

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26

**BEFORE THE STATE WATER  
RESOURCES CONTROL BOARD**

In the Matter of the State Water Resources )  
Control Board (State Water Board) )  
Hearing to Determine whether to Adopt a )  
Draft Cease & Desist Order against )  
California American Water Regarding its )  
Diversion of Water from the Carmel River )  
in Monterey County under Order WR 95-10 )

Hearing Date: July 23 - 25, 2008

Carmel River in Monterey County

**EXHIBIT MPWMD-KU1**

**MONTEREY PENINSULA WATER MANAGEMENT DISTRICT**

**TESTIMONY OF KEVAN URQUHART**

**SENIOR FISHERIES BIOLOGIST**

**MONTEREY PENINSULA WATER MANAGEMENT DISTRICT**



1 experience on the Carmel River. I have had substantial involvement in many aspects of the  
2 management of the aquatic resources of the Carmel River for the last seven years for both my  
3 current and previous employer, the California Department of Fish and Game (CDFG). My  
4 responsibilities at the District include knowledge of the general scientific and ecological principles  
5 of fisheries management, and for the conservation of aquatic resources; the federal, state, and local  
6 laws that affect fisheries management and water supply projects; assessment of water supply  
7 alternatives; preparation and review of technical reports; oversight of aquatic mitigation and  
8 monitoring programs; and coordination with many governmental agencies, consultants and  
9 technical staff.

10 3. Due to the responsibilities enumerated above, I am knowledgeable about the aquatic  
11 fauna, general hydrology, and stream conditions of the Carmel River which pertain to the draft  
12 CDO against CAW. When working for my prior employer, I contributed to the review of the flow  
13 standards developed by the National Marine Fisheries Service (NMFS), which are being utilized to  
14 set the bypass flows for future water rights applications.

15  
16 **Q2. HAS THE STATUS OF THE STEELHEAD POPULATION IN THE CARMEL**  
17 **RIVER WATERSHED IMPROVED SIGNIFICANTLY SINCE SWRCB WR ORDER 95-**  
18 **10?**

19 4. Yes. While the population has not recovered to levels seen in the 1960's to  
20 early 1970's, before the two droughts, the run past San Clemente Dam has rebounded to be on  
21 average 65% the levels estimated in those years (Exhibit MPWMD-KU3). The Carmel River  
22 run of South Central California Coast, Distinct Population Segment of steelhead are listed as  
23 Threatened under the Federal Endangered Species Act, but no longer in immediate danger of  
24 extinction, as was the case in 1988-1992, just prior to development of SWRCB Order WR 95-10.

25 5. Additionally this year in 2008, even though the adult run of steelhead up the  
26 main stem Carmel River was slightly less than average for recent years, a larger than average

1 number made it past Los Padres Dam and into the upper watershed where approximately 50% of  
2 the available spawning and rearing habitat has been observed. This run exceeded the earliest  
3 counts seen at Los Padres in 1949-1952, is the eighth highest on record since 1949, and the fifth  
4 highest since 1992, when the run past Los Padres resumed after the last drought (Exhibit  
5 MPWMD-KU4).

6 6. We have also seen a general increase in the number of steelhead rescued in the  
7 lower Carmel River since SWRCB Order WR 95-10, which indicates that the productivity of the  
8 lower watershed for steelhead is recovering since the last drought, and since the implementation  
9 of improved water diversion practices by CAW, which were partially an outgrowth of SWRCB  
10 ORDER WR 95-10, WR 98-04 and WR 2002-02 (Exhibit MPWMD-KU5). This year we are  
11 likely to rescue and rear a record number of juvenile steelhead, and the rescue season is not yet  
12 over for about another six weeks.

13 7. Average juvenile steelhead population densities in the fall have recovered since  
14 the last two droughts, and are now often near the levels seen in the two years of estimates made  
15 in 1973 and 1974, before the droughts. We are also seeing an increase in the percent of steelhead  
16 produced below the Narrows (at approximately River Mile 9 [RM 9]) in many years since  
17 SWRCB Order WR 95-10 (Exhibit MPWMD-KU6A & MPWMD-KU6B). This suggests  
18 that changes in CAW's diversion patterns due to SWRCB Order WR 95-10, WR 98-04, WR  
19 2002-02 and the Annual CAW/CDFG/MPWMD Carmel River Flow Releases MOA have  
20 resulted in significant increased productivity in this area that was not occurring at the time  
21 SWRCB Order WR 95-10 was issued.

