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UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF CALIFORNIA

NATURAL RESOURCES DEFENSE)	1:05-cv-1207 OWW GSA
COUNCIL, et al.,)	
)	FINDINGS OF FACT AND
Plaintiffs,)	CONCLUSIONS OF LAW RE
)	INTERIM REMEDIES RE:
v.)	DELTA SMELT ESA REMAND
)	AND RECONSULTATION
DIRK KEMPTHORNE, in his official)	
capacity as Secretary of the)	
Interior, et al.,)	
)	
Defendants.)	
)	
CALIFORNIA DEPARTMENT OF WATER)	
RESOURCES,)	
)	
Defendant-Intervenor,)	
)	
STATE WATER CONTRACTORS,)	
)	
Defendant-Intervenor,)	
)	
SAN LUIS & DELTA-MENDOTA WATER)	
AUTHORITY, et al.,)	
)	
Defendant-Intervenors.)	
)	

I. BACKGROUND

On May 25, 2007, the Court, in a Memorandum Decision and Order addressing Plaintiff's challenge to the 2005 Long-Term Central Valley Operations Criteria and Plan ("OCAP") Biological

1 Opinion ("BiOp"), held that the "2005 OCAP BiOp is unlawful and
2 inadequate," in part because "[t]he Delta Smelt Risk Assessment
3 Matrix ("DSRAM"), as currently structured, does not provide a
4 reasonable degree of certainty that mitigation measures will take
5 place." The Court found that existing take limits established by
6 the BiOp, without further restrictions on the operations of the
7 Central Valley Project ("CVP") and State Water Project ("SWP")
8 (collectively "Projects"), are inadequate to protect the species;
9 that the DSRAM must be made more certain and enforceable; that
10 the BiOp did not use the best available science; that the BiOp
11 failed to adequately find and address the impacts of joint
12 Project operations on the continued survival of the Delta smelt;
13 and failed to adequately consider impacts to the smelt's critical
14 habitat. The Court found that the BiOp's no jeopardy finding was
15 arbitrary, capricious, and without rational connection to the
16 status of the species.

17 The parties then submitted legal memoranda addressing
18 proposed interim remedies. On August 30, 2007, the Court granted
19 Plaintiffs' Motion to Supplement Their Complaint, adding claims
20 that the United States Bureau of Reclamation ("Reclamation") had
21 violated Section 7(a)(2) of the Endangered Species Act, 16 U.S.C.
22 § 1536(a)(2) ("ESA") because its operation of the CVP in
23 coordination with the State of California Department of Water
24 Resources' ("DWR"), SWP threatens to jeopardize the continued
25 existence and recovery of the Delta smelt and is adversely
26 affecting the Delta smelt's designated critical habitat. [Doc.
27 No. 495].

28 After taking evidence, considering all the written

1 submissions of the parties, and hearing oral argument, including
2 the parties' written proposals identifying the interim relief, if
3 any, that should be imposed on Reclamation's and DWR's operations
4 of the CVP and SWP until such time as the remand of the 2005 BiOp
5 is completed; [Fed. Def. Ex. 3 (Ex. 2 in evidence); Pl. Ex. 11
6 (App. 2); Pl. Ex. 4]; on August 31, 2007, the Court issued its
7 oral statement of decision granting a preliminary injunction and
8 remedial order to protect the species pending completion of a new
9 BiOp.

10 Following the summary judgment order, all parties recognized
11 that an interim remedies hearing was required because the BiOp
12 and Incidental Take Statement as well as the DSRAM were
13 invalidated. Federal Defendants, U.S. Department of the Interior
14 ("Interior"); United States Fish & Wildlife Service ("FWS");
15 Reclamation; and all Intervenors, DWR; State Water Contractors
16 ("SWC"); San Luis & Delta-Mendota Water Users Authority;
17 Westlands Water District; et al., Defendant-Intervenors, have
18 argued that the 2005 BiOp and Incidental Take Statement should
19 remain in place without vacatur.

20 Plaintiffs' proposed remedial actions commence with fall
21 actions by September 1, 2007, for the upcoming 2007-2008 water
22 year. By reason of the opinions of scientists and other experts
23 who testified at the evidentiary hearing, the Court has
24 determined that interim remedies should commence by December 25,
25 2007.

26 The species was first listed as threatened March 5, 1993.
27 The original BiOp for the OCAP was issued July 30, 2004, and
28 amended February 16, 2005. Both BiOps found no jeopardy to the

1 Delta smelt and its critical habitat. These Biological Opinions
2 concluded the Projects' combined operations did not jeopardize
3 the smelt's survival or cause adverse modification of the smelt's
4 critical habitat. The Delta smelt species has been intensively
5 studied for 12 years. In July 2006, before a ruling on the
6 legality of the 2005 OCAP BiOp was issued, FWS reinitiated
7 consultation on the Delta smelt respecting the 2005 BiOp,
8 implicitly recognizing its legal insufficiency and inadequacy of
9 the No Jeopardy BiOps.

10
11 II. FINDINGS OF FACT

12 A. CURRENT STATUS OF THE DELTA SMELT

13 1. The Delta smelt (*Hypomesus transpacificus*) was listed
14 as a "threatened" species under the ESA by the FWS on March 5,
15 1993. 58 Fed. Reg. 12,863 (March 5, 1993). The FWS designated
16 critical habitat for the Delta smelt on December 19, 1994, which
17 includes all waters and submerged lands within the Delta,
18 including the CVP and SWP pumping facilities. 59 Fed. Reg.
19 65,256 (Dec. 19, 1994).

20 2. The FWS recently reviewed the listing status of the
21 Delta smelt and, on March 31, 2004, concluded the species still
22 faces a "high degree of threat" and should remain listed under
23 the ESA. [Pl. Ex. 13].

24 3. Based on the results of recent surveys, scientists
25 believe that the Delta smelt is at one of the lowest levels of
26 abundance on record. [Fed. Def. Ex. 3 ¶2; Tr. 615:22-618:8; Tr.
27 617:18-21; Pl. Ex. 6].

28 4. It is undisputed that the current status of the Delta

1 smelt is serious. [Tr. 72:19-20] [Tr. 620:4-10]. Some scientists
2 believe that the Delta smelt faces an imminent risk of extinction
3 in the near future. [Tr. 266:16-17].

4 5. Many scientists opine that the decline of Delta smelt
5 is the result of multiple factors. [Tr. 73:4-16]; [Tr. 299:16-
6 22]. Those factors include: (a) the presence of toxic materials
7 (such as pesticides) in the Delta; (b) an overall reduction in
8 the abundance of the zooplankton that are the food of the Delta
9 smelt; (c) introduction and propagation of invasive species
10 including the Asian Overbite Clam, *Corbula* (a filter feeder which
11 feeds on some of the same zooplankton that the Delta smelt feeds
12 on); [Tr. 98:22-99:14; 104:16-105:2; 299:16-301:18; 1015:8-17;
13 1016-1017], another fresh water clam, *Corbicula*, may also have an
14 adverse impact on food supply; [Tr. 149:11-22; 196:8-17]; the
15 invasive Inland Silverside may prey upon larval Delta smelt.
16 [Tr. 533:20-25]; (d) other unscreened agricultural diversions in
17 the Delta; [Tr. 618:3; 803:17-23; 1005:8-17]; (e) power plant
18 diversions, including for consumptive use and for cooling water
19 that affect turbidity, [Tr. 618:4, 803:17-23]; and (f)
20 modifications to the hydrology of the San Joaquin-Sacramento
21 Delta and Estuary. [Tr. 151:3-9; 299:23-25; 534:6-14; 617:22-
22 618:6; 628:9-19; 701:3-12; 803:17-23].

23 6. Scientists believe that the decline of the Delta smelt
24 is caused in part by the operations of the CVP and SWP (as well
25 as other water diversions within the Delta) because each
26 Project's operations result in the direct entrainment of Delta
27 smelt at the CVP and SWP export facilities (the Pumps) which they
28 do not survive. [Tr. 82:11-12; 338:19; 628:1-6]. The Projects'

1 operations cause changes in the hydrology of the Delta that
2 adversely affect the Delta smelt. [Tr. 84:6-8; 628:9-12; 73:4-16;
3 299:16-301:18; 618:24-618:26; Pl. Ex. 13 at p. 21-29; DWR Ex. D
4 ¶2].

5 7. The full effects of these factors on the Delta smelt,
6 however, are not fully understood, and there is scientific
7 uncertainty regarding the relative magnitude of the effects.
8 [Tr. 52:3-20; 244:14-19; 303:25-304:3; 819:23-820:5]. In
9 addition, despite research efforts, there is still scientific
10 uncertainty regarding the cause of the recent, serious decline of
11 the Delta smelt, which continues to not be fully understood. [Tr.
12 805:2-8].

13 8. A preponderance of the evidence supports the conclusion
14 that the Delta smelt is presently being adversely affected by
15 several environmental factors, including the operations of the
16 CVP and SWP. [Tr. 1682:25-1683:2]. The evidence does not
17 establish that there is a single efficient proximate cause that
18 is solely responsible for the decline of the Delta smelt. [Tr.
19 1682:14-24].

