Fact Sheets Supporting
"Do Not Delist" Recommendations

September 2005

Region 5

Water Segment:	American River, Lower (Nimbus Dam to confluence with Sacramento River)
Pollutant:	Mercury
Decision:	Do Not Delist
Weight of Evidence:	This pollutant is being considered for removal from the section 303(d) list under section 4.4 of the Listing Policy. Under section 4.4 two lines of evidence are necessary to assess listing status. Two lines of evidence are available in the administrative record to assess this pollutant. Based on section 4.4, a health advisory has been issued by OEHHA for this water. Tissue samples from multiple species were collected, were considered representative and determined to exceed OEHHA criteria. Based on the readily available data and information, the weight of evidence indicates that there is sufficient justification against removing this water segment-pollutant combination from the section 303(d) list. This conclusion is based on the staff findings that: 1. The data used satisfies the data quality requirements of section 6.1.4 of the Policy. 2. The data used satisfies the data quantity requirements of section 6.1.5 of the Policy. 3. A health advisory is available and fish in the water exceed OEHHA guidelines. The samples had sufficient sample size (more than 9 fish per species) of legal/edible size fish to be considered representative of mercury levels in those species, thereby allowing adequate estimation of the health risks associated with their consumption. 4. Pursuant to section 4.11 of the Listing Policy, no additional data and information are available indicating that standards are met.
SWRCB Staff Recommendation:	After review of the available data and information, SWRCB staff concludes that the water body-pollutant combination should not be removed from on the section 303(d) list because applicable water quality standards are exceeded and a pollutant contributes to or causes the problem.
Lines of Evidence:	

Numeric Line of Evidence	Health Advisories
Beneficial Use:	CM - Commercial and Sport Fishing (CA)
Matrix:	Tissue
Water Quality Objective/ Water Quality Criterion:	Fish consumption health advisory issued by OEHHA in September 2004.

Evaluation Guideline:	OEHHA guidance tissue levels for mercury (Brodberg & Pollock, 1999).
Data Used to Assess Water Quality:	USGS and UCD collected a total of 11 fish species by electrofishing equipment or gill nets in August 2000, from September to October 2002, and in July 2003, at several sites in Lake Natoma, including the vicinity of Negro Bar and Mississippi Bar, the mouths of Willow Creek and Alder Creek, Natomas Slough, and near Nimbus Dam (Saiki et al., 2004; Alpers et al., 2004; Klasing, S. and R. Brodberg, 2004). Species collected included largemouth bass, smallmouth bass, spotted bass, channel catfish, white catfish, brown bullhead, black bullhead, redear sunfish, green sunfish, bluegill, and rainbow trout. Fish were measured and weighed; boneless and skinless individual fillets were submitted to University of California - Davis (the August 2000, and July 2003, samples) or the USGS Columbia Environmental Research Center (CERC) in Columbia, Missouri (the September to October, 2002, samples) for total mercury analyses by atomic absorption spectrophotometry using either a Perkin Elmer Flow Injection Mercury System or a Milestone DMA-80 analyzer. Under TSMP, the California Department of Fish and Game (CDFG) collected largemouth bass (n= 15 in three composites), pike minnow (n= 16 in three composites), and sucker samples (n = 35 in nine composites) by electrofishing equipment or gill nets in 1979-1983, 1987, and 1990-1993 near the Highway 160 and Watt Avenue bridges on the lower American River. Fish were measured and weighed and made into composites using skinoff muscle fillet. Composite samples were homogenized at the CDFG Water Pollution Control Laboratory and analyzed for total mercury by cold vapor atomic absorption spectrophotometry (TSMP, 2002). For the Sacramento River Watershed Program, largemouth bass (n = 26 in seven composites), striped bass (n = 1), pike minnow (n = 25 in five composites), sucker (n = 35 in seven composites), white catfish (n = 9 in two composites), and redear sunfish (n = 10 in two composites) were collected by electroshock, nets, or hook and line from 1997 to 2002 at known fishing locations on the lower American River from Sunrise Avenue to Discovery Park. Fish were measured and weighed and made into composites using skin-off muscle fillet. Composite samples were homogenized at Moss Landing Marine Laboratory and analyzed for total mercury using a Perkin Elmer Flow Injection Mercury System.
Spatial Representation:	Sample locations included Lake Natoma at Willow Creek, Mississippi Bar, Nimbus Dam, Alder Creek, Natomas Slough and Negro Bar; on the American River samples were taken at Discovery Park, d/s Watt Ave. bridge, and at Sunrise.
Temporal Representation:	Collection dates for USGS and UCD sampling data from Lake Natoma ranged from Aug. 2000, Sept. and Oct. 2002, and July 2003. SRWP data was collected in 1997, 1998, 1999, 2000, and 2001. Additionally, composite fish samples were collected as part of TSMP and SRWP, periodically from 1978 until 2002, from sections of the lower American River. Only mercury data were considered for this advisory.
Environmental Conditions:	Of the samples collected at Lake Natoma and the lower American River, largemouth bass (n = 64), bluegill (n = 78), pike minnow (n = 41), sucker (n = 70), channel catfish (n =11), white catfish (n = 10) and redear sunfish (n = 20) had sufficient sample size (≥ 9 fish per species) of legal/edible size fish to be considered representative of mercury levels in those species, thereby allowing adequate estimation of the health risks associated with their consumption.

Line of Evidence	Pollutant-Tissue

Beneficial Use	CM - Commercial and Sport Fishing (CA)
Information Used to Assess Water Quality:	Supporting documentation - Fish consumption study documenting overlaps of fishing intensities with mercury concentrations in fish. Concentrations >0.3 ppm have been measured in largemouth bass, Smallmouth and white bass, Sacramento pike minnow, Suckers sampled from the following American River.

Region 5

Water Segment:	Arcade Creek
Pollutant:	Chlorpyrifos
Decision:	Do Not Delist
Weight of Evidence:	This pollutant is being considered for removal from the section 303(d) list under section 4.1 of the Listing Policy. Under section 4.1 a single line of evidence is necessary to assess delisting status. One line of evidence is available in the administrative record to assess this pollutant. Ten samples exceed the water quality objective. Based on the readily available data and information, the weight of evidence indicates that there is sufficient justification against removing this water segment-pollutant combination from the section 303(d) list. This conclusion is based on the staff findings that: 1. The data used satisfies the data quality requirements of section 6.1.4 of the Policy. 2. The data used satisfies the data quantity requirements of section 6.1.5 of the Policy. 3. Two of 10 samples exceeded the CDFG 4-day average (14 ng/L) and this exceeds the allowable frequency listed in Table 4.1 of the Listing Policy. At least 28 samples are needed before a pollutant can be considered for removal from the list using the frequencies presented in Table 4.1 of the Listing Policy.
SWRCB Staff Recommendation:	After review of the available data and information, SWRCB staff concludes that the water body-pollutant combination should not be removed from on the section 303(d) list because it cannot be determined if applicable water quality standards are met.
Lines of Evidence:	

Numeric Line of Evidence	Pollutant-Water
Beneficial Use:	CO - Cold Freshwater Habitat, WA - Warm Freshwater Habitat
Matrix:	Water
Water Quality Objective/ Water Quality Criterion:	The narrative pesticide objectives state, in part: - No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses, - Discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses, - Pesticide concentrations shall not exceed those allowable by applicable antidegradation policies, and - Pesticide concentrations shall not exceed the lowest levels technically and economically achievable. The Basin Plans narrative water quality objective for toxicity states that, ...all waters shall be maintained free of toxic substances in concentrations that

	produce detrimental physiological responses in human, plant, animal, or aquatic life.
Evaluation Guideline:	CDFG Hazard Assessment Criteria - 14 ng/L 4-day average.
Data Used to Assess Water Quality:	Chlorpyrifos was detected 40 percent of the time at levels above the CDFG aquatic life water quality criterion for chlorpyrifos - 0.020 ug/L (Spector et al., 2004). Ten samples were collected in 2003 in Arcade Creek at Watt Ave.; two exceeded the CDFG 4-day average.
Spatial Representation:	The Arcade Creek surface water-sampling site (C1) is located at Watt Avenue, near the USGS Arcade Creek near Del Paso Heights flow gage. Rainwater samples were collected at Arcade Creek at Greenback Lane. Samples were collected beneath the water surface as near as possible to the center of the stream when water levels were low or when access was only possible from the bank. Otherwise, three to four grab samples were collected as one integrated grab sample.
Temporal Representation:	Storm events were sampled during the orchard dormant spray season months of January and February 2001 and 2002, and January through April 2003, to determine pesticide concentrations in rain and creeks during and after the orchard dormant spray season.
Environmental Conditions:	Typical dry weather flows in Arcade Creek are less than 1 cubic foot per second (cfs), but, during rainfall events, storm runoff into Arcade Creek can create flows of over 2,200 cfs, as measured at the USGS gage station located at Watt Avenue.
Data Quality Assessment:	San Joaquin River TMDL Quality Assurance Project Plan.

