Santa Clara Basin Watershed Management Initiative

FINAL

Rationale for Selecting Primary Uses as the Basis for the Santa Clara Basin Watershed Assessment Report

Prepared By

The Watershed Assessment Subgroup

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Rationale for Selecting Primary Beneficial Uses as the Basis for Santa Clara Basin Watershed Assessment Report

Summary

This document provides a rationale for using "primary " beneficial uses and stakeholder interests as the basis for assessing the condition of watersheds in the Santa Clara Basin. This rationale is based upon requirements contained in State and Federal clean water regulations and the need to conduct a timely and cost-effective evaluation of watershed condition within the Basin. A process for conducting a watershed assessment based upon selection of these primary uses and stakeholder interests is described along with examples of data types that are indicators of attainment of each use.

Background and Purpose

*During the early phases of workplan development for the Santa Clara Basin Watershed Management Initiative (SCBWMI), a work group of the Watershed Assessment Subgroup (WAS) considered what environmental data would be needed to document and assess watershed condition. In an effort to remain consistent with the Regional Board's Watershed Management Initiative (July, 1996), WAS focused on the concept of beneficial use protection as a key component for evaluating the environmental quality of waterbodies in the Basin. This concept was further developed in the SCBWMI workplan (*Workplan for the Santa Clara Basin Watershed Management Initiative*. July, 1997) which contained a task (1.1.1) to outline an approach which would focus on "keystone" beneficial uses that address environmental goals defined by the Core Group. For each beneficial use, the WAS work group identified data types that could potentially provide an indication of whether the beneficial use is supported.*
The purpose of this paper is to provide SCBWMI stakeholders with an understanding of:

- *the legal basis and concepts underlying State and Federal water quality standards programs;*
- *the importance of beneficial uses in defining the condition and quality of waterbodies;*
- *and, an approach to focus assessment and data gathering efforts such that SCBWMI resources are efficiently employed.*

Rationale for the Focus on Beneficial Uses

Federal Regulations

The Federal Water Pollution Control Act (PL 92-500, known as the Clean Water Act) as last reauthorized by the Water Quality Act of 1987 (PL100-4), provides the legal foundation for Federal, State, and Tribal governments to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters*."*
To accomplish these goals, the Clean Water Act, section 303(c), established "water quality standards" as a mechanism to measure whether the Nation's waters are meeting "fishable/swimmable" goals. Briefly stated, the key elements of section 303(c) include:

1. *A water quality standard for any waterbody is defined as the designated beneficial uses (such as recreation or protection of aquatic resources), the water quality criteria (expressed as either numeric limits or as a narrative statement) necessary to support those uses, and an antidegradation policy to protect existing uses;*
2. *States designate beneficial uses for their waterbodies. EPA requires that, at a minimum, beneficial uses include public water supplies, propagation of fish and wildlife, recreation, agricultural uses, industrial uses, and navigation. The criteria applied to these uses to set standards must also*

protect public health or welfare, enhance the quality of water, and fulfill the goals of the Clean Water Act;

3. *States must review their water quality standards every three years (Triennial Review process) using a process that includes public participation. The EPA reviews and approves of State Water Quality Standards.*

State Regulations

In California, the Federal requirement for State action is met through provisions of the Porter-Cologne Water Quality Act. The State Water Resources Control Board and the nine Regional Water Quality Control Boards are responsible for implementing water quality protection programs of both the Clean Water Act and Porter-Cologne. Porter-Cologne directs the nine boards to formulate regional water quality control plans (Basin Plans) that include:

- The beneficial water uses of the waterbodies in the Basin (see attached Table 2-5 for current designated uses of waterbodies in the Santa Clara Basin);
- The water quality objectives (equivalent to water quality criteria in the Federal regulations needed to protect the designated beneficial water uses; and
- A plan for achieving the water quality objectives.

The water quality objectives included in each region's Basin Plan must be designed to ensure the "reasonable protection of beneficial uses and the prevention of nuisance." In establishing these objectives, the regional boards are required to consider:

1. *past, present, and potential future beneficial uses of the Basin's waters;*
2. *the water's environmental character;*
3. *water quality that could reasonably be achieved through coordinated water pollution control programs;*

There are two types of objectives: narrative and numerical. Narrative objectives describe water quality that must be attained through pollutant control measures and watershed management, and they also serve as the basis for development of detailed numerical objectives.

Numerical objectives typically describe pollutant concentrations, physical/chemical conditions of the water itself, and the toxicity of the water to aquatic organisms. These objectives are designed to represent the maximum amount of pollutants that can remain in the water column without causing any adverse effect on organisms using the aquatic system as habitat, on people consuming those organisms or water, and on other current or potential beneficial uses. Together, narrative and numerical objectives indicate the conditions that shall be attained to protect beneficial uses. For some beneficial uses the linkage between specific chemical, physical or biological parameters is well understood. For example, temperature and dissolved oxygen ranges necessary to support coldwater fisheries have been clearly established. In such cases, the relationship between beneficial use protection and the water quality objectives/standards is clear and set forth in the Basin Plan. This linkage provides a firm regulatory basis for establishing whether the water quality of a particular waterbody supports that designated use (see Figure 1).

There are other parameters, however, that also provide an indication of water quality conditions and beneficial use protection. These factors, known as "indicators" may not have an easily demonstrated relationship to water quality or to the uses themselves but they provide information that can be related to the environmental integrity of the waterbody. For example, a waterbody may meet all numeric water quality objectives, but not provide suitable spawning habitat for fish. Migration barriers, loss of riparian cover, sedimentation, and changes in stream geomorphology may have a greater impact on spawning and coldwater fish beneficial use protection than water quality.

These factors require a great deal more interpretation to derive an understanding of the water quality conditions for a given waterbody. For this reason, indicators, while useful, do not normally have associated water quality objectives or a regulatory basis.

Assignment of Present and Potential Beneficial Uses

The Regional Board, in consultation with state and local authorities and based upon best available information, designate existing and potential beneficial uses for significant surface and groundwater bodies in the region.

Not all beneficial uses are appropriate to all significant waterbodies. Estuarine (EST) resources would only be expected in waters which receive tidal flow from a salt water source.

