 in *NWF v. NMFS I* presented its case through expert affidavits.  
21 *Id.* Under such circumstances, the district court properly  
22 ordered injunctive relief after finding that planned operations  
23 could cause irreparable harm. *Id.*

24 56. The narrow tailoring requirement means that a court  
25 should interfere with complex managerial decisions no more than  
26 absolutely necessary.

1           **(9) FERC Jurisdiction: Feather River and Oroville Dam.**

2           57. The Federal Power Act precludes review by district  
3 courts of operations regulated by the Federal Energy Regulatory  
4 Commission ("FERC"). Title 16 U.S.C., section 8251(b) confers  
5 exclusive jurisdiction upon the Courts of Appeals to review and  
6 make substantive modifications to FERC licensing orders.  
7 Section 8251(b) provides, in relevant part, that "[a]ny party to  
8 a proceeding under this chapter aggrieved by an order issued by  
9 [FERC] in such proceeding may obtain review of such order in the  
10 United States Court of Appeal...Upon the filing of such petition  
11 such court shall have jurisdiction, which upon the filing of the  
12 record with it shall be exclusive, to affirm, modify, or set  
13 aside such order in whole or in part."

14           58. According to the Supreme Court, in drafting section  
15 8251(b), Congress prescribed the specific, complete, and  
16 exclusive mode for judicial review of FERC orders. *City of*  
17 *Tacoma v. Taxpayers of Tacoma*, 357 U.S. 320, 335-336 (1958).  
18 "Hence, upon judicial review of the Commission's order, all  
19 objections to the order, to the license it directs to be issued,  
20 and to the legal competence of the licensee to execute its terms  
21 must be made in the Court of Appeals or not at all." *Id.* at  
22 336.

23           59. This rule applies to cases involving the ESA. It  
24 precludes the district court from exercising jurisdiction over  
25 ESA-related matters covered by a FERC license. See *Idaho Rivers*  
26 *United v. Foss*, 373 F. Supp. 2d 1158, 1160-1161 (D. Idaho 2005).

27           60. Here, DWR's operations on the Feather River, through  
28 the Oroville/Thermalito Dam Complex, are currently subject to an

1 annual FERC license. The fifty-year license has expired and a  
2 new long-term licence is in the final stages of the renewal  
3 process following executed settlement agreements among the  
4 parties in interest. Feather River operations covered by the  
5 FERC license are not within the jurisdiction of the district  
6 court.

7 **III. FINDINGS OF FACT**

8 **A. Overview of Salmonid Life History.**

9 1. Winter-run Chinook salmon, spring-run Chinook salmon,  
10 and steelhead are anadromous species that spawn in freshwater  
11 but rear for a portion of their lives in coastal marine waters.  
12 (Def. Int. Ex. ("DI") B at Ex. 2; 6/6 Tr. 89:7-15.)

13 2. The fecundity (number of eggs produced) is typically  
14 7,000 eggs per female steelhead and spring-run salmon, and  
15 approximately 3,000-4,000 eggs per female winter-run salmon.  
16 (6/6 Tr. 199:17-22; DI B at ¶6; 6/18 Tr. 180:22-23; 6/19 Tr.  
17 47:16-25.) In general, for the population to remain stable,  
18 only two eggs from each spawning female need to survive to  
19 reproduce as adults. (DI B at ¶6.)

20 3. Chinook salmon and steelhead migrate upstream from the  
21 ocean, through the Delta, and into Central Valley rivers and  
22 creeks during the fall, winter, and spring months, depending on  
23 the species. (DI B at ¶7.) The run name for Chinook salmon,  
24 such as winter-run, reflects the seasonal timing of adult  
25 upstream migration. (*Id.*) The adults of some salmonid species  
26 (e.g., fall-run, late fall-run, and steelhead) are sexually  
27 mature when they enter freshwater, while the adults of other  
28 species (e.g., spring-run and winter-run) are sexually immature

1 and hold in upstream freshwater for a period of time before  
2 spawning. (*Id.*; Doc. 256 at 22:1-3, 22:13-15.)

3 4. Spawning occurs in the upper reaches of rivers and  
4 streams in areas characterized by relatively clean gravel of  
5 suitable size, in areas where water temperatures during spawning  
6 are cool (preferably less than 57°F). (DI B at ¶7; Doc. 256 at  
7 23:5-9, 23:9-11.) The female digs a shallow depression in the  
8 gravel (redd) where the eggs are deposited and fertilized by the  
9 male. (DI B at ¶7.) The fertilized eggs are then covered by a  
10 shallow layer of gravel. (*Id.*) Water flow through the gravel  
11 and water temperatures are two of the factors that affect  
12 hatching success. (*Id.*) After hatching, the young salmonids  
13 remain in the gravel redd until they have absorbed the yolk-sac  
14 and begin to emerge into the surface waters. (*Id.*)

15 5. For some salmonid species such as fall-run Chinook  
16 salmon, juvenile rearing in freshwater is relatively short (a  
17 period of months). (DI B at ¶8.) Some juveniles rear in  
18 upstream areas and migrate downstream as smolts (meaning that  
19 they are physiologically capable of the transition from  
20 freshwater to saltwater). (*Id.*) Others in the population  
21 migrate downstream shortly after emergence as fry and rear in  
22 the lower reaches of the rivers and the Delta until ready to  
23 move into saltwater. (*Id.*) In other species, such as  
24 winter-run, spring-run, and steelhead, the juveniles rear in  
25 upstream river habitat for one or more years before migrating  
26 downstream through the Delta into the ocean. (*Id.*)

27 6. Juvenile salmonids rear in coastal marine waters for a  
28 period of typically two to five years, where they feed on marine

1 macroinvertebrates (e.g., krill, amphipods, squid, etc.) and  
2 small fish. (DI B at ¶9.)

3 **(1) Winter-Run Biology, Location and Movement.**

4 7. The Sacramento River winter-run Chinook salmon ESU is  
5 listed as "endangered" under the ESA. 70 Fed. Reg. 37,160 (June  
6 28, 2005). Adult winter-run Chinook salmon migrate upstream  
7 from the Pacific Ocean through the Bay-Delta estuary during  
8 November through March, moving upstream into the Sacramento  
9 River near Redding during December through April, with the  
10 greatest movement during late February through late March. (6/1  
11 Tr. 51:25 to 52:3; DI B at Ex. 3; Doc. 256 at 22:21-26.) The  
12 adults are sexually immature when migrating upstream and hold in  
13 the mainstem river for a period of months prior to spawning.  
14 (DI B at ¶10.)

15 8. Spawning typically occurs in the mainstem Sacramento  
16 River downstream of Keswick Dam during April through August,  
17 with the greatest spawning activity typically taking place  
18 during May. Egg incubation occurs between April and late  
19 September. (DI B at ¶10; Doc. 256 at 23:11-13.) Juvenile  
20 rearing and emigration typically occurs between July and  
21 February in the upper Sacramento River, with juvenile migration  
22 downstream through the Delta taking place between late November  
23 and May. (DI B at ¶10 & Ex. 3.) The geographic distribution of  
24 winter-run Chinook salmon spawning is currently limited to the  
25 mainstem Sacramento River in the reach from Keswick Dam to Red  
26 Bluff. (DI B at ¶10 & Ex. 4; 6/6 Tr. 72:11-19, 73:1-3; PE 9 at  
27 5:17-18.) However, the actual distribution of spawning and egg  
28 incubation within the reach varies among years in response to

1 water temperatures, adult abundance, and other factors. (DI B  
2 at ¶10.)

3 9. Juvenile and adult winter-run Chinook salmon use the  
4 entire Sacramento River, the Delta, and downstream bays (e.g.,  
5 Suisun, San Pablo, and central San Francisco Bays) as juvenile  
6 rearing habitat and a migratory corridor. (6/6 Tr. 72:16-19;  
7 DI B at ¶10.)

8 10. Critical habitat for winter-run Chinook salmon has  
9 been identified to include the Sacramento River, Delta, and  
10 downstream bays to the Golden Gate Bridge. (DI B at ¶10; Doc.  
11 256 at 25:7-15.)

12 **(2) Spring-Run Biology, Location and Movement.**

13 11. Adult spring-run Chinook salmon migrate upstream from  
14 the Pacific Ocean through the Bay-Delta estuary during January  
15 through mid-May, moving upstream into the Sacramento River near  
16 Redding, major tributaries such as Mill, Deer, and Butte Creeks,  
17 and the Feather River during late March through September, with  
18 the greatest movement during May. (6/10 Tr. 52:7-10; DI B at  
19 ¶11 & Ex. 5; 6/19 Tr. 16:5-7.) The adults are sexually immature  
20 when migrating upstream and hold in the mainstem river and  
21 tributaries for a period of months prior to spawning. (DI B at  
22 ¶11; 6/10 Tr. 60:25-61:1, 62:10-16; Doc. 256 at 22:28-23:4;  
23 22:13-15.)

24 12. Spring-run spawning typically occurs during  
25 late-August through September, with the greatest spawning  
26 activity during September. (DI B at ¶11; Doc. 256 at 23:15-17;  
27 6/10 Tr. 32:4-7.) Egg incubation occurs between September and  
28 January. (DI B at ¶11 & Ex. 5; see 6/10 Tr. 34:14-16.) A

1 portion of the juvenile population may move downstream as fry,  
2 while a portion rear within the upper reaches of the rivers and  
3 tributaries for one year and then migrate downstream as smolts  
4 between approximately September and early May. (DI B at ¶11 &  
5 Ex. 5; Doc. No. 256, 23:28-24:3.) Juvenile migration downstream  
6 through the Delta typically occurs between late November and  
7 August, although the majority of juvenile migration occurs  
8 during the late winter and spring. (DI B at ¶11 & Ex. 5.) The  
9 geographic distribution of spring-run spawning includes both the  
10 mainstem Sacramento River and a number of major tributaries.  
11 (DI B at ¶11 & Ex. 6.) During their seasonal period of adult  
12 and juvenile migration, the Sacramento River, Delta, and  
13 downstream bays serve as juvenile rearing habitat and a  
14 migratory corridor for both adult and juvenile spring-run. (DI  
15 B at ¶11.)

16 13. As a result of the seasonal migration through the  
17 Bay-Delta system, critical habitat for spring-run has been  
18 identified to include the Sacramento River, tributaries  
19 supporting spring-run, the Delta, and downstream bays to the  
20 Golden Gate Bridge. (DI B at ¶11.)

21 **(3) Central Valley Steelhead Biology, Location and**  
22 **Movement.**

23 14. Adult steelhead migrate upstream from the Pacific  
24 Ocean into downstream bays, such as Suisun Bay, during the late  
25 summer and early fall, where they forage for a period of time  
26 before migrating into upstream rivers during the late fall and  
27 winter, when upstream water temperatures are more suitable. (DI  
28 B at ¶12 & Ex. 7; Doc. 256 at 36:16-20.) Central Valley

1 steelhead are broadly distributed within many of the rivers and  
2 tributaries of the Central Valley, (6/6 Tr. 164:14-16),  
3 including the mainstem Sacramento, many of its upstream  
4 tributaries, the Feather, Yuba, American, Mokelumne, and  
5 Consumnes Rivers, (DI B at ¶12). There is recent evidence of  
6 steelhead occurring on other tributaries to the lower San  
7 Joaquin River. (DI B at ¶12 & Ex. 11; Doc. 256 at 35:26-27; 6/6  
8 Tr. 175:9-11, 180:19-181:5.)

9 15. Spawning typically occurs in the mainstem Sacramento  
10 River downstream of Keswick Dam and within a number of  
11 tributaries between late November and April, with the greatest  
12 spawning activity during the period from January through March.  
13 (DI B at ¶12 & Ex. 4; 6/6 Tr. 168:7-10.) Egg incubation occurs  
14 between April and late September. (DI B at ¶10 & Ex. 4.)  
15 Juvenile rearing and emigration typically occurs between  
16 December and April in the upper Sacramento river. Juvenile  
17 steelhead rear within the river year-round for a period of  
18 typically one to two years before migrating downstream to the  
19 ocean. (*Id.* at ¶12; Doc. 256 at 37:11-15.)

20 16. Juvenile migration downstream through the Delta  
21 typically occurs between late September and May. (DI B at ¶12 &  
22 Ex. 7.) The seasonal timing of migration, spawning and egg  
23 incubation, and juvenile emigration varies somewhat among  
24 Central Valley rivers. (DI B at ¶12 & Exs. 8-10.)

25 **B. Current Status of the Species.**

26 **(1) Overview.**

27 17. Winter-run Chinook are listed as endangered, 70 Fed.  
28 Reg. 37,160 (June 28, 2005), and Spring-run Chinook and Central

1 Valley steelhead are listed as threatened under the ESA, 71 Fed.  
2 Reg. 834 (Jan. 5, 2006). The 2004 BiOp considered the impacts  
3 to these three ESA-listed species of the 2004 Operational  
4 Criteria and Plan ("2004 OCAP") for combined operations of the  
5 CVP and SWP.<sup>17</sup>

6 18. NMFS evaluates a species' viability based on four  
7 criteria: (1) population abundance, (2) productivity,  
8 (3) geographic distribution, and (4) genetic diversity. (6/13  
9 Tr. 119:19-120:8; PE 15A at 7:4-6.) As a species' viability  
10 increases, its risk of extinction decreases. Mr. Oppenheim,  
11 NMFS's biologist, explained a species that is not viable is  
12 "almost extinct" or "on the verge of being extirpated." (6/10  
13 Tr. 193:11-12; 6/11 Tr. 172:18-22, 173:1-2.)

14 19. In a 2007 report commissioned by NMFS (the "Lindley  
15 article"), the Central Valley Technical Recovery Team ("CVTRT"),  
16 of which Drs. Hanson and Swanson were members, concluded that  
17 the three species were not viable and were all in jeopardy of  
18 extinction. (6/6 Tr. 15:10-11, 36:11-17; 6/10 Tr. 8:9-11;  
19 PE 1.)

20 20. In the Lindley article, the CVTRT specifically  
21 recommended "secur[ing] all extant populations" of the three  
22 species "as soon as possible." (6/6 Tr. 40:8-10; PE 1 at 20.)  
23 "[E]very extant population [should] be viewed as necessary for  
24 recovery" of the three species. (6/6 Tr. 40:18-29, 41:1; 6/10  
25 Tr. 104:6-10; 6/13 Tr. 154:7-8; PE 1 at 20.) Mr. Oppenheim

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26  
27 <sup>17</sup> Additional background on the 2004 OCAP and the 2004  
28 BiOp is included in the memorandum decision on summary judgment,  
which is incorporated by this reference. (Doc. 256.)

1 concurred with the CVTRT's conclusion. (6/10 Tr. 185:15-20,  
2 188:10-16.)

3 21. These conclusions of the CVTRT expressed in the  
4 Lindley article are undisputed, although the Lindley article  
5 suggests criteria for judging long-term recovery goals to  
6 ultimately delist the species. (PE 1.) The Lindley article is  
7 not an official NMFS publication nor is it a recovery plan. The  
8 immediate inquiry is what jeopardy is posed to the three  
9 species' ESUs over the eight-month interim period.

10 **(2) Winter-Run.**

11 22. The winter-run Chinook ESU has been listed as  
12 endangered since 1994. See 59. Fed. Reg. 440 (Jan. 1, 1994).  
13 The ESU constitutes a single population that spawns and rears in  
14 a limited stretch of habitat in reaches of the upper mainstem of  
15 the Sacramento River downstream of Keswick Dam. (PE 9 at 5:17-  
16 18; PE 15A at 13:22-14:4.)

17 23. Adult escapement (the number of adult fish that return  
18 from the ocean to spawn in freshwater each year) of winter-run  
19 was relatively high during the late-1960s and through 1978 and  
20 substantially decreased throughout the 1980s and 1990s. (DI C;  
21 6/10 Tr. 75:12-16.) Between approximately 2000 and 2006, adult  
22 winter-run returning to spawn in the Sacramento River showed an  
23 increasing trend of abundance. (6/6 Tr. 75:17-20, 188:14-16;  
24 6/19 Tr. 34:18-20.) Adult winter-run escapement in 2006  
25 exceeded 17,000 fish, the highest level of escapement in 20  
26 years. (6/19 Tr. 34:21-23.)

27 24. Adult escapement declined markedly between 2006 and  
28 2007, from over 17,000 fish in 2006 to approximately 2,500 in

1 2007. (6/10 Tr. 11:16-17, 20-2; 6/11 Tr. 173:10; 6/19 Tr.  
2 34:1-35:3.) This level is far below the goal, established in a  
3 NMFS recovery plan, of 26,000 returning adults for thirteen  
4 consecutive years. (6/12 Tr. 198:1-15.) Adult returns have not  
5 fallen this low since the drought years of the mid-1970s. (PE  
6 15B, Fig. 3.)

7 25. The cohort replacement rate<sup>18</sup> based on 2007 abundance  
8 estimates was less than 1.0 (reflecting a decline in replacement  
9 for the first time in recent years). (6/10 Tr. 24:8-10; DI B at  
10 ¶18; PE 9 at 5:18-6:2.) This means the winter-run are not  
11 recovering.

12 26. Estimates of juvenile winter-run production (known as  
13 the Juvenile Production Estimate ("JPE")) showed a generally  
14 increasing trend beginning in the early 1990's, reaching a peak  
15 in 2004 of more than 2,000,000 juvenile winter-run produced in  
16 the river and entering the Delta. (6/6 Tr. 76:9-20; DI B at ¶19  
17 & Eh. 17.) The JPE for the winter-run was approximately 500,000  
18 in 2005 and 1,300,000 in 2006. (DI B at ¶19.) As of May 15,  
19 2008, the 2008 JPE, representing the offspring of 2007 spawners,  
20 was lower than average, at approximately 500,000. (PE 9 6:2-5;  
21 6/6 Tr. 77:14-17.)

