Draft California 2012 Integrated Report(303(d) List/305(b) Report)

Supporting Information

Regional Board 6 - Lahontan Region

Water Body Name:	Silverwood Reservoir
Water Body ID:	**CAL628200002000022016391 8**
Water Body Type:	**Lake & Reservoir**
DECISION ID	**30570** **Region 6**
Silverwood Reservoir	
Pollutant:	**Mercury**
Final Listing Decision:	**List on 303(d) list (TMDL required list)**
Last Listing Cycle's Final Listing Decision:	New Decision
Revision Status	Revised
Sources:	Source Unknown
Expected TMDL Completion Date:	2025
Impairment from Pollutant or Pollution:	Pollutant
Regional Board Staff Conclusion:	This pollutant is being considered for placement on the section 303(d) list under section 3.1 of the Listing Policy. Under section 3.1 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 sample exceeds the water quality objective. This line of evidence is from data collected as part of the SWAMP Bioaccumulation Oversight Group study. The information in this study prompted an additional study, specific to Silverwood Lake in 2011. The information in the subsequent study provided the information to submit to the Office of Environmental Health Hazard Assessment to issue a fish consumption advisory in August of 2013 for Silverwood Lake based on elevated levels of mercury and PCBs. Based on the readily available data and information, the weight of evidence indicates that there is sufficient justification in favor of placing this water segment-pollutant combination on the section 303(d) list in the Water Quality Limited Segments category. With OEHHA releasing a fish consumption advisory, listing is based on Secion 3.4 of the Listing Policy. This conclusion is based on the following: 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 is one exceedance of one sample associated with LOE 45699 and additional data used to support the health advisory, and this exceeds the allowable frequency listed in Table 3.1 of the Listing Policy. 4. The Office of Environmental Health Hazard Assessment (OEHHA) has issued a health advisory and guidelines for eating fish from Silverwood Lake due to high levels of mercury and PCBs. Refer to fish tissue info and resources for the Lahontan Region at: http://www.waterboards.ca.gov/lahontan/water_issues/programs/swamp/index.shtml for a summary of the advisory and the background information (including associated sample results) and a description of how the guidelines were developed. Pursuant to section 3.4 of the Listing Policy, "a water segment shall be placed on the section 303(d) list if a health advisory against the consumption of edible resident

	organisms, has been issued by OEHHA or DHS."
Regional Board Staff Decision Recommendation:	After review of the available data and information, RWQCB staff concludes that the water body-pollutant combination should be placed on the section 303(d) list because applicable water quality standards are exceeded and a pollutant contributes to or causes the problem. OEHHA has issued a fish consumption advisory (in press) due to high levels of mercury and PCBs measured in Silverwood Lake. Pursuant to section 3.4 of the Listing Policy, "a water segment shall be placed on the section 303(d) list if a health advisory against the consumption of edible resident organisms, has been issued by OEHHA or DHS."

