[In addition to adding the following language, several other minor revisions will be made, including appropriate changes to the Title Page, Table of Contents, Summary of Basin Plan Amendments (Appendix 1), page numbers, and headers and footers to reflect the new language.]

1. INTRODUCTION

~~The primary responsibility for the protection and enhancement of water quality in California is assigned to the State Water Resources Control Board (State Water Board) and the nine regional water quality control boards. The State Water Board sets statewide policies and plans for the implementation of state and federal laws and regulations. The regional water boards adopt and implement water quality control plans (basin plans) which recognize the unique characteristics of each region with regard to natural water quality, actual and potential beneficial uses, and water quality problems.~~

1.1 STATE AND REGIONAL WATER BOARDS

In establishing the California Water Code, the California State Legislature assigned the primary responsibility for the protection and enhancement of water quality to the State Water Resources Control Board (State Water Board) and the nine regional water quality control boards.

The State Water Board sets statewide policies and plans for the implementation of state and federal laws and regulations. The regional water boards adopt and implement water quality control plans (basin plans) which recognize the unique characteristics of each region with regard to natural water quality; past, present, and reasonably foreseeable beneficial uses; and water quality problems.

The jurisdiction of the North Coast Regional Water Quality Control Board (Regional Water Board) encompasses all basins draining into the Pacific Ocean, including Lower Klamath Lake and Lost River basins, and extends from the California-Oregon state line southerly, to the southerly boundary of the watershed of the Estero de San Antonio and Stemple Creek in Marin and Sonoma counties.

The Regional Water Board is a nine-member decision making body, appointed by the Governor and confirmed by the State Senate. The Board holds regular meetings, typically monthly, at different locations throughout the Region. The day-to-day work of the Regional Water Board is carried out by civil service staff, both technical and administrative, under the direction of an Executive Officer appointed by the Board.

~~**HISTORY OF BASIN PLANNING IN THE NORTH COAST REGION**~~

~~The nine regional water boards were established as "regional water pollution control boards" by the Dickey Act of 1949. The names of the regional water boards were changed, and their authority broadened, by the Porter-Cologne Water Quality Control Act of 1969. The development of comprehensive basin plans was initiated in response to both federal and state directives.~~

~~The North Coast Regional Water Quality Control Board (Regional Water Board) first adopted an interim Basin Plan in 1971. This was a brief, basic document which was used until comprehensive basin plans for its two natural hydrologic basins, the Klamath River Basin 1A and the North Coastal Basin 1B, were developed, adopted by the Regional Water Board, and approved by the State Water Board in 1975. Also in 1975, the comprehensive plans were condensed into two abstracts which were adopted by the Regional Water Board and approved by the State Water Board.~~

~~In the development of the 1975 comprehensive plans, the California Department of Water Resources was the major contractor for planning in Basin 1A. A three member consortium (basin contractor) consisting of Brown and Caldwell, Water Resources Engineers, Inc. and Yoder-Trotter-Orlob and Associates conducted the planning for Basin 1B. The basin contractors were aided by several subcontractors for specialized studies outside the contractors' expertise. The State Water Board contracted with agencies to organize and supply their respective data for each subbasin. The Regional Water Board and staff participated throughout the planning process and were responsible for organizing and conducting the public meetings and workshops. An Office of Technical Coordination (OTC) was established by contract with the State Water Board to provide technical criteria, coordination and standardization to the Basin Planning Program. OTC reviewed the~~

plans for technical content and coordination on a statewide level.

In 1975, the State Water Board's Office of Planning and Research in conjunction with the regional water boards organized and directed the statewide basin planning program. Planning areas were defined in accordance with natural hydrologic boundaries. At that time, a total of 16 study basins were defined within the nine administrative regional water boards and two of these basins, the Klamath River Basin 1A and the North Coastal Basin 1B comprised the boundaries of the North Coast Regional Water Quality Control Board

Since 1975, the Regional Water Board and Regional Water Board staff have had the primary responsibility for basin planning. The Regional Water Board observes the formal public hearing process while considering basin planning issues, and before submitting its decision to the State Water Board for approval. The Basin Planning Unit of the State Water Board's Division of Water Quality serves to coordinate planning efforts among the nine regional water boards as well as the Office of Administrative Law and the U.S. Environmental Protection Agency.

The comprehensive plans and abstracts have been amended several times to serve the needs of the Regional Water Board, its staff, and the public. On April 28, 1988, the Regional Water Board combined and updated the two comprehensive plans and their abstracts into a single Water Quality Control Plan for the North Coast Region (Basin Plan). The Appendix Section of this Plan contains a summary of Basin Plan amendments since 1975.

Planning Relationships

This Basin Plan is only one of a number of plans which deal directly or indirectly with the water resources of the North Coast Region.

At the federal level, overall guidance on the course of future development of water and related land resources is provided by the Comprehensive Framework Study, California Region. This study was completed in 1971 by the Water Resources Council, pursuant to the Water Resources Planning Act of 1965.

At the state level, the California Water Plan calls for the orderly and coordinated control, protection, conservation, development, and use of the state's water resources. Basin plans became part of the California Water Plan after the basin plans were adopted by the regional water boards and approved by the State Water Board.

In addition, several state agencies are involved in planning for resources whose protection and development are dependent on high water quality. Completed plans related to water quality include the California Fish and Wildlife Plan (1966), the California Comprehensive Ocean Area Plan (1967), the California Protected Waterways Plan (1971) and the California Coastal Plan (1975). Senate Bill 1285, an outgrowth of the Protected Waterways Plan, mandated that detailed waterway management plans be prepared for the major North Coast rivers. These plans were prepared by the Protected Waterways Program. Other related plans are the California Outdoor Recreation Resources Plan, the California Coastal Zone Conservation Plan, and the California Wild and Scenic Rivers Management Plan.

All of the counties in the North Coast Region have prepared general plans which include water and sewage disposal elements. These plans are used by the counties for establishing priorities for meeting current and future water and sewerage needs. The counties have prepared solid waste management plans in response to the Nejedly-Z'berg-Dills Solid Waste Management and Resource Recovery Act of 1972, and these are reviewed triennially. In addition, Assembly Bill 2948 of 1986 (the Tanner Bill), requires all counties to adopt plans for the management and disposal of the hazardous and toxic wastes generated within their boundaries.

The protection and orderly development of the Region's water resources

1.2 FUNCTION AND OBJECTIVES OF THE BASIN PLAN

The basic purpose of the state's basin planning effort is to determine the future direction of water quality control for protection of California's waters.

The goal of this North Coast Basin Plan is designed to provide a definitive program of actions designedto preserve and enhance water quality and toprotect beneficial uses of water in the North Coast Region all regional waters. The

Basin Pplan ~~is concerned with all~~addresses many factors and activities which ~~might~~ may affect water quality. It ~~emphasizes , however,~~ includes actions to be taken by the State Water Board and the Regional Water Board ~~since~~ as they have primary responsibility for maintenance of water quality in the North Coast Region.

Specifically, the Basin Plan:

- Designates beneficial uses for surface and ground waters.
- Sets narrative and numerical objectives that must be attained or maintained to protect beneficial uses.
- Defines implementation programs that include specific prohibitions, action plans, and policies to achieve the water quality objectives.
- Describes the North Coast Region's surveillance and monitoring activities.