20
21 B. BIOLOGY, LIFE STAGES, AND MOVEMENT OF THE DELTA SMELT

22 9. The Delta smelt begins its life cycle as an egg. [Tr.
23 67:21-25]. Most Delta smelt are spawned, as eggs, in the
24 northern Delta, although they are widely distributed throughout
25 the Delta. [Tr. 67:21-25]. Smelt hatch between March and May.
26 [Tr. 312:22-313:7]. After hatching, the larvae of the Delta
27 smelt are carried downstream by rivers and tides, to the
28 confluence of the Sacramento and San Joaquin Rivers and beyond,

1 often as far as Suisun Bay. [Tr. 67:25-68:6; 312:22-313:7]. The
2 Delta smelt spend 6 to 9 months downstream of the Delta, and then
3 gradually begin to migrate upstream again for spawning. [Tr.
4 68:7-9; 70:6-8; 313:5-7].

5 10. Even when larval Delta smelt are not detected in
6 surveys or at the CVP and SWP export facility, their presence may
7 be inferred from other factors. [DWR Ex. D ¶5]. The most
8 successful Delta smelt spawning occurs when water temperatures
9 are in the range of 12°C to 18°C. [DWR Ex. D ¶5]. When water
10 temperatures in the Delta have risen to 12°C, the presence of
11 larval Delta smelt may be inferred. [Tr. 396:2-5; DWR Ex. D ¶5].
12 In addition, the presence of "spent" Delta smelt females in
13 surveys also indicates that spawning has occurred. [Tr. 396:1-
14 2].

15
16 C. STATUS OF THE DELTA SMELT

17 11. The threatened Delta smelt "is undisputedly in jeopardy
18 as to survival and recovery." [SJ Order at 119:2-3]. Experts in
19 fish biology testified that the Delta smelt is in jeopardy.
20 Plaintiffs' experts Dr. Peter B. Moyle and Dr. Christina Swanson,
21 Federal Defendants' expert Ms. Cay Collette Goude, and Defendant
22 Intervenor State Water Contractor's expert Dr. Charles H. Hanson,
23 all agree that the species is in a critical state at present.
24 [Tr. 72:19-73:1; 85:11-14; 266:16-269:17; 270:6-271:10; 613:23-
25 614:3; 617:18-21; 622:14-623:4; 889:20-890:11; 945:3-10]. San
26 Luis' expert, Dr. Miller, agreed.

27 12. Population abundance indices have been at record low
28 levels for the past three years. [Tr. 270:25-271:10]. Some

1 experts opined that the species' condition is so precarious that
2 it could become extinct within the year. [Tr. 802:17-23; 1031:5-
3 1032:13].

4 13. Dr. Miller's 2002 work opining the Delta smelt species
5 had recovered, was substantially criticized by peers. He was
6 accused of using selective data to achieve result-oriented
7 opinions. Dr. Miller offered the absolutely unsupportable and
8 erroneous opinion that within the last five years the Delta smelt
9 species had "recovered."

10 14. The studies Dr. Miller submitted and the opinions
11 provided in his declarations are unduly limited, do not consider
12 the real life ramifications of conditions in the Delta, and the
13 actual condition of the Delta smelt.

14 15. On the witness stand, Dr. Miller admitted the critical
15 decline in the species and that it is on the verge of extinction.
16 Dr. Miller now acknowledges that major actions have to be taken.
17 He opined that an immediate food supply study needed to be
18 conducted. He further opined that more than one refuge
19 population should be established to attempt to save the species.
20 The locations of these preserves would be designed to protect
21 against single-event catastrophic elimination of the species.

22 16. The Court does not find Dr. Miller's opinions on the
23 species persuasive or reliable.

24 17. The critical habitat of the Delta smelt includes the
25 Sacramento-San Joaquin Delta waters at the confluence of those
26 rivers, as they approach San Francisco Bay, including the Central
27 and Northwest portions of the Delta.

28 18. The evidence is undisputable that the CVP, operated by

1 the Bureau and the SWP operated by DWR, cause the entrainment and
2 salvage of unknown numbers of Delta smelt through the operation
3 of their respective pumping facilities located in the south Delta
4 pursuant to operations conducted under the 2004 Operations
5 Criteria and Plan ("OCAP"). [Tr. 82:6-84:5; 694:24-695:3]. The
6 number of Delta smelt killed at the pumping facilities is unknown
7 in part because smelt smaller than 20mm in length are not counted
8 and samples of fish larger than 20mm counted in existing surveys
9 are limited. [Tr. 84:24-85:6; 85:19-25; 340:20-341:25; 342:22-
10 343:4; 695:9-20; 696:22-25].

11 19. Pumping kills Delta smelt by sucking them directly into
12 the pumps; by drawing them into fish "salvage" facilities which
13 collect fish diverted from entering the pumps, a process that
14 kills the smelt; and drawing smelt into the SWP's Clifton Court
15 Forebay from which the fish cannot escape and where they will die
16 even if they are not drawn into the salvage facilities or the
17 pumps. [Tr. 86:11-22; 87:16-25; 337:3-341:11; 628:22-629:6;
18 1147:18-1148:4]. These losses result from the combination of the
19 Delta smelt's natural migrations up and down the Delta during the
20 smelt's annual life cycle and flow conditions within the Central
21 and South Delta caused in part by the operation of the CVP and
22 SWP pumps. [Tr. 84:6-18]. Pumping-induced negative flows not
23 only pull smelt to the pumps, where they are either killed by the
24 pumps or by the salvage process, the smelt are also drawn into
25 unfavorable habitat where they and their offspring do not
26 survive. [Tr. 82:10-84:20; 95:7-96:3; 97:18-24; 317:10-20;
27 628:1-6; 631:7-15].

28 20. The Projects' (CVP and SWP) operations are one of the

1 causes of the Delta smelt's decline. [Tr. 82:6-9; 103:12-16;
2 104:10-13; 244:16-245:1; 299:16-22; 303:17-24; 354:21-356:6;
3 617:22-618:3; 685:5-10; 695:4-8; 766:22-767:1; 941:16-21].

4 21. Delta smelt are more likely to be entrained at the
5 Projects' pumping facilities when smelt are in the general
6 vicinity of those facilities (for example in the Central or South
7 Delta). [Tr. 631:11-15; DWR Ex. D ¶6]. Delta smelt face less
8 risk of entrainment at the Projects' pumping facilities when they
9 are farther away from those facilities. [Tr. 631:7-10].

10
11 D. SURVEYS AND MONITORING FOR DELTA SMELT

12 22. Scientists rely on surveys conducted in the Delta to
13 monitor the abundance of the Delta smelt. [Pl. Ex. 11 ¶3].
14 Those surveys include the Summer Towner, Fall Midwater Trawl,
15 Spring Kodiak Trawl, and 20-Millimeter surveys (collectively
16 "surveys"). [Pl. Ex. 11 ¶3]. The results of these Surveys are
17 critical to assessing the status of the Delta smelt. [Tr. 73:23-
18 74:8; 297:14-21; 651:15-18].

19 23. The operators of the CVP and SWP export facilities also
20 monitor for Delta smelt that are entrained in the pumps at those
21 facilities (known as "salvage"). [Tr. 629:7-13]. They do so by
22 taking samples at regular intervals during their operations and
23 counting the number of Delta smelt larger than 20mm found in
24 those samples. [Tr. 629:7-13]. They then estimate the total
25 number of Delta smelt entrained in the pumps by multiplying the
26 number found in the samples by an "expansion" factor. Delta
27 smelt do not survive the salvage or entrainment process. [Tr.
28 86:11-22; 87:16-25; 337:3-341:11; 628:22-629:6].

1 24. It is disputed whether the surveys described above and
2 the monitoring conducted at the CVP and SWP export facilities are
3 insufficient in light of the current low abundance of the Delta
4 smelt. [Tr. 1576:18-22].

5
6 E. DATA INADEQUACIES.

7 25. All parties agree that there is no firm and reliable
8 total population estimate for the Delta smelt and there never has
9 been.

10 26. No scientist was able to explain how, despite the
11 marshaling of federal, state and private resources, over ten
12 testifying experts presented in this case, and over ten years of
13 study, what is necessary and how long it will take to produce a
14 reliable total population estimate for Delta smelt.

15 27. Sampling data goes back over twenty-five years. The
16 data is presented in the form of indices. Regression analyses
17 are performed, which produce population "trends."

18 28. It is unfeasible and imprudent to delay further "study"
19 and gathering of information, since studies have been intensively
20 conducted for the past twelve years. Additionally, the
21 information gathering and analysis process concerning the
22 existence, survival, recovery, and viability of the smelt
23 population has redoubled since the filing of this lawsuit and
24 over 1,500 pages of scientific and engineering analysis of water
25 Projects' operations, water costs, physical resource costs,
26 monetary costs, and other burdens that will be required by the
27 granting of interim protection, were presented for this remedies
28 hearing.