Beneficial Uses of Waterbodies in the Santa Clara Basin

In assessing the water quality conditions of the waterbodies within the Santa Clara Basin, it will be important to decide; 1) which designated beneficial uses are the most useful in evaluating environmental health and, 2) which parameters, both those with associated water quality objectives and indicators, can best establish the degree of beneficial use protection for such "targeted uses."

The following discussion describes the beneficial uses of surface waters, ground waters and marshes contained in the Regional Water Quality Control Board's Basin Plan for the San Francisco Basin (Basin Plan) and is offered to provide an understanding of the uses and the water quality objectives associated with their protection. The Basin Plan or Regional Water Quality Control Board staff should be consulted regarding detailed beneficial use protection issues and the application of water quality objectives.

Designated beneficial uses for waterbodies in the Santa Clara Basin are listed in Appendix 1 of this report and are taken from the latest Basin Plan (1995). The descriptions of beneficial uses provided below are slightly based on the narratives provided in the current Basin Plan.

(AGR) Agricultural Supply

Uses of water for farming, horticulture, or ranching, including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing.

Water quality objectives and standards are set to prevent (1) soluble salt accumulations, (2) chemical changes in the soil, (3)toxicity to crops, and (4) potential disease transmission to humans through reclaimed water use. Irrigation water classification systems, arable soil classification systems, and public health criteria related to reuse of wastewater have been developed with consideration given to these issues.

(COLD) Cold Freshwater Habitat

Uses of water that support cold water ecosystems, including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

Water quality objectives/standards are set to protect cold freshwater habitats to support anadromous salmon, steelhead and trout fisheries. Such objectives set limits on key habitat requirements such as temperature and dissolved oxygen. Life within these waters is relatively intolerant to environmental stresses.

(COMM) Ocean, Commercial and Sport Fishing

Uses of water for commercial and recreational collection of fish, shellfish, and other organisms in oceans, bays, and estuaries, including, but not limited to, uses involving organisms intended for human consumption or bait purposes.

(EST) Estuarine Habitat

Uses of water that support estuarine ecosystems, including, but not limited to, preservation or enhancement of estuarine habitats, vegetation, fish, shellfish, or wildlife (e.g., estuarine mammals, waterfowl, shorebirds), and the propagation, sustenance, and migration of estuarine organisms.

The protection of estuarine habitat is contingent upon; 1) the maintenance of adequate Delta outflow to provide mixing and salinity control, 2) provisions to protect wildlife habitat associated with marshlands and the Bay periphery (i.e., prevention of fill activities), and 3) maintenance of dissolved oxygen, pH, and temperature.

(FRSH) Freshwater Replenishment

Uses of water for natural or artificial maintenance of surface water quantity or quality.

(GWR) Groundwater Recharge

Uses of water for natural or artificial recharge of groundwater for purposes of future extraction, maintenance of water quality, or halting saltwater intrusion into freshwater aquifers.

The requirements for groundwater recharge operations generally reflect the future use to be made of the water stored underground. Hence the water quality objectives are set to protect those future uses.

(IND) Industrial Service Supply

Uses of water for industrial activities that do not depend primarily on water quality, including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, and oil well pressurization.

Most industrial service supplies have few water quality limitations except for gross constraints, such as freedom from unusual debris.

(MAR) Marine Habitat

Uses of water that support marine ecosystems, including, but not limited to, preservation or enhancement of marine habitats, vegetation such as kelp, fish, shellfish, wildlife (e.g., marine mammals, shorebirds).

In many cases, the protection of marine habitat will be accomplished by measures that protect wildlife habitat generally, but more stringent objectives may be necessary for waterfowl marshes and other habitats, such as those for shellfish and marine fishes. This beneficial use does not apply to waters within the estuary. Instead, uses protecting estuarine ecosystems and values are applied to the South San Francisco Bay.

(MIGR) Fish Migration

Uses of water that support habitats necessary for migration, acclimatization between fresh water and salt water, and protection of aquatic organisms that are temporary inhabitants of waters within the region.

The water quality objectives established for cold water fisheries protect anadromous fish as well, however, for those migratory species particular attention must be paid to maintaining zones of passage. Any barrier to migration or free movement of migratory fish impacts reproduction. Natural tidal movement in estuaries and unimpeded river flows are necessary to sustain migratory fish and their offspring. A water quality barrier, whether thermal, physical, or chemical, which prevents migration is an indicator of non-protection of this use.

(MUN) Municipal and Domestic Supply

Uses of water for community, military, or individual water supply systems, including, but not limited to, drinking water supply.

The principal issues involving municipal water supply quality are (1) protection of public health; (2) aesthetic acceptability of the water; and (3) the economic impacts associated with treatment- or quality-related damages. Water quality objectives relate to prevention of direct disease transmission, toxic effects, and increased susceptibility to disease. In addition, aesthetic factors are important and include parameters associated with excessive hardness, unpleasant odor or taste, turbidity, and color.

(NAV) Navigation

Uses of water for shipping, travel, or other transportation by private, military, or commercial vessels.

(PRO) Industrial Process Supply

Uses of water for industrial activities that depend primarily on water quality.

Water quality requirements differ widely for the many industrial processes in use today such that no meaningful criteria can be applied to the quality of raw water supplies.

(RARE) Preservation of Rare and Endangered Species

Uses of waters that support habitats necessary for the survival and successful maintenance of plant or animal species established under slate am/or federal law as rare, threatened, or endangered.

The water quality objectives for protection of rare and endangered species are often the same as those for protection of fish and wildlife habitats. However, where rare or endangered species exist, special control requirements may be necessary to assure attainment of this use vary slightly with the environmental needs of each particular species.

(REC1) Water Contact Recreation

Uses of water for recreational activities involving body contact with water where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, whitewater activities, fishing, and uses of natural hot springs.

Water contact implies a risk of waterborne disease transmission and involves human health; accordingly, objectives required to protect this use include limits on bacterial concentrations, tastes and odors, and floating material.

(REC2) Noncontact Water Recreation

Uses of water for recreational activities involving proximity to water but not normally involving contact with water where water ingestion is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tide pool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.