22  
23 **Q3. GIVEN THE IMPROVEMENTS IN THE STEELHEAD RUN SIZE SINCE**  
24 **SWRCB ORDER WR 95-10, IS IT IS NECESSARY TO IMPLEMENT FURTHER**  
25 **STEPWISE CUTS IN DIVERSIONS AS AN EMERGENCY MEASURE?**  
26

1           8.           They are not needed as an emergency measure. While eliminating all of  
2 CAW's illegal diversions is an essential component of the overall effort to fully recover the  
3 Carmel River steelhead population, the first two cuts in diversions from the Carmel River  
4 proposed in the first two steps of the draft CDO may not have a large effect in recovering the  
5 steelhead population. This is because those reductions in diversions are unlikely to be enough to  
6 keep much if any additional river wetted year round in many water year types.

7           9.           The SWRCB could instead consider selecting a minimum annual steelhead  
8 population number as a trigger to institute the first two levels of cutbacks in the following water  
9 year. For example, if the adult steelhead count at San Clemente Dam declined below 300-400  
10 fish for one year, it could be the trigger to implement the first 1,693 acre-feet (AF) curtailment of  
11 diversion, and if the number was low for two years in a row, that could be the trigger to increase  
12 curtailment of ongoing diversions to the 2,257 AF level. Linking diversion cutbacks to actual  
13 declines in the steelhead population might encourage better public compliance with conservation,  
14 than simply instituting regulatory restrictions for their own sake. Implementing this approach  
15 over the last 13 years would have resulted in the first level of cutbacks being implemented in  
16 Water Year 2005, and the second level in Water Years 2006 – 2008, with cutbacks being  
17 rescinded for Water Year 2009.

18           10.          The third and fourth level of cutbacks proposed in the draft CDO reduce CAW  
19 diversions from the lower river by 35% and 50% from current levels of diversion. These larger  
20 cutbacks are likely to benefit steelhead production in the lower river, but precise degree of  
21 improvement is uncertain. Testimony from other expert witnesses is necessary to establish  
22 whether the community can actually even achieve the level of rationing necessary to support  
23 these two highest levels of cutbacks in CAW's diversions.

24           11.          The conundrum is that cuts in CAW's diversions that are insufficient to  
25 permanently re-wet habitat below Robinson Canyon Road or Schulte Road (depending on water  
26 year type), will not likely increase the production of juvenile steelhead by much, and thus not

1 greatly contribute to the recovery the adult run. An area must remain wetted year round to  
2 successfully serve as spawning and then rearing habitat. Rewetting areas for a few more weeks  
3 or months, that otherwise are still going to go dry every year, does not naturally produce on its  
4 own any more net fish for the population than currently occur. It will to some degree delay the  
5 dewatering of some redds, letting a few more fry emerge out of the gravel for the District to  
6 rescue and rear at the SHSRF (RM 17.64). It is likely to slightly reduce the depletion of the  
7 groundwater table such that flows may return faster to that area the next winter, possibly  
8 allowing the lagoon to open a little earlier and enhance the start date for the adult run in the next  
9 year. Large enough summer and fall reductions in diversions might improve dry season  
10 underflow to the lagoon, such that it may improve water quality, but not the quantity of dry  
11 season rearing habitat in the lagoon. However, all these inferred, secondary benefits, cannot be  
12 predicted to any degree of certainty or magnitude.

13 12. In summary, the draft CDO's first two levels of diversion cuts for CAW are  
14 probably not enough to permanently re-water very much habitat, year round in all water year  
15 types, thus may serve no more than a policy/disciplinary benefit for the SWRCB, and not much  
16 of an ecological one for the river and its aquatic life, including steelhead and red-legged frogs.  
17 The real obvious and major benefit to steelhead and red-legged frogs will come from CAW  
18 establishing a new water source, which allows it to cease all of its illegal diversions. Even then  
19 some fraction of the lower river will likely still dry in many years, due to non-CAW diversions in  
20 the main-stem and tributaries of the Carmel River.