~~This Basin Plan is comprehensive in scope. It contains a brief description of the North Coast Region, and describes its water quality and quantity problems and the present and potential beneficial uses of the surface and ground waters within the Region. The water quality objectives contained in the plan are prescribed for the purposes of protecting the beneficial uses. The Implementation Plans section describes the measures, which include specific prohibitions, action plans, and policies which form the basis for the control of water quality. Statewide plans and policies are included as well as a description of Regional Water Board surveillance and monitoring activities. The plan contains~~ Additionally, the Basin Plan describes the North Coast Region's provisions for public participation ~~, complies with the requirements of the California Environmental Quality Act, and establishes a setting~~ and provides the framework for the development of discharger regulation. State Water Board water quality control plans and policies also apply within the North Coast Region. These plans are discussed in Chapter 5.

~~Basin plans complement and may be more stringent than water quality control plans and policies adopted by the State Water Board, such as the "Water Quality Control Plan for Ocean Waters of California" and the "Water Quality Control Policy for the Enclosed Bays and Estuaries of California". Provisions of State Water Board plans supersede basin plans; however, the same state plans may allow for site-specific objectives and exceptions in order to meet localized needs and circumstances.~~

~~This Basin Plan is used as a regulatory tool by the Regional Water Board's technical staff.~~ The Basin Plan is the basis for the Regional Water Board's regulatory program. Regional Water Board orders cite the Basin Plan's beneficial uses, water quality ~~standards~~ objectives, and prohibitions applicable to a particular discharge. The Basin Plan is used by other agencies in their permitting and resource management activities. Other state offices, departments, and boards shall comply with the Basin Plan when carrying out activities that may affect water quality unless otherwise directed or authorized by statute. The Basin Plan~~., It~~ also serves as an educational ~~and reference~~ document for the Regional Water Board's technical staff ~~,~~and dischargers. Finally, the Basin Plan provides valuable information to ~~and~~ members of the public about local water quality issues.

1.3 ADDITIONAL WATER PLANNING EFFORTS

This Basin Plan is one of a number of regulations that directly or indirectly address water resources of the North Coast Region.

The California Water Plan is prepared by the Department of Water Resources every five years and calls for the orderly and coordinated control, protection, conservation, development, and use of the state's water resources. Basin plans are part of the California Water Plan. The Regional Water Board considers the effect of its actions on the California Water Plan, and any other general or coordinated governmental plan, looking toward the development, utilization, or conservation of water resources of the state.

All of the counties and cities in the North Coast Region are required to prepare general plans which address conservation development and use of natural resources, including water resources.

Federally recognized Native American Tribes may also develop and implement water quality control plans as they can qualify for treatment in the same manner as states in accordance with

section 518 (e) of the Clean Water Act. Under these provisions, the Hoopa Valley Tribal Council in the Klamath River watershed has adopted and is implementing their Water Quality Control Plan. Other tribes within the North Coast Region may also undertake processes to assess water quality and establish standards for waters under their jurisdiction.

Additional plans that address water resources in the North Coast Region are developed and distributed by federal, state, and local agencies as well as watershed groups, stakeholders, and other organizations.

1.4 LEGAL BASIS AND AUTHORITY

The Basin Plan implements a number of state and federal laws, the most important of which are the California Porter-Cologne Water Quality Control Act and the federal Clean Water Act. Other pertinent state and federal laws include the California Health and Safety Code and the Federal Resource Conservation and Recovery Act.

~~Comprehensive water quality planning is mandated by California and federal law. The federal Clean Water Act contains the law protecting navigable waters, and the California Water Code is the state body of law protecting groundwaters and fresh and marine surface waters.~~

~~The federal Clean Water Act (Section 303, 33 U.S.C. § 1313) requires states to adopt water quality standards (water quality objectives and beneficial uses) for navigable waters of the United States and to review and update those standards on a triennial basis. Other provisions of the Clean Water Act related to basin planning include Section 208, which authorizes the preparation of areawide wastewater management plans, and Section 319 (added by 1987 amendments) which provides for more specific planning related to control of nonpoint source problems. The 1987 amendments to the federal Clean Water Act also mandated adoption by the states of numerical standards for 126 "priority pollutant" toxic chemicals.~~

~~The State Water Board and regional water boards implement the federal Clean Water Act in California under the oversight of the U.S. Environmental Protection Agency (EPA), Region IX. Direction for implementation of the Clean Water Act is provided by the Code of Federal Regulations (40 CFR) and by a variety of EPA guidance documents on specific subjects.~~

The Porter-Cologne Water Quality Control Act (Porter-Cologne) is codified in the California Water Code ~~(CWC)~~ (Water Code §§ 13000 et seq.) ~~and establishes the State Water Board and the nine regional water boards in their current form. It~~ and authorizes the State Water Board to adopt, review, and revise policies for all waters of the state. ~~state water policy, which may include water quality objectives, principles, and guidelines (CWC Sections 13142 13143). It directs the State Water Board to formulate, adopt and revise general procedures for the basin planning process by regional water boards (CWC Section 13164). Porter-Cologne also authorizes the State Water Board to adopt water quality control plans on its own initiative (CWC Section 13170); such plans supersede regional basin plans to the extent of any conflict.~~

~~Article 3 of Chapter 4 of~~ Porter-Cologne directs regional water boards to adopt, review, and revise basin plans, and provides specific guidance on factors which must be considered in adoption of water quality objectives and implementation measures. The format for basin plans as described in Water Code Sections 13241-13247 ~~of Porter-Cologne~~ follows a logical progression towards water quality protection. ~~by:~~

~~1) describing the resources and beneficial uses to be protected;~~

~~2) stating water quality objectives for the protection of those uses;~~

~~3) providing implementation plans (which include specific prohibitions, action plans and policies) to achieve the water quality objectives;~~

~~4) describing the statewide plans and policies which apply to the waters of the region; and~~

~~5) describing the region's surveillance and monitoring activities.~~

The Clean Water Act is codified in the United States Code (33 U.S.C. §§ 1251 et seq.). Enacted by the federal government in 1972, the Clean Water Act is designed to restore and maintain the chemical, physical, and biological

integrity of the Nation's waters. One of the national goals states that wherever attainable, water quality should provide for the protection and propagation of fish, shellfish, and wildlife, and provide for recreation in and on the water (i.e., fishable, swimmable).

Section 303 of the federal Clean Water Act requires states to adopt water quality standards (which includes water quality objectives, beneficial uses, and anti-degradation policies) for navigable waters of the United States and to review and update those standards on a triennial basis. Section 303(d) requires identification of waterbodies that are not meeting water quality standards and subsequent preparation of total maximum daily loads (TMDL) for these waterbodies to attain and maintain water quality standards. TMDLs are accompanied by implementation plans under state law that will utilize a variety of regulatory mechanisms to ensure restoration of beneficial uses and attainment of water quality standards. Section 401 requires that the state certify that a project (typically dredge or fill activities) subject to federal permitting complies with all state water quality standards.

The United States Environmental Protection Agency (US EPA) has delegated responsibility for implementation of portions of the Clean Water Act to the State and regional water boards, including the National Pollutant Discharge Elimination System (NPDES) control program (33 U.S.C. § 1342). Direction for implementation of the Clean Water Act is provided by the Code of Federal Regulations and by a variety of US EPA guidance documents on specific subjects.

In addition to state and federal laws, several court decisions provide guidance for basin planning. For example, the 1983 Mono Lake Decision (National Audubon Society v. Superior Court (1983) 33 Cal. 3d 419) reaffirmed the public trust doctrine, holding that the public trust is "an affirmation of the duty of the state to protect the people's common heritage in streams, lakes, marshlands, and tidelands, surrendering that right of protection only in rare case when the abandonment of that right is consistent with the purposes of the trust." Public trust encompasses uses of water for commerce, navigation, fisheries and recreation.