Water quality considerations relevant to noncontact water recreation, such as hiking, camping, or boating, and those activities related to tide pool or other nature studies require protection of habitats and aesthetic features from odors or floating materials.

(SHELL) Shellfish Harvesting

Uses of water that support habitats suitable for the collection of crustaceans and filter feeding shellfish (e.g., clams, oysters, and mussels) for human consumption, commercial, or sport purposes.

Shellfish harvesting areas require protection and management to preserve the resource and protect public health. The potential for disease transmission and direct poisoning of humans is of considerable concern in shellfish regulation, therefore, bacteriological objectives for the open ocean, bays, and estuarine waters where shellfish cultivation and harvesting occur are established to protect public health.

(SPWN) Fish Spawning

Uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish. *Dissolved oxygen levels in spawning areas should ideally approach saturation levels. Free movement of water is essential to maintain well oxygenated conditions around eggs deposited in sediments. Water temperature, size distribution and organic content of sediments, water depth, and current velocity are also important determinants of spawning area adequacy.*

(WARM) Warm Freshwater Habitat

Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

The warm freshwater habitats supporting bass, bluegill, perch, and other panfish are generally lakes and reservoirs, although some minor streams will serve this purpose where stream flow is sufficient to sustain the fishery. The habitat is also important to a variety of non-fish species, such as frogs, crayfish, and insects, which provide food for fish and small mammals. This habitat is less sensitive to environmental changes, but more diverse than the cold freshwater habitat, and the ranges of objectives for temperature, dissolved oxygen, pH, and turbidity are usually greater.

(WILD) Wildlife Habitat

Uses of waters that support wildlife habitats, including, but not limited to, the preservation and enhancement of vegetation and prey species used by wildlife, such as water-fowl.

The two most important types of wildlife habitat are riparian and wetland habitats. These habitats can be impacted by development, erosion, and sedimentation, and by poor water quality.

The water quality requirements of wildlife pertain to the water directly ingested, the aquatic habitat itself, and the effect of water quality on the production of food materials. Waterfowl habitat is particularly sensitive to changes in water quality. Dissolved oxygen, pH, alkalinity, salinity, turbidity, settleable matter, oil, toxicants, and specific disease organisms are water quality parameters particularly important to waterfowl habitat.

Beneficial Use Protection as the Foundation for Watershed Assessment

A work group of the Watershed Assessment Subgroup was formed during the early months of the Watershed Management Initiatives efforts. This group's goal was to present the Core Group and other interested stakeholders with the kinds of data that might be available from local, regional or state sources and that would support assessment of beneficial use protection. The work group studied the kinds of supporting data that would be required to determine beneficial use support. The result of these studies is represented in Figures 2A to 2E.

Since beneficial use protection forms the foundation for water quality goals and setting standards throughout the United States, a watershed assessment should be based upon whether designated beneficial uses are supported. Numerically based water quality criteria exist for many pollutants of concern. These numeric limits can be applied directly to certain beneficial uses such as Agricultural Supply, Groundwater Recharge, Municipal and Domestic Supply, and Recreation. Many of the "fish and wildlife" beneficial uses, however, do not lend themselves to numeric objectives, and therefore, use attainment must be described through narrative objectives and documented through the use of indicators.

This lack of easily quantifiable criteria has led to the development of biologically based monitoring and assessment methods to serve as the foundation for assessing use protection where no specific numeric criteria exist or where application of pollutant-specific parameters is infeasible. USEPA has recommended that States establish comprehensive monitoring programs for significant waterbodies to provide both qualitative and quantitative information sufficient for agency decisions regarding waterbody conditions (USEPA. 1995). The Interagency Task Force on Monitoring Water Quality (ITFM) has recommended the parameters for stream monitoring programs to address appropriate designated uses. Their approach is summarized in Figure 1.

An analysis of data necessary to determine protection of all beneficial uses was seen by the work group as a daunting task. To focus assessment efforts in the Basin, it was recommended that a set of primary keystone beneficial uses *be selected as the foundation for watershed assessment with the understanding that if conditions were met that provided protection of these primary beneficial uses, the conditions for other environmentally related beneficial uses would be attained as well. For a view of how these primary uses support other beneficial uses consult Figures 2A to 2E.*

The primary beneficial uses and the work group's reasoning for their designation as "primary" follow:

- **COLD - Cold Freshwater Habitat**: cold water fish such as salmon and steelhead require stringent chemical, physical and biological conditions which if met would support a wide variety of related aquatic species and habitats including many species of warmwater fish as well as reptile and amphibian populations. In terms of freshwater habitats, anadromous fish populations (such as salmon and steelhead) can be used as indicators for coastal California streams.