1 F. MONITORING FREQUENCY

2 29. At their present lower levels of abundance, an increase
3 in the frequency of the monitoring at the CVP and SWP export
4 facilities will help to ensure that Delta smelt are detected when
5 they are present. [Pl. Ex. 11 ¶34]. Currently, the monitoring
6 programs at the CVP and SWP export facilities only detect Delta
7 smelt that are 20mm in length or larger. Expanding these
8 monitoring programs to detect Delta smelt smaller than 20mm in
9 length will help to confirm the presence of Delta smelt larvae at
10 the export facilities although their presence may also be
11 inferred from other factors. [Tr. 387:21-24; 427:16-18; 431:23-
12 423:2].

13 30. Reclamation and DWR will be required to overcome
14 certain technical obstacles to detect Delta smelt between 5mm and
15 20mm in length at the CVP and SWP export facilities including the
16 acquisition of new equipment to conduct this monitoring and the
17 training of personnel to distinguish between Delta smelt larvae
18 and the larvae of other fish species. [Tr. 653:17-656:12]. It
19 appears fine mesh nets may need to be acquired for this purpose.

20 31. It is feasible to implement a monitoring program to
21 protect larval Delta smelt. [Tr. 1686:16-22]. The need for
22 larval monitoring was demonstrated by the testimony of Dr. Peter
23 Moyle, who testified that large numbers of larval smelt may be
24 taken at the Projects' pumps to reduce the smelt population
25 significantly, especially when, as now, smelt numbers are
26 critically low. [Tr. 82:20-83:1; 85:4-14]. Dr. Swanson
27 explained that, "given the new science which suggests that, in
28 fact, one of the more important impacts of water project

1 operations may be lethal entrainment of those very small life
2 history stages, I felt it was essential that monitoring for those
3 life stages of Delta smelt at the facilities be implemented."

4 [Tr. 386:23-387:3].

5 32. Reclamation currently monitors for Delta smelt at the
6 CVP pumping facilities only approximately 8% of the time. [Tr.
7 385:23-386:1]. More frequent monitoring at regular intervals to
8 detect the presence of Delta smelt will help to gauge more
9 accurately the abundance of smelt near the CVP pumps and the
10 numbers of smelt taken at those facilities. [Pl. Ex. 11 ¶34; Tr.
11 386:2-15].

12
13 G. PROPOSED INCREASED MONITORING

14 33. Plaintiffs Recommended Interim Remedial Action Numbers
15 2 and 3 respectively propose an increase in frequency of sampling
16 for entrainment of fish at the CVP pumping facilities to a
17 minimum of 25% of the time at intervals evenly spaced throughout
18 the day. [Pl. Ex. 4 Appendix]. Remedial Action #3 proposes
19 monitoring for larval Delta smelt (less than 20mm in length) in
20 the vicinity of the CVP and SWP pumping facilities a minimum of 4
21 times a day, evenly spaced through each 24-hour period, during
22 early winter to late spring. [Pl. Ex. 4 Appendix]. That
23 monitoring action is proposed to begin when Delta smelt spawning
24 begins as indicated by (1) spring Kodiak survey data on the
25 maturation stage of the Delta smelt or the presence of spent
26 females in the survey or salvage samples; (2) when water
27 temperatures reach 12°C at any Delta monitoring station; or (3)
28 when larval Delta smelt are detected in the 20mm Survey or at the

1 CVP or SWP fish salvage facilities, whichever comes first.
2 Plaintiffs propose the action would end June 15, or a minimum of
3 five days after the last detection of larval or juvenile Delta
4 smelt at either the CVP or SWP facilities, whichever comes last.
5 This monitoring shall cease on June 15 or a minimum of five (5)
6 days after the last detection of larval and juvenile Delta smelt
7 at either the CVP or SWP protective facilities by either the
8 salvage or larval monitoring program, whichever comes last.

9 34. Remedial action #2 would commence when (1) there is an
10 increase in Sacramento River flow at Freeport at 25,000 cfs; or
11 (2) there is an increase in San Joaquin River outflow by greater
12 than 10% over 3 days; or (3) Fall Midwater Trawl or Spring Kodiak
13 survey data indicate that Delta smelt are moving upstream of the
14 Sacramento-San Joaquin Confluence and into the Delta; or (4) by
15 January 15, whichever occurs first. Plaintiffs propose the
16 action would end June 15, or a minimum of five days after the
17 last detection of larval or juvenile Delta smelt at either of the
18 CVP area facilities, whichever comes last. [Tr. 1686:7-14, 21-
19 22]. Plaintiffs propose the action would end June 15, or a
20 minimum of five days after the last detection of larval or
21 juvenile Delta smelt at either the CVP or SWP facilities,
22 whichever comes last. This monitoring shall cease on June 15 or
23 a minimum of five (5) days after the last detection of larval and
24 juvenile Delta smelt at either the CVP or SWP protective
25 facilities by either the salvage or larval monitoring program,
26 whichever comes last.

27 35. Dr. Swanson provided two reasons for increased
28 monitoring: (1) the salvage sampling program at the CVP is less

1 efficient than the SWP sampling program; and (2) the Delta smelt
2 population abundance is currently so low there is a risk of error
3 by infrequent sampling, which misses fish that are actually there
4 by only sampling for a very limited period of time. [Tr. 386:4-
5 12; 385:23-386:1 (documenting existing sampling frequencies at
6 the CVP facilities)]. Dr. Moyle opined that more frequent
7 sampling at the federal pumping facility is essential. [Tr.
8 82:15-19]. Ms. Goude testified in support of this proposed
9 increased sampling: "There is a concern that some of the surveys
10 are not as robust because of the low numbers of smelt" and "I
11 think [Plaintiff's action 2] would be useful." [Tr. 651:2-24;
12 652:11].

13

14 H. NEGATIVE FLOWS ON OLD AND MIDDLE RIVERS AND ENTRAINMENT
15 EFFECTS

16 36. The Old and Middle Rivers ("OMR") are tributaries of
17 the San Joaquin River that flow through the South Delta and pass
18 by the Project's pumping facilities. OMR flows are strongly
19 influenced by inflows from the San Joaquin River and by the
20 magnitude of water diversions at the Projects' pumping
21 facilities. [Tr. 491:23-491:15; 316:18-25; Fed. Def. Ex. ¶4; Pl.
22 Ex. 11 ¶9 n.1.]. These flows are also influenced by tides, the
23 operation of the Head of Old River Barrier and certain
24 agricultural barriers in the South Delta and other water
25 diversions in the South Delta. [Tr. 492:7-9; 631:16-632:5; Fed.
26 Def. Ex. 1 ¶4; Fed. Def. Ex. 4 ¶12]. When OMR flows are
27 upstream, when the flow is in the direction of the Project's
28 pumping facilities (and away from the Confluence of the

1 Sacramento and San Joaquin Rivers), such flows are commonly
2 described as "negative" or "reverse." [DWR Ex. D ¶4]. Export
3 pumping at the CVP and SWP facilities to south of Delta users,
4 cause flows to be negative on the OMR. Plaintiffs' expert opined
5 the pumps' operations are the chief cause of this impact. [Tr.
6 84:14-18].

7 37. Delta smelt are poor swimmers and, when negative flows
8 on the OMR are high, Delta smelt located in the Central and
9 Southern Delta may be captured by those flows and drawn toward
10 the CVP and SWP export facilities, where they are entrained.
11 [Tr. 337:3-11; 351:25-352:5; Pl. Ex. 11 ¶28]. High negative
12 flows on the OMR may increase the risk that Delta smelt will be
13 entrained at the CVP and SWP export facilities. [Tr. 630:18-22;
14 DWR Ex. D ¶4].

15 38. Scientists have demonstrated an approximately linear
16 relationship between negative flows on the OMR and the number of
17 Delta smelt entrained at the CVP and SWP export facilities
18 (although the exact levels of entrainment also depend on other
19 factors, such as the abundance of the Delta smelt). [Tr. 483:14-
20 15; 727:18-22; DWR Ex. D ¶4, Ex. 1; Pl. Ex. 11 (Fig. 7), at 12].
21 As the average combined flows on the OMR become more negative,
22 the number of Delta smelt within the zone of confluence of the
23 Projects entrained at the CVP and SWP export facilities
24 increases. [Tr. 566:17-567:2]. The data on the exact
25 mathematical relationship between negative flows and the number
26 of Delta smelt entrained is limited. [Tr. 348:11-16; 406:8-15;
27 566:20-22]. From available data it also appears that the number
28 of Delta smelt entrained at the CVP and SWP export facilities

1 begins to rise significantly when negative flows on the OMR
2 exceed approximately -5,000 cfs. [Tr. 641:14-642:5; 725:16-17;
3 DWR Ex. D ¶4; DWR Ex. G ¶34; SWC Ex. N].

4 39. Dr. Miller, the San Luis Intervenors' expert's
5 testimony on 2002 smelt abundance figures have been materially
6 questioned in the scientific peer community and the Court finds
7 Dr. Miller's analysis to be unpersuasive. The statistical
8 analysis by Dr. Miller does not prove his opinion that the
9 projects have insignificant influence on the abundance of Delta
10 smelt.

