



## Phase 1 Executive Summary

---

## North Bay Watershed Stewardship Plan

**RMC**

---

October 2003

# TABLE OF CONTENTS

## 1. Introduction

1.1 About NBWA	1
1.2 Development of the Watershed Stewardship Plan	2
1.3 Coordination with Other Watershed Activities	3

## 2. Goals and Objectives

2.1 Watershed Stewardship Plan Vision	4
2.2 Water Supply	4
2.3 Water Quality	5
2.4 Flood Protection	5
2.5 Habitat Enhancement	6
2.6 Recreation and Public Education	6

## 3. Regulatory Setting

3.1 Agency Authority	7
3.2 Water Quality	7
3.3 Drinking Water Quality	7
3.4 Water Rights	7
3.5 Wetlands and Riparian Zones	7
3.6 Endangered Species	7

## 4. Geographic Setting

4.1 The North Bay Watershed Region	10
4.2 East Marin Watersheds	10
4.3 Petaluma River Watershed	11
4.4 Sonoma Creek Watershed	11

## 5. Existing Conditions

5.1 Understanding Existing Conditions	12
5.2 Collection Methodology	12
5.3 Water Supply	13
5.4 Water Quality	14
5.5 Flood Protection	15
5.6 Habitat Enhancement	16
5.7 Recreation and Public Education	17

## 6. Next Steps

6.1 Phase 2: Gaps Analysis	18
6.2 Phase 3: Prioritization and Action Steps	18



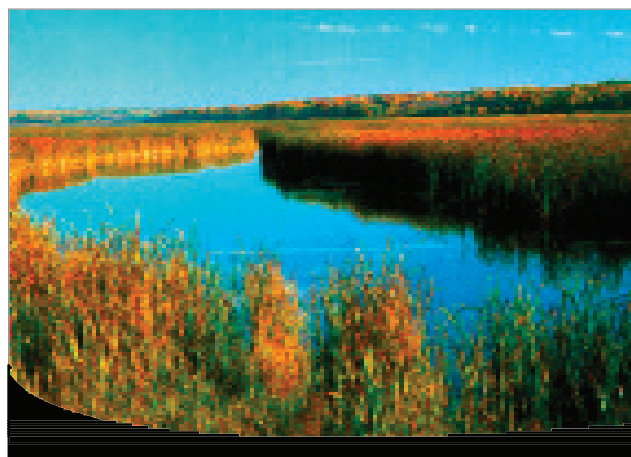
## APPENDICES

*(located on CD in back-cover)*

### Appendix A: Existing Conditions Spreadsheets

- A.1 Water Supply
- A.2 Water Quality
- A.3 Flood Protection
- A.4 Habitat Enhancement
- A.5 Recreation and Public Education

### Appendix B: Existing Conditions Reference List



## OVERVIEW

The North Bay Watershed Association, in cooperation with its member agencies and its Watershed Council, is conducting a multi-year effort to develop a Watershed Stewardship Plan for the areas of eastern Marin and southern Sonoma counties draining to San Francisco and San Pablo bays. The purposes of this effort are as follows:

- To gain consensus among local agencies and stakeholders regarding the long-term goals and objectives related to water supply, water quality, flood protection, habitat enhancement, recreation and watershed education.
- To compare existing conditions in the North Bay watershed area with resource area goals and objectives to define the projects and actions that are needed to achieve the goals and objectives in a timely, cost-effective manner.



*“Water is the most critical resource issue of our lifetime and our children’s lifetime. The health of our waters is the principal measure of how we live on land.”*

--Luna Leopold

- To gain consensus among local agencies and stakeholders regarding the relative importance of the identified projects and actions and the priorities to be followed in implementation.
- To develop an implementation plan that coordinates with other local and Bay Area integrated water resource and watershed planning activities to establish strategies and partnerships for funding and implementation of the highest priority projects.

This Executive Summary describes the results of the Phase 1 work, including the development of goals and objectives for watershed resource areas, definition of the regulatory and geographic settings, and a summary of existing conditions. The work to be conducted in future phases of the Watershed Stewardship Plan is described in the final section of this Executive Summary.

# 1. INTRODUCTION

## 1.1 About NBWA

The North Bay Watershed Association (NBWA) started in 2000 as a coalition of fourteen public agencies responsible for water supply, wastewater treatment, and watershed management activities in eastern Marin and southern Sonoma counties. In 2002, the first agency from Napa County, the Napa Sanitation District, became the fifteenth agency to join NBWA. The association has already completed studies to evaluate the feasibility of large scale regional water recycling and the reduction of toxic pollutants such as mercury. Other technical studies and creek restoration projects are currently being conducted. One of the highlights for the association is an annual spring conference attracting top state and federal watershed experts to share the latest strategies for solving the technical, institutional and funding issues facing agencies responsible for watershed protection and enhancement.



**Watershed Stewardship Plan Area**

which is composed of one representative from each member agency. The Board adopts an annual work plan and budget and approves all contracts and commitments of the association. One of the member agencies, Marin Municipal Water District, acts as the fiscal agent for NBWA. The Board has appointed an Executive Director responsible for the administration of NBWA activities and coordination of

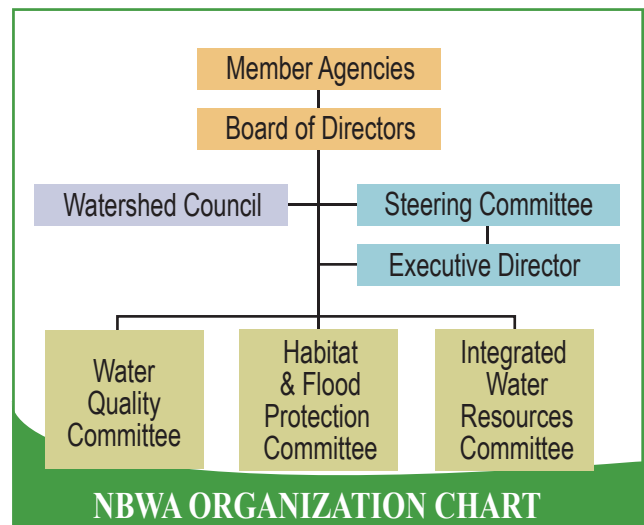
the three technical committees. An Administrative Steering Committee is made up of management staff from member agencies and acts as advisor to the Executive Director on day-to-day management issues. The three technical committees, Water Quality, Habitat and Flood Protection, and Integrated Water Resources, are comprised of staff from the member agencies and are tasked with meeting the goals of the association. The Watershed Council is advisory to the Board of Directors and its members include representatives from

The mission of NBWA is to facilitate partnerships across political boundaries that promote stewardship of the North San Pablo Bay watershed resources. This mission is accomplished by meeting the following goals:

- Bring together local agencies to work cooperatively and effectively on issues of common interest.
- Be proactive on watershed based regulations, which increasingly affect areas beyond traditional political boundaries.
- Work cooperatively to increase eligibility for watershed based funding.
- Maximize effective use of resources.
- Enhance NBWA’s influence on local, state, and federal policies and programs.
- Educate communities about the importance of watershed stewardship.

The governing body for NBWA is the Board of Directors,

the local community and representatives from state and federal resource agencies.



## 1.2 Development of the Watershed Stewardship Plan

The idea for a North Bay Watershed Stewardship Plan (WSP) started with the NBWA Habitat and Flood Protection Committee. Several local and regional efforts had addressed habitat enhancement and other environmental issues facing areas of the North Bay, but there was not a plan encompassing the entire geographic area and entire list of resource areas of interest to NBWA agencies. The purpose of the Watershed Stewardship Plan is to provide a framework for protecting and enhancing the natural resources of the eastern Marin and southern Sonoma County areas of the North Bay. The plan may be expanded into Napa County in the future, if and when other Napa County public agencies become NBWA member agencies.

The Watershed Stewardship Plan will utilize a consensus-based approach to define the desired future state of the watershed and recommended actions necessary to achieve that state. The actions will be presented in the form of prioritized projects and policies. Consensus will be pursued among NBWA agencies and also among the diverse group of stakeholders represented by the Watershed Council. The approval process for the Watershed Stewardship Plan is shown on the figure to the right. This approach will (a) ensure that NBWA agencies work together to cooperatively improve the conditions of the watershed for the least possible cost and (b) provide the greatest potential for state and federal funding, which typically requires a watershed approach to defining optimum solutions to water supply, water quality and habitat enhancement issues.