21  
22 **Q4. WHY WILL THE REDUCTIONS IN CAW PRODUCTION AND MANDATED**  
23 **DECREASES IN CUSTOMER DEMAND POSSIBLY NOT RESULT IN A LARGE**  
24 **ENVIRONMENTAL BENEFIT?**

25 13. The reason the cutbacks in the draft CDO are likely to be less than fully  
26 beneficial, and especially at the initial two stages are not likely to result in as much

1 environmental benefit as might be expected, is that the mandated reductions in CAW diversion  
2 and consumer consumption may have to be spread over the whole water year, and will also only  
3 increase flows in the lower 8.22 miles of the river where CAW's wells are one of the primary  
4 influences on streamflow. The community relies on direct diversions, as it has no direct access  
5 to any off stream storage, other than the Seaside Groundwater Basin, which is already tapped to  
6 the fullest legal extent during the dry season to relieve the Carmel River. Thus, cutbacks in  
7 CAW production may not be able to be solely focused at times during the river's spring/summer  
8 recession or the summer/fall low flow season when they might be most beneficial. The  
9 magnitude of consumer water use/demand that must be modified to achieve the draft CDO's  
10 reductions may not be achievable on such a short term scale. The latter question may be  
11 addressed directly in the testimony of other expert witnesses.

12 14. During the January through June high flow season for the last 13 years, when  
13 mean monthly river flows at the USGS Near Carmel Gage were over 100 cfs for 53% of the  
14 time, the reductions distributed over the whole year on a monthly basis would have resulted in  
15 less than a 2.3% to 7.8% improvement in flows. For the 47% of the months during that period,  
16 where mean monthly flows averaged 41.3 cfs and ranged from 0 to 92.9 cfs, the year round flow  
17 increases due to the draft CDO could provide an average of a 5.6 % to 18.9% percent  
18 improvement in flows. During much of the year, the river is already dry, and any slight or even  
19 moderate reductions in diversions from the dry riverbed are probably insufficient to re-water it,  
20 and thus do not create any new habitat for aquatic life. The probable benefits of the draft CDO's  
21 planned reductions in CAW diversions can be illustrated by the simple tabular analyses set forth  
22 in Exhibits MPWMD-KU7A through MPWMD-KU7C, and Exhibits MPWMD-KU8A  
23 through MPWMD-KU8C.

24 15. In Exhibits MPWMD-KU7A through MPWMD-KU7C, I depict the benefits  
25 the draft CDO's planned reductions in CAW diversions may have in delaying the dewatering of  
26 the Carmel River at the USGS Near Carmel Gage at RM 3.24, and at the MPWMD Highway 1

1 Gage at RM 1.0. The number of days that any flow regime is extended at the USGS Near  
2 Carmel Gage illustrates how long we might be able to delay the initiation of fish rescues, as once  
3 the river begins to dry at that location, the continuous dry back process has inexorably begun for  
4 that water year, and fish rescues are required from thereon. Delaying fish rescues allows more  
5 time for juvenile steelhead to emerge from their redds (nests), and might increase the number of  
6 fish available to rescue. Also, the longer rescues are delayed, the larger the fish are allowed to  
7 grow in their natural environment, and larger fish survive the rescue process better, as well as  
8 survive and resist disease outbreaks better while being reared by the District at the SHSRF, until  
9 release the following winter. Delaying the date of dewatering at the MPWMD Highway 1 Gage  
10 represents an extension of the amount of time a continuous freshwater inflow connection could  
11 be maintained to the lagoon, and also where significant underflow to the lagoon can also be  
12 assumed to be occurring. The longer this date is extended the longer good water quality in the  
13 lagoon is likely to be maintained each year. These low flows will not likely improve lagoon  
14 volume, however.

15 16. These three tables were created by quantifying the additional cfs/day of flow that  
16 might be created by each level of the draft CDO's cutbacks allocated across either the six months  
17 of the low flow season, or twelve months of the whole year, then looking for the last date in each  
18 of the three example water year types on which that level of flow actually occurred. I then took  
19 the actual flow recession pattern from that day on in that water year, and added it on to the last  
20 day that flow actually occurred in that particular year, assuming that if the flow had been  
21 augmented by that amount on that last day of actual flow, the recession pattern from there on  
22 might have been similar to what it was in the preceding days. I then counted how many days  
23 flow might have been extended.

