The Owens Valley Monitor is the Inyo County Water Department's (ICWD) annual report on monitoring and other work performed by ICWD and the Los Angeles Department of Water and Power (LADWP). In accordance with the Inyo/Los Angeles water agreement, ICWD and LADWP monitor water activities in the valley and their effects on groundwater levels and vegetation. The two agencies also conduct scientific research on methods of improving water management.

This annual report was produced by the Inyo County Water Department in Bishop, California, December 2007.

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Groundwater Conditions

Groundwater conditions in 2006 improved due to ample recharge from high runoff and water spreading, and restricted pumping due to court-ordered limits on LADWP's pumping. On August 8, 2005, Judge Lee Cooper ruled in Inyo County Superior Court that LADWP was in violation of certain court orders regarding implementation of mitigation projects associated with the Long-Term Water Agreement (LTWA) and Memorandum of Understanding. Among the sanctions imposed on LADWP by Judge Cooper were limitations on pumping to no greater than 57,412 acre-feet per runoff year and a requirement that 16,294 acre-feet of water be spread per runoff year in the Laws area for groundwater recharge until the Court lifts the sanctions. The sanctions will be in place until LADWP establishes 40 cfs flows in the Lower Owens River. In December 2006, LADWP began releases from the LA Aqueduct intake into the Lower Owens River, but sanctions limiting pumping remain in place until the court decrees that all requirements have been met. LADWP's Operations Plan for the 2006-2007 runoff year (April 2006 through March 2007) called for pumping to the court-ordered limit of 57,412 acre-feet. At the end of the 2006-2007 runoff-year, LADWP reported it pumped 58,630 acre-feet, and spread 17,565 acre-feet of water in Laws pursuant to the court order. In their May 5 2007 report to the Court, LADWP explained that 1,999 af were pumped to avert freezing of the LA Aqueduct from December 2006 through February 2007, thus, excluding freeze protection, their pumping for runoff-year 2006 was 56,636 af and below the Court's limitation of 57,412 af. The court order recognizes pumping for emergencies such as freeze protection, however proper notification of the emergency was not given to the Court and parties, and LADWP's exceedence of the court-ordered limit of 57,412 af is currently under discussion.

Runoff during the 2006-2007 runoff-year was above normal, forecasted to be 126% of normal for the Owens Valley. The depth-to-water measurements in Table 1 show that the combination of enhanced recharge due to high runoff and relatively low pumping as ordered by the Court resulted in a general rise in water tables throughout the Owens Valley. The thirty-four wells listed in Table 1 are 'indicator wells,' a small subset of LADWP's monitoring wells that have proven useful for predicting changes in the water table due to groundwater extraction and recharge. Water levels increased in most indicator wells from April 2006 to April 2007; however, except in the Bairs-George and Laws wellfields, water levels generally remain below the levels of the mid-1980's baseline vegetation mapping period. Of the thirty-four wells in Table 1, nine were above baseline in April 2007.

Water tables will decline in 2007-2008. Forecasted runoff for the Owens Valley runoff-year 2007 is 58% of normal runoff for the Owens Valley, so recharge will be less than during 2005 and 2006. Inyo County and LADWP have entered into a three-year interim management plan (IMP) which provides for specific sole-source uses in the Owens Valley and curtailing export pumping if it will cause groundwater levels to decline below their April 2007 levels. In anticipation of the end of the court sanctions, LADWP submitted a draft Operations Plan that calls for 61,950 af of pumping during runoff-year 2007 (Table 2), reflecting the intent of the IMP. The Operations Plan for runoff-year 2007 has not been finalized, and currently, the Court-ordered restrictions on pumping and requirements for water spreading remain in place. The pumping figures in Table 2 may be modified in the final Operations Plan.

Table 1. LADWP planned pumping for runoff-year 2007.

Wellfield	Pumping (acre-feet)
Lone Pine	1,250
Bairs-Georges	500
Symmes-Shepherd	1,300
Independence-Oak	6,700
Thibaut-Sawmill	12,500

Taboose-Aberdeen	900
Big Pine	20,400
Bishop	10,782
Laws	8,900
Total	63,232

Table 2. Depth to water (DTW) from well reference point (RP) at indicator wells, April 2, 2007. All data are in feet. Baseline is the average of 1985, 1986, 1987 April water levels (as available). Negative change from April '06 indicates a declining water table; negative deviation from baseline indicates the water table is below baseline.

Well ID	DTW, April '07	DTW, April '06	Change from April '06	Baseline DTW from RP	Deviation from baseline, April '07
Bairs Georges					
399T	2.97	2.69	-0.28	2.96	-0.01
400T	5.77	6.07	0.3	6.32	0.55
Symmes Shepherd					
401T	23.21	25.81	2.6	17.87	-5.34
402T	10.82	10.99	0.17	8.03	-2.79
510T	7.44	7.51	0.07	4.98	-2.46
403T	7.57	8.36	0.79	5.32	-2.25
404T	5.81	5.61	-0.2	3.55	-2.26
511T	8.01	7.61	-0.4	4.6	-3.41
447T	36.23	39.06	2.83	22.2	-14.03
Independence Oak					
407T	11.05	11.51	0.46	7.57	-3.48
406T	3.93	4.13	0.2	1.53	-2.4
408T	4.31	4.07	0.24	3.13	-1.18
546T	6.48	6.53	0.05	3.6	-2.88
412T	7.24	7.68	0.44	4.29	-2.95
Thibaut Sawmill					
413T	11.33	12.86	1.53	9.34	-1.99
415T	19.94	22.34	2.4	18.54	-1.4
507T	6.56	6.26	-0.3	4.62	-1.94
Taboose Aberdeen					
417T	30.81	32.5	1.69	26.92	-3.89
418T	9.72	10.86	1.14	8.18	-1.54
419T	7.7	9.71	2.01	6.55	-1.15
421T	34.18	37.06	2.88	34.31	0.13
502T	8.73	11.35	2.62	7.49	-1.24
504T	10.53	12.79	2.26	10.78	0.25
505T	22.47	24.21	1.74	18.6	-3.87
Big Pine					
425T	15.87	19.46	2.59	14.89	-0.98
426T	13.01	15.02	2.01	11.57	-1.44
469T	22.18	23.97	1.79	21.73	-0.45
Laws					
107T	21.98	19.45	-2.53	24	2.02
436T	6.45	6.02	-0.43	8.4	1.95
438T	9.49	7.09	-2.4	9.61	0.12
490T	11.8	14.81	3.01	13.03	1.23
492T	24.69	25.98	1.29	32.83	8.14

When LADWP inventoried Owens Valley vegetation from 1984 through 1987, water tables were generally high throughout the valley because of a series of wet years (1982-86) and relatively low groundwater pumping. The vegetation mapped during 1984 through 1987, which became the vegetation baseline for management under the Inyo/Los Angeles Water Agreement (LTWA), reflected the high water table prevalent at that time. Following the inventory, during the first three years of a six-year drought, LADWP pumped large amounts of groundwater: approximately 210,000 acre-feet (1987), 200,000 acre-feet (1988), and 155,000 acre-feet (1989). In response to the stress of groundwater pumping, water tables declined in most wellfields to substantially below the plant root zones, and as a result, native groundwater-dependent vegetation declined.

In 1990, in recognition of the decline in water tables and vegetation, the Inyo/Los Angeles Standing Committee adopted the "Drought Recovery Policy," which requires that groundwater pumping be managed in a conservative manner to allow substantial recovery of water tables, soil moisture, and vegetation. Since then, LADWP's pumping has been lower than the pumping of the late-1980's. In response to both lower pumping and several high runoff years, water tables rose during the 1990's.

Figures 1a and 1b illustrate the decline of the water table from baseline to 1992 due to pumping and drought and subsequent recovery. Red areas indicate areas where the water table is below baseline; green areas are areas above baseline. LADWP production wells are generally arrayed along the western edge of the valley floor (indicted in figures 1a and 1b as blue circles), because this location situates the wells upslope of the LA Aqueduct in areas of high groundwater transmissivity. Figures 1a and 1b were developed by interpolating depth to water measurements from several hundred shallow groundwater monitoring wells throughout the Owens Valley. These maps showing how depth to water has changed over time in areas of groundwater dependent vegetation are used by the Water Department to relate changes in groundwater levels to changes in vegetation conditions. Figure 1a shows the difference between depth to water during the baseline period (1985-1987) and depth to water in areas of groundwater-dependent vegetation in 1992, the last of six consecutive dry years. Figure 1a represents the most depressed water levels since the baseline mapping period – Figure 1a shows extensive areas below baseline due to drought and pumping. Figure 1b shows the difference between baseline water levels and April 2006 levels.

Figure 1a.

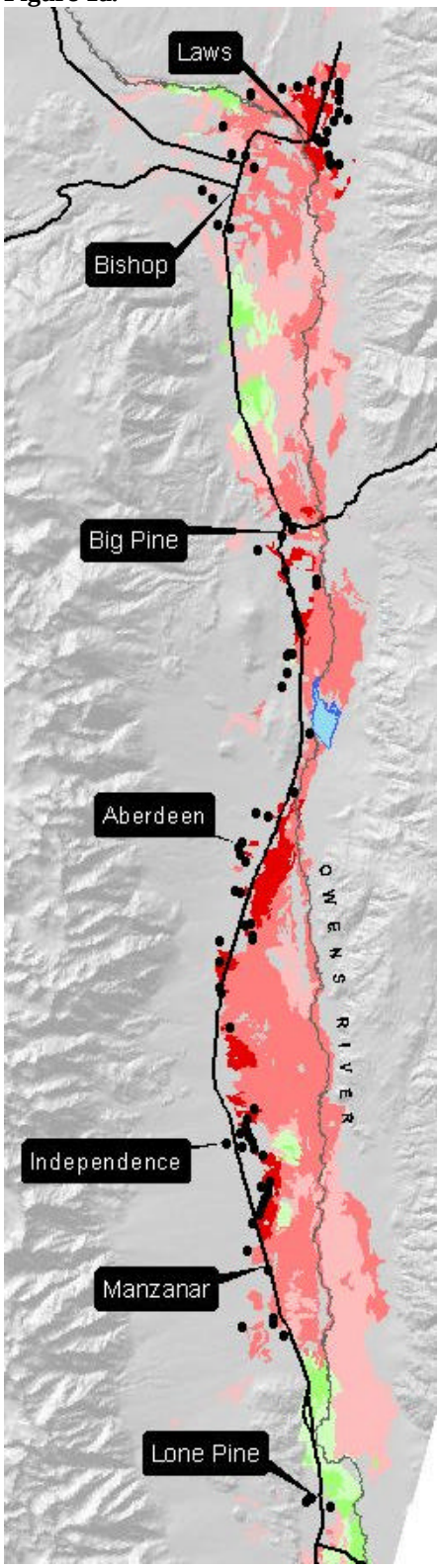


Figure 1b.

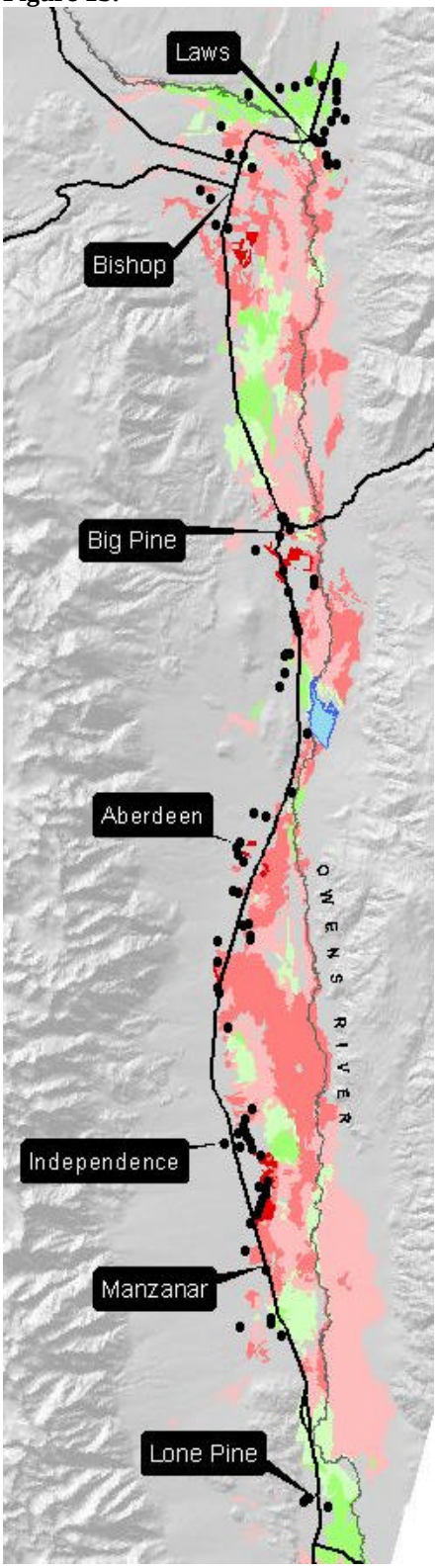


Figure 1a-b. Depth to water deviation from baseline water levels (feet) in areas of groundwater dependent vegetation. Red indicates areas where the water table is below baseline. Figure 1a represents the deepest water tables during the drought of 1987-1992; 1b shows the state of the water table as of April 2006.

Areas of greatest water table decline in Figure 1a coincide with the locations of highest groundwater extraction along the western edge of the valley floor. In Figure 1b, the areas that remain the most below baseline are also near areas where the greatest amount of pumping has occurred. Comparison of Figures 1a and 1b shows that some areas recovered during the 1990's in response to high recharge and pumping managed under the Drought Recovery Policy; however, areas near centers of pumping remain below baseline levels.

