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SRWP Summary Monitoring Report
"To ensure that current and potential uses of the watershed’s resources are sustained, and where possible, enhanced, while promoting the long-term social and economic vitality of the region.”

- Mission statement of the Sacramento River Watershed Program

Founded in 1996, the Sacramento River Watershed Program (SRWP) is a collaborative, consensus-based group of stakeholders with long-term interests in sustaining and enhancing a 27,000-square-mile watershed that covers 17 percent of California’s total land mass. A watershed is defined as the land area that drains to a common water body such as a creek, river or even the ocean.

Stakeholders of the program are represented by a 21-member board of trustees, which holds open meetings and oversees program activities. Activities include assessment of the watershed’s monitoring for contaminants, providing watershed education and networking with other northern California watershed groups. More broadly, the program aims to promote the long-term social and economic health of the watershed and its many users.

The SRWP produces annual monitoring reports that combine its own water quality monitoring data with data from other sources. These reports look at water chemistry, aquatic toxicity, and fish tissue data for a variety of pollutants such as mercury and organophosphate pesticides and at drinking water parameters of concern such as pathogens, organic carbon, and salts.

The Sacramento River Watershed
California’s most productive watershed drains northern California from the Oregon border to the Delta, where it joins the San Joaquin River and San Francisco Bay. The main stem of the Sacramento River itself and most if its major tributaries have been harnessed for water storage, flood control and/or power generation.

The Sacramento River is not only an important source of drinking water for people in the watershed, but for millions of Californians south of the Delta, including those living in Southern California.
The Watershed
Water from the Sacramento River and its tributaries support more than 2.1 million acres of irrigated agriculture in the watershed, as well as millions of acres of farmland in the San Joaquin Valley where farmers use it to grow everything from citrus to cotton. In the Sacramento Valley, the river is a key water source for irrigating the valley’s dominant crop, rice, and it provides water for orchard crops (fruits, nuts, and olives), vegetables and grains. The watershed also provides for livestock grazing.

The Sacramento Valley and its tributaries provide important habitat for a variety of fish, birds and terrestrial species. The river corridor is a key part of the Pacific Flyway, one of four main North American bird migration routes between the Arctic and Central and South America. The river and its tributaries are conduits for salmon migrating between spawning grounds in the watershed’s upper reaches and the Pacific Ocean. As such, it is a prime resource for supporting commercial as well as sport salmon fisheries. It also has many species of resident fish, many of which are popular with recreational fishermen. The river and the lands within the watershed are popular for other recreational activities including swimming, boating, bird watching, hiking and hunting.

**The SRWP**

SRWP was formed in 1996 to give stakeholders a forum in which to address issues in the watershed. Initially, the SRWP was managed through a collaboration of the U.S. Environmental Protection Agency (USEPA), the Sacramento Regional County Sanitation District, and the Central Valley Regional Water Quality Control Board. As the SRWP evolved, the partnering agencies agreed to turn the program over completely to the watershed stakeholders. Thus, in 2003 the SRWP became an independent nonprofit organization overseen by a 21-member board. The SRWP Board represents various stakeholder interests including local watershed groups, Resource Conservation Districts (RCDs), agriculture, water agencies, environmental experts and local government agencies.

**What Does the SRWP Do?**

In addition to monitoring watershed condition, the SRWP supports several committees that tackle high priority topics in the watershed including watershed monitoring, public education, invasive plants, and mercury contamination. Through its federal, state, and some private foundation grants; the SRWP conducts projects to address watershed issues, often in partnership with other agencies and organizations. These projects vary from technical research projects to needed public education and outreach programs.
Examples of SRWP projects include:

Produce public service television advertisements promoting protection of the Sacramento River watershed. Sponsors include public agencies, consulting firms and law firms.

Identify fish-consuming populations in Lake, Placer, Sacramento, San Joaquin and Yolo counties to conduct outreach and education on the risks of eating large quantities of potentially contaminated fish.

Assess environmental risks associated with increasing use of pyrethroid pesticides that have largely replaced organophosphate (OP) pesticides for many urban uses in the watershed.