11 40. Negative OMR flows are lessened by reducing diversions
12 at the Projects' pumping facilities, by increasing releases to
13 the San Joaquin River from the CVP facilities upstream, or by a
14 combination of these. Under certain conditions (including dry
15 conditions, when inflows to the San Joaquin River are low), even
16 stopping all diversions at the CVP and SWP export facilities may
17 not be sufficient to eliminate negative OMR flows. [Tr. 1555:18-
18 23; 1566:11-22]. In such a case, the negative OMR flows can only
19 be eliminated by releasing additional water to the San Joaquin
20 River or by asking other diverters in the South Delta to curtail
21 pumping. [Tr. 1567:4-19]. There is no evidence that any
22 Defendant or Intervenor in this case has any control over other
23 South Delta diverters.

24 41. Flows on the OMR are strongly influenced by inflows
25 from the San Joaquin River and the magnitude of diversions at the
26 CVP and SWP export facilities. [Tr. 491:23-492:15; 316:18-25;
27 Fed. Def. Ex. 1 ¶4; Pl. Ex. 11 ¶9 n.1]. Negative flows on the
28 OMR may be reduced by reducing diversions at the CVP and SWP

1 export facilities or by increasing releases to the San Joaquin
2 River from the CVP facilities upstream (or by a combination of
3 such reductions in releases).

4
5 I. PROPOSED OMR FLOW RESTRICTIONS TO REDUCE ENTRAINMENT

6 42. Scientists have concluded that the number of Delta
7 smelt entrained at the Projects' pumping facilities often
8 increases after a winter "pulse flow," i.e., when the combined
9 winter flows on the Sacramento and San Joaquin Rivers increase to
10 about 30,000 cfs, and the Delta smelt begin to move upstream to
11 spawn and pass through the Central Delta, within the hydrological
12 influence of the Projects' pumps. [DWR Ex. D ¶3; Tr. 368:23-
13 369:8]. Scientists hypothesize that the movement of the Delta
14 smelt may be triggered by the increased turbidity that results
15 from these winter pulse flow events. Turbidity is a useful
16 indicator of the subsequent entrainment of adult Delta smelt.
17 [DWR Ex. D ¶3]. A restriction on negative OMR flows during a
18 winter pulse flow event is expected to help to minimize the
19 movement of Delta smelt into the South Delta and thus result in a
20 distribution of the Delta smelt population that reduces the risk
21 of entrainment at the Projects' pumping facilities. [DWR Ex. D
22 ¶3]. FWS's witness, Ms. Goude, testified that a restriction
23 limiting negative OMR flows to -2,000 cfs during a winter pulse
24 flow event is expected to be protective of the Delta smelt. [Tr.
25 638:24-639:15; 720:12-14]. Ms. Goude further testified that such
26 a restriction is not necessary during a wet year when high water
27 flows would themselves move the Delta smelt away from the
28 influence of the pumps. [Tr. 639:24-640:13].

1 43. After a winter pulse flow event, and in those years
2 when no pulse flow occurs, further restrictions on negative OMR
3 flows during the winter are expected to minimize the number of
4 pre-spawning adult Delta smelt entrained at the Projects' pumping
5 facilities and to reduce spawning in the South Delta (where
6 larval Delta smelt are more likely to be entrained at the
7 Projects' pumping facilities). [DWR Ex. 4 ¶4; Tr. 638:20-23].

8 44. During the spring and early summer, larval and juvenile
9 smelt again pass through the Central Delta, within the
10 hydrological influence of the Projects' pumps, as they move
11 downstream to their rearing areas, beyond the Confluence of the
12 Sacramento and San Joaquin Rivers and in Suisun Bay. [DWR Ex.
13 ¶6]. Scientific studies suggest that smelt have benefitted from
14 pumping curtailments implemented under the Vernalis Adaptive
15 Management Plan ("VAMP") from mid-April to mid-May of each year.
16 [Tr. 304:22-305:11]. Restrictions on negative OMR flows during
17 the spring and early summer are expected to minimize the
18 entrainment of larval and juvenile Delta smelt at the CVP and SWP
19 export facilities. [Tr. 389:2-9; 390:15-20; 391:5-10; 391:22-
20 392:3; 395:9-20; 641:16-19; DWR Ex. D ¶¶5, 6; Pl. Ex. 11 ¶35].
21 Such restrictions also help to facilitate the movement of larval
22 and juvenile Delta smelt downstream. [Tr. 395:13-20].

23 45. In general, Delta smelt face a greater risk of
24 entrainment at CVP and SWP facilities when they are located near
25 those facilities (for example, in the Central or Southern Delta)
26 than when they are located farther away (such as when they are in
27 the Suisun Bay). [Tr. 631:7-10; 631:11-15; 642:22-23; DWR Ex. D
28 ¶6]. For that reason, it is appropriate to identify specific

1 target flow for the OMR (within a certain range) at the time when
2 the restriction is to come into effect, based on the best
3 scientific data available at that time, including, but not
4 limited to, survey results, salvage information, results of the
5 "particle tracking model" developed by the DWR, and information
6 on the actual hydrology occurring at the time, which also affects
7 smelt movements.

8 46. The Delta is a dynamic aquatic environment and flows on
9 the OMR may be affected by the tides and unpredictable natural
10 factors such as high winds, rain events, storm surge, and other
11 meteorological conditions. [Tr. 1494:6-1496:6; Fed. Def. Ex. 2
12 ¶41; DWR Ex. G ¶33]. Some variability in flows on the OMR cannot
13 be avoided, and to allow for that variability, any restriction on
14 those flows should be expressed as a seven-day running average.
15 There is conflict in the testimony regarding the value of use of
16 a shorter averaging period. [Tr. 1499:5-18; 1500:3-19; DWR Ex. J
17 ¶¶30, 32].

18
19 J. RESTRICTIONS ON INSTALLATION OF BARRIERS IN DELTA

20 47. The Head of Old River Barrier, when installed, directs
21 flows on the San Joaquin River away from the Old River into the
22 Central Delta. [DWR Ex. D ¶8]. The purpose of the Head of Old
23 River Barrier is to benefit migrating salmon. [Tr. 134:3-12].
24 This measure tends to increase negative OMR flows which may
25 increase the risk that Delta smelt will be entrained at the
26 Projects' pumping facilities. [Tr. 134:3-12; 400:14-18; 649:7-
27 16; DWR Ex. D ¶8]. A restriction prohibiting the installation of
28 the head of Old River Barrier until June 15 will allow the San

1 Joaquin River to contribute to more positive OMR flows and
2 minimize the risk that Delta smelt will be entrained at the
3 Projects' pumping facilities. [Tr. 402:20-23; 408:25-409:7; Pl.
4 Ex. 4 Appendix]. The Barrier diverts salmon away from the pumps;
5 it does not improve flows for them. [Tr. 134:3-12].

6 48. There are agricultural barriers that when in operation,
7 retain more water in the South Delta (to facilitate agricultural
8 diversions) by using "flap gates." [DWR Ex. D ¶8]. The flap
9 gates allow water to pass through the barriers on the incoming
10 tide, but prevent it from draining away when the tide ebbs. [DWR
11 Ex. D ¶8]. In this way, these barriers also tend to increase
12 negative OMR flows. A restriction requiring the flap gates on
13 these agricultural barriers to be tied open will allow this water
14 to contribute to more positive OMR flows. [DWR Ex. D ¶8].
15 Plaintiffs' proposed actions 8 and 9 prohibiting the installation
16 of these agricultural barriers until the end of the VAMP measure
17 as prescribed in the Interim Remedial Order.

18
19 K. FALL ACTIONS

20 49. Plaintiffs' proposed fall action to maintain Delta
21 outflow at a minimum of 7,500 cfs or maintain X-2 (or as a
22 fourteen day running average at downstream of 80km, whichever
23 requires less fresh water outflow was not supported by a
24 preponderance of the evidence because: (1) not supported by peer-
25 reviewed analysis; (2) the Delta Smelt Working Group declined to
26 support similar actions put before them; and (3) there is
27 material uncertainty among scientists about the benefit of this
28 action for the Delta smelt in the face of its requirement of a

1 large commitment of water to users in times of summer heat. [Tr.
2 1691:19-1692:11].

3 49. The significant quantity of water that would be
4 required for proposed fall actions, approaching 500,000 acre feet
5 ("AF") in an average water year, in light of the scientific
6 dispute and other scientists' rejection of such a plan; the
7 scientific uncertainty; and the low risk reward benefit analysis
8 does not justify imposition of a fall remedial measure.

9

10 L. OTHER NEGATIVE EFFECTS ON DELTA SMELT

11 51. The evidence preponderates to show that the Projects'
12 operations adversely modify the Delta smelt's designated critical
13 habitat, the South and Central Delta waters, by rendering the
14 designated habitat in the South Delta unsafe to use for spawning
15 or migration because of the risk of pumping entrainment at
16 different times to all life stages of the species. [Tr. 89:11-
17 90:11; 94:6-95:3; 589:11-591:8; 686:4-10]. The South Delta
18 represents roughly one-third of the Delta smelt's critical
19 habitat. [Tr. 589:21-25; 591:5-8].