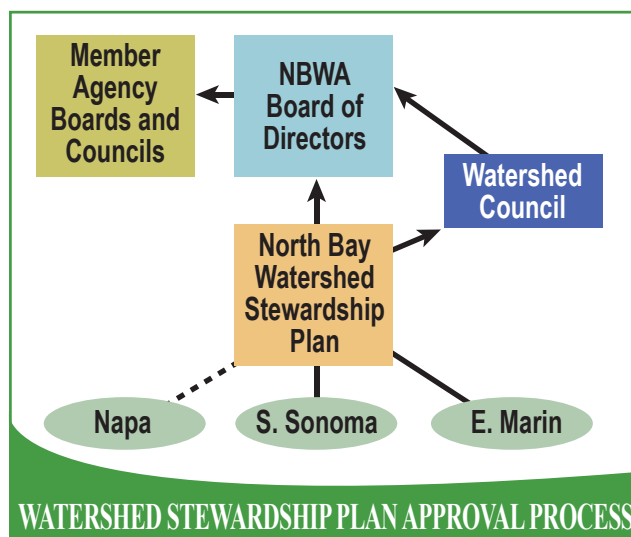
The development of the Watershed Stewardship Plan will occur over three years to conform to NBWA's annual budget and to allow time to achieve consensus among NBWA agencies and the Watershed Council. The three years have

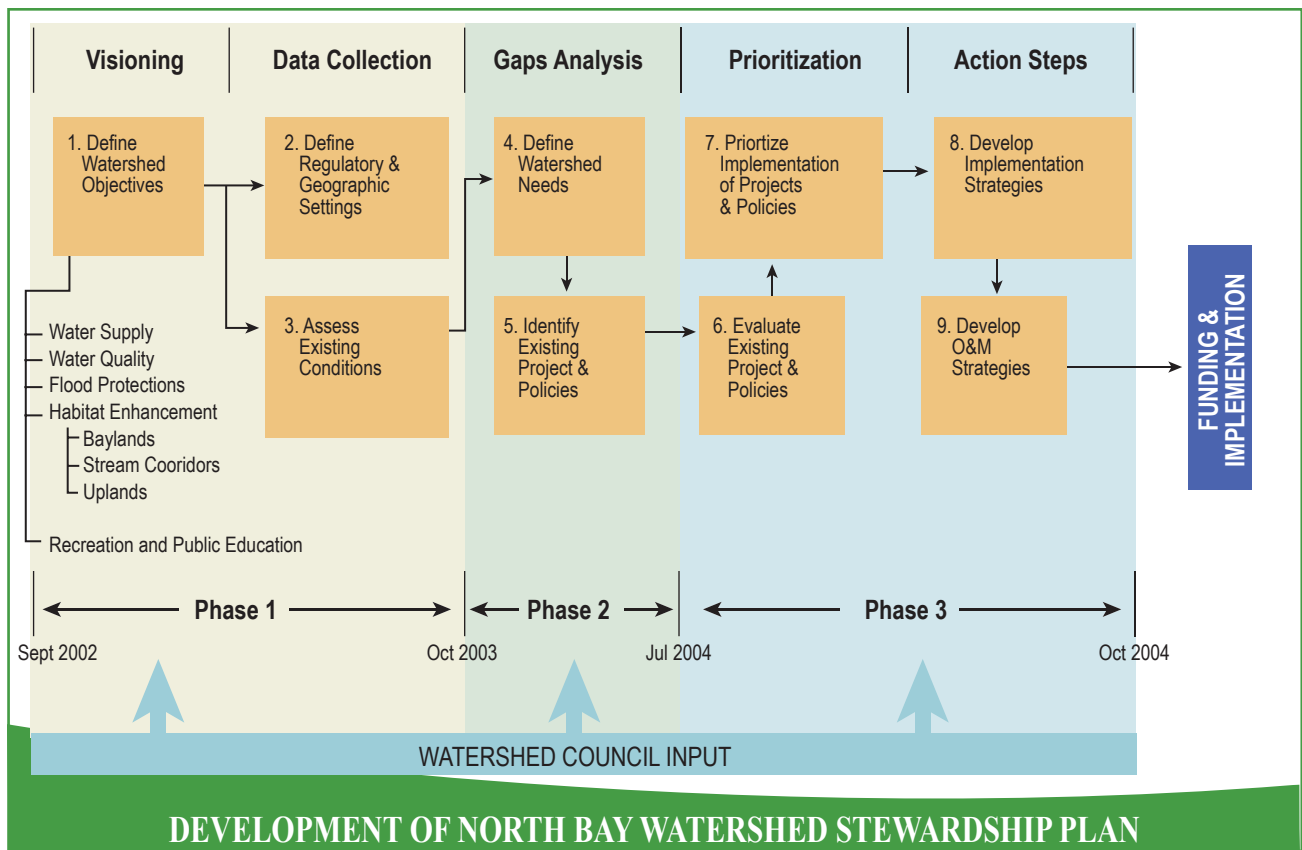
been translated into three phases as shown on the figure on the following page. Phase 1 has included a visioning process where workshops have been held with the Habitat and Flood Protection Committee, the Watershed Council, and other interested parties to define goals and objectives for the following resource areas:

- Water Supply
- Water Quality
- Flood Protection
- Habitat Enhancement (Baylands, Stream Corridors, and Uplands)
- Recreation and Public Education

Phase 1 has also included an overview of the regulatory setting related to the above resource areas and the geographic setting related to the subwatersheds within the study area. Finally, Phase 1 identified the existing conditions, including programs and policies, that impact each of the five watershed stewardship resource areas. Phase 2 will be conducted over the next year and will include a comparison of the goals and objectives with the existing conditions to define the measures required to improve the watershed to desired conditions. This second phase will involve definition of the projects, policies and activities needed

to achieve the goals and objectives for each resource area. The final phase, Phase 3, will involve continuation of the consensus building approach to obtain agreement on the project priorities. Phase 3 will also involve definition of partnerships and funding strategies needed to implement the highest priority projects in a timely manner.





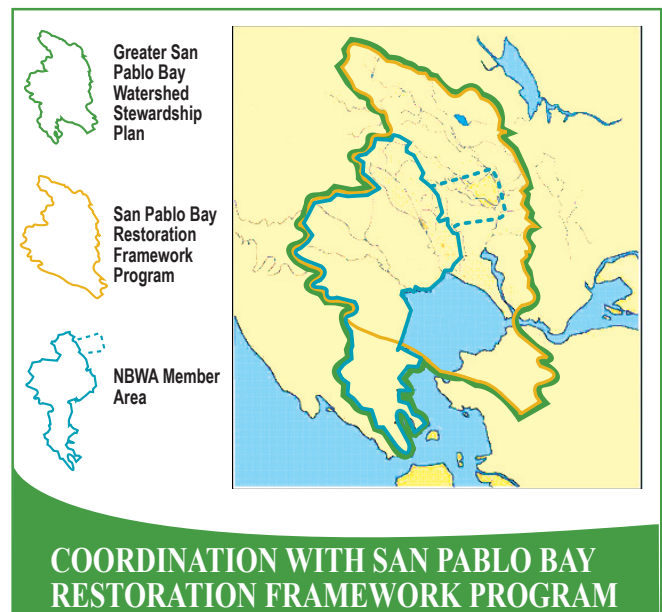
### 1.3 Coordination with Other Watershed Activities

Various local and regional planning studies have been conducted related to habitat enhancement and other environmental issues facing the North Bay. These studies include the following:

- Baylands Ecosystem Habitat Goals
- Marin Countywide Plan
- Petaluma Watershed Enhancement Plan
- San Pablo Bay Watershed Restoration Framework Program
- Sonoma Creek Watershed Restoration Study

Other studies are now being planned including the next phase of the San Pablo Bay Watershed Restoration Framework Program and a Bay Area-wide Integrated Water Resources Management Plan. The Habitat and Flood Protection Committee has been careful to scope out the work for the North Bay Watershed Stewardship Plan such that it complements and augments other studies, but does not duplicate other efforts in any way. That approach will continue to be utilized, and recommendations from the next phases of the Watershed Stewardship Plan will be coordinated with other studies being conducted within the NBWA watershed area to ensure consistency and compatibility. For example, if and when other

Napa County agencies join NBWA, it may make sense to expand the North Bay Watershed Stewardship Plan to include the Greater San Pablo Bay as shown on the map below. This could be done by consolidating information from the Watershed Stewardship Plan with information from the San Pablo Bay Watershed Restoration Framework Program since these efforts are complementary and not duplicative.



## 2. GOALS AND OBJECTIVES

### 2.1 Watershed Stewardship Plan Vision

The Habitat and Flood Protection Committee and the Watershed Council have developed an overall vision for the Watershed Stewardship Plan that will ensure that limited resources are effectively used to solve the most pressing problems first and that the North Bay will be better positioned for future state and federal funding opportunities. This vision, which stems from the NBWA mission and goals described previously, is summarized as follows:

- Provide a framework to manage the watershed for a healthy, safe and enhanced quality of life for people and wildlife.
- Establish a consensus based approach utilizing diverse stakeholder input.
- Provide prioritized projects and policies for implementation by citizen groups, landowners, and agencies with jurisdiction and management responsibility in the North Bay.