Provide a website (www.sacriver.org) that is a resource on the Sacramento River Watershed, including a virtual library of water-related references and a search directory that connects the many water watershed resources and organizations within the Sacramento River Watershed.

How Does the SRWP Accomplish its Mission?
The SRWP realizes that as a networking organization with dozens of local watershed organizations within it, it can best serve the Sacramento River watershed by providing support services throughout the watershed. This is challenging given the large size of the watershed. Therefore, the SRWP focuses on the three service areas described below, where there is the greatest need and where the SRWP can be most effective.

**Watershed Monitoring:** The SRWP conducts its own monitoring program and encourages the efforts of others to acquire, interpret and disseminate water quality and watershed health data, statistics and reports in order to help others monitor watershed conditions and comply with government regulations.

**Public Education:** The SRWP conducts watershed education and outreach at various levels to educate stakeholders about the watershed they live in and to encourage active and balanced support of watershed interests for all stakeholders.

**Watershed Support Services:** The SRWP provides information, technical, financial and networking support and assistance to local efforts in a coordinated and cooperative way.
Contaminants
Sacramento River basin waterways were historically used as places to dispose of contaminants. The practice dates back at least to the Gold Rush era of the 1850s when miners dumped sediment and mercury into tributaries in their relentless search for gold. The sediment clogged natural channels, sometimes making them too shallow for fish passage or navigation, and introduced contaminants such as metals, with mercury being particularly problematic.

After the Gold Rush, the Sacramento River Watershed’s rivers and creeks became dumping grounds for human and animal waste, often untreated. Cities and industries that dispose of wastes into the watershed (known as point sources) follow much stricter standards since enactment of the federal Clean Water Act in 1972 and California’s Porter-Cologne Act in 1969. Both laws set pollutant-specific standards for discharges of contaminants into federal or state waters.

In recent decades, treatment for municipal wastewater, industrial wastewater and management of urban stormwater runoff has increased and improved greatly. Industries and municipalities now provide at least secondary treatment of wastewater prior to disposal into the river. In addition to wastewater treatment, large and medium size cities are implementing urban storm water programs to reduce the impacts of urban runoff to adjacent waterways.

In the past several years, agricultural runoff has come under regulation. Agricultural groups have formed coalitions to work together to meet the new requirements.

Monitoring
The SRWP has been monitoring the Sacramento River and its major tributaries since 1998. The SRWP’s monitoring program was started because there had not been an ongoing monitoring program for the Sacramento River watershed, and there was a need to better understand water quality in the watershed. This report looks at the first six years of monitoring, which was essentially baseline monitoring conducted to establish the water quality condition of the Sacramento River and some of its tributaries. Funding for the six years of monitoring
toted over $4 million and came from a USEPA grant to the Sacramento Regional County Sanitation District with the District providing matching funds and services. The SRWP also collaborated with monitoring efforts of other agencies including the Central Valley Regional Water Quality Control Board, U.S. Geological Survey, California Department of Water Resources and Department of Fish and Game.

Following the recommendations of its Monitoring Committee, the SRWP chose a relatively broad array of water quality indicators as shown in Table 1.

### Table 1 – SRWP Water Quality Monitoring Parameters

<table>
<thead>
<tr>
<th>Type of Water Quality Parameter</th>
<th>Usefulness of Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical parameters – temperature, suspended sediment, pH</td>
<td>Important to the health of aquatic life and affect other chemical processes</td>
</tr>
<tr>
<td>Pesticides – insecticides and herbicides</td>
<td>Excessive levels of either can impair aquatic life and a few rice herbicides can cause taste and odor problems in drinking water at very low concentrations</td>
</tr>
<tr>
<td>Drinking water constituents – organic carbon</td>
<td>High organic carbon concentrations can lead to the formation of undesirable chemicals when treated for drinking water consumption</td>
</tr>
<tr>
<td>Pathogen indicators – fecal coliform and E. coli</td>
<td>Measures contamination from human and animal wastes; high levels can cause illness to humans</td>
</tr>
<tr>
<td>Aquatic toxicity</td>
<td>Significant toxicity indicates possible impacts to the aquatic ecosystem</td>
</tr>
<tr>
<td>Trace metals</td>
<td>High levels can affect aquatic organisms</td>
</tr>
<tr>
<td>Mercury – elemental mercury and methylmercury</td>
<td>High levels in water indicate the potential for fish contamination</td>
</tr>
<tr>
<td>Monitoring fish tissue for historic chemicals and mercury</td>
<td>High levels of either in fish tissue can affect wildlife and humans who consume the fish</td>
</tr>
<tr>
<td>Nutrients – nitrogen and phosphorus compounds</td>
<td>Affect algae and aquatic weed growth, when, if excessive, can clog waterways and affect drinking water quality</td>
</tr>
</tbody>
</table>
The goals of the monitoring program were to develop a cost-efficient, coordinated monitoring program that assessed baseline conditions in the Sacramento River’s main stem and its tributaries; one that identified causes, effects and extent of problems; and one which could be used to measure improvements in management. Following are examples of monitoring and related activities that the SRWP has conducted to date:

**Pesticides:** The watershed has gone through three generations of pesticides since the introduction of ecologically persistent organochlorine (OC) pesticides such as DDT in the 1940s. They were succeeded by the more toxic but easier and quicker to break down organophosphate (OP) pesticides such as malathion and diazinon. Organophosphate pesticides, in turn, are in the process of being succeeded by another class of pesticides, pyrethroids. The SRWP has worked with agricultural groups and growers to promote best management practices (BMPs) to reduce pesticide runoff from irrigated lands to Sacramento River tributaries and the main stem. The shift away from use of OP pesticides to pyrethroids has caused the SRWP to modify its monitoring because pyrethroids have different chemical properties and modes of action in the aquatic environment.

**Aquatic toxicity:** To more directly measure toxic effects in water bodies, the SRWP couples aquatic toxicity monitoring with chemical monitoring. The SRWP uses standard toxicity test methods to determine if monitoring sites are toxic to different organisms representing varying levels in the aquatic food chain. These results, combined with chemical testing, provide a more complete picture of water quality conditions.

**Drinking water constituents and pathogens:** These consist of naturally occurring constituents in water such as organic carbon and salts, but also pathogens from animal and human waste. These constituents have not typically caused water quality problems but are of concern to drinking water providers because the Sacramento River is the largest source of drinking water in California.

**Mercury and legacy chemicals in fish tissue:** Certain metals, including mercury, can bio-accumulate in fish tissues, making certain fish dangerous to consume. Mercury comes from a variety of sources, some of them unknown, but it is mostly coming from legacy sources such as gold and mercury mines in the watershed. Similarly, other legacy chemicals such as DDT and polychlorinated biphenyls (PCBs) can bio-accumulate in fish tissue. Methyl mercury, the most toxic form, comes from biological processes that can occur in certain aquatic environments. Methyl mercury accumulates in the tissue of organisms and can be magnified up through the food chain to the point where it reaches levels in larger fish where they become a health concern.
**Overall Findings**

The SRWP’s monitoring program has found that most sites analyzed meet water quality objectives and that the river is a high quality source from which to draw water for municipal use. Despite the legacy of contaminants left from the mining era, metals are generally not a problem in the watershed, which led the SRWP to discontinue most metals monitoring, with the exception of mercury. Mercury and methyl mercury levels are a concern and are still being monitored throughout the Sacramento River watershed.

Organophosphate pesticide levels are trending downward in response to restrictions on the use of diazinon and chlorpyrifos and resulting changes in their use in both agricultural and residential applications.

The main stem of the Sacramento River and its major tributaries (the Yuba, Feather and American rivers) consistently meet water quality goals and objectives for drinking water-related pathogens.

The findings from SRWP monitoring are discussed here in relation to the major uses and activities in the Sacramento River Watershed – drinking water, recreation, fishing and aquatic life.