22 27. The results of recent unpublished data from the 2008  
23  
24

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25  
26 <sup>18</sup> The productivity of a species is often measured in terms  
27 of its cohort replacement rate, which is the ratio of the number  
28 of adult fish that return to spawn in a particular year versus  
the number of adult fish that produced them several years  
earlier. (PE 15A at 6:15-19.)

1 USFWS rotary screw trap sampling<sup>19</sup> at RBDD estimated that the  
2 number of juvenile winter-run migrating downstream past RBDD in  
3 2008 is between 1,100,000 and 1,500,000 fish, which is one of  
4 the lowest estimates on record. (Tr. Day 1, 77:14-17; PE 9  
5 6:2-5.) Since 2004, this estimate ranged from 3-8 million  
6 juveniles per year. (PE 9 6:2-5.)

7 28. NMFS anticipates that returns in 2008 may be about the  
8 same as in 2007, resulting in a second consecutive year of  
9 "extremely low" winter-run abundance. (6/12 Tr. 196:7-9,  
10 196:20-197:4.) As of June 25, 2008, 136 winter-run redds have  
11 been sighted in the upper Sacramento, all located above Airport  
12 Road. (6/25 Tr. 56:6-14.) This is a marked decrease from 2005,  
13 when 948 redds had been located by this time that year. (6/25  
14 Tr. 66:3-21.) New carcass<sup>20</sup> surveys indicate that, to date,  
15 there have been 218 winter-run salmon carcasses observed by boat  
16 surveys. This is a slightly higher number than observed last  
17 year at this time. (Tr. 6/25 54:13-18.)

18 29. The timing of winter-run spawning varies from  
19 year-to-year depending upon hydrology and water flow and  
20 temperature. Mr. Oppenheim opined that winter-run spawning is  
21 occurring later this year than normal but is within past years'  
22 range of variation. (6/25 Tr. 56:15-57:14.)

23 30. Because of the ESU's "extremely reduced [spatial]  
24

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25 <sup>19</sup> Rotary screw trap estimates do not account for juvenile  
mortality between RBDD and the Delta. (DI B at ¶ 20.)

26 <sup>20</sup> After spawning, winter-run and spring-run Chinook  
27 salmon die. Therefore, the discovery of carcasses is used as a  
28 measure of the spawning population. (DI B at ¶15.) Steelhead do  
not necessarily die after spawning.

1 distribution[]," it is "highly vulnerable to some sort of  
2 catastrophic event." (6/13 Tr. 120:16-21.) In addition,  
3 because of reduced genetic diversity, the winter-run is "more  
4 susceptible to disease." (6/13 Tr. 121:10-11.)

5 31. The number of winter-run salvaged at the CVP and SWP  
6 fish salvage facilities as of May 13, 2008 was 1,316 fish,  
7 substantially lower than in recent years. (PE 9 6:10-11.) This  
8 salvage figure is less than 0.3% percent of the 2008 take limit  
9 of 11,798 fish (2% of the JPE).

10 32. Overall, at present, the winter-run ESU is "clearly  
11 not recovering." (6/13 Tr. 130:19-20.) An "important criterion  
12 for recovery...would be the establishment of additional  
13 independent populations located in different geographic  
14 regions." (6/13 Tr. 131:14-18; 6/18 Tr. 207:9-14; PE at  
15 31:3-7.) All scientists conclude the winter-run population is  
16 not viable at this time because it is composed of a single  
17 population that lacks spatial diversity. (PE 1 at 13.)  
18 Nonetheless, the CVTRT concluded that winter-run ESU faces a  
19 "low" risk of extinction in the long term. (6/10 Tr. 173:4-5;  
20 PE 1 at 10.)

21 33. The exact causes of the sharp 2007 decline in winter-  
22 run abundance are unknown, but declines in other salmon  
23 populations that do not spawn in the Central Valley provides  
24 strong evidence that poor ocean conditions were a major factor.  
25 (PE 13 21:11-22:7.) In addition, the reduced number of juvenile  
26 winter-run this year is partially explained by the extremely dry  
27 hydrologic conditions.

28 34. Larger numbers of winter-run should return to spawn in

1 2009 because both the commercial and recreational salmon  
2 fisheries are closed this year.

3 35. Dr. Swanson opined that if the Bureau does not  
4 conserve cold water resources now to protect returning cohorts  
5 in 2009, and if current dry hydrology continues, winter-run egg  
6 mortality could reach 100% in 2009. (6/13 Tr. 141:1-10.)

7 36. Given the winter-run's low abundance levels in 2007  
8 and 2008, "loss of the 2009 cohort represents a very, very  
9 severe [potential] adverse impact," because it will be the third  
10 consecutive cohort (out of three cohorts) to exhibit markedly  
11 low returns. (6/13 Tr. 140:11-14.) Dr. Swanson opined, in  
12 light of a second year of low winter-run abundance in 2008, we  
13 will have "run out of cohorts that are persisting in the ocean."  
14 (6/13 Tr. 140:22-141:1.)

15 **(3) Spring-Run.**

16 37. Like the winter-run, the spring-run ESU suffers from  
17 loss of historic upstream habitat. (Doc. 256 at 29-30, 33.)  
18 The ESU was listed as threatened in 1999. (*Id.* at 29.)

19 38. The ESU is also limited in its spatial structure.  
20 (6/13 Tr. 122:14-22.) There are nine populations of spring-run.  
21 Six are "dependent" populations (i.e., their spawning grounds  
22 are within the sphere of influence of Project operations) that  
23 spawn in the Sacramento River mainstem above RBDD, in  
24 tributaries above RBDD, or in the Feather River. Three are  
25 "independent" populations (i.e., their spawning grounds are  
26 outside the influence of Project operations) that spawn on  
27 Butte, Mill, and Deer Creeks, tributaries that join the  
28 Sacramento River below RBDD.

1           38.1. Once the largest spring-run population,  
2 totaling 20,000 adults in 1986 (6/10 Tr. 31:6-13), the  
3 population that spawns above RBDD on the mainstem Sacramento and  
4 upper tributaries "has declined precipitously and [now] persists  
5 at very[,] very low numbers," constituting approximately 10% of  
6 the ESU as a whole (6/13 Tr. 122:12-14). The 2007 Grand Tab<sup>21</sup>  
7 figures indicate that slightly more than 1,300 spring-run  
8 returned to spawn on the mainstem or tributaries above Red Bluff  
9 Diversion Dam. (DI J.) This population nonetheless constitutes  
10 "an important component of the spatial structure" of the ESU.  
11 (6/13 Tr. 151:8-11.) One of these populations, on Clear Creek,  
12 is the subject of one of Plaintiffs requests for emergency  
13 relief. Although that population is not presently viable, its  
14 numbers increased in recent years. (PE 9 at 7:13-14; 6/19 Tr.  
15 138:10-13; PE 15A at 16:6-7.) The experts agree that  
16 establishing a viable Clear Creek population would benefit the  
17 spring-run Chinook ESU's recovery. (6/6 Tr. 65:24-66:6; 6/10  
18 Tr. 30:21-23; 6/13 Tr. 16:4-22.)

19           38.2. The additional dependent population on the  
20 Feather River, comprises 10% to 25% of the entire ESU. (6/6 Tr.  
21 144:13-15, 145:14-15.)

22           38.3. The "independent" populations on Butte, Mill,  
23  
24

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25           <sup>21</sup> GranTab is a spreadsheet database maintained by CDFG  
26 using data on adult salmonid abundance (based on spawning  
27 escapement) to the various Central Valley rivers and creeks, and  
28 adult harvest estimates compiled by CDFG, USFWS, and other state  
and federal resource agencies. (DI B at ¶15, 6/19 Tr. 73:10-  
74:21.)

1 and Deer Creeks, comprise 65-90%<sup>22</sup> of the spring-run ESU. It is  
2 undisputed that the close geographic proximity of these  
3 independent populations reduces the ESU's spatial distribution,  
4 increases its vulnerability to catastrophic events such as a  
5 large wildfire,<sup>23</sup> and decreases the species ability to cope with  
6 global climate change (6/13 Tr. 122:23-123:13), thereby  
7 increasing its risk of extinction (6/13 Tr. 150:17-20; 6/10 Tr.  
8 174:22-25, 179:20-180:5; PE 4.26). These latter risks are not  
9 directly attributable to the Projects.

10 39. Overall, for the entire ESU, following a period of low  
11 adult escapement between 1991 and 1997, adult spring-run  
12 abundance in the Central Valley began to increase in 1998. (DI  
13 B at ¶39 & Ex. 37.) Adult abundance generally increased between  
14 1999 and 2005, followed by a moderate reduction in adult  
15 escapement in 2006 and 2007. The estimated adult escapement of  
16 spring-run in 2007 was approximately 10,500 fish, which was  
17 similar to adult escapement in 2006 (approximately 10,600 fish).  
18 (DI B at ¶39; PE 9, 7:1-3.) Spring-run adult escapement did not  
19

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20 <sup>22</sup> Dr. Hanson opined that 90% of the spring run-ESU spawn  
21 in Butte, Mill, and Deer Creeks, with the remaining 10% spawning  
22 in the upper Sacramento and its tributaries above RBDD. (6/12  
23 Tr. 41:2-7.) However, he also testified that 10%-25% of the ESU  
24 spawns on the Feather River. (6/6 Tr. 144:13-15, 145:14-15)  
Including the 10% on the upper Sacramento, this leaves 65-80%  
remaining in Butte, Mill, and Deer Creeks.

25 <sup>23</sup> It is undisputed that a large wildfire is currently  
26 burning in the vicinity of Deer, Mill, and Butte Creeks, but the  
27 record does not reveal whether these fires will cause harm to the  
28 species or serve as the type of "catastrophe" that would  
measurably increase the spring-run's risk of extinction. This  
finding is without prejudice to any future information that might  
change the outlook of the independent populations.

1 show the magnitude of reduction in 2007 that was observed in  
2 either adult winter-run or fall-run escapement. (6/6 Tr.  
3 139:1-3.) This is explained by differences in the size of  
4 juveniles, seasonal timing of ocean entry, differences in ocean  
5 behavior, diet, and migration patterns. (DI B at ¶39.)

6 40. For a number of reasons, there is limited information  
7 about juvenile production for spring-run. (6/6 Tr. 143:15-22,  
8 144:3-9; DI B at ¶41.) Juvenile salmon monitoring occurs  
9 downstream in the Delta at Chipps Island as a part of USFWS's  
10 midwater trawl. (6/6 Tr. 78: 6-9; DI B at ¶¶21, 41.) However,  
11 it is difficult to differentiate juvenile spring-run from  
12 juvenile fall-run Chinook salmon in these samples. (DI B at  
13 ¶41.) As a result, estimates of annual abundance from the  
14 Chipps Island trawl have been combined by USFWS for both  
15 spring-run and fall-run salmon. (*Id.*) These juvenile abundance  
16 estimates are characterized by annual variation but do not show  
17 a trend of either increasing or decreasing juvenile production.  
18 (*Id.* at Ex. 39.)

19 41. According to Mr. Oppenheim, "any processes that  
20 increase spring-run Chinook salmon mortality in the future can  
21 have significant impacts on the population demographics and  
22 therefore on the risk of extinction." (6/10 Tr. 179:23-180:5;  
23 PE 4.26.) Dr. Swanson confirmed that the ESU's ability to  
24 achieve viability "depends on having a more diverse spatial  
25 structure." (6/13 Tr. 151:3-4; 6/19 Tr. 131:6-22, 132:4-7.)  
26 Additional factors that are preventing the ESU from becoming  
27 viable include low genetic diversity and introgression with  
28 fall-run Chinook. (6/12 Tr. 22:16-23:6.)

1 42. In general, the ESU has demonstrated a negative cohort  
2 replacement rate over the last four years, indicating that the  
3 species is not replacing itself. (6/10 Tr. 175:3-6; 6/11 Tr.  
4 88:5-8; PE 9 at 7:3-5.) Trends in spring-run abundance,  
5 population, and productivity in recent years indicate that the  
6 ESU's status is deteriorating. (6/13 Tr. 122:18-22.)

7 43. Spring-run are not presently recovering. (6/10 Tr.  
8 30:18-20; 6/13 Tr. 131:12-13.) Recovery goals include  
9 increasing the ESU's geographic distribution and establishing  
10 additional independent populations: "Spring-run recovery will  
11 require establishment of additional populations outside of those  
12 present in [M]ill, [D]eer and Butte Creek[s]." (6/13 Tr.  
13 131:21-23; 6/18 Tr. 207:15-19.) For this reason, "all extant  
14 populations...should be viewed as essential to the recovery of  
15 the species," including the recently re-established Clear Creek  
16 population. (6/10 Tr. 30:21-23; PE 9 at 7:13-15.) Nonetheless,  
17 the CVTRT concluded that the ESU, based primarily on the  
18 independent populations on Butte, Mill & Deer Creeks, is at  
19 "low" risk of extinction in the long term. (6/10 Tr. 173:4-5;  
20 PE 1 at 10.)

21 **(4) Steelhead.**

22 44. Access to much of the Central Valley steelhead's  
23 historic and preferred spawning habitat in Sacramento River  
24 tributaries at high elevations has been blocked by dams. (6/6  
25 Tr. 168:20-169:3.) The ESU was listed as threatened in 1998 as  
26 a result of several factors, including loss of historic habitat  
27 and declining abundance. (Doc. 256 at 35, 38-39.)

28 45. Recent data on the status of the steelhead is limited.

1 It is difficult to reliably estimate steelhead abundance due to  
2 lack of accurate monitoring information, but the experts agree  
3 that the best available information indicates that since 2004,  
4 steelhead abundance has continued to decline and that the  
5 species is consistently and presently at low abundance. (6/6  
6 Tr. 31:8-9, 160:10-11, 162:14-19; 6/10 Tr. 93:25-94:4; 6/13 Tr.  
7 70:25-71:3, 96:25-97:2, 104:16-18, 132:22-25.) Estimates of  
8 juvenile steelhead abundance based on results of the USFWS  
9 Chipps Island midwater trawl surveys show a declining trend in  
10 juvenile abundance between 1995 and 1997 with consistently low  
11 abundance (densities) every year between 1998 and 2007. (6/6  
12 Tr. 163:1-11; DI B at Ex. 45.)

13 46. A 2005 report released by the Biological Review Team  
14 concluded:

15 If we make the fairly generous assumptions (in the  
16 sense of generating large estimates of spawners) that  
17 average fecundity is 5,000 eggs per female, 1 percent  
18 of eggs surviving to reach Chipps Island, and 181,000  
19 smolts are produced (the 1998-2000 average), about  
20 3,628 female steelhead spawn naturally in the entire  
21 Central Valley. This can be compared with McEwan's  
22 (2001) estimate of 1 million to 2 million spawners  
23 before 1850, and 40,000 spawners in the 1960s.

24 (PE 9 at 38:20-39:6 (citing Good et al. 2005).)

25 47. A 2003 study by Nobriga and Cadrett approximated that  
26 100,000 to 300,000 steelhead juveniles are produced naturally  
27 each year in the Central Valley. (PE 9 at 39:19-20.)

28 48. According to Mr. Oppenheim:

Existing wild steelhead stocks in the Central Valley  
are mostly confined to the upper Sacramento Rivers and  
its tributaries, including Antelope, Deer and Mill  
Creeks[,] and the Yuba River. Populations may exist  
in Big Chico and Butte Creeks and a few wild steelhead  
are produced in the American and Feather Rivers  
(McEwan and Jackson 1996). On January 5, 2006 (71 FR

1 834), NMFS designated Feather River Hatchery steelhead  
2 as part of the DPS. The in-river produced Feather  
3 River steelhead are limited to a small area within the  
4 low flow channel where water temperatures and flow  
5 remain constant (600 cfs year round). Recent snorkel  
6 surveys (1999 to 2007) indicate that steelhead are  
7 present in Clear Creek, however, due to a large  
8 resident *O mykiss* population in Clear Creek, steelhead  
9 spawner abundance is difficult to determine. Until  
10 recently, Central Valley steelhead were thought to be  
11 extirpated from the San Joaquin River system. Recent  
12 monitoring has detected small self-sustaining  
13 populations of steelhead in the Stanislaus, Mokelumne,  
14 and Calaveras River, steelhead smolts have been  
15 captured in rotary screw traps at Caswell State Park  
16 and Oakdale each year since 1995 (S.P. Cramer 2000 to  
17 2007) and adults have been observed moving through the  
18 fish weir in recent years (S.P Cramer 2007). Recent  
19 studies (Zimmerman *et al.* 2008) have documented  
20 Central Valley steelhead in the Stanislaus,  
21 Tuolumne[,] and Merced Rivers based on otolith  
22 microchemistry.

23 (PE 9 at 39:19-40:12.)

24 49. Steelhead populations in Deer, Mill, and Antelope  
25 Creeks are stable, but these populations remain suppressed. (PE  
26 9 8:12-14.)

27 50. Low population numbers heighten the ESU's  
28 vulnerability to catastrophic events. (6/13 Tr. 19:11-16.) In  
light of the declining trends in population, abundance, and  
spatial distribution, as well as habitat loss, the ESU as a  
whole is not viable. (6/11 Tr. 174:2-8.) The ESU's becoming  
viable depends on maintaining the small populations in every  
stream where steelhead exist. (6/18 Tr. 19:17-21, 20:18-22.)  
There is no evidence that the ESU is recovering. (6/13 Tr.  
132:24-25.)