These basic principles are being followed in the conduct of the Phases 1, 2 and 3 tasks, and they are also integrated into the specific goals and objectives for the five resource areas. The relationship between the overall watershed vision and the goals and objectives of the five resource areas is presented on the figure below.

A general goal has been defined for each resource area. The specific objectives for each resource area goal define the details for meeting that goal. Candidate projects will be developed in Phase 2 of the Watershed Stewardship Plan as alternatives for achieving the stated objectives. The goals and objectives for the five resource areas are as follows:

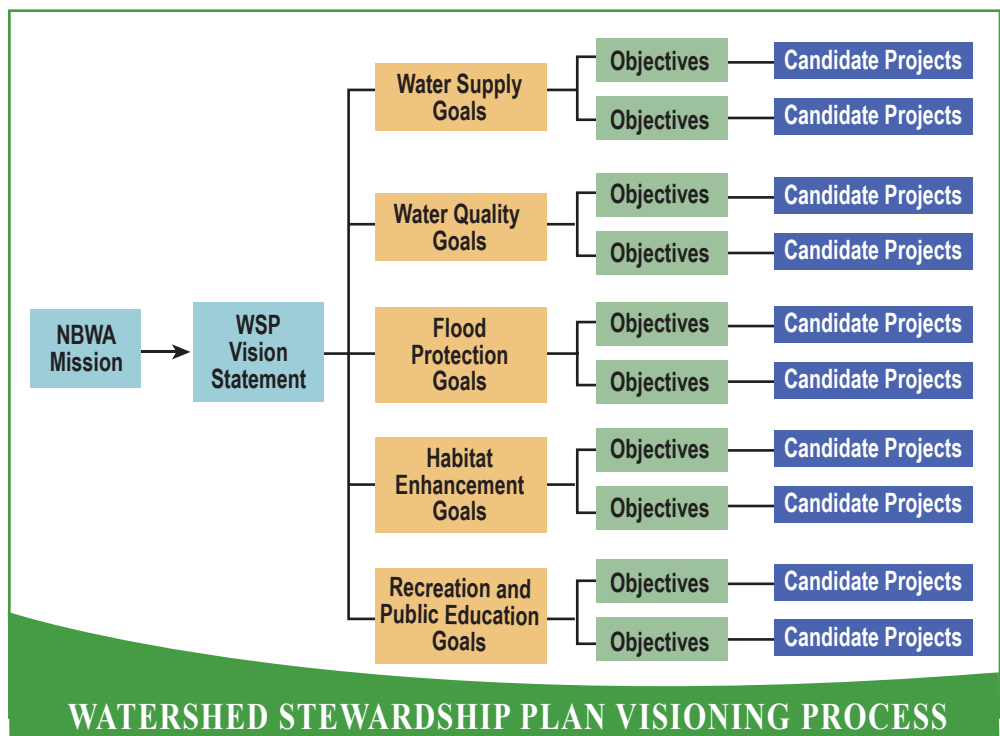
### 2.2 Water Supply

#### GOAL:

Protect, restore, and manage water resources in order to provide a sustainable water supply to meet the needs of the community and support natural resources.

#### OBJECTIVES:

- Provide sustainable potable water supply to meet the long-term needs of the watershed’s residents, local industry, and agriculture, while protecting natural resources.
- Establish groundwater management practices to avoid overdrafts and ensure a long-lasting, beneficial use of groundwater resources.
- Maximize the use of recycled water to offset potable and non-potable water needs.
- Optimize water conservation to offset potable and nonpotable water needs.
- Support efforts to monitor surface water flows to identify in-stream water levels and associated timing necessary to maintain a healthy aquatic and wildlife habitat.



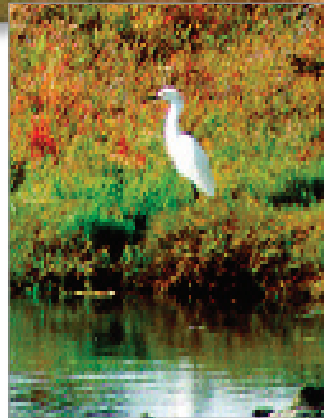
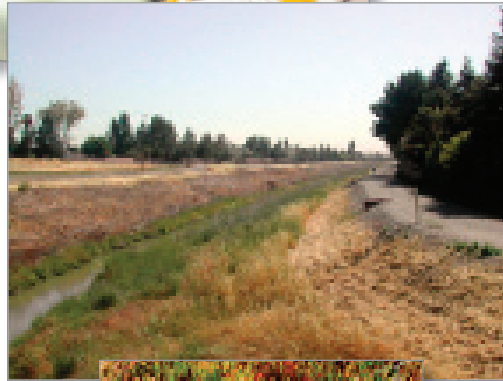
## 2.3 Water Quality

### GOAL:

Protect, restore, and manage surface and groundwater quality to meet potable water needs and support natural resources.

### OBJECTIVES:

- Support efforts to protect receiving waters from pollution to comply with current and future water quality regulations and maintain healthy aquatic systems.
- Support efforts to protect surface and groundwater supplies to enable compliance with all applicable drinking water regulations.
- Support coordination or collaborative efforts to monitor surface and groundwater quality to identify point and non-point pollution sources.
- Promote coordination to implement best management practices (BMPs) related to water quality issues.
- Work collaboratively to remove impaired water body designations.
- Implement measures to manage and reduce erosion, sedimentation, and refuse accumulation in streams.
- Maintain and, where possible, restore streams to a state of geomorphic equilibrium in order to avoid excessive erosion and sedimentation and maximize habitat value.
- Implement measures to reduce or eliminate dry weather nuisance flows.



## 2.4 Flood Protection

### GOAL:

Apply knowledge of watershed hydrologic processes to reduce flood hazards to people and property in a manner compatible with natural resource protection.

### OBJECTIVES:

- Assess flooding characteristics and hazards for each subwatershed, evaluate existing flood protection systems, and identify flood prone areas in need of flood protection improvement.
- Protect and preserve natural flood plains.
- Implement BMPs to manage sediment loads and erosion in streams.
- Manage modified streams and flood protection facilities that convey design flows while supporting ecosystem functions.
- Integrate flood protection with stream restoration efforts by encouraging the use of environmentally sensitive flood protection means.
- Encourage the use of source control BMPs to reduce upstream stormwater runoff.
- Incorporate recreation, environmental enhancement, and community participation features into stormwater detention and conveyance projects.





## 2.5 Habitat Enhancement

### GOAL:

Protect and enhance aquatic, riparian, and upland habitats.

### OBJECTIVES:

- Support protection and, where possible, contribute to restoration of diverse habitats for threatened or endangered species, and locally relevant native species.
- Support coordination or collaborative efforts to monitor threatened or endangered species populations.
- Protect and enhance buffers along riparian corridors including those along intermittent streams.
- Establish management practices to restore dominance of locally relevant native species and reduce non-native or invasive species.
- Protect and where appropriate, restore key corridors for wildlife movement.
- Identify and support monitoring of key indicators for assessing watershed health.



## 2.6 Recreation and Public Education

### GOAL:

Integrate outdoor recreational and educational opportunities with watershed management initiatives such as water quality and habitat protection, restoration, and management activities.

### OBJECTIVES:

- Promote expansion and connectivity of local and regional trail systems where compatible with the outlined resource goals and objectives.
- Increase or improve interpretive features along accessible streams and wildlife habitat areas.
- Support recreational opportunities in waterways that are compatible with water quality and water resource goals and objectives.
- Support coordination or collaborative efforts with stakeholder groups to promote public education and community involvement in watershed management and restoration activities.
- Support efforts to promote educational opportunities related to cultural and historic resources.
- Promote research projects related to watershed resources.

## 3. REGULATORY SETTING

### 3.1 Agency Authority

The regulations governing water resources and watershed management are complex. Several resource areas and activities are regulated by both state and federal laws and are administered by both state and federal agencies. In some cases the state agency administers both the state and federal laws. A summary of the state and federal agencies regulating watershed issues is presented in the table on the following page. The Regional Water Quality Control Board (Region 2) takes the lead on regulating most water quality issues. The Regional Board is a subset of the State Water Resources Control Board, which regulates water rights issues. The U.S. Environmental Protection Agency (EPA) delegates administration of the Clean Water Act to the State and Regional Boards. Drinking water quality is regulated primarily by the State Department of Health Services, which has been delegated authority for administration of the federal Safe Drinking Water Act by EPA. Activities in wetlands and waters of the United States are primarily regulated by the U. S. Army Corps of Engineers, the Regional Water Quality Control Board and the San Francisco Bay Conservation and Development Commission. Threatened and endangered species regulations are administered by the State Department of Fish and Game, the National Oceanic and Atmospheric Administration (NOAA) Fisheries, and the U.S. Fish and Wildlife Service.

