APPENDIX C

CRITICAL COASTAL AREAS

Critical Coastal Areas (CCAs) are specially designated land areas of the California coast where state, federal and local government agencies and other stakeholders have agreed to improve water quality or protect exceptional coastal water quality from the impact or threat of nonpoint source pollution, by coordinating expertise and resources. The *Plan for California's Nonpoint Source Pollution Control Program* (NPS Plan, http://www.waterboards.ca.gov/nps/protecting.html) includes requirements for CCAs designation. The intent of CCA designation is to direct needed attention to coastal areas of special biological, social, and environmental significance, and to provide an impetus for these areas to receive special support and resources. These areas include Environmentally Sensitive Habitat Areas (ESHA) currently designated in the California's Coastal Zone Management (CZM) program, as well as areas adjacent to Areas of Special Biological Significance (ASBS), California's National Estuarine Research Reserves (NERR), National Estuary Program (NEP), and National Marine Sanctuaries.

The Critical Coastal Program was established to coordinate actions within identified CCAs through an interagency committee (CCA Committee) led by the California Coastal Commission, the SWRCB, six coastal RWQCBs and the public to identify CCAs and develop additional Management Measures (MM) necessary to protect these areas. Table 5 shows the twenty-one CCAs in the North Coast Region along with the method of CCA classification. Criteria used to identify the CCA in the 2002 list were: 1) CCAs included on the 1995 CCA list; 2) Coastal areas adjacent to impaired waters on the 1998 303(d) list that flow into Marine Management Areas; 3) Coastal areas adjacent to State Water Quality Protection Areas (also known as Areas of Special Biological Significance); and 4) Shoreline areas within San Francisco Bay adjacent to impaired waters on the 1998 303(d) list that flow into wildlife refuges or waterfront parks or beaches.

Goals of the CCA Program

- To ensure that the Management Measures (MMs) and Management Practices (MPs) of the NPS Plan are fully implemented;
- To provide a mechanism to develop and apply additional MMs as needed to achieve or maintain high quality water in CCAs; and
- To develop Action Plans for each CCA to improve degraded water quality and to protect exceptional water quality.

The California Coastal Commission, the SWRCB, the coastal RWQCB, local and regional municipalities, regional organizations, and local stakeholders (interest groups) form Regional Committees. The coast has been split into four areas and there is one Regional Committee for each area. These committees conduct public workshops, nominate CCAs for pilot projects, evaluate the CCA for data and resources, and define the CCA boundary and watershed planning areas. The Committee then develops a CCA Action Plan, identifies available resources to implement the CCA Action Plan, and develops a strategy and schedule for the creation of additional management measures. With input from the workshop and an interest group survey the Committee will select a pilot project. The

selection criteria for the pilot project includes: 1) potential for water quality improvement or protection; 2) evidence of water quality impairment or high water quality threatened by nonpoint source pollution; 3) degree of agency and public support (watershed groups); 4) identification of impacts to coastal resources; and 5) areas where nonpoint source pollution is the source of impairment.

The following is detailed information on each Critical Coastal Area in the North Coast Region. For maps of the CCAs on the north coast see http://www.coastal.ca.gov/nps/cca-map1-2.pdf and http://www.coastal.ca.gov/nps/cca-map2-2.pdf.

The Critical Coastal Areas in the **Russian River/Bodega Bay WMA** are the Bodega Marine Life Refuge, Americano Creek and the Estero Americano, and Stemple Creek and the Estero de San Antonio.

Bodega Marine Life Refuge ASBS/SWQPA in Sonoma County is 1.6 mile long and encompasses 150 acres of marine habitat. The CCA is located on a somewhat undeveloped part of the Bodega headland. Much of this SWQPA falls into a managed marine life refuge (University of California) and there are restoration projects onshore. The coastal features include some highly defined natural gullies located in sheer cliffs. This CCA includes the University of California Bodega Marine Lab. The marine laboratory discharges waste seawater as well as storm water runoff into the SWQPA. There is limited public access between Horseshoe Cove near the lab and the southern boundary; much of this southern area is composed of many ecological study areas associated with university research projects.