51. Mr. Oppenheim testified that the steelhead ESU is  
presently "in jeopardy of extinction" (6/6 Tr. 37:25-38:1),  
while Dr. Swanson opined that it is at "high risk of extinction"

1 (6/13 Tr. 70:2-24, 129:21-24). The CVTRT concluded that this  
2 ESU is at a moderate to "high" risk of extinction in the long  
3 term. (6/10 Tr. 184:6-10; PE 1 at 10.)

4 **C. Impacts from Non-Project Related (Baseline) Conditions.**

5 52. Juvenile salmon rear in coastal waters for several  
6 years before returning to freshwater. Typically, sub-adult and  
7 adult Chinook salmon are harvested in coastal commercial and  
8 recreational fisheries while steelhead (because of their diet)  
9 are not vulnerable to ocean harvest. (DI B at ¶9.) Both adult  
10 Chinook salmon and steelhead are harvested in relatively low  
11 numbers in the inland recreational fisheries within San  
12 Francisco, San Pablo, and Suisun bays, Delta, and the Sacramento  
13 River and its tributaries. (DI B at ¶9; 6/6 Tr. 94:2-3.)

14 53. An NMFS BiOp for the ocean harvest of winter-run  
15 allows take of 20% of the estimated adult winter-run population  
16 annually. (DI B at ¶9.) The salmon harvested by fishermen are  
17 primarily three year old fish. (6/6 Tr. 94:8-10; 6/12 Tr.  
18 126:14-15.) When harvest is allowed, it adversely impacts  
19 abundance and age structure. (6/18 Tr. 178:17.)

20 54. The salmon season, both commercial and recreational,  
21 has been closed for 2008, due to poor ocean conditions, meaning  
22 that there will effectively be no harvest through March 2009.  
23 (See PE 9 at 11:11-13.) This shutdown of the salmon fishing  
24 industry may result in improved survival for those cohorts still  
25 out at sea. (6/6 Tr. 135:25-136:5; 6/12 Tr. 24:9-13.)

26 55. It is undisputed that recent years' ocean conditions  
27 have been poor. During 2004 and 2005, standard indices that  
28 measure the abundance of salmonid food sources were

1 substantially lower than in prior years, resulting from a lack  
2 of ocean upwelling off the coast. (6/6 Tr. 90:23-25.) Fall-run  
3 and winter-run Chinook and Coho salmon escapement numbers  
4 exhibited marked declines in 2007, including runs that spawned  
5 and reared in coastal tributaries that are completely  
6 independent of environmental and Project-induced conditions in  
7 the Delta watershed. (6/6 Tr. 90:1-7, 90:25-91:4.) Spring-run  
8 did not show declines attributable to ocean conditions, because  
9 spring-run exhibit different seasonal timing of ocean entry and  
10 different juvenile diet at the time of ocean entry. (DI B at  
11 ¶39.)

12 56. It is undisputed that natural hydrologic (rainfall and  
13 climate) conditions affect Central Valley salmonid populations,  
14 both negatively (in dry years) and positively (in wet ones).  
15 (6/6 Tr. 59:18-60:11.)

16 57. Dam and flood control structures not related to the  
17 Projects caused significant habitat loss. (PE 9 at 17-18.)

18 58. Other material, non-Project adverse impacts include  
19 in-Delta water diverters; toxics and other pollutants in the  
20 water; hatchery fish, which can diminish genetic integrity and  
21 species strength; disease; predation; and alien invasive  
22 species. (PE 9 at 18-24.)

23 59. No party has provided an estimate of the overall,  
24 cumulative effects of non-Project impacts on the species'  
25 survival and recovery and loss of critical habitat.

26 **E. Project-Related Impacts.**

27 **(1) Overview of Project Operations.**

28 60. This water year, both the Sacramento and San Joaquin

1 Valleys are hydrologically classified as "critically dry." (7/1  
2 Tr. 11:5-7.) This March, April, and May were the driest on  
3 record (in terms of precipitation). (7/1 Tr. 11:12-14.) The  
4 level of dryness that occurred this spring occurs in less than  
5 one percent of the years of record. (7/1 Tr. 14-18.)

6 61. Storage in the CVP's upstream reservoirs is very low.  
7 (7/1 Tr. 11:24-12:1.) The northern reservoirs are at their  
8 lowest levels since the end of 1992, which followed an extended  
9 (5 year) period of drought. (7/1 Tr. 12:2-3.) Inflows into the  
10 CVP reservoirs have been very low this year, ranging from  
11 between 40% and 60% of normal. (7/1 Tr. 12:4-19.)

12 62. The Governor of California has declared a statewide  
13 drought and drought emergencies within certain counties in the  
14 Central Valley. (7/1 Tr. 17:25-18:7.)

15 63. The elements of the CVP and SWP are operated together  
16 as an integrated system, in coordination with DWR, NMFS, USFWS,  
17 the California Department of Fish and Game ("CDFG"), the Western  
18 Area Power Administration, and local entities. (6/27 Tr.  
19 117:22, 121:22-122:2-5.)

20 64. The Bureau operates the CVP for multiple beneficial  
21 uses, with the goal of ensuring that every release of water is  
22 used for multiple purposes. (6/27 Tr. 128:5-11.) For example,  
23 a release from a reservoir may generate power, help to meet a  
24 temperature objective, then meet an inflow standard or objective  
25 further downstream, and finally be diverted for use as water  
26 supply. (*Id.*)

27 65. The statutory purposes of the CVP include river  
28 regulation, storage and release of water for consistency in

1 streamflows, prevention of saltwater intrusion, and downstream  
2 water quality requirements. Act of Aug. 26, 1937, ch. 832, 50  
3 Stat. 844, 850; see also *United States v. SWRCB*, 182 Cal. App.  
4 3d 82, 135-36 (1986). As discussed above, CVPIA sections  
5 3406(a) and (b) made non-ESA listed fish and wildlife equal  
6 priorities with water service for irrigation, and identified the  
7 Bureau's duty to operate the CVP in compliance with the ESA.

8 66. Under the Reclamation Act of 1902, 43 U.S.C. § 383,  
9 the Bureau must proceed in conformity with state laws, except  
10 where federal laws conflict. SWRCB Decision 1641 ("D-1641")  
11 provides that the Bureau must comply with applicable water  
12 quality requirements.

13 67. The Bureau gives the highest priority in its water  
14 allocation decisions to prescribed (i.e., mandatory) legal  
15 requirements that constrain its operations, including the terms  
16 and conditions of applicable BiOps under the ESA, the terms and  
17 conditions of water rights permits, settlement agreements with  
18 senior water rights holders, and water quality standards  
19 (including those imposed by D-1641). (6/27 Tr. 130:15-24.) The  
20 second tier in the priority of water allocations includes  
21 deliveries to water contractors (both agricultural and municipal  
22 and industrial) and "level two" deliveries to wildlife refuges  
23 (for restoration purposes). (7/1 Tr. 10-16.) The third tier  
24 (lowest) priority of water service needs includes power  
25 generation, incidental recreational use, and "level four"  
26 deliveries to wildlife refuges (for wildlife enhancement  
27 purposes). (7/1 Tr. 4:2.)

28 68. The Bureau prepares a 12-month forecast to guide its

1 operation of the CVP, but plans specific management actions,  
2 including specific levels of releases from reservoirs only three  
3 to four days in advance, to respond to the significant  
4 uncertainties that affect operations, including day-to-day  
5 weather conditions (including rainfall, air temperatures, and  
6 runoff) and the level of depletions or accretions within the  
7 river basins. (6/27 Tr. 119:22-23, 120:13-20.)

8 69. Releases from CVP reservoirs may increase ("accrete")  
9 or decrease ("deplete") as they travel to the Delta as a result  
10 of the natural migration of water through the soil of the river  
11 channels, small creeks that feed into the river systems, and  
12 diversions by riparian water rights holders (including in-Delta  
13 diverters). (6/27 Tr. 120:23-121:4; 7/1 Tr. 15:4-11.) This  
14 year, depletions are especially high -- that is, much less of  
15 the water released from the reservoirs actually reaches the  
16 Delta -- due to the very dry conditions that the Central Valley  
17 has experienced since the beginning of March. (6/27 Tr.  
18 121:12-17.)

19 70. The Bureau's most recent 12-month forecast was  
20 completed at the beginning of June. (PE 12 at Att. 2.) The  
21 conditions included in that forecast are based on a 75%  
22 probability of occurrence. A 75% year is one in which  
23 conditions in the Central Valley would be wetter than the  
24 assumed conditions in 75% of years, based on the historic  
25 record. (7/1 Tr. 27:5-13.) This is a conservative forecast for  
26 conditions during the next water year, and equates to a dry or  
27 critically dry year. (7/1 Tr. 27:14-28:9.)

28 71. Deliveries to CVP and SWP water service contractors

1 have been substantially reduced in light of very dry conditions  
2 in the Central Valley. (7/1 Tr. 13:5-7.) Agricultural service  
3 contractors north of the Delta are receiving a 40% allocation  
4 this year, adjusted downward from an initial projection of a 45%  
5 allocation due to increasingly dry conditions this spring. (7/1  
6 Tr. 13:8-20.) Agricultural service contractors south of the  
7 Delta are also receiving a 40% allocation this year, and  
8 deliveries during June, July, and August will be further limited  
9 to 35% by restrictions on Delta pumping. (7/1 Tr. 13:21-14:8.)  
10 Municipal and industrial ("M&I") contractors are receiving a 75%  
11 allocation this year. (7/1 Tr. 14:9-13.) Level two refuge  
12 needs are receiving 100%. (7/1 Tr. 14:14-19.)

13 72. Sacramento River Settlement Contractors are receiving  
14 100% allocation because, under the terms of their contracts,  
15 these allocations are linked to Shasta inflow criteria that were  
16 met this year. (7/1 Tr. 17:3-4.) Similarly, the San Joaquin  
17 River Exchange Contractors (priority south-of-Delta Eastside  
18 contractors) are receiving 100% allocations because their  
19 contracts are also linked to Shasta inflows. (7/1 Tr. at  
20 17:13-20.)

21 73. Between now and the end of the summer, the Bureau will  
22 generally be operating the CVP to meet temperature compliance  
23 points on the Sacramento and American Rivers, (7/1 Tr.  
24 28:12-17), and/or to meet requirements in the Delta set by D-  
25 1641, (7/1 Tr. 28:12-17).

26 74. The Bureau expects that its operations will be subject  
27 to additional constraints once USFWS issues its new BiOp on the  
28 effects of CVP operations on the Delta smelt due September 15,

1 2008. (7/1 Tr. 29:15-21.)

2 **(2) Shasta Reservoir/Sacramento River Operations.**

3 75. The only remaining population of winter-run spawns  
4 and rears in the upper Sacramento River, downstream of Keswick  
5 Dam and Shasta Reservoir. (6/6 Tr. 72:16-22.) A relatively  
6 small population of spring-run also currently spawns in the  
7 upper Sacramento and tributaries above RBDD, as do some  
8 steelhead. (6/6 Tr. 144:4-9. 146:17-21; 6/12 Tr. 24:24-25:1; DI  
9 B at ¶12.)

10 **(a) Operations.**

11 76. Shasta operations are characterized in part by two  
12 parallel management tasks: (1) the control of temperatures on  
13 the upper Sacramento River during the summer and fall to keep  
14 temperatures sufficiently low to avoid jeopardy to fish  
15 populations; and (2) the maintenance of carryover storage  
16 ("COS") in Shasta Reservoir at the end of the water year,  
17 September 30th, the sufficiency of which affects the Bureau's  
18 ability to control water temperatures to protect fish the  
19 following summer.

20 77. The 2004 BiOp calls for the Bureau to maintain a  
21 target of 1.9 million acre-feet (MAF) of carryover storage in  
22 Shasta. (6/11 Tr. 1:20-2:12.) The 2004 BiOp recognizes,  
23 however, that the 1.9 MAF target might not be met in 15% to 19%  
24 of the years, the percentage of years predicted to be dry based  
25 on historic averages. (PE 3 at 107.) The Bureau currently  
26 predicts that end-of-September carryover storage for Shasta will  
27 be 1.548 MAF, approximately 350,000 acre-feet less than the  
28 target. (PE 3 at 107; PE 12 at Att. 2.) Mr. Milligan opined

1 that storage should be returned to 1.9 MAF by the end of  
2 December 2008. (FD C at Att. 2.) How this will benefit  
3 temperature control operations was not explained.

4 78. The Bureau anticipates additional constraints from the  
5 Delta smelt BiOp to be issued September 15, 2008. (7/1 Tr.  
6 29:15-21.)

7 79. At the same time, the 2004 BiOp requires that the  
8 Bureau maintain 56°F or cooler flows at Balls Ferry on the  
9 Sacramento River, the so-called temperature compliance point  
10 ("TCP"), for the benefit of Chinook eggs and emerging fry, which  
11 require temperatures of 56°F or less. (See PE 3 at 219; PE 15A  
12 9:27-28.) When it does not appear that the TCP can be  
13 maintained at Balls Ferry, the 2004 BiOP requires the Bureau to  
14 convene the Sacramento River Temperature Task Group ("SRTTG").  
15 (PE 9 4-5, ¶5.)

16 80. The SRTTG uses real-time data, including information  
17 about Shasta's coldwater pool, throughout the season, to  
18 formulate, monitor, and implement a temperature control plan for  
19 the Sacramento River. (DI B at Ex. 16.) Members of the SRTTG  
20 include representatives of the SWRCB, NMFS, USFWS, and CDFG,  
21 among others. (DI B at Ex. 12, n.3; 6/12 Tr. 124:17-25.) Mr.  
22 Oppenheim is a member of the SRTTG. (6/10 Tr. 192:9-10.)

23 81. In mid-May 2008, the SRTTG recommended that the Bureau  
24 modify its releases of water from Shasta Dam to blend warmer  
25 water with cold water to conserve the coldwater pool in Shasta.  
26 (6/6 Tr. 11:1-8; 6/12 Tr. 185:8-11.) That warm water release  
27 recommendation was approved after being considered by the Water  
28 Operations Management Team ("WOMT"). (6/11 Tr. 25:24-26:12;

1 6/12 Tr. 26:2-12, 191:2-19.) The Bureau implemented this bypass  
2 from June 1 to June 20, 2008. (6/11 Tr. 26:2-12; 191:2-19.)<sup>24</sup>

3 82. In early June 2008, the SRTTG recommended maintenance  
4 of the TCP upstream, at Airport Road, to provide suitable  
5 habitat for both winter-run and spring-run spawners. (6/11 Tr.  
6 12:4-6.) Airport Road is located approximately half way between  
7 Balls Ferry (at river mile 274.85) and the Clear Creek  
8 confluence with the Sacramento (at river mile 289.12). Given  
9 that Keswick Dam is located at river mile 300.90, this leaves  
10 approximately between 18 to 19 miles of habitat of suitable  
11 temperature. (See FD D; 6/20 Tr. 202:16-17.)

12 83. Moving the TCP further downstream might encourage  
13 salmon to spawn in a reach of the River where temperature cannot  
14 be controlled throughout the entire incubation period,  
15 subjecting eggs to increased mortality. (6/11 Tr. 188:19-25,  
16 192:3-9.) According to Mr. Oppenheim, the SRTTG engages in a  
17 "balancing act between meeting the downstream requirements [in]  
18 the Delta and meeting...the carryover target and the temperature  
19 [compliance point] in the upper Sacramento." (6/11 Tr. 195:24-  
20 196:3.) Current modeling indicates that the coldwater pool at  
21

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22 <sup>24</sup> Plaintiffs complain that the delay between the SRTTG's  
23 recommendation and the Bureau's implementation of the bypass (15-  
24 20 days) and the resulting release of cold instead of warm water  
25 was unacceptable. It is unnecessary to determine whether the  
26 Bureau unnecessarily delayed the implementation of the bypass  
27 because the undisputed evidence indicates that implementing the  
28 bypass earlier would not have conserved a significant amount of  
additional cold water because there was not a significant  
difference between the temperature of the water that could be  
accessed using the temperature control device and the water  
accessible via the bypass. (7/1 Tr. 59:19-60:5.)

1 Shasta will be sufficient to maintain the TCP at Airport Road  
2 through the end of September. (6/11 Tr. 30:7-11; 7/1 Tr. 72:25-  
3 73:4.)

4 84. The stated goal of the SRTTG is to protect 90 percent  
5 of the fish 90 percent of the time. (6/11 Tr. 17:4-6.)

6 85. Between now and the end of the summer, the Bureau will  
7 generally be operating the CVP to meet temperature compliance  
8 points on the Sacramento and American Rivers, (7/1 Tr.  
9 28:12-17), and/or to meet requirements in the Delta set by D-  
10 1641, (7/1 Tr. 28:12-17). Earlier in the summer, the Bureau  
11 made some deliveries to maintain adequate flows in the  
12 Sacramento River at Wilkins Slough to facilitate diversions by  
13 riparian water rights holders. These releases did not affect  
14 the coldwater pool because they were made from a warmer part of  
15 Shasta Reservoir. (7/1 Tr. 87:15-17, 88:12-16.)

16 86. In some cases, once water is used to meet mandatory  
17 obligations, it can be diverted for use by water service  
18 contractors. For example, if water is released to meet  
19 Sacramento River temperature requirements, but that water is not  
20 needed to meet the in-Delta requirements of D-1641, such water  
21 may be available for diversion upstream of the Delta or for  
22 export out of the Delta. (6/27 Tr. 128:5-11.)

23 87. Even though the Bureau believes that releases from  
24 July through September will predominantly be allocated either to  
25 temperature control requirements or Delta water quality  
26 requirements mandated by D-1641, (7/1 Tr. 94:15-20), Mr.  
27 Milligan predicts that some water will be released from  
28 reservoirs solely for the purpose of facilitating deliveries to

1 water service contractors of the balance of their 2007-08 water  
2 year allocations.