1.5 TRIENNIAL REVIEW AND BASIN PLAN AMENDMENT PROCESS

~~Both Porter-Cologne (CWC Section 13240) and the Clean Water Act (Section 303(c)(1)) require review of basin plans at least once each three-year period.~~ California Water Code Section 13240 directs the State and regional water boards to periodically review and update basin plans. The Clean Water Act (33 U.S.C. § 303(c)(1)) directs states to review water quality standards every three years (triennial review) and, as appropriate, modify and adopt new standards. The Triennial Review process allows the Regional Water Board to keep pace with changes in regulations, new technologies and policies, and physical changes within the North Coast Region. ~~The Regional Water Board is responsible for this triennial review, and is required to: 1) identify those portions of the Basin Plan which are in need of modification or new additions; 2) adopt standards as appropriate; and 3) recognize the portions of the Basin Plan which are appropriate as written. The review includes a public hearing process, thus providing a forum for the public to raise issues for the Regional Water board to consider for incorporation into its Basin Plan.~~

~~At the conclusion of the triennial review the Regional Water Board adopts a resolution by the Regional Water Board which: 1) summarizes those sections of the Basin Plan which the Regional Water Board has determined to be appropriate and up to date, and 2) sets forth a prioritized list of issues (priority list) which the Regional Water Board has determined are necessary for further evaluation and potential development into a basin plan revision.~~

~~The triennial review priority list directs the planning efforts of the Regional Water Board for a period of three years following its adoption. As staffing and budget allows, and starting at the top of the list, the Regional Water Board considers each of the issues identified on the priority list for potential basin plan revisions. The Regional Water Board may also initiate Basin Plan revisions apart from the triennial review process in response to urgent needs which arise after completion of the triennial review.~~

~~Once an issue has been evaluated, a proposed amendment is noticed for public hearing. The hearing considers testimony specific to each proposed amendment. This process allows the Regional Water Board to consider each potential~~

amendment on its own merits, to thoroughly identify the problem, to consider alternatives for action, and to assess the expected environmental impact of the proposed action.

Following their adoption by the Regional Water Board, basin plan amendments and supporting documents are submitted to the State Water Board for review and approval. The State Water Board may approve the amendments or remand them to the Regional Water Board with directions for change. Certain basin plan amendments approved by the State Water Board after June 1, 1992, must be reviewed and approved by the Office of Administrative Law (OAL). For purposes of state law, all amendments take effect upon approval by the OAL. Adoption or revision of surface water standards are subject to the approval of the U.S. Environmental Protection Agency.

During the Triennial Review Process, basin planning issues are formally identified and ranked. These and other modifications to the Basin Plan are implemented through basin plan amendments as described below. In addition, the Regional Water Board can amend the Basin Plan as needed. Such amendments need not coincide with the Triennial Review Process.

Public Participation

Public participation is a key element in both state and federal planning requirements. California Code of Regulations, Title 23, Division 3, Chapter 1.5, Section 647.2 describes the Notice and Agenda requirements for all meetings of the Regional Water Board. Water Code Section 13244 requires advance public notice of basin plan amendments and periodic reviews. Federal public participation requirements of 40 CFR Part 25 also apply.

The public participation requirements are intended to foster public awareness and the open processes of governmental decision-making. The Regional Water Board seeks to implement public participation requirements by requesting the public's input, assimilating its viewpoints and preferences, and demonstrating that those viewpoints have been considered.

In the basin planning process, a notice of the proposed action is published in area newspapers and distributed to a list of interested persons or organizations. All basin plan amendments must observe as a minimum the publication procedures which are described in Section 6061 of the Government Code. This requires notification in a newspaper of general circulation once, and three consecutive times when a prohibition of waste discharge is being considered.

All basin plan and statewide plan amendments are subject to the California Environmental Quality Act (CEQA). ; however tThe basin planning process has been certified by the Secretary of Resources as being exempt from CEQA's requirement for preparation of an environmental impact report (EIR) or negative declaration and initial study (California Code of Regulations (CCR)., Ttitle 14, Section § 15251). Amending the Basin Plan involves the preparation of an amendment, environmental review, and a staff report. Under the basin planning process the plan amendment, as well as the staff report and backup materials, serve as a "functional equivalent" to an EIR or negative declaration and initial study. A CEQA "notice of filing" as well as a hearing notice must be published. Under normal circumstances, these notices are published concurrently and at least 45 days prior to the hearing. The notice for noncontroversial matters may be reduced to 30 days. Additionally, under limited emergency situations, further reduction of the advance notice may be possible. The notice sets out dates for public meetings and requests comments from the public. The notice must describe the availability of related reports, include a discussion of possible alternative actions, and an environmental impact analysis of the proposed action(s). All materials related to the proposed action must be available at least thirty days in advance of the public hearing.

Public workshops may be held before formal action on an amendment is scheduled. Public input is solicited before formal action is taken. The public participation efforts are intended to foster public awareness and the open processes of governmental decision-making. Input from interested persons may be eitherthrough written correspondence, throughpublic workshop sessions, or at the hearing. At the hearing, all interested persons have the opportunity to speak and respond to the material under consideration, within reasonable limitations as determined by the Regional Water Board.

Following a public review period and response to public comments, the Regional Water Board can

adopt the amendment at a public hearing. The hearing considers testimony specific to each proposed amendment. This process allows the Regional Water Board to consider each potential amendment on its own merits, to thoroughly identify the problem, to consider alternatives for action, and to assess the expected environmental impact of the proposed action.

Following adoption by the Regional Water Board, basin plan amendments and supporting documents are submitted to the State Water Board for review and approval. The State Water Board may approve the amendments or remand them to the Regional Water Board with directions for change. Basin plan amendments must be reviewed and approved by the State Office of Administrative Law (OAL). For purposes of state law, all amendments take effect upon approval by the OAL. Adoption or revisions of federal surface water standards are subject to the approval of the US EPA.

~~California Code of Regulations, Title 23, Division 4, Chapter 1.5, Section 3781 requires that Regional Water Board approval of basin plan amendments be followed by filing a Notice of Decision which is filed with the Secretary of the Resources Agency. The Resources Agency is to post this notice for public inspection for at least 30 days.~~

1.6 HISTORY OF BASIN PLANNING IN THE NORTH COAST REGION

The Regional Water Board first adopted an interim Basin Plan in 1971. This was a brief document, which was used until comprehensive basin plans for its two natural hydrologic basins, the Klamath River Basin 1A and the North Coastal Basin 1B, were developed, adopted by the Regional Water Board, and approved by the State Water Board in 1975. Also in 1975, the comprehensive plans were condensed into two abstracts, which were adopted by the Regional Water Board and approved by the State Water Board.

In 1980, the hydrologic basin planning areas within California were redefined. The North Coast Region is Hydrologic Region Number 1. This hydrologic unit is divided into hydrologic areas and sub areas as shown on Figure 1-1 (located in the map pocket). On April 28, 1988, the Regional Water Board combined and updated the two comprehensive plans and their abstracts into a single Water Quality Control Plan for the North Coast Region (Basin Plan).

The Basin Plan has been amended several times, and will continue to be amended to serve the needs of the Regional Water Board, its staff, and the public. Appendix 1 of this Plan contains a summary of Basin Plan amendments since 1975.

1.7 ~~REGIONAL~~ SETTING OF THE NORTH COAST REGION

This section provides an overview of the environmental and socioeconomic setting of the North Coast Region, as well as a description of available water resources and water use for each hydrologic unit.