Region 5

Water Segment:	Arcade Creek
Pollutant:	Diazinon
Decision:	Do Not Delist
Weight of Evidence:	This pollutant is being considered for removal from the section 303(d) list under sections 4.6 and 4.10 of the Listing Policy. Under section 4.6 a single line of evidence is necessary to assess delisting status while under section 4.10, a minimum of two lines of evidence are needed to assess listing status. Three lines of evidence are available in the administrative record to assess this pollutant. Based on section 4.6, the site has significant pesticide toxicity and the pollutant concentration exceeds the pesticide water quality objective. Based on the readily available data and information, the weight of evidence indicates that there is sufficient justification against removing this water segment-pollutant combination from the section 303(d) list. This conclusion is based on the staff findings that: 1. The data used satisfies the data quality requirements of section 6.1.4 of the Policy. 2. The data used satisfies the data quantity requirements of section 6.1.5 of the Policy. 3. Three of 10 samples exceeded the CDFG 1 hour criteria. At least 28 samples are needed before a pollutant can be considered for removal from the list using the frequencies presented in Table 4.1 of the Listing Policy. 4. Pursuant to section 4.11 of the Listing Policy, no additional data and information are available indicating that standards are met.
SWRCB Staff Recommendation:	After review of the available data and information, SWRCB staff concludes that the water body-pollutant combination should not be removed from on the section 303(d) list because it cannot be determined if applicable water quality standards are exceeded.
Lines of Evidence:	

Numeric Line of Evidence	Pollutant-Water
Beneficial Use:	CO - Cold Freshwater Habitat, WA - Warm Freshwater Habitat
Matrix:	Water
Water Quality Objective/ Water Quality Criterion:	The narrative pesticide objectives state, in part: - No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses, - Discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses, - Pesticide concentrations shall not exceed those allowable by applicable antidegradation policies, and - Pesticide concentrations shall not exceed the lowest levels technically and

	economically achievable. The Basin Plans narrative water quality objective for toxicity states that 'all waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life'.
Evaluation Guideline:	CDFG Hazard Assessment Criteria 0.16 ug/L 1-hour average.
Data Used to Assess Water Quality:	Ninety percent of the time during the 2001-2002 sampling period, diazinon concentrations at the Arcade Creek site were greater than the CDFG aquatic life water quality criterion for diazinon. In 2003, 10 samples were taken; 3 exceeded the CDFG criteria (Spector et al., 2004).
Spatial Representation:	The Arcade Creek surface water-sampling site (C1) is located at Watt Avenue, near the USGS Arcade Creek near Del Paso Heights flow gage. Rainwater samples were collected at Arcade Creek at Greenback Lane. Samples were collected beneath the water surface as near as possible to the center of the stream when water levels were low or when access was only possible from the bank. Otherwise, three to four grab samples were collected as one integrated grab sample.
Temporal Representation:	Storm events were sampled during the orchard dormant spray season months of January and February 2001 and 2002, and January through April 2003, to determine pesticide concentrations in rain and creeks during and after the orchard dormant spray season.
Environmental Conditions:	Typical dry weather flows in Arcade Creek are less than 1 cubic foot per second (cfs), but, during rainfall events, storm runoff into Arcade Creek can create flows of over 2,200 cfs, as measured at the USGS gage station located at Watt Avenue.
Data Quality Assessment:	San Joaquin River TMDL Quality Assurance Project Plan.

Numeric Line of Evidence	Pollutant-Water
Beneficial Use:	CO - Cold Freshwater Habitat, WA - Warm Freshwater Habitat
Matrix:	Water
Water Quality Objective/ Water Quality Criterion:	Pesticide concentrations shall not exceed those allowable by applicable antidegradation policies (see State Water Resources Control Board Resolution No. 68-16 and 40 C.F.R. Section 131.12). Pesticide concentrations shall not exceed the lowest levels technically and economically achievable. A trend in declining water quality has not been established per the Policy in section 3.1.10. No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. Discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses. Total identifiable persistent chlorinated hydrocarbon pesticides shall not be present in the water column at concentrations detectable within the accuracy of analytical methods approved by the Environmental Protection Agency or the executive Officer. Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of pesticides in excess of the Maximum Contaminant Levels set forth in California Code of Regulations, Title 22, Division 4, Chapter 15.

Evaluation Guideline:	Diazinon - CDFG Hazard Assessment Criteria - 0.10 ug/L 4-day average and 0.16 ug/L 1-hour average (Siepmann & Finlayson, 2002).
Data Used to Assess Water Quality:	Analysis methods used includes ELISA, GC, Gas or Liquid chromatograph in the EPA 8140 scan, EPA 8141A, GC/MS. All 22 samples at Del Paso Heights exceeded the CDFG 4-day average and 1-hour average. Out of 65 samples taken at Norwood Avenue, 46 exceeded the CDFG 1-hour average and 2 exceeded the 4 day average (USGS, 2005).
Spatial Representation:	Samples were taken at Arcade Creek at Norwood Ave and near Del Paso Heights.
Temporal Representation:	Samples for the Del Paso Heights were taken in 1996 (2x); 1997 (2/month for the year); and 1998 (1/month for the first 4 months). Samples at the Norwood Ave. site were taken in 1996 (2); 1997 (1/month 1-6); 1998-99 (1/month x 12); 2000 (2/12 months); 2001(7 samples) and 2002 (3 samples).
Data Quality Assessment:	Data from USGS reports are considered of adequate quality per section 6.1.4 of the Policy.

Region 5

Water Segment:	Bear River, Lower (below Camp Far West Reservoir)
Pollutant:	Diazinon
Decision:	Do Not Delist
Weight of Evidence:	This pollutant is being considered for removal from the section 303(d) list under section 4.1 of the Listing Policy. Under section 4.1 a single line of evidence is necessary to assess listing status. One line of evidence is available in the administrative record to assess this pollutant. Some of the data was questionable due to a possible bias (higher diazinon conc) from the ELISA method and as such could not be used in this assessment. Therefore, the data can not be used to make a delisting decision. Based on the readily available data and information, the weight of evidence indicates that there is insufficient justification in favor of removing this water segment-pollutant combination from the section 303(d) list. This conclusion is based on the staff findings that: 1. The data used does not satisfy the data quality requirements of section 6.1.4 of the Policy. 2. The data used satisfies the data quantity requirements of section 6.1.5 of the Policy. 3. Pursuant to section 4.11 of the Listing Policy, no additional data and information are available indicating that standards are met.
SWRCB Staff Recommendation:	After review of the available data and information, SWRCB staff concludes that the water body-pollutant combination should not be removed from the section 303(d) list because it cannot be determined if applicable water quality standards are attained.
Lines of Evidence:	

Line of Evidence	Pollutant-Water
Beneficial Use	CO - Cold Freshwater Habitat
Non-Numeric Objective:	No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. Discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses. Total identifiable persistent chlorinated hydrocarbon pesticides shall not be present in the water column at concentrations detectable within the accuracy of analytical methods approved by the Environmental Protection Agency or the executive Officer. Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of pesticides in excess of the Maximum Contaminant Levels set forth in California Code of Regulations, Title 22, Division 4, Chapter 15.
Evaluation Guideline:	CDFG Hazard Assessment Criteria - 0.10 ug/L 4-day average and 0.16 ug/L 1-hour average

Data Used to Assess Water Quality:	None of the concentrations from the 30 samples from this site exceeded the CDFG criteria but some of the data was questionable due to a possible bias (higher diazinon conc) from the ELISA method. Data was obtained from the U.S. Geological Survey Water-Resources Investigations Report 02-4101. Samples were analyzed using GC/ECD/TSD and ELISA.
Spatial Representation:	Samples were taken on the Bear River at Berry Road.
Temporal Representation:	Samples were collected in January/February 2000, 2001.