3 88. Mr. Milligan estimated that the totality of these  
4 water service contractor releases through September 30 will be  
5 between 100,000-150,000 acre-feet through the end of the water  
6 year. He believes that this volume of releases will not  
7 significantly alter the temperature compliance point for next  
8 year. (7/1 Tr. 103:11-18.)

9 89. The Bureau has considered the continued delivery to  
10 contractors for the balance of the water year. The Bureau has  
11 not modeled a scenario that cuts off all non-priority water  
12 service contract deliveries for the balance of the water year.

13 90. In addition to the coldwater pool at Shasta Reservoir,  
14 the Bureau also draws on cold water from the Trinity River  
15 system to manage water temperatures on the Sacramento River.  
16 (7/1 Tr. 42:15-23.) Plaintiffs have requested that the Bureau  
17 be ordered to include as much Trinity water as possible in  
18 Shasta operations to preserve the Shasta coldwater pool. Mr.  
19 Milligan represented that the Bureau is already considering the  
20 feasibility of drawing more water from the Trinity River system  
21 during July and August of this year to assist with temperature  
22 management on the upper Sacramento River. (7/1 Tr. 43:17-22,  
23 46:25-47:5.) However, the Trinity River watershed is also dry  
24 this year. (7/1 Tr. 45:22-23.) By the middle of August, the  
25 water from the Trinity River will have warmed to more than 56°F,  
26 which means that it is not useful in managing Sacramento River  
27 water temperatures (and is actually a detriment). (7/2 Tr.  
28 42:18-23, 44:20-45:3, 45:8-11.)

1  
2           **(b) Winter-Run.**

3           91. The SRTTG has limited mortality of winter-run eggs and  
4 fry to less than 4% since 2001. (PE 13 at 6:6-8; PE 3 at Ex. 3;  
5 6/10 Tr. 190:23-191:5, 192:4-14.)

6           92. In setting the temperature control point, the SRTTG  
7 uses CDFG aerial redd surveys to estimate the spatial  
8 distribution of spawning winter-run salmon. (6/10 Tr. 198:23-  
9 119:16.) Although there is some imprecision to aerial  
10 surveillance, the information is routinely relied upon by SRTTG  
11 and is the best available scientific data to calibrate  
12 abundance. (6/10 Tr. 199:14-16, 201:10-25; 6/13 Tr. 78:17-  
13 79:8.) To date, all 136 winter-run redds detected in aerial  
14 surveys are located above Airport Road. (PE 13 at 5:15-17; 6/13  
15 Tr. 78:6-16; Fed. Def. Ex. ("FD") B.) This is largely  
16 consistent with recent spawning patterns; since 2001, more than  
17 95% of observed redds have occurred at or above Airport Road.  
18 (PE 13 at Ex. 3.)

19           93. Plaintiffs cite the 2008 OCAP BA, at Table 5-4, which  
20 indicates that more than 5% of winter run historically spawn  
21 below Airport Road. (DI F at Table 5-4.) But, the evidence  
22 does not establish that significant numbers of winter run have  
23 recently spawned below Airport Road. (See *Id.* at Table 5-5  
24 (indicating that less than 1% of winter-run redds were located  
25 below Airport Road from 2001-2005).)

26           94. Because the vast majority of observed and predicted  
27 spawning will take place above Airport Road, moving the  
28 temperature compliance point to there is not expected to cause

1 any significant egg/fry mortality. (PE 13 at 6:2-4.)

2 95. Nevertheless, moving the TCP to Airport Road, eight  
3 miles above the 2004 BiOp's target of Balls Ferry, will reduce  
4 spawning habitat. Mr. Oppenheim opined that there will be some  
5 negative impacts from moving the TCP and suggested that in a  
6 "best case scenario" the TCP should be maintained as far  
7 downstream as possible to "provide as much habitat for the  
8 winter-run to expand into" as possible. (6/11 Tr. 186:5-10.)  
9 He also opined that there is adequate spawning habitat available  
10 above Airport Road this year to avoid superimposition of winter-  
11 run redds. (6/13 Tr. 81:4-12.) He believes there is a  
12 sufficient quantity of gravel and sufficient habitat to support  
13 a much larger population in that area. (*Id.*)

14 96. Dr. Hanson opined that, due to the SRTTG's adaptive  
15 management, less than 3% of this year's winter-run would be  
16 impacted by temperature control operations at Shasta and CVP  
17 operations. (6/10 at 190:24-191:5.)

18 **(c) Spring-Run.**

19 97. The record does not reveal specific mortality figures  
20 for spring-run salmon in the upper Sacramento. The eggs of  
21 spring-run, which spawn in late August and early September, are  
22 affected by temperature conditions on the Sacramento during  
23 those months. (6/6 Tr. 146:17-147:3.) By late October,  
24 although spring-run eggs are still incubating, ambient  
25 temperatures tend to be low enough to eliminate much of the  
26 threat of temperature stress on the Sacramento River. (6/6 Tr.  
27 147:15-20.)

28

1           **(d) Steelhead.**

2           98. The record does not contain specific mortality figures  
3 for steelhead on the Sacramento River. Steelhead adults and  
4 eggs are not affected by Shasta TCP/carryover management because  
5 they spawn in the winter. (6/12 Tr. 44:21-45:9.) However,  
6 juveniles oversummer in Central Valley rivers and tributaries,  
7 including the Sacramento mainstem. (6/6 Tr. 165:2-12.) Because  
8 suitable habitat for juvenile steelhead is characterized by  
9 water temperatures of between 63°F and 65°F and below, (6/6 Tr.  
10 173:19-21), temperature control management below Shasta will  
11 likely be protective of oversummering juvenile steelhead. (6/6  
12 165:2-12; 169:22-170:5.)

13           **(e) Worst Case Scenario.**

14           99. In part because current operational forecasts predict  
15 only 1.548 MAF carryover storage in Shasta at the end of this  
16 water year, there is concern that if next year is also dry,  
17 there may not be enough cold water in Shasta to preserve any  
18 habitat for next year's (2009) winter-run spawners. (6/13  
19 141:1-7, 146:16-20.) This could, under a worst case scenario,  
20 result in the complete loss of the 2009 winter-run year class.  
21 (6/11 Tr. 197:19-20, 198:7-11; 6/13 Tr. 141:5-10, 146:18-22;  
22 6/18 Tr. 25:18-20.) Given the winter-run ESU's current "status  
23 and trajectory" toward extinction, the fact that the 2007 and  
24 2008 cohorts are at record low numbers, and the fact that the  
25 ESU consists of a single population, the winter-run may be  
26 unable to "tolerate," i.e. to recover from, temperature failure  
27 in 2009. (6/19 Tr. 25:12-26:24.)

28           100. Notwithstanding the potential loss to the 2009 year

1 class, none of the three species will be extirpated even if  
2 temperature control was impossible in 2009, because other year  
3 classes remain in the ocean, (6/11 Tr. 190:24-199:5), although  
4 it is undisputed that the 2007 and 2008 year winter-run classes  
5 are diminished.

6 101. The defendants' experts opine it is preferable to  
7 protect this years' population by adaptive management, than to  
8 reserve water to to protect next years' cohort. (6/13 Tr.  
9 82:17-23.)

10 102. The Bureau's discretion to hold water in Shasta is  
11 severely constrained by a variety of mandatory legal  
12 requirements, primarily temperature control requirements on the  
13 upper Sacramento and in-Delta requirements imposed by D-1641.  
14 Mr. Milligan estimates the approximately 100,000-150,000 acre-  
15 feet of water discretionarily released to water service  
16 contractors over the next nine months are minimal, (7/1 Tr.  
17 80:22-81:4), and will not make a significant difference to next  
18 years' coldwater pool, nor will further contractor reductions  
19 improve ability to manage Sacramento River water temperatures,  
20 (7/1 82:5-83:10). As no contrary operational evidence was  
21 presented, Mr. Milligan's testimony is accepted as accurate.

22 **(3) Impacts of Red Bluff Diversion Dam Operations.**

23 103. The RBDD traverses the Sacramento River at Red Bluff,  
24 between river miles 241 and 242. (6/24 Tr. 5:12-13.) The dam  
25 is comprised of eleven gates across the Sacramento River that,  
26 when lowered, raise the elevation of the river to allow water to  
27 flow by gravity into the Tehama-Colusa and Corning Canals, where  
28 water is distributed mainly to agricultural users. (6/24 Tr.

1 6:9-18.) At peak irrigation demand, which usually occurs in mid  
2 July, RBDD diverts as much as 1,200 cfs of Sacramento River  
3 flows. (6/24 Tr. 10:4-8, 11:5-10.)

4 104. Initially, RBDD gates were closed year round,  
5 including the period from December through April of each year,  
6 when deliveries were made to a fish rearing facility in the  
7 Tehama Colusa Canal. (6/24 Tr. 75:2-9.) Later, when that fish  
8 rearing facility was abandoned, the gates were opened from  
9 December through April. (*Id.*) Early fish studies at RBDD  
10 demonstrated that the closure of RBDD's gates created a barrier  
11 to fish passage, resulting in delayed migration, disorientation  
12 of juveniles, and increased mortality. (DI B at 22 ¶25.) Based  
13 on the results of these earlier studies, RBDD gate operations  
14 have been modified over time to reduce the seasonal period when  
15 the gates are closed. (*Id.*)

16 105. Current gate operations are based on the 1993 NMFS  
17 BiOp for winter-run salmon. Under the 1993 BiOp, the gates at  
18 RBDD are required to be opened nine months of the year, from  
19 September 15 to May 14 each year for the protection of the  
20 species. (6/24 Tr. 74:15-25; PE 3 at 111-113.) This schedule  
21 overlaps the peak spring-run upstream migration period of late  
22 April through June.

23 106. RBDD design includes three fish ladders to facilitate  
24 fish migration, which "pass[] approximately 700 cfs." (6/20 Tr.  
25 155:6-21.)

26 107. There is also an experimental pumping plant located  
27 near RBDD, which is capable of delivering 465 cfs into the  
28 Tehama Colusa Canal. (6/24 Tr. 12:9-15.)

1 108. There are plans to build a new pumping plant at RBDD  
2 that would have greater capacity could permit the gates to  
3 remain open year round. (6/24 Tr. 17:7-17.) The plans are  
4 currently undergoing environmental review. (*Id.*) The project  
5 will take several more years for permitting and construction.  
6 (6/24 Tr. 17:23-18:5.)

7 (a) Impacts to Up-Migrating Adults During Entire  
8 Closure Season (Currently May 15 through Sept.  
9 15).

10 (i) Overview of Impacts to Adult Salmonids  
11 During Entire Closure Season.

12 109. When its gates are closed, RBDD "creat[es] a velocity  
13 barrier that prevents upstream migrating adult salmon and  
14 steelhead from passing under (or over) the dam." (6/10 Tr.  
15 105:10-14; PE 3 at 111.) The number of salmonids actually  
16 prevented from passage is not quantified.

17 110. During a normal closure season, up to 15% of all  
18 winter-run Chinook and 72% of spring-run Chinook that spawn  
19 above RBDD encounter closed gates at RBDD and may be blocked or  
20 delayed by RBDD. (6/10 Tr. 55:20-25, 191:6-9; PE 20.) No known  
21 mortality rates exist.

22 111. The reproductive success of those winter-run and  
23 spring-run Chinook salmon that encounter RBDD is adversely  
24 affected in several ways:

25 111.1. Migration delays at RBDD when the gates are  
26 closed deplete adult Chinook's finite energy supplies, which are  
27 intended to last throughout their migration, holding, and  
28 spawning stages. (6/10 Tr. 108:15-20.) According to the 2004  
BiOp, these delays, which can last for weeks, "may leave the

1 fish in a weakened state before spawning which may subject them  
2 to a greater chance of disease, especially if they have to hold  
3 over summer in warm water conditions prior to spawning (e.g.,  
4 spring-run Chinook salmon)." (PE 3 at 112.)

5 111.2. Blockage or passage delay at RBDD may also  
6 result in "changes in spawning distribution, hybridization with  
7 fall-run Chinook salmon, increased adult pre-spawning mortality,  
8 and decreased egg viability, all of which may result in the  
9 reduction in annual recruitment of this species." (6/10 Tr.  
10 108:20-109:7; 6/19 Tr. 96:4-10; PE 3 at 112; 6/13 Tr. 156:6-10.)

11 111.3. Those fish that are truly blocked by RBDD may  
12 consequently spawn below RBDD in the Sacramento River mainstem,  
13 "outside the area where tolerable environmental conditions" are  
14 maintained, thus causing "unsuccessful reproduction." (6/19 Tr.  
15 102:8-13, 102:23-103:2, 104:22-105:4.)

16 112. RBDD has three aging fish ladders. These "have proven  
17 to be inefficient at certain flow levels to pass anadromous fish  
18 to upstream spawning grounds." (6/11 Tr. 69:9-15; 6/10 Tr.  
19 106:2-23; 6/19 Tr. 95:23-96:2.) The BiOp for the planned  
20 pumping plant concluded that the ladders are "undersized and are  
21 not very successful in passing adult salmonid[s] without  
22 delays." (6/20 Tr. 179:21-180:10; PE 6 at 35.) Some,  
23 unquantified number fish are never able to pass the dam. (6/10  
24 Tr. 55:10-12; 6/19 Tr. 97:8.) Nevertheless, it is undisputed  
25 that some salmon do pass through the ladders each year. (6/20  
26 Tr. 155:21-25.) Fish counts in 2008 show that winter-run and  
27 spring-run have been successful at passing RBDD to the upper  
28 Sacramento River spawning grounds below Keswick and Shasta Dams.

1 (6/27 Tr. 55:20-24.)

2 113. As a result of the above-mentioned impacts, RBDD  
3 contributes to increased mortality for all three ESUs at some  
4 level that cannot be quantified. (6/20 Tr. 184) It is  
5 undisputed that elimination of RBDD gates would have benefits  
6 for all three species and their recovery. As to the plan to  
7 replace or supplement RBDD with a pumping plant, USFWS, NMFS,  
8 and CDFG all "support[] and recommend[]...return[ing] the  
9 Sacramento River at Red Bluff to pre-dam condition, the gates-  
10 out alternative." (6/11 Tr. 71:1-8; 6/13 Tr. 162:19-163:3.)  
11 Returning to year-round gates-out operations "would allow  
12 unimpeded access above and below the dam" and "represents...a  
13 substantial improvement in fish passage over the 4-month  
14 alternatives." (PE 11 at 7, 23.) The proposed pumping plant  
15 will not be complete and operative within the next few years,  
16 and certainly not within the interim period. (6/25 11:15-22.)

17 **(ii) Impacts of RBDD to Spring-Run Adult**  
18 **Migration During Entire Closure Season.**

19 114. The 2004 BiOp concludes that the impacts of RBDD are  
20 particularly detrimental to spring-run because the gate closures  
21 overlap with a greater portion of this species' seasonal  
22 migration period. (6/10 Tr. 56:6-22, 93:14-21, 109:8-12; 6/11  
23 Tr. 91:16-20; PE 3 at 112.) Approximately 10% of the entire  
24 spring-run Chinook ESU (equating to more than 70% of the spring-  
25 run Chinook populations that spawn upstream of RBDD) encounter  
26 closed gates at RBDD. (6/6 Tr. 149:8-20; 6/11 Tr. 52:4-15.)  
27 The bulk of the spring-run upstream migration passes RBDD in May  
28 and June, with less significant numbers passing in April and

1 July. (TC B at ¶11.)

2 115. Some number of those spring-run that are delayed at  
3 RBDD, but do ultimately pass, may not be able to reach their  
4 spawning habitat in upstream tributaries before water  
5 temperatures effectively "block passage and prevent the fish  
6 from ascending the stream to cooler reaches at higher  
7 elevations." (6/19 Tr. 118:1-8.)

8 115.1. This includes delays to fish that might  
9 otherwise successfully spawn as part of the spring-run Clear  
10 Creek population that has been identified as "essential to the  
11 recovery of [the] species." (6/11 Tr. 52:16-20, 89:5-11; 6/13  
12 Tr. 132:10-18; 6/19 Tr. 124:23-125:2.) Migration delays at RBDD  
13 also increase the likelihood that spring-run seeking to access  
14 the important Cottonwood Creek watershed "may encounter thermal  
15 barriers to reaching the mouth of Cottonwood [Creek].  
16 Consequently, they may then be unable to make it to cold water  
17 to spawn. This region supports a large population, so a few  
18 thermal barriers can have huge impacts." (6/11 Tr. 57:16-  
19 58:3; 54:6-16, 59:7-20, 60:2; 6/13 Tr. 157:23-158:58.) Delays  
20 at RBDD may also cause spring-run to reach Cottonwood Creek late  
21 in the summer, when inadequate instream flows will preclude  
22 access for lack of "connectivity" with the Sacramento River  
23 mainstem. (6/12 Tr. 160:4-7.) It is not possible to quantify  
24 The likelihood of such delays occurring. (6/19 Tr.  
25 117:24-118:18, 127:6-19.)

26 115.2. At the same time, the highest number of  
27 spring-run to spawn in Clear Creek over a ten year period  
28 occurred in 2007. (*Id.*) Mr. Oppenheim also explained that even

1 if a migration delay ultimately limits an individual spring-run  
2 from spawning in a tributary upstream of the RBDD, the fish  
3 might be able to successfully spawn in the Sacramento River.

4 (6/12 Tr. 28:5-10.)

5 116. Overall, Mr. Oppenheim agreed that RBDD gate operations  
6 adversely affect the spring-run ESU's chances for recovery.