24 17. To illustrate the relative magnitude of the probable benefits of the draft CDO, I  
25 estimated the additional number of days that flow might have been extended at the two gages in  
26 three water year types since 1994, using the actual flow recession data from those years; 2007 – a

1 Critically Dry Water Year, 2003 – a Normal Water Year, and 1995 – an Extremely Wet Water  
2 Year Type. Exhibit MPWMD-KU7A suggests that in the Critically Dry Water Year we  
3 experienced in 2007, flows may have been sustained to the lagoon for a month to a month and a  
4 half longer by the four levels of diversion cutbacks proposed in the draft CDO. Rescues may  
5 also have been delayed from about one to three and half weeks later into the year. Exhibit  
6 MPWMD-KU7B suggests that in a Normal Water Year type like 2003 flows may have been  
7 sustained to the lagoon for an additional two and a half weeks to one month later in the year.  
8 Rescues may also have been delayed from as little as a day to up to a month later into the year.  
9 Exhibit MPWMD-KU7C suggests that in an Extremely Wet Water Year type like 1995 flows  
10 may have been sustained to the lagoon for an additional one to one and two thirds months later in  
11 the year. Rescues would not have been affected very much, since flow was sustained past the  
12 USGS Near Carmel Gage year round, and only spot rescues were conducted at low points in the  
13 river.

14 18. In Exhibits MPWMD-KU8A through MPWMD-KU8C, I depict what benefits  
15 the draft CDO's planned reductions in CAW diversions may have in extending the wetted front  
16 of the Carmel River downstream year round in three recent years. If these sections of river were  
17 to actually have remained wet year round, they may have been able to produce approximately an  
18 additional 50 juvenile steelhead and eventually one returning adult steelhead for every 110 feet  
19 of stream that gets permanently rewetted year round. This is equivalent to approximately 2,414  
20 juvenile steelhead per mile, which might eventually produce approximately 48 returning adults  
21 per mile, two or more years later. To illustrate the relative magnitude of the probable benefits of  
22 the CDO, I estimated the additional number of miles that flow might have been extended  
23 downstream in three different water year types since 1994, based on whether the probable flow  
24 increases equal to the diversion reductions might have been sufficient to overcome the  
25 cumulative influence of the maximum pumping capacity of the nearest CAW diversion wells, as  
26 shown in the bottom left of each table. Exhibit MPWMD-KU8A suggests that in the Critically

1 Dry Water Year we experienced in 2007, continuous river flows may have been extended from  
2 as little as 0.18 miles to as much as 2.72 miles farther downstream by the levels of diversion  
3 cutbacks proposed in the draft CDO. That might have rewetted as little as 2.1% to as much as  
4 32.4% of the 8.4 miles of dry riverbed. Exhibit MPWMD-KU8B suggests that in a Normal  
5 Water Year type like 2003 flows may have been extended from as little as 0.52 miles to as much  
6 as 2.51 miles farther downstream. That might have rewetted as little as 8.4% to as much as  
7 40.5% of the 6.2 miles of dry riverbed. Exhibit MPWMD-KU8C suggests that in an Extremely  
8 Wet Water Year type like 1995 flows may have been extended as little as 0.07 miles farther  
9 downstream, but the larger half of the diversion reductions that might have created flows in  
10 excess of 6 cfs would probably have rewetted the river all the way to the lagoon. This might have  
11 rewetted as little as 2.2% to as much as 100% of the 3.2 miles of dry riverbed.

12 19. To summarize, slight benefits may accrue under the first two stages of diversion  
13 curtailment as proposed in the draft CDO, but significant benefits are not likely to accrue until  
14 the last two levels of restrictions proposed in the draft CDO, and the final cessation of all of  
15 CAW's illegal diversions.

16  
17 **Q5. IF HABITAT BELOW ROBINSON CANYON BRIDGE WERE RE-WETTED**  
18 **YEAR ROUND, ABOUT HOW MANY JUVENILE FISH WOULD BE PRODUCED PER**  
19 **MILE, AND HOW MANY ADULT FISH TWO YEARS LATER MIGHT RESULT**  
20 **FROM THAT INCREASED PRODUCTION?**

21 20. To the extent that additional habitat remains wetted year round below the Narrows  
22 and Robinson Canyon Road as a result of the final CDO, it will reduce the number of fish that  
23 need to be rescued and reared at the SHSRF, and instead allow them to be reared in their native  
24 environment. This could be anywhere from a few tens of fish to a few thousand fish, based on  
25 our average rescue densities from this area of 0.46 fish/foot = 2,414 fish/mile (Exhibit  
26 MPWMD-KU6B). Assuming that at least 2% of those fall juvenile fish could return two years  
later as an adult to spawn in the river, about 48 more adult steelhead might return for every mile