Line of Evidence (LOE) for Decision ID 30570, Mercury Silverwood Reservoir	**Region 6**
LOE ID:	45699
Pollutant:	Mercury
LOE Subgroup:	Pollutant-Tissue
Matrix:	Tissue
Fraction:	Fish fillet
Beneficial Use:	Commercial or recreational collection of fish, shellfish, or organisms
Number of Samples:	1
Number of Exceedances:	1
Data and Information Type:	Fish tissue analysis
Data Used to Assess Water Quality:	Water Board staff assessed SWAMP data for Silverwood Lake to determine beneficial use support and results are as follows: 1 of 1 samples exceed the criterion for Mercury. Eleven composites (1 fish per composite) were generated from one species (largemouth bass) and were averaged. One composite sample could not be used in the assessment due to a total fish length that did not fall within lengths noted in the guideline. Details of the compositing protocol can be found in the March 2009 report entitled: "Contaminants in Fish from California Lakes and Reservoirs: Technical Report on Year One of a Two-Year Screening Study" (SWAMP, 2009).
Data Reference:	Contaminants in Fish from California Lakes and Reservoirs: Technical Report on Year One of a Two-Year Screening Survey. A Report of the Surface Water Ambient Monitoring Program (SWAMP). California State Water Resources Control Board, Sacramento, CA Cruise Report for the Surface Waters Ambient Monitoring Program (SWAMP) Bioaccumulation Screening Study in California Lakes and Reservoirs, Sampling Dates: June 2007- March 2008 Statewide Lakes Sportfish Contamination Study 2007 2008 Contaminants in Fish from California Lakes and Reservoirs, 2007-2008: Summary Report on a Two-Year Screening Survey
SWAMP Data:	SWAMP
Water Quality Objective/Criterion:	Water Quality Control Plan, Lahontan Region: All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life.
Objective/Criterion Reference:	Water Quality Control Plan for the Lahontan Region (as amended)
Evaluation Guideline:	The USEPA 304(a) recommended water quality criterion for concentrations of methylmercury in fish tissue of trophic level 4 fish (150 - 500 mm; fillet wet weight) is 0.20 mg/kg. Total mercury is usually analyzed for most fish studies and assumed to be 100 percent methylmercury for the purposes of risk assessment (Klasing & Brodberg 2008).
Guideline Reference:	Water Quality Criterion for the Protection of Human Health: Methylmercury. Final. United States Environmental Protection Agency Office of Science and Technology Office of Water. EPA-823-R-01-001. January 2001
Spatial Representation:	Data for this line of evidence for Silverwood Lake was collected at 1 monitoring site [Silverwood Lake - 628PSW035]. Samples were collected

	from 1 location. Individual sample locations consisted of an area within a given waterbody from which fish tissue samples were collected. The number of sample locations per waterbody was based on the overall size of the waterbody (SWAMP, 2010). Specifics of individual sampling locations can be found in the supplemental report entitled "Cruise Report for the Surface Waters Ambient Monitoring Program (SWAMP) Bioaccumulation Screening Study in California Lakes and Reservoirs, Sampling Dates: June 2007- March 2008" (SWAMP, 2008).
Temporal Representation:	Data was collected on a single day 8/20/2007.
Environmental Conditions:	Staff is not aware of any special conditions that might affect interpretation of the data.
QAPP Information:	Samples were collected, processed, and analyzed in accordance with the methods described in Quality Assurance Project Plan "Screening Study of Bioaccumulation in California Lakes and Reservoirs." (SWAMP, 2008).
QAPP Information Reference(s):	Quality Assurance Project Plan Screening Study of Bioaccumulation in California Lakes and Reservoirs. Moss Landing Marine Labs. Prepared for SWAMP BOG, 49 pages plus appendices and attachments

DECISION ID 30597 Region 6
Silverwood Reservoir

Pollutant:	**PCBs (Polychlorinated biphenyls)**
Final Listing Decision:	**List on 303(d) list (TMDL required list)**
Last Listing Cycle's Final Listing Decision:	New Decision
Revision Status	Revised
Sources:	Source Unknown
Expected TMDL Completion Date:	2025
Impairment from Pollutant or Pollution:	Pollutant
Regional Board Staff Conclusion:	This pollutant is being considered for placement on the section 303(d) list under section 3.1 of the Listing Policy. Under section 3.1 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 sample exceeds the water quality objective. This line of evidence is from data collected as part of the SWAMP Bioaccumulation Oversight Group study. The information in this study prompted an additional study, specific to Silverwood Lake in 2011. The information in the subsequent study provided the information to submit to the Office of Environmental Health Hazard Assessment to issue a fish consumption advisory in August of 2013 for Silverwood Lake based on elevated levels of mercury and PCBs. Based on the readily available data and information, the weight of evidence indicates that there is sufficient justification in favor of placing this water segment-pollutant combination on the section 303(d) list in the Water Quality Limited Segments category. With OEHHA releasing a fish consumption advisory, listing is based on Secion 3.4 of the Listing Policy. This conclusion is based on the following: 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 is one exceedance of one sample associated with LOE 45678 for COMM beneficial use and the additional data used to support the health advisory, and this exceeds the allowable frequency listed in Table 3.1 of the Listing Policy. 4. The Office of Environmental Health Hazard Assessment (OEHHA) has issued a health advisory and guidelines for eating fish from Silverwood Lake due to high levels of mercury and PCBs. Refer to fish tissue info and resources for the