Region 5

Water Segment:	Bear River, Upper
Pollutant:	Mercury
Decision:	Do Not Delist
Weight of Evidence:	This pollutant is being considered for removal from the section 303(d) list under section 4.1 of the Listing Policy. Under sections 4.1 and 4.5 single lines of evidence are necessary to assess listing status. Three lines of evidence is available in the administrative record to assess this pollutant. For water, none of the samples exceed the water quality criterion or MCL. All samples exceed the guideline for tissue. Based on the readily available data and information, the weight of evidence indicates that there is insufficient justification in favor of removing this water segment-pollutant combination from the section 303(d) list. This conclusion is based on the staff findings that: 1. The data used satisfies the data quality requirements of section 6.1.4 of the Policy. 2. The data used satisfies the data quantity requirements of section 6.1.5 of the Policy. 3. For tissue, all the samples exceed the guideline. For water, none of 75 samples exceeded the USEPA CTR criterion. None of the 75 samples exceeded the Drinking Water MCL. 4. Pursuant to section 4.11 of the Listing Policy, no additional data and information are available indicating that standards are met.
SWRCB Staff Recommendation:	After review of the available data and information, SWRCB staff concludes that the water body-pollutant combination should not be removed from the section 303(d) list because applicable water quality standards are not attained.
Lines of Evidence:	

Numeric Line of Evidence	Pollutant-Tissue
Beneficial Use:	CO - Cold Freshwater Habitat, MU - Municipal & Domestic
Matrix:	Tissue
Water Quality Objective/ Water Quality Criterion:	All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.
Evaluation Guideline:	OEHHA guideline used (0.3 mg/kg) (Brodberg and Pollock, 1999).
Data Used to Assess Water Quality:	Three fish were collected. Tissue concentrations ranged from 0.38 to 0.40 ppm. All exceeded the objective (SWRCB, 2003).
Spatial Representation:	All the fish were collected at Dog Bar Road.
Temporal Representation:	All fish were collected on September 23, 1999.

Data Quality Assessment:	All samples were collected using USGS methods and quality control.

Numeric Line of Evidence	Pollutant-Water
Beneficial Use:	CO - Cold Freshwater Habitat, MU - Municipal & Domestic
Matrix:	Water
Water Quality Objective/ Water Quality Criterion:	Drinking Water MCL Title 22 Primary (0.002 mg/L).
Data Used to Assess Water Quality:	None of the 25 samples from Bear Creek exceeded the Drinking Water MCL value (USGS, 2005).
Spatial Representation:	Twenty-five samples were taken at each of the following locations on the Bear River: below Rollins Reservoir; below Wolf Creek; below Steep Hollow Creek.
Temporal Representation:	Samples were taken monthly beginning in August 2000 at Wolf Creek; in July 2001 below Rollins Reservoir and below Steep Hollow Creek and ending June 2003.
Data Quality Assessment:	Data from USGS reports are considered of adequate quality per section 6.1.4 of the Policy.

Numeric Line of Evidence	Pollutant-Water
Beneficial Use:	CO - Cold Freshwater Habitat, MU - Municipal & Domestic
Matrix:	Water
Water Quality Objective/ Water Quality Criterion:	CTR value: 50 ng/L.
Data Used to Assess Water Quality:	None of the 25 samples exceeded the CTR acute and chronic values (USGS 2005).
Spatial Representation:	Twenty-five samples were taken at each of the following locations on the Bear River: below Rollins Reservoir; below Wolf Creek; below Steep Hollow Creek.
Temporal Representation:	Samples were taken monthly beginning in August 2000 at Wolf Creek; beginning in July 2001 below Rollins Reservoir and below Steep Hollow Creek and ending June 2003.
Data Quality Assessment:	Data from USGS reports are considered of adequate quality per section 6.1.4 of the Policy.

Region 5

Water Segment: Butte Slough

Pollutant: Diazinon

Decision: Do Not Delist

Weight of Evidence: This pollutant is being considered for removal from the section 303(d) list under section 4.1 of the Listing Policy. Under section 4.1 a single line of evidence is necessary to assess listing status.

One line of evidence is available in the administrative record to assess this pollutant. Several of the samples exceed the water quality objective but some of the data was questionable due to a possible bias (higher diazinon conc) from the ELISA method and as such could not be used in this assessment. Out of 91 samples, 15 were considered to be "questionable". Of the 15 "questionable" samples, none were in exceedance and these were not used when assessing this water body for this pollutant.

Based on the readily available data and information, the weight of evidence indicates that there is insufficient justification in favor of removing this water segment-pollutant combination from the section 303(d) list.

This conclusion is based on the staff findings that:
1. The data used satisfies the data quality requirements of section 6.1.4 of the Policy.
2. The data used satisfies the data quantity requirements of section 6.1.5 of the Policy.
3. Twenty of the 76 samples exceeded the CDFG Hazard Assessment Criteria, and this exceeds the allowable frequency presented in Table 4.1 of the Listing Policy. Additionally, when the chronic criteria could be applied, 4 out of 12 data set averages (4-day) exceeded the chronic criteria.
4. Pursuant to section 4.11 of the Listing Policy, no additional data and information are available indicating that standards are met.

SWRCB Staff Recommendation: After review of the available data and information, SWRCB staff concludes that the water body-pollutant combination should not be removed from on the section 303(d) list because applicable water quality standards are exceeded and a pollutant contributes to or causes the problem.

Lines of Evidence:

Line of Evidence Pollutant-Water

Beneficial Use CO - Cold Freshwater Habitat, MI - Fish Migration, R1 - Water Contact Recreation, SP - Fish Spawning, WA - Warm Freshwater Habitat, WI - Wildlife Habitat

Non-Numeric Objective: No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. Discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses. Total identifiable persistent chlorinated hydrocarbon pesticides shall not be present in the water column at concentrations detectable within the

	accuracy of analytical methods approved by the Environmental Protection Agency or the executive Officer. Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of pesticides in excess of the Maximum Contaminant Levels set forth in California Code of Regulations, Title 22, Division 4, Chapter 15.
Evaluation Guideline:	CDFG Hazard Assessment Criteria - 0.16 ug/L 1-hour average (acute), 0.10 ug/L 4-day average (chronic) (Siepmann & Finlayson, 2002).
Data Used to Assess Water Quality:	There were 91 samples taken, 20 were in exceedance. All 20 exceedances were from the 1994 data. Some of the more recent data was "questionable" due to a possible bias (higher diazinon conc) from the ELISA method and as such could not be used in this assessment. When the chronic criteria could be applied, 4 out of 12 data set averages (4-day) exceeded the chronic criteria (Dileanis, 2002, Dileanis, 2002a, Dileanis, 2003b, Holmes et al., 2000).
Spatial Representation:	Samples were taken in Butte Slough at Lower Pass Road, Pass Road and Mawson Bridge near Colusa.
Temporal Representation:	Samples were collected in 1994 and from 2000 to 2002 (There were no samples taken between 1994 and 2000).

Region 5

Water Segment:	Colusa Basin Drain
Pollutant:	Diazinon
Decision:	Do Not Delist
Weight of Evidence:	This pollutant is being considered for removal from the section 303(d) list under sections 4.1 of the Listing Policy. Under section 4.1 a single line of evidence is necessary to assess delisting status. Three lines of evidence are available in the administrative record to assess this pollutant. Samples taken as late as February 2004 exceeded the CDFG criteria. Based on the readily available data and information, the weight of evidence indicates that there is sufficient justification against removing this water segment-pollutant combination from the section 303(d) list in the Water Quality Limited Segments category. This conclusion is based on the staff findings that: 1. The CDFG criterion used complies with the requirements of section 6.1.3 of the Policy. 2. The data used satisfies the data quality requirements of section 6.1.4 of the Policy. 3. The data used satisfies the data quantity requirements of section 6.1.5 of the Policy. 4. Thirteen of 129 samples exceeded the CDFG criterion, and these exceed the allowable frequency listed in Table 4.1 of the Listing Policy. Additionally, when the chronic criteria could be applied, 2 out of 9 data set averages (4-day) exceeded the chronic criteria. 5. Pursuant to section 4.11 of the Listing Policy, no additional data and information are available indicating that standards are met.
SWRCB Staff Recommendation:	After review of the available data and information, SWRCB staff concludes that the water body-pollutant combination should not be removed from on the section 303(d) list because applicable water quality standards are exceeded and a pollutant contributes to or causes the problem.
Lines of Evidence:	

Numeric Line of Evidence	Pollutant-Water
Beneficial Use:	CO - Cold Freshwater Habitat, WA - Warm Freshwater Habitat
Matrix:	Water
Water Quality Objective/ Water Quality Criterion:	No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. Discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses. Total identifiable persistent chlorinated hydrocarbon pesticides shall not be present in the water column at concentrations detectable within the accuracy of analytical methods approved by the Environmental Protection Agency or the executive Officer. Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of pesticides in excess of the Maximum Contaminant Levels set forth in California Code of Regulations, Title 22, Division 4, Chapter 15.
Evaluation Guideline:	CDFG Hazard Assessment Criterion - 0.16 ug/L 1-hour average (acute), 0.10 ug/L 4-day average (chronic) (Siepmann & Finlayson, 2002).
Data Used to Assess Water Quality:	Two of 14 samples exceeded the CDFG acute criteria. None of 8 samples exceeded the chronic criteria (Calanchini et al., 2004).
Spatial Representation:	Samples taken at Colusa Basin Drain near Knight's Landing.
Temporal Representation:	Two storm events were sampled for the 2004 TMDL project in the Sacramento River Basin. The first storm event (Storm 1) was the period 28 January to 6 February 2004. The second storm event (Storm 2) was the period 15-23 February, 2004. For storm 1 sampling was conducted from 28 January to 3 February at most sites, and as late as 6 February at the Tower Bridge at Sacramento site. For storm 2 the sampling period began on 16 February and extended until 22 February.
Data Quality Assessment:	Data from CDFA laboratories are considered of adequate quality.