7 (6/11 Tr. 87:21.) According to Dr. Hanson, opening the RBDD  
8 gates during June would "improve[] the likelihood of survival  
9 and the likelihood of successful reproduction" for the

10 Sacramento River spring-run population. (6/10 Tr. 61:16-62:3.)

11 However, spring-run are capable of, and do, spawn upstream of  
12 RBDD, as they do pass the dam. (6/12 Tr. 27:19-22.)

13 117. Spring-run do not spawn immediately upon reaching their  
14 spawning grounds because spring-run are not sexually mature  
15 during upstream migration and hold for a period of time before  
16 spawning. (6/19 Tr. 122:20-23, 123:7-11.) The effect of a  
17 migration delay on spring-run may be less significant than the  
18 effect on a sexually mature fish because the spring-run can  
19 mature downstream of RBDD. (6/10 Tr. 62:10-16; 117:9-23.)

20 **(iii) Impacts of RBDD to Winter-Run Adult**  
21 **Migration During Entire Closure Season.**

22 118. The Sacramento River is the winter-run Chinook ESU's  
23 only spawning habitat. (6/11 Tr. 53:17-25.)

24 119. The RBDD gates-closed period does not overlap with  
25 typical adult winter-run Chinook migration because winter-run  
26 move up the Sacramento River during December through April with  
27 the greatest movement during late-February through late-March.  
28 (DI B at ¶10; PE 15-A at Fig. 2; TC B.) In contrast to spring-

1 run, only approximately 15% of winter-run Chinook adults  
2 encounter RBDD gate closures between May 15 and September 15,  
3 2008. (TC B.) The gates are open the rest of the year.

4 **(iv) Impacts of RBDD to Steelhead Adult Migration**  
5 **During Entire Closure Season.**

6 120. The RBDD gates-closed period does not overlap with  
7 typical adult steelhead migration because upstream steelhead  
8 migration occurs during late fall and winter. (DI B at ¶12; PE  
9 15-A at 18:23-24; 6/12 Tr. 45:2-3.) The closure of the RBDD  
10 gates could delay 17% of those steelhead trying to migrate above  
11 RBDD, but that delay is probably not significant because  
12 steelhead have a prolonged spawning period and are therefore not  
13 as dependent on reaching the tributaries within a defined time  
14 period to hold over and spawn as are other salmonids. (6/12 Tr.  
15 46:16-24, 47:10-19; PE 20.)

16 121. Moreover, only a portion of the entire steelhead ESU  
17 spawns above RBDD. (See PE 9 at 39-40.)

18 **(b) Emergency Request To Raise Gates Through July 15.**

19 122. Initially, Plaintiffs requested, on an emergency  
20 basis, that the RBDD gates be opened immediately from mid-June  
21 through July 15 and in August be opened and closed for  
22 alternating weeks. Subsequently, Plaintiffs modified their  
23 request, and now seek opening of the RBDD gates for the entire  
24 month of August.

25 123. The emergency request that the gates be opened  
26 immediately through July 15 was submitted for decision on June  
27 27, 2008, after the district court granted Defendants' and  
28 Defendant-Intervenors' request to supplement the record with

1 additional calculations and analyses of statistical information.  
2 An oral statement of decision denied Plaintiffs' request on the  
3 following grounds:

4 124. Mr. Milligan testified that it would take at least  
5 three or four days to begin the process of closing the gates at  
6 RBDD, and another several days to safely drain the lake behind  
7 the dam in an orderly manner. (6/26 Tr. 53:3-23, 56:19-58:12.)  
8 Therefore, optimistically, normal "gates-open" flows would not  
9 be restored before July 1.

10 125. In addition, during the period just after the gates  
11 are opened, fish passage might be adversely affected for  
12 approximately one week, as the fish "fell back" in response to  
13 the increased flows. (6/25 Tr. 48:6-8.)

14 126. Juveniles would not benefit considerably from opening  
15 the gates between July 1 and July 15. Although, RBDD increases  
16 predation of juvenile winter-run, spring-run, and steelhead, the  
17 juveniles of those species are not typically present in  
18 significant numbers at the dam during the month of July. TCCA's  
19 Exhibit B, indicates that only 1.7% of winter-run juveniles,  
20 0.6% of spring-run, and 3.7% of rainbow trout/steelhead pass  
21 RBDD during the entire month of July.

22 127. Winter-run adults would not benefit considerably from  
23 the gates being opened from July 1 through July 15. As of the  
24 end of June, most adult winter-run migrating up past RBDD have  
25 already passed. (6/11 Tr. 201:1-3.) The greatest proportion of  
26 winter-run up-migration past RBDD occurs in March and April.  
27 (TC B.) According to historic run timing records, 3.4% of the  
28 winter-run encounter the dam during the entire month of July.

1 (TC B.)<sup>25</sup> Not all of those fish will be prevented from  
2 successfully spawning.

3 128. Similarly, steelhead adults would not benefit  
4 considerably from the gates being opened from July 1 through  
5 July 15. According to historic run timing records, which  
6 measure passage of rainbow trout (of which steelhead is a  
7 variant) through the fish ladders at RBDD, only 9.3 percent of  
8 those trout that pass RBDD do so during the entire month of  
9 July. (TC B.) The majority of steelhead migration occurs  
10 during late fall and winter, when the gates are open. (DI B at  
11 ¶12; PE 15A at 18:23-24.) Moreover, steelhead life history  
12 patterns are such that they are not as impacted by delays in  
13 general. (See DI B at ¶50.)

14 129. The magnitude of the impact upon spring-run adults is  
15 a matter of considerable scientific dispute between the experts,  
16 however, and depends in part on the data set utilized.

17 129.1. Dr. Hanson analyzed three separate data sets  
18 to determine the relative percentages of the species that were  
19 impacted by RBDD for the period from June 26 through July 15,  
20 2008. (DI L; 6/27 Tr. 47:24-50:7.) For each data set, he first

---

21  
22 <sup>25</sup> The most recent surveys of fish passage through the  
23 ladders at RBDD (the "Killam" reports) indicate that winter-run  
24 were still passing the dam during the June 26 through July 15  
25 period (corresponding to Julian weeks 26-28). For example, in  
26 2006, 83 of the 1,144 winter-run calculated to have climbed the  
27 ladders in that year did so between June 26 and July 15, or 7% of  
28 the ESU. (See TC N; 6/27 Tr. 83-8; TC M; TC N.) Mr. Oppenheim  
explained that there is considerable variation in run timing from  
year to year. (6/25 70:5-12.) In light of the historic run  
timing, averaged over many years, the data utilized in the Fish  
Passage Improvement Project EIS/R is more reliable than any given  
year's data.

1 analyzed what percentage of the entire ESU was impacted and then  
2 analyzed the proportional effect upon those populations of fish  
3 that spawn above RBDD. In order to distinguish between a mere  
4 "encounter" with the dam and a true adverse impact, Dr. Hanson  
5 made a series of assumptions about the proportion of fish that  
6 would be truly "blocked" (i.e., prevented from successfully  
7 spawning) by RBDD. Acknowledging that there is no way to know  
8 how many fish are truly "blocked" by RBDD, Dr. Hanson provided a  
9 range of estimates for each scenario (from 10%-50%),  
10 representing a hypothetical percentage of fish that encountered  
11 that dam but were effectively prevented from spawning by RBDD.  
12 (6/27 Tr. 52:21-53:3.)

13 129.2. These figures reflect Dr. Hanson's estimates  
14 as to the number of fish that would be effectively prevented  
15 from successfully spawning by RBDD. Although it is undisputed  
16 that no one knows the actual percentage of fish that encounter  
17 the dam that are completely blocked, there is support for his  
18 assumption that the blockage figure should not be 100%, given  
19 that some fish do pass through the ladders to spawn above RBDD.  
20 It is also undisputed that there is no data to show mortality of  
21 fish encountering RBDD.

22 129.3. Based upon fish ladder counts performed by Mr.  
23 Killam at RBDD in 2005 and 2006, Dr. Hanson estimated that  
24 between 0% and 0.1% of the entire spring-run ESU would be  
25 blocked by RBDD from June 26 through July 15, 2008. This  
26 equates to between 0% and 1.3% of those spring-run that spawn  
27 above RBDD. (DI-L.) The presence of spawning salmonids above  
28 RBDD confirms that the fish are capable of getting upriver

1 despite the dam.

2 129.4. Based upon historic data from Mr. Killam's  
3 fish ladder counts from 1974 through 1988, Dr. Hanson calculated  
4 that between 1.3% and 6.5% of those Sacramento River spring-run  
5 that spawn above RBDD would be blocked by RBDD. (6/27 Tr. 54:9-  
6 15, 112:20-28.) This is less than 0.1% - 0.8 percent of the  
7 entire spring-run ESU. (DI L.)

8 129.5. Finally, based on figures Dr. Swanson drew  
9 from a variety of sources, between 0.1% and 0.6% of the entire  
10 spring-run ESU would be blocked, which equates to 0.9% - 4.7% of  
11 those salmon that spawn above RBDD. (DI L; PE 20.)

12 130. Despite the fact that those populations of spring-run  
13 above RBDD are considered essential to the species' recovery,  
14 Plaintiffs conceded at oral argument that the proper measure of  
15 jeopardy is the impact to the entire ESU. (6/27 Tr. at 21-25.)  
16 When ESU-level impacts are considered, the range over all three  
17 data sets are all under 1% of the entire ESU. Even if 90%  
18 blockage (as opposed to the high end of Dr. Hanson's estimate of  
19 50%) is assumed, the high end of the estimated number of blocked  
20 fish would be under 2% of the entire ESU. This is not an  
21 appreciable effect on the entire spring-run ESU and is not  
22 "considerable" or "significant."

23 131. On this record, given the lack of appreciable effect  
24 on the spring-run ESU; the limited temporal duration of the  
25 requested relief; questions about the feasibility of  
26 implementation in getting the gates open; and the extent of the  
27 experts' dispute over the scientific evidence, the proposed  
28 emergency relief at RBDD will not benefit an appreciable

1 proportion of the ESU, making emergency injunctive relief  
 2 unwarranted. The ongoing adaptive management measures being  
 3 implemented by the agencies will also provide some degree of  
 4 protection to the up-migrating adults that encounter RBDD.

5 132. The movement of any adult salmonid migrants that might  
 6 encounter RBDD during this closure season (May 15, 2008 through  
 7 September 15, 2008) is largely complete for the year, and NMFS's  
 8 new BiOp is expected to be completed before any of next year's  
 9 adult migrants will encounter the dam. If, however, the BiOp is  
 10 not completed according to NMFS's current schedule, the district  
 11 court retains jurisdiction to address the need to protect up-  
 12 migrating adults.

13 (c) **Impacts to Juvenile Migration During Entire RBDD**  
 14 **Closure Season & Plaintiffs' Request to Open RBDD**  
 15 **August 1, 2008.**

16 133. Juveniles of all three species also encounter closed  
 17 gates at RBDD. The following table, containing data extracted  
 18 from TCCA's Exhibit C (TC-C), presents the proportion of each  
 19 species that encounters the dam during the closure season:

20 **Table 1: Excerpts of Data from Exhibit TC C**  
 21 **Regarding Juvenile Fish Passage at RBDD.**

	May 15-31	June	July	August	Sept. 1-15
Winter-Run	0.0	0.0	1.3	11.8	26.3
Spring-Run	0.6	0.1	0.0	0.0	0.0
Steelhead/ Rainbow Trout	6.2	4.4	3.7	12.3	10.0

26 134. Gate closures are known to harm those juveniles that  
 27 do encounter the dam. "The turbulence generated by the [RBDD]  
 28

1 gates...provides a 'feeding station' for predators to prey on  
2 downstream migrating fish." (6/11 Tr. 84:9-15; 6/13 Tr. 162:14-  
3 17.) As explained in the 2002 Fish Passage Improvement Project  
4 DEIS/EIR, "[w]hen the dam gates are lowered, predators  
5 congregate below the dam creating difficult conditions for  
6 juvenile downstream passage....Most juveniles pass below the  
7 gates and in the process are likely disoriented and vulnerable  
8 to predation." (PE 11 at 4; 6/25 Tr. 5:19-22.) Predators  
9 including striped bass concentrate near the gates when the gates  
10 are closed, and when predators are captured they are almost  
11 always found to have recently ingested salmon juveniles. (6/11  
12 Tr. 87:3-11; 6/13 Tr. 155:2-14; PE 11 at 23.)

13 135. There is considerable dispute as to the extent of the  
14 predation impact. Predation rates range anywhere from less than  
15 5%, based on unpublished estimates from a NMFS biologist, (6/12  
16 Tr. 32:2-8), to 50%, (PE 20). Those studies which indicate  
17 predation levels on the high end of this scale date to a time  
18 when the gates are open for a longer period. (6/12 Tr.  
19 31:12-23.)

20 136. Mr. Urkov testified that, according to the method  
21 applied in the Fish Passage Improvement Project DEIS/EIR,  
22 predation can only be accurately evaluated by considering when  
23 both predators and prey are present. (TC J at ¶24; see 6/24 Tr.  
24 113:5-14..) In this case, the relevant potential predators are  
25 Sacramento pikeminnow and striped bass. (TC J at ¶24.)  
26 Coupling historic records reflecting the abundance of these  
27 predators at RBDD with records reflecting abundance of juvenile  
28 salmonids at RBDD, the NMFS BiOp for the planned pumping plants

1 at RBDD indicates that predation mortality is 26.87% in July,  
 2 5.46% in August and 13.85% in September.<sup>26</sup> (TC G.) Taking the  
 3 information from Table 1, and combining it with these predation  
 4 rates, it is possible to roughly estimate the total loss during  
 5 the remaining months of gate closures at RBDD, assuming the  
 6 gates remain closed for the entire, normal closure period.

7 **Table 2: Total Juvenile Loss Due to RBDD,**  
 8 **Based on Information Contained In Exhibits TC C and TC G.**

	July	August	Sept. 1-15	Total Loss Due to RBDD
9 <b>Winter-Run</b>	1.3% * 26.87% predation = Loss of 0.34% <sup>27</sup>	11.8% * 5.46% predation = Loss of 0.64%	26.3% * 13.85% predation = Loss of 3.64%	4.62%
10 <b>Spring-Run</b>	0.0% * 26.87% predation = Loss of 0.0%	0.0% * 5.46% predation = Loss of 0.0%	0.0% * 13.85% predation = Loss of 0.0%	0.0%
11 <b>Steelhead/ Rainbow Trout</b>	3.7% * 26.87% predation = Loss of 0.99%	12.3% * 5.46% predation = Loss of 0.67%	10.0% * 13.85% predation = Loss of 1.38%	3.04%

12  
 13  
 14  
 15  
 16  
 17 137. Federal Defendants propose to schedule an early  
 18 opening of the RBDD gates when 5% of the winter-run chinook  
 19 juveniles have passed, as observed in the rotary screw traps,

20  
 21 <sup>26</sup> The actual figures presented in TC G are "survival  
 22 rates," the inverse of which are presented here as "predation" or  
 mortality rates.

23 <sup>27</sup> By way of example, 1.3% of the entire winter-run ESU  
 24 passes RBDD during July, according to historic records. (TC c)  
 25 If 26.87% of those fish are killed by predators, that represents  
 26 a loss of 0.34% (1.3% \* .2687) of the entire ESU during the month  
 27 of July due to predation at RBDD. Summing those total loss  
 28 figures for July, August, and the first half of September  
 indicates that 4.62% of the entire ESU will be lost to predation  
 at RBDD for the remainder of the interim period, assuming RBDD  
 gates remain closed through September 15, which, as discussed  
 below, is likely not to be the case.

1 but no earlier than September 2. (PE 9 at 44:1-4; FD-C at Att.  
2 3.) This action is expected to provide unimpeded passage to an  
3 additional 10% of the winter-run chinook juveniles and improve  
4 juvenile survival. (PE 9 at 44:5-6.) Assuming this year's  
5 winter-run juveniles downmigrate according to their historic  
6 pattern, opening the gates on September 2 will eliminate a large  
7 portion of the 3.4% loss that would otherwise take place in  
8 September.

9 138. Plaintiffs request instead that the gates be opened on  
10 August 1, 2008, to provide unimpeded access to juveniles  
11 throughout the months of August and September. This would  
12 provide only a small incremental benefit to the winter-run,  
13 spring-run, and steelhead juveniles, amounting to less than 1%  
14 of each species' ESU. The harm caused by leaving the gates  
15 closed during August is not sufficient to usurp the operating  
16 discretion of the Project managers.

17 139. In light of substantial scientific dispute over the  
18 efficacy of the recommended RBDD gate opening, deference is owed  
19 to the experts at the agencies, NMFS and the Bureau. The  
20 request to keep RBDD open in August is **DENIED WITHOUT PREJUDICE**.  
21 The Bureau shall implement the gate opening plan as of September  
22 2, 2008, upon confirmation that 5% of the winter-run juveniles  
23 have passed RBDD.

24 **(4) Predicted Impacts of Operations at Clear Creek.**

25 140. Plaintiffs separately request that the court  
26 immediately order the Bureau to maintain at least 150 cfs flows  
27 in Clear Creek through the end of July 2008. (6/20 Tr. 77:1-3.)  
28 The Bureau's temperature management on Clear Creek will improve

1 conditions for approximately 190 spring-run, 1.3% of the total  
2 spring-run ESU, based on a 10-year average. (PE 13 at 9:4-8.)

3 141. Clear Creek is a tributary to the Sacramento River  
4 that originates on the west side of the upper Sacramento River  
5 watershed, eleven miles upstream of Balls Ferry. (6/11 Tr.  
6 12:4-6.) The higher elevation portion of the Creek empties into  
7 Wiskeytown Reservoir, while the lower elevation portion of the  
8 creek flows downstream from the base of Wiskeytown dam to its  
9 confluence with the Sacramento River at Sacramento River mile  
10 289.2 and is controlled by releases from that reservoir. (6/20  
11 Tr. 200:15-202:23, 205:9-13)

12 142. A small population of less than 200 spring-run spawn  
13 on the lower, regulated portion of Clear Creek. (6/20 Tr.  
14 109:8-12; PE-9 at 5-8.)