In the Laws area, north of Bishop, the water table responds dramatically to pumping and recharge from the McNally canals (e.g., well T492 in Figure 2). Water tables declined to over forty feet below baseline between the mid-1980's and 1992 (Figure 1a). However, as of April 2007, all indicator wells in Laws were above baseline (Figure 1b). These high water table levels were primarily the result of recharge induced by LADWP's diversion of water into the McNally canals and water spreading operations.

Pumping on the Bishop Cone and recharge from the extensive network of surface water conveyances balance to stable water levels in west Bishop (e.g. well T387 in Figure 2). Water tables in the area between Bishop and Big Pine are relatively stable due to the absence of pumping stress (e.g. T479 in Figure 2).

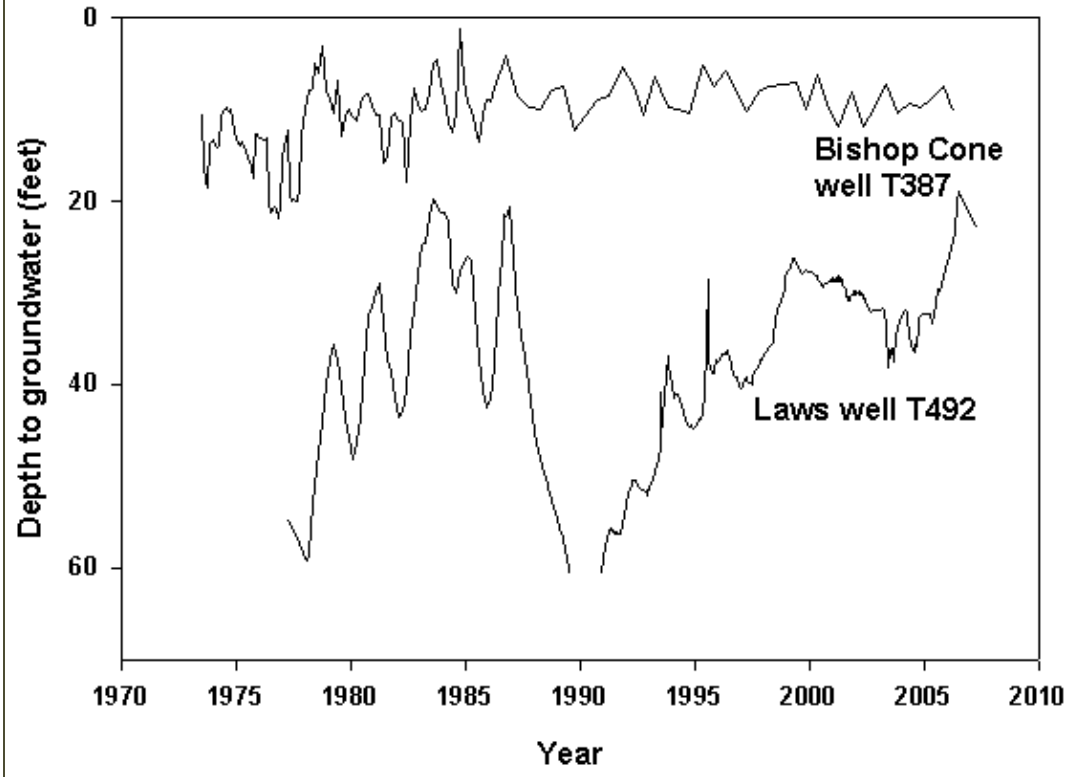


Figure 2. Water level hydrographs from a well in Laws (T492) and Bishop (T387). Water levels in Laws vary due to pumping and intermittent recharge from surface water spreading; water levels in Bishop are maintained relatively constant by the buffering effect of the network of surface water conveyances in the Bishop area.

The Big Pine wellfield has historically been subject to high levels of groundwater pumping by LADWP for the Fish Springs Fish Hatchery. Water table hydrographs near Big Pine show a typical pattern of a mid-1980's maximum, rapid decline in the late-1980's, gradual recovery to a level below the maximum

level, a gradual decline since the late 1990's, and recovery during runoff-years 2005 and 2006 (e.g., well T425 in Figure 3).

The Taboose-Aberdeen wellfield has undergone intermittent stress when wells have been operated during droughts. Some of LADWP's highest capacity wells are located on the alluvial fan in the western part of this wellfield; when operated at full capacity these wells cause drawdown in phreatophytic vegetation on the valley floor. Water table hydrographs in this wellfield reflect large pumping induced fluctuations (e.g., well T421 in Figure 3).

The Thibaut-Sawmill wellfield is subject to a constant pumping stress due to the Blackrock Fish Hatchery, plus additional stress from pumping for the LA Aqueduct. The water table in this wellfield shows large pumping-induced fluctuations where it is not buffered by surface water conveyances such as the LA Aqueduct and Blackrock Ditch.

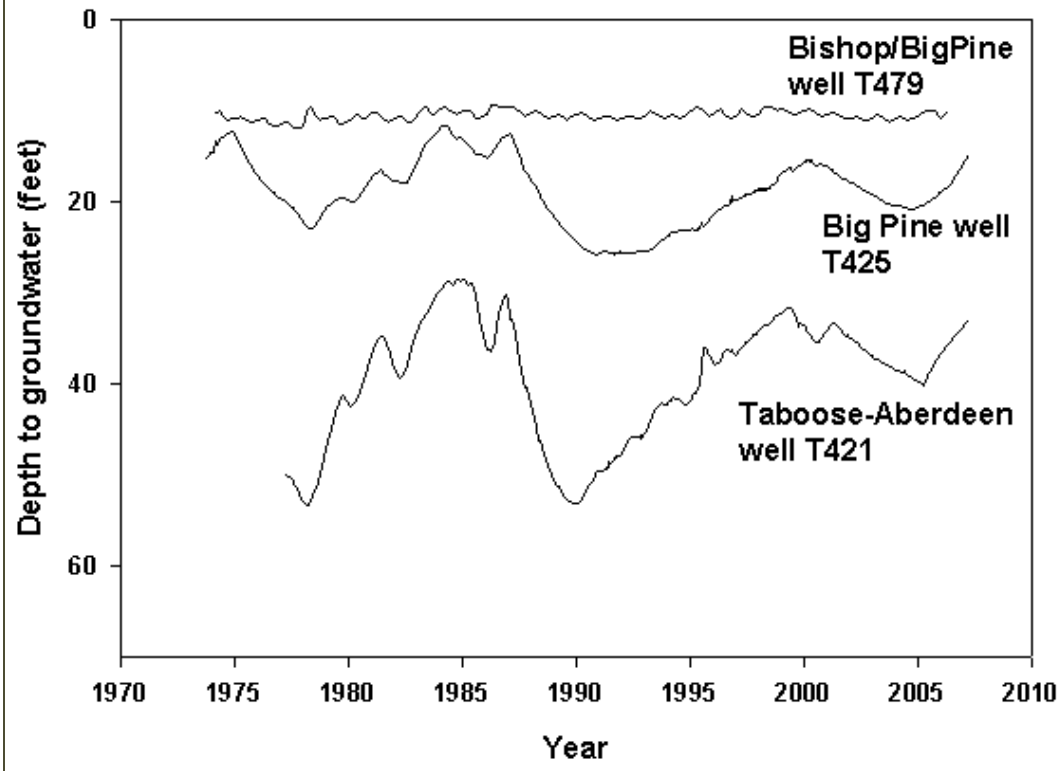


Figure 3. Water level hydrographs from a well between Bishop and Big Pine (T479), a well south of Big Pine (T425), and a well in the Taboose-Aberdeen wellfield (T421). T479 is far from pumping wells, whereas T425 and T421 are affected by pumping.

The Independence-Oak wellfield is subject to sustained pumping due to a large number of wells that area exempt from the on-off provisions of the LTWA. As a result, the water table in the Independence area is depressed below baseline.

Pumping in the Independence-Oak wellfield also impacts the northern portion of the Symmes-Shepherd wellfield. The amount of water pumped from the Symmes-Shepherd wellfield has varied greatly. After nearly a decade of relatively modest pumping, pumping in this wellfield increased in 2003, resulting in a

pumping-induced decline in the water table. A recent pumping induced decline and subsequent recovery was observed in well T401 due to the operation of well W075 (Figure 4).

The Bairs-Georges wellfield has a small pumping capacity, and has been pumped little in the past fifteen years, resulting in water levels fluctuating around their baseline levels (e.g., well T398 in Figure 4).

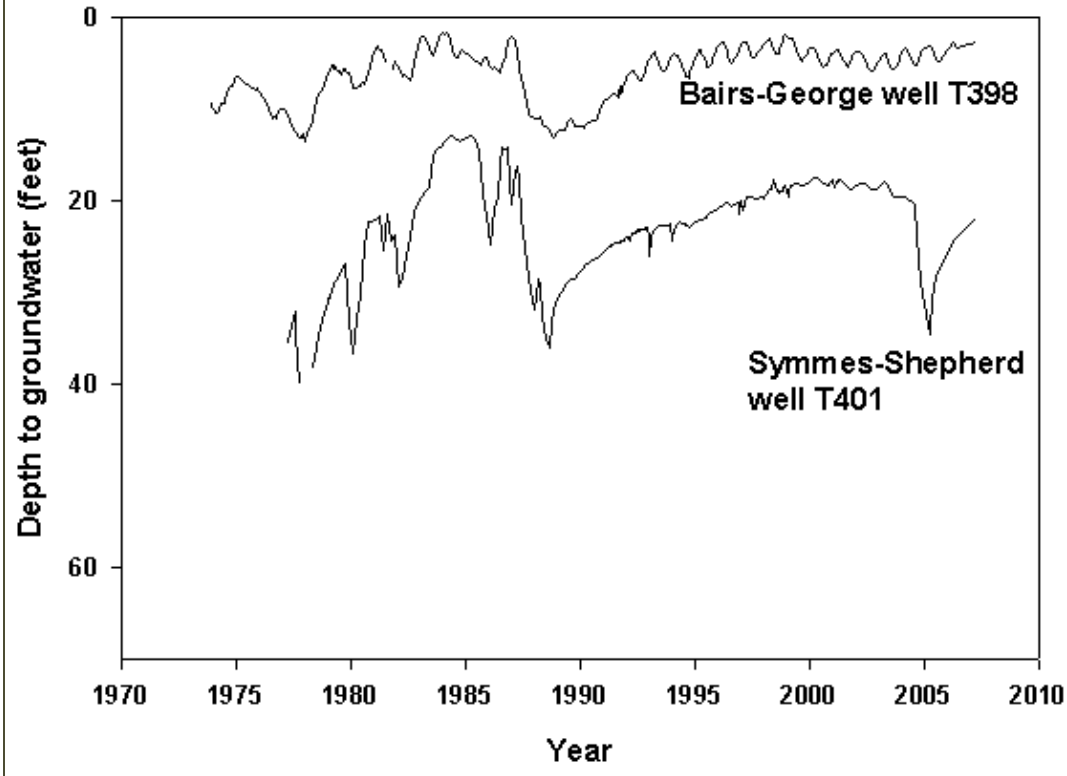
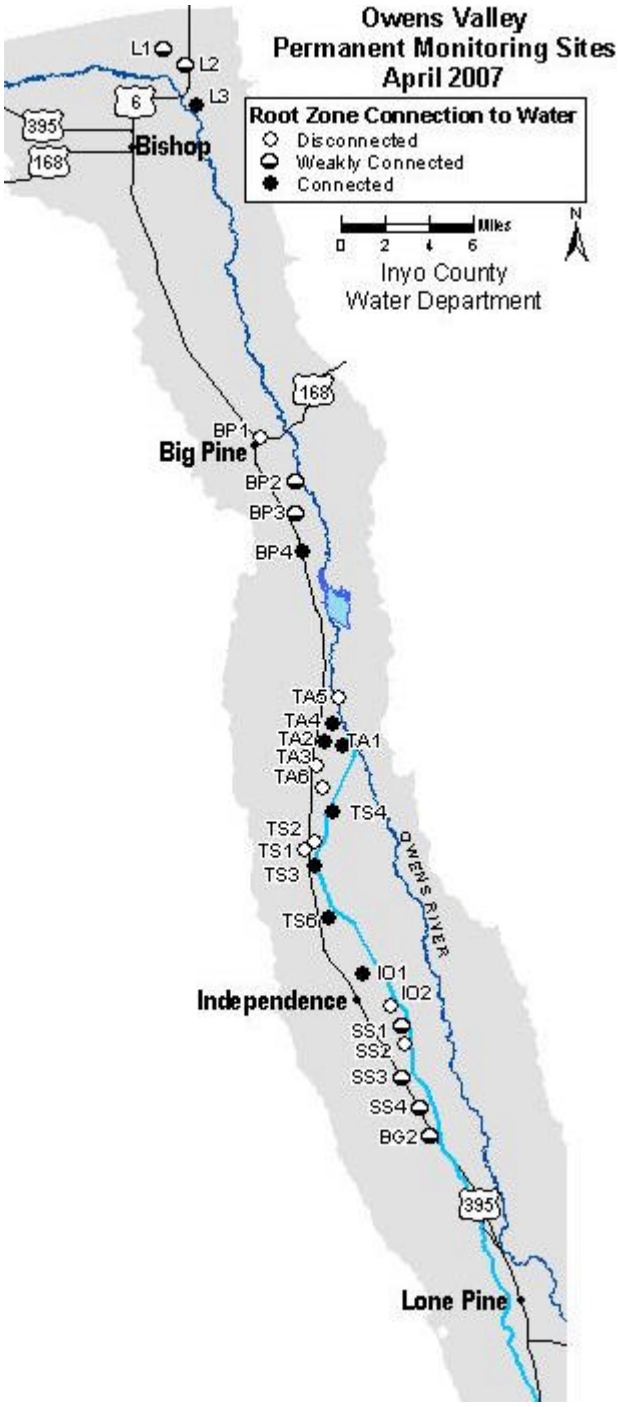


Figure 4. Water level hydrographs from a well in the Symmes-Shepherd wellfield (T401) and a well in the Bair-George wellfield (T398). The steep decline in T401 in 2004 was due to the operation of well W075.