1 of habitat re-wetted year round in this area. Phrased another way, the final CDO would have to  
2 ensure re-wetting at least 110 feet of habitat year round to produce enough juvenile steelhead so  
3 that at least one additional adult steelhead might survive to return to spawn in the river.  
4

5 **Q6. WILL THE DRAFT CDO CONTRIBUTE TO THE ENHANCEMENT OR**  
6 **RECOVERY OF THE STEELEHAD POPULATION OF THE CARMEL RIVER?**

7 21. Probably. Results from the District's fall 2005 sampling (Exhibit MPWMD-  
8 KU9: Figure IX-7 from 2005-2006 Mitigation & Monitoring Report, June 2006, Chapter IX)  
9 indicate that approximately 21% of the fall juvenile steelhead production estimated to have  
10 occurred in the main-stem Carmel River below Los Padres Dam during October 2005, occurred  
11 in the 2.3 mile reach that remained wetted that year below the Narrows. This is one of the three  
12 highest percentages recorded since 1990. Therefore, if the final CDO could keep any significant  
13 amount of additional stream habitat in this area wet throughout the summer and fall, it would  
14 likely result in additional fall production of juvenile steelhead for the watershed as a whole.  
15 However, if any reductions mandated in the final CDO do not rewet additional segments of the  
16 river for more than parts of the complete water year, then the benefits are likely to be minimal to  
17 negligible.  
18

19 **Q7. ARE THERE MORE EFFECTIVE MITIGATIONS THAN CUTBACKS IN**  
20 **DIVERSION, WHICH WOULD BE MORE LIKELY TO CONSISTENTLY BENEFIT**  
21 **RECOVERY OF AQUATIC RESOURCES OF THE CARMEL RIVER, INCLUDING**  
22 **THE THREATENED STEELHEAD RAINBOW TROUT, AND RED-LEGGED FROG?**

23 22. Yes, dredging of Los Padres Reservoir (LPR), and expansion of Aquifer Storage  
24 and Recovery (ASR). Unlike cutbacks in CAW diversions and consumer water consumption  
25 which have to be distributed over the whole water year, recovered storage capacity at LPR, and  
26 expanded groundwater banking via ASR in the Seaside Basin make water available for focused  
use in the drier six months of the year. Recovering up to 1,500 acre-feet of storage at LPR

1 would allow this storage to be released at an even rate for six months, enhancing flows and  
2 habitat volume from Los Padres Dam (RM 24.80) downstream as far as the wetted front of the  
3 river, which can dry back annually to between approximately Robinson Canyon Road Bridge  
4 (RM 8.46) and Valley Greens Bridge (RM 4.82). This would also be likely to extend the wetted  
5 front farther downstream than just curtailing production, as it focuses the improvement in flows  
6 when it is most needed, rather than distributing diversion cutbacks across all twelve months of  
7 the year. Releasing an additional 1,500 acre-feet during the 183 days of the dry season would  
8 increase in-stream flows by approximately 4 cfs for 16.34 to 24.80 miles, amounting to  
9 anywhere from approximately a 50% to 100% increase in flow over the amounts we normally  
10 achieve during that time period with current storage capacity at LPR. Contrast this with the 2.3  
11 to 7.8 cfs increases in flow that might be achievable over less than mile to no more than 8.46  
12 miles of habitat, through the decrease in CAW diversions proposed in the draft CDO.

13 23. Other secondary actions that are feasible and not exorbitantly expensive that  
14 could also provide significant benefits would be: a) adding a trap & truck operation at the head  
15 of Los Padres Reservoir for smolts in March – May to minimize their emigration losses through  
16 Los Padres Reservoir and over Los Padres Dam; b) utilizing some or all of the first two  
17 diversion reductions envisioned in the CDO to being re-diverted and piped down the Carmel  
18 River channel to supply the lagoon with freshwater after it closes, and help sustain water quality  
19 for steelhead and red-legged frogs there during the dry season; c) pursuing the evaluations and  
20 permitting necessary to demonstrate the feasibility of, and authorize the release of bypass water  
21 from the Carmel Area Wastewater Districts Micro-filtration/Reverse Osmosis process being used  
22 to treat tertiary water for the Pebble Beach Community Services District. CAW has already paid  
23 for the much of physical works and plumbing necessary to undertake this action, but further  
24 environmental assessments, and a CEQA analysis (Mitigated Negative Declaration or EIR) are  
25 required to obtain Regional Water Quality Control Board permits; d) filtering and chilling the  
26 intake water to the Sleepy Hollow Rearing Facility to increase survival of rescued fish by