	Lahontan Region at: http://www.waterboards.ca.gov/lahontan/water_issues/programs/swamp/index.shtml for a summary of the advisory and the background information (including associated sample results) and a description of how the guidelines were developed. Pursuant to section 3.4 of the Listing Policy, "a water segment shall be placed on the section 303(d) list if a health advisory against the consumption of edible resident organisms, has been issued by OEHHA or DHS."
Regional Board Staff Decision Recommendation:	After review of the available data and information, RWQCB staff concludes that the water body-pollutant combination should be placed on the section 303(d) list because applicable water quality standards are exceeded and a pollutant contributes to or causes the problem. OEHHA has issued a fish consumption advisory (in press) due to high levels of mercury and PCBs measured in Silverwood Lake. Pursuant to section 3.4 of the Listing Policy, "a water segment shall be placed on the section 303(d) list if a health advisory against the consumption of edible resident organisms, has been issued by OEHHA or DHS."

Line of Evidence (LOE) for Decision ID 30597, PCBs (Polychlorinated biphenyls) Silverwood Reservoir	**Region 6**
LOE ID:	45677
Pollutant:	PCBs (Polychlorinated biphenyls)
LOE Subgroup:	Pollutant-Tissue
Matrix:	Tissue
Fraction:	Fish fillet
Beneficial Use:	Cold Freshwater Habitat
Number of Samples:	1
Number of Exceedances:	0
Data and Information Type:	Fish tissue analysis
Data Used to Assess Water Quality:	Water Board staff assessed SWAMP data for Silverwood Lake to determine beneficial use support and results are as follows: 0 of 1 samples exceed the criterion for PCB, Total. The 1 sample for largemouth bass consisted of 2 composites (5 fish per composite) that were not independent and so were averaged. Details of the compositing protocol can be found in the March 2009 report entitled: "Contaminants in Fish from California Lakes and Reservoirs: Technical Report on Year One of a Two-Year Screening Study" (SWAMP, 2009). Total PCB was assessed for as follows: PCB aroclors and congeners were summed separately and the sum that yielded the highest value was used for the assessment.
Data Reference:	Contaminants in Fish from California Lakes and Reservoirs: Technical Report on Year One of a Two-Year Screening Survey. A Report of the Surface Water Ambient Monitoring Program (SWAMP). California State Water Resources Control Board, Sacramento, CA Cruise Report for the Surface Waters Ambient Monitoring Program (SWAMP) Bioaccumulation Screening Study in California Lakes and Reservoirs, Sampling Dates: June 2007- March 2008 Statewide Lakes Sportfish Contamination Study 2007 2008 Contaminants in Fish from California Lakes and Reservoirs, 2007-2008: Summary Report on a Two-Year Screening Survey
SWAMP Data:	SWAMP
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life. (Water Quality Control Plan, Lahontan Region)
Objective/Criterion Reference:	Water Quality Control Plan for the Lahontan Region (as amended)
Evaluation Guideline:	National Academy of Science guidelines (NAS 1972) establish a maximum total PCB concentration of 500 ug/Kg (wet weight) in tissue samples for protection of aquatic life from bioaccumulation of toxic substances.

Guideline Reference:	National Academy of Sciences. Water Quality Criteria 1972. EPA-R3-73-033. Washington, D.C.: U.S. Environmental Protection Agency
Spatial Representation:	Data for this line of evidence for Silverwood Lake was collected at 1 monitoring site [Silverwood Lake - 628PSW035]. Two samples were collected from 2 locations. Individual sample locations consisted of an area within a given waterbody from which fish tissue samples were collected. The number of sample locations per waterbody was based on the overall size of the waterbody (SWAMP, 2010). Specifics of individual sampling locations can be found in the supplemental report entitled "Cruise Report for the Surface Waters Ambient Monitoring Program (SWAMP) Bioaccumulation Screening Study in California Lakes and Reservoirs, Sampling Dates: June 2007- March 2008" (SWAMP, 2008).
Temporal Representation:	Data was collected on a single day 8/20/2007.
Environmental Conditions:	Staff is not aware of any special conditions that might affect interpretation of the data.
QAPP Information:	Samples were collected, processed, and analyzed in accordance with the methods described in Quality Assurance Project Plan "Screening Study of Bioaccumulation in California Lakes and Reservoirs." (SWAMP, 2008).
QAPP Information Reference(s):	Quality Assurance Project Plan Screening Study of Bioaccumulation in California Lakes and Reservoirs. Moss Landing Marine Labs. Prepared for SWAMP BOG, 49 pages plus appendices and attachments