Line of Evidence	Pollutant-Water
Beneficial Use	CO - Cold Freshwater Habitat, WA - Warm Freshwater Habitat
Non-Numeric Objective:	No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. Discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses. Total identifiable persistent chlorinated hydrocarbon pesticides shall not be present in the water column at concentrations detectable within the accuracy of analytical methods approved by the Environmental Protection Agency or the executive Officer. Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of pesticides in excess of the Maximum Contaminant Levels set forth in California Code of Regulations, Title 22, Division 4, Chapter 15.
Evaluation Guideline:	CDFG Hazard Assessment Criterion: 0.16 ug/L 1-hour average (acute), 0.10 ug/L 4-day average (Siepmann & Finlayson, 2002).
Data Used to Assess Water Quality:	Data analysis consisted of ELISA and GC/ECD/TSD. Nine samples were considered of "questionable" quality due to a possible bias (higher diazinon conc) from the ELISA method. Data from 1996-98 was from the NWIS Web data for the nation. Therefore, these samples were not included as part of this assessment. Of the remaining 115 samples, 11 exceeded the acute criteria. When the chronic criteria could be applied, 2 out of 9 data set averages (4-day)

	exceeded the chronic criteria (Dileanis et al., 2002).
Spatial Representation:	Samples taken at Colusa Basin Drain at Road 99E near Knights Landing and Clarks Ditch.
Temporal Representation:	Samples taken in 2000. Additional samples taken from 1996-1998. Samples from 1999-2003 resulted in non-detects based on EPA 8141A analysis methodology. Samples in 1994 taken in Feb. from Clarks Ditch, trib. to Colusa Basin Drain.

Region 5

Water Segment:	Elder Creek
Pollutant:	Chlorpyrifos
Decision:	Do Not Delist
Weight of Evidence:	This pollutant is being considered for removal from the section 303(d) list under section 4.1 of the Listing Policy. Under section 4.1 a single line of evidence is necessary to assess delisting status. One line of evidence is available in the administrative record to assess this pollutant. A number of samples exceed the water quality objective. Based on the readily available data and information, the weight of evidence indicates that there is sufficient justification against removing this water segment-pollutant combination from the section 303(d) list. This conclusion is based on the staff findings that: 1. The data used satisfies the data quality requirements of section 6.1.4 of the Policy. 2. The data used satisfies the data quantity requirements of section 6.1.5 of the Policy. 3.Five of 40 samples exceeded the CDFG criteria; all five samples taken in 2001 were non-detects; in 2003, 70 percent of the detections were above the CDFG criterion (14 ng/L) and this exceeds the allowable frequency listed in Table 4.1 of the Listing Policy. 4. Pursuant to section 4.11 of the Listing Policy, no additional data and information are available indicating that standards are met.
SWRCB Staff Recommendation:	After review of the available data and information, SWRCB staff concludes that the water body-pollutant combination should not be removed from on the section 303(d) list because applicable water quality standards are exceeded and a pollutant contributes to or causes the problem.

Lines of Evidence:

Numeric Line of Evidence	Pollutant-Water
Beneficial Use:	CO - Cold Freshwater Habitat, WA - Warm Freshwater Habitat
Matrix:	Water
Water Quality Objective/ Water Quality Criterion:	The narrative pesticide objectives state, in part: - No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses, - Discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses, - Pesticide concentrations shall not exceed those allowable by applicable antidegradation policies, and - Pesticide concentrations shall not exceed the lowest levels technically and economically achievable.

	The Basin Plans narrative water quality objective for toxicity states that all waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.
Evaluation Guideline:	CDFG Hazard Assessment Criteria - 14 ng/L 4-day average.
Data Used to Assess Water Quality:	In 2001 and 2003, Regional Board staff monitored the segment of Elder Creek that runs adjacent to a 250-acre commercial nursery to better characterize nursery contributions of pesticides to Elder Creek, a tributary of Morrison Creek. Five samples were taken in 2001; all were non-detects. In 2003, chlorpyrifos concentrations at the Elder Creek downstream monitoring site (downstream of a 250-acre commercial nursery) were the highest overall, with 70 percent of the chlorpyrifos detections above the CDFG aquatic life water quality criterion for chlorpyrifos (0.020 ug/L). From mid-March to mid-April 2003, chlorpyrifos concentrations in samples collected from the downstream Elder Creek monitoring site were consistently high (ranging from 0.035 ug/L to 0.320 ug/L) while samples collected from the upstream Elder Creek monitoring site had non-detectable chlorpyrifos concentrations 80 percent of the time. 20 samples were taken at two locations; 5 samples at the Bradshaw Road site exceeded the CDFG criteria (Spector et al., 2004).
Spatial Representation:	Samples were collected beneath the water surface as near as possible to the center of the stream when water levels were low or when access was only possible from the bank. Otherwise, three to four grab samples were collected as one integrated grab sample. Elder Creek was monitored by Regional Board staff at two locations in 2003 - upstream and downstream of Village Nursery at Excelsior Road and Bradshaw Road. In 2001, Regional Board staff monitored Elder Creek at three sites, Elder Creek Road, Elk Grove-Florin Road, and Franklin Boulevard.
Temporal Representation:	Storm events were sampled during the orchard dormant spray season months of January and February 2001 and 2002, and January through April 2003, to determine pesticide concentrations in rain and creeks during and after the orchard dormant spray season.
Data Quality Assessment:	During each monitoring season, additional samples were collected for quality assurance/quality control (QA/QC) purposes. Four types of quality assurance samples were collected to confirm the integrity of analytical results reported in this three-year monitoring study. The QA/QC samples included sample duplicates, equipment blanks, matrix spikes, and matrix spike duplicates. The procedures used for collecting the QA/QC samples are based on the San Joaquin River TMDL Quality Assurance Project Plan. During this 2001-2003 study, approximately 15-25 percent of the samples collected were either equipment blanks, sample duplicates, or matrix spikes and matrix spike duplicates.

Region 5

Water Segment: Elder Creek

Pollutant: Diazinon

Decision: Do Not Delist

Weight of Evidence: This pollutant is being considered for removal from the section 303(d) list under section 4.1 of the Listing Policy. Under section 4.1 a single line of evidence is necessary to assess delisting status.

One line of evidence is available in the administrative record to assess this pollutant. A large number of samples exceed the water quality objective.

Based on the readily available data and information, the weight of evidence indicates that there is sufficient justification against removing this water segment-pollutant combination from the section 303(d) list.

This conclusion is based on the staff findings that:
1. The data used satisfies the data quality requirements of section 6.1.4 of the Policy.
2. The data used satisfies the data quantity requirements of section 6.1.5 of the Policy.
3. One of 25 samples exceeded the CDFG criteria but the number of samples is insufficient to determine with the confidence and power required by the Listing Policy.
4. Pursuant to section 4.11 of the Listing Policy, no additional data and information are available indicating that standards are met.

SWRCB Staff Recommendation: After review of the available data and information, SWRCB staff concludes that the water body-pollutant combination should not be removed from the section 303(d) list because it cannot be determined if applicable water quality standards are attained.

Lines of Evidence:

Numeric Line of Evidence Pollutant-Water

Beneficial Use: CO - Cold Freshwater Habitat, WA - Warm Freshwater Habitat

Matrix: Water

Water Quality Objective/ Water Quality Criterion: The narrative pesticide objectives state, in part:
- No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses,
- Discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses,
- Pesticide concentrations shall not exceed those allowable by applicable antidegradation policies, and
- Pesticide concentrations shall not exceed the lowest levels technically and economically achievable.