The North Coast Region is defined in Section 13200(a) of Porter-Cologne as follows:

> North Coast region, which comprises all basins including Lower Klamath Lake and Lost River Basins draining into the Pacific Ocean from the California-Oregon state line southerly to the southerly boundary of the watershed of the Estero de San Antonio and Stemple Creek in Marin and Sonoma Counties.

The North Coast Region is divided into two natural drainage basins, the Klamath River Basin and the North Coastal Basin. The North Coast Region covers all of Del Norte, Humboldt, Trinity, and Mendocino Counties, major portions of Modoc, Siskiyou, and Sonoma Counties, and small portions of Glenn, Lake, and Marin Counties.

County	Percent of County in the Region	Approx. Acres in the Region	Approx. Square Miles in the Region
Del Norte	100	649,217	1,014
Glenn	6	54,431	85
Humboldt	100	2,295,312	3,586
Lake	23	192,226	300

Marin	7	22,694	35
Mendocino	100	2,248,466	3,513
Modoc	28	750,965	1,173
Siskiyou	82	3,327,196	5,199
Sonoma	82	833,453	1,302
Trinity	100	2,052,836	3,208

The North Coast Region encompasses a total area of approximately ~~19,390~~ 19,470 square miles, including 340 miles of scenic coastline and remote wilderness areas, as well as urbanized and agricultural areas.

The North Coast Region is characterized by distinct temperature zones. Along the coast, the climate is moderate and foggy and the temperature variation is not great. For example, at Eureka, ~~the seasonal variation in temperature has not exceeded 63°F~~ seasonal temperatures have not varied by more than around 60F for the period of record. Inland, however, seasonal temperature~~s ranges in excess of 100°F have been recorded.~~ can vary widely, sometimes by more than 100F.

Precipitation over the North Coast Region is greater than for any other part of California, and damaging floods can be~~are~~ a ~~fairly frequent~~ hazard. ~~Particularly devastating floods occurred in the North Coast area in December of 1955, in December of 1964, and in February of 1986.~~

The North Coast Region is abundant in surface water and groundwater resources. Although the North Coast Region constitutes only about 12% of the area in California, it produces about 41% of the annual runoff. This runoff contributes to flow in surface water streams, storage in lakes and reservoirs, and replenishes groundwater.

California is divided into hydrologic areas or regions. The North Coast Region is Hydrologic Region Number 1. There are 14 major surface water hydrologic units in the North Coast Region, as shown in Figure 1-1 (located in the map pocket). Each of these hydrologic units is divided into smaller units called hydrologic areas and hydrologic subareas.

The Department of Water Resources (DWR) has identified several groundwater basins in the North Coast Region. Groundwater may also exist even where groundwater basins have not been identified. Groundwater basins do not always follow the same boundaries as surface waters. Groundwater is used widely throughout the North Coast Region for domestic, agricultural, and industrial water supply.

Ample precipitation in combination with the mild climate found over most of the North Coast Region has provided a wealth of fish, wildlife, and scenic resources. The mountainous nature of the North Coast Region, with its dense coniferous forests interspersed with grassy or chaparral-covered slopes, provides shelter and food for deer, elk, bear, mountain lion, furbearers, and many upland bird and mammal species.

The numerous streams and rivers of the North Coast Region contain anadromous fish, and the reservoirs, although few in number, support both coldwater and warmwater fish. The North Coast Region's native fish species include salmonids such as coho, Chinook, pink and chum salmon, as well as steelhead, coastal cutthroat and rainbow trout. Other native fish species include green and white sturgeon, eulachon, Pacific and western brook lamprey, stickleback, five sculpin species, two sucker species, and several minnow species.

Healthy fisheries support the economy of the North Coast Region through commercial fishing and the generation of tourism. Further, riparian ecosystems are integral to the continued function of native fish and subsistence and cultural uses.

The federal government has a responsibility to protect fisheries that are subject to tribal trust rights. This tribal trust responsibility applies to the Klamath and Trinity River systems, both of which run through tribal lands and are subject to tribal fishing rights.

Tidelands~~,~~ and marshes ~~too,~~ are extremely important to many species of waterfowl and shore birds, both for feeding and nesting. Cultivated land and ~~pasture lands~~pasturelands also provide supplemental food for many birds, including small pheasant populations. Tideland areas along the north coast provide important habitat for marine invertebrates and nursery areas for forage fish, game fish, and crustaceans. ~~Offshore coastal rocks are used by m~~Many species of seabirds use offshore coastal rocks as nesting areas.

Major components of the economy are tourism and recreation, logging and timber milling, aggregate mining, commercial and sport fisheries, sheep, beef and dairy production, and vineyards and ~~some~~ wineries.

The largest urban centers continue to be located in the Eureka area of Humboldt County and in the Santa Rosa area of Sonoma County, which has experienced the highest population growth of all the counties within the North Coast Region. Numerous Native American communities are scattered throughout the area.

In all, the North Coast Region offers a beautiful natural environment with opportunities for scientific study and research, recreation, sport and commerce. To ensure their perpetuation, the resources must be used wisely.

1.7.1 The Klamath River Basin

The Klamath River Basin covers an area of approximately 10,830 square miles within northern California, ~~tributary to~~ and includes the Klamath, Smith, Trinity, Applegate, Illinois, and Winchuck Rivers, as well as the closed Lost River and Butte Valley hydrologic drainage areas. The Basin is bounded by the Oregon state border on the north, the Pacific Ocean on the west, Redwood Creek and Mad River hydrologic units on the south, and by the Sacramento Valley to the east. The Basin covers all of Del Norte County, and major portions of Humboldt, Trinity, Siskiyou, and Modoc counties.

The western portion of the Basin is within the Klamath Mountains and Coast Range provinces, and is characterized by steep, rugged peaks ranging to elevations of 6,000 to 8,000 feet with relatively little valley area. The mountain soils are shallow and often unstable. Precipitation ranges from 60 to 125 inches per year. The 45-mile coastline is dominated by a narrow coastal plain where heavy fog is common.

The eastern portion of the Basin receives low to moderate rainfall and includes predominantly high, broad valleys such as the Butte, Shasta, and Scott ~~V~~valleys.

~~The Lost River and Butte Valley hydrologic areas are located in the Modoc-Oregon Lava Plateau. The area is characterized by broad valleys ranging from 4,000 to 6,000 feet in elevation. Typical annual precipitation is 15 to 25 inches.~~

~~The Shasta Valley hydrologic area lies principally within the Cascade Range province. The valley floor elevation is about 2,500 to 3,000 feet, and surrounding mountains range up to 14,162 feet (Mt. Shasta). Annual precipitation ranges from below 15 inches in the valley to over 60 inches in the mountains.~~

~~The Scott River hydrologic area is in the Klamath Mountains province. The valley floor elevation is also about 2,500 to 3,000 feet, and surrounding mountains range up to approximately 8,500 feet. Annual precipitation ranges from below 20 inches in the valley to over 70 inches in the western mountains.~~ The Klamath River Basin includes five hydrologic units: Winchuck River, Rogue River, Smith River, Klamath River, and Trinity River.

1.7.1.1 Winchuck River Hydrologic Unit (Hydrologic Unit (HU) No. 101.00)

The Winchuck River is located primarily in Oregon, with approximately 18 square miles of drainage extending into Del Norte County in California. The watershed is contained in varying eco-regions including mountainous regions with high sediment loads, forest regions where forestry use is common, and agricultural and residential areas. Water flows north from California to Oregon.