Americano Creek and the Estero Americano constitute a Critical Coastal Area and form a portion of the northwestern border between Sonoma and Marin Counties. The entire Estero and a 6.5 river mile portion of Americano Creek are within the coastal zone. Just over half of the Estero Americano is considered impaired, and the remaining estuary has intermediate quality waters. The predominant land use in the watershed is grazing and dairy activities, and has seen little change in the past two decades. Almost all of the land in the watershed is under private ownership. Estero Americano waters discharge into the Gulf of the Farallones National Marine Sanctuary (NMS) designated by the National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Commerce. The identified problems of sedimentation, low dissolved oxygen, high ammonia levels from NPS discharges have impaired fish and wildlife habitat. The pollutant is nutrients and the sources of the pollutant are pasture lands and manure lagoons.

The **Stemple Creek** watershed begins just east of Petaluma in Sonoma County and empties into Bodega Bay via the **Estero de San Antonio** in Marin County. This estero is a Critical Coastal Area**.** The entire Estero and approximately 2 river miles of Stemple Creek are located within the Marin County coastal zone. The Sonoma County portion of Stemple

Creek lies outside the coastal zone. Almost the entire watershed is under agricultural production, mainly sheep and cattle grazing and dairy farming. Historically, potato farming was a major industry, and poor farming practices lead to degradation of the watershed. Identified problems are sedimentation, low dissolved oxygen and high ammonia levels from NPS discharges. The main pollutant is nutrients and the sources are pasture and manure lagoons.

The Klamath River and its delta and estuary are designated as a Critical Coastal Area within the coastal zone; the land along the ocean shoreline at the river mouth is within Redwood National Park. Along the riverbanks, one finds privately owned land with visitor-serving facilities, R.V. parks, boat launching facilities (the estuary is a popular fishing locale), motels and inns, and retail stores. The hillsides in the coastal zone have some commercial stands of timber, grazing occurs in the floodplain, and scattered rural residential development lies along local roads and on hillsides. The Klamath River discharges into the Redwood National Park, Area of Special Biological Significance (ASBS) designated by the State Water Resources Control Board. In 1972, sections of the Klamath River were designated by the California Wild and Scenic Rivers System. In 1981 the Klamath River was also designated as a National Wild and Scenic River. The existing and future beneficial uses of the waters of the Klamath River Estuary are targeted for maximum protection pursuant to the Bay Protection and Toxic Cleanup Act (California Water Code §§ 13390 et seq.).

The Mattole River is located in southern Humboldt County, approximately 15 miles south of Humboldt Bay. It has been designated a Critical Coastal Area. The river extends inland about 15 miles, with approximately 2 river miles located in the coastal zone. Land uses in the watershed include timber harvesting (primarily in the headwaters and upper river areas) and livestock agriculture (primarily in the lower river watershed areas). The coastal zone portion of the watershed is not heavily developed. The Mattole River is the northern boundary of the King Range National Conservation Area managed by the National Park Service (NPS). The Mattole River empties into the Clem Miller State Seashore. The Mattole River is also the northern boundary for the King Range Area of Special Biological Significance (ASBS) that is designated by the State Water Resources Control Board. The identified problems are sedimentation from natural and human sources. The pollutants are siltation and temperature from rangeland and silviculture.

In addition, the **King Range National Conservation Area** is a Critical Coastal Area in the Mattole River watershed. Kings Range National Conservation Area ASBS/SWQPA has 32.7 miles of coastline, with 25,055 acres of marine habitat. The northern portion of this CCA is mostly wilderness, managed by the Bureau of Land Management. It includes perennial and ephemeral streams, and natural groundwater springs/seeps that drain to the ocean. There is no development in the northern area except for a few sporadic cabins that have outhouse facilities and also some well-established campsites at the larger stream mouths. Big Flat Creek is one of the largest streams in this area. Immediately north of this CCA is the mouth of the Mattole River (303d listed), which is impaired by sediment and temperature. The southern portion of this CCA includes the town of Shelter Cove on approximately 2 miles of developed coastline with houses, businesses, a golf course, an airstrip, and parking lots along the shore. In Shelter Cove there is also a fish cleaning station and a boat launch. A sewage treatment plant (secondary treatment) serving Shelter Cove is allowed to discharge into this SWQPA under an exception from the Ocean Plan ASBS discharge prohibition, issued by the State Water Resources Control Board.