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<table>
<thead>
<tr>
<th>Use</th>
<th>Summary</th>
<th>Future Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drinking Water</td>
<td>Drinking water quality in rivers is high</td>
<td>Coliform bacteria, organic carbon, selected conventional and physical parameters</td>
</tr>
<tr>
<td>Recreation</td>
<td>Bacteria concentrations rarely observed above levels considered unsafe for contact recreation</td>
<td>Coliform bacteria</td>
</tr>
<tr>
<td>Fishing</td>
<td>Mercury levels in fish is a concern but are lower than mercury loadings in the watershed would suggest</td>
<td>Fish tissue analysis for mercury</td>
</tr>
<tr>
<td>Aquatic Life</td>
<td>Toxicity is most prevalent at urban runoff sites. Metals are generally not a problem despite historic mining contamination</td>
<td>Continue toxicity testing; coordinate with pesticide monitoring</td>
</tr>
</tbody>
</table>
The quality of the Sacramento River water is important not only to the communities in the watershed who rely on the river for drinking water but also for the millions of Californians in cities in Southern California and the San Francisco Bay Area who receive water from California’s two largest water delivery systems: the federal Central Valley Project and the State Water Project. Both of these major projects extend into the Sacramento River watershed. The Sacramento River also is the primary source of flow to the Sacramento-San Joaquin Delta, formed at the confluence of the Sacramento and San Joaquin rivers.

Drinking water constituents of potential concern in the Sacramento River include organic carbon, pathogens, total dissolved solids and nutrients.

- Organic carbon is of concern because, when it combines with chlorine during the drinking water treatment process, it can create disinfection byproducts, which are potential carcinogens.

- Pathogens such as Cryptosporidium and Giardia are of concern because they can cause gastrointestinal illness.

- Total dissolved solids (TDS), which include salt, can affect the taste of drinking water and, at very high levels, may cause health problems in sensitive individuals. The Sacramento River has relatively low TDS levels compared to other drinking water supplies. This means that Sacramento River water can be useful to communities in blending with other supplies, keeping overall TDS levels within an acceptable range.

- Elevated nutrient concentrations may promote excessive algal growth that can contribute to taste and odor problems and clog water treatment filters.
Drinking water drawn from the Sacramento River is disinfected and treated to remove contaminants at municipal water treatment plants located within and downstream of the watershed. Comparisons of drinking water parameters with relevant state water quality goals and objectives for the Sacramento River watershed show that the main stem Sacramento River and major tributaries (the Yuba, Feather, and American rivers) consistently meet water quality goals and objectives.

However, the quality of water downstream, in the Central and Southern Sacramento-San Joaquin Delta, can become degraded for drinking water use due to discharges within the Delta, the influence of the San Joaquin River, and saltwater intrusion. Additionally, over the past couple of decades increasingly stringent drinking water regulations have made it very challenging to treat drinking water supplies to meet new standards. Since it provides up to 72 percent of the water entering the Delta, the quality of the Sacramento River is extremely important.

SRWP monitoring found that total organic carbon (TOC) concentrations measured in the Sacramento River from Red Bluff to the Delta often exceeded the lowest state drinking water treatment threshold. Treatment technologies currently in use by many utilities are already able to remove approximately 35 percent of the carbon in the Sacramento River. It is not clear whether the concentrations of organic carbon measured in the Sacramento River will require drinking water providers to provide additional treatment. The SRWP has initiated and is continuing to perform more detailed water quality analyses to better understand the characteristics of the organic carbon and its effect on drinking water.

Of the SRWP monitoring sites, the highest TDS and TOC concentrations occur in urban creeks and agricultural drains. Growing urbanization in the Sacramento area and the Delta has the potential to increase concentrations of TDS and TOC in nearby rivers as urban runoff and treated wastewater discharges increase. This could make attainment of new drinking water quality treatment requirements more difficult in those areas.

Pesticide concentrations never exceeded USEPA drinking water limits.
The Sacramento River and its tributaries provide vast recreational opportunities for boating, fishing, camping and other activities. According to the California Department of Boating and Waterways, these activities on the Sacramento and its reservoirs attract more than 8 million visitors a year. The river’s salmon fishery alone generates over $100 million annually, and more than 70 percent of the salmon caught off California’s coast spawn in the Sacramento River and its hatcheries. Bird watching is also a popular recreational activity in the watershed; an October 2005 study released by the U.S. Department of the Interior showed that the 10,783-acre Sacramento National Wildlife Refuge drew 71,617 visitors in 2005. They accounted for $1.6 million in recreation expenditures.