The Winchuck River Hydrologic Unit has no significant surface water development. Consumptive water uses in this unit includes domestic, agricultural, and industrial water supply. No significant groundwater basins have been identified by DWR.

1.7.1.2 Rogue River Hydrologic Unit (HU No. 102.00)

The Rogue River is located primarily in Oregon. Two of its major tributaries, the Illinois River and the Applegate River, have watersheds that extend into California, and cover a total of about 150 square miles in Del Norte and Siskiyou counties of California. The majority of the basin lies within National Forest lands.

The Rogue River Hydrologic Unit has no significant surface water development. Consumptive water uses in this unit includes domestic, agricultural, and industrial water supply. No significant groundwater basins have been identified by DWR.

1.7.1.3 Smith River Hydrologic Unit (HU No. 103.00)

The Smith River Hydrologic Unit covers an area of approximately 704 square miles. The Smith River flows freely as it contains no dams from the headwaters to the mouth, and no significant surface water development has occurred. Domestic, agricultural, and industrial water needs are supplied through surface water diversions and groundwater pumping. DWR has identified one groundwater basin, the Smith River Plain basin.

1.7.1.4 Klamath River Hydrologic Unit (HU No. 105.00)

The Klamath River Hydrologic Unit covers approximately 7,039 square miles and is divided into seven hydrologic areas: Lower Klamath River, Salmon River, Middle Klamath River, Scott River, Shasta Valley, Butte Valley, and Lost River. Water resources and water use are described for each of these hydrologic areas in the following sections.

The Klamath River is a valuable ecological resource to the states of California and Oregon. The Klamath River Basin also provides important spawning habitat for Chinook, coho, and other fish species. The Klamath's lakes, marshes, tributaries and tidal estuary have in the past supported multiple fish runs, resulting in the third largest salmon producing river on the west coast of the Unites States.

The Klamath River Watershed is home to the largest population of Native American Tribes in California. Tribal people depend on the Tribal Trust species of the Klamath River for subsistence fishing purposes. The Trust species and races include, but are not limited to: coho salmon, Chinook salmon, steelhead trout, Pacific and non- anadromous lamprey eel, sturgeon, and eulachon. Sufficient numbers of Trust species must be maintained to sustain the primary dietary needs of the Klamath Basin Tribes. The federal allocation of salmon fishery to the Klamath Basin Tribes is 50% of the total available harvest.

Lower Klamath River Hydrologic Area (HU No. 105.10)

The Lower Klamath River Hydrologic Area is in the Coastal Range and Klamath Mountains provinces and covers an area of approximately 771 square miles. Elevation ranges from sea level to greater than 1,000 feet. Annual precipitation ranges from 42 inches to 125 inches.

In the Lower Klamath River Hydrologic Area, domestic and agricultural water supply is provided through surface water diversions and groundwater pumping. DWR has identified one groundwater basin in this hydrologic area.

Salmon River Hydrologic Area (HU No. 105.20)

The Salmon River Hydrologic Area is comprised of approximately 751 square miles in the Klamath Mountains province. Elevations in this hydrologic area range from 459 feet to 8,900 feet. Annual precipitation ranges from 35 inches in the South Fork Salmon River Canyon to 85 inches in the headwaters.

Domestic water use in the Salmon River Hydrologic Area is supplied by surface water diversions and springs. No groundwater basins have been identified by DWR in this hydrologic area.

Middle Klamath River Hydrologic Area (HU No. 105.30)

The Middle Klamath River Hydrologic Area is in the Cascade Volcanics and Klamath Mountains provinces and covers an area of approximately 1,615 square miles. Elevation ranges from around 500 feet to over 2,000 feet. Annual precipitation ranges from 14 inches to 115 inches.

Domestic and agricultural water supply needs in the Middle Klamath Hydrologic Area are met through surface water diversions, groundwater pumping, and springs. DWR has identified two groundwater basins in this hydrologic area: Happy Camp Town Area and Seiad Valley.

Hydroelectric reservoirs regulate Klamath River flows in the Upper and Middle Klamath River hydrologic areas. Within California, there are three power generating facilities and three reservoirs on the mainstem of the Klamath River: Copco 1, Copco 2, and Iron Gate.

Scott River Hydrologic Area (HU No. 105.40)

The Scott River Hydrologic Area is comprised of approximately 814 square miles in the Klamath Mountains province. The valley floor elevation is about 2,500 to 3,000 feet, and surrounding

mountains range up to approximately 8,500 feet. Annual precipitation ranges from below 20 inches in the valley to over 70 inches in the western mountains.

Domestic and agricultural water supply needs in the Scott Valley Hydrologic Area are met through surface water diversions, groundwater pumping, and springs, with one irrigation district and one private ditch company serving a small area on the east side. Approximately 33,000 acres are irrigated in the Scott Valley area. All surface water rights in the Scott River Hydrologic Area above the U.S. Geological Survey gage station on the mainstem Scott River, and groundwater within a delineated interconnected groundwater area, are adjudicated. DWR has identified one groundwater basin in this hydrologic area.

Shasta Valley Hydrologic Area (HU No. 105.50)

The Shasta Valley Hydrologic Area covers an area of approximately 790 square miles principally within the Cascade Range province. The valley floor elevation is about 2,500 to 3,000 feet, and surrounding mountains range up to 14,162 feet (Mt. Shasta). Annual precipitation ranges from below 15 inches in the valley to over 60 inches in the mountains.

In the Shasta Valley Hydrologic Area, domestic and agricultural water supply needs have historically been met through surface water diversions and from springs. Groundwater is used increasingly for domestic and agricultural supply. DWR has identified one groundwater basin in the Shasta Valley. The principal water service agency in the Shasta Valley Hydrologic Area is the Montague Water Conservation District, which serves over 14,000 of the 48,000 acres irrigated in the watershed. The District's main supply source is 50,000 acre-foot Lake Shastina on the Shasta River. Several smaller irrigation districts in the Shasta Valley serve from 1,500 to 3,500 acres each.

Butte Valley and Lost River Hydrologic Areas (HU Nos. 105.80 and 105.90)

The Butte Valley and Lost River hydrologic areas are made up of approximately 2,298 square miles in the Modoc-Oregon Lava Plateau. The area is characterized by broad valleys ranging from 4,000 to 6,000 feet in elevation. Typical annual precipitation is 15 to 25 inches. Groundwater is the primary source of domestic water supply in the Lost River Hydrologic Area. Groundwater basins identified by DWR are Klamath River Valley and Fairchild Swamp Valley.

Water use in the Butte Valley Hydrologic Area comes mostly from groundwater pumping. Groundwater basins identified by DWR in the Butte Valley Hydrologic Area are Butte Valley, Bray Town Area, and Red Rock Valley. Approximately 28,000 acres are irrigated in Butte Valley. Water not used for irrigation is pumped from the 4,000 acre-foot Meiss Lake to the Klamath River via drainage facilities operated by Meiss Lake Ranch in order to regulate the groundwater table.

The Bureau of Reclamation's Klamath Project, located in the Lost River Hydrologic Area, is the largest irrigation development in the Klamath River Basin. It serves irrigation water to 233,625 acres of irrigable land in Oregon and the Lost River area of California. The project's water supply is derived from the Klamath River in Oregon and the Lost River. The principal feature within the basin is the 527,000 acre-foot Clear Lake Reservoir on the Upper Lost River. Runoff and drainage reaching the 13,200 acre-foot Tule Lake is pumped to the 9,000 acre-foot Lower Klamath Lake Sump for irrigation and wildlife refuge use. Water not used for irrigation in Lower Klamath Lake Sump is pumped to the Oregon portion of the Klamath River via the Klamath Straits Drain to regulate the water table within the Tule Lake Irrigation District area. The Klamath Project serves a majority of the irrigable land in the Lost River watershed. The Tule Lake Irrigation District, the basin's largest, serves 60,600 acres in California with Klamath Project water.