The **Noyo River** is located in northern Mendocino County and reaches the ocean approximately 2 miles south of Fort Bragg. The watershed is dominated by redwood and Douglas fir forest on rugged, mountainous terrain. Annual rainfall is 39 inches. Timber harvesting is the predominant land use. At the mouth of the Noyo River are a marina and associated fish processing facilities in support of the fishing industry. In terms of the Critical Coastal Area, the problems for the Noyo River and its estuary are sedimentation, threat to fish population decline, and threat of sedimentation. The identified pollutants are silt and sediment from silviculture, grazing and road construction. The existing and future beneficial uses of the waters of the Noyo River Estuary are targeted for maximum protection pursuant to the Bay Protection and Toxic Cleanup Act (California Water Code §§ 13390 et seq.).

The **Pygmy Forest Staircase ASBS/SWQPA** in Mendocino County encompasses 1.5 miles of coastline and 203 acres of marine habitat. This SWQPA includes Jughandle Cove, at the mouth of Jughandle Creek, a perennial stream. The CCA's largely natural watershed includes Jughandle State Reserve, managed by the California State Department of Parks and Recreation, and includes the Pygmy Forest Ecological Staircase trail. This is a popular location for recreation, education, and scientific study. The watershed includes State Highway 1, which crosses over Jughandle Creek at a point approximately 100 meters upstream of the SWQPA. Jughandle Creek may also be a source of sediment load (siltation) in the winter due to past logging operations. Homes in the area have septic systems and there is also a lumber mill that may contribute pollutants into the watershed. With the exception of nonpoint source runoff from the parking lot and associated access trail there are no other potential sources of pollutants known to drain directly into the SWQPA.

The **Big River** watershed extends east of the town of Mendocino, with approximately 5.5 river miles within the coastal zone. The Big River estuary is one of the largest relatively undisturbed estuaries remaining along the California coast. The Big River empties into the Mendocino Coast State Seashore. The mouth of the Big River lies adjacent to the Mendocino Headlands State Park. Of particular note in the Big River watershed are the brackish and freshwater bogs, the extensive estuary, and the freshwater marshes. There are eight freshwater marshes within the first seven miles of the estuary valley. Salt water extends up the Big River estuary approximately 8.3 miles in the summer and three miles during the winter. The mouth of the river stays open all year. Plants common in the brackish and freshwater bogs include: sedge, yellow skunk cabbage, common spike rush, bulrush, water hemlock, willow herb, brooklime, and cattail. The estuary contains eelgrass, pondweed, water plantain, sedge, low club rush, and brass buttons. The marshes include sedge, cattail, yellow pond lily, water hemlock, yellow cress, pondweed, azolla, duckweed, and bladderwort. The problem in this Critical Coastal Area is sedimentation from natural and human sources. The pollutants are silt and sediment from siviculture and other nonpoint sources.

The **Albion River** has a large estuary with tidal intrusion extending as much as five miles. It contains over two miles of eel grass beds, as well as algae, sea lettuce, rockweed, and red laver. This area has been designated as a Critical Coastal Area. Approximately 4 river miles are within the coastal zone. The town of Albion is located at the mouth of the river and supports a thriving fishing harbor. The harbor has had small episodic oil spills associated with the fishing industry. The Albion River empties into the Mendocino Coast State Seashore. The Critical Coastal Area problem is sedimentation from human and natural sources. The pollutant is siltation from silviculture.