20 52. The full range of causes of the Delta smelt's current
21 record low population abundance and the relative roles various
22 causes have played in the species are not fully understood. [Tr.
23 73:4-16; 299:16-300:1; 301:1-18; 303:25-304:3; 617:22-618:6].
24 However, substantial evidence proves by more than a preponderance
25 that Delta smelt mortality is caused by the Projects' operations.
26 The evidence does not establish that the primary cause of the
27 Delta smelt's decline is lack of adequate food supply, a position
28 advanced by Dr. William J. Miller. [Tr. 1682:3-17].

1 53. Additional causes, not directly effectuated by CVP and
2 SWP operations, include, but are not limited to, toxicity
3 resulting from pesticides and other toxics in the species'
4 habitat; invasive predatory species, including the Asian Overbite
5 Clam; actions of other diverters in the Delta; and reduction of
6 the food supply of the species, are contributing to its decline.

7
8 M. INADEQUACY OF TAKE LIMITS

9 54. The 2005 BiOp identifies limits on the number of Delta
10 smelt that may be taken at the CVP and SWP export facilities
11 before consultation with FWS must be reinitiated under the ESA.
12 The existing take limits are unrealistically high and may
13 approach the current population numbers of the species as a
14 whole. [Tr. 776:2-777:19; 1213:16-1215:22; 1679:15-18]. The
15 incidental take limits set in the 2005 BiOp are arbitrary and
16 capricious because, in setting those limits based on historical
17 take, FWS did not take into account the most recent uncontested
18 data about record-low Delta smelt abundance. [SJ Order at 92:19-
19 93:1; Tr. 358:4-359:4]. The even higher incidental take limits
20 set in the out-dated 1995 BiOp on the Projects' operations may
21 exceed the species' current population. [Tr. 633:12-644:12;
22 777:2-3; 1679:15-18].

23 55. The take limits set out in the 2005 BiOp are
24 significantly more restrictive (allowing the taking of fewer
25 Delta smelt) than the take limits that were identified in the
26 previous biological opinion (issued in 1995). [Tr. 777:10-19].
27 The latter-issued take limits are not sufficient by themselves in
28 the absence of interim and injunctive relief, to protect the

1 Delta smelt.

2

3 N. INADEQUACY OF DSRAM PROCESS TO MITIGATE EFFECTS OF PROJECTS'
4 OPERATIONS

5 56. The BiOp attempted to remediate the Projects' negative
6 impacts to the jeopardized Delta smelt through the implementation
7 of the DSRAM, a mitigation process that is the central remedial
8 plan for the 2005 BiOp. [Tr. 1681:14-21]. The DSRAM process has
9 been found arbitrary and capricious because it did not provide
10 the reasonable certainty required by the ESA that necessary
11 mitigation measures will be implemented, nor the reasonable
12 assurance the ESA requires that OCAP operations will not
13 jeopardize the Delta smelt nor adversely modify its critical
14 habitat. [SL Order at 58:12-59:4].

15 57. Ronald Milligan, manager of Reclamation's CVP Office,
16 testified that the Delta smelt has declined in population
17 abundance in recent years, despite the agency's use of the DSRAM
18 in the last several years attempting to address the Projects'
19 impacts on the species. [Tr. 1559:9-1560:6]. The Water
20 Operations Management Team ("WOMT") which includes
21 representatives from Reclamation and DWR, has declined at times
22 although presented with incontrovertible evidence, to take
23 actions to protect the smelt, that were recommended pursuant to
24 the DSRAM by the Delta Smelt Working Group ("DSWG"), a team of
25 Delta smelt scientists from the Project agencies and the Wildlife
26 Protection Agencies. [Tr. 1552:21-1554:21; 1557:8-23].
27 Reclamation's and DWR's reliance on the DSRAM process has been
28 unsuccessful, as demonstrated by the record low population

1 abundance indices for the Delta smelt in the past three years.
2 [Tr. 270:25-271:10; 273:24-274:2; 1581:4-1580:2].

3
4 O. OTHER MEASURES NECESSARY FOR FEDERAL DEFENDANTS' TO TAKE
5 PENDING THE NEW BIOP

6 58. Federal Defendants in their opening brief on injunctive
7 relief identified measures that they committed to implement, as
8 necessary to prevent an irreversible or irretrievable commitment
9 of resources under ESA Section 7(d) pending completion of a new
10 biological opinion. [Fed. Def. Brief, Doc. 396 at pp. 19-20].
11 Federal Defendants committed, as of July 9, 2007, that:

12 1) The Bureau will not execute any long-term water
13 service contracts with CVP contractors until the new BiOp is
14 completed;

15 2) The Bureau will not implement construction
16 activities and long-term projects in the Delta until the new BiOp
17 is completed, including the South Delta Improvement Project, the
18 Delta Mendota Canal/California Aqueduct Intertie Program, the
19 Lower American River Flow Standards, and the Long Term
20 Environmental Water Account;

21 3) The Bureau will "not increase exports from the
22 South Delta and will operate Jones Pumping Plant within recent
23 historic limits;" and

24 4) The Bureau committed resources and staff to the
25 continuing study of pelagic organism decline in the Delta.

26 59. These measures shall be implemented during the
27 reconsultation period as Federal Defendants admit the measures
28 are necessary to preserve the Delta smelt and its critical

1 habitat.

2

3 P. PUBLIC HEALTH, SAFETY AND THE HUMAN ENVIRONMENT

4 60. Plaintiffs' proposed restrictions on the operations of
5 the CVP and SWP have the ability to deleteriously affect public
6 health, safety, and the human environment in many ways. The
7 Court recognizes it has limited ability to control the impact of
8 its ruling under ESA jurisprudence, particularly economic
9 impacts. Plaintiffs proposed an exception to the implementation
10 of interim injunctive relief and remedial actions where such
11 requirements would threaten public health and safety. The
12 Plaintiffs propose that this limitation be defined by
13 Reclamation's "M&I Shortage Policy," which provides that a public
14 health and safety problem exists "when there is a severely low
15 water supply with the sharing of water supplies for purposes of
16 interior residential, sanitation and fire protection."

17 61. Although the ESA does not expressly recognize an
18 exception for human health and safety, Plaintiffs have offered
19 and it is prudent to apply a human health and safety exception as
20 part of the relief granted in this case. Risks that will be
21 created by implementation of the interim remedial actions to be
22 imposed, include, but are not limited to:

23 a. Adverse impacts affecting deliveries of water
24 necessary for water service districts, emergency water supplies,
25 municipal water supplies, and industrial power and related energy
26 sources;

27 b. Adverse effects on agriculture including, but not
28 limited to, loss of jobs, increased groundwater pumping, fallowed

1 land, and land subsidence.

2 c. Air pollution resulting from heavier reliance on
3 groundwater pumping and decrease in surface irrigation; and

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

8 [Tr. 1412:24-1413:3; 1414:6-17; 1414:1-5; 1482:15-1483:2].

9 62. Diversions from CVP and SWP export facilities are also
10 necessary to meet health and safety demands of certain
11 contractors on the upper reach of the Delta-Mendota Canal, where
12 such contractors have few or no alternative sources of water.
13 [Fed. Def. Ex. 4 ¶5].

14

15 III. CONCLUSIONS OF LAW

16 A. JURISDICTION

17 1. Jurisdiction in this case exists under 28 U.S.C. § 1331
18 (Federal Question); 16 U.S.C. § 1536 et seq. (the ESA); and 5
19 U.S.C. § 702 et seq. (the Administrative Procedure Act).

20 2. All other Defendant-Intervenors have voluntarily
21 submitted themselves to the Court's jurisdiction by intervening
22 and fully participating in the litigation. The DWR, by its
23 intervention and full participation throughout the pleading
24 phase, dispositive motion proceedings, temporary restraining
25 order proceedings, evidentiary hearing on remedies and by
26 presenting evidence, proposing interim remedies, and providing
27 oral and written arguments as well as additional written legal
28 authorities on the merits of all issues, claims and remedies,

1 that address DWR's joint operation with Reclamation of the CVP
2 and SWP, have waived any jurisdictional objection to the
3 imposition of the interim remedial orders on the DWR. DWR and
4 other parties have reserved the right to address motions to the
5 issues of jurisdiction and efficacy of the most recent
6 supplements to Plaintiffs' complaint.

7 3. On August 30, 2007, Plaintiffs' motion to supplement
8 their complaint was granted adding claims that Reclamation
9 violated §7(a)(2) of the Endangered Species Act, 16 U.S.C.
10 § 1536(a)(2). The supplemental complaint claims that
11 Reclamation's and DWR's operation of the CVP and SWP is causing
12 decline in the smelt population and threatens extinction of the
13 species and is causing adverse effects on the Delta smelt's
14 designated critical habitat.