Starting at Lake Shasta (created by Shasta Dam) the Sacramento River has spawned a large boating and fishing industry. For boaters, the California Department of Boating and Waterways describes the 21-mile stretch from Redding to Balls Ferry as perfect for scenic touring and shorter trips. For the adventuresome, the breath-taking 33-mile stretch between Balls Ferry and Red Bluff is preferred.
Boating and fishing also are popular activities on several tributaries in the Sacramento River watershed, notably the Feather River, where the State Water Project’s Lake Oroville (behind Oroville Dam) provides a wide range of recreational activities. And south of the city of Sacramento, the 700-square-mile maze of sloughs and channels that comprises the Sacramento-San Joaquin Delta also provides important private and commercial recreational opportunities, mainly boating and fishing.

River parks offer opportunities for hiking, picnicking, biking, water skiing and swimming. For water contact recreation – swimming and water skiing – the biggest water quality concern is pathogens. These disease-producing organisms such as protozoa, bacteria and viruses may pose human health risks through exposure during water contact recreation. SRWP monitoring found only infrequent instances when bacteria levels exceeded regulatory limits. These instances did not pose a concern for overall water quality in the river, but localized high bacteria levels observed at public beaches are a concern. These conditions often coincide with peak beach use days due to higher numbers of bathers, and are also associated with the specific monitoring methods required for public beaches.

Elevated levels of coliform bacteria have been detected in 7 percent of samples collected from the American River at Discovery Park, in 3 percent of samples from the Sacramento River at Veterans Bridge, and in approximately 1 percent of samples collected from the Sacramento River at Freeport. Additionally, state officials have found elevated levels of coliform bacteria in some tributary waters (e.g., Pit River, Yuba River, and the Cow Creek watershed). Again, these elevated bacteria levels are more of a local concern to people swimming in those areas.
The Sacramento River and its tributaries are very popular for fishing, and the waterways support large populations of salmon, steelhead, striped bass, largemouth bass, channel catfish, pike minnow and more. Fishing occurs throughout the watershed – from the tributary rivers and streams above Shasta and Oroville dams south to the Delta.

One of the SRWP’s biggest water quality concerns is the level of mercury concentrations in fish. On the whole, the Sacramento River watershed is the major source of total mercury to the Delta, contributing about 90 percent of the total load. Much of the mercury comes from old gold mining sites, where mercury was used to extract gold. Mercury also naturally occurs in the Coast Range, on the west side of the Sacramento Valley. In fact, much of the mercury used to extract gold was mined from those mountains. Other sources of mercury include native soils, mineral hot springs, urban sources, and not yet identified sources.

The SRWP has worked with the U.S. Geological Survey and others to identify the sources of mercury to the Sacramento River and the Yolo Bypass, a part of the Sacramento River watershed. Known sources in the Coast Range include Cache and Putah creeks—areas of historic mercury mining—and in the Sierra Nevada Range include the Feather, Yuba, Bear, and American rivers—areas of historic gold mining. SRWP monitoring has identified additional sources into the Sacramento River between Redding and Hamilton City. Mill Creek is one of these sources, due to naturally occurring thermal hot springs. Further investigation into other tributaries along that reach of river is needed to better define other in-river or tributary sources of mercury.

Mercury concentrations in the fish tissue collected from 1997 to 2002 in the main stem Sacramento River below Shasta Dam and from the major tributaries feeding into this section of the river were higher than several of the human health-based and wildlife-based advisory and screening values. The USEPA has found that there are human health concerns associated with consumption of some fish species; including striped bass, largemouth bass and channel catfish; in the lower Sacramento River Watershed (See chart on page 17).

There are some health risks with eating fish tainted by mercury. Women who are pregnant should be especially careful to limit the amount of fish they eat because the developing fetus is at the greatest risk from exposure to mercury. Some babies and children who have high amounts of mercury in their bodies can have problems with memory, learning, and paying
attention. The USEPA recommends that pregnant women, breastfeeding women, women who might become pregnant and young children should eat only one meal or less of wild-caught fish per month. Other adults are advised to limit their intake of fish to two meals per month.

The SRWP is working with state agencies to develop and implement outreach programs designed to increase awareness of the fish consumption advisories in and around specific waterways. Because many people who fish in the Sacramento River are from ethnic communities, these programs must reach diverse audiences, including populations that do not speak English.