1 reducing turbidity and temperature peaks that probably stimulate disease outbreaks and stress,  
2 which in turn contribute to mortality; e) adding a cooling tower at Los Padres Dam to decrease  
3 stream temperatures throughout most of the lower river during the low flow season, and aerate  
4 the outflow to reduce or eliminate hydrogen sulfide contamination that occurs intermittently as  
5 LPR is drawn down in some years; f) enlarging the outlet works at Los Padres Dam so that it  
6 would be able to pass more of the early season flows in some wetter water year types, such that  
7 flows to the lower river and lagoon might be restored earlier in the year, and the migration  
8 season expanded.

9  
10 **Q8. IF LOS PADRES RESERVOIR IS NOT DREDGED, WILL IT POSE FUTURE**  
11 **CHALLENGES TO MAINTAINING OR RECOVERING THE AQUATIC RESOURCES**  
12 **OF THE CARMEL RIVER, ESPECIALLY THE STEELHEAD RAINBOW TROUT**  
13 **POPULATION? ARE THERE ANY OTHER EQUALLY EFFECTIVE**  
14 **ALTERNATIVES TO DREDGING LOS PADRES RESERVOIR?**

15 24. Yes. Even if the illegal diversions identified in SWRCB Order WR 95-10 are  
16 fully addressed by new water projects in the future, the gradual silting in of LPR will eventually  
17 lead to the dewatering of large stretches of the Carmel River below LPR during the late summer  
18 and fall in future years, as natural inflow above LPR is insufficient to maintain year round  
19 habitat very far below LPR in many years (Exhibits MPWMD-KU10A through MPWMD-  
20 KU10C). There are no other equally effective alternatives to dredging Los Padres Reservoir, as  
21 even after all of CAW's illegal diversions are ceased, without the enhanced flows being released  
22 from Los Padres Reservoir, large stretches of the lower Carmel River will go dry in many years.  
23 Neither increased Aquifer Storage and Recovery in the Seaside Groundwater Basin, nor any new  
24 water source from desalination to meet municipal demand will create water that can be released  
25 to sustain instream flows below Los Padres Dam. Only recovering the capacity within Los  
26 Padres Reservoir can accomplish the objective of sustaining year round flows to rear juvenile  
steelhead in most water year types.

1           25. Exhibit MPWMD-KU10A shows the actual pattern of inflow to Los Padres  
2 Reservoir on or about the first day of the month, during the last six months of each of the 13  
3 years since SWRCB Order WR 95-10. These six months usually comprise the annual dry  
4 season. The MPWMD measures inflow to Los Padres Reservoir once per month for the 5+  
5 months of the dry season each year. There is not a continuous gauging station in this area.  
6 Exhibit MPWMD-KU10B shows those 11 of the last 13 years where inflow went below 6 cfs in  
7 one or more months. When flow at the Sleepy Hollow Weir drops below 6 cfs, the main-stem  
8 Carmel River almost always goes underground for a mile or more in the DeDampierre reach,  
9 near Carmel Valley Village, then resumes intermittent surface flow downstream not much farther  
10 than the Narrows near RM 9. During most of the low flow season in all but Extremely Wet  
11 Water Year Types, the only source of water to sustain flows in the main-stem Carmel River are  
12 the natural inflows to Los Padres Reservoir and storage in the reservoir, itself. If the reservoir  
13 were silted in or removed, then Los Padres inflow as shown in these graphs would be the only  
14 source of water to keep the main stem Carmel River wet. These flows would also still be  
15 depleted by diversions from other non-CAW riparian diverters. Thus, as you can see from  
16 Exhibit MPWMD-KU10B, in eleven of the last thirteen years the main stem Carmel River  
17 would likely have had only intermittent flows below Carmel Valley Village and little flow below  
18 the Narrows for from one to up to four months of the year, were it not for the storage in LPR.  
19 This means that most of the lower nine miles of the Carmel River would have been dry or  
20 contained only a few isolated pools at the upper end of those nine miles, for at least one month in  
21 11 of the last 13 years. That would have prevented any net production of juvenile steelhead in  
22 the approximately 0.5 to 5.75 miles of river that even the existing depleted level of Los Padres  
23 Reservoir storage is able to keep wet. In only two of the last thirteen years would natural LPR  
24 inflow have been sufficient to keep most or all of the main stem Carmel River wetted year round  
25 (inflows more than approximately 7-8 CFS) (Exhibit MPWMD-KU10C).