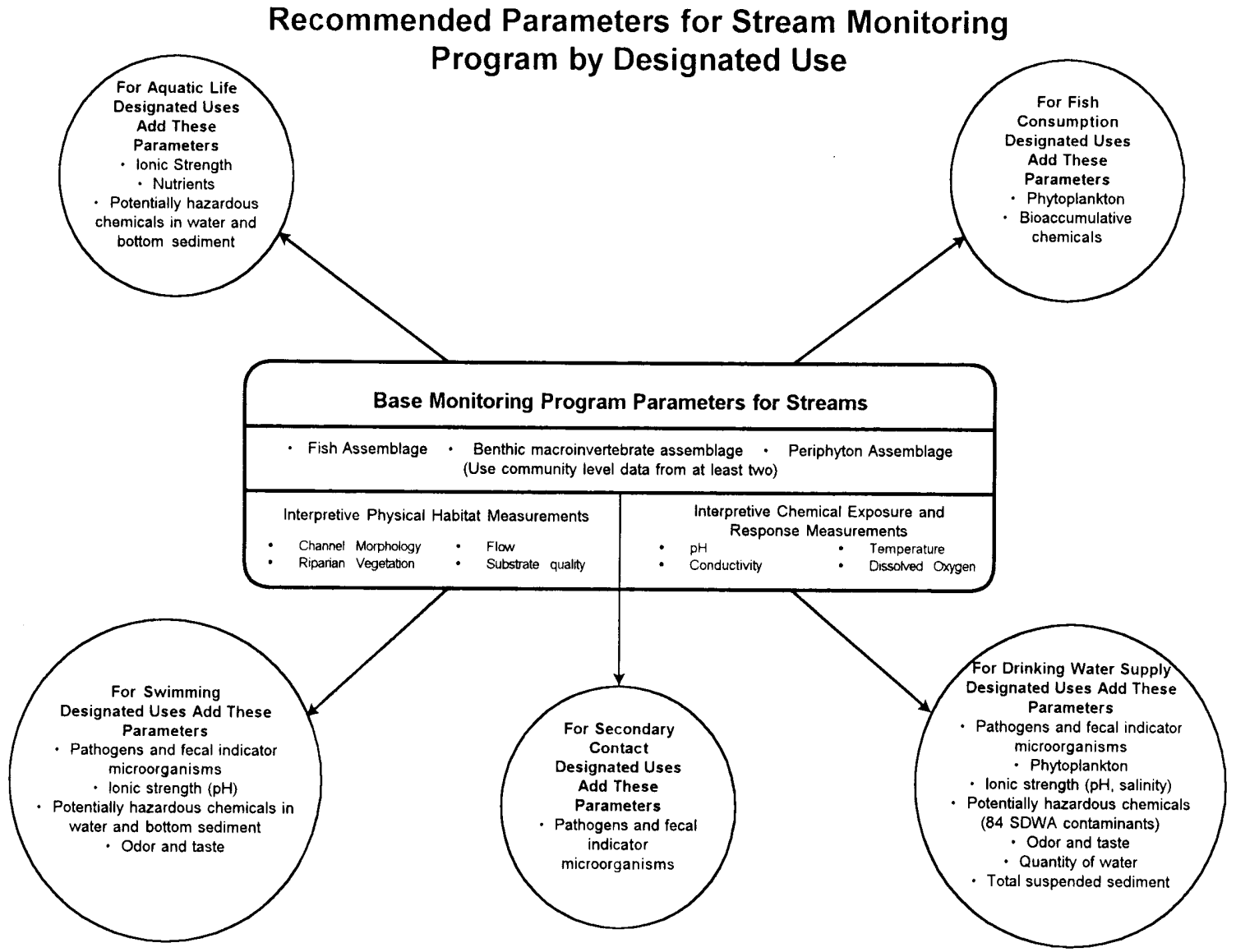

Figure 1. Stream Monitoring Parameters. (After EPA Guidelines for Preparing 305(b) Reports. 1995)

- **RARE - Preservation of Rare and Endangered Species**: Many plant and animal species found in aquatic and terrestrial habitats in the Santa Clara Basin are dependent upon environmental conditions which have been impacted by human activities. Protection of the environmental characteristics which support rare, threatened or endangered species will often result in conditions which are supportive of a wider array of species and habitats. For instance, protection and enhancement of California red-legged frog habitat (which includes small ponds in upland grasslands) provides watering areas for non threatened terrestrial species such as mule deer and tule elk, habitat for fairy shrimp and a host of other aquatic and upland species.

- **REC1 - Water Contact Recreation**: The ability of humans to enjoy body contact recreation such as swimming or wading indicates that many water quality objectives related to contamination and other health and safety considerations are supportive of other human-related beneficial uses of the Basin's waterbodies such as canoeing or kayaking .

- **GWR - Groundwater Recharge**: Since the majority of water uses for human activities are met through groundwater withdrawal, protection of groundwater recharge capacity within the Basin will support many other human-centered beneficial uses.

Other Important Uses of Waterbodies in the Basin

Early stakeholder interest surveys also indicated that flood protection and associated "structural improvements," although not considered a beneficial use by either the State Water Resources Control Board or the USEPA, was of sufficient community benefit to be considered an importantfactor for identifying conditions of surface waters and was added to the list of parameters to assess.

- **Protection from Flooding**: Since much of the urban portion of the Santa Clara Basin is subject to periodic flooding, there was substantial interest by stakeholders in including an assessment of appropriate waterbodies for flood control and private property protection of property.

Addition stakeholder interests may warrant more specific attention as the Watershed Management Initiative progresses.

Process for Primary Use Analysis - Next Steps

If the methodology of primary use and stakeholder parameter assessment is approved by the Core Group, the Watershed Assessment Subgroup can proceed to define which parameters and supporting data would be most suitable to determine the degree of protection of these uses. As shown below in Table 1 there are numerous types of data which can be gathered to indicate the degree of use protection. The next challenge will be to decide which types of data would best serve the goals of the SCBWMI stakeholders.
Once the most useful data types are identified and approved by the Core Group, the data will be identified in the data matrix and made available to the various subgroups of the Watershed Management Initiative for their use in conducting the assessment. It is anticipated that this method of assessment will be applied to all appropriate waterbodies within the Basin regardless of whether the waterbody currently spports or could potentially support these uses or stakeholder interests.

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Table 1. Summary of data associated with primary beneficial uses.

Data Categories	Data Types	Primary Beneficial Use				Stakeholder Interest
		COLD	RARE	REC-1	GWR	FLOOD
Land Use						
	Developed	✓			✓	
	Undeveloped	✓			✓	
	Extent of recreation			✓		✓
Channel Character						
	Aggrading/degrading	✓				
	Sediment size	✓				
	Longitudinal profile	✓				
	Cross-section	✓				
	Bankfull height/width	✓				
Macroinvertebrates						
	Species	✓	✓			
	Population metrics	✓				
Water Quality						
	Dissolved Oxygen	◆	◆			
	Temperature	◆				
	pH	◆		✓		
	Turbidity	✓				
	Alkalinity	✓				
	Nutrients	●				
	PAH's	✓		◆	◆	
	Pesticides/herbicides	✓			◆	
	Metals/VOC's			◆	◆	
	Microbial pathogens			◆	◆	
	Leaking underground tanks				✓	
Spawning Locations						
	Species	✓	✓			
	History	✓	✓			
	Substrate	✓	✓			
Migration Barriers						
	Location	✓	✓			
	Degree of Impediment	✓	✓			
Vegetation						
	Type		✓			
	Extent of cover	✓				
	Size class	✓				
	Extent of non-natives	✓				
	Shading values	✓	✓			
	Absorption/transpiration				✓	

◆ Data type for which numeric objectives are set.
● Specific limits set for un-ionized ammonia.
✓ Data that may be appropriate for determining beneficial use protection.

