

Attachment 10

SUMMARY OF MONITORING AND ASSESSMENT ACTIVITIES RELATED TO AQUATIC LIFE BENEFICIAL USE PROTECTION IN BIG BASIN HYDROLOGIC UNIT

The purpose of this attachment is to provide members of the public and the Regional Board with a summary of monitoring and assessment activities that generate information about the status of aquatic life beneficial uses in the Big Basin Hydrologic Unit. Regional Board staff compiled the summary from a variety of sources, including interviews and published reports.

Monitoring activities are those that evaluate environmental conditions over time through repeated measurements of certain parameters. While some monitoring activities are developed from specific questions, others pose the more general question: what are the ambient conditions at the time of sampling? These ambient monitoring programs are useful in characterizing the “background” condition of a waterbody, but they also serve a surveillance or screening purpose, alerting monitors to both emerging and transient problems that require further investigation.

The assessment activities described here are typically one-time projects to evaluate existing and new information about a particular watershed, biological community, or other resource issue (e.g., water supply, sedimentation from roads). As with the monitoring activities, the assessments vary in their objectives from very specific to more general. The status of salmonids (steelhead and coho) has been the subject of long-term evaluation by several agencies in the San Lorenzo River Watershed—a consequence of the imperiled condition of these fisheries and the requirement to address that condition under state and federal endangered species regulations.

Attempts to synthesize findings or coordinate future efforts at monitoring and assessment activities have been challenging due to the wide range of issues addressed and the diversity of entities pursuing them. However, due to the substantial efforts already completed by many of these entities, their focus has shifted from on-going monitoring and continued assessments to implementing the recommendations of completed assessments. The Integrated Watershed Restoration Program represents the most significant effort in this regard and addresses six major watersheds throughout the Big Basin Hydrologic Unit. The San Lorenzo River Salmonid Enhancement Plan (2002) synthesizes existing biological and physical data into a comprehensive plan for enhancement and restoration of steelhead and coho populations, including recommendations for sediment, large woody material, streamflow, and fish passage.

In the coming year, the Sediment TMDL for the San Lorenzo River and tributaries (2003) will initiate a process of assembling information and data that allows for a complete and thorough evaluation of whether the required reductions in sediment loading are occurring and whether they are having the desired effect on habitat conditions for fish in the watershed. Staff believes this effort may serve as a pilot for similar coordinated evaluation of data and information about aquatic life beneficial uses in other watersheds.

MONITORING ACTIVITY RELATED TO AQUATIC LIFE BENEFICIAL USE PROTECTION IN BIG BASIN HYDROLOGIC UNIT

DESCRIPTION of ACTIVITY	PARAMETERS/FOCUS OF ACTIVITY	QUESTION POSED BY MONITORING	LOCATION OF ACTIVITY	DURATION OF MONITORING
Current				
Timber Waiver Forensic Monitoring	Implementation Tracking; forensic	Are conditions of waiver met?	THPs throughout Big Basin Hydrologic Unit	Specific to THP
Cal Poly’s Little Creek Study	Suspended sediment, turbidity, flow	What are the suspended sediment load and hydrologic responses to timber harvest?	Little Creek Watershed	Started in 2002 and will continue beyond harvest in 2006
California Department of Forestry Hillslope Monitoring	Site characteristics, erosion problems, Forest Practice Rules implementation	Are Forest Practice Rules effective?	Conducted on THPs state-wide, including several in Big Basin HU	Continuing since inception 10 years ago
NOAA Fisheries life history studies of wild and hatchery salmonids	Local life history and population monitoring	What are ecological impacts of artificial propagation practices on wild populations? How have local populations adapted to southern environmental conditions? What is carrying capacity of local watersheds and effects of fluctuating environmental conditions on ocean and stream survivorship?	Scott Creek and its tributaries	Continuing well into the foreseeable future, depending on funding (minimum of 3 more years)
Santa Cruz City Water Department Endangered Species-Related Monitoring	Habitat surveys, flow, conductivity, DHS-driven water supply parameters, turbidity, temperature, population estimates.	What are the limiting factors affecting cold water fisheries and how are they affected by water diversions?	San Lorenzo River (mostly Newell Creek tributary), Majors, Liddell, and Laguna Creeks	On-going commitment to flow, turbidity, and limited habitat surveying
San Lorenzo Valley Water District	Flow, conductivity, DHS-driven water supply parameters, turbidity	Does source water meet standards for public health?	Middle Reach San Lorenzo River	On-going
Central Coast Ambient Monitoring Program (CCAMP)	Sediment and water column toxicity, sediment chemistry, benthic invertebrate assemblages, and associated habitat quality. Monthly conventional water quality monitoring (nutrients, dissolved oxygen, pH, turbidity and water temperature). Pre-dawn or 24-hour continuous sampling for dissolved oxygen sags.	Is there evidence that aquatic populations, communities, habitats and anadromous fisheries are not being protected?	Davenport, San Lorenzo, Aptos-Soquel, and Año Nuevo Hydrologic Sub Areas. Sampling sites are located typically at the lower ends of major tributaries, and do not encompass upper watershed habitat.	On-going; 5-yr rotation Habitat sampling is conducted only in association with benthic invertebrate sampling and is not comprehensive.
Santa Cruz County Environmental Health Services	Flow and turbidity as well as DHS-based and conventional water quality parameters, pathogens	What are ambient conditions at time of sampling?	Major tributaries throughout County	On-going
City of Watsonville - Sanitary Survey	Suspended sediment, pathogens, nutrients	Does source water meet standards for public health?	Corralitos Creek and Browns Valley Creek; one station each	Monthly