The **Navarro River** empties into the Mendocino Coast State Seashore. The State Legislature or Parks and Recreation Commission designate State Seashores with the intent to preserve outstanding natural, scenic, cultural, ecological, and recreational values of the coastline as an ecological region. Sedimentation from natural and human sources has impacted beneficial uses of the Navarro River watershed. The Navarro River and its watershed are within the jurisdiction of the County of Mendocino. A review of the County's LCP policies revealed that many urban development management measures are addressed and that management measures concerning the protection of wetlands and riparian corridors are also fairly complete. However, the land use activity that is generating significant pollution in the Navarro River Critical Coastal Area is not urban development, boating, or agriculture, but forestry. The Mendocino County LCP does not contain policies for timber harvest, although the County is not required to have such policies because of the Coastal Act exemption limiting the definition of new development. Therefore, it cannot be concluded that the LCP has gaps that need to be filled in order to address the *significant* pollutants and the associated land use activity. Instead, if the Commission is to participate in the development or the implementation of additional management measures for forestry in this Critical Coastal Area, it will be through participation as part of a watershed planning group effort. The pollutants are silt and sediment from silviculture and other nonpoint sources.

The **Garcia River** is a Critical Coastal Area. This designation stems from sedimentation from natural and human sources such as silvicultural and other nonpoint sources. About 5.5 river miles of the Garcia River are within the coastal zone. Much of the upper watershed is forested while the lower portion is mostly in agriculture. Most of the watershed surrounding the North Fork Garcia River and headwater tributaries is under active timber harvest and is privately owned. Agriculture and cattle ranching as well as gravel mining within the lower Garcia watershed are the predominant activities. The Garcia River empties into the Mendocino Coast State Seashore. Arena Rock Marine Natural Preserve lies just to the north of the mouth of the River. Offshore the mouth of the Garcia River is the Manchester State Underwater Recreation Area. Sedimentation from human and natural sources has impacted the beneficial uses. Pollutant sources are silviculture and other nonpoint sources.

Kelp Beds at Saunders Reef ASBS/SWQPA has 1.6 miles of coastline and 730 acres of marine habitat. It is located in a fairly rural part of Mendocino County. Highway One runs through the CCA, parallel to the coastline, and contributes storm water runoff to the SWQPA. There are also two parking lots/turnouts that may contribute nonpoint source pollution. The southern end has houses inland of the SWQPA and directly adjacent to the southern boundary point. These homes are served by septic tanks and due to the soil conditions; drainage from these septic tanks may escape into this SWQPA.

The Critical Coastal Areas in the Gualala River watershed are **Del Mar Landing Ecological Reserve** and **Gerstle Cove**. The Del Mar Landing Ecological Reserve ASBS/SWQPA in Sonoma County has only 0.6 miles of coastline and 53 acres of marine habitat. This SWQPA overlaps the Del Mar Landing Ecological Reserve in which commercial and some forms of recreational fishing are prohibited. The CCA's watershed area immediately adjacent to this SWQPA is a part of the Sea Ranch private community. There are several homes and a walking trail along the coastline. Native vegetation is employed in the landscape.

The watershed area includes State Highway 1, which is less than a half- mile from the coast. With the exception of four nonpoint source and storm water conveyances there are no other potential sources of pollutants known to drain directly into or near the SWQPA. There are 8

natural gullies draining into or near the SWQPA. These ephemeral streams may carry pollutants from upstream sources. Homes in the area have septic systems that may contribute pollutants into the watershed. A golf course is located approximately a half mile north of the SWQPA.

Gerstle Cove ASBS/SWQPA in Sonoma County has 0.6 miles of coastline and 10 acres of marine habitat, including the Gerstle Cove Reserve, which is closed to recreational and some forms of commercial fishing. This SWQPA also lies within Salt Point State Park, which also occupies the CCA watershed area adjacent to it. The cove hosts many divers and fisherman.

The watershed includes State Highway 1, which is less than a half- mile from the coast. Closer to the SWQPA the State Park facilities include a public restroom and fish cleaning station (both apparently served by a septic tank), a campground, access roads, parking lots, and a visitor's center. There are eight discharges from park facilities that carry storm water runoff into the SWQPA. In addition, there are six naturally occurring gullies that may carry non-point source pollutants, and seven groundwater seeps along the coast. A large number of these drainages are associated with an actively used recreation area.