Data Categories	Data Types	Primary Beneficial Use				Stakeholder Interest
		COLD	RARE	REC-1	GWR	FLOOD
Flow						
	Rate		✓			✓
	Peak	✓				✓
	Duration	✓			✓	✓
	Rainfall	✓			✓	✓
Erosion						
	Type	✓				✓
	Extent	✓				✓
	Sediment Burden	✓				✓
	Reservoir sedimentation			✓		✓
Wetlands						
	Type	✓	✓			
	Extent	✓	✓	✓		
	Location	✓	✓	✓		
	Condition	✓	✓			
	Visitation rate (people)			✓		
Outfalls						
	Location	✓		✓		
	Size	✓				
	Flow characteristics	✓				
	Drainage area	✓				
	Contamination			✓		
	Proximity to recharge zone				✓	
Habitat						
	Type		✓			
	Extent		✓			
	Condition	✓	✓			✓
Biological Resources						
	Population metrics		✓			
Political/Demographic						
	Jurisdiction		✓	✓		
	Legislative protection		✓			
	Park use			✓		
	Trails and access			✓		✓
Fish Consumption						
	Species taken			✓		
	Catch rate			✓		
	Contamination			✓		
Soils						
	Type				✓	✓
	Location				✓	
	Recharge locations				✓	✓
	Landslide locations					✓
Percolation						
	Location of ponds	✓			✓	
	Location of instream	✓			✓	
Data Categories	Data Types	Primary Beneficial Use				Stakeholder Interest
		COLD	RARE	REC-1	GWR	FLOOD

Rainfall						
	Recharge rate/rainfall				✓	✓
Flooding						
	Flood hazard zones (FEMA maps)					✓
	Flooding History					✓
Sedimentation						
	Frequency of removal		✓			✓
	NPDES monitoring data					✓
	Fines for sediment dumping					✓
Other Agencies						
	CalTrans maintenance					✓
	General Plans countywide					✓
	Impervious surfaces					✓
Aerial Photography						
	All					✓
Hydro-modification						
	Past					✓
	Present					✓
	Planned					✓