Pumping in the Lone Pine wellfield has primarily been for town supply, Diaz Lake, and an irrigation enhancement/mitigation project east of town. LADWP has constructed a new production well west of the town of Lone Pine on Lone Pine Creek to supply the LA Aqueduct. LADWP and the County are currently developing a process and plan for testing this well and implementing management to protect groundwater dependent natural resources and non-LADWP wells.

Groundwater levels have risen during the past two years, but in 2007 they are expected to decline due to low recharge. The forecasted runoff for April 2007 through March 2008 is 58% of normal (four years have been drier since 1935, the driest of which was 1961, at 51% of normal). Although high runoff and court-limited pumping allowed the water table to recover during the past two years, only the Laws and Bairs-Georges wellfields have indicator wells at or above baseline. In an analysis conducted by LADWP for the 2007 Operations Plan, given the pumping shown in Table 2, it was predicted that wellfield average water levels in a subset of indicator wells would decline between 0.3 and 4.1 ft (Taboose-Aberdeen and Laws respectively), except for the Symmes-Shepherd wellfield, where water levels were predicted to rise 0.2 ft.

Soil Water Conditions



The Water Agreement established procedures to determine which LADWP pumping wells can be operated based on soil water and vegetation measurements. Staff from ICWD regularly monitors depth to groundwater and soil water content at 25 sites in wellfields and eight sites in control areas. Data from 22 wellfield sites visited each month are used to determine the operational status (On or Off) of nearby pumping wells. Seven sites were in On-status through the 2006-07 runoff year; no sites have changed status (either On or Off) since April 2006.

The purpose for the On/Off procedures is to manage pumping to protect plant communities that require periodic connection to the water table for long-term survival. Generally the sites with On-status have wet soil and shallow water tables, and the Off-status sites have dry soil and deep water tables. The On/Off determination is based on an incomplete accounting of the components of the soil water balance, however. Sometimes On-status sites are those with a deep water table and low plant cover. Conversely, a site with adequate water table depth may be in Off-status if the water table occurs just below the root zone and plant cover is high.

We identify the monitoring sites where the root zone is connected with the water table to give a better picture of the conditions underground that are affected by pumping. Nearly all wellfield sites have an intermediate zone where soil water contents change little that separates lower depths affected by water table fluctuations from upper depths affected by precipitation. Infiltration for several sites sometimes extends to about 40 inches (1 m) deep which is the middle of the root zone in grass-dominated sites. In years like 2006-07 with little precipitation over the winter, it is relatively easy to distinguish soil water recharge from the water table. We rely on both soil water and groundwater data because the water table depth necessary to provide water to the plant roots depends on the soil characteristics as well as water table depth. For example, the capillary rise above the water table in a silty soil is much greater than in a sandy soil. For the same water table depth, the plants may have access to groundwater if the soil is silty, but not if it is sandy. How well plant roots can take up groundwater also depends on the type of vegetation. In similar soils, a shallower water table is necessary to supply groundwater to grasses than shrubs because of the shallower roots of the grasses. For management purposes, grass-dominated monitoring sites are assigned a root zone of 6.6 feet (2 m); shrub sites are assigned a root zone of 13.1 feet (4 m).

The wellfield monitoring sites (including three that are monitored but not used for pumping management) were grouped into simple categories to summarize the connection between the root zone and the water table. Brief descriptions of the three categories are given below. Sites in Laws and Big Pine wellfields experienced water tables sufficiently shallow to wet the soil profile due to spreading this past year. The water table has since declined after spreading stopped. Where the water table is still above the depth necessary to wet the root zone as of April 2007 (estimated when water table initially rose into the dry soil), the sites were considered weakly connected. If the water table was deeper it was classified as disconnected. In all these sites (L1, L2, BP1, BP2, BP3) the soil has retained water that will be available to plants this summer. Most sites in the coupled and weakly connected category have relatively moist soil in much of the soil profile at the beginning of the 2007 growing season.

1. Disconnected: No recharge from lower depths is occurring in the root zone. Eight sites occur in this category compared with eleven last year. Sites BP1, TA5, and TS2 have retained soil water available to plants but the water table at the beginning of the 2007 growing season is probably too deep to recharge the root zone. Soil at the other sites is dry.

2. Weakly connected: Water table fluctuations caused soil water changes in the bottom half of the root zone. Eight sites occur in this category. Sites L1, L2, BP3, and BG2 have ample soil water stored in the soil profile.

3. Connected: Water table fluctuations caused soil water changes in the top half of the root zone. Nine sites were placed in this category.

The above average runoff and associated water spreading along with greatly decreased pumping in 2006-07 caused water table increase at 18 of the wellfield monitoring sites. As of May 2007, the water table was capable of supplying water to the root zone at 17 monitoring sites located in wellfields (see map). This compares to about fourteen sites last year. Three sites are probably not receiving groundwater in the root zone, but have moist soil from higher water levels earlier in the 2006-07. The remaining five sites have dry soil throughout the root zone.

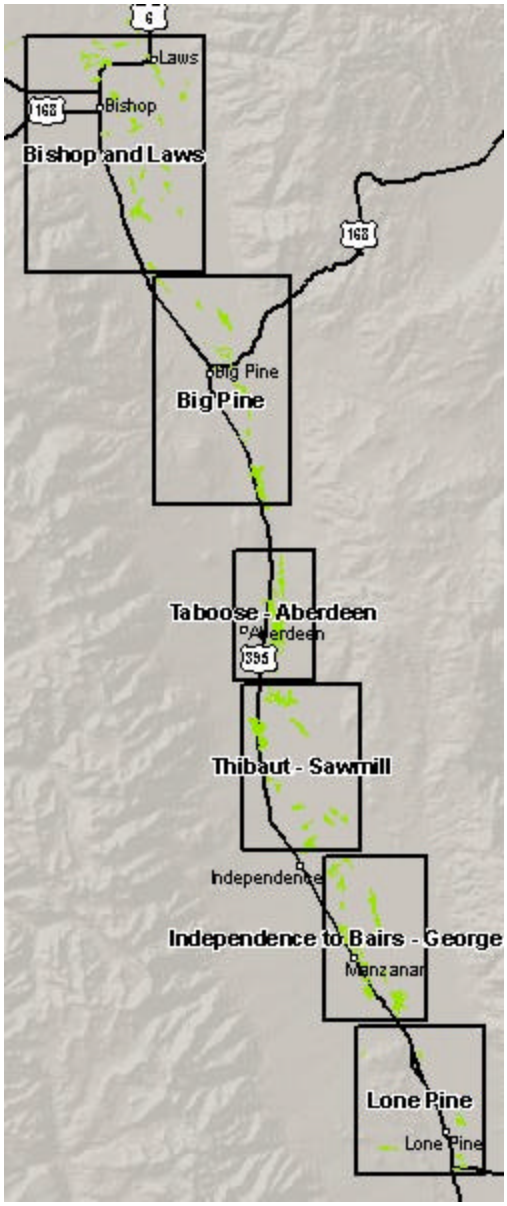
Precipitation

Inyo County Water Department (ICWD) has collected precipitation data at seven rain gauges in Owens Valley since 1993. Precipitation totals for ICWD rain gauges appear in Table 1. For the 2006 water year (beginning October 1, 2005, and ending September 30, 2006), precipitation measured at the gauges averaged 6.1 inches. Although the total amounts in most gauges were high relative to the Bishop Airport long term average of 5.5 inches, note that the southernmost gauge, RG-7, recorded only 2 inches of precipitation during the 2006 water year.

Table 1. Precipitation (in inches) measured in ICWD rain gauges by water year (October 1 of the previous year through September 30 of the year noted).

Rain Gauge Precipitation (inches)	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
RG-1, east of Fish Slough	5.94	3.40	7.60	4.51	4.66	6.09	1.82	1.32	2.26	0.86	5.41	2.75	8.65	5.94
RG-2, near Laws	6.29	3.62	7.80	4.55	4.91	7.34	2.50	1.73	3.27	1.28	5.49	2.96	11.13	6.47
RG-3, southeast of Bishop	7.21	4.34	8.87	4.29	6.85	9.98	2.39	2.93	4.63	1.24	6.57	3.59	9.96	7.04
RG-4, south of Big Pine	8.29	4.24	9.76	6.85	8.33	8.99	1.83	2.56	3.34	1.59	7.23	4.09	9.35	7.80
RG-5, near Goose Lake	6.83	2.15	7.07	5.64	7.02	7.47	1.98	0.80	2.46	0.75	7.47	2.58	7.94	5.44
RG-6, near Blackrock	9.00	2.95	8.67	7.07	8.68	10.01	1.88	1.59	2.91	1.28	10.38	4.01	11.38	8.13
RG-7, west of Union Wash	5.00	1.61	4.88	2.14	4.35	5.06	1.61	1.54	3.91	0.51	5.62	1.77	5.88	1.99
Rain Gauge Average	**7.0**	**3.2**	**7.8**	**5.0**	**6.4**	**7.9**	**2.0**	**1.8**	**3.3**	**1.1**	**6.9**	**3.1**	**9.2**	**6.1**
Avg. Precipitation Occurring Oct 1 - Apr 15 ("Winter")	**6.9**	**1.8**	**6.8**	**4.5**	**4.7**	**5.9**	**1.5**	**1.2**	**2.6**	**1.0**	**6.4**	**2.9**	**7.8**	**5.7**
percent in winter	98.7	56.7	86.6	88.8	73.0	74.0	73.9	65.7	79.9	90.4	92.7	92.4	84.3	92.3

Vegetation Conditions



Data from the Water Agreement baseline period through 2006

During summer 2006, ICWD research assistants re-inventoried vegetation in 105 parcels. Most of these parcels were monitored as part of the Technical Group's agreement to carry out the protocol outlined in Box 1.C.1.a.ii, p. 22 of the Green Book. The re-inventory program was initiated by the Inyo/LADWP Technical Group in 1991 and has persisted every summer since that time. Some of the parcels re-inventoried in 2006 were classified as Type E (supplied with surface water by LADWP). Here, some of the data are presented to allow a view of perennial cover trends over time.

Methods

The list of parcels for re-inventory has grown and changed somewhat over time. The following guidelines have been used to assist in parcel selection: parcel contains a permanent monitoring site; actual baseline transect data exist for the parcel; parcel location allowed sampling over a wide geographic area; parcel was classified as a phreatophytic plant community, preferably in management category type B or C; parcel size is relatively small and thus more likely to contain relatively homogeneous vegetation; and parcel was free from known major confounding factors such as regular irrigation or land surface alterations. Few parcels meet all the above criteria; for example, several re-inventoried parcels containing permanent monitoring sites have no available baseline transect data, are large and heterogeneous, and were classified as management category Type A. Some parcels re-inventoried in early years of the program have been moved to a low priority because they do not meet many of the above guidelines. In 2006, a few new parcels were added to assess conditions near other monitored parcels.

Parcels are re-inventoried using the line point transect technique. Multiple transects are measured to obtain a sample of vegetation conditions within each parcel. Transect start points and compass bearings (the direction of the transect from the start point) are randomly generated in the office using computer software. In the field, researchers locate start points using GPS, then set up a temporary 50m transect using a measuring tape and portable end posts. At 50cm intervals, beginning at 50cm, researchers visually identify and record the top layer of live plant material. The number of transects per parcel varies; in 2006 it varied from 14 to 36. An original goal for determining number of transects was to reduce cover variance to manageable levels; however, it quickly became apparent that the LADWP-mapped parcels were generally very heterogeneous, at least in terms of cover. The number of transects per parcel is somewhat scaled to the size of the parcel. Ultimately, the number of transects assigned per parcel is an estimated balance between the time required to gather the data and the anticipated information gained.

In the office, total hits on plants are tallied. Transect results from the baseline period (1984-87) and all years in which parcels were re-inventoried are summarized in terms of average cover of all perennial species combined.

Results

Table 1 below, lists all parcels re-inventoried in 2006, and includes plant community designation, Water Agreement vegetation type, and an indication of whether the parcel is located in a wellfield area that was affected by groundwater pumping during the late 1980s. Plant communities are: 35400 = Rabbitbrush Scrub; 36120 = Desert Sink; 36130 = Greasewood Scrub; 36150 = Nevada Saltbush Scrub; 45310 = Alkali Meadow; 45330 = Rush/Sedge Meadow; 45340 = Rabbitbrush Meadow; and 45350 = Nevada Saltbush Meadow. Water Agreement vegetation types are A, B, C, and E. For parcels re-inventoried in 2006, 60 parcels were determined to be located in Wellfield areas according to data analysis performed several years ago, 30 were determined to be Control parcels, and no determination was made for 11 newly added parcels or the 4 Type E parcels. Control parcels are located in areas that are not affected or minimally affected by pumping, whereas wellfield parcels are affected by LADWP pumping.

Data in Table 1 show the LADWP baseline estimate of perennial cover as well as average parcel perennial cover as determined by the re-inventory random sampling.