15 143. The Clear Creek Technical Team ("CCTT"), made up of  
16 representatives from NMFS, the Bureau of Land Management, the  
17 local Conservation District (a state entity), USFWS, the  
18 National Park Service, and CDFG, makes management  
19 recommendations to protect salmon and steelhead in Clear Creek.  
20 (6/20 Tr. 100:1-4.) The 2004 BiOp conditioned CVP operations on  
21 Clear Creek on the Bureau's cooperation with the CCTT and NMFS  
22 in the development and implementation of annual flow release and  
23 temperature requirements. (6/12 Tr. 33:16-21.)

24 144. The CCTT makes recommendations concerning instream  
25 flows necessary for adult salmon migration and cold water  
26 storage needed to assure adequate temperatures for egg  
27 incubation utilizing real-time information about temperature and  
28 habitat conditions. (6/6 Tr. 146:17-147:21.) The CCTT also

1 bases its decisions on the goal of avoiding hybridization of  
2 spring-run and fall-run and preventing loss due to  
3 superimposition of redds. (6/12 Tr. 35:5-37:6.)

4 145. Management of Clear Creek is also constrained by a  
5 mandatory TCP at the Igo Gage, located 7.3 miles downstream of  
6 Whiskeytown. (6/20 Tr. 204:22-205:5) This TCP is set at 60°F  
7 during the summer and reduces to 56°F on September 15.

8 Maintenance of the TCP takes precedence over the flow  
9 recommendations of the CCTT, which are treated as a baseline.  
10 If greater flows are required to maintain the TCP, the Bureau  
11 will provide the higher flows to comply with the TCP. (6/20  
12 Tr.96:13-15; 213:15-17.)

13 146. For the summer of 2008, the CCTT recently affirmed its  
14 recommendation to maintain minimum flows of 150 cfs in June and  
15 85 cfs in both July and August. (6/12 Tr. 34:25-35:14; 6/20 Tr.  
16 96:20-24.)

17 147. The Bureau's current plan of operations for Clear  
18 Creek calls for maintenance of 200 cfs through the end of June  
19 2008, followed by 85 cfs starting in July. (6/20 Tr. 211:15-  
20 19.) If the CCTT were to change its recommendation, the Bureau  
21 sees "no reason not to implement" such changes. (6/20 Tr.  
22 216:19-20.) There is "no operational impediment" to maintaining  
23 flows at 150 cfs beyond July 1st. (6/20 221:8.)

24 148. The stated purposes of the flow regime recommended by  
25 the CCTT are several-fold:

26 148.1. First, the 150 cfs flow is believed to serve  
27 as an attraction for spring-run that arrive at the mouth of  
28 Clear Creek in June. The higher flows are also used to

1 encourage spring-run to move "up as high as they can" into Clear  
2 Creek's higher reaches, so that managers can better control  
3 temperatures. (6/20 Tr. 131:23-132:7.)

4 148.2. In July and August, the flows are ramped down  
5 to 85 cfs in part to preserve the coldwater pool in Whiskeytown.  
6 (6/20 Tr. 215:4 (Whiskeytown has a "fairly finite" coldwater  
7 pool).) Unlike Shasta Dam, Whiskeytown has no advanced  
8 temperature control device, only a less efficient "temperature  
9 curtain." (6/20 Tr. 207:12-13.) In addition, flows are reduced  
10 to 85 cfs to prevent spring-run from setting up their redds too  
11 far downstream. For example, it would be problematic for  
12 spring-run to spawn below the Igo Gage TCP, because the Bureau  
13 might not be able to maintain safe temperatures downstream of  
14 Igo. (6/20 Tr. 101:23-102:11.) In addition, at some time  
15 during the later part of the summer, a weir is installed across  
16 Clear Creek to prevent the up-migration of fall-run salmon into  
17 the area in which spring-run are holding to prevent  
18 introgression of the runs. The 85 cfs flow in July and August  
19 is believed to help prevent spring-run from spawning below where  
20 the weir will be installed. (6/20 Tr. 96:13-24.)

21 148.3. Mr. Oppenheim testified that he believed  
22 maintaining 150 cfs for July would be "harmful" to the spring-  
23 run, in that it might encourage spring-run to spawn below the  
24 weir or below the temperature compliance point, subjecting them  
25 to the risks of introgression and/or high levels of mortality.  
26 (6/20 Tr. 103:1-19.)

27 148.4. Mr. Oppenheim also opined that, based on his  
28 review of relevant documents and sources, 85 cfs will not

1 present a physical barrier to the up-migration of salmonids,  
2 (6/20 Tr. 94:19-95:2), and will provide adequate spring-run  
3 passage, (6/20 Tr. 94:13-95:9, 96:5-24, 98:21-99:15, 111:1-18).

4 148.5. In recent years, spring-run have apparently  
5 responded positively to management on Clear Creek, showing  
6 improved abundance. (6/20 Tr. 99:11-15.) The CCTT also believes  
7 its practices have prevented hybridization of the two runs.  
8 (6/20 Tr. 114:14-20.)

9 148.6. There is also concern that constant 150 cfs  
10 flows from June through September would exhaust the coldwater  
11 pool in the Whiskeytown Reservoir. (6/20 Tr. 102:2-103:7,  
12 213:10-215:12.)

13 149. The scientific evidence about risks and benefits is in  
14 manifest dispute. There are considerable, potentially negative  
15 operational tradeoffs that militate against maintaining flows at  
16 150 cfs throughout July and August. In light of the conflicting  
17 expert opinions, the evidence is insufficient to justify  
18 ignoring the agencies' expert assessment and management  
19 measures.

20 150. The request for emergency injunctive relief as to  
21 Clear Creek is **DENIED**.

22 **(5) Feather River and Thermalito/Lake Oroville Complex.**

23 151. The Feather River and the Oroville Dam/Thermalito  
24 Complex are operated by DWR under a license from the Federal  
25 Energy Regulatory Commission ("FERC"). A district court has no  
26 jurisdiction to review or order modifications to  
27 Oroville/Thermalito operations, the review of which is committed  
28 to the Court of Appeals. 16 U.S.C. § 8251(b). Impacts from

1 operations on the Feather River will only be considered as  
2 contributions to cumulative impacts upon the three species from  
3 Project operations.

4 152. The 2004 BiOp sets a temperature requirement of 65°F  
5 at Robinson Riffle on the Feather River for benefit of  
6 spring-run chinook and steelhead. (6/12 Tr. 55:1-4.) DWR is  
7 expected to maintain the temperature requirements of no greater  
8 than 65°F at Robinson's Riffle. (6/11 Tr. 160:9-11.) Flows  
9 must be no less than 600 cfs year round. (6/12 Tr. 55:1-4.)

10 153. Spring-run Chinook and Steelhead use the Feather River  
11 for holding, spawning, rearing, and over-summering. (See DWR C  
12 at ¶14; PE 13 ¶23.) Available habitat on the Feather River for  
13 the spring-run Chinook and steelhead populations that use this  
14 tributary is limited to a six mile reach of the river between  
15 the fish barrier dam and the Thermalito outlet. (6/18 Tr.  
16 17:24-18:4.) The length of habitat below the dam is constrained  
17 by physical factors other than flow. (6/11 Tr. 162:19-163:5.)  
18 This has and will continue to lead to "superimposition of  
19 redds," contributing to egg mortality, and "hybridization of  
20 spring-run and fall-run Chinook salmon redds." (6/18 Tr.  
21 18:6-9.)

22 154. A recent settlement reached with FERC regarding the  
23 operation of Oroville will soon require minimum flows of 800  
24 cfs, because such flows improve habitat conditions for both  
25 spring-run and steelhead. (6/11 Tr. 165:7-11.) However, the  
26 new flow regime called for in the FERC settlement will not be  
27 implemented before March 2009. (6/11 Tr. 164:6-17.) At the  
28 time the motion for injunctive relief was filed, DWR's

1 operations manager confirmed it will maintain minimum flows of  
2 600 cfs in the Feather River low flow channel. (6/11 Tr.  
3 162:5-8; 6/18 Tr. 77:22-78:3, 116:1-15.) Plaintiffs seek flow  
4 levels maintained at no less than 800 cfs.

5 155. No expert was able to quantify the potential impacts  
6 of Feather River operations on the spring-run and steelhead  
7 ESUs.

8 156. Feather River operations will have some, unquantified  
9 effect on the spring-run and steelhead ESUs. Current operations  
10 will cause some superimposition and hybridization of spring-run.  
11 None are expected, on their own, to be appreciable or to tip any  
12 of the species of concern into extinction. (6/10 Tr. 104:7-11.)  
13 However, these impacts must be considered as part of the  
14 cumulative impacts of Project operations.

15 **(6) Folsom Dam/American River.**

16 157. The 2004 BiOp sets a temperature requirement of 68°F  
17 at Watt Avenue Bridge to protect the steelhead population.  
18 (6/12 Tr. 48:3-9.) If the temperature exceeds 68°F,  
19 temperature-related mortality is possible. (6/12 Tr. 51:22-24.)  
20 The lower American River has a steelhead population, along with  
21 fall-run Chinook, and other fish species. (DI B at ¶60.)

22 158. There is a real-time, adaptive management group for  
23 the American River, the American River Ops Group ("ARG"), made  
24 up of representatives from CDFG, USFWS, and NMFS. (6/12 Tr.  
25 48:23-25.) Mr. Oppenheim serves on this group. (6/12 Tr.  
26 49:5-6.)

27 159. Initially, Mr. Oppenheim testified that because the  
28 coldwater pool behind Folsom Dam is now significantly reduced

1 from previous years, it is inadequate to provide cold water  
2 through the summer for steelhead. (6/12 Tr. 48:18-22.)  
3 However, by mid-June, the ARG had not yet finalized their  
4 recommendations for this year. (6/12 Tr. 49:9-11.) While the  
5 ARG deliberated, the Bureau maintained 68°F at Watt Avenue  
6 Bridge. (6/12 Tr. 51: 12-13.)

7 160. On June 25, 2008, Mr. Oppenheim reported that CDFG, a  
8 member of the ARG, evaluated five different water temperature  
9 alternatives proposed by the Bureau in May. (6/25 Tr. 57:25-  
10 58:3.) CDFG concluded, with NMFS's concurrence, that there are  
11 sufficient cold water resources to maintain a 69°F temperature  
12 compliance point at Watt Avenue Bridge, four miles below Nimbus  
13 Dam. (6/25 Tr. 58:19-22.) This would provide enough habitat so  
14 that "some number of steelhead...will be able to survive over  
15 the summer within that four miles. So it will not be a complete  
16 year class failure for the juvenile steelhead this year," and is  
17 the most beneficial alternative for juvenile steelhead (6/25  
18 Tr. 57:22-59:2; FD G.)

19 161. The Bureau will add 7,000 tons of spawning gravel to  
20 the lower American River to benefit steelhead. (DI B ¶104.)

21 162. Although there will be some effects to steelhead on  
22 the American River caused by limited habitat availability, there  
23 will not be a complete loss of this year's juveniles. There is  
24 no evidence quantifying the amount of loss that will likely take  
25 place, but it is not expected that juvenile steelhead or redds  
26 will be isolated. Dr. Hanson opines that the Bureau's proposed  
27 operations on the American River will benefit juvenile steelhead  
28 and reduce potential adverse effects to their habitat. (DI B

1 ¶103.)

2 163. American River operations over the next eight months  
3 will not, standing alone, irreparably injure any of the species,  
4 although the unquantified impacts discussed must be considered  
5 alongside other impacts.

6 **(7) New Melones Reservoir/Stanislaus River.**

7 164. The Stanislaus River supports a small population of  
8 steelhead. (DI B at ¶61.) The 2004 BiOp requires The Bureau to  
9 meet a 65°F temperature compliance point at Orange Blossom Road  
10 through the summer and fall to protect oversummering juvenile  
11 steelhead. (6/12 Tr. 56:5-8.) The Bureau's planned operations  
12 between now and March 2009 will meet this temperature  
13 requirement. (6/12 Tr. 56:17-18.)

14 165. There are no temperature requirements on the  
15 Stanislaus River for the steelhead spawning period of December  
16 to March. (6/12 Tr. 59:19-60:6.) However, winter water  
17 temperatures naturally occurring in the Stanislaus River are  
18 generally cool enough for steelhead spawning. (6/12 Tr.  
19 60:6-7.) In Mr. Oppenheim's years of experience and opinion,  
20 the temperatures from December to February have never risen high  
21 enough to be of concern. (6/12 Tr. 60: 9-14.)

22 166. The Bureau's proposed operations on the Stanislaus  
23 River predict flows below 150 cfs in January, February, and  
24 March. (6/18 Tr. 22:18-21.) 150 cfs has been identified as the  
25 "optimal" flow for juvenile steelhead rearing. (6/11 Tr. 167:5-  
26 7.) Flows below this level would result in a loss of rearing  
27 habitat that would be "significant" to the small population of  
28 steelhead rearing there. (6/11 167:21-168:6; 6/18 Tr.

1 23:10-16.) As a result of these operations, the Stanislaus  
2 River steelhead population is expected to decline. (6/18 Tr.  
3 21:9-12.) Losing this population, which is not predicted to  
4 occur in the near future, but could become more likely as a  
5 result of interim operations, "would represent a serious adverse  
6 impact by not only reducing the overall population abundance for  
7 the species, but also by reducing the spatial distribution of  
8 the species." (6/18 Tr. 21:13-16.)

9 167. Dr. Hanson opined the proposed Stanislaus River  
10 operations will benefit steelhead and relieve the effects of  
11 limited reservoir storage and coldwater pool volume. (DI B  
12 ¶105.)

13 168. Although the temperature compliance goals on the  
14 Stanislaus will be met, Dr. Swanson opines that flows below the  
15 optimal 150 cfs will reduce steelhead habitat for spawning and  
16 rearing, (6/18 Tr. 22:4-23:16.), reducing steelhead abundance  
17 in the Stanislaus River. Impacts to this small population could  
18 adversely impact their spatial distribution, but the magnitude  
19 of any such effects is unknown. The Federal Defendants'  
20 evidence proves by a preponderance that even absent the 150cfs  
21 flow level in January through March 2009, irreparable injury to  
22 steelhead on the Stanislaus is unlikely.

23 **(8) CVP/SWP Export Operations.**

24 169. It is known that juveniles of all three species may be  
25 subject to direct and indirect mortality if they are drawn into  
26 the central Delta toward the pumps.

1 170. Although a majority (65%-90%)<sup>28</sup> of the spring-run ESU,  
2 and some percentage of the steelhead ESU spawn in areas that are  
3 not controlled by Project operations, it is undisputed that the  
4 juveniles of all spawners within the three ESUs must nonetheless  
5 pass through the Delta on their way out to sea.

6 171. The winter-run juvenile outmigration runs from  
7 December through May with its peak in February. (6/12 Tr.  
8 99:22-25.) Spring-run juvenile migration typically runs from  
9 late November through August, beginning with the first pulse of  
10 rains or a storm event and peaks in April. (DI B ¶11 & Ex. 5;  
11 6/12 Tr. 37:13-17, 102:9-16.) Steelhead outmigration from the  
12 San Joaquin River peaks in the Delta in February; their  
13 outmigration can extend through June. (6/12 Tr. 60:20-22, 61:8-  
14 12.)

15 **(a) Sources of Juvenile Mortality.**

16 **(i) Direct Mortality.**

17 172. Direct mortality of juvenile salmonids results from  
18 entrainment at CVP and SWP pumping facilities. (6/11  
19 104:10-12.)

20 173. Some entrained salmon and steelhead may be salvaged  
21 and returned by truck to another part of the Delta, but a "large  
22 proportion are lost directly to entrainment." (6/18 Tr.  
23 29:19-22.) Salmonids have a greater ability than some other  
24 species of fish, like the Delta smelt, to survive salvage due to  
25 their size and swimming ability.

26 174. The number of fish "taken" at the pumps is calculated  
27

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28 <sup>28</sup> See *supra*, note 22.

1 using a "combined loss estimate." That estimate is derived from  
2 periodic samples of salvaged fish. Fish screens are in place at  
3 the pumping plants with the goal of salvaging fish before they  
4 become entrained in the pumps. Periodically during operations,  
5 a portion of the salvaged fish are retained and counted. These  
6 counts are used to estimate the numbers of fish from each  
7 species that are salvaged by the pumps over longer periods of  
8 time. (6/6 Tr. 85:18-87:1.) Take is calculated based on these  
9 expanded salvage numbers and a number of other figures,  
10 including the estimated amount of "pre-screen" mortality -- the  
11 number of fish that encounter the screens at the SWP pumps, but  
12 die. (6/6 Tr. 86:23-87:1.) Many studies have attempted to  
13 quantify the level of pre-screen loss at each of the facilities.  
14 The average of these studies indicates that the SWP has an 85%  
15 pre-screen loss rate. (6/10 Tr. 76:19-22.) However, agency  
16 scientists determined that it is more appropriate to assign a  
17 75% loss rate to SWP facilities. (6/10 Tr. 76:6-9.) Average  
18 pre-screen loss at CVP facilities has never been quantified but  
19 is estimated at 15%. (6/10 Tr. 76:6-9; 6/11 Tr. 110:9-15.)