Figure 2A Data Needed to Assess Cold Water Fish Beneficial Use

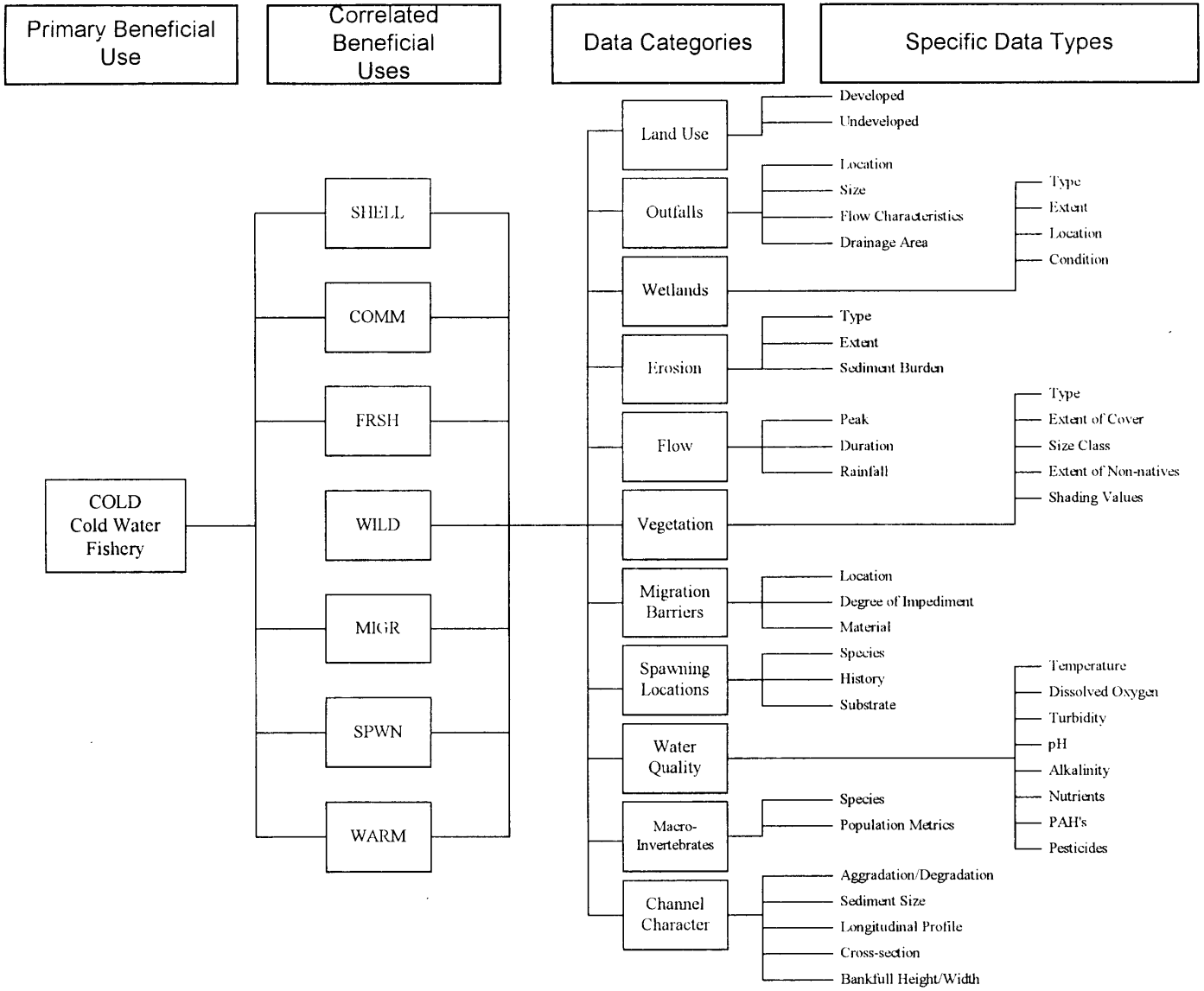

Figure 2B Data Needed to Assess Rare or Endangered Beneficial Use

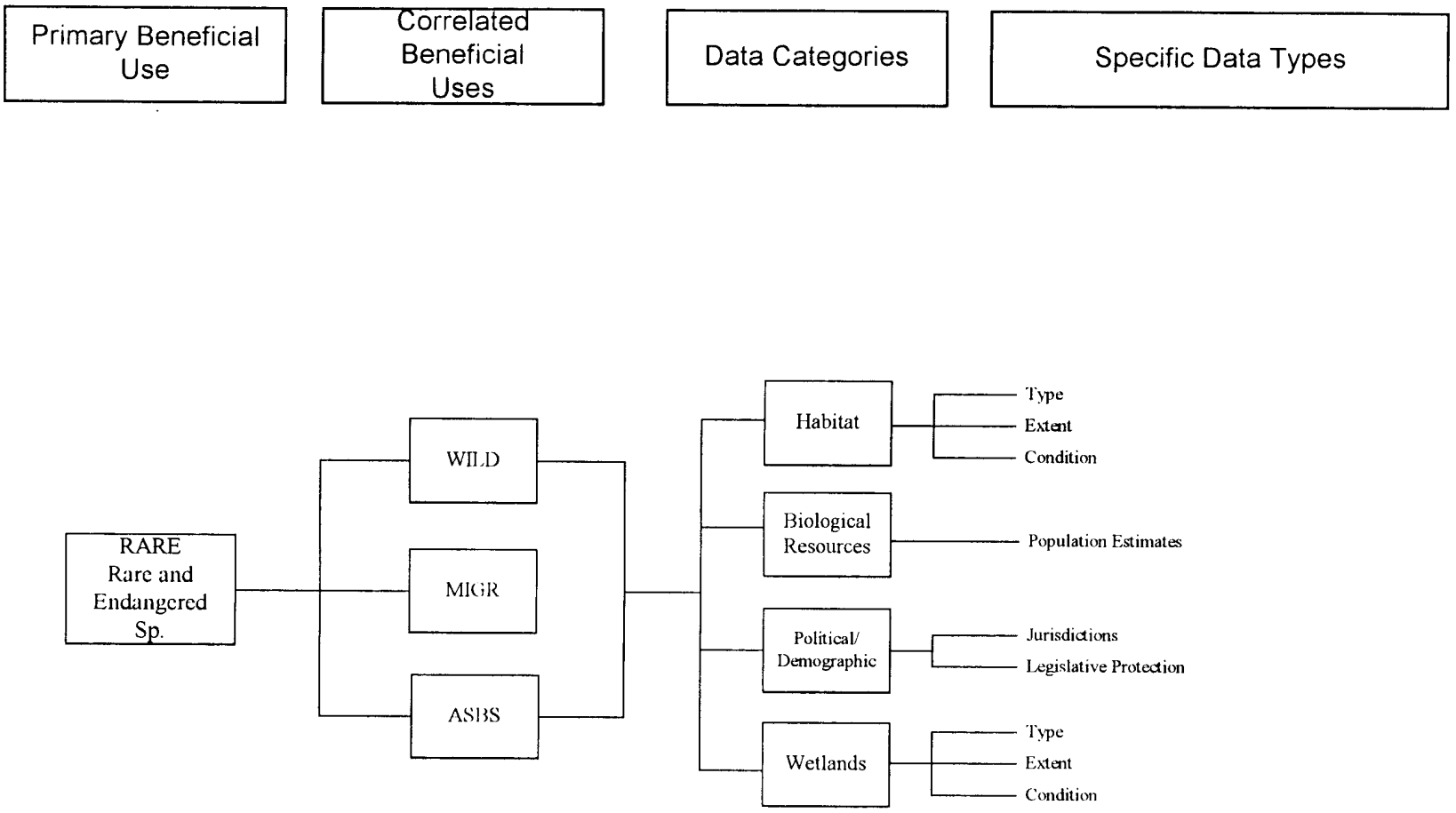

Figure 2C Data Needed to Assess Body-contact Recreation Beneficial Use

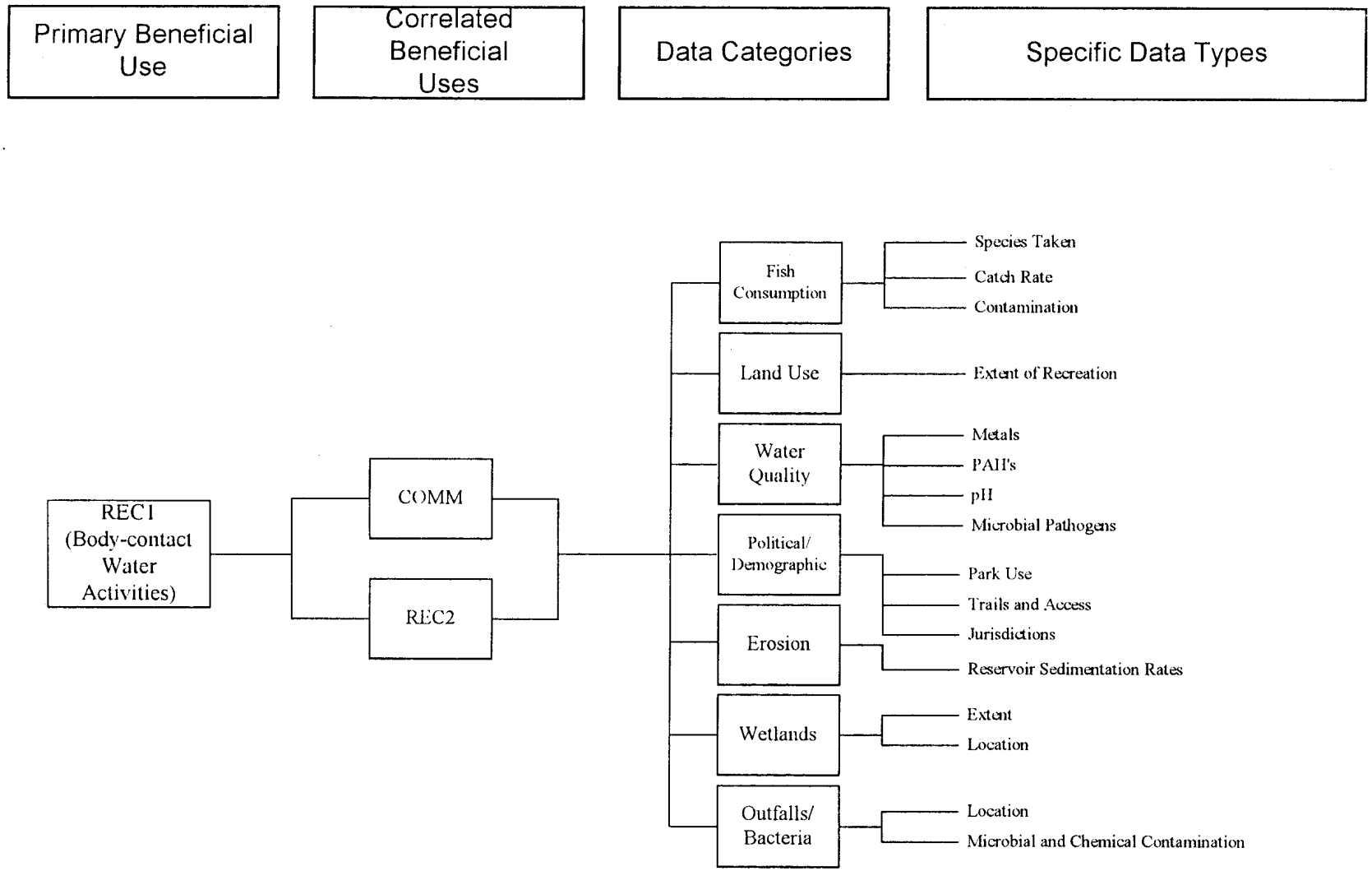

Figure 2D Data Needed to Assess Groundwater Recharge Beneficial Use

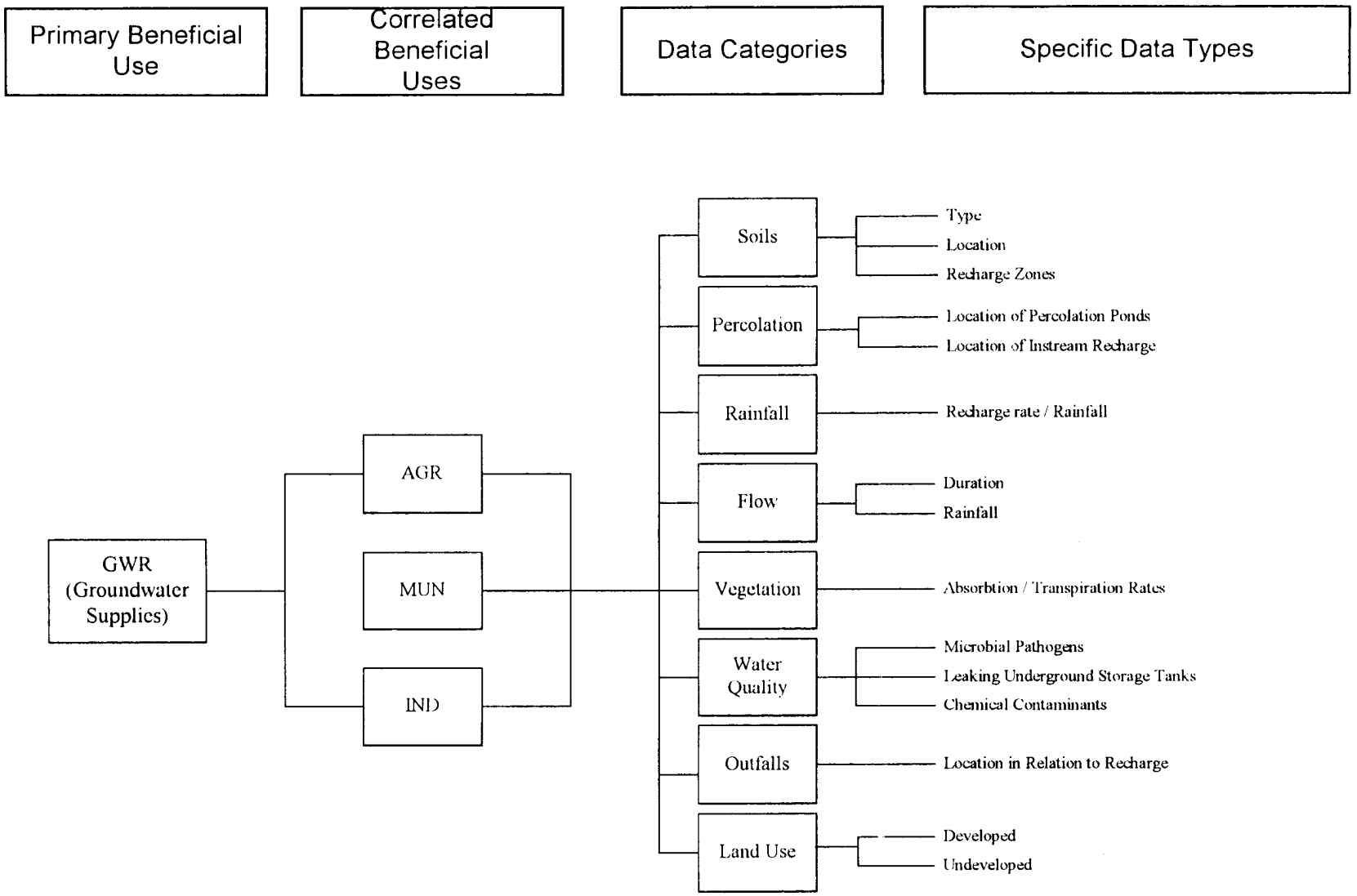

Figure 2E Data Needed to Assess Flood Management Stakeholder Interest

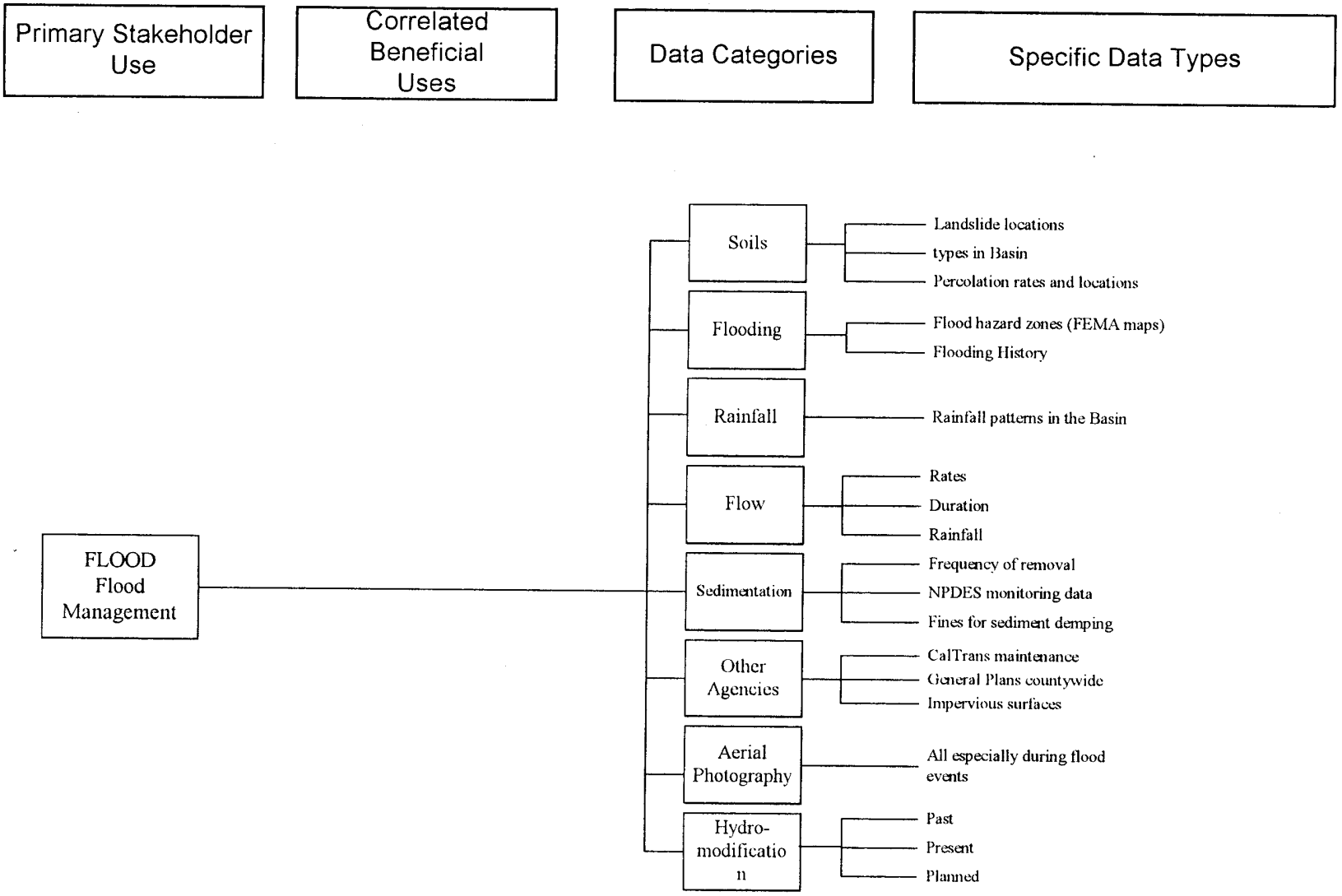

TABLE 2-5 BASIN 5 - SANTA CLARA BASIN

BASIN	WATERBODY	AGR	COLD	COMM	EST	FRSH	GWR	IND	MAR	MIGR	MUN	NAV	PROC	RARE	REC-1	REC-2	SHELL	SPWN	WARM	WILD
San Francisco Bay South				E	E			E		E		E		E	E	E	E	P		E
Matadero Creek			E							E					E	E		E	E	E
Permanente Creek			E												E	E		E		E
Saratoga Creek		E	E			E	E								E	E			E	E