### 3.2 Water Quality

Instream water quality is regulated by the federal Clean Water Act and California's Porter-Cologne Act. The Clean Water Act was originally adopted in 1972 to restore the physical, chemical, and biological integrity of the nation's waters. The initial focus of the act was the control of point source discharges from municipal and industrial wastewater treatment plants. An amendment to the act in 1987 placed restrictions on non point sources emphasis and also broadened the pollutants of concern to include all substances affecting the natural environment. The Clean Water Act requires all potential sources of pollution to be permitted through the National Pollutant Discharge Elimination System (NPDES). The Porter-Cologne Act was enacted by California in 1969, and it calls for the preparation of water quality control plans or "basin plans" to be developed within each region of the state. These basin plans designate the beneficial uses of surface waters and the corresponding water quality objectives to support those uses. The last version of the basin plan for the San Francisco Bay

Area was adopted by the Regional Water Quality Control Board in 1995.

### 3.3 Drinking Water Quality

Drinking water quality is regulated by the federal Safe Drinking Water Act, which required EPA to establish national drinking water standards in 1974. Drinking water quality is also regulated by the California's Safe Drinking Water Act, Title 22 of the California Code of Enforcement, and by the Safe Drinking Water and Toxic Enforcement Act of 1986, also known as Proposition 65.

### 3.4 Water Rights

California operates under a dual system of water rights recognizing both riparian and appropriative water rights, and these rights are regulated by the State Water Resources Control Board. The public's right to use navigable waters is protected by the Commerce Clause of the U.S. Constitution.

### 3.5 Wetlands and Riparian Zones

Wetlands are defined by the U.S. Army Corps of Engineers and EPA as follows: "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." The regulation of wetlands comes from Section 404 of the Clean Water Act which requires permits for activities affecting the integrity of wetlands. Projects affecting fish and wildlife habitats also require permits under the California Department of Fish and Game's Lake and Streambed Alteration Program.

### 3.6 Endangered Species

Species of fish, wildlife, and plants that are in danger of, or threatened with, extinction are protected by the federal Endangered Species Act. Section 7 of the act requires that the U.S Fish and Wildlife Service or NOAA Fisheries be consulted before any actions are taken that may adversely affect a listed species or its designated "critical habitat." A summary of applicable laws, regulations and permits applicable to watershed issues is provided in the table on page 9.

AGENCIES	Surface Water Quality	Ground-water Quality	Drinking Water	Water Rights	Wetland Fill	Dredging	Fish and Wildlife	Agriculture	Flood Control	Hazardous Materials	Land Use
<b>STATE</b>											
Bay Conservation and Development Commission	C				L	L					L
Regional Water Control Board		L	C	C	L	L	C	C	C	L	C
State Water Resources Control Board	L	C	C	L	C	C	C	C		L	
Department of Fish and Game	L			C	C	C	L				C
State Lands Commission	L	L			C						L
Department of Toxic Substances Control										L	C
Department of Health Services	C	C	L								
Department of Water Resources				L					C		C
Department of Pesticide Regulation		C						L			
Integrated Waste Management Board											C
<b>FEDERAL</b>											
Environmental Protection Agency	L	L	L		C	C		C		L	
Army Corps of Engineers					L	L			L		
Bureau of Reclamation				L					C		
Natural Resources Conservation Service								C			C
National Marine Fisheries Service					C						
Fish and Wildlife Service	C				C		L				

L = Lead agency, with permitting, enforcement, or implementing authority  
C = Commenting agency to the lead agency

TOPICS	REGULATIONS AND LEGISLATION	ASSOCIATED PERMITS	LEAD AGENCIES
Water Quality	Federal Clean Water Act; California Porter-Cologne Act	Waste Discharge Requirements; Industrial Pretreatment Permit; NPDES Municipal Stormwater Permit; NPDES Wastewater Permit	State Water Resources Control Board; Regional Water Quality Control Board
Drinking Water Quality	Safe Drinking Water Act; California Safe Drinking Water Act; Title 22; Proposition 65	Annual Water Quality Report; Consumer Confidence Report; Public Water Supply Permits	Cal-EPA; Department of Health Services
Water Rights	Appropriative Rights Process; Riparian Rights Process; Public Trust Doctrine		California Department of Water Resources; State Water Resources Control Board; U.S. Bureau of Reclamation
Wetlands and Riparian Zones	Clean Water Act	404/401 Permits	Regional Water Quality Control Board; Bay Conservation and Development Commission; U.S. Army Corps of Engineers
Endangered Species	Federal Endangered Species Act; California Fish and Game Code	Incidental take permits	U.S. Fish and Wildlife Service; California Department of Fish and Game; National Marine Fisheries Service
Fisheries	Magnuson Act; California Fish and Game Code		U.S. Fish and Wildlife Service; California Department of Fish and Game; National Marine Fisheries Service
Land Use	California Environmental Quality Act; Local General Plans, Zoning Ordinances; California Planning, Zoning and Development Law		California State Lands Commission; San Francisco Bay Conservation and Development Commission
Vector Control	California Public Health Codes		Marin/Sonoma Mosquito and Vector Control District
Pesticides	Federal Insecticide, Fungicide, and Rodenticide Act; California Pesticide Contamination Prevention Act; Food Quality Protection Act	Pesticide Registration; Applicator Certification	California Department of Pesticide Regulation

## SUMMARY OF WATERSHED LAWS, REGULATIONS, AND PERMITS

## 4. GEOGRAPHIC SETTING

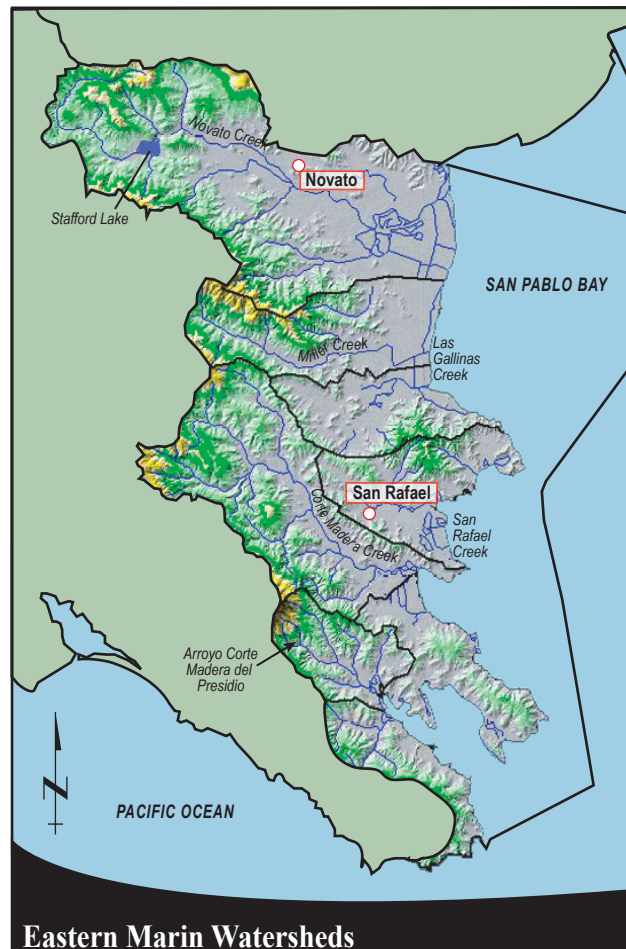


### 4.1 The North Bay Watershed Region

The San Pablo Bay watershed covers an area of approximately 900 square miles incorporating lands in eastern Marin County, southern Sonoma County, Napa County, and northern Contra Costa County as shown in Chapter 1. The NBWA Watershed Stewardship Planning Area covers the southern Sonoma and eastern Marin portions of that greater San Pablo Bay watershed area. The NBWA watershed area is further divided into sub-watersheds based on the major rivers and creeks that drain into the San Pablo Bay.