Parcels re-inventoried in 2006 according to the Green Book methodology are accessed by selecting one of the wellfields in the map above, then click on a parcel to view it's graph. Each graph shows the parcel's perennial cover as determined by the re-inventory random sampling (top graph); total plant cover as determined by interpretation of Landsat satellite data for the entire parcel, 1986-2005 (middle graph); and estimated average parcel depth to water table as estimated by interpolation of water levels in shallow monitoring wells.

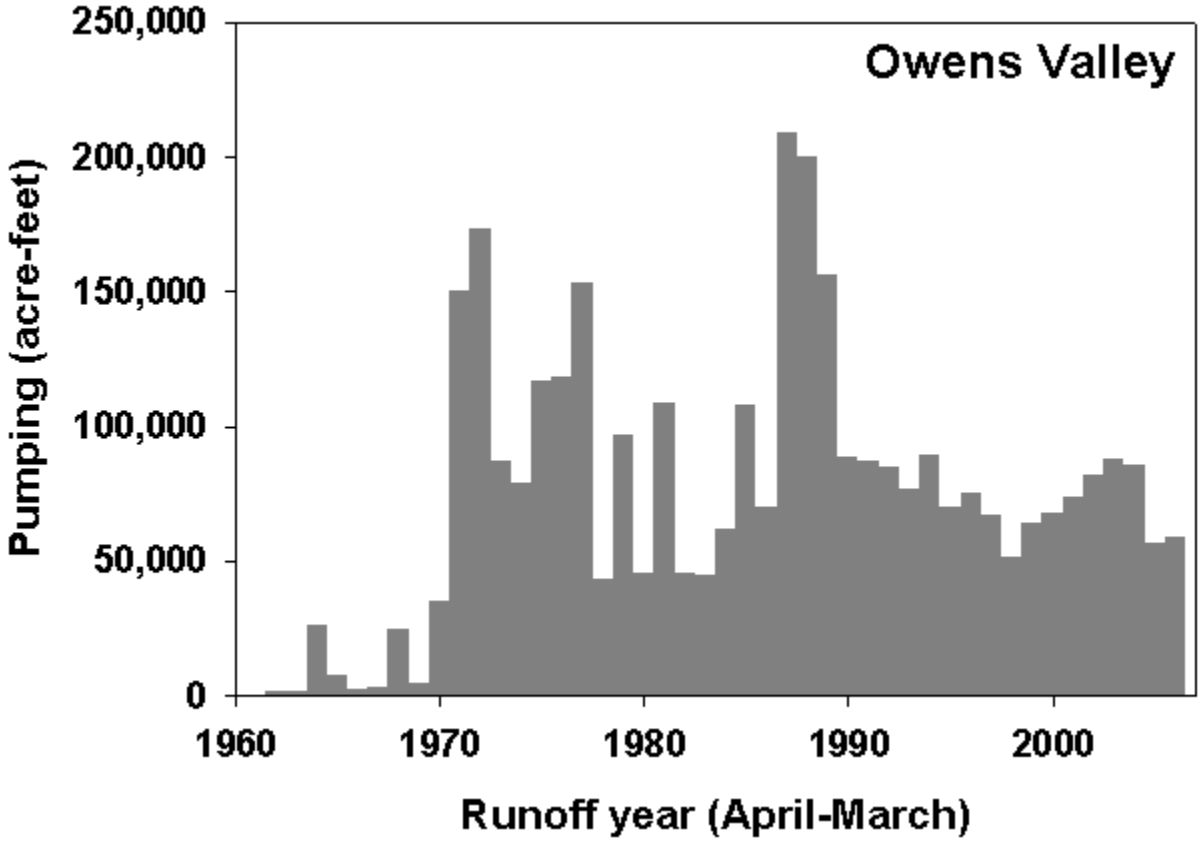
Table 1.																				
plant comm. and type	wellfield or control	parcel	DWP perennial %COV			ICWD perennial %COV														
			1985	1986	1987	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
45330E	na	BGP019		65.7																40.1
45310C	CONTROL	BGP031		16.8			24.8	27.4	27.8	38.4	33.2	38.2	36.5	23.3	32.6	30.4	18.1	12.4	16.7	27.4	27.4
45310C	CONTROL	BGP047		45.5			21.1	22.3	22.1	29.0	32.6	31.9	33.3	42.3	32.9	23.0	18.5				17.2
45310C	WELLFIELD	BGP086		19.2			29.1	31.0	44.0	37.3	39.1	45.0	40.8	43.4	44.1	47.3	29.9				53.3
45350C	WELLFIELD	BGP154		24.2		18.1	12.9	16.1	17.9	21.9	28.6	43.8	30.4	24.7	35.7	28.9	17.3	22.7	12.3	15.9	21.4
35400B	WELLFIELD	BGP157		28.6			7.7			27.3	26.7	38.0	39.7	25.3	48.7	54.0	26.1				41.0
36150B	WELLFIELD	BGP162		30.3		8.4	7.1	8.0	10.2	12.2	14.5	10.9	16.2	8.5	22.5	11.8	7.9	13.8	8.3	12.8	21.4
45310C	CONTROL	BIS055			44.6										67.2	52.2	33.0	40.6	31.7	55.6	56.4
45340C	WELLFIELD	BIS085			31.4		23.8								25.5	25.8	23.5		16.0	21.8	41.2
35400B	WELLFIELD	BLK002		16.0							13.7			8.3	10.7	14.7	12.8				18.8
45310C	undetermined	BLK008		49.6																	63.3
45310C	WELLFIELD	BLK009		28.8		8.1	22.2	18.5	14.3	26.4	22.3	27.0	31.8	22.1	24.9	21.2	12.8	23.3	17.5	20.8	21.0
45310C	WELLFIELD	BLK016		22.2		15.5	10.5	17.8	12.0	19.0	18.0	29.2	21.6	22.2	33.2	39.1	25.4	27.6	22.2	28.5	26.4
36150B	WELLFIELD	BLK021		30.7			19.7				12.7	17.4	26.0	14.4	11.4	17.9	11.5	16.0	23.1	24.6	22.6
45350C	WELLFIELD	BLK024		25.0		22.5	23.6	26.1	21.8	34.2	24.0	25.4	32.9	16.1	26.7	22.8	15.9	29.4	21.3	26.9	32.9
45310C	WELLFIELD	BLK033		13.7			6.8	17.8	8.5	9.8	11.9	13.9	15.3	8.5	6.3	8.5	3.1	7.3	6.9	10.1	10.7
45310C	WELLFIELD	BLK039		21.7			8.3	24.6	11.3	20.9	29.9	20.5	31.9	24.1	22.9	27.8	21.0	30.4	23.3	27.8	26.9
45340C	WELLFIELD	BLK044		23.0		16.2	14.2	28.7	14.6	25.5	25.5	36.5	39.5	25.0	26.9	27.1	22.1	33.8	29.5	36.3	38.4
36120A	WELLFIELD	BLK069		19.0		15.4	14.0	16.0	11.3	14.2	21.7	20.1	22.1	13.3	15.3	18.7	13.3	10.2	12.4	16.9	14.3
36150B	WELLFIELD	BLK074		30.7			33.1	34.3	28.7	49.7	44.9	44.1	50.3	40.3	38.3	49.4	25.4	49.4	24.9	47.1	41.6
45310C	WELLFIELD	BLK075		38.8			7.8	18.1	4.1	10.3	14.5	23.2	30.2	21.2	33.4	31.4	15.1	27.2	26.2	24.8	29.0
36120A	WELLFIELD	BLK077		16.3			6.3								13.8	14.7	8.1		8.2	16.8	16.9
45310C	WELLFIELD	BLK094		40.6		21.8	18.6	31.1	12.1	28.7	30.8	38.2	49.7	36.6	35.2	27.4	17.2	33.7	17.8	26.6	31.5
45310C	WELLFIELD	BLK099		48.0		46.1	43.8	48.4	42.4	47.6	56.4	50.1	66.8	79.5	62.1	43.1	38.1	42.3	43.3	54.0	62.8
45310A	CONTROL	BLK115		9.6			22.4	17.9	15.4	15.4	27.9	30.7	23.8	20.8	24.8	21.3	13.0	26.9	13.3	20.8	14.0
45310C	WELLFIELD	BLK142		26.0		25.3	25.0	33.2	22.4	31.6	22.9	39.3	32.4	19.0	20.3	29.6	22.9				25.8
45310C	WELLFIELD	BLK143		39.8											75.4						62.9
45310C	undetermined	FSL053			60.7																54.7
45310C	undetermined	FSL064			45.3																67.0
45310A	WELLFIELD	FSL065			21.3		23.6	26.1	19.8	25.7	25.4	20.5	26.4	41.8	39.1	36.4	15.5				31.8
45330E	na	FSL109			72.1																73.8
45310C	WELLFIELD	FSL116			52.9		37.0								68.4	55.1	36.7				72.8
45310C	undetermined	FSL120			53.5																68.4
45310C	WELLFIELD	FSL123			57.7		18.2	26.2	29.7		43.8	49.9	61.1	65.0	55.7	54.1	28.3	37.1	45.2	65.6	78.7