The Basin Plans narrative water quality objective for toxicity states that all

	waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.
Evaluation Guideline:	CDFG Hazard Assessment Criteria 0.16 ug/L 1-hour average.
Data Used to Assess Water Quality:	In 2001 and 2003, Regional Board staff monitored the segment of Elder Creek that runs adjacent to a 250-acre commercial nursery to better characterize nursery contributions of pesticides to Elder Creek, a tributary of Morrison Creek. Diazinon concentrations were low to non-detectable at the upstream and downstream Elder Creek monitoring sites. Five samples were taken in 2001at three locations; one of the samples taken at Franklin Blvd. exceeded the CDFG criteria. In 2003, 20 samples were taken at two locations; none of the samples exceeded the CDFG criteria (Spector et al., 2004).
Spatial Representation:	Samples were collected beneath the water surface as near as possible to the center of the stream when water levels were low or when access was only possible from the bank. Otherwise, three to four grab samples were collected as one integrated grab sample. Elder Creek was monitored by Regional Board staff at two locations in 2003 - upstream and downstream of Village Nursery at Excelsior Road and Bradshaw Road. In 2001, Regional Board staff monitored Elder Creek at three sites, Elder Creek Road, Elk Grove-Florin Road, and Franklin Boulevard.
Temporal Representation:	Storm events were sampled during the orchard dormant spray season months of January and February 2001 and 2002, and January through April 2003, to determine pesticide concentrations in rain and creeks during and after the orchard dormant spray season.
Data Quality Assessment:	During each monitoring season, additional samples were collected for quality assurance/quality control (QA/QC) purposes. Four types of quality assurance samples were collected to confirm the integrity of analytical results reported in this three-year monitoring study. The QA/QC samples included sample duplicates, equipment blanks, matrix spikes, and matrix spike duplicates. The procedures used for collecting the QA/QC samples are based on the San Joaquin River TMDL Quality Assurance Project Plan. During this 2001-2003 study, approximately 15-25 percent of the samples collected were either equipment blanks, sample duplicates, or matrix spikes and matrix spike duplicates.

Region 5

Water Segment:	Elk Grove Creek
Pollutant:	Diazinon
Decision:	Do Not Delist
Weight of Evidence:	This pollutant is being considered for removal from the section 303(d) list under section 4.1 of the Listing Policy. Under section 4.1 a single line of evidence is necessary to assess listing status. One line of evidence is available in the administrative record to assess this pollutant. Two of the samples exceed the water quality objective but the number of samples is insufficient to determine with the confidence and power required by the Listing Policy. Based on the readily available data and information, the weight of evidence indicates that there is insufficient justification in favor of removing this water segment-pollutant combination from the section 303(d) list. This conclusion is based on the staff findings that: 1. The data used satisfies the data quality requirements of section 6.1.4 of the Policy. 2. The data used satisfies the data quantity requirements of section 6.1.5 of the Policy. 3. Four of the 6 samples exceeded the CDFG criterion. At least 28 samples are needed before a pollutant can be considered for removal from the list using the frequencies presented in Table 4.1 of the Listing Policy, but with 4 exceedances you would need a minimum of 48 samples in order to delist. 4. Pursuant to section 4.11 of the Listing Policy, no additional data and information are available indicating that standards are met.
SWRCB Staff Recommendation:	After review of the available data and information, SWRCB staff concludes that the water body-pollutant combination should not be removed from on the section 303(d) list because applicable water quality standards are exceeded and a pollutant contributes to or causes the problem.

Lines of Evidence:

Numeric Line of Evidence	Pollutant-Water
Beneficial Use:	CO - Cold Freshwater Habitat, WA - Warm Freshwater Habitat
Matrix:	Water
Water Quality Objective/ Water Quality Criterion:	The narrative pesticide objectives state, in part: - No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses, - Discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses, - Pesticide concentrations shall not exceed those allowable by applicable antidegradation policies, and

	- Pesticide concentrations shall not exceed the lowest levels technically and economically achievable. The Basin Plans narrative water quality objective for toxicity states that all waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.
Evaluation Guideline:	CDFG Hazard Assessment Criteria 0.16 ug/L 1-hour average (Siepmann & Finlayson, 2002).
Data Used to Assess Water Quality:	Samples were collected beneath the water surface as near as possible to the center of the stream when water levels were low or when access was only possible from the bank. Otherwise, three to four grab samples were collected as one integrated grab sample. In 2001, 6 samples were taken at 3 sampling sites; 2 samples at Waterman Road were non-detects; the 2 samples taken at Emerald Vista Drive and Florin Creek at Franklin Blvd. exceeded the CDFG criteria (Spector et al., 2004).
Spatial Representation:	In 2001, Elk Grove Creek was monitored by the Regional Board at two sites - at Waterman Road and at Emerald Vista Drive.
Temporal Representation:	Storm events were sampled during the orchard dormant spray season months of January and February 2001 and 2002, and January through April 2003, to determine pesticide concentrations in rain and creeks during and after the orchard dormant spray season.
Data Quality Assessment:	San Joaquin River TMDL Quality Assurance Project Plan.

Region 5

Water Segment:	Harding Drain (Turlock Irrigation District Lateral #5)
Pollutant:	Ammonia
Decision:	Do Not Delist
Weight of Evidence:	The data and information in the administrative record does not support this change. A UAA has not been submitted to USEPA.
SWRCB Staff Recommendation:	After review of the available data and information, SWRCB staff concludes that the water body-pollutant combination should not be removed from on the section 303(d) list because applicable water quality standards are exceeded and a pollutant contributes to or causes the problem.

Lines of Evidence:

Line of Evidence	Testimonial Evidence
Beneficial Use	AG - Agricultural Supply
Data Used to Assess Water Quality:	Letter submitted on behalf of Turlock Irrigation District requesting Harding Drain to be delisted for ammonia due to a UAA that was completed.

Region 5

Water Segment:	Harding Drain (Turlock Irrigation District Lateral #5)
Pollutant:	Chlorpyrifos
Decision:	Do Not Delist
Weight of Evidence:	The data and information in the administrative record does not support this change. A UAA has not been submitted to USEPA.
SWRCB Staff Recommendation:	After review of the available data and information, SWRCB staff concludes that the water body-pollutant combination should not be removed from on the section 303(d) list because applicable water quality standards are exceeded and a pollutant contributes to or causes the problem.

Lines of Evidence:

Line of Evidence	Testimonial Evidence
Beneficial Use	AG - Agricultural Supply
Data Used to Assess Water Quality:	Letter submitted on behalf of Turlock Irrigation District requesting Harding Drain to be delisted for chlorpyrifos due to a UAA that was completed.

Region 5

Water Segment:	Harding Drain (Turlock Irrigation District Lateral #5)
Pollutant:	Diazinon
Decision:	Do Not Delist
Weight of Evidence:	The data and information in the administrative record does not support this change. A UAA has not been submitted to USEPA.
SWRCB Staff Recommendation:	After review of the available data and information, SWRCB staff concludes that the water body-pollutant combination should not be removed from on the section 303(d) list because applicable water quality standards are exceeded and a pollutant contributes to or causes the problem.

Lines of Evidence:

Line of Evidence	Testimonial Evidence
Beneficial Use	AG - Agricultural Supply
Data Used to Assess Water Quality:	Letter submitted on behalf of Turlock Irrigation District requesting Harding Drain to be delisted for diazinon due to a UAA that was completed.

Region 5

Water Segment:	Harding Drain (Turlock Irrigation District Lateral #5)
Pollutant:	Unknown Toxicity
Decision:	Do Not Delist
Weight of Evidence:	The data and information in the administrative record does not support this change. A UAA has not been approved by USEPA.
SWRCB Staff Recommendation:	After review of the available data and information, SWRCB staff concludes that the water body-pollutant combination should not be removed from on the section 303(d) list because applicable water quality standards are exceeded and a pollutant contributes to or causes the problem.

Lines of Evidence:

Line of Evidence	Testimonial Evidence
Beneficial Use	AG - Agricultural Supply
Data Used to Assess Water Quality:	Letter submitted on behalf of Turlock Irrigation District requesting Harding Drain to be delisted for unknown toxicity due to a UAA that was completed.

Region 5

Water Segment:	Jack Slough
Pollutant:	Diazinon
Decision:	Do Not Delist
Weight of Evidence:	This pollutant is being considered for removal from the section 303(d) list under section 4.1 of the Listing Policy. Under section 4.1 a single line of evidence is necessary to assess delisting status. One line of evidence is available in the administrative record to assess this pollutant. All samples exceed the water quality objective. Based on the readily available data and information, the weight of evidence indicates that there is sufficient justification against removing this water segment-pollutant combination from the section 303(d) list. This conclusion is based on the staff findings that: 1. The data used satisfies the data quality requirements of section 6.1.4 of the Policy. 2. The data used satisfies the data quantity requirements of section 6.1.5 of the Policy. 3. There were 24 out of 54 samples that exceeded the CDFG Hazard Assessment Criteria and this exceeds the allowable frequency listed in Table 4.1 of the Listing Policy. Additionally, when the chronic criteria could be applied, 6 out of 10 data set averages (4-day) exceeded the chronic criteria. 4. Pursuant to section 4.11 of the Listing Policy, no additional data and information are available indicating that standards are met.
SWRCB Staff Recommendation:	After review of the available data and information, SWRCB staff concludes that the water body-pollutant combination should not be removed from on the section 303(d) list because applicable water quality standards are exceeded and a pollutant contributes to or causes the problem.
Lines of Evidence:	

Line of Evidence	Pollutant-Water
Beneficial Use	AG - Agricultural Supply, WA - Warm Freshwater Habitat
Non-Numeric Objective:	No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. Discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses. Total identifiable persistent chlorinated hydrocarbon pesticides shall not be present in the water column at concentrations detectable within the accuracy of analytical methods approved by the Environmental Protection Agency or the executive Officer. Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of pesticides in excess of the Maximum Contaminant Levels set forth in California Code of Regulations, Title 22, Division 4, Chapter 15.