### 4.2 East Marin Watersheds

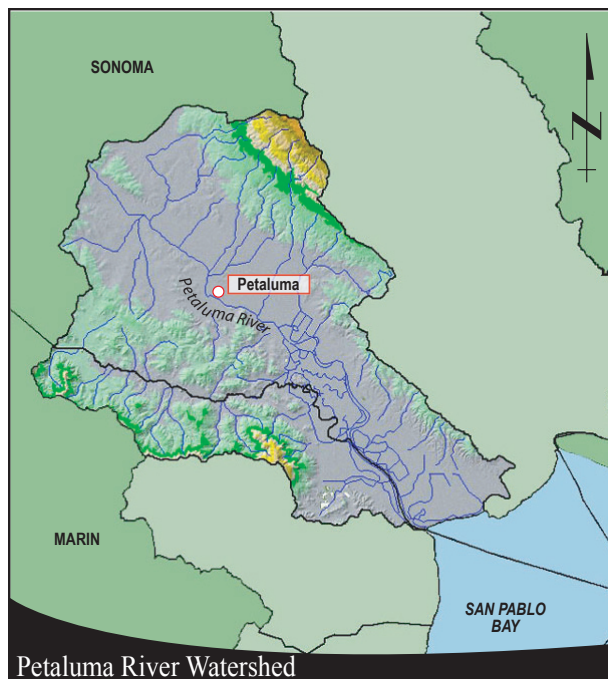
Land use in eastern Marin County subwatersheds has been greatly influenced by ordinances and zoning districts set in the Marin Countywide Plan. Marin County has established three major planning corridors in the County: the City-Centered Corridor, the Inland Rural Corridor, and the Coastal Recreation Corridor. Only the first two corridors will be considered since the third corridor falls outside this Plan's study area. The City-Centered Corridor comprises all lands between the San Pablo/San Francisco Bay shore and the foothills. This corridor is heavily developed with major urban centers such as the Town of Sausalito, the Town of San Rafael, or the City of Novato. Habitats along the bay shore include tidal wetlands and sloughs, mudflats, and diked baylands. Some of this land has retained its natural habitats although a considerable portion has been reclaimed for agricultural uses, airports, major transportation routes (e.g. Highway 101), and/or urban development. Plains adjacent to the bay shore are heavily urbanized. The adjacent foothills



consist of woodland, chaparral, and scrubland. They are less developed although residential development is expanding from the more crowded plains onto the adjacent hills. The Inland Rural Corridor comprises the watershed's uplands. These lands are protected from urbanization and are reserved for open space, rural villages, agricultural use, grazing, and water reservoirs. Habitats include perennial grasslands, oak woodlands, and chaparral. Agricultural activity is an important element of Marin County's economy with approximately 42% of the land in agricultural use. The dairy industry and livestock production make up the largest portion of agricultural use.

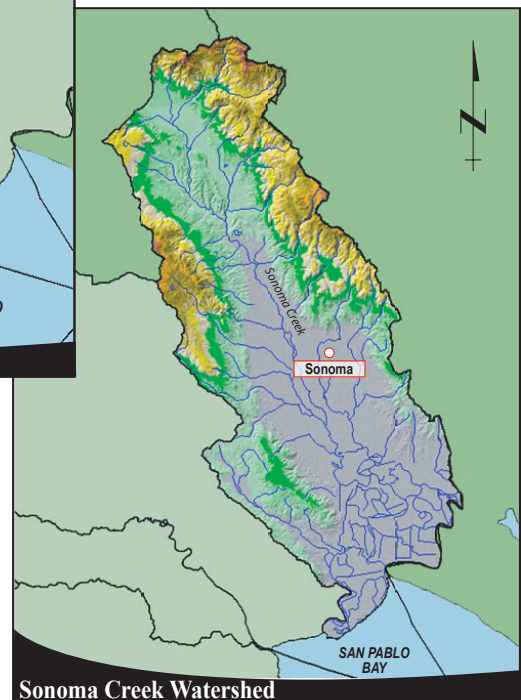
### 4.3 Petaluma River Watershed

In Sonoma County, the Petaluma River watershed is comprised of approximately 32 square miles and extends from gently sloping hills in the upper watershed to the baylands along the San Pablo Bay watershed. The City of Petaluma, a major urban center, is located at the center of the watershed, adjacent to the Petaluma River. The lower portions of the watershed consist of salt marshes, reclaimed wetlands, and diked wetlands. The Petaluma Marsh is the largest remaining salt marsh in San Pablo Bay covering 5,000 acres with an additional 7,000 acres of reclaimed wetlands. As in eastern Marin County, a significant portion of these baylands were historically diked and reclaimed for agricultural use. The upper watershed consists of hilly terrain with some rural development, poultry and livestock farming, dairies, and a limited number of vineyards. These land uses are gradually being replaced by residential development. Upland habitats include perennial grasslands, oak woodlands, and chaparral/scrublands.



### 4.4 Sonoma Creek Watershed

The Sonoma Creek watershed comprises a land area of approximately 170 square miles. Hills to the east and west of the watershed separate it from the Petaluma and Napa River watersheds. These hills slope down into a large valley that expands to the baylands bordering the northern shores of San Pablo Bay. These baylands consist of tidal sloughs, seasonal wetlands, freshwater and brackish marshes, and diked wetlands. As in the eastern Marin County and Petaluma River watersheds, a large portions of the baylands were historically diked for hay farming, grain production, and grazing. In recent years, smaller portions have also been converted to vineyards. The baylands are also used for recreational purposes such as fishing, boating, and hunting. The City of Sonoma is located in the center of the watershed with most other urban/commercial development concentrated along Sonoma Creek. There is also some agricultural use and rural development at the east and west fringes of the city. Parks, public open spaces, and agricultural uses such as vineyards, livestock farming, dairies, and crop farming dominate the upper watershed.



## 5. EXISTING CONDITIONS

### 5.1 Understanding Existing Conditions

In order to meet the goals and objectives outlined within the Watershed Stewardship Plan, an understanding of the issues and projects that currently exist and those that will soon exist within the watershed is necessary. For the purposes of this plan, an existing condition has been defined as any current or projected future condition that relates to the goals and objectives for any of the WSP's five resource areas.

Identifying both the known issues and problems along with the projects that have already been developed in response in those issues will produce a more accurate and balanced existing conditions assessment. As the final step in Phase 1 of the watershed stewardship planning process, identifying the existing conditions lays the ground work necessary for the Phase 2 gaps analysis.



### 5.2 Collection Methodology

The data shown in the resource area existing conditions listings was collected as a result of stakeholder input provided through NBWA's Watershed Council and Habitat and Flood Protection Committee. Members provided references to recent reports and data related to each individual resource area. Over 40 reports were reviewed to pinpoint the existing conditions within each of NBWA sub-watersheds. In addition, phone interviews were conducted with stakeholders to obtain further information on existing or planned projects in the watershed.

An individual list of existing conditions was compiled for each resource area and can be found in Appendix A on the attached CD. These tables list each of the individual existing issues and projects that are summarized in the following sections. A bibliography listing the references used to compile the existing conditions is also included on the CD as Appendix B.



### 5.3 Water Supply

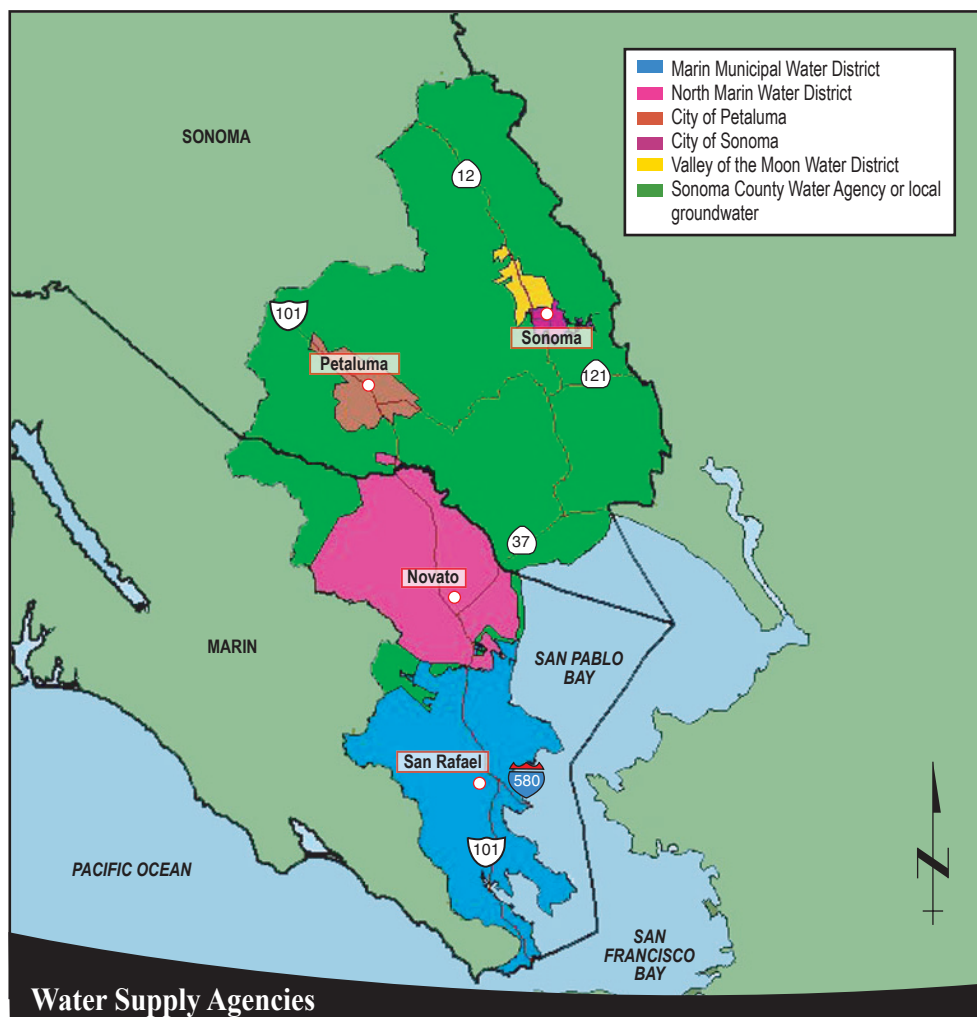
As listed in the Goals and Objectives outlined in Chapter 2, the goals of the water supply resource area are concerned with ensuring a safe and reliable water supply for domestic, industrial, and agricultural uses as well as for an environment that is home to both human and natural habitats.