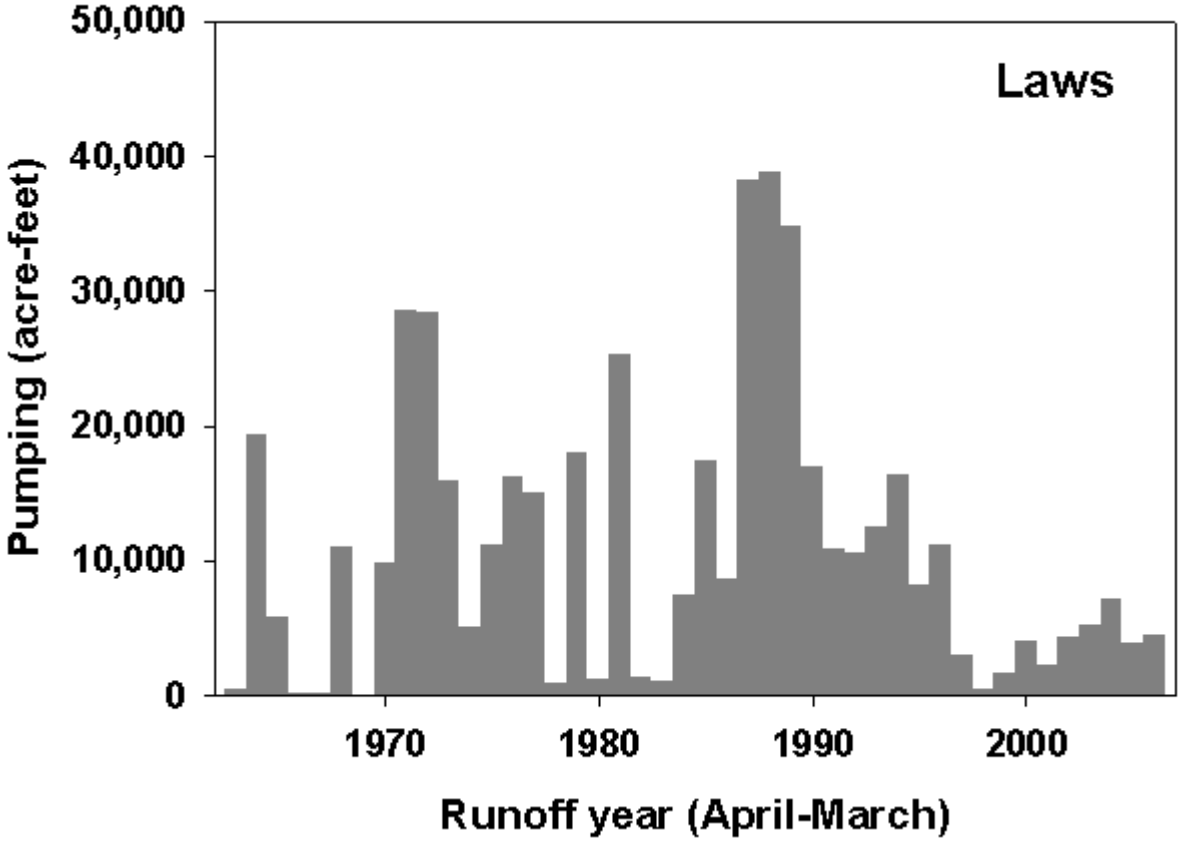
45310A	CONTROL	FSL187			14.3		45.6	33.4	35.6	38.6	31.1	37.3	47.4	59.4	42.1	41.7	26.9	20.3	24.4	27.4	31.4
45340C	WELLFIELD	FSP004		16.0							14.8	13.1	15.5	11.1	10.9	17.7	7.8	12.1	12.5	13.4	16.1
45310AC	WELLFIELD	FSP006		25.0		14.8	15.9	12.5	10.1	20.2	13.8	24.2	23.3	10.1	15.8	14.9	8.7	15.5	8.6	14.3	19.9
45310C	WELLFIELD	IND011	30.3				22.6	39.9	36.6	39.4	55.2	60.6	54.9	62.8	63.4	55.4	21.2	44.6	30.9	47.9	62.3
45310C	undetermined	IND024	36.5																		54.8
45310C	undetermined	IND026	49.0																	33.2	33.1
45310C	WELLFIELD	IND029	22.0													24.9	17.5	26.4	29.1	26.5	28.6
45310C	WELLFIELD	IND035	49.5				61.5	52.4	26.2	44.6	43.0	57.6	71.4	48.3	67.3	49.4	41.4	51.5	47.4	57.0	72.1
45350C	undetermined	IND067	34.8				13.3			27.3	29.9	43.7	39.6	20.1	17.5	27.1	12.4				20.8
36150B	CONTROL	IND096	29.3			20.2	16.0	22.3	18.3	28.1	31.3	23.5	28.0	16.4	25.7	23.3	19.5	30.3	20.0	33.3	35.5
36150A	WELLFIELD	IND106	8.0			14.3	10.8	16.7	10.3	23.1	14.5	19.1	23.9	14.7	17.1	14.7	11.3	19.2	13.6	17.0	28.7
45350C	WELLFIELD	IND111	40.6			22.6	24.6	34.0	17.1	36.2	31.2	36.5	48.1	37.0	38.9	36.5	25.8	27.8	29.2	42.5	43.3
45310C	undetermined	IND119	33.7				13.2	18.8	11.9	19.3	22.1	13.3	16.4	8.4	14.0	13.1	10.4				24.1
36150B	WELLFIELD	IND132	32.9			16.3	9.1	20.0	13.5	27.5	24.0	22.8	26.9	14.3	29.5	18.7	18.1	32.3	24.6	28.6	33.8
36150A	WELLFIELD	IND133	13.5												9.2	8.7	6.4	17.6	22.6	19.5	14.6
45350C	WELLFIELD	IND139	48.5			10.6	12.6	19.9	8.1	28.9	24.3	16.2	38.9	20.5	24.3	26.4	18.0	34.7	25.8	40.9	30.3
45310C	CONTROL	IND151	45.5								23.8										30.9
45310C	CONTROL	IND163	12.8			8.7	10.8	14.7	7.7	18.5	16.4	18.3	23.6	15.9	16.4	12.1	8.3	17.4	6.7	13.3	19.3
45310C	WELLFIELD	IND205	26.3								32.0										83.1
36150A	WELLFIELD	IND231	7.6			10.5	3.9	13.1	9.8	12.0	13.9	10.4	16.9	7.5	5.5	9.4	5.4	12.7	9.4	15.3	18.6
45310C	WELLFIELD	LAW030		23.1		12.0						16.3	21.2	27.3	32.1	24.5	19.6		20.5	24.2	33.4
45310C	WELLFIELD	LAW035		35.5														3.1	1.6	4.7	16.2
45330E	na	LAW043		61.1														3.0	2.4		20.8
45310C	WELLFIELD	LAW052		27.8		4.2						4.9	7.8	8.8	4.5	4.9	2.4	2.9	3.9	5.4	12.5
45340C	WELLFIELD	LAW062		21.4			1.5			3.0	5.5	9.7	11.2	18.1	13.5	10.8	2.9	4.7	3.3	7.2	12.3
36130A	WELLFIELD	LAW063		11.5		4.5	2.4	5.3	5.5	7.9	8.8	11.4	6.3	15.1	9.9	8.8	3.8	6.4	5.4	9.6	23.6
45310A	WELLFIELD	LAW065		9.7			1.8	4.1	3.6	7.6	6.0	5.3	5.1	7.9	7.0	8.2	3.4	2.9	2.1	5.1	13.9
45310C	WELLFIELD	LAW078		51.7			7.5					20.2	24.6	44.5	55.4	38.3	36.3	31.8	27.1	39.0	49.6
45340C	WELLFIELD	LAW082		16.5		5.5						2.6	5.8	4.3	5.1	3.6	2.1	3.0	4.4	4.2	12.3
45310C	WELLFIELD	LAW085		30.1		5.1	5.8	17.9	5.5	18.8	13.8	9.8	11.4	12.5	19.0	10.2	7.1	9.8	7.7	14.8	28.5
45310C	WELLFIELD	LAW107		46.9			22.1	13.1	18.1	26.3	24.7	34.8	38.0	62.3	61.7	55.4	37.6	43.9	38.2	65.1	59.3
45350C	WELLFIELD	LAW112		20.3			16.3			14.5	20.3	13.8	20.1	13.7	11.6	19.6	12.9	25.1	15.8	32.9	34.0
45310C	WELLFIELD	LAW120		25.9		14.2	12.6	19.2	11.6	29.1	28.8	29.5	41.7	33.2	41.3	47.0	17.6	24.1	21.1	27.6	28.9
45310C	WELLFIELD	LAW122		59.6			58.9	58.1	43.0	57.6	68.3	64.3	65.6	88.3	56.3	71.6	58.8	54.8	47.8	56.6	54.6
45340C	WELLFIELD	LAW137		20.4			8.6			15.3	12.4	16.0	18.4	21.9	16.5	22.9	16.9	20.3	13.1	19.1	24.9
45310C	CONTROL	LNP018	18.3				22.1	27.7	22.4	53.1	29.3	38.5	32.8	26.3	45.4	44.3	24.7	32.7	17.6	32.9	26.1
36150B	CONTROL	LNP019	16.2				36.7				23.2	32.6	41.9	34.8	37.6	48.7	25.5				23.1

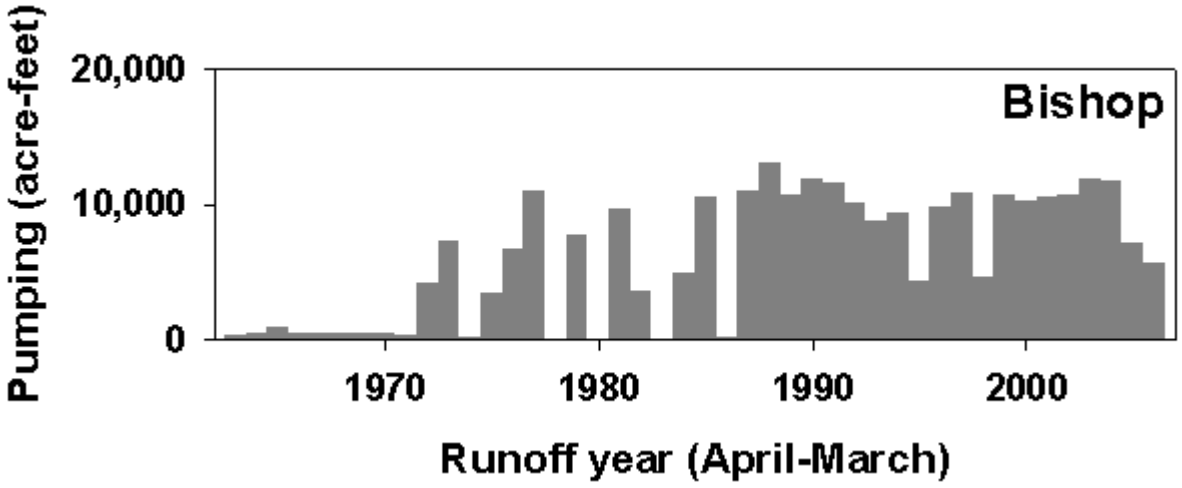
45350C	WELLFIELD	LNP045	48.0				44.8			44.6	49.5	39.9	45.2	48.0	56.3	36.9	17.5	30.9	24.2	45.0	31.4
45310C	CONTROL	LNP050	48.0				16.1	47.4	20.9	39.7	38.2	29.4	56.4	39.1	46.1	48.5	20.4				27.5
45310C	CONTROL	LNP095	27.6														27.7				34.9
45310C	WELLFIELD	MAN006	22.8				8.0	19.9	14.9	22.5	33.8	24.6	34.3	12.8	30.4	29.3	17.9	23.1	18.0	29.4	21.9
36150B	WELLFIELD	MAN007	28.0			14.9	11.9	15.5	10.0	28.8	9.7	13.9	24.4	16.4	18.3	20.8	14.6	25.7	18.5	22.0	21.9
45350C	CONTROL	MAN014	22.0				19.3			14.9	17.6	15.7	23.2	18.2	21.2	15.3	8.2				18.8
36150B	WELLFIELD	MAN037	42.0			7.4	8.1	19.0	18.2	26.3	14.9	24.1	28.7	20.9	43.7	25.4	7.5	14.6	15.6	21.2	20.8
45310C	CONTROL	MAN060	59.3				74.3	75.1	82.1	83.2	77.9	64.8	82.8	76.6	86.8	82.6	75.5	75.9	76.8	81.5	80.2
36150B	WELLFIELD	PLC007			26.7						32.6	26.8	33.0	25.9	28.6	29.7	18.4				33.9
45310C	CONTROL	PLC024			35.4		34.7	46.8	41.6	51.7	41.8	38.3	59.9	30.0	51.9	53.7	25.3	39.4	40.6	44.8	42.1
45310C	CONTROL	PLC028			38.5		19.0														51.4
45340C	CONTROL	PLC056			16.8						19.2								14.7	25.1	29.7
36150B	CONTROL	PLC059			17.0		27.0				23.1										32.1
35400B	CONTROL	PLC072			15.3		17.3			24.6	30.6	21.9	24.3	27.6	24.3	25.8	16.3	14.7	16.7	21.4	29.5
45310C	undetermined	PLC088			44.0																46.6
35400B	CONTROL	PLC092			10.5		11.8			14.9	10.5	21.0	15.5	13.6	17.7	16.1	6.9				11.9
45310C	CONTROL	PLC097			35.2		21.3	28.0	38.2	50.4		62.5		71.4	45.2	56.1	33.0	37.9	28.6	42.0	47.6
45340C	CONTROL	PLC106			30.0	19.4	17.7	16.0	15.1	17.3	19.2	21.3	28.2	17.6	18.1	19.9	11.9	12.8	10.7	19.4	12.5
45310C	CONTROL	PLC121			41.3		35.3	48.1	43.8	43.3	63.7	54.0	46.9	62.2	47.5	44.2	38.9	33.5	44.8	50.7	48.9
45310A	CONTROL	PLC136			12.4		15.9	34.3	20.0	29.0	40.5	22.8	29.0	22.4	28.9	18.9	13.9				16.5
45340C	CONTROL	PLC137			27.2	41.4	51.5	37.1	47.2		40.1	61.9	51.5	59.0	47.1	57.4	32.2	39.2	32.9	37.1	38.7
45310C	CONTROL	PLC144			32.2														37.5	38.0	47.9
45310C	CONTROL	PLC223			15.0	24.9	17.1	31.6	25.9	35.3	27.2	25.9	24.0	26.9	28.2	28.7	14.8	22.3	16.9	26.4	26.7
36130A	WELLFIELD	TIN028		17.5		12.5	17.1	18.4	11.6	18.9	18.5	15.9	20.7	11.1	14.5	19.6	11.4	15.1	14.9	15.7	17.5
45310C	WELLFIELD	TIN030		31.4											41.8	35.2	16.4	24.1	25.6	28.3	35.0
45310C	WELLFIELD	TIN050		36.3										35.3	39.2	55.9	29.6	38.6	22.8	34.8	29.8
45310C	WELLFIELD	TIN053		35.0											61.7	61.6	35.1				46.3
45310C	WELLFIELD	TIN064		32.5		22.8								33.3	28.7	33.8	18.5	19.1	22.7	25.3	34.3
45310A	WELLFIELD	TIN068		13.5			12.5	17.7	10.3	16.6	20.9	17.8	11.6	13.2	18.8	13.8	7.1	6.6	9.1	11.3	13.0
45310C	CONTROL	UNW029	16.8				20.8	22.2	18.4	28.8	23.7	19.6	24.8	17.2	26.7	19.9	10.1	17.7	9.7	17.1	13.9
45330E	na	UNW031	71.0																		78.9
36150B	CONTROL	UNW039	27.2			7.5	29.9	27.1	20.6	34.8	44.3	28.2	48.8	35.5	43.6	31.3	30.8	29.0	27.7	33.3	37.6
45310C	undetermined	UNW074	29.3																		41.2
45350C	CONTROL	UNW079	40.3				41.3			53.7	54.9	27.5	41.8	40.1	35.5	51.1	53.2	48.4	57.0	64.5	45.6