1 **Q9. ARE THERE CIRCUMSTANCES WHICH WILL RESULT IN FUTURE**  
2 **CHALLENGES TO REARING RESCUED FISH AT THE SHSRF? IF SO, WHAT ARE**  
3 **THE POTENTIAL SOLUTIONS TO THESE CHALLENGES?**

4 26. In the short term, the planned removal of San Clemente Dam (SCD) will likely  
5 improve upstream adult fish passage for spawning, while it concurrently increases coarse  
6 sediment transport downstream. Sediments that will now be allowed to bypass the deconstructed  
7 SCD will pose a real operational problem for the SHSRF. It will take in excess of \$400,000-  
8 \$600,000 according to an engineering report commissioned by MPWD (List Engineering Co.,  
9 2003) to improve or change the SHSRF intakes to make them more resistant to sand and other  
10 coarse sediments, as well an additional \$100,000 or more (based on preliminary estimates from  
11 vendors) to install a system to filter out fine sediments that are stressful to the juvenile steelhead  
12 being reared there.

13  
14 27. Additionally, the gradual silting in of LPR will result in ongoing reductions in  
15 late-summer/fall flows in the Carmel River, necessitating the continuation of fish rescues and  
16 rearing despite the cessation of the illegal diversion identified in SWRCB Order WR 95-10.  
17 However, sometime in the future it may be impossible in many years to rear rescued steelhead at  
18 the SHSRF, due to the loss of LPR storage, as natural flows for the three lowest months of the  
19 year are likely to be insufficient to run the facility, in many water year types, or so low that they  
20 actually never reach the facility at all.

21  
22 **Q10. IS MPWMD AND THEREFORE CAW FULLY COMPLIANT WITH THE**  
23 **OBJECTIVES AND STANDARDS FOR AQUATIC MITIGATION SET OUT IN THE**  
24 **DSITRICT'S WATER ALLOCATION EIR AND ADOPTED AS CONDITIONS OF**  
25 **SWRCB ORDER WR 95-10?**

26 28. Yes. It is clear from the 1994 testimony of the District's critics that they were  
dissatisfied with the then progress to date on mitigations outlined in the District's Allocation

1 EIR, which were also adopted for implementation by SWRCB ORDER WR 95-10. However, all  
2 of those criticisms of noncompliance or delayed compliance have been addressed, and the  
3 District is regularly implementing all of its annual mitigation measures outlined in the "*Final*  
4 *Environmental Impact Report for MPWMD Water Allocation Program*", April 1990, as  
5 modified by the "*Final Report, Evaluation of MPWMD Five-Year Mitigation Program, 1991-*  
6 *1996*", October 1996, and the "*Final Report, Implementation Plan for MPWMD Mitigation*  
7 *Program, Fiscal Years 1997-2001*", October 1996.

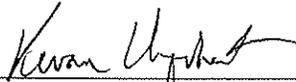
8  
9 **Q11. HAS MPWMD EXPENDED SIGNIFICANT FUNDS TO UPGRADE THE SHSRF**  
10 **IN ORDER TO IMPROVE THE SURVIVAL OF FISH RESCUED THERE?**

11 29. Yes. The District has spent over \$300,000 on top of the Facility's initial cost to  
12 improve rearing operations. Those improvements along with constantly evolving operational  
13 protocols and small physical/structural improvements have resulted in rearing survival increasing  
14 over the intervening years.

1 I, Kevan Urquhart, declare under penalty of perjury that I have read the foregoing  
2 "Testimony of Kevan Urquhart" and know its contents. The matters stated in it are true of my  
3 knowledge except as to those matters which are stated on information and belief, and as to those  
4 matters I believe them to be true.

5  
6 Executed on July 7th, 2008, at Monterey, California.

7  
8 MONTEREY PENINSULA WATER  
MANAGEMENT DISTRICT

9  
10   
By: Kevan Urquhart  
Senior Fisheries Biologist

11  
12 5 Harris Court, Building G  
13 P. O. Box 85  
14 Monterey, CA 93942-0085  
15 Telephone: (831) 658-5643  
16 Facsimile: (831) 644-9560  
17 Email: kevan@mpwmd.dst.ca.us

18 Executed on 7 - 7, 2008, at Monterey, California.

19 U:\kevan\Water Rights\CandDOrder\Testimony - KevanFinalVersion.doc