Within the North Bay region, existing conditions with regards to water supply focus not only on traditional water supply sources, but also on alternative resources such as conservation, water reuse, and marine water desalinization.

The NBWA region obtains most of its water directly from several water agencies that operate in the area. Although these agencies supply water to eastern Marin and southern Sonoma counties, the majority of the water supply is from outside of these areas. The Sonoma County Water Agency (SCWA) obtains nearly all of its supply from the Russian River in western Sonoma. SCWA in turn directly supplies

the cities of Petaluma and Sonoma, and both the Valley of the Moon Water District (VOMWD) and the North Marin Water District (NMWD). SCWA also supplies water indirectly to the Marin Municipal District (MMWD) through a contract between MMWD and NMWD.

The two Marin County agencies, NMWD and MMWD, also supply eastern Marin with water collected and stored locally at the Stafford Lake and Lagunitas Lake Reservoirs respectively. There is very little groundwater available for use due to the underlying geology of Marin County. Sonoma County on the other hand does have some areas where groundwater aquifers are an available and used resource. Every water supply agency that supplies water to any part of the NBWA region also uses some type of alternative water resource for supplying its customers.



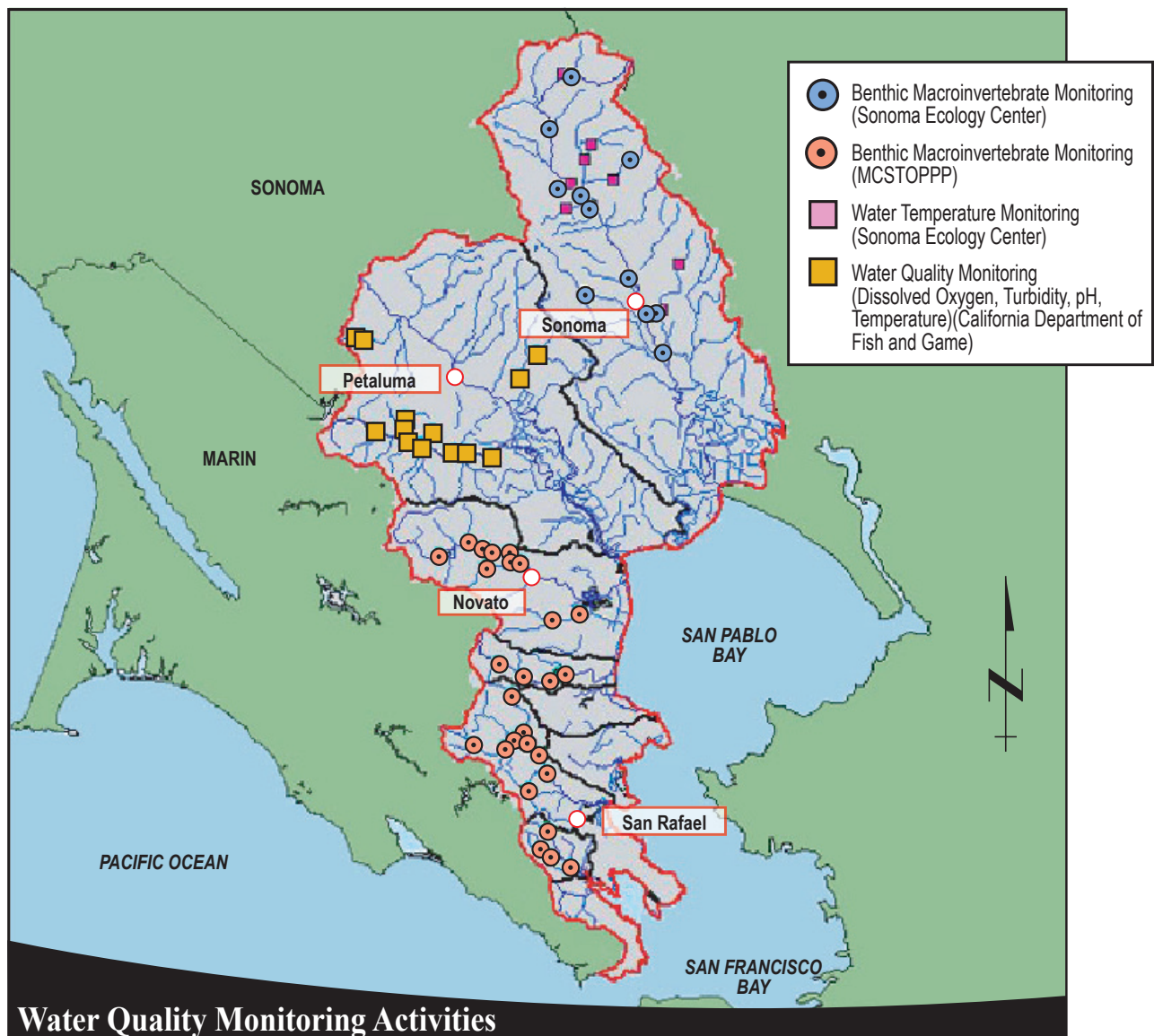


## 5.4 Water Quality

The San Pablo Bay is listed for multiple contaminants including pesticides; dioxin compounds, exotic species, furan compounds, mercury and nickel, PCBs, and selenium. Sources for these contaminants vary from nonpoint sources to atmospheric deposition, ballast water, and municipal point sources. The map below highlights some of the testing sites used to assess the water quality of North Bay creeks and rivers.

storm water runoff and dry weather discharges from storm drains. The Petaluma River and Sonoma Creek are listed as impaired from both nutrient and pathogen nonpoint source contaminants as well as sedimentation. The major sources for both contamination and erosion based sedimentation include rural land uses such as cattle grazing, feedlots, and horse stables; construction and land development activities; and urban runoff and storm drain discharges.

The majority of streams draining to San Pablo Bay have been identified as being impaired for diazinon as a result of