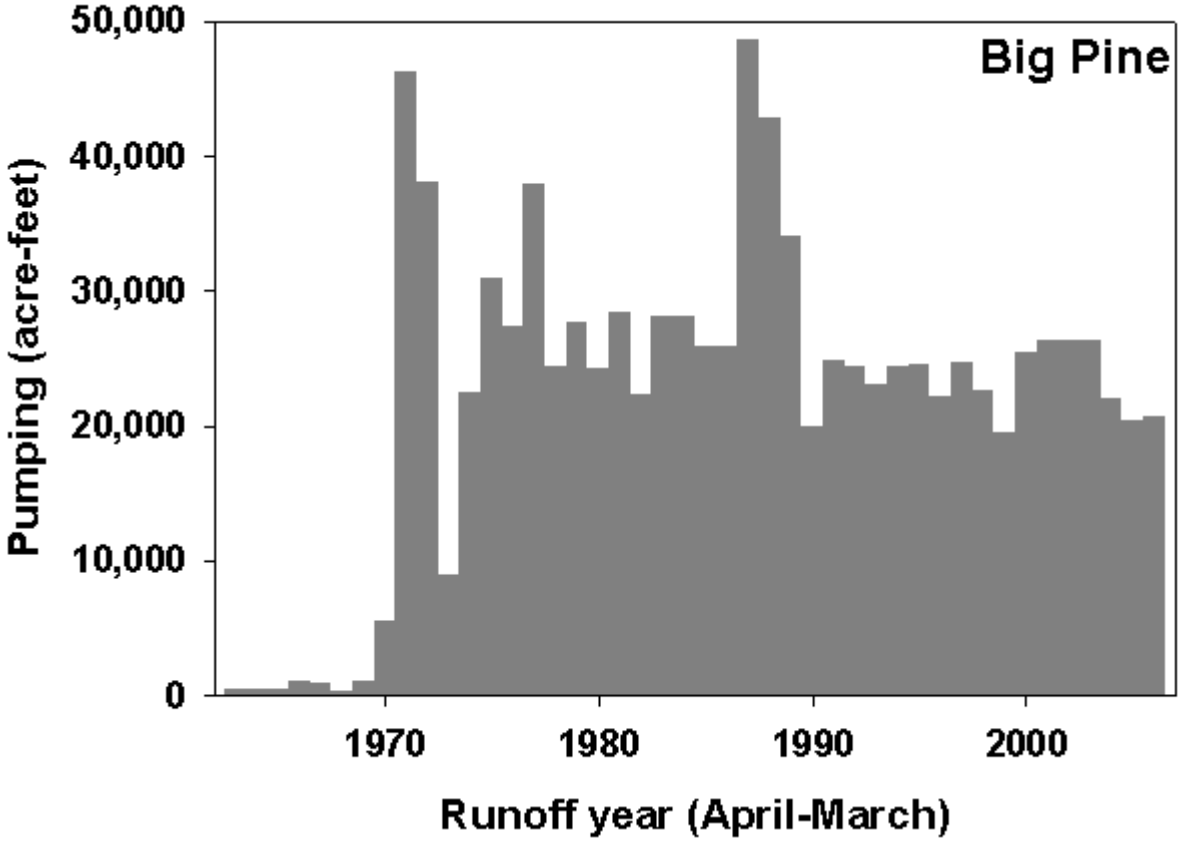
Historic Pumping: 1964-2006

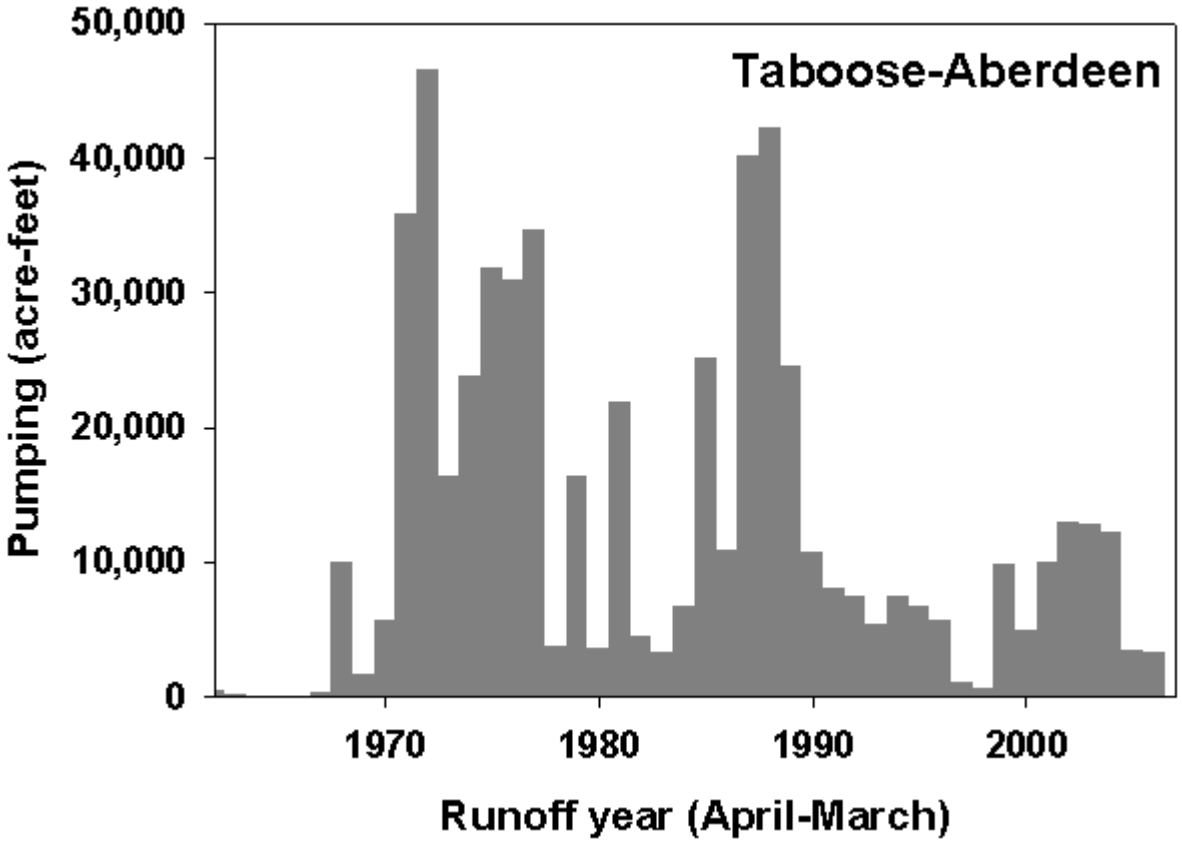
Owens Valley-wide Groundwater Pumping

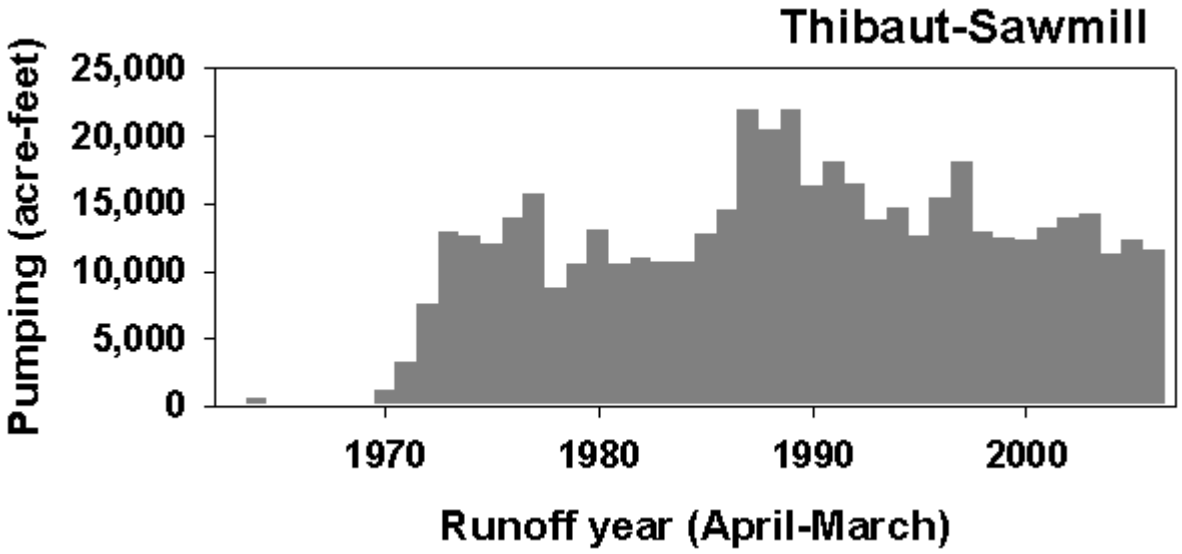


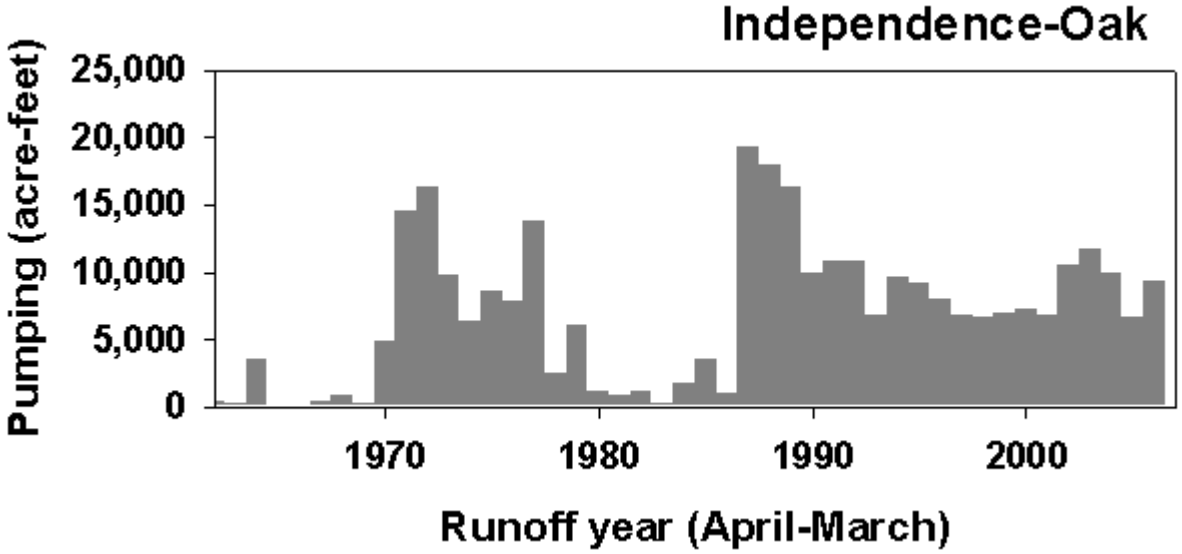

Laws
50,000
40,000
30,000
20,000
10,000
0
Pumping (acre-feet)
1970
1980
1990
2000
Runoff year (April-March)

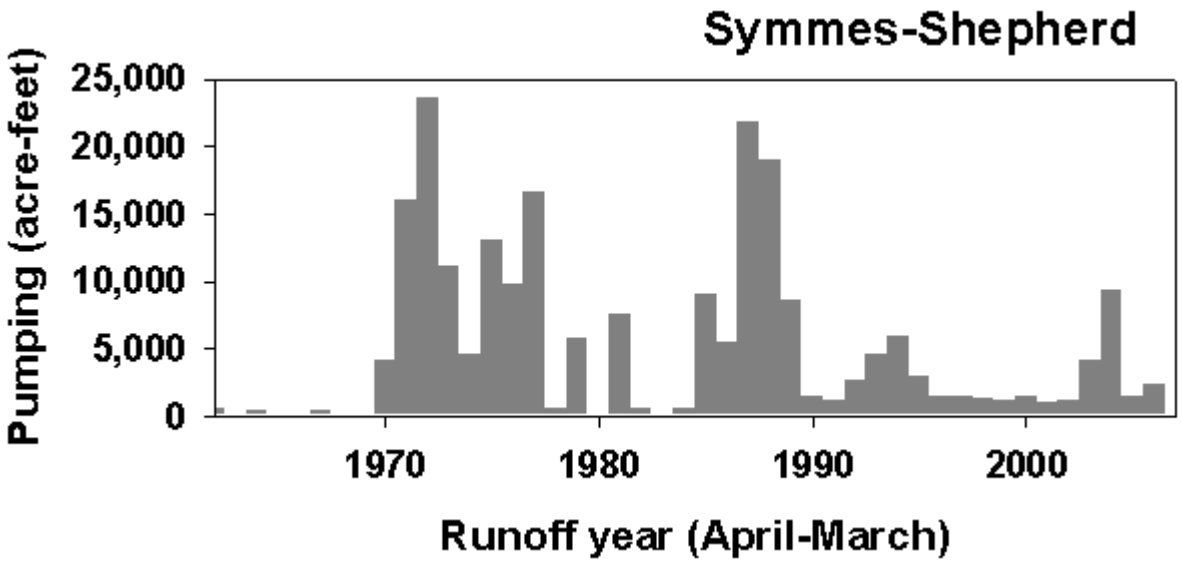

Bishop
20,000
10,000
0
Pumping (acre-feet)
1970
1980
1990
2000
Runoff year (April-March)

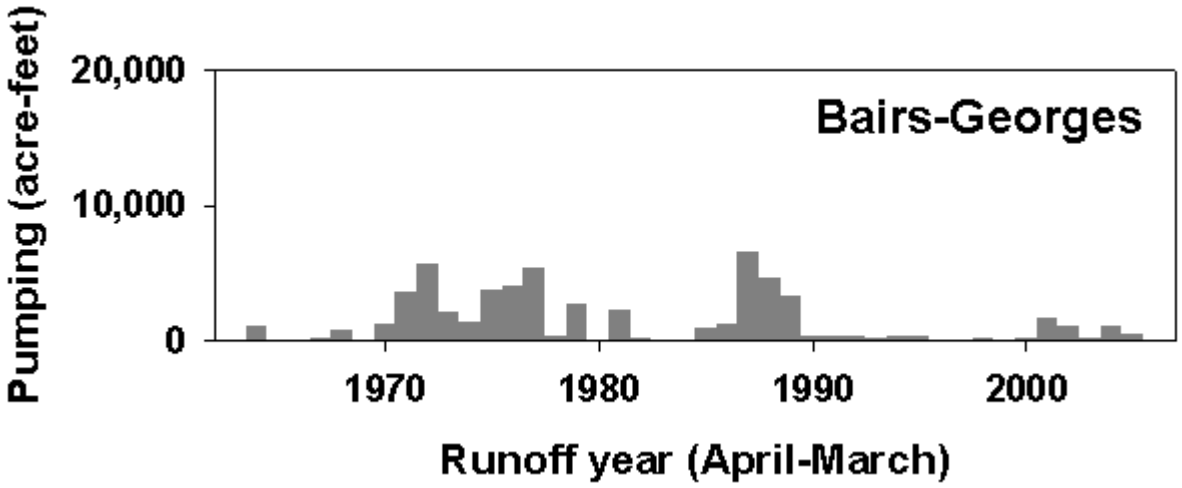

Big Pine
50,000
40,000
30,000
20,000
10,000
0
Pumping (acre-feet)
1970
1980
1990
2000
Runoff year (April-March)