Redwood Creek, Kelp Beds at Trinidad Head, and the Mad River Redwood Creek reaches the ocean about 8 miles south of the Humboldt-Del Norte County border. Almost 3 river miles of Redwood Creek are within the coastal zone. Most of the lower one-third of Redwood Creek and a portion of the estuary lie within Redwood National Park; the upper two-thirds of the watershed is mostly private land. The creek is both the domestic water supply for the town of Orick and supports an anadromous fishery. The estuary is very important for juvenile salmonid rearing. Juvenile steelhead is abundant in the estuary, and chinook salmon are apparently dependent on estuary rearing. Redwood Creek is "threatened" because of sedimentation. Timber harvesting in the watershed (in present times outside the coastal zone) has contributed to the major decline of the anadromous fishery (steelhead and coho salmon) by filling in pools and spawning habitat. The lower 3.4 miles of the creek have also been dredged, channelized, and lined with levees by the U.S. Army Corps of Engineers after the floods in 1964. Portions of the floodplain are grazed. The only significant urban development is the town of Orick that is located in the floodplain just inland of the coastal zone. There are also scattered homes built on large lots along local roads and hillsides. Seasonally, recreational vehicles park along Highway 1 between Freshwater Lagoon and the ocean.

The lower third of the watershed is part of Redwood National Park managed by the National Park Service (NPS). The CDFG (1996) recommends seeking a "Sensitive Watershed" Designation with the Board of Forestry if watershed restoration activities in the upper watershed are not accelerated. Identified problems in this Critical Coastal Areas are sedimentation from natural and human sources and loss of vegetation along the levee and within the creek. Siltation and temperature are the pollutants from rangeland and silviculture. Three miles of flood-control levees built in 1968 on the lower river (from the Prairie Creek confluence to the estuary) have caused the stream to become channelized; one effect has been a reduction of habitat diversity. The levees have also affected the estuary by changing hydrology and sedimentation patterns and resulting in a decrease in total water volume. Levee maintenance has resulted in a loss of riparian vegetation. In addition, dams on Redwood Creek that are located upstream of the park might be the source of elevated water temperatures and other impacts.

The **Mad River** is located just north of Arcata in Humboldt County. Its watershed extends inland about 100 miles to the southeast, approximately 5.5 river miles lie in the coastal zone. Major land uses in the watershed include forestry, agricultural grazing lands, gravel extraction (out-side the coastal zone), and rural-residential/urban development.

The Mad River is a major municipal and industrial water supply for the Humboldt Bay region. A portion of the town of McKinleyville lies within the coastal zone and much of the coastal zone bottom-lands/floodplain that are not in public ownership are grazed. The town has a secondary-level treatment sewage collection system which discharges into the Mad River when adequate flows are present; during low flows the city uses percolation ponds instead of discharging to the river. Much of the spit separating the Mad River estuary and the ocean has been incorporated into the 150-acre Mad River County Beach. The State manages both the 30-acre Azalea State Preserve on the north side of the river, and the Mad River Fish Hatchery, where anadromous fish are raised for release along the North Coast. The existing and future beneficial uses of the waters of the Mad River Estuary are targeted for maximum protection pursuant to the Bay Protection and Toxic Cleanup Act (California Water Code §§ 13390 et seq.). The Mad River and estuary have problems of sedimentation/threat of sedimentation and threat of fish population decline. The pollutants are siltation and turbidity from industrial and municipal sources, silviculture and other nonpoint sources.

The **Redwoods National Park ASBS/SWQPA** has 35.9 miles of rugged coastline and has 62,643 acres of marine habitat. Redwood National and State Parks, jointly managed by the National Park Service and the California Dept. of Parks and Recreation, occupy the majority of this CCA. Rugged cliffs and sparse primitive campgrounds dominate this region. Much of the coastal access is limited to foot traffic. Most of the drainage into the coastal waters is runoff from rural and wilderness watersheds. This SWQPA has 27 streams emptying into it, including the Klamath River, Cushing Creek and Redwood Creek. The Klamath River is 303d listed, being impaired for nutrients and temperature. Redwood Creek is 303d listed, being impaired for sediment and temperature. There are total of 41direct discharges into the SWQPA. Highway 1, located parallel to and sometimes near the SWQPA, discharges storm water runoff. The National Park Service facility near Requa discharges treated sanitary waste on a cliff into the SWQPA.