1.7.1.5 Trinity River Hydrologic Unit (HU No. 106.00)

The Trinity River Hydrologic Unit covers an area of approximately 2,970 square miles. In the Trinity River Hydrologic Unit, domestic, agricultural, and industrial water is supplied through surface water diversions, groundwater pumping, and springs. Groundwater basins identified by DWR in this hydrologic unit are Hayfork Valley, Hoopa Valley, Hyampom Valley, and Wilson Point Area.

The Trinity River Division of the Central Valley Project is the largest water development in the Klamath River Basin. The 538-foot-high Trinity

Dam forms the 2.5 million acre-foot Trinity Lake (formally Clair Engle Lake). Releases pass through the 105,556 kW Trinity Power Plant to Lewiston Reservoir (14,660 acre-foot capacity), from which water is diverted by tunnel to the Sacramento Valley. The diverted flows pass through two additional power plants with a combined capacity of 291,444 kW.

1.7.2 The North Coastal Basin

The North Coastal Basin covers an area of approximately 8,560 square miles located along the north-central California Coast. The Basin is bounded by the Pacific Ocean on the west~~,~~; by the Klamath River and Trinity River Basins on the north~~,~~; by the Sacramento Valley, Clear Lake, Putah and Cache Creeks, and the Napa River basins on the ~~E~~east~~,~~; and by the Marin-Sonoma area on the south. The North Coastal Basin covers all of Mendocino County, major portions of Humboldt and Sonoma counties, about one-fifth of Trinity County, and small portions of Glenn, Lake, and Marin counties.

Most of the North Coastal Basin consists of rugged forested coastal mountains dissected by six major river systems: the Eel, Russian, Mad, Navarro, Gualala, and Noyo rivers, and numerous smaller river systems. Soils are generally unstable and erodible, and rainfall is high. The area along the eastern boundary of the North Coastal Basin is mostly National Forest land administered by the United States Forest Service. Major population areas are centered around Humboldt Bay ~~in the northern portion of the Basin~~ and ~~around~~ Santa Rosa ~~in the southern portion~~. ~~The Santa Rosa area is on the northern fringe of the greater San Francisco Bay urban area and has experienced rapid population growth in the period following the Second World War. The economy of the remainder of the Basin has developed much more slowly than other areas in California.~~

Four hydroelectric power generation plants exist within the North Coastal Basin. Matthews Dam at Ruth Reservoir is equipped with a 2,000 kW facility. Van Arsdale Dam supports a 9,000 kW plant. Coyote Dam at Lake Mendocino supports two power generation units with a combined capacity of 3,500 kW. Warm Springs Dam at Lake Sonoma is equipped with a 2,600 kW facility.

The North Coastal Basin is divided into nine hydrologic units: Redwood Creek, Trinidad, Mad River, Eureka Plain, Eel River, Cape Mendocino, Mendocino Coast, Russian River, and Bodega.

1.7.2.1 Redwood Creek and Trinidad Hydrologic Units (HU Nos. 107.00 and 108.00)

The Redwood Creek and Trinidad hydrologic units cover an area of approximately 424 square miles and include Little River, Maple Creek, and Redwood Creek.

In the Redwood Creek and Trinidad hydrologic units, there are no significant surface water developments. Groundwater and surface water diversions supply most of the domestic and agricultural needs. Groundwater basins identified by DWR in these units are in the Prairie Creek Area, Redwood Creek Valley, and Big Lagoon Area.

1.7.2.2 Mad River and Eureka Plain Hydrologic Units (HU Nos. 109.00 and 110.00)

The Mad River and Eureka Plain hydrologic units cover an area of approximately 724 acres and include Elk River, Freshwater Creek, Humboldt Bay, Jacoby Creek, Mad River, and Salmon Creek.

In the Mad River and Eureka Plain hydrologic units, water supply is adequate to meet currently projected requirements. The only major surface storage is provided by the 48,030 acre-foot capacity Ruth Reservoir on the Mad River which regulates municipal and industrial water supply for the Eureka/Arcata area by exporting Mad River water to the Eureka Plain subbasin. Groundwater basins have been identified by DWR in both of these hydrologic units. The main groundwater sources in the Eureka Plain are in the Elk River / Salmon Creek Area and the Jacoby Creek / Freshwater Creek Area.

1.7.2.3 Eel River Hydrologic Unit (HU No. 111.00)

The Eel River Hydrologic Unit covers an area of approximately 3,682 square miles. There are seven major branches of the Eel River: the Upper Mainstem Eel River, Middle Mainstem Eel River, Lower Mainstem Eel River, North Fork Eel River,

Middle Fork Eel River, South Fork Eel River, and the Van Duzen River.

The only major surface water development in the Eel River Hydrologic Unit is Lake Pillsbury, which is formed by Scott Dam, with a storage capacity of 80,700 acre-feet. This facility, in conjunction with Van Arsdale Dam and the Potter Valley Tunnel, provides power and export of Eel River water to the Russian River. The City of Willits obtains its water supply from the 723 acre-foot capacity Morris Reservoir and the 635 acre-foot capacity Centennial Reservoir, both located on James Creek. Fifteen groundwater basins have been identified by DWR in this unit: Eel River Valley, Pepperwood Town Area, Larabee Valley, Hettenshaw Valley, Dinsmore Town Area, Laytonville Valley, Little Lake Valley, Weott Town Area, Garberville Town Area, Lower Laytonville Valley, Gravelly Valley, Sherwood Valley, Round Valley, Williams Valley, and Eden Valley.

1.7.2.4 Cape Mendocino Hydrologic Unit (HU No. 112.00)

The Cape Mendocino Hydrologic Unit covers an area of approximately 499 square miles and includes the Bear and Mattole rivers and Oil Creek.

No significant surface water development has occurred in the Cape Mendocino Hydrologic Unit. Groundwater and surface water pumping are used for domestic supply in this unit. DWR has identified two groundwater basins in this unit: Mattole River Valley and Honeydew Town Area.

1.7.2.5 Mendocino Coast Hydrologic Unit (HU No. 113.00)

The Mendocino Coast Hydrologic Unit covers an area of approximately 1,599 square miles and includes the Albion River, Alder Creek, Big River, Brush Creek, Caspar Creek, Elk Creek, Garcia River, Greenwood Creek, Gualala River, Navarro River, Noyo River, Pudding Creek, Ten Mile River, and Wages Creek.

Surface water storage in the Mendocino Coast Hydrologic Unit is minor, and includes Newman Reservoir, a 4 acre-foot capacity reservoir on Newman Gulch, a tributary to the Noyo River. Surface water diversions and groundwater pumping are used to supply agricultural and domestic needs. DWR has identified eleven groundwater basins: Ten Mile River, Cottoneva Creek Valley, Branscomb Town Area, Little Valley, Fort Bragg Terrace Area, Big River Valley, Navarro River Valley, Anderson Valley, Garcia River Valley, Annapolis Ohlson Ranch Formation Highlands, and Fort Ross Terrace Deposits.

1.7.2.6 Russian River Hydrologic Unit (HU No. 114.00)

The Russian River Hydrologic Unit covers an area of approximately 1,484 square miles.