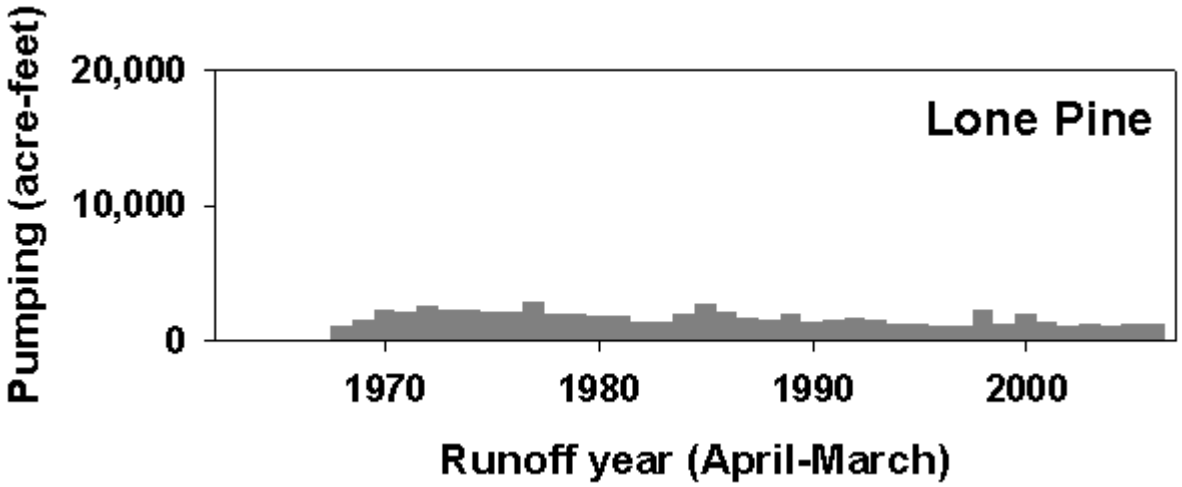

Taboose-Aberdeen
50,000
40,000
30,000
20,000
10,000
0
Pumping (acre-feet)
1970
1980
1990
2000
Runoff year (April-March)


Thibaut-Sawmill
Pumping (acre-feet)
25,000
20,000
15,000
10,000
5,000
0
1970
1980
1990
2000
Runoff year (April-March)


Independence-Oak
Pumping (acre-feet)
25,000
20,000
15,000
10,000
5,000
0
1970
1980
1990
2000
Runoff year (April-March)


Symmes-Shepherd
Pumping (acre-feet)
25,000
20,000
15,000
10,000
5,000
0
1970
1980
1990
2000
Runoff year (April-March)


Pumping (acre-feet)
20,000
10,000
0
Bairs-Georges
1970
1980
1990
2000
Runoff year (April-March)


Pumping (acre-feet)
20,000
10,000
0
Lone Pine
1970
1980
1990
2000
Runoff year (April-March)

Saltcedar Update

The 2006-2007 Salt Cedar Crew

The highlight of this year's saltcedar cutting season was witnessing water flowing down a Lower Owens River channel that was once obscured by twenty-foot tall saltcedar. As one of the first steps taken in the restoration of the Lower Owens River, a saltcedar tree fell to the ground back in 1998. Since then many thousands have followed resulting in 62 miles of river channel cleared of this non-native shrub. The removal of invasive vegetation does not end with the cutting, however. Continued vigilance and monitoring are required to head off resprouts and reinvasion of the cleared channel.

In the beginning of the season last fall, we focused on clearing saltcedar from LADWP lands on the delta of Owens Lake. During the remainder of the season we worked in tributaries and areas adjacent to the river channel including Billy Lake, Locust Gate, George Creek, and the Alabama Gates area. More of these non-riparian upland saltcedar populations remain to be cleared in the future. Along with appropriate flow management mimicking natural seasonal cycles, the continuing removal of these regional saltcedar seed sources will enhance the reestablishment of native Owens River vegetation.

Along with thousands of cut saltcedar trees come miles of saltcedar slash. Most of the slash was outside of the rewatered channel but much of it needed to be stacked for burning that is being done in conjunction with LADWP and the California Department of Forestry. We assisted with this task last winter and I can vouch for the fact that it takes a dedicated crew to wade in the Owens River in January.

An ongoing responsibility of the Saltcedar Program is to secure funding to keep the project going. With matching funds still available from LADWP, we are working once again with the California Wildlife Conservation Board to continue funding saltcedar control in the Owens Valley. This work would expand the areas already cleared with WCB funds and further protect these lands from reinfestation with saltcedar from surrounding valley sites.

Another technique that would help reduce saltcedar seed sources is biocontrol, or insects that eat or weaken saltcedar. Ongoing biocontrol work at the Owens Valley site may eventually lead to finding the right insect for the job of reducing only the

saltcedar while allowing native vegetation to replace it over a period of time. Successful insect releases in Nevada, Colorado, and Utah are beginning to demonstrate that biocontrol may be another viable tool in long-term saltcedar control.

With the Lower Owens River now flowing down a saltcedar-free channel, one might think that the Saltcedar Crew might be looking for a new job. But the tenacity and persistence of saltcedar is such that turning your back on a cleared area is not an option. Monitoring and continual follow-up treatments are a reality when dealing with invasive species in managed environments. Hopefully by utilizing management tools such as biocontrol, regular monitoring, and the maintenance of healthy native plant communities, the Saltcedar Crew will some day be able to fulfill its ultimate destiny: to no longer exist.

Status of Mitigation Measures

The presentation of the 1991 EIR mitigation measures is provided in two tables. The first table is a list of mitigation measures that the Water Department believes are not being properly implemented. The Water Department recommends the Technical Group address the concerns regarding each of these projects. The second table contains a description of the 2006 status of all the projects contained in the EIR mitigation measures.

Changes made to project description, project management, or both without Standing Committee approval and in compliance with CEQA.

- E/M projects that also serve as mitigation in the EIR cannot be modified or terminated without full compliance with CEQA and specified actions of the Standing Committee as provided in the Section 7.2 of the EIR.

McNally ponds and native pasture E/M

- The project description provides for an annual water supply to the ponds, 60 acres, and three pastures (300 acres). LADWP describes that Inyo and LA agreed to reduce the water supply in 1991; however, the water reduction agreement was for the 1991 runoff year. LADWP states in their annual report, "since that time, water has been provided to McNally Ponds only in years when water is diverted from the Owens River to the McNally Canals." Further, the 100-acre pasture east of the ponds is poorly vegetated. This may be a result of decreased water supply and the difficulties of spreading water over natural topography. However, it is not clear how much water this project receives. The pastures SE of the Laws museum, consisting of 200 acres total, are well irrigated.

300 acres at Five Bridges

- LADWP has carried out activities at Five Bridges that differ from the adopted Mitigation Plan. The Water Department has requested the Technical Group revise the mitigation plan but no progress has been made.

140 acres near Laws

- The mitigation plan is not being implemented as required in the Mitigation Plan. The Water Department has requested the Plan be revised because the Technical Group chose this site for implementing a 10-acre study plot in 2001 in lieu of initiating the planting of container plants. In addition, the size and configuration of the site has changed due to the Laws reirrigation project.

20 acres east of Big Pine E/M

- The MOU required that a plan and schedule be developed in 1998. The 1991 EIR described the mitigation project as a cultivated crop supplied with pumped or surface water. However, LADWP's annual report (May 2007) describes the project as allowing the site to revegetate naturally. The CEQA and Standing Committee procedures described under McNally ponds and pasture project would also apply to this project.

Klondike Lake E/M

- Management actions to Lyman Ditch may be adversely affecting the native pastures that are protected according to the project description.

Tule Elk Field

- Water deliveries to this wildlife enhancement project were reduced beginning in 2002. The reduction has potentially reduced vegetation cover in the field and on adjacent meadows as indicated by satellite imagery.

Independence Pasturelands E/M

- The acreage of this project has decreased from 610 acres in the project description to 470 acres. LADWP reported in their annual report that the reduction is due to "lease boundaries, vegetation, and other surface features." Accordingly, the water supplies were revised by LADWP from 1,825 acre-feet/yr to 1,493 acre-feet/yr. Procedures to make this change are described in the EIR.

Potential Expansion of Shepherd Creek Alfalfa E/M

- A mitigation or monitoring plan for this mitigation measure has not been developed by the Technical Group. LADWP conducted vegetation transects and concluded that vegetation cover has increased from baseline and thus the mitigation measure is not necessary.

Richards Field E/M and Lone Pine Woodlot E/M

- During the non-irrigation season, water normally flows to the project after flowing through Lone Pine Riparian Park. LADWP informed the Water Dept. that water will no longer be delivered to the project during the non-irrigation season.

Calvert Slough

- This project provides water to maintain a pond and marsh area. LADWP reported that low flows in the creek do not allow supplying the project because of high ditch losses and the "off" status of the two wells upstream of the project. No water has been supplied to this project for seven years.

Mitigation not implemented

640 acres near Laws

- The Standing Committee has not evaluated the need for mitigating this potential site. Further, the expansion of the gravel plant to the west now includes 174 acres of this potential mitigation site.

Potential impacts to groundwater levels, flowing wells, and groundwater dependent vegetation due to increased pumping on the Bishop Cone

- The EIR anticipated increased pumping from the Bishop Cone, and recent data show pumping has increased. The Water Department sent LADWP a proposal for evaluating the need for additional monitoring and management of wells on the Bishop Cone to LADWP in April and June 2004. LADWP has not commented on the evaluation but recently, March 2007, requested a meeting to address Bishop Cone pumping.

Big Pine NE regreening E/M

- The MOU required that a mitigation plan and implementation schedule be developed in 1998. LADWP's annual report (May 2007) describes project implementation and filing of CEQA to be completed in 2007. The Technical Group has not agreed on a plan although the Water Department sent comments on a plan in June 2005.

40 acres within Independence Springfield E/M

- The MOU required a plan and schedule to be completed in 1998. LADWP reported implementation will begin in 2007; however, the Technical Group has not reviewed or approved a mitigation plan.

Monitoring of seeps and springs

- The Technical Group is not monitoring springs and seeps. Ecosystem Sciences has completed a draft inventory of springs and seeps. The inventory should provide baseline data that could be used in future monitoring.

Reinhackle Spring

- The Technical Group has not developed a plan for monitoring the flows and spring dependent vegetation.

Implementation of mitigation plan behind schedule

Laws 140

- The Technical Group agreement to implement a 10-acre study in 2001 instead of planting container plants as required in the Mitigation Plan and the change of the project size and configuration require a revision of the Mitigation Plan. The Water Department has requested plan revisions.

120 acres near Bishop

- The Technical Group has not developed and implemented test plots although the Mitigation Plan provided for test plots in 2004 if the area did not demonstrate vegetation recovery. A comparison of cover between 2003 and 1999 baseline cover showed little to no change.

Big Pine 160 acres

- The Technical Group did not implement test plots scheduled for 2001 in the Mitigation Plan. In addition, the Mitigation Plan required that revegetation efforts would be expanded in 2006.

Independence 123 (only a portion of the 60 acres in the SS wellfield)

- The Technical Group did not implement test plots scheduled for 2002 in the Mitigation Plan. However, data collected by LADWP indicate vegetation cover may be reaching the plan goals.

Implementation of mitigation measure is difficult, thus, options for managing the project should be evaluated.

Van Norman Field E/M

- A portion of the project is not capable of being flood irrigated due to site topography.

Mitigation Status

Mitigation	2006 Status
Laws/Poleta Native Pasture E/M (220 acres)	This project consists of two pastures. One pasture is adjacent to and east of Hwy. 6 (160 acres). In the past, only the eastern half of this pasture has been effectively irrigated. The other pasture, SE of Laws (60 acres), has also had poor plant cover. Grasses were mainly limited to ditches, and weeds were prevalent. Management of the lease for these pastures changed recently, thus a site visit will be conducted in 2006 to assess plant cover. LADWP did not separate the water use for this project from the McNally pasture projects for 2006 runoff year, therefore combined water use reported for the Laws/Poleta native pastures and the McNally pastures was 1,241 acre-feet in the 2006 runoff year.
McNally Ponds and Native Pasture E/M (348 acres)	This project consists of ponds, a 100 acre native pasture east of the ponds, and two pastures (100 acres each) SE of the Laws museum. Ponds west of Hwy 6 received 1,487 acre-feet of water in runoff year 2006. LADWP has reported that management of this project includes supplying water to the ponds only when water is diverted from the Owens River to the McNally Canals. This management change has not been discussed with or approved by the Standing Committee. The 100-acre pasture had poor cover at the time of a field visit in 2004. Pastures on the east side of the river are completed and provide good grass cover. LADWP reported in 2005 that the water supply to this project and the Laws/Poleta project cannot be separated.
640 acres near Laws	The Standing Committee has not evaluated the need for mitigation of this area. Further, the expansion of the Desert Aggregates gravel mine operation includes 174 acres in the western part of this potential site.
300 acres Five Bridges area	In progress. Portions of the mitigation plan are being implemented; however, management changes have been made to some provisions without Technical Group approval. Providing a regular supply of surface water to the site has increased cover in some areas. The area north of the river appears to have declined in cover and requires attention. This area was not addressed in the mitigation plan. In 2006, high river flows flooded the area. LADWP reports two permanent transects have attained perennial cover of 68% and 93% in 2006. However, the revegetation plan goals did not base mitigation attainment on the two permanent transects. Vegetation cover goals should be demonstrated over the larger area. Methods and analysis for measuring goal attainment should be developed and agreed to by the Technical Group.
Farmers Pond	Implemented and ongoing. Water supply for runoff year 2005 was 485 acre-feet.
140 acres near Laws	The Technical Group implemented a 10 acre study plot in 2001 in lieu of planting container plants as required in the Mitigation Plan. Results of the study were provided in Nov. 2003. In 2005, LADWP reported they expanded and planted the drip irrigation study plot
Laws Museum Pastures E/M (21 & 15 acres)	Implemented. LADWP completed a sprinkler irrigation system in 2006. In 2006, the project received 121 acre-feet of water.
Laws area	The County and LADWP are currently revising groundwater management procedures contained in the Long-Term Water Agreement. Monitoring of select vegetation parcels is ongoing.
Bishop Cone	Not implemented. Inyo County provided an outline to LADWP April 2004 for evaluating the potential impacts of increased groundwater extraction on the Bishop Cone. LADWP has not commented on the outline but recently (3/20/07) requested a meeting to conduct a hydrological evaluation of the Bishop Cone.
Millpond Recreation Area E/M	Implemented and ongoing.