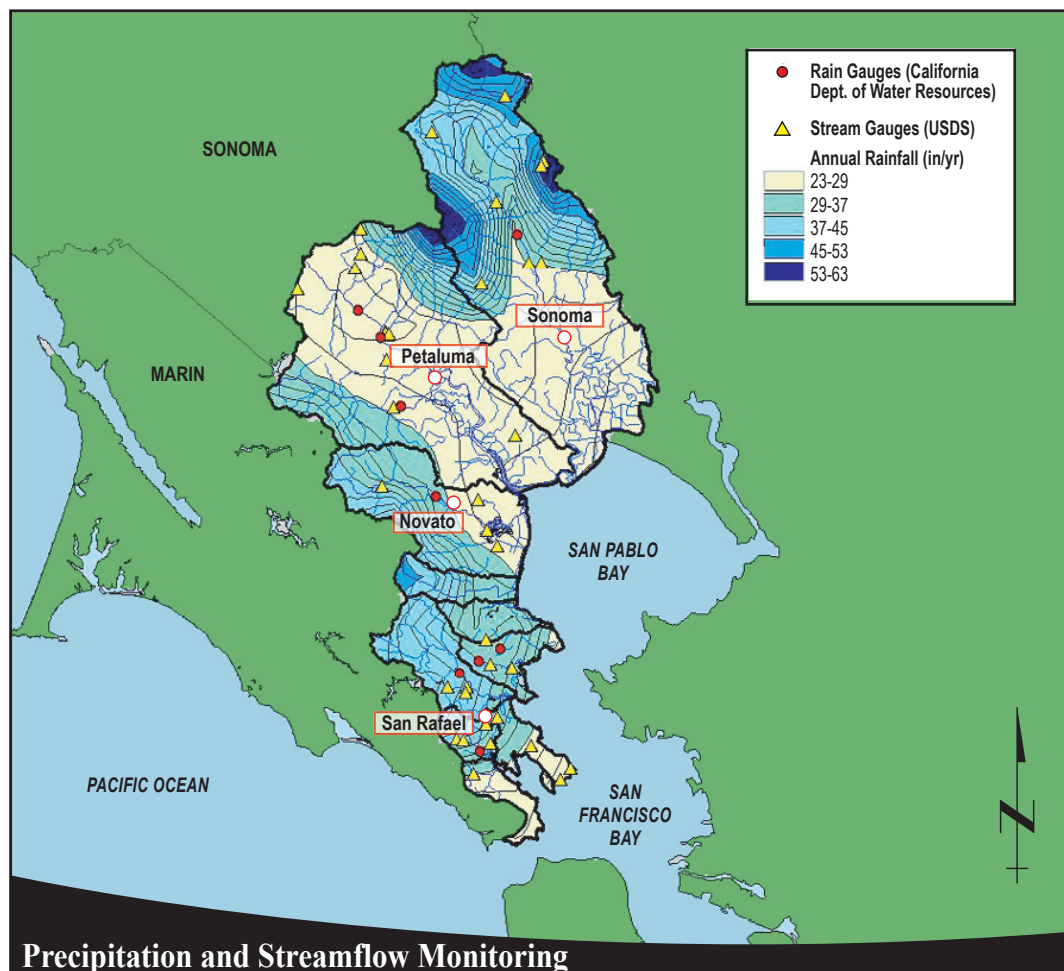
## 5.5 Flood Protection

Within the NBWA region there are two main Flood Control Agencies: Marin County Flood Control and Water Conservation District (MCFCWCD) and the Sonoma County Water Agency (SCWA). Both MCFCWCD and SCWA oversee flood protection for each of flood control zones in the region. These zones were established to address a variety of watershed-specific problems.

In response to repeated occurrences of major flooding within eastern Marin's populated areas, there have been numerous flood control projects and activities. Major flood control project examples include the Novato Creek Flood Control Project (NCFCP) and the Corte Madera Creek Flood Control Project (CMCFCP). Both of these channels are subject to high rates of channel aggradation due to excessive upstream erosion. As a result, their conveyance capacities have been reduced from their design capacities

and the areas adjacent to these creeks are still prone to floods.

In Sonoma County, the Petaluma River is continually maintained and dredged by the USACOE for navigational purposes yet there are areas susceptible to severe flooding. For one of these areas, Payran Reach, the USACOE is working with the City of Petaluma, to integrate flood protection with habitat restoration measures. The reclaimed tidal lands in southern Sonoma County are protected from tidal flows by dikes. These dikes also serve as dams, trapping floodwaters and restricting their dissipation into the floodplain, however flooding still occurs in these areas. SCWA does have flood channel maintenance responsibilities in Petaluma and to a limited extent, Sonoma Valley. The map below highlights some of the stream flow and rain gages used in the region to aid in flood prediction and monitoring.



## 5.6 Habitat Enhancement

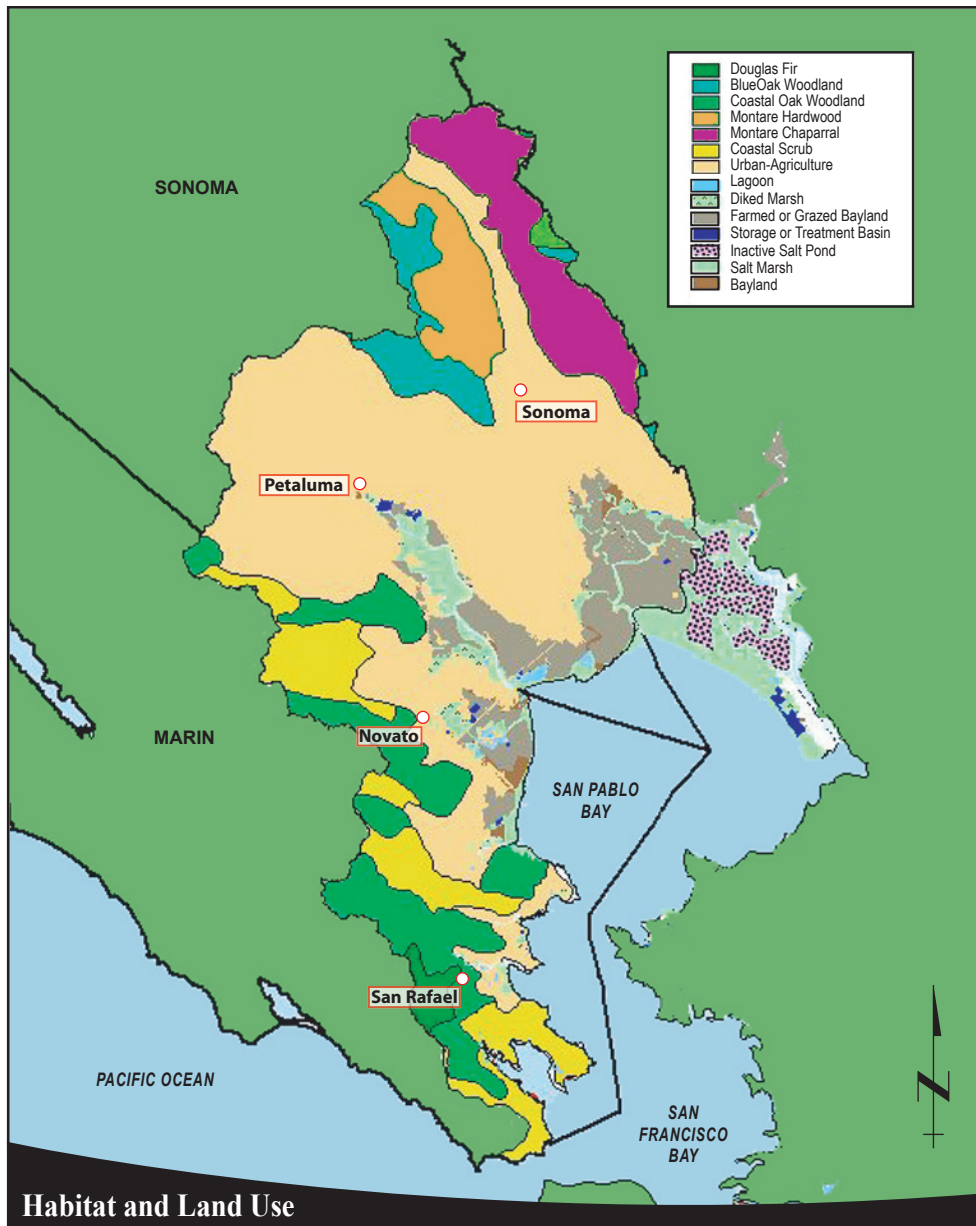
The NBWA region and its subwatersheds are comprised of varied habitats that are home to many threatened and endangered species. Finding ways to preserve these habitats is an essential part of watershed stewardship planning. The existing conditions for the habitat enhancement resource area (shown in Appendix A.4) are categorized by the three major habitat types found commonly found within San Pablo Bay watersheds: baylands, stream corridors, and uplands.

Ecosystems in the baylands include tidal salt marshes, brackish marshes, intertidal mudflats, and diked baylands. This habitat plays a vital role in supporting species such as the salt marsh harvest mouse and California clapper rail. However, invasive species and the diking and filling of baylands for agricultural use are contributing to habitat loss.

Stream corridors have been further subdivided into in-stream and riparian habitats. Several streams in the North

Bay support the threatened coho salmon and steelhead trout, although their population is declining. Riparian vegetation along a stream contributes to bank stabilization and water quality protection. Many riparian habitats in the North Bay are dominated by fast-growing exotic species or contain riprap and are therefore devoid of vegetation.

The upland habitat is composed of several ecosystems including oak woodlands, perennial grasslands, chaparral/scrubland, and vernal pools. These habitats support several special status species such as the California tiger salamander and vernal pool tadpole shrimp.