There are two surface water storage facilities in the Russian River Hydrologic Unit. Lake Mendocino stores imported Eel River water and East Fork Russian River water. Coyote Dam forms Lake Mendocino and has a maximum storage capacity of 122,500 acre-feet with 70,000 acre-feet allocated to water supply.

Lake Sonoma is located on Dry Creek, a tributary to the Russian River. Warm Springs Dam forms Lake Sonoma and has a maximum storage capacity of 381,000 acre-feet with 212,000 acre-feet allocated to water supply.

DWR has identified a number of groundwater basins in this unit. These include: Potter Valley, Ukiah Valley, Sanel Valley, McDowell Valley, Cloverdale Area, Alexander Area, Alexander Valley, Healdsburg Area, Santa Rosa Plain, Santa Rosa Valley, Kenwood/Rincon Valley, Lower Russian River Valley, and Wilson Grove Formation Highlands. Groundwater is used for domestic supply by the cities of Ukiah, Windsor, Santa Rosa, Rohnert Park, and Sebastopol, as well as in unincorporated areas outside of the City of Santa Rosa. Russian River water also is exported to southern Sonoma County and northern Marin County.

1.7.2.7 Bodega Hydrologic Unit (HU No. 115.00)

The Bodega Hydrologic Unit covers an area of approximately 148 square miles and includes Bodega Bay, the Estero Americano and Stemple Creek, Estero de San Antonio and San Antonio Creek, and Salmon Creek.

The Bodega Hydrologic Unit has no significant surface water storage. One groundwater basin has been identified in the unit.

~~**Population and Land Use**~~

The planning process must consider past, existing, and future population and land uses. Recent population trends and projections are contained in the county general plans. In addition, the Department of Finance provides annual estimates of the population by county.

Approximately two percent of the total population of California reside in the North Coast Region. The largest urban centers continue to be located in the Eureka area of Humboldt County and in the Santa Rosa area of Sonoma County, which has experienced the highest population change of all the counties within the Region.

WATER RESOURCES AND WATER USE

There are 14 major surface water hydrologic units in the North Coast Region, as shown in Figure 1-1. Each of these hydrologic units is divided into smaller units called hydrologic areas and hydrologic subareas.

The North Coast Region is abundant in surface water and groundwater resources. Although the North Coast Region constitutes only about 12 percent of the area of California, it produces about 40 percent of the annual runoff. This runoff contributes to flow in surface water streams, storage in lakes and reservoirs, and replenishes groundwater.

Several groundwater basins have been identified by the Department of Water Resources (DWR). Additional unnamed groundwater basins exist throughout the North Coast Region. Groundwater exists even where groundwater basins have not been identified. Groundwater basins do not always follow the same boundaries as surface waters. Groundwater is used widely throughout the Region for domestic, agricultural, and industrial water supply.

The Klamath River Basin

The Klamath River Basin includes five hydrologic units: Winchuck River, Rogue River, Smith River, Klamath River and Trinity River.

The Winchuck River and Rogue River hydrologic units, located near the California-Oregon border, have had no significant surface water development. Consumptive water use in these units include domestic, agricultural, and industrial water supply. No significant groundwater basins have been identified by DWR in these units.

In the Smith River hydrologic unit no significant surface water development has occurred. Domestic, agricultural, and industrial water needs are supplied through surface water diversions and groundwater pumping. DWR has identified one groundwater basin, the Smith River Plain basin, in this hydrologic unit.

The Klamath River hydrologic unit is divided into seven hydrologic areas: Lost River, Butte Valley, Shasta Valley, Scott River, Middle Klamath, Salmon River and Lower Klamath River. Water resources and water use are described for each of these hydrologic areas in the following paragraphs.

Groundwater is the primary source of domestic water supply in the Lost River hydrologic area. Groundwater basins identified by DWR are the Klamath River Valley, Fairchild Swamp Valley, Modoc Plateau Recent Volcanic Area, and Modoc Plateau Pleistocene Volcanic Area.

The Bureau of Reclamation's Klamath Project located in the Lost River hydrologic area is the largest irrigation development in the Klamath River Basin. It serves irrigation water to 233,625 acres of irrigable land in Oregon and the Lost River area of California. The project's water supply is derived from the Klamath River in Oregon and the Lost River. The principal feature within the basin is the 527,000 acre-foot Clear Lake Reservoir on the Upper Lost River. Runoff and drainage reaching the 13,200 acre Tule Lake is pumped to the 9,000 acre Lower Klamath Lake Sump for irrigation and wildlife refuge use. Water not used for irrigation in Lower Klamath Lake Sump is pumped to the Oregon portion of the Klamath River via the Klamath Straits Drain to regulate the water table within the Tule Lake Irrigation District area. The Klamath Project serves a majority of the irrigable land in the Lost River subunit. The Tulelake Irrigation District, the basin's largest, serves 60,600 acres in California with Klamath Project water.

Water use in the Butte Valley hydrologic area comes mostly from groundwater pumping. Groundwater basins identified by DWR in the Butte Valley hydrologic area are the Butte Valley, Bray Town Area, and Red Rock Valley. Approximately 28,000 acres are irrigated in the Butte Valley. Water not used for irrigation is pumped from the 4,000 acre Meiss Lake to the Klamath River via drainage facilities operated by

Meiss Lake Ranch in order to regulate the water table.

In the Shasta Valley hydrologic area, domestic and agricultural water supply needs have historically been met through surface water diversions and from springs. Groundwater is used increasingly for domestic and agricultural supply. DWR has identified one groundwater basin in the Butte Valley. The principal water service agency in the Shasta Valley hydrologic area is the Montague Water Conservation District, which serves over 14,000 of the 48,000 acres irrigated in the subunit. The District's main supply source is 50,000 acre-foot Lake Shastina on the Shasta River. Several smaller irrigation districts in Shasta Valley serve from 1,500 to 3,500 acres each.

Domestic and agricultural water supply needs in the Scott Valley hydrologic area are met through surface water diversions, groundwater pumping, and springs. Approximately 33,000 acres are irrigated in the Scott Valley area. Increases in groundwater pumping for irrigation have prompted adjudication of groundwater in Scott Valley. DWR has identified one groundwater basin in this hydrologic area.

Domestic and agricultural water supply needs in the Middle Klamath hydrologic area are met through surface water diversions, groundwater pumping, and springs. DWR has identified two groundwater basins in this hydrologic area: Happy Camp Town Area and Seiad Valley.

Domestic water use in the Salmon River hydrologic area is supplied by surface water diversions and springs. No groundwater basins have been identified by DWR in this hydrologic area.

In the Lower Klamath River hydrologic area, domestic and agricultural water supply is provided through surface water diversions and groundwater pumping. DWR has identified one groundwater basin in this hydrologic area.

Four Pacific Power and Light Company hydroelectric reservoirs regulate Klamath River flows in the Upper and Middle Klamath River hydrologic areas. The uppermost is John Boyle Dam, located in Oregon about ten miles upstream from the border;its installed power plant capacity is 80,000 kilowatts (kw). Copco No. 1 (20,000 kw) is located just inside the California border; it is a 77,000 acre-foot reservoir impounded by a 132-foot high dam. Copco No. 2 is a 55 acre-foot diversion reservoir which serves a 27,000 kw power plant downstream. The lowermost power development is the 58,000 acre-foot Iron Gate Reservoir, located 17 miles downstream from the state line; it is formed by a l83 foot-high dam and supports an 18,000 kw power plant. The upper three plants are operated on a peaking basis, while Iron Gate is a baseload plant.