Evaluation Guideline:	CDFG Hazard Assessment Criteria 0.16 ug/L 1-hour average (acute), 0.10 ug/L 4-day average (chronic).
Data Used to Assess Water Quality:	There were 59 samples total taken. Of these, 16 were considered to be of "questionable" quality and were not used in this assessment. Of the remaining 43 samples, 20 exceeded the acute diazinon criteria (Dileanis et al., Dileanis, 2003b, Dileanis, 2003b, Holmes et al., 2000).
Spatial Representation:	Samples were collected in Marysville and at Doc Adams Road.
Temporal Representation:	Samples were taken late January/February during the years 1994, 2000, 2001 and 2002.

Region 5

Water Segment:	Orestimba Creek (above Kilburn Road)
Pollutant:	Chlorpyrifos
Decision:	Do Not Delist
Weight of Evidence:	This pollutant is being considered for removal from the section 303(d) list under section 4.1 of the Listing Policy. Under section 4.1 a single line of evidence is necessary to assess listing status. One line of evidence is available in the administrative record to assess this pollutant. One of the samples exceeded the pesticide water quality objective but the number of samples is insufficient to determine with the confidence and power required by the Listing Policy. Based on the readily available data and information, the weight of evidence indicates that there is insufficient justification in favor of removing this water segment-pollutant combination from the section 303(d) list. This conclusion is based on the staff findings that: 1. The data used satisfies the data quality requirements of section 6.1.4 of the Policy. 2. The data used satisfies the data quantity requirements of section 6.1.5 of the Policy. 3. One of 14 samples exceeded the CDFG Hazard Assessment Criteria. At least 28 samples are needed before a pollutant can be considered for removal from the list using the frequencies presented in Table 4.1 of the Listing Policy. 4. Pursuant to section 4.11 of the Listing Policy, no additional data and information are available indicating that standards are met.
SWRCB Staff Recommendation:	After review of the available data and information, SWRCB staff concludes that the water body-pollutant combination should not be removed from the section 303(d) list because it cannot be determined if applicable water quality standards are attained.
Lines of Evidence:	

Numeric Line of Evidence	Pollutant-Water
Beneficial Use:	AG - Agricultural Supply, CO - Cold Freshwater Habitat, MI - Fish Migration, R1 - Water Contact Recreation, R2 - Non-Contact Recreation, WA - Warm Freshwater Habitat, WI - Wildlife Habitat
Matrix:	Water
Water Quality Objective/ Water Quality Criterion:	Pesticide concentrations shall not exceed those allowable by applicable antidegradation policies (see State Water Resources Control Board Resolution No. 68-16 and 40 CFR section 131.12). No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. Discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect

	beneficial uses. Total identifiable persistent chlorinated hydrocarbon pesticides shall not be present in the water column at concentrations detectable within the accuracy of analytical methods approved by the Environmental Protection Agency or the executive Officer. Pesticide concentrations shall not exceed the lowest levels technically and economically achievable. Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of pesticides in excess of the Maximum Contaminant Levels set forth in California Code of Regulations, Title 22, Division 4, Chapter 15.
Evaluation Guideline:	CDFG Hazard Assessment Criteria - 14 ng/L 4-day average and 25 ng/L 1-hour average.
Data Used to Assess Water Quality:	Chlorpyrifos was detected at concentrations exceeding toxicity benchmarks. Chlorpyrifos was detected in one sample at 0.0705 µg/L, and found at trace concentrations in one additional sample. The detection exceeds both the acute and chronic CDFG WQC (Starner et al., 2003).
Spatial Representation:	Samples were taken on Orestimba Creek at River Road.
Temporal Representation:	Sampling began on July 2, 2002, and continued throughout the summer until September 30, 2002. Each site was sampled once per week.
Environmental Conditions:	At each sampling event, temperature, dissolved oxygen (DO), pH, and electrical conductivity (EC) were measured in situ at each sampling site. DO, EC and temperature were measured. The pH at Orestimba Creek ranged from 7.1 to 7.8. Measured water temperature ranged from 16 to 25.4 ºC. DO and EC had ranges of 6.21 to 8.28 mg/L and 641 to 887 µS/cm, respectively.
Data Quality Assessment:	Quality Control (QC) for the chemical analysis portion of this study was conducted in accordance with Standard Operating Procedure QAQC001.00 (Segawa, 1995).

Region 5

Water Segment:	Orestimba Creek (above Kilburn Road)
Pollutant:	Diazinon
Decision:	Do Not Delist
Weight of Evidence:	This pollutant is being considered for removal from the section 303(d) list under section 4.1 of the Listing Policy. Under section 4.1 a single line of evidence is necessary to assess listing status. One line of evidence is available in the administrative record to assess this pollutant. One of the samples exceeded the water quality objective but the number of samples is insufficient to determine with the confidence and power required by the Listing Policy. Based on the readily available data and information, the weight of evidence indicates that there is insufficient justification in favor of removing this water segment-pollutant combination from the section 303(d) list. This conclusion is based on the staff findings that: 1. The data used satisfies the data quality requirements of section 6.1.4 of the Policy. 2. The data used satisfies the data quantity requirements of section 6.1.5 of the Policy. 3. One of 14 samples exceeded the pesticide water quality objective. At least 28 samples are needed before a pollutant can be considered for removal from the list using the frequencies presented in Table 4.1 of the Listing Policy. 4. Pursuant to section 4.11 of the Listing Policy, no additional data and information are available indicating that standards are met.
SWRCB Staff Recommendation:	After review of the available data and information, SWRCB staff concludes that the water body-pollutant combination should not be removed from the section 303(d) list because it cannot be determined if applicable water quality standards are attained.
Lines of Evidence:	

Numeric Line of Evidence	Pollutant-Water
Beneficial Use:	AG - Agricultural Supply, CO - Cold Freshwater Habitat, MI - Fish Migration, R1 - Water Contact Recreation, R2 - Non-Contact Recreation, WA - Warm Freshwater Habitat, WI - Wildlife Habitat
Matrix:	Water
Water Quality Objective/ Water Quality Criterion:	Pesticide concentrations shall not exceed those allowable by applicable antidegradation policies (see State Water Resources Control Board Resolution No. 68-16 and 40 CFC section 131.12). No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. Discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect

	beneficial uses. Total identifiable persistent chlorinated hydrocarbon pesticides shall not be present in the water column at concentrations detectable within the accuracy of analytical methods approved by the Environmental Protection Agency or the executive Officer. Pesticide concentrations shall not exceed the lowest levels technically and economically achievable. Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of pesticides in excess of the Maximum Contaminant Levels set forth in California Code of Regulations, Title 22, Division 4, Chapter 15.
Evaluation Guideline:	CDFG Hazard Assessment Criteria - 0.10 ug/L 4-day average and 0.16 ug/L 1-hour average (Siepmann & Finlayson, 1999).
Data Used to Assess Water Quality:	Diazinon was detected at concentrations exceeding toxicity benchmarks. Of the 14 samples collected at Orestimba Creek, diazinon was detected three times (21% detection frequency), with concentrations of 0.043, 0.046, and 0.276 µg/L. The two lowest detected concentrations were below the CDFG chronic WQC of 0.10 µg/L. The 0.276 µg/L detection exceeded both the chronic and the acute WQC. The three samples with quantifiable diazinon detections were taken from consecutive sampling events at Orestimba Creek (8/5, 8/12 - 10 - and 8/19, 2002) (Starner et al., 2003).
Spatial Representation:	Samples were taken on Orestimba Creek at River Road.
Temporal Representation:	Sampling began on July 2, 2002, and continued throughout the summer until September 30, 2002. Each site was sampled once per week.
Environmental Conditions:	At each sampling event, temperature, dissolved oxygen (DO), pH, and electrical conductivity (EC) were measured in situ at each sampling site. DO, EC and temperature were measured. The pH at Orestimba Creek ranged from 7.1 to 7.8. Measured water temperature ranged from 16 to 25.4 ºC. DO and EC had ranges of 6.21 to 8.28 mg/L and 641 to 887 µS/cm, respectively.
Data Quality Assessment:	Quality Control (QC) for the chemical analysis portion of this study was conducted in accordance with Standard Operating Procedure QAQC001.00 (Segawa, 1995).