The SRWP fish tissue data generally support the need for fish consumption advisories already in effect for the lower American River, the lower Feather River, and Sacramento Slough, and that advisories should be evaluated for one additional agricultural drain (Colusa Basin Drain) and an urban drainage (Natomas East Main Drain) which also includes the Arcade Creek drainage. Currently, the only mercury advisory in effect for the Sacramento River itself is in the Delta portion of the river.

### Sources of Mercury

<table>
<thead>
<tr>
<th>Source</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wastewater Treatment Plants</td>
<td>1%</td>
</tr>
<tr>
<td>Atmospheric Deposition</td>
<td>1%</td>
</tr>
<tr>
<td>Mercury Mines</td>
<td>1%</td>
</tr>
<tr>
<td>Urban Runoff</td>
<td>2%</td>
</tr>
<tr>
<td>Mineral Springs</td>
<td>7%</td>
</tr>
<tr>
<td>Gold Mines</td>
<td>28%</td>
</tr>
<tr>
<td>Native Soil</td>
<td>21%</td>
</tr>
<tr>
<td>Unknown</td>
<td>30%</td>
</tr>
</tbody>
</table>

### Mercury Levels in Sacramento River Watershed Fish

<table>
<thead>
<tr>
<th>Species</th>
<th>Avg. Hg.</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Striped Bass</td>
<td>1.08</td>
<td>9</td>
</tr>
<tr>
<td>Largemouth Bass</td>
<td>0.74</td>
<td>112</td>
</tr>
<tr>
<td>Channel Catfish</td>
<td>0.73</td>
<td>1</td>
</tr>
<tr>
<td>Pike Minnow</td>
<td>0.47</td>
<td>20</td>
</tr>
<tr>
<td>White Catfish</td>
<td>0.46</td>
<td>73</td>
</tr>
<tr>
<td>Splittail</td>
<td>0.37</td>
<td>1</td>
</tr>
<tr>
<td>Smallmouth Bass</td>
<td>0.21</td>
<td>5</td>
</tr>
<tr>
<td>Crappie</td>
<td>0.20</td>
<td>2</td>
</tr>
<tr>
<td>Carp</td>
<td>0.19</td>
<td>6</td>
</tr>
<tr>
<td>Riffle Sculpin</td>
<td>0.18</td>
<td>16</td>
</tr>
<tr>
<td>Redear Sunfish</td>
<td>0.17</td>
<td>4</td>
</tr>
<tr>
<td>Sacramento Sucker</td>
<td>0.17</td>
<td>18</td>
</tr>
<tr>
<td>Bluegill</td>
<td>0.12</td>
<td>8</td>
</tr>
<tr>
<td>Brown Trout</td>
<td>0.06</td>
<td>1</td>
</tr>
<tr>
<td>Rainbow Trout</td>
<td>0.04</td>
<td>20</td>
</tr>
</tbody>
</table>

Mercury concentrations in fish tissue collected from 1997 to 2002 from the mainstem Sacramento River and major tributaries compared to human health-based U.S. EPA screening values.

Red text: Average mercury concentrations in fish tissue are above the U.S. EPA criterion of 0.3 mg/kg (0.3 milligram of mercury detected per kilogram of fish).

Green text: Average mercury concentrations in fish tissue are below the U.S. EPA criterion of 0.3 mg/kg.

N = number of fish tissue samples used to determine the average concentration.
Results from SRWP monitoring confirm that significant toxicity continues to occur to certain aquatic life in a few surface waters in the watershed, particularly at urban runoff sites. Toxicity monitoring is an intensive and complex process in which a number of factors are taken into consideration to identify potential water quality problems.

The life forms profiled – water fleas, fathead minnows and algae – represent different levels of the food chain and varying vulnerability to toxic pollutants (see chart on page 19).

Water samples tested in the laboratory indicate whether the conditions in the environment can adversely affect the health and reproduction of the target species. Effects, which are measured by mortality, reduced growth and/or reproduction, are described as acute (occurring over a period of hours to as long as four days) or chronic (four to seven days).