In the Trinity River hydrologic unit, domestic, agricultural, and industrial water is supplied through surface water diversions, groundwater pumping, and springs. Groundwater basins identified by DWR in this hydrologic unit are in the Hayfork Valley, Hoopa Valley, and Hyampon Valley.

The Trinity River Division of the Central Valley Project is the largest water development in the Klamath River Basin. The 538-foot high Trinity Dam forms 2.5 million acre-foot Clair Engle Lake. Releases pass through the 105,556 kw Trinity power plant to Lewiston Reservoir (14,660 acre-feet), from which approximately one million acre-feet per year are diverted by tunnel to the Sacramento Valley. The diverted flows pass through two additional power plants with a combined capacity of 291,444 kw.

Further major developments on the Klamath and Trinity Rivers or on the Smith River and any of its tributaries are forbidden by the 1972 California Wild and Scenic Rivers Act. Only minor additional surface water development for local use is foreseen, primarily because of the high costs in relation to crops which can be grown in the area.

The North Coastal Basin

The North Coastal Basin is divided into nine hydrologic units: Redwood Creek, Trinidad, Mad River, Eureka Plain, Eel River, Cape Mendocino, Mendocino Coast, Russian River, and Bodega.

In the Redwood Creek and Trinidad hydrologic units, there are no significant surface water developments. Groundwater and surface water diversions supply most of the domestic and agricultural needs. Groundwater basins identified by DWR in these units are in the Prairie Creek Area, Redwood Creek Valley, and Big Lagoon Area.

In the Mad River and Eureka Plain hydrologic units, water supply is adequate to meet currently projected requirements. The only major surface storage is provided by the 48,030 acre-foot capacity Ruth Reservoir on the Mad River which regulates municipal and industrial water supply for the Eureka/Arcata area by exporting Mad River subbasin water to the Eureka Plain subbasin. Groundwater basins have been identified by DWR in both of these hydrologic units. The main groundwater sources in the Eureka Plain are in the Elk River/Salmon Creek area and the Jacoby Creek/Freshwater Creek area.

The only major surface water development in the Eel River hydrologic unit is Lake Pillsbury, which is formed by Scott Dam, with a storage capacity of 80,700 acre-feet. This facility, in conjunction with Van Arsdale Dam and the Potter Valley Tunnel, provides for power and export of Eel River water to the Russian River unit. The City of Willits obtains its water supply from the 723 acre-feet capacity Morris Reservoir and the 635 acre-feet capacity Centennial Reservoir, both located on James Creek. Fifteen groundwater basins have been identified by DWR in this unit: Eel River Valley, Pepperwood Town Area, Larabee Valley, Hettenshaw Valley, Dinsmore Town Area, Laytonville Valley, Little Lake Valley, Weott Town Area, Garberville Town Area, Lower Laytonville Valley, Gravelly Valley, Sherwood Valley, Round Valley, Williams Valley, and Eden Valley. The Eel River hydrologic unit is an area of water surplus for currently projected requirements.

No significant surface water development has occurred in the Cape Mendocino hydrologic unit. Groundwater is used for domestic supply in this unit. DWR has identified two groundwater basins in this unit: Mattole River Valley and Honeydew Town Area.

There is no significant surface water storage within the Mendocino Coast hydrologic unit. Surface water diversions and groundwater pumping are used to supply agricultural needs. Groundwater is the principal source of domestic water supply. Eleven groundwater basins have been identified by DWR: Ten Mile River, Cottoneva Creek Valley, Branscomb Town Area, Little Valley, Fort Bragg Terrace Area, Big River Valley, Navarro River Valley, Anderson Valley, Garcia River Valley, Gualala River Valley, and Annapolis Ohlson Ranch Formation Highlands. The Mendocino Coast hydrologic unit is reaching its existing capacity.

Surface water storage in the Russian River hydrologic unit includes Lake Mendocino, which stores imported Eel River water and East Fork Russian River water, and Lake Sonoma, which is located on Dry Creek, a tributary of the Russian River. Lake Mendocino is formed by Coyote Dam and has a maximum storage capacity of 122,500 acre-feet with 70,000 acre-feet allocated to water supply. Lake Sonoma is formed by Warm Springs Dam and has a maximum storage capacity of 381,000 acre-feet with 212,000 acre-feet allocated to water supply. DWR has identified a number of groundwater basins in this unit. These include: Potter Valley, Ukiah Valley, Sanel Valley, MacDowell Valley, Cloverdale Area, Alexander Area, Alexander Valley, Healdsburg Area, Santa Rosa Plain, Santa Rosa Valley, Kenwood/Rincon Valley, Lower Russian River Valley, and Sebastopol Merced Formation Highlands. Groundwaters are used for domestic supply by the cities of Ukiah, Windsor, Santa Rosa, Rohnert Park, and Sebastopol, as well as in unincorporated areas outside of the City of Santa Rosa. There is sufficient water supply within this hydrologic unit to meet currently projected demands for the foreseeable future. Russian River water also is exported to northern Marin County.

The Bodega hydrologic unit has no significant surface water storage. One groundwater basin has been identified in the unit.

Four hydroelectric power generation plants exist in the North Coastal Basin. Matthews Dam at Ruth Reservoir is equipped with a 2 megawatt facility. Van Arsdale Dam supports a 9 megawatt plant. Coyote Dam at Lake Mendocino supports two power generation units with a combined capacity of 3.5 megawatts. Warm Springs Dam at Lake Sonoma is equipped with a 2.6 megawatt facility.

1.8 WATER ~~QUANTITY AND~~ QUALITY ~~PROBLEMS~~ISSUES

The present water quality within the Region generally meets or exceeds the water quality objectives set forth in Section 3 of this Plan. In ~~most~~many cases~~.~~ ~~the~~ water quality within the North Coast Region is sufficient to support, and in some cases~~,~~ enhance the beneficial uses

assigned to waterbodies in ~~Section~~ Chapter 2 of this Plan. However, there are a number of present or potential water quality problems, which may interfere with beneficial uses or create nuisances or health hazards.

Section 305 (b) of the Clean Water Act requires the State Water Board to compile surface water quality assessment information from each of the nine regional water boards on a biennial basis. The US EPA uses these reports to prepare the National Water Quality Inventory Report to Congress. This report characterizes water quality, identifies water quality problems, and describes various programs implemented to restore and protect water quality.

~~Updated summaries of existing water quality throughout much of the Region are contained in bulletins published by the Department of Water Resources and the U.S. Geological Survey, as well as in special reports issued periodically by the Regional Water Board.~~

~~An opportunity to address and assess water quality problems is provided in the triennial review of the Basin Plan. It is at this time that the Regional Water Board utilizes the input of interested agencies and individuals to identify and prioritize the water quality issues within the Region. In addition, the Regional Water Board, in its budget review process, addresses its water quality problem areas on an annual basis to determine the time and effort expended on each identified issue.~~

1.9 WATER QUANTITY

The nexus between water supply and water quality must be recognized when managing water and controlling pollution. For example, water rights terms that provide additional stream flows for fish and wildlife usually improve water quality. The Division of Water Rights (Division) within the State Water Resources Control Board regulates water rights in order to develop, conserve and utilize in the public interest the water resources of the State, while protecting vested rights, water quality, and the environment. In determining water availability, the Division must consider the amount of water needed to remain instream for protection of beneficial uses whenever it is in the public interest. In acting on applications to appropriate water and other actions, the Basin Plan shall be considered and the Division may require terms and conditions necessary to carry out the Basin Plan.