Region 5

Water Segment:	Sacramento Slough
Pollutant:	Diazinon
Decision:	Do Not Delist
Weight of Evidence:	This pollutant is being considered for removal from the section 303(d) list under section 4.1.of the Listing Policy. Under section 4.1 a single line of evidence is necessary to assess delisting status. Two lines of evidence are available in the administrative record to assess this pollutant. Many of the measurements exceeded the guideline. Based on the readily available data and information, the weight of evidence indicates that there is sufficient justification against removing this water segment-pollutant combination from the section 303(d) list in the Water Quality Limited Segments category. This conclusion is based on the staff findings that: 1. The CDFG criteria used complies with the requirements of section 6.1.3 of the Policy. 2. The data used satisfies the data quality requirements of section 6.1.4 of the Policy. 3. The data used satisfies the data quantity requirements of section 6.1.5 of the Policy. 4. Of the 163 samples taken, 37 exceeded the CDFG acute criteria and this exceeds the allowable frequency of the Listing Policy. 5. Pursuant to section 4.11 of the Listing Policy, no additional data and information are available indicating that standards are met.
SWRCB Staff Recommendation:	After review of the available data and information, SWRCB staff concludes that the water body-pollutant combination should not be removed from on the section 303(d) list because applicable water quality standards are exceeded and a pollutant contributes to or causes the problem.
Lines of Evidence:	

Numeric Line of Evidence	Pollutant-Water
Beneficial Use:	CO - Cold Freshwater Habitat
Matrix:	Water
Water Quality Objective/ Water Quality Criterion:	Pesticide concentrations shall not exceed those allowable by applicable antidegradation policies (see State Water Resources Control Board Resolution No. 68-16 and 40 CFR section 131.12). No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. Discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses. Total identifiable persistent chlorinated hydrocarbon pesticides

	shall not be present in the water column at concentrations detectable within the accuracy of analytical methods approved by the Environmental Protection Agency or the executive Officer. Pesticide concentrations shall not exceed the lowest levels technically and economically achievable. Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of pesticides in excess of the Maximum Contaminant Levels set forth in California Code of Regulations, Title 22, Division 4, Chapter 15.
Evaluation Guideline:	CDFG Hazard Assessment Criteria 0.16 ug/L 1-hour average (Siepmann & Finlayson, 2002).
Data Used to Assess Water Quality:	Twelve samples were taken; none exceeded the CDFG criteria (Spector et al., 2004).
Spatial Representation:	Seven sites were monitored in the Sacramento River Basin (samples here were recorded from Sacramento Slough). Isokinetic, depth integrated water samples were collected at 6-10 equally spaced points across the channel width with a USGS D-77 sampler using the equal-width-increment method (EWI). Samples were collected from a boat at Sacramento Slough.
Temporal Representation:	Sampling frequency for each storm event was one sample/day was taken for 7 days. Two storm events were sampled for the 2004 TMDL project in the Sacramento River Basin. The first storm event (Storm 1) was the period 28 January to 6 February 2004. The second storm event (Storm 2) was the period 15-23 February, 2004. For Storm 1 sampling was conducted from 28 January to 3 February at most sites, and as late as 6 February at the Tower Bridge at Sacramento site. For Storm 2 the sampling period began on 16 February and extended until 22 February.
Data Quality Assessment:	Sample quality control was measured through collection of sequential duplicates (n=8), blanks (n=5) and matrix spikes (n=5) (Table 3). The RPDs between environmental and duplicate sample concentrations of diazinon ranged from 0-40%.

Numeric Line of Evidence	Pollutant-Water
Beneficial Use:	CO - Cold Freshwater Habitat
Matrix:	Water
Water Quality Objective/ Water Quality Criterion:	No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. Discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses. Total identifiable persistent chlorinated hydrocarbon pesticides shall not be present in the water column at concentrations detectable within the accuracy of analytical methods approved by the Environmental Protection Agency or the executive Officer.
Evaluation Guideline:	CDFG Hazard Assessment Criteria 0.16 ug/L 1-hour average, 0.10 ug/L 4-day average (chronic) (Siepmann & Finlayson, 2002).
Data Used to Assess Water Quality:	There were a total of 151 samples collected. Of these samples, 37 exceeded the CDFG acute criteria. When the chronic criteria could be applied, 9 out of 15 data set averages (4-day) exceeded the criteria (Dileanis, 2003a), (Dileanis, 2003b), (Holmes et al., 2000), (Foe et al., 1998), (LWA, 2002b, Larsen et al., 1998, List et al., 2002).

Spatial Representation:	Samples were taken near Knights Landing, at Hwy 113, near Verona, at Karnak, and at sites identified as "Sac Slough".
Temporal Representation:	Samples were collected from 1994 thru 2003.

Region 5

Water Segment:	Salt Slough (upstream from confluence with San Joaquin River)
Pollutant:	Chlorpyrifos
Decision:	Do Not Delist
Weight of Evidence:	This pollutant is being considered for removal from the section 303(d) list under section 4.1 of the Listing Policy. Under section 4.1 a single line of evidence is necessary to assess listing status. One line of evidence is available in the administrative record to assess this pollutant. The second line of evidence is a Regional Board recommended map change approved by the SWRCB. One sample exceeds the water quality objective but the number of samples is insufficient to determine with the confidence and power required by the Listing Policy. Based on the readily available data and information, the weight of evidence indicates that there is insufficient justification in favor of removing this water segment-pollutant combination from the section 303(d) list. This conclusion is based on the staff findings that: 1. The data used satisfies the data quality requirements of section 6.1.4 of the Policy. 2. The data used satisfies the data quantity requirements of section 6.1.5 of the Policy. 3. One of 14 samples exceeded both the CDFG chronic and CDFG acute WQC. At least 28 samples are needed before a pollutant can be considered for removal from the list using the frequencies presented in Table 4.1 of the Listing Policy. 4. Pursuant to section 4.11 of the Listing Policy, no additional data and information are available indicating that standards are met.
SWRCB Staff Recommendation:	After review of the available data and information, SWRCB staff concludes that the water body-pollutant combination should not be removed from on the section 303(d) list because applicable water quality standards are exceeded and a pollutant contributes to or causes the problem. The map change is appropriate and should be made.
Lines of Evidence:	

Numeric Line of Evidence	Pollutant-Water
Beneficial Use:	AG - Agricultural Supply, R1 - Water Contact Recreation, R2 - Non-Contact Recreation, SP - Fish Spawning, WA - Warm Freshwater Habitat, WI - Wildlife Habitat
Matrix:	Water
Water Quality Objective/ Water Quality Criterion:	Pesticide concentrations shall not exceed those allowable by applicable antidegradation policies (see State Water Resources Control Board Resolution No. 68-16 and 40 CFR section 131.12).

	No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. Discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses. Total identifiable persistent chlorinated hydrocarbon pesticides shall not be present in the water column at concentrations detectable within the accuracy of analytical methods approved by the Environmental Protection Agency or the executive Officer. Pesticide concentrations shall not exceed the lowest levels technically and economically achievable. Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of pesticides in excess of the Maximum Contaminant Levels set forth in California Code of Regulations, Title 22, Division 4, Chapter 15.
Evaluation Guideline:	CDFG Hazard Assessment Criteria - 14 ng/L 4-day average and 25 ng/L 1-hour average.
Data Used to Assess Water Quality:	The single chlorpyrifos detection of 0.046 µg/L at Salt Slough exceeded both the CDFG chronic and CDFG acute WQC of 0.014 and 0.02 µg/L. Chlorpyrifos was also found at trace concentrations in two additional samples (Starner et al., 2003).
Spatial Representation:	Samples for Salt Slough were taken at Highway 165; there were 14 separate sampling events.
Temporal Representation:	Sampling began on July 2, 2002, and continued throughout the summer until September 30, 2002. Each site was sampled once per week.
Environmental Conditions:	At each sampling event, temperature, dissolved oxygen (DO), pH, and electrical conductivity (EC) were measured in situ at each sampling site. DO, EC and temperature were measured. The pH at Salt Slough ranged from 6.49 to 7.66. Measured water temperature ranged from 18.9 to 26.9 ºC. DO and EC had ranges of 5.14 to 7.37 mg/L and 877 to 1188 µS/cm, respectively.
Data Quality Assessment:	Quality Control (QC) for the chemical analysis portion of this study was conducted in accordance with Standard Operating Procedure QAQC001.00 (Segawa, 1995).

Line of Evidence	-N/A
Beneficial Use	WA - Warm Freshwater Habitat
Information Used to Assess Water Quality:	The total size and size affected were reassessed by SWRCB staff and RWQCB staff, subsequent to the RWQCB's first change recommendation. This water body has been remapped and the revised extent impacted is 17 miles. The new extent is calculated by the Geospatial Water Body System (GeoWBS), using staff's best estimate of the extent to which water quality standards are not met.