Calabazas Creek		E	E				E					E			E	E			E	E
San Francisquito Creek			E							E					P	P		E	E	E
	Los Trancos Creek																			
	West Union Creek																			
	Felt Lake	E													E	E		E	E	E
Stevens Creek			E			E				E					E	E		P	E	E
	Stevens Creek Reservoir		E				E			E	E					E		E	E	E
Searsville Lake		E	E												E	E		E	E	E
Coyote Creek			E							E				E	P	E		E	E	E
	Elizabeth Lake		E													E		E		
	Fremont Lagoon																			
	Sandy Wool Lake			E						E					E				E	
	Cotton Wood Lake		E												E	E		E	E	E
	Guadalupe Reservoir		E				E				E				E	E		E	E	E
	Coyote Lake	E	E								E				E	E		E	E	E
	Upper Penitencia Creek																			
	Cherry Flat Reservoir	E									E				L	E		E	E	E
	Penitentia Creek																			
	Silver Creek																			
	Soda Springs Canyon Creek																			
	Otis Canyon Creek																			
	San Felipe Creek		P												P	P		P	E	E
	Halls Valley Reservoir														E	E			E	E
	Arroyo Aquague Creek																			
	Berryessa Creek																			
Guadalupe River										P					P	E		P	E	E
	Campbell Percolation Pond																			
	Lexington Reservoir		E								E				E	E		E	E	E
	Los Gatos Creek		E			E	E			P	E					P		P	E	E
	Vasona Lake		E				E								E	E		E	E	E
	Los Gatos Creek																			
	Alamitos Creek																			
	Guadalupe Creek																			
	Herbert Creek																			
	Calero Reservoir						E				E				E	E		E	E	E
	Almaden Reservoir		E				E				E				E	E		E	E	E
	Lake Elsman		E								E									E
	Anderson Lake		E				E				E				L	E		E	E	E
	Barrett Canyon Creek																			
	Herbert Creek																			

E: Existing Beneficial Use P: Potential Beneficial Use L: Limited Beneficial Use Water bodies listed here may not correspond exactly to those that appear on Figure 2

APPENDIX 1