USGS	Continuous flow	What is discharge (flow) of the gauged stream?	San Lorenzo River at Big Trees and Santa Cruz, Bean Creek, Carbonera Creek, Soquel Creek	Indefinite
<i>Citizen Monitoring</i>				
Watershed Academy/San Lorenzo Valley High School	Nutrients, pathogens, benthic invertebrates	What are ambient conditions at time of sampling?	Ashley Creek, San Lorenzo River	Weekly, monthly, quarterly; indefinite
Neighbors of Branciforte	General	What are ambient conditions at time of sampling?	Branciforte	Weekly; indefinite
Monterey Bay Sanctuary Citizen Watershed Monitoring	General, nutrients, toxicity, metals	What are ambient concentrations of various pollutants in first flush events?	Major tributaries to Monterey Bay	Annually; indefinite
Coastal Watershed Council, Clean Streams Program	Nutrients, toxicity, metals, pathogens, benthic invertebrates	What are ambient conditions at time of sampling?	Gazos, Branciforte, San Lorenzo, Soquel, Aptos, Valencia, Corralitos Creeks, Live Oak & Scotts Valley areas	Monthly, Indefinite
Proposed				
San Lorenzo River Sediment TMDL	Implementation Tracking; Stream substrate characteristics (spawning gravels and pools)	Is sediment impacting COLD beneficial use?	San Lorenzo River and major tributaries	Triennially for up to 25 years
Soquel Demonstration Forest Timber Harvest Turbidity	Turbidity and storm hydrograph	How long does it take Soquel Creek to clear after a storm subsequent to proposed harvest?	Soquel Creek (East Branch)	Three storm events.
Project effectiveness monitoring	Stream restoration, erosion control, and sediment management projects	Was the project effective in improving conditions for aquatic life?	Throughout Hydrologic Unit at the project site level	Uncertain

ASSESSMENT ACTIVITIES RELATED TO AQUATIC LIFE BENEFICIAL USE PROTECTION IN BIG BASIN HYDROLOGIC UNIT

DESCRIPTION of ACTIVITY	PARAMETERS/FOCUS OF ACTIVITY	QUESTION POSED BY ASSESSMENT	LOCATION
Recently Completed			
Population Estimates (Performed by consultants for several agencies)	In 1994, the City of Santa Cruz Water Department and San Lorenzo Valley Water District initiated funding for a long-term monitoring. Santa Cruz County joined in funding the effort in 1998. Habitat evaluation and fish sampling data are available from 1994 to 2001 in the mainstem (Alley, 1995-2002) along with data collected in 1981 (Smith, 1982) with expanded data collection beginning in 1998 to include sampling in the tributaries. Random and nonrandom sampling was conducted in 2002 by H.T. Harvey and Associates (2003). Streambed conditions and erosion control was addressed Hecht and Kittleson, 1998;. Swanson and Dvorsky, 2001).	What is the status of salmonids in the San Lorenzo River and its tributaries?	San Lorenzo River
Santa Cruz County Road Assessments (DFG-funded)	Road-related sources of sediment	What are all future road-related sediment sources on county maintained roads? What are the high priority sites?	San Lorenzo River Watershed
Watershed Assessments (Conducted by various entities with public funding and non-governmental organization involvement)	Watershed condition	What is the status of water resources and aquatic life in the watershed?	Scott Creek, San Lorenzo River, Arana Gulch, Soquel Creek, Aptos Creek, Watsonville Sloughs, and Pajaro River Watersheds
Underway			
Road Assessments in State Parks	Road-related sources of sediment	What are all future road-related sediment sources on State Parks-maintained roads? What are the high priority sites?	
Department of Fish & Game Assessments			
Population Surveys	Fish population status	What is the status of fish population in individual tributaries?	Variable and limited due to resource constraints
Central Coast Region South District Basin Planning	Compiling and creating spatial data coverages from habitat surveys for the period 1993 to 1997	Where and what are known fish habitat conditions in Central Coast?	Throughout Central Coast Region
Southern Steelhead Resources Project (Center for Ecosystem Management and Restoration)	Archive DFG files relating to steelhead; make available on CD.	What is historical distribution and current status of steelhead in these coastal streams? What is restoration potential of south coast watersheds?	Coastal streams from San Francisco to San Diego