Line of Evidence (LOE) for Decision ID 30597, PCBs (Polychlorinated biphenyls) **Region 6**
Silverwood Reservoir

LOE ID:	45678
Pollutant:	PCBs (Polychlorinated biphenyls)
LOE Subgroup:	Pollutant-Tissue
Matrix:	Tissue
Fraction:	Fish fillet
Beneficial Use:	Commercial or recreational collection of fish, shellfish, or organisms
Number of Samples:	1
Number of Exceedances:	1
Data and Information Type:	Fish tissue analysis
Data Used to Assess Water Quality:	Water Board staff assessed SWAMP data for Silverwood Lake to determine beneficial use support and results are as follows: 1 of 1 samples exceed the criterion for PCB, Total. The 1 sample for largemouth bass consisted of 2 composites (5 fish per composite) that were not independent and so were averaged. Details of the compositing protocol can be found in the March 2009 report entitled: "Contaminants in Fish from California Lakes and Reservoirs: Technical Report on Year One of a Two-Year Screening Study" (SWAMP, 2009). Total PCB was assessed for as follows: PCB aroclors and congeners were summed separately and the sum that yielded the highest value was used for the assessment.
Data Reference:	Contaminants in Fish from California Lakes and Reservoirs: Technical Report on Year One of a Two-Year Screening Survey. A Report of the Surface Water Ambient Monitoring Program (SWAMP). California State Water Resources Control Board, Sacramento, CA Cruise Report for the Surface Waters Ambient Monitoring Program (SWAMP) Bioaccumulation Screening Study in California Lakes and Reservoirs, Sampling Dates: June 2007- March 2008 Statewide Lakes Sportfish Contamination Study 2007 2008 Contaminants in Fish from California Lakes and Reservoirs, 2007-2008: Summary Report on a Two-Year Screening Survey
SWAMP Data:	SWAMP
Water Quality Objective/Criterion:	Water Quality Control Plan, Lahontan Region: All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life.
Objective/Criterion Reference:	Water Quality Control Plan for the Lahontan Region (as amended)

Evaluation Guideline:	The modified OEHHA Fish Contaminant Goal for polychlorinated biphenyls in fish tissue is 2.6 ppb. This screening level assumes an average body weight of 70 kg and a consumption rate of 32 g/day for a 30 year exposure over a 70-year lifetime. This constituent is a carcinogen therefore the risk level is set to one in a million. A cooking reduction factor of 1 is applied for skin-off fillets.
Guideline Reference:	Development of Fish Contaminant Goals and Advisory Tissue Levels for Common Contaminants in California Sport Fish: Chlordane, DDTs, Dieldrin, Methylmercury, PCBs, Selenium, and Toxaphene
Spatial Representation:	Data for this line of evidence for Silverwood Lake was collected at 1 monitoring site [Silverwood Lake - 628PSW035]. Two samples were collected from 2 locations. Individual sample locations consisted of an area within a given waterbody from which fish tissue samples were collected. The number of sample locations per waterbody was based on the overall size of the waterbody (SWAMP, 2010). Specifics of individual sampling locations can be found in the supplemental report entitled "Cruise Report for the Surface Waters Ambient Monitoring Program (SWAMP) Bioaccumulation Screening Study in California Lakes and Reservoirs, Sampling Dates: June 2007- March 2008" (SWAMP, 2008).
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Environmental Conditions:	Staff is not aware of any special conditions that might affect interpretation of the data.
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