Although the SRWP and other programs have monitored for toxicity at several locations and during different seasons, the data gathered is far from comprehensive and significant questions remain regarding the sources, severity, persistence and significance of toxicity in surface waters in the Sacramento River watershed.

Based on data from the SRWP and other monitoring efforts, there has been significant potential for localized impacts on these beneficial uses due to elevated concentrations of some pesticides in some surface waters of the Sacramento River watershed. Based on findings of elevated concentrations and documented toxicity in surface waters ranging from small urban creeks and agricultural drains to the Sacramento River main stem.
and Delta waterways, diazinon has posed the greatest and most extensive risks. The problems associated with diazinon and other organophosphate (OP) pesticides were recognized early on by the SRWP. This led to formation of the SRWP OP Focus Group that spawned several diazinon research projects and produced a diazinon management plan. Subsequent regulation and changes in both urban and agricultural use of diazinon and other OP pesticides has led to measurable decreases in these pesticides and their toxicity in the Sacramento River Watershed.

Agricultural producers were originally involved in the SRWP OP Focus Group but have since formed into coalition groups to address pesticides and other water quality issues. The agricultural coalitions conduct monitoring, track pesticide use patterns, management practices and potential risks from pesticides in specific drainage areas. The SRWP is continuing to collaborate on monitoring with the Sacramento Valley Water Quality Coalition.

SRWP Summary Monitoring Report
After a two-year interruption in funding that ended in March 2006, the SRWP retooled its approach to monitoring. One step was to establish a Watershed Monitoring Committee that combines the functions of the former Monitoring Subcommittee and the Toxics Subcommittee. The new committee will focus on main stem river monitoring and overall watershed health monitoring.

In its redesigned form, the SRWP Monitoring Program will continue to meet the objectives set out by its stakeholders, Board of Trustees and committees. As recently summarized in the review of the Monitoring program these objectives are to:

- Continue water quality monitoring in the main stem Sacramento River and major tributaries by collecting baseline data focusing on suspected problem constituents.
- Identify monitoring goals and future uses of monitoring data being collected.
Identify data needs and data quality objectives to ensure that data collected are useful, understandable, accessible, manageable and scientifically valid.

Coordinate SRWP monitoring activities with other stakeholder monitoring activities and programs.

Develop an approach for assessing and tracking the overall health of the watershed.

Adapt the SRWP monitoring program to meet stakeholders’ priorities in response to changes in watershed characteristics.

Provide information to all stakeholders on the main stem river and overall watershed health.

Under a Proposition 50 CALFED Bay-Delta Watershed Program grant, the SRWP has resumed monitoring of the main stem, major tributaries and representative drainages. The Watershed Monitoring Committee will continue to fund what it calls “special studies” – support for rapid bioassessment and analysis of incidents of “toxicity of unknown causes” – that are brought by stakeholders or other SRWP committees, when funding allows. Working with the Watershed Monitoring Committee and other organizations, the SRWP is developing an approach to more comprehensively track and report on the health of the Sacramento River Watershed. Other regional organizations are involved in developing environmental or watershed health indicators, including a consortium of state agencies who are striving to establish a somewhat standardized approach to watershed monitoring statewide. The SRWP is working with these agencies and organizations to implement, where possible, a consistent approach to watershed health monitoring. In selecting indicators of watershed health, the SRWP will strive to:

- Develop a manageable list of indicators (no more than 15 total) for the SRWP to track and report on.
- Select one or two indicators per indicator category.
- Select indicators that are already being tracked or supported by some organization but are not being reported in a watershed context.
- Select indicators that can be readily understood by non-technical people.
Outreach to watershed groups and other organizations active within the Sacramento River Watershed will need to occur subsequent to the list refinement and coordination among regional groups. The SRWP ability to track watershed health indicators within the Sacramento River Watershed will greatly depend on the work of others and will require their cooperation and supportive work plans.

The SRWP currently does not have funding to fully implement a watershed health tracking and reporting program for the Sacramento River Watershed. This has been identified by the SRWP Board of Trustees as a high priority project to fund. The SRWP will continue to explore funding opportunities and partnerships to implement this effort.

For more information on the SRWP and its monitoring program, go to:

www.sacriver.org