15 4. Defendant Intervenors reserve the right to challenge the
16 Court's jurisdiction over the new ESA claim. Plaintiffs assert a
17 further claim for violation of §7(d) for irretrievable or
18 irreversible commitments of resources during §7 consultation.

19 5. The summary judgment proceedings and evidentiary hearing
20 were conducted with full participation of DWR (the State of
21 California, and the State Water Contractors, who offered
22 evidence, legal briefing and argument). This conduct also
23 amounts to judicial estoppel against DWR and SWC. The
24 principles of Fed. R. Civ. P. 15(b) apply to permit amendment of
25 pleadings, if necessary, to conform to the proof offered by DWR
26 and the SWC.

27 6. The Federal Defendants, by initiating reconsultation,
28 have acknowledged the invalidity of the 2005 BiOp. They have,

1 pursuant to Court direction, proposed interim remedial measures.
2 The Federal Defendants have agreed to implement stand-by measures
3 that will prevent the irreversible or irretrievable commitment of
4 resources pending completion of a lawful biological opinion.
5 These commitments are listed at Finding of Fact 57., p. 24:15-
6 25:5, and are incorporated into the accompanying Interim Remedial
7 Order.

8
9 B. Judicial Non-Intervention

10 7. The Court will not substitute its judgment for that of
11 any administrative agency. The Court lacks the expertise or
12 background in fish biology, hydrology, hydraulic engineering,
13 water project operations, and related scientific and technical
14 disciplines that are essential to determining how the State and
15 Federal Water Projects should be operated to protect and benefit
16 the public and the species.

17
18 C. IMPERILED STATUS OF SPECIES

19 8. There is general agreement among the biologists and
20 environmental experts who testified as to the current critical
21 condition of the Delta smelt, which is at a historic low and
22 could go extinct within one year, with or without all proposed
23 remedial measures. There is considerable difference of expert
24 opinion as to whether and what remedial proposals are
25 biologically necessary in the interim pending completion of a
26 lawful biological opinion, which are all reasonably supported by
27 available scientific data and information.

28 9. Jarry Johns, DWR's Deputy Director who is also a member

1 of the Water Operations Management Team, has testified before a
2 Congressional Oversight Committee: "It is DFG's position that
3 actions must be taken to protect as many individual smelt as can
4 be through manipulation of the water projects. Each reproducing
5 organism is important to the survival of the species."

6 10. Mr. Johns' declaration ¶ 58 explains: The "dramatic
7 drop in juvenile smelt was a great concern to DFG and USFWS this
8 year and highlighted their concern about any further impacts to
9 the reduced population this year."

10 11. The Delta Smelt Working Group recognized in spring of
11 2007 that the Delta smelt was "critically imperiled" and that the
12 Projects should seek to achieve "no further entrainment of Delta
13 smelt." Swanson Dec. ¶ 16.

14 12. The evidence clearly establishes by more than a
15 preponderance that the condition of the Delta smelt has worsened
16 in recent years and that the species is currently in a critical
17 state. Some experts have opined that there may be no way to
18 prevent the extinction of the species. There is a dispute
19 whether the operations of the CVP and SWP export facilities are
20 the principal cause of the decline in the Delta smelt or whether
21 other factors beyond the control of the Projects are the
22 principal cause. Nonetheless, there is no dispute that Project
23 operations are taking Delta smelt through entrainment, salvage,
24 and alteration of Delta hydrology, principally reversal of
25 natural flows.

26 13. Under the doctrine of concurrent causes, the impact
27 from Project operations is at least a concurrent cause which
28 jeopardizes the existence of the Delta smelt and endangers its

1 survival and its critical habitat, which necessitates remedial
2 action. The Court is under a legal and equitable duty to
3 formulate remedial action.

4 14. The interim remedial order has taken into account all
5 evidence and opinions provided by the multitude of experts who
6 have testified about the scientific issues and made the remedial
7 proposals. This is legally justified by the ESA requirement that
8 the best scientific and commercial data available be brought to
9 bear on the issues presented.

10 15. Continued operation of the Projects' pumps in the
11 interim period without imposition of a remedial order would not
12 provide the necessary level of protection to prevent further risk
13 to the survival of the Delta smelt.

14 16. The interim remedial order must be and is based upon
15 the best scientific and commercial data presented by the parties
16 over an extended evidentiary hearing and in extensive written
17 submissions, after oral argument. The interim remedial order is
18 narrowly tailored to impose burdens no greater than reasonably
19 necessary to comply with the ESA. *Nat'l Wildlife Fed'n v. NMFS*,
20 422 F.3d 782, 799-800 (9th Cir. 2005).

21 17. A Plaintiff must still demonstrate a likelihood of
22 success on the merits as well as "reasonable likelihood" of
23 irreparable harm for ESA injunctive relief. *National Wildlife*
24 *Fed'n v. Burlington Northern R.R.*, 23 F.3d 1508, 1511 (9th Cir.
25 1994); *Nat'l Wildlife Fed. v. Nat'l Marine Fisheries Serv.*, 442
26 F.3d 782, 793-94 (9th Cir. 2005).

27 18. The extinction of a species and adverse effect on its
28 critical habitat constitute irreparable injury.

1 19. The Plaintiffs have prevailed in this action to the
2 extent that the BiOp under which Reclamation and DWR are
3 operating the CVP and SWP, the DSRAM, and Incidental Take Limits
4 are unlawful.

5 20. The evidence described in the Findings of Fact
6 establishes by a preponderance of the evidence that the current
7 operations of the CVP and SWP could result "in irreparable harm"
8 by imminently threatening the continued existence of the Delta
9 smelt and adversely modifying its designated critical habitat.

10
11 D. STANDARDS FOR APA INJUNCTIVE RELIEF

12 21. Agency decisions are reviewed under the Administrative
13 Procedure Act, 5 U.S.C. § 706(2)(A) and should be set aside only
14 if the decision is arbitrary, capricious, an abuse of discretion,
15 or otherwise not in accordance with law. *Sierra Club v. Marsh*,
16 816 F.2d 1376, 1384 (9th Cir. 1987). To prove an APA violation,
17 the Plaintiff must show irreparable harm or a balance of
18 hardships tipping in the Plaintiff's favor. For a NEPA claim, a
19 Plaintiff is required to make a traditional showing for
20 injunctive relief. Establishing a procedural violation of NEPA
21 does not compel the issuance of a preliminary injunction. *Fund*
22 *Animals v. Lujan*, 962 F.2d 1391, 1400 (9th Cir. 1992).

23 22. "Environmental injury, by its nature, can seldom be
24 adequately remedied by money damages and is often permanent or at
25 least of long duration, i.e., irreparable. If such injury is
26 sufficiently likely, therefore, the balance of harms will usually
27 favor the issuance of an injunction to protect the environment."
28 *Amoco Prod. Co. v. Village of Gambell, AK*, 480 U.S. 531, 545

1 (1987). Here, all experts agree that the status of the Delta
2 smelt species is critical and the species could be extinct within
3 one year. Experts have also testified that the species could go
4 extinct with or without any action by the parties.

5 23. Injunctive relief is intended to be the least
6 intrusive and is not intended to limit the lawful exercise of
7 Agency discretion, competence, and expertise to operate the
8 Projects in compliance with APA and ESA requirements.

9
10 E. ESA INJUNCTIVE RELIEF REQUIREMENTS

11 24. ESA Section 7(a)(2) prohibits agency action that is
12 "likely to jeopardize the continued existence of any listed
13 species or to result in the destruction or adverse modification
14 of its critical habitat. 16 U.S.C. § 1536(a)(2).

15 25. Agency regulations interpret § 7(a)(2) to prohibit any
16 agency action "that reasonably would be expected, directly or
17 indirectly, to reduce appreciably the likelihood of both the
18 survival and recovery of a listed species in the wild." 50
19 C.F.R. § 402.02; *National Wildlife Federation v. National Marine*
20 *Fisheries Service*, 481 F.3d 1224, 1235 (9th Cir. 2007).

21 26. *Gifford Pinchot Task Force v. United States Fish &*
22 *Wildlife Service*, 378 F.3d 1059, 1070 (9th Cir. 2004), requires
23 that recovery as well as survival impacts be considered in
24 evaluating adverse modification of critical habitat. Here, the
25 critical habitat for the Delta smelt is the Sacramento-San
26 Joaquin Delta, confluence of the Sacramento and San Joaquin
27 Rivers as they approach the San Francisco Bay, and the tributary
28 system that is contiguous to the North and Central Delta areas

1 where the smelt spawn and through which the species moves to the
2 Suisun Bay where the species remains until the spawning season.

3 27. The Endangered Species Act mandates that federal
4 agencies take no action that will result in "destruction or
5 adverse modification" of designated critical habitat. 16 U.S.C.
6 § 1536(a) (2). "Destruction or adverse modification" is defined
7 as follows:

8 A direct or indirect alteration that appreciably
9 diminishes the value of critical habitat for both the
10 survival and recovery of a listed species. Such
11 alterations include, but are not limited to,
12 alterations adversely modifying any of those physical
13 or biological features that were the basis for
14 determining habitat to be critical.