Buckley Ponds	Implemented and ongoing, although an operations plan needs to be developed.
120 acres near Bishop	Behind schedule. Fencing has been installed. Monitoring results between 1999 and 2003 showed little to no increase in perennial vegetation. The Mitigation Plan provided for the implementation of test plots if vegetation did not naturally increase. Therefore, the Technical Group should have developed test plots in 2004 to develop effective revegetation methods. Instead, LADWP utilized their contractor, MWH, to conduct revegetation studies in 2002. In 2004, LADWP reported, "a drip irrigation system is being designed for this site" and that implementation of revegetation will commence one year after the projects at Big Pine 160 and Independence 123 are fully implemented and operating properly." No schedule or plan has been provided to the Technical Group.
Saunders Pond	Implemented and ongoing, although an operations plan needs to be developed. This project does not have a management plan nor is it clear whether LADWP considers this project a mitigation measure.
Klondike Lake E/M	Providing water to the lake is ongoing; however, several management issues need to be addressed. The Technical Group began test water releases to the South Shore Habitat Area in 2005. LADWP installed a water delivery system and measuring device for the habitat area. Because of the low gradient, it may not be possible to provide the allotted 200 acre-feet of water to the habitat area in the short and long term. The build up of vegetation from flooding has begun to raise the gradient. However, the lake's water allotment (1,700 acre-feet) is not fully supplied every year and it is not clear whether the water supply or lake elevation correlates with the ability to provide water to the habitat area. There is no provision to report whether the agreed to lake level is being maintained. The Water Department recommends that a reporting procedure to be developed by the Technical Group. In addition, ICWD is concerned that LADWP's rechannelization of Lyman Ditch in 2004 may adversely affect the project's native pastures adjacent to the ditch. Water supply in the 2006 runoff year as reported by LADWP was 314 acre-feet. LADWP reports this low supply was due to higher than normal water spreading that brought up the lake elevation without requiring diversions into Lyman Ditch.
Big Pine Northeast Regreening E/M (30 acres)	Not implemented. CEQA requirements have not been completed although LADWP reports that an archaeological survey has been conducted. LADWP's annual report (May 2007) states CEQA filing and work will begin in 2007 although the Technical Group has not approved a mitigation plan for the site. ICWD revisions to LADWP's plan were sent 6/22/05.
Big Pine Ditch System	Implementation in progress. Construction for the ditch system is nearly complete. LADWP and Inyo are working on an evaluation to increase pumping from a new town supply well, W415. Potential impacts from pumping water above that necessary for the town water supply will be evaluated by the Technical Group. A new well in Bell Canyon was described as a potential future water source for the ditch system. LADWP reports 276 acre-feet of water were used for the ditch system in 2006.
20 acres near Big Pine E/M	Not implemented, behind schedule and plans described by LADWP do not comply with the EIR. The Technical Group has not agreed on a plan or schedule as required by the EIR. Further, the MOU required plans be completed in 1998. LADWP did not construct the fence slated for last runoff year although it is planned for this runoff year. LADWP describes, "If this area does not revegetate naturally, it will be included with LADWP's ongoing revegetation efforts." No schedule or plan has been provided to the Technical Group.
160 acres near Big Pine	Behind schedule. The site has been fenced. Perennial native vegetation cover in 1991 was 2.3% and 3.1% in 2006. The Mitigation Plan scheduled revegetation test plots in 2001 and expansion of planting in 2006. Instead, LADWP's contractor implemented a revegetation study in 2002. LADWP reports that results of revegetation studies will be used to implement larger scale revegetation efforts but no schedule has been provided to the Technical Group.

Steward Ranch	Mitigation agreement is in place.
Big Pine general	The County and LADWP are currently revising groundwater management procedures contained in the Long-Term Water Agreement. Monitoring of select vegetation parcels is ongoing.
Fish Springs	Hatchery is in place and implementation of the LORP has been initiated. Hatchery water use for runoff year 2006 was 20,199 acre-feet.
Tule Elk Field	Ongoing, although recent changes in management may be in violation of the Long-Term Water Agreement and 1991 EIR because LADWP has decreased the water supply to this project. The reduction in water supply has reduced vegetation cover in the field and adjacent meadows as indicated by satellite imagery.
Big and Little Seeley	Ongoing, although an operations plan is needed. For example, there are no clear project goals or guidelines regarding operations and management.
Calvert Slough	LADWP supplied water to Calvert Slough in 2004 after seven years not providing water. It is not known whether water was supplied in 2005 and 2006 or if a water supply is planned for 2007. This project does not have a management plan nor is it clear whether LADWP considers this project a mitigation measure.
Hines Spring	In process. A final mitigation plan was developed by consultants and received May 2006; however, project implementation is delayed by the formation of an ad hoc group. The group is developing a plan for the spring. No schedule for completion has been presented.
80 acres (Taboose/Hines Spring area).	In progress. The entire impact area consists of 3 sites that total approx. 115 acres. Implementation at one site (Hines Spring South) has been delayed because it is dependent on plans for mitigating Hines Spring. This area is approx. 100 acres. Tin 54 is 0.3 acres. Vegetation cover has decreased 0.9% between 1999 and 2004. Perennial native vegetation cover was measured as 3.3% in 2004 far below the site goal of 33% cover. Activities at the site include planting 108 alkali sacaton plants in 1999 and installing a drip irrigation system. Irrigation was reduced in 2004 and irrigation supply in 2006 and 2007 are unknown. Monitoring data demonstrate high survival of planted grasses. Because cover decreased from baseline and is below the site goal, transects will be run again in 2007. Blk 16E is 7.2 acres. Transects run in 2005 resulted in higher perennial native vegetation, 8.4%, compared to 1999, 5.4%; however, shrubs are now the dominant species. The goal was to recover the site to an alkali meadow with 34% cover. Therefore, the Water Department recommends the Technical Group discuss options for shrub control and increasing grass cover.
Little Blackrock Spring	Implemented and ongoing, although an operations plan is needed. LADWP reports the water supply ditch, the Goodale Bypass Ditch, normally runs all year at less than 1 cfs, providing approx. 700 acre-feet a year.
Big Blackrock Springs	The fish hatchery and the LORP serve as compensatory mitigation. The hatchery is in place and implementation of the LORP has been initiated. Hatchery water use was 11,590 acre-feet in 2006.
Thibaut/Sawmill marsh habitat	The LORP serves as compensatory mitigation and is in the process of implementation.
Independence Pasturelands E/M (610 acres)	The acreage of this project was changed from 610 to 470 acres without discussion or approval from the Standing Committee. Accordingly, LADWP decreased the water allotment from 1,825 acre-feet/year to 1,493 acre-feet/year. DWP reports water use in runoff year 2006 was 2,672 acre-feet. Site topography prevents flood irrigation from reaching some portions of the project.
Billy Lake	Implemented and ongoing, although an operations plan needs to be developed.
Independence East Side Regreening E/M (30 acres)	Not implemented. LADWP completed CEQA and obtained approval from their Board in May 2005. However, the County requested the location for the new project well be changed so that it can also be used as a town water supply. The County has assumed responsibility for filing the necessary CEQA documents. The Technical Group has not

	approved a mitigation plan. Comments on a draft mitigation plan were sent to LADWP on 6/22/06. In their annual report, LADWP stated that the irrigation system will be implemented on 2/3 of the area to accommodate a potential sports complex in the future as requested by Inyo County.
Independence Woodlot E/M (21 acres)	Implemented and ongoing. IMACA has been managing the project since 1997. An operations plan is needed based on management guidelines agreed to by Inyo Co. and LADWP. LADWP reports that water supply during runoff year 2006 was 212 acre-feet.
Independence Springfield E/M (283 acres)	Implemented and ongoing. As noted below, approx. 40 acres were identified as still requiring mitigation. Water supply during runoff year 2006 was 1,758 acre-feet.
Additional 40 acres w/in springfield	Not implemented. The MOU required a plan and schedule by 1998; however these requirements were not met. LADWP reported implementation will begin in 2007; however, the Technical Group has not reviewed or approved a mitigation plan.
60 acres in S/S well field	One of the three sites that comprise this mitigation measure are behind schedule. The 3 sites total 115.2 acres. Ind 123 (28.4 acres) did not have test plots implemented in 2002 as scheduled in the Mitigation Plan. Perennial vegetation cover measured by LADWP in 2006 was 16.4% compared to 4.8% in 2001. The mitigation goal is 17%. Ind 105 (13.6 acres) perennial vegetation cover data increased from 1999, 8.1%, to 2006, 25.2% meeting both the mitigation cover and composition goals. Ind 131 (73.2 acres) had a Technical Group approved study implemented in Dec. 2001 and a final report was received in March 2004. LADWP's contractor, MWH, conducted additional test plots in 2002. Perennial native cover in 2001 was 3.7% and 8.2% in 2006. The perennial cover goal is 17%. The mitigation plan schedule provides that a site plan will be developed in 2007 and implemented in 2008.
Shepherd Creek Alfalfa Field E/M (200 acres)	Implemented and ongoing. LADWP reports that water supply for runoff year 2006 was 1,162 acre-feet.
Expand Shepherd Creek Alfalfa E/M (60 acres)	In August 2004, LADWP reported that data from transects run in the potential mitigation area showed an increase in vegetation cover from 18%, baseline, to 44% and thus no expansion of the Shepherd Creek E/M Project was necessary. The Technical Group has not discussed or approved this determination.
Reinhackle Spring	Not implemented. The Technical Group has not developed a plan for monitoring the flows and spring dependent vegetation.
Lone Pine Ponds	Implemented and ongoing. This project is included as part of the off-river lakes and ponds in the LORP.
Lone Pine East Side Regreening E/M (11 acres)	Implemented and ongoing. LADWP reported a combined water supply of 107 acre-feet for the Lone Pine 'East' and 'West' regreening projects for runoff year 2006.
Lone Pine West Side Regreening E/M (7 acres)	Implemented and ongoing. LADWP reported a combined water supply of 107 acre-feet for the Lone Pine 'East' and 'West regreening projects for runoff year 2006.
Lone Pine Woodlot E/M (12 acres)	Implemented and ongoing; however, management may have been modified without Standing Committee approval. LADWP informed the Water Dept. in August 2004 that the project would no longer receive water during the non-irrigation season as practiced in the past. The project is currently managed by IMACA; however, an operation plan is needed based on management guidelines agreed to by Inyo and LADWP. LADWP reports water use was 120 acre-feet for runoff year 2006.
Richards Field E/M (189 acres)	Implemented and ongoing; however, management may have been modified without Standing Committee approval. LADWP informed the Water Dept. in August 2004 that the project would no longer receive water during the non-irrigation season as practiced in the past. Water to this project is not measured separately from the park supply. LADWP reports 2006 runoff year water use was 900 acre-feet for Lone Pine Riparian Park and this field.
Van Norman Field E/M	Implemented and ongoing. A portion of the project is not capable of being irrigated due

(160 acres)	to the topography. Inyo recommends an evaluation of this portion of the project. LADWP reports water use was 512 acre-feet in runoff year 2006.
Diaz Lake	Ongoing, however, an operation plan needs to be developed. This project does not have a management plan nor is it clear whether LADWP considers this project a mitigation measure.
Lower Owens Rewatering Project E/M	Project water supply was reduced by the governing boards of Inyo and Los Angeles in 1991 due to drought conditions. LADWP reports the water supply in runoff year 2006 was 5,803 acre-feet; however, it is not clear whether accounting for this project ended when water was released for the LORP in Dec 2006. The LORP will replace this E/M project.
Lower Owens River Project	CEQA documentation was completed in Dec. 2005. Water was released at the intake for the project in Dec. 2006. Activities to complete implementation are in progress.
Meadow/riparian vegetation dependent on agricultural tailwater	The LORP serves as compensatory mitigation. See LORP status above.
Salt Cedar Control Program	Ongoing, program funded by LADWP and implemented by Inyo. Approx. 62 mi. of the Owens River floodplain south of the aqueduct intake to the delta has been cleared of saltcedar, thus the program has expanded efforts outside the river floodplain. The program also monitors and maintains cleared areas. Continuation of the salt cedar control program is dependent upon obtaining funding beyond that provided by LADWP.
Irrigated fields, including Cartago and Olancha	Ongoing. Irrigated lands are not directly monitored; instead, lessees are relied upon to indicate if there are changes in irrigation water supply.
Springs/Seeps	The Technical Group does not have a plan for monitoring flow or vegetation at springs and seeps. Ecosystem Sciences completed a draft inventory of springs and seeps. The MOU described that the inventory would provide baseline data adequate for monitoring change to species and/or their habitats. ICWD provided extensive comments on the adequacy of the draft to Ecosystem Sciences. No revisions to the inventory were ever made.