Region 5

Water Segment:	Salt Slough (upstream from confluence with San Joaquin River)
Pollutant:	Diazinon
Decision:	Do Not Delist
Weight of Evidence:	This pollutant is being considered for removal from the section 303(d) list under section 4.1 of the Listing Policy. Under section 4.1 a single line of evidence is necessary to assess listing status. One line of evidence is available in the administrative record to assess this pollutant. A second line of evidence represented mapping changes requested by the Regional Board and accepted by the SWRCB. None of the samples exceed the water quality objective but trace concentrations were present in two samples. The number of samples is insufficient to determine with the confidence and power required by the Listing Policy. Based on the readily available data and information, the weight of evidence indicates that there is insufficient justification in favor of removing this water segment-pollutant combination from the section 303(d) list. This conclusion is based on the staff findings that: 1. The data used satisfies the data quality requirements of section 6.1.4 of the Policy. 2. The data used satisfies the data quantity requirements of section 6.1.5 of the Policy. 3. None of the 14 samples exceeded the pesticide water quality objective. At least 28 samples are needed before a pollutant can be considered for removal from the list using the frequencies presented in Table 4.1 of the Listing Policy. 4. Pursuant to section 4.11 of the Listing Policy, no additional data and information are available indicating that standards are met.
SWRCB Staff Recommendation:	After review of the available data and information, SWRCB staff concludes that the water body-pollutant combination should not be removed from on the section 303(d) list because applicable water quality standards are exceeded and a pollutant contributes to or causes the problem.
Lines of Evidence:	

Numeric Line of Evidence	Pollutant-Water
Beneficial Use:	AG - Agricultural Supply, R1 - Water Contact Recreation, R2 - Non-Contact Recreation, SP - Fish Spawning, WA - Warm Freshwater Habitat, WI - Wildlife Habitat
Matrix:	Water
Water Quality Objective/ Water Quality Criterion:	Pesticide concentrations shall not exceed those allowable by applicable antidegradation policies (see State Water Resources Control Board Resolution No. 68-16 and 40 CFR section 131.12).

	No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. Discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses. Total identifiable persistent chlorinated hydrocarbon pesticides shall not be present in the water column at concentrations detectable within the accuracy of analytical methods approved by the Environmental Protection Agency or the executive Officer. Pesticide concentrations shall not exceed the lowest levels technically and economically achievable. Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of pesticides in excess of the Maximum Contaminant Levels set forth in California Code of Regulations, Title 22, Division 4, Chapter 15.
Evaluation Guideline:	CDFG Hazard Assessment Criteria - 0.10 ug/L 4-day average and 0.16 ug/L 1-hour average (Siepmann & Finlayson).
Data Used to Assess Water Quality:	Diazinon was not detected above the WQO at Salt Slough, but was present at trace concentrations in two samples (Starner et al., 2003).
Spatial Representation:	Samples for Salt Slough were taken at Highway 165; there were 14 separate sampling events.
Temporal Representation:	Sampling began on July 2, 2002, and continued throughout the summer until September 30, 2002. Each site was sampled once per week.
Environmental Conditions:	At each sampling event, temperature, dissolved oxygen (DO), pH, and electrical conductivity (EC) were measured in situ at each sampling site. DO, EC and temperature were measured. The pH at Salt Slough ranged from 6.49 to 7.66. Measured water temperature ranged from 18.9 to 26.9 ºC. DO and EC had ranges of 5.14 to 7.37 mg/L and 877 to 1188 µS/cm, respectively.
Data Quality Assessment:	Quality Control (QC) for the chemical analysis portion of this study was conducted in accordance with Standard Operating Procedure QAQC001.00 (Segawa, 1995).

Line of Evidence	-N/A
Beneficial Use	WA - Warm Freshwater Habitat
Information Used to Assess Water Quality:	The total size and size affected were reassessed by SWRCB staff and RWQCB staff, subsequent to the RWQCB's first change recommendation. This water body has been remapped and the revised extent impacted is 17 miles. The new extent is calculated by the Geospatial Water Body System (GeoWBS), using staff's best estimate of the extent to which water quality standards are not met.

Region 5

Water Segment:	San Joaquin River (Stanislaus River to Delta Boundary)
Pollutant:	DDT
Decision:	Do Not Delist
Weight of Evidence:	This pollutant is being considered for removal from the section 303(d) list under section 4.5 of the Listing Policy. One line of evidence is available in the administrative record to assess this pollutant. Based on the readily available data and information, the weight of evidence indicates that there is insufficient justification in favor of removing this water segment-pollutant combination from the section 303(d) list in the Water Quality Limited Segments category. This conclusion is based on the staff findings that: 1. The data used satisfies the data quality requirements of section 6.1.4 of the Policy. 2. The data used satisfies the data quantity requirements of section 6.1.5 of the Policy. 3. Two of the 3 samples exceeded the OEHHA Screening Value and this does not exceed the allowable frequency listed in Table 4.1 of the Listing Policy and there are not enough samples to support delisting. 4. Pursuant to section 4.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.
SWRCB Staff Recommendation:	After review of the available data and information, SWRCB staff concludes that the water body-pollutant combination should no be removed from the section 303(d) list because applicable water quality standards are exceeded.
Lines of Evidence:	

Numeric Line of Evidence	Pollutant-Tissue
Beneficial Use:	CM - Commercial and Sport Fishing (CA)
Matrix:	Tissue
Water Quality Objective/ Water Quality Criterion:	Central Valley RWQCB Basin Plan: All waters shall be maintained free of toxic substances in concentrations that are toxic to, or produce detrimental physiological responses in human, plant, animal, or aquatic life.
Evaluation Guideline:	100 ng/g - OEHHA Screening Value (Brodberg & Pollock, 1999).
Data Used to Assess Water Quality:	Two out of 3 samples exceeded. A total of 3 filet composite samples of 2 largemouth bass and one of white catfish were collected. Largemouth bass were collected in 1998 and 2000. White catfish were collected in 1998. The guideline was exceeded in the 2000 sample of largemouth bass and the 1998 white catfish sample (TSMP, 2002).
Spatial Representation:	One station along the San Joaquin River about 4 miles upstream from South County Park near San Joaquin City (Vernalis) was sampled.

Temporal Representation:	Samples were collected annually 1998 and 2000.
Data Quality Assessment:	Environmental Chemistry Quality Assurance and Data Report for the Toxic Substances Monitoring Program,1996-2000. Department of Fish and Game.

Region 5

Water Segment:	San Joaquin River (Stanislaus River to Delta Boundary)
Pollutant:	Toxaphene
Decision:	Do Not Delist
Weight of Evidence:	This pollutant is being considered for removal from the section 303(d) list under section 4.5 of the Listing Policy. One line of evidence is available in the administrative record to assess this pollutant. Based on the readily available data and information, the weight of evidence indicates that there is insufficient justification in favor of removing this water segment-pollutant combination from the section 303(d) list in the Water Quality Limited Segments category. Toxaphene is one chemical in the Group A pesticides. This conclusion is based on the staff findings that: 1. The data used satisfies the data quality requirements of section 6.1.4 of the Policy. 2. The data used satisfies the data quantity requirements of section 6.1.5 of the Policy. 3. Three of the 3 samples exceeded the OEHHA Screening Value and this does not exceed the allowable frequency listed in Table 4.1 of the Listing Policy and not enough samples are available to assess the data with the confidence and power required by the Listing Policy. 4. Pursuant to section 4.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.
SWRCB Staff Recommendation:	After review of the available data and information, SWRCB staff concludes that the water body-pollutant combination should not be removed from the section 303(d) list because applicable water quality standards are exceeded.
Lines of Evidence:	

Numeric Line of Evidence	Pollutant-Tissue
Beneficial Use:	CM - Commercial and Sport Fishing (CA)
Matrix:	Tissue
Water Quality Objective/ Water Quality Criterion:	Central Valley RWQCB Basin Plan: All waters shall be maintained free of toxic substances in concentrations that are toxic to, or produce detrimental physiological responses in human, plant, animal, or aquatic life.
Evaluation Guideline:	30 ng/g - OEHHA Screening Value (Brodberg & Pollock, 1999).
Data Used to Assess Water Quality:	Three out of 3 samples exceeded. A total of 3 filet composite samples were collected: 2 largemouth bass and one sample of white catfish. Largemouth bass were collected in 1998 and 2000. White catfish were collected in 1998. The guidance was exceeded in all three samples (TSMP, 2002).
Spatial Representation:	One stations along the San Joaquin River about 4 miles upstream from South County Park near San Joaquin City (Vernalis) was sampled.

Temporal Representation:	Samples were collected annually 1998 and 2000.
Data Quality Assessment:	Environmental Chemistry Quality Assurance and Data Report for the Toxic Substances Monitoring Program, 1996-2000. Department of Fish and Game.