15 50 C.F.R. § 402.02.

16 F. ESA Injunctive Relief Jurisprudence.

17 28. The remedy for an ESA substantial procedural violation,
18 i.e., a violation that is not technical or de minimis, is an
19 injunction pending compliance with the ESA. *Washington Toxics*
20 *Coalition v. EPA*, 413 F.3d 1024, 1034 (9th Cir. 2005).

21 29. After initiation of consultation required under
22 § 7(a) (2) of the ESA, the Federal agency shall not make any
23 irreversible or irretrievable commitment of resources with
24 respect to the agency action which has the effect of foreclosing
25 the formulation or implementation of any reasonable and prudent
26 alternative measures which would not violate § 7(a) (2).

27 *Washington Toxics*, 413 F.3d at 1034. ESA consultation was
28 reinitiated on the OCAP BiOp July 6, 2006.

29 30. Section 7(d) of the ESA was enacted to ensure the
30 status quo is maintained during the consultation process to

1 prevent agencies from sinking resources into a project to ensure
2 its completion regardless of impacts on endangered species. *Pac.*
3 *Rivers Council v. Thomas*, 936 F.Supp. 738, 745 (D. Idaho 1996).
4 Non-jeopardizing agency actions may continue during the ESA
5 consultation process. *Sierra Club v. Marsh*, 816 F.2d 1376, 1389.

6 31. In *TVA v. Hill*, 437 U.S. 153, 173, 193-95, 98 S.Ct.
7 2279, 2291, 2301-02 (1978), the Supreme Court held that Congress
8 explicitly foreclosed a court's exercise of traditional equitable
9 discretion when faced with a violation of § 7 of the ESA. *Sierra*
10 *Club v. Marsh*, 816 F.2d 1376, 1383 (9th Cir. 1987). The
11 obligation of Federal agencies is to "ensure that any action . .
12 . is not likely to jeopardize the continued existence of any
13 endangered species." Section 7(a)(2). "Congress has spoken in
14 the plainest of words, making it abundantly clear that the
15 balance has been struck in favor of affording endangered species
16 the highest of priorities, thereby adopting a policy which it
17 described as 'institutionalized caution.'" *Sierra Club*, 816 F.2d
18 at 1383.

19 32. In *TVA v. Hill*, where the threat to the snail darter
20 resulted in injunctive relief against operation of the 100
21 million dollar Tennessee Valley Authority Dam, the Supreme Court
22 stated: "Our individual appraisal of the wisdom or unwisdom of a
23 particular course consciously selected by the Congress is to be
24 put aside in the process of interpreting a statute. Once the
25 meaning of enactment is discerned and its constitutionality
26 determined, judicial process comes to an end." *TVA*, 437 U.S. at
27 194-195. Having determined an irreconcilable conflict between
28 CVP and SWP operations and the explicit provisions of § 7 of the

1 Endangered Species Act to fashion a remedy, the words of the
2 Supreme Court provide guidance:

3 "Our system of government is, after all, a tripartite
4 one, with each branch having certain defined functions
5 delegated to it by the Constitution. While "[i]t is
6 emphatically the province and duty of the judicial
7 department to say what the law is," *Marbury v. Madison*,
8 1 Cranch 137, 177, 2 L.Ed. 60 (1803), it is equally -
9 and emphatically - the exclusive province of the
10 Congress not only to formulate legislative policies and
11 mandate programs and projects, but also to establish
12 their relative priority for the Nation. Once Congress,
13 exercising its delegated powers, has decided the order
14 of priorities in a given area, it is for the Executive
15 to administer the laws and for the courts to enforce
16 them when enforcement is sought."

17 Here, we are urged to view the Endangered Species Act
18 "reasonably," and hence, shape a remedy "that accords
19 with some modicum of common sense and the public weal."
20 *Post*, at 302. But is that our function? We have no
21 expert knowledge on the subject of endangered species,
22 much less do we have a mandate from the People to
23 strike a balance of equities on the side of the Teleco
24 Dam. Congress has spoken in the plainest of words,
25 making it abundantly clear that the balancing has been
26 struck in favor of affording endangered species the
27 highest of priorities, thereby adopting a policy which
28 it describes as "institutionalized caution."

33. "In our Constitutional system, the commitment to the
separation of powers is too fundamental for us to preempt
Congressional action by judicially decreeing what accords with
common sense and the public weal." Our Constitution vests such
responsibilities in the political branches. *TVA v. Hill*, 437
U.S. at 195.

34. The language, history and structure of the ESA
indicates beyond doubt that Congress intended "endangered species
be afforded the highest of priorities." *TVA v. Hill*, 437 U.S. at
174. "In Congress's view, projects that jeopardized the
continued existence of endangered species threatened incalculable

1 harm: accordingly, it decided that the balance of hardships in
2 the public interest tip heavily in favor of endangered species."
3 *TVA v. Hill*, at 187-88, 194-95; *Sierra Club v. Marsh*, 816 F.2d at
4 1383; *Biodiversity Legal Foundation v. Badgley*, 309 F.3d 1116,
5 1177 (9th Cir. 2002). The Ninth Circuit has said, "We may not
6 use equities' scales to strike a different balance." *Sierra Club*
7 *v. Marsh*, 816 F.2d at 1383. In the context of the ESA, "Congress
8 [has] foreclosed the exercise of the usual discretion possessed
9 by a court of equity." *Amoco Prod. Co. v. Village of Gambell*,
10 *Alaska*, 480 U.S. 531, 543 n.9, 544-45, 107 S.Ct. 1396 (1987),
11 cited in *Biodiversity Legal Foundation*, 309 F.3d at 1178.

12
13 G. EVIDENCE OF ESA VIOLATIONS

14 35. Direct evidence has established that CVP and SWP
15 pumping and water conveyance operations cause flows in the Old
16 and Middle Sacramento Rivers and easterly of the confluence of
17 the Sacramento and San Joaquin Rivers to flow in opposite
18 directions, which confuses the smelt and causes the fish to be
19 entrained or salvaged at the pumps. Evidence further establishes
20 that export operations from the pumps caused a reduction of flows
21 through the Central Delta westward from the confluence of the
22 Sacramento and San Joaquin Rivers into the Suisun Bay which
23 affects the salinity of the water.

24 36. D-1641 establishes salinity standards applicable
25 February through June as a establish a benchmark for the
26 isohaline referred to as X2, salinity measured as two parts per
27 thousand, prescribing that X2 be maintained at not more than two
28 parts per thousand at a point a certain number of kilometers from

1 the Golden Gate Bridge and eastward. Evidence has shown that the
2 smelt's tolerance to water salinity declines substantially above
3 the four to five parts per thousand level. Increases in exports
4 from the Bay Delta through the pumps southward cause increasing
5 salinity in the Bay Delta waters and estuary by virtue of lowered
6 volumes of fresh water after export. Only one expert, Dr.
7 Miller, disagreed and his trial opinions ignored that water
8 temperature, water quality, salinity, turbidity, and Project
9 operations, have a direct effect on survival and recovery of the
10 Delta smelt. For reasons stated above, the Court does not find
11 Dr. Miller's analysis sufficiently credible and relevant to cast
12 doubt that Project operations are an actual cause of the decline
13 and potential extinction to the Delta smelt species.

14 37. Section 7(d) of the ESA prohibits an agency from making
15 any irreversible and irretrievable commitment of resources that
16 would foreclose the formulation or implementation of any
17 reasonable and prudent alternative measures to avoid jeopardy to
18 a listed species or adverse modification of its critical habitat
19 pending completion of a valid biological opinion. 16 U.S.C.
20 § 1536(d).

21 38. The Delta smelt is listed as a threatened species. 58
22 Fed. Reg. 12,863 (Mar. 5, 1993).

23 39. The ESA implementation regulations provide that
24 Section 7(a)(2)'s "no jeopardy" requirement prohibits any Federal
25 agency action "that reasonably would be expected, directly or
26 indirectly, to reduce appreciably the likelihood of both the
27 survival and recovery of a listed species in the wild by reducing
28 the reproduction, numbers, or distribution of that species." 50

1 C.F.R. § 402.02.

2 40. The ESA implementation regulations define Section
3 7(a)(2)'s requirement that prohibits actions that would destroy
4 or adversely modify the listed species' critical habitat:
5 "*Destructive or adverse modification means a direct or indirect*
6 *alteration that appreciably diminishes the value of critical*
7 *habitat for both the survival and recovery of a listed species.*"
8 50 C.F.R. § 402.02 (emphasis in original).

9 41. The Ninth Circuit rule is that an action that
10 "adversely modifies" a listed species' critical habitat is one
11 that would "threaten a species' recovery even if there remains
12 sufficient critical habitat for the species' survival." *Gifford*
13 *Pinchot Task Force v. U.S. Fish & Wildlife Service*, 378 F.3d
14 1059, 1070 (9th Cir. 2004).