20 175. These estimates of pre-screen mortality may be overly  
21 optimistic. For example, the 15% estimate for the CVP is based  
22 on studies conducted at the Glen-Colusa Irrigation District  
23 facility, which has a more effective fish screen than CVP  
24 facilities in the Delta. (6/10 Tr. 76:7-8; 6/11 Tr. 110:10-24.)  
25 The 15% loss estimate also fails to account for loss during  
26 times when the fish screens are removed for cleaning, which is  
27 approximately 10% to 25% of the time. (6/11 Tr. 110:25-111:17.)

28 176. It is undisputed that, in general, the loss of

1 juveniles at the pumps increases as the level of exports  
2 increases. (PE 13 at 12:10-11.) Studies show that lower  
3 export/import ratios are more protective for migrating  
4 salmonids. (6/11 Tr. 125:8-11.) Pumping operations are  
5 currently restricted to a 35% export/import ("E/I") ratio  
6 starting February 1 for the protection of winter-run Chinook  
7 migrating through the Delta. (6/11 Tr. 120:23-121:4.)

8 177. Salvage levels and loss are also affected when inflow  
9 is low and export rates are high. (PE 13 11:8-13.)

10 178. On this basis, NMFS has recommended that the Bureau  
11 limit the E/I ratio to 35% in January as well, but the Bureau  
12 has rejected this suggestion. (6/11 Tr. 126:13-18.)

13 179. A recent study by Dr. Wim Kimmerer also indicates that  
14 as export rates increase, proportional loss of salmonids may  
15 increase at greater than a linear rate. (6/11 Tr. 137:20-25; PE  
16 14B at 19.)

17 **(ii) Indirect Mortality.**

18 180. Delta operations also cause indirect mortality and  
19 other sub-lethal impacts by diverting juveniles into the central  
20 Delta, where they suffer increased exposure to predators,  
21 toxics, temperatures, and other environmental hazards. (6/11  
22 Tr. 104:6-17; 6/18 Tr. 29:13-30:14, 34:21-35:13, 55:23-56:13;  
23 6/13 Tr. 49:7-11, 51:14-20, 53:1-3, 56:4-11.)

24 181. The evidence does not reliably show the magnitude of  
25 indirect mortality.<sup>29</sup> According to the 2004 BiOp, under the

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26  
27 <sup>29</sup> Dr. Hanson examined the relationship between the  
28 juvenile winter-run production estimate upstream and subsequent  
estimates downstream to estimate overall juvenile survival in the

1 "best case scenario," due to indirect mortality from baseline  
2 (i.e. pre 2004-OCAP) pumping rates, losses are estimated at 33%  
3 for all three species. (6/18 Tr. 58:7-17; PE 3 at 195.) Only a  
4 portion of this 33% loss is actually attributable to Project  
5 operations, while a substantial but unquantified proportion of  
6 the remaining indirect mortality in the Delta is caused by  
7 other, non-Project sources of mortality, that occur with or  
8 without Project operations, such as toxics, invasive species,  
9 temperatures, instream diverters, and others. (See PE 3 at 84,  
10 194.)<sup>30</sup>

11 182. The BiOp suggests that "the increased mortality  
12 associated with the indirect effects of moving water and fish  
13 across the interior of the Delta can range from 4 to 40 percent  
14 in the baseline for the juvenile population entering the Delta."  
15 (PE 3 at 190.) Mr. Oppenheim testified that assuming indirect  
16 mortality of 50% was "realistic." (6/13 Tr. 46:11-18.) Dr.  
17 Hanson opined that mark-recapture survival studies conducted  
18

19 \_\_\_\_\_  
20 Delta. He opined that there was not a major change in juvenile  
21 survival rates in 2004, suggesting something other than Delta  
22 mortality was responsible for the low adult escapement in 2007.  
23 (DI B at ¶27.) Even assuming this is true, the lack of a  
24 relationship between juvenile survival rates and the 2007  
25 escapement does not reveal the extent to which juvenile mortality  
26 during the interim period will impact the currently low  
27 population of winter run.

28 <sup>30</sup> Mr. Oppenheim suggested that the portion of this 33%  
attributable to Project operations may be as low as 1% or as high  
as 16%. He provided no basis for this assertion. It appears he  
may have referred to figures from the BiOp's discussion of the  
increased indirect mortality (1%-16%) that may occur as a result  
of increased pumping proposed as part of the 2004 OCAP. (PE 3 at  
193.)

1 using juvenile Chinook salmon and steelhead have shown that  
2 mortality within the Delta is "typically high," although it is  
3 not possible to quantify "either the incremental impacts of  
4 individual sources of mortality or the relationship between  
5 increases or decreases in SWP and CVP export operations on the  
6 vulnerability of juvenile salmon to these sources of mortality."  
7 (DI B at ¶31.)

8 183. The increased pumping rates proposed as part of the  
9 2004 OCAP may enhance indirect mortality losses by a range of 1%  
10 to 16%. (PE. 3 at 193; 6/18 Tr. 58:24-59:5.) Mr. Milligan  
11 opined it was imprudent to provide any assurances that combined  
12 pumping rates would not exceed 7,000 cfs and opined that such a  
13 cap would be inconsistent with the Bureau's operational  
14 responsibilities. (7/1 Tr. 112:17-113:3.)

15 184. Monthly pumping at the SWP's Banks pumping plant July  
16 through September will be significantly less than normal, with  
17 an estimated pumping rate of between 2,000 and 4,000 cfs,  
18 compared to a 2007 average of 6,200 cfs and a 2006 average of  
19 7,000 cfs. (DWR Ex. C at ¶¶38-39.) The CVP's Jones pumping  
20 plant will operate July through September at capacity (about  
21 4,500 cfs). (FD C at ¶28.)

22 185. Because of the critically dry hydrologic conditions,  
23 SWP exports are expected to average less than 2,500 cfs from the  
24 beginning of October through the first substantial rains. (DWR  
25 C at ¶48.) From mid-December through mid-March, the Army Corps  
26 of Engineers permits a maximum export rate from the SWP's Banks  
27 pumping facility of 6,680 cfs plus one third of the San Joaquin  
28 River inflow as measured at Vernalis. (*Id.* at ¶50.) Federal

1 Defendants provided no parallel operational prediction for  
2 Jones.

3 186. Substantial uncertainty about indirect juvenile  
4 mortality prevails. The best that can be said from the record  
5 is that indirect juvenile mortality, including both baseline and  
6 Project effects, may range anywhere from 4%-50%.<sup>31</sup> The  
7 conclusory opinions of Dr. Hanson and Mr. Oppenheim that interim  
8 Project operations will not tip the species toward extinction do  
9 not explain the extent to which indirect mortality levels, taken  
10 together with other impacts, will harm the species.

11 187. Although the agencies are only required to rely on the  
12 best available science, they must nevertheless reasonably  
13 justify their conclusion that indirect mortality rates will not  
14 cause jeopardy. They have not done so.

15 **(b) Protective Measures.**

16 **(i) Incidental Take Limits.**

17 188. To address and monitor, at least in part, direct loss  
18 due to export operations, the 2004 BiOp contains an incidental  
19 take statement for all three species at the pumping facilities.  
20 (PE 3 at 205-212.)

21

22

23 <sup>31</sup> Defendant intervenors correctly point out that this  
24 figure, along with the other juvenile mortality rates discussed  
25 in these findings, must be viewed in light of the fact that  
26 salmonids have evolved to withstand high rates of juvenile  
27 mortality. Out of the thousands of eggs produced by any single  
28 female, only two need to survive to adulthood to sustain the  
population. (DI B at ¶6.) The key question is whether Project  
operations contribute significantly to increasing the mortality  
rate to levels that result in a population that cannot survive  
and recover.

1 188.1. For winter-run, the take limit is two percent<sup>32</sup>  
2 of the estimated number of juvenile Sacramento River winter-run  
3 Chinook salmon annually entering the Delta. (PE 3 at 218.)  
4 This year's incidental take limit is 11,798; through July 3,  
5 2008, only about 1,300 winter-run have been taken at the pumps,  
6 which is well within the limit, even assuming underestimation of  
7 pre-screen loss. (6/12 Tr. 2:24-3:5, 5:10-15.) No more winter-  
8 run are expected to be taken by export operations through  
9 September 30. (6/11 Tr. 3:2-5.)

10 188.2. The spring-run incidental take limit at the  
11 pumps is one percent. (6/12 Tr. 38:4-23.) For 2007-2008 water  
12 year, the actual take has been less than half of a percent,  
13 which is within this limit. (*Id.*)

14 188.3. The incidental take limit for steelhead at the  
15 Project pumps is fixed at 3,000 juveniles per year. (6/12 Tr.  
16 61:3-4.) For the 2007-2008 water year, approximately 970  
17 steelhead have been taken. (6/12 Tr. 61:6-7.)

18 189. For a number of reasons, Plaintiffs argue that all  
19 three incidental take limits are inappropriate and inadequate.

20 189.1. First, Plaintiffs contend that the take limit

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21  
22 <sup>32</sup> NMFS concluded that a 1% take limit is appropriate for  
23 winter-run Chinook, but set the take limit in the BiOp at 2%  
24 based on an assumption that approximately half of salvaged fish  
25 identified as winter-run are not actually winter-run. (PE 3 at  
26 218; 6/13 Tr. 56:17-57:1.) Dr. Kimmerer's recent study, based on  
27 marked fish, showed that the proportion of entrained fish that  
28 are actually winter-run is actually "much higher" than 50%.  
(6/11 Tr. 136:11-14; 6/18 Tr. At 65:11-15.) However, even if one  
assumes that the take limit should actually be 1% of JPE, or  
5,899 (one half of 11,798), this year's take will still be within  
the two percent take limit authorized by the 2004 BiOp. (6/12  
Tr. 5:10-15.)

1 for winter-run is flawed because it is based on an uncertain  
2 estimate of juvenile abundance, the JPE. The JPE for winter-run  
3 is derived from a variety of data, including carcass surveys,  
4 water temperature monitoring, estimates of egg hatching success  
5 and fry rearing, and expected levels of mortality. (6/6 Tr  
6 83:24-84:16, 198:15-199:4; DI B at ¶16.) The JPE is then  
7 adjusted to account for mortality of juveniles before they reach  
8 the Delta. (6/6 Tr. 84:16-85:25, 199:1-4.) It is still highly  
9 uncertain and has large error bands. (6/6 Tr. 199:5-200:19;  
10 6/10 Tr. 85:1-7; 6/11 Tr. 42:5-7 (Hanson); 6/18 Tr. 33:4-34:20  
11 (Swanson).) Nevertheless, the JPE for winter-run has been  
12 validated using independent estimates. (DI B at ¶16.)

13 189.2. Plaintiffs assert that the method used to  
14 estimate spring-run juvenile abundance relies on a different,  
15 uncertain estimate, based on a percentage of the number of late  
16 fall-run Chinook estimated to enter the Delta. (6/18 Tr. 67:22-  
17 68:13.) Plaintiffs suggest that using data from Chipps Island  
18 trawl surveys would produce a more realistic estimate of the  
19 juvenile population, but provided no convincing evidence as to  
20 why this estimate, which has yet to be put to use for a  
21 regulatory purpose, (6/13 Tr. 166:10-12), is more reliable for  
22 the purposes of estimating juveniles entering the Delta than  
23 those currently being used by the agencies. The agencies are  
24 using the best available scientific means of estimating juvenile  
25 abundance.

26 190. Plaintiffs next argue that the method used to  
27 calculate level of "take" at the pumps is flawed. First, the  
28 pre-screen loss assumptions of 75% at the SWP facilities and 15%

1 at the CVP facilities fail to consider those fish that are lost  
2 while fish screens are removed for cleaning, nor do they account  
3 for the fact that the screens themselves may only be "50%"  
4 efficient. (6/18 Tr. 31:12-32:7, 67:10-17; 6/11 Tr. 108:9-18,  
5 111:12-17; 6/12 Tr. 3:19-21.) Plaintiffs also argue that pre-  
6 screen loss assumptions erroneously assume that any fish  
7 released back into the Delta after salvage will survive. In  
8 reality, predation loss of salvaged fish may be very high.  
9 (6/18 Tr. 32:9-19.) This evidence raises questions about the  
10 ability of the take calculation to precisely estimate the amount  
11 of take at the pumps, but no better methodology or science was  
12 presented as available. It is indisputable that salmonid  
13 salvage results in some surviving fish.

14 191. Plaintiffs argue that the take limits are simply  
15 unjustified, as they have not been shown to be sustainable for  
16 current populations.

17 191.1. The same argument was raised in cross-motions  
18 for summary judgment in the delta smelt case. The Delta smelt  
19 decision concluded that the smelt take limits were arbitrary and  
20 capricious because they were based on historic take and did not  
21 account for current information regarding large declines in  
22 population abundance. (*Kemphorne*, Doc. 323 at 86-93.) Here,  
23 the take limits were not directly addressed during cross motions  
24 for summary judgment and the issue is raised for the first time  
25 in these evidentiary proceedings.

26 191.2. As to the winter-run and spring-run, the take  
27 limits do incorporate up-to-date information about population  
28 abundance. As a matter of simple logic, 1%-2% of a juvenile

1 population that can experience huge losses and still replace  
2 itself is inherently small. However, these losses must, be  
3 considered in light of other, cumulative impacts.

4 191.3. In contrast, the salvage rate for steelhead,  
5 set at 3,000, is not explained in relation to that ESU's  
6 abundance. Neither the Administrative Record nor the trial  
7 evidence provides an explanation for the 3,000 fish limit. The  
8 steelhead population is declining in abundance. (6/6 Tr.  
9 162:15-19.) The 2004 BiOp's 3,000 fish take limit is less  
10 protective as the population declines. (6/13 Tr. 58:17-59:9.)

11 191.4. The current take of steelhead since October  
12 2007 is 970 fish. The 2004 OCAP BiOp indicates that, from 1993  
13 through 2003, the salvage of Central Valley steelhead ranged  
14 from 461 to 16,537 fish during the sampling season from October  
15 through June, for an average of 3,719. (PE 3 at 210.) The BiOp  
16 indicates that "[g]enerally, these fish are returned alive to  
17 the Delta waters through collection, trucking and release  
18 program at the CVP and SWP pumping facilities." (*Id.*) The BiOp  
19 goes on to state:

20 The combined cumulative salvage of unmarked juvenile  
21 and adult Central Valley steelhead at the CVP and SWP  
22 Delta pumping facilities is not expected to exceed one  
23 percent of the previous years' estimated juvenile  
24 steelhead production based on Chipps Island Trawl  
25 data. The juvenile production estimate (JPE) for  
26 steelhead will be developed by NOAA Fisheries in  
27 consultation with DFG and FWS. For the year 2004-  
28 2005, and until a suitable JPE is developed, the  
combined cumulative salvage at the CVP and SWP pumping  
facilities is not expected to exceed 3,000 juvenile  
steelhead.

(PE 3 at 211.) The actual take limit provides:

Reclamation and DWR will monitor the loss of Central  
Valley steelhead at the CVP and SWP Delta pumping

1 facilities and use that information to determine  
2 whether the cumulative estimated level of loss is  
3 expected to exceed one percent of the juvenile  
4 production estimate (JPE) for steelhead entering the  
5 Delta. Until such time as a suitable JPE has been  
6 developed, the cumulative take at the CVP and SWP  
7 delta pumping facilities shall not exceed 3,000  
8 steelhead (juveniles and adults combined). If the  
9 take level anticipated for Central Valley steelhead is  
10 exceeded, Reclamation and DWR shall immediately  
11 convene the Water Operations Management Team to  
12 explore additional measures which can be implemented  
13 to reduce the rate of take. If suitable measures to  
14 reduce the rate of take can not be implemented,  
15 consultation shall be reinitiated immediately.

9 (PE 3 at 218.)

10 191.5. The evidence does not measure what percentage  
11 of the overall steelhead ESU the 3,000 fish take limit  
12 represents. The parties disagree whether there is a "suitable"  
13 JPE. If the steelhead take limit is reached, adaptive  
14 management measures through the WOMT are required to be  
15 implemented, however, by then, appreciable harm to a non-viable,  
16 non-recovering species may have occurred.

17 **(ii) Delta Cross Channel Operations.**

18 192. In the past several years, the Delta cross-channel  
19 gates have been closed December 1st, which is within the 45 day  
20 period between November and February when those gates can be  
21 discretionarily closed if there is a large pulse of chinook  
22 moving through the Delta. (6/12 Tr. 11:21-12:1.) Closure of  
23 the Delta cross channel gates keeps the juvenile salmonids in  
24 the mainstem Sacramento River, where survival is higher. (6/12  
25 Tr. 12:9-12, 79:2-8.)

26 193. After February 1, D-1641 requires closure of the Delta  
27 cross-channel gates through the end of May. (6/12 Tr. 12:4-6,  
28 104:4-10.) D-1641 also mandates a 35% E/I ratio from February

1 through June. (6/12 Tr. 69:2-70:11.) The E/I ratio is a cap on  
2 the volume or rate of Project exports. (6/12 Tr. 103:2-4.)

3 194. There is no evidence that the Delta Cross Channel  
4 operations will cause irreparable injury to any of the species.

5 **(iii) Salmon Decision Tree.**

6 195. The Salmon Decision Tree is an adaptive management  
7 approach utilized to minimize take by export operations. The  
8 updated salmon decision tree, (FD A), superceded the version  
9 relied on in the 2004 BiOp, (6/13 Tr. 83:6-8).

10 196. Under the salmon decision tree, defined triggers,  
11 broken down by time periods, compel the fishery managers to  
12 recommend particular export reduction rates to the WOMT. (6/12  
13 Tr. 7:23-8:13, 10:22-11:16, 12:22-13:10, 14:19-15:2.) WOMT  
14 routinely responds to a fishery recommendation in less than two  
15 weeks. (6/13 Tr. 85:9-12.)

16 197. The recommendations stand even if there are no (b) (2)  
17 or EWA assets available. (6/13 Tr. 5:1-5.)