## 5.7 Recreation and Public Education

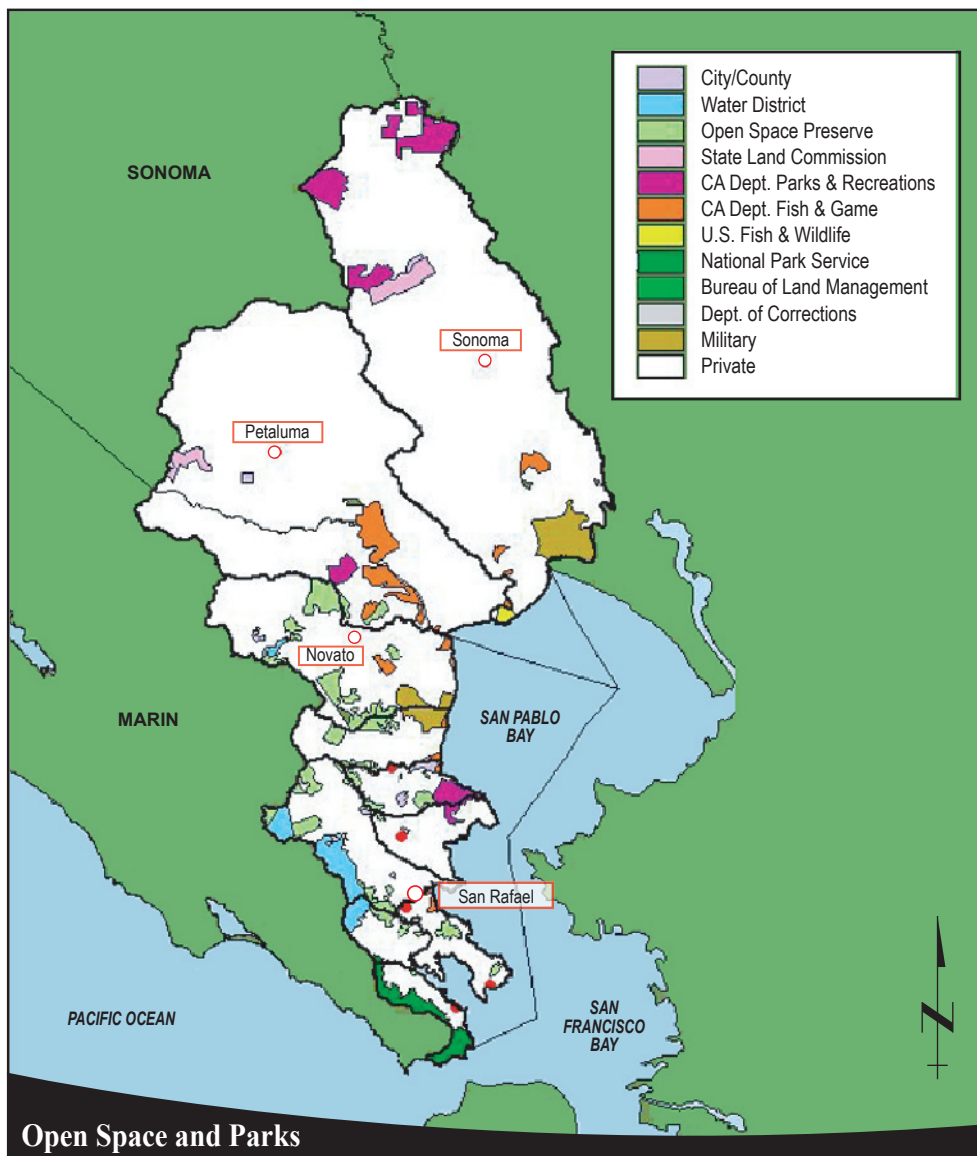
The goals and objectives associated with the Recreation and Public Education resource area highlight the need for special planning efforts dedicated toward creating a balance between the human and environmental needs within watersheds.

Educating the public on watershed issues is essential toward maintaining the healthy environment that is home to the numerous recreational activities enjoyed by residents and visitors throughout the North Bay region.

It is often through recreation that the public can have the greatest impact on the delicate balance found in the North Bay's watersheds. While some water agency lands are restricted from public access, much of the land and reservoirs are open for public enjoyment. Specialized trail projects and habitat and water quality education programs are two examples of exist-

ing conditions shown in Appendix A.5 that directly impact this resource area.

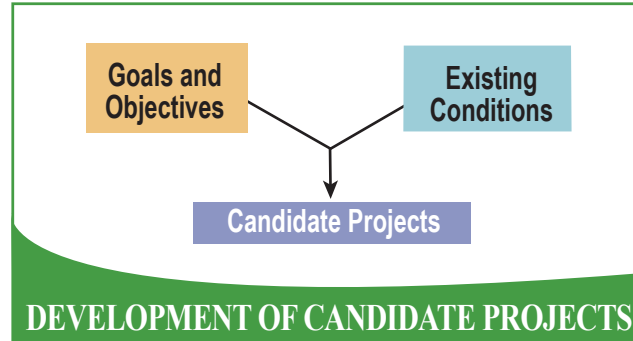
As the population of the North Bay grows, the development associated with that growth results in the reduction of natural habitat areas and open spaces. The NBWA area is varied mix of urban agricultural, and open (natural/park) land uses. Balancing these competing land is essential toward meeting the goals established for Recreation and Public Education outlined in Chapter 3. Parkland to developed land ratios have been established to determine the level at which development impedes the aesthetic and recreational needs of a community. Communities with needs for increased recreational parks/trails are listed as existing conditions within Appendix A.5. (Data for maps in this section adapted from the KRIS database.)



## 6. NEXT STEPS

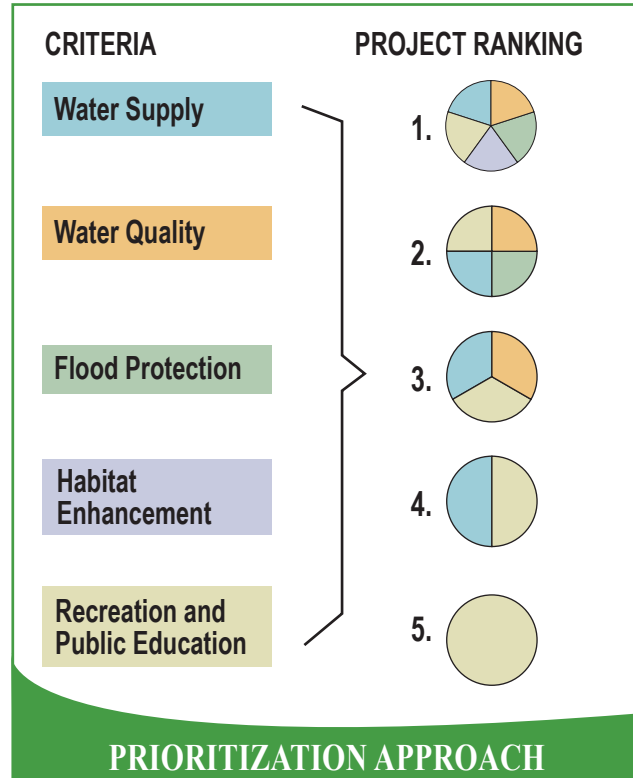
### 6.1 Phase 2: Gaps Analysis

As shown on the previous task flow diagram for the development of the Watershed Stewardship Plan and in the figure below, the Phase 2 work will involve a comparison of existing conditions with the resource area goals and objectives to define the gap between “where we are” versus “where we want to be.” This gaps analysis includes a definition of the watershed needs by resource area and by subwatershed, and then identification of the candidate projects, policies and activities required to meet those watershed needs. For example, if a stream is currently identified as being water quality impaired for a certain pollutant, and elimination of that designation is one of the water quality objectives, then candidate projects, policies and/or activities will be identified in the next phase of the Watershed Stewardship Plan to resolve that particular issue. The Phase 2 work will be complete by July 2004.



### 6.2 Phase 3: Prioritization and Actions Steps

The final phase of the North Bay Watershed Stewardship Plan is shown on the previous task flow diagram to include two major efforts—the prioritization of projects and policies and the definition of action steps for implementation. The prioritization effort will involve the definition of ranking criteria that are typically based upon the resource area goals and objectives, and then a comparison of the candidate projects and policies with those criteria. As with all other Watershed Stewardship Plan tasks, these activities will involve consultation with the Watershed Council and other interested parties to ensure a consensus based approach. A simplified example of the prioritization process is provided in the figure at left where the project that ranks the highest is the one providing benefits to all of the resource areas being considered. The Phase 3 report will recommend partnerships and strategies for implementation of the highest ranked projects, including strategies for obtaining outside funding sources. Phase 3 of the



North Bay Watershed Stewardship Plan will be completed within one year, by October 2004.