15 42. Operations of the CVP and SWP under the existing OCAP,
16 among other causes, are both increasing risk to the survival and
17 recovery of the Delta smelt and adversely modifying its critical
18 habitat.

19 43. The Court's Summary Judgment Order found that the 2005
20 BiOp that covers day-to-day coordinated operations of the CVP and
21 the SWP was unlawful, arbitrary, and capricious. [SJ Order at
22 118:10-119:27].

23 44. The DSRAM measures adopted as part of the 2005 BiOp
24 and the take limit have been found insufficient to satisfy ESA
25 requirements. [SJ Order at 58:12-59:4; 92:19-93:1].

26 45. The existing take limits without remedial measures will
27 not prevent the risk of extinction of the species within the
28 period of time a new lawful biological opinion can be completed.

1 Any injunctive relief should be narrowly tailored to remedy the
2 specific ESA violation. *Nat'l Wildlife Fed'n v. NMFS*, 2005 U.S.
3 Dist. LEXIS 39509, Op. at 8 (D. Or. 2005), *aff'd*, 481 F.3d 1224
4 (9th Cir. 2007).

5 46. To comply with ESA Sections 7(a)(2) there is no
6 requirement that Reclamation or FWS pick the best alternative or
7 the one that would most effectively protect the Delta smelt from
8 jeopardy. *Southwest Center for Biological Diversity v. Bureau of*
9 *Reclamation*, 143 F.3d 515, 523, fn.5 (9th Cir. 1998). However,
10 it is not required that an inflexible flow regime be imposed that
11 will expel precious, scarce water resources that will flow out to
12 the Pacific Ocean and cannot be recovered.

13 47. Because evidence overwhelmingly establishes that
14 Project operations are a cause of the decline of the species,
15 Project operations must be addressed as mandated by the law to
16 protect against extinction of the species and adverse
17 modification of its habitat.

18
19 H. Authority for Remand

20 48. The District Court has broad latitude in fashioning
21 equitable relief when necessary to remedy an established wrong.
22 *NWF v. NMFS*, 481 F.3d at 1242, citing *Alaska Ctr. for the Env't.*
23 *v. Browner*, 20 F.3d 981, 986 (9th Cir. 1994).

24 49. Requirements of regular status reports during a remand
25 are permissible. *NWF v. NMFS*, 481 F.3d at 1242; *Telecomms.*
26 *Research & Action Ctr. v. FCC*, 750 F.2d 70, 81 (D.C. Cir. 1984).
27 A status report shall be produced by FWS.

28 50. The District Court has the discretionary authority to

1 impose a deadline for remand proceedings. *Nat'l Org. of*
2 *Veterans' Advocates v. Sec'y of Veterans' Affairs*, 260 F.3d 1365,
3 1381 (Fed. Cir. 2001); *NWF v. NMFS*, 481 F.3d at 1242. A deadline
4 for the remand shall be imposed.

5 51. A court has the power to direct efforts that ensure
6 that the agency complies with the ESA's mandate that agencies
7 "use the best scientific and commercial data available" in their
8 decision-making. 16 U.S.C. § 1536(a)(2). Monitoring will be
9 increased as described in the remedies order.

10
11 I. Congressional Intent

12 52. The plain intent of Congress in enacting the Endangered
13 Species Act was to halt and reverse the trend toward species'
14 extinction, whatever the cost. *TVA*, 437 U.S. at 184. Section 7
15 reveals an explicit Congressional decision "to require agencies
16 to afford first priority to the declared national policy of
17 saving endangered species." *TVA* at 185. As the Court in *TVA*
18 expressly stated:

19 One might dispute the applicability of these examples
20 to the Teleco Dam by saying that in this case the
21 burden on the public through the loss of millions of
22 unrecoverable dollars would greatly outweigh the loss
23 of the Snail Darter. But neither the Endangered
24 Species Act nor Article III of the Constitution
25 provides Federal Courts with authority to make such
26 fine utilitarian calculations.

27 53. On the contrary, the plain language of the Act,
28 buttressed by its legislative history shows clearly that Congress
viewed the value of endangered species as "incalculable." Quite
obviously, it would be difficult for a court to balance the loss
of a sum certain, even \$100 million, against a Congressionally

1 declared "incalculable" value, even assuming we had the power to
2 engage in such a weighing process, which we emphatically do not."
3 *TVA* 437 U.S. at 187-188. As the Supreme Court requires, it is
4 not for the Court to substitute its judgment for that of Congress
5 or the Executive Branch, the Department of the Interior, and the
6 Bureau of Reclamation. The Court has no such scientific
7 competence nor the legal authority. Once the actions of an
8 administrative agency in operating the CVP and a voluntarily
9 appearing State Agency in operating the SWP, violate the ESA by
10 endangering the species to the point where, as the undisputed
11 evidence shows, it is critically imperiled and in imminent threat
12 of extinction, the Court cannot balance hardships nor does it
13 have any discretion, except to apply the mandate of Congress
14 prescribed by the ESA.

15 54. It is Congress that struck the balance in favor of
16 affording endangered species the highest of priorities. It is up
17 to the political branches of government, not the court, to solve
18 the dilemma and dislocation created by the required application
19 of the law.

20
21 J. NARROWLY TAILORED RELIEF

22 55. A court may make narrowly tailored orders to an agency
23 to take specific steps, subject to the overriding principal that
24 the substance and manner of achieving ESA compliance is
25 ultimately the responsibility and within the jurisdiction of the
26 administrative agencies, subject to the Court's equitable and
27 interstitial role to fashion a remedy for agencies' dereliction
28 of their statutory duties. *NWF v. NMFS*, 481 F.3d at 1243; *FPC v.*

1 *Transcontinental Gas Pipeline Corp.*, 423 U.S. 326, 333, 96 S.Ct.
2 579 (1976).

3
4 K. Adequacy of Remedy.

5 56. Any interim remedial prescriptions must (1) not cause
6 jeopardy, i.e., not take action that reasonably would be
7 expected, directly or indirectly, to reduce appreciably the
8 likelihood of both the survival and recovery of a listed species
9 in the wild by reducing the reproduction, numbers, or
10 distribution of that species. 50 C.F.R. § 402.02; to the Delta
11 smelt; (2) adversely modify its critical habitat; or (3)
12 irreversibly or irretrievably commit resources during the
13 pendency of the reconsultation on and issuance of the BiOp.

14
15 L. PUBLIC HEALTH AND SAFETY EXCEPTION

16 57. It is recognized that any interim remedial order has
17 the potential to create risk to human health and safety. This
18 requires that a discretionary exception be included in the
19 interim remedial order that authorizes and grants discretion to
20 the Federal and State agencies having responsibility for
21 operation of the Projects, to take such measures, in good faith,
22 as are reasonably necessary and appropriate for protection of
23 human health and safety and the environment in accordance with
24 the requirements of law and equity.

25 58. This exception includes, but is not limited to, supply
26 for emergency water services, and industrial water service for
27 domestic and emergency use.

28 59. Plaintiffs have expressly offered and recognize that

1 any reduction in water deliveries should be effectuated in
2 accordance with the operating Agencies' standard practice for
3 allocating water during shortages, which recognizes the priority
4 of critical municipal and industrial (M&I) uses.

5 60. Critical human health and safety needs will receive
6 priority protection. The Plaintiffs have offered and the Court
7 specifically authorizes the Bureau and DWR to implement
8 operational measures different from those required to protect
9 Delta smelt for the purpose of meeting public health and safety
10 needs. The Bureau and DWR have similar definitions of "public
11 health and safety" for water supply delivery and priority of use,
12 including but not limited to, interior residential use,
13 sanitation, and fire protection.

14
15 M. LIMITS ON COURT'S AUTHORITY

16 61. The Court recognizes its own limitations in approaching
17 the scientific and technical issues presented, some of which are
18 fraught with uncertainty. The Court lacks the expertise and
19 authority to take over operation of the Projects, or to supervise
20 or second-guess the decisions of the biological, and other expert
21 staff of the USFWS and DWR and the hydrologists and engineers of
22 the Bureau of Reclamation. It is appropriate for the Court to
23 defer to the expertise of the Projects' operators and Federal
24 Defendants in highly technical operational issues as they concern
25 protection of human health and safety and the environment. The
26 court's role is limited to see that compliance with the
27 requirements of law is achieved.

1 N. STATUS REPORT AND DEADLINE

2 62. FWS shall provide the court and parties with a status
3 report on the progress of the biological opinion. FWS's status
4 report shall be filed April 30, 2008.

5 63. FWS shall complete its consultation and issue its new
6 biological opinion on or before September 12, 2008.

7

8 IV. CONCLUSION

9 To the extent any finding of Fact may be interpreted as a
10 Conclusion of Law or the converse, it is so intended. Based upon
11 these Findings of Fact and Conclusions of Law, the accompanying
12 Interim Remedial Order shall issue.

13

14 IT IS SO ORDERED.

15 Dated: December 14, 2007

/s/ Oliver W. Wanger
UNITED STATES DISTRICT JUDGE

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