18 198. Plaintiffs complain that the Salmon Decision Tree is  
19 uncertain and unenforceable as was the smelt DSRAM. Mr.  
20 Milligan testified that when the Salmon Decision Tree calls for  
21 measures that are necessary to protect a listed salmonid, the  
22 Bureau considers such actions to be mandatory, provided any  
23 conflicts with the interests of other listed species are  
24 resolved. (7/1 Tr. 120:16-22.) He testified that such  
25 recommended measures have actually been implemented, contrary to  
26 the smelt DSRAM under which no action was ever taken.

27 199. The USFWS BiOp on Delta smelt is due September 15,  
28 2008. By November 2008, NMFS and the Bureau will evaluate any

1 winter pumping restrictions imposed by that BiOp and determine  
2 what additional actions are necessary to protect juvenile  
3 winter-run, spring-run and steelhead in that wintertime period.  
4 (6/12 Tr. 17:2-13.)

5 200. The evidence establishes that, to the present, the  
6 Salmon Decision Tree has actually worked to effectuate remedial  
7 measures to protect listed salmonids from Project operations.  
8 This remedial approach is benefitting the species and their  
9 habitat. The magnitude of impacts with and without the Decision  
10 Tree are unquantified.

11 **(c) Summary of Delta Impacts.**

12 201. Export operations have negative impacts upon the three  
13 ESUs. The take limits at the pumps (2% for winter-run; 1% for  
14 spring-run; and 3,000 individuals for steelhead) are not close  
15 to being exceeded in the 2007-08 water year, nor, according to  
16 Defendants' experts will they be through March 2009.  
17 Plaintiffs' expert did not opine that any take limit would be  
18 exceeded over the next nine months. Other than the opinions of  
19 the defendants' biologists that 2007-08 operations will not  
20 result in extirpation of any species, tip the three species into  
21 extinction, or result in any loss of critical habitat, the  
22 effectiveness of the take limits is uncertain. It is undisputed  
23 that the flat take limit of 3,000 for steelhead is not based on  
24 recent population abundance and no explanation has been given  
25 for how it was derived.

26 202. Tying indirect mortality of juveniles to Project  
27 operations remains imprecise, i.e., indirect mortality to  
28 juveniles could be anywhere from 4%-50%.

1 203. Implementation of the Salmon Decision Tree,  
2 protections at the Delta Cross Channel, and the Export/Import  
3 restrictions imposed by SWRCB decisions benefit juvenile  
4 salmonids passing through the delta.

5 **C. Analysis of Overall Irreparable Harm/Jeopardy During**  
6 **Interim Period.**

7 The seminal question is whether, overall, Project  
8 operations during the remainder of the interim period (through  
9 March 2009) will irreparably harm the species' ESUs. The  
10 inquiry focuses on whether interim Project operations  
11 appreciably (i.e., significantly or considerably) diminish the  
12 species' chances of survival or recovery and/or appreciably  
13 (i.e., significantly or considerably) diminish the value of the  
14 species' critical habitat.

15 **(1) Critical Habitat Analysis.**

16 204. It is undisputed here that any impacts to critical  
17 habitat over the interim period will be temporary in nature.  
18 The experts disagree about the extent of impacts that will  
19 result. Rather than involving permanent changes to the physical  
20 components of the habitat, which are the rivers and tributaries  
21 of the delta, any such short term habitat changes will  
22 temporarily impact spawning, rearing, and migration conditions,  
23 which may in turn impact species' abundance and distribution.  
24 The legal question raised by the parties, whether temporary  
25 modifications to critical habitat can ever constitute the kind  
26 of considerable diminishment of critical habitat that warrants  
27 the issuance of injunctive relief, need not be answered.  
28 Instead, where potential habitat effects are directly linked to

1 population impacts, it is reasonable to conclude that any  
2 habitat effects caused by interim operations are subsumed in the  
3 analysis of the impacts of interim operations upon the species'  
4 chances of survival and recovery. Obviously, the critical  
5 habitat changes daily based on hydrologic, temperature, and flow  
6 conditions. It is further impacted by other effects not related  
7 to Project operations.

8 (2) **Will Interim Project Operations Appreciably or**  
9 **Considerably Diminish the Species Chances of Survival**  
10 **and Recovery?**

11 205. The Federal Defendants bear the burden of proof to  
12 show non-jeopardy. Specifically, they must establish that  
13 Project operations will not considerably reduce the species'  
14 chances of survival and recovery or significantly adversely  
15 affect its critical habitat.

16 206. Of the more than 3,000-7,000 eggs produced by any  
17 spawning female, depending on the species, only two need to  
18 survive and successfully reproduce for the population to remain  
19 stable. Even assuming, arguendo, baseline and Project impacts  
20 combine to result in 90% mortality, the 10% remaining would, in  
21 theory, be sufficient to sustain the population. In practical  
22 fact, there is such imprecision in the mortality figures, that  
23 it is impracticable to determine with any reasonable degree of  
24 certainty what the total mortality (including baseline  
25 conditions) is for juveniles of these three species from Project  
26 operations. By contrast, in *NWF v. NMFS I*, over 80% of the  
27 juvenile salmon population was killed by project operations.  
28 Here, after four weeks of evidence, it cannot be determined  
whether overall juvenile mortality is 5% or 75%.

1  
2           **(a) Conclusions Re: Winter-Run.**

3           207. The CVTRT concluded that the winter-run population is  
4 not currently viable. The population is not recovering.  
5 Abundance has been particularly low in 2007 and 2008.

6           208. Nevertheless, the CVTRT concluded that the species was  
7 at a low risk of extinction in the long run. Defendants  
8 emphasize it is not remotely probable that the population will  
9 fall below the failsafe minimum required for species viability  
10 of 200 adult fish as a result of the next eight months of  
11 Project operations. (PE 13 3:5-7.)

12           209. Beneficially, there will be no ocean harvest in 2008.  
13 This should result in improved escapement for the 2009 cohort.<sup>33</sup>  
14 At least two cohorts are in the ocean, which will return in the  
15 next two years.

16           210. There will be fairly low egg and fry mortality due to  
17 Shasta operations this year, on the order of less than 4%.

18           211. Because of low carryover storage in Shasta predicted  
19 for the end of this water year, there may be some additional,  
20 unquantified risk of mortality to the 2009 winter-run cohort.  
21 However, Bureau modeling indicates that even if next year is  
22 relatively dry (based on 75% modeling), there will be enough of  
23 a coldwater pool to provide the winter run with at least some  
24 habitat in which to spawn. Complete loss of a year class or the

25 \_\_\_\_\_  
26           <sup>33</sup> Voluntary suspension of the harvest for 2008, at the  
27 expense of the fishing industry, lessens the chance that Project  
28 operations will drive the species to extinction during the  
interim period and reduces the justification for judicial  
intervention during the interim period.

1 entire species appears unlikely.

2 212. Winter-run juveniles may experience a very small  
3 degree of increased mortality during the months of July and  
4 August at RBDD, on the order of 1%. Protective measures will be  
5 effectuated by September 2nd if 5% of the winter-run juveniles  
6 have passed as of that date.

7 213. Nonetheless, the potential mortality due to Delta  
8 pumping is very uncertain. Direct loss may be as high as 2% if  
9 credence is given to Kimmerer's studies that show that far more  
10 than 50% of those Chinook counted as winter-run are actually  
11 winter-run. The magnitude of indirect loss is totally unclear,  
12 and may range from 4-50%. If indirect loss is 50%, regardless  
13 of the contribution of the Projects to that figure, cumulative  
14 impacts on winter-run juveniles before they reach the ocean will  
15 be over 50%, because of the upstream impacts (3-4% mortality due  
16 to Shasta temperature control operations and 1-2% mortality due  
17 to RBDD operations through September 2). If 500,000 winter-run  
18 juveniles are produced this year, approximately 5% will be lost  
19 due to upstream impacts (leaving 475,000), and another 50% will  
20 be lost due to direct and indirect loss caused by the export  
21 facilities, that leaves less than 250,000 to survive the other  
22 causes of mortality not related to Project operations.

23 214. In light of the ESU's currently depressed levels and  
24 geographic isolation, and the totally uncertain effects of the  
25 Projects' Delta operations, which could result in mortality of  
26 more than 50% of downmigrating juveniles notwithstanding other  
27 impacts to the ESU, the Federal Defendants have not proved that  
28 interim operations will be non-jeopardizing to the survival and

1 recovery and critical habitat of winter-run. A worsening of the  
2 conditions of a non-viable, non-recovering population meets the  
3 irreparable harm standard.

4 **(b) Conclusions Re: Spring-Run.**

5 215. Unlike the winter-run, spring-run escapement did not  
6 exhibit dramatic declines in recent years. Nonetheless, that  
7 population is not viable and is not recovering. However, the  
8 CVTRT concluded that the ESU is at low risk of extinction.

9 216. The portion of the ESU that spawns in the upper  
10 Sacramento, above RBDD (approximately 10% of the total ESU), is  
11 subject to the same temperature control conditions as the  
12 winter-run, although their egg incubation period runs later into  
13 the fall, including a period of time during which there is no  
14 mandate to maintain a temperature compliance point. The  
15 evidence suggests that spring-run are no more affected by  
16 temperatures on the Sacramento than are winter-run. It may be  
17 inferred that spring-run suffer less than 4% mortality in the  
18 upper Sacramento River.

19 217. Spring-run juveniles should not experience increased  
20 mortality during the months of July and August at RBDD, as their  
21 downmigration does not overlap with the gates closed period.

22 218. There are small spring-run populations on tributaries  
23 to the Sacramento River above RBDD. One of those populations,  
24 on Clear Creek, is being managed to the best of the Bureau's  
25 ability to avoid introgression with fall run. The mitigation  
26 activities undertaken to accomplish this are somewhat  
27 detrimental to individual spring-run spawners, although not to  
28 an extent that justifies interference with the Bureau's choice

1 to prevent introgression.

2 219. The majority of the ESU (between 65%-80%) spawns in  
3 the independent populations at Butte, Mill, and Deer Creeks.  
4 (See TC L.) These populations, because of their geographic  
5 proximity to each other, are vulnerable to catastrophic events,  
6 including large wildfires. A large wildfire is currently  
7 nearby, but there is no evidence that suggests a significant  
8 level of adverse impact will result.

9 220. As is the case with the winter-run, the potential  
10 mortality due to delta pumping is very uncertain. Even assuming  
11 direct take is limited to 0.5%, it must be considered with other  
12 impacts. The magnitude of indirect loss is unclear, and may  
13 range from 4%-50%. The uncertain scientific evidence submitted  
14 by Defendants on the extent to which Delta impacts (direct and  
15 indirect) will affect the species' ability to survive and  
16 recover and the value of their critical habitat does not satisfy  
17 the required non-jeopardy showing.

18 221. All juveniles from the entire ESU, whether reared in  
19 streams influenced by Project operations or elsewhere, must pass  
20 through the Delta on their way to the ocean.

21 **(c) Conclusions Re: Steelhead.**

22 222. Information regarding steelhead abundance is very  
23 sparse.

24 223. Steelhead populations on the Sacramento, American,  
25 Feather, and Stanislaus rivers will be adversely impacted by  
26 Project operations to some degree. The magnitude of these  
27 impacts is not determinable on the evidence submitted, but it is  
28 more than insignificant because every population must be

1 preserved.

2 224. A small proportion (approximately 1%) of steelhead  
3 juveniles migrating down the Sacramento past RBDD during July  
4 and August, will be killed by predators there.

5 225. The Lindley paper found that populations of steelhead  
6 on Battle Creek, and the Feather, American, and Mokelumne  
7 Rivers, where hatchery fish are the majority of the spawning  
8 run, are at high risk of extinction. (6/19 Tr. 19:2-16.) This  
9 is disputed by defendants.

10 226. In addition, at least some steelhead will be impacted  
11 by Project operations in the Delta.

12 227. Indirect take is unquantified, and may range from 4%-  
13 50%.

14 228. The steelhead incidental take limit is 3,000. As of  
15 early July 2008, take since October 2007 was 970 fish. The  
16 existing take limit for steelhead at the Delta is not  
17 scientifically justified. This, coupled with other impacts  
18 steelhead will experience elsewhere within the system, make it  
19 impracticable to determine how jeopardizing the overall Project  
20 effects on steelhead will be.

21 229. The Federal Defendants' burden of proof to show the  
22 absence of jeopardy requires a showing that Project operations  
23 will not significantly adversely impact the species' survival  
24 and recovery and its critical habitat. Although Defendants'  
25 experts have opined that the steelhead will not be extirpated or  
26 tipped into extinction, the evidence does not establish that  
27 Project operations will not cause appreciable harm to the  
28 steelhead's survival and recovery and the maintenance of its

1 critical habitat in the next eight months.

2  
3  
4 **IV. CONCLUSION**

5 230. All three testifying experts and the Central Valley  
6 Technical Recovery Team, in its 2007 report, conclude that the  
7 three salmonid species are not viable and are all in jeopardy of  
8 extinction. NMFS' biologist testified that a species that is  
9 not viable is "almost extinct or on the verge of being  
10 extirpated." Dr. Hansen opined that every extant population  
11 must be viewed as necessary for recovery of the three species.  
12 All three experts agreed that extinguishing or reducing any  
13 single population within any of the three ESUs would diminish  
14 the ESU's viability and increase the risk of extinction. Based  
15 on two drought years, with critically dry hydrologic conditions  
16 in 2008, and the presently unpredictable risk of a third dry  
17 year, the three species are unquestionably in jeopardy. The ESA  
18 does not permit jeopardy to a listed species to be considerably  
19 increased during a BiOp reconsultation. Project operations  
20 through March 2009 will appreciably increase jeopardy to the  
21 three species.

22 231. Mr. Oppenheim and Dr. Swanson testified that the  
23 winter-run is at high risk of extinction.

24 232. Mr. Oppenheim opined that "any processes that increase  
25 spring-run Chinook mortality in the future can have significant  
26 impacts on the population demographics and, therefore, run the  
27 risk of extinction." The 2004 BiOp predicts a high probability  
28 of extirpation of the spring-run populations in the Sacramento

1 River mainstem and Feather River. The condition of the species  
2 and its critical habitat in 2007 and 2008 have worsened.

3 233. The steelhead ESU is presently comprised of small  
4 populations, vulnerable to catastrophe and possible extirpation.  
5 NMFS predicts a steep decline in the steelhead population in the  
6 San Joaquin River Basin and "any impacts from loss of rearing  
7 habitat is considered significant." There are no presently  
8 viable steelhead populations. The three biologists agree that  
9 the steelhead ESU is in danger of extinction.

10 234. It is undisputed that Project operations over the next  
11 eight months will increase mortality of eggs, fry, and juveniles  
12 of all three species. Each species' spatial distribution,  
13 diversity and abundance, will be reduced.

14 235. Existing hydrology and operational conditions will  
15 adversely modify critical habitat to an unquantified degree and  
16 reduce the three species' prospects for long term recovery.

17 236. Federal Defendants have not met their burden of  
18 proving that Project operations will not appreciably diminish  
19 the three species' present states of non-viability and non-  
20 recovery and will not adversely affect the species' remaining  
21 critical habitat over the next eight month period.

22 237. Because irreparable harm will likely result during the  
23 interim period, the standard for equitable relief has been met.  
24 Whether interim remedies are necessary remains to be addressed.  
25 Plaintiffs proposed interim remedies for Clear Creek and RBDD  
26 have been rejected because of scientific and evidentiary dispute  
27 whether and to what extent they will benefit the three ESUs.  
28 Plaintiffs' request that the Bureau model a scenario that

1 provides for no further contractor deliveries in this water  
2 year, to the extent it has not already done so (Mr. Milligan  
3 stated no modeling had been done), to determine whether  
4 additional contractor delivery curtailments could benefit  
5 carryover storage<sup>34</sup> is **DENIED**. The Bureau has established that  
6 additional contractor delivery curtailments before September 30,  
7 2008 would not significantly improve carryover storage.

8 238. Plaintiffs have requested the opportunity to present  
9 evidence on additional suggested remedies, including requests  
10 to: (1) keep combined Delta export rates below 7,000 cfs when  
11 juveniles of any of the three species are migrating through the  
12 Delta, until NMFS completes its new BiOp, or the start of VAMP,  
13 whichever is first; (2) maintain temperatures below 68°F between  
14 Nimbus and Watt Ave Bridge on the American River; (3) limit  
15 Folsom releases to 4,000 cfs or less from December 31, 2008  
16 through May 31, 2009, with an exception for flood control; and  
17 (4) require temperatures be maintained below 52°F between  
18 Goodwin Dam and Orange Blossom Bridge from December 1 through  
19 April 30; below 60°F from May 1 through May 31; and below 65°F  
20 from June 1 through November 30.<sup>35</sup>

21 239. The decision about remand without vacatur is deferred  
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23 <sup>34</sup> Plaintiffs initially requested that the Bureau be  
24 ordered to maintain the TCP at Balls Ferry and also maintain 1.9  
25 MAF carryover storage in Shasta. The court finds that neither of  
26 these are possible given current hydrologic conditions. If  
27 Plaintiffs are still requesting these remedies, that request is  
28 **DENIED**.

<sup>35</sup> Plaintiffs requests for relief as to Feather River  
operations are not cognizable in this court.

1 to conclusion of the decision whether interim remedies are  
2 necessary.

3 240. A status conference will be held July 23, 2008 at 8:30  
4 a.m. to discuss the schedule for the case. Parties may appear  
5 telephonically.

6

7 **SO ORDERED.**

8 **DATED: July 18, 2008**

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10

/s/ Oliver W. Wanger  
Oliver W. Wanger  
United States District Judge

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