The **Kelp Beds at Trinidad Head ASBS/SWQPA** in Humboldt County is 1.8 miles long and encompasses 297 acres of marine habitat. Adjacent to the SWQPA the CCA includes both rural and partly developed urban watersheds. Few houses line the northern coastline, but the Trinidad area becomes more populated near the headland, where the Humboldt State University Marine Lab is located. There are residences and commercial structures in Trinidad that are currently being served by septic systems. Trinidad also has seasonal boating facilities (mooring field, a vessel haulout/launch facilities and pier facilities). There is also a fish cleaning station on the pier that is a source of decomposing fish wastes; there is a an accumulation of discarded metal objects at the base of the pier. Waste seawater from the marine laboratory and a storm drain from the City of Trinidad discharge directly into the SWQPA. Numerous seeps, possibly contaminated from septic tank wastes, also flow from the coastal bluffs into the SWQPA.

The **Eel River** is designated as a Critical Coastal Area. The Eel River flows northwest from its headwaters in southeastern Mendocino County, through Mendocino and southern Humboldt Counties, to the Eel River Delta 10 miles south of Humboldt Bay. Approximately 8 river miles of the Eel River are within the coastal zone. The river supports anadromous populations of steelhead trout, coho, and chinook salmon, and possibly cutthroat trout. The

Eel River watershed contains highly erodible soils on steep slopes. The watershed is lightly populated with concentrations occurring in valleys that are heavily forested. Timber harvesting is a major land use. The River receives industrial discharges from a large sawmill, municipal waste discharges from 8 communities, and urban runoff from communities and industrial facilities. Closer to the estuary, livestock grazing, dairies (approximately 85 dairies are located in the Eel River Delta), and gravel mining (which occurs at up to 11 sites within the lower Eel River) are important land uses. There is one small community in the coastal zone, Loleta, which has very slow growth, and a few scattered residences. Much of the land in the coastal zone is privately owned. The Eel River empties into the Clem Miller State Seashore and is a designated State Wildlife Area. In 1972 sections of the Eel River were designated by the California Wild and Scenic Rivers System. In 1981, the Eel River was designated a National Wild and Scenic River. The existing and future beneficial uses of the waters of the Eel River Estuary are targeted for maximum protection pursuant to the Bay Protection and Toxic Cleanup Act (California Water Code §§ 13390 et seq.).

Details on the Pudding Creek CCA are forthcoming.

To learn more about the CCA program and strategic plan go to http://www.coastal.ca.gov/nps/cca-nps.html. This site also contains maps of the CCAs for the entire State of California including the North Coast Region.

Table 5 includes method of CCA classification: 1) 1998 303(d) listed waterbodies flowing into Marine Managed Areas (MMAs); 2) Stormwater Quality Protection Areas (SWQPAs, formerly Areas of Special Biological Significance, ASBSs); and 3) original 1995 CCA list consisting of 303(d) listed waterbodies.

TABLE 5: CALIFORNIA'S CRITICAL COASTAL AREAS
2002 LIST

North Coast Region					
CCA #	**CCA Name**	**1998 303(d) listed waterbodies flowing into MMAs**	**SWQPA**	**1995 CCA list**	**Notes and additional designations**
1	Klamath River	x	x	x	
2	Redwood Creek	x	x	x	
3	Redwood National Park		x		Park includes Klamath and Redwood CCAs within boarders
4	Kelpbeds at Trinidad Head		x		
5	Mad River			x	

6	Eel River			x	
7	Mattole River	x		x	
8	King Range National Conservation Area		x		
9	Pudding Creek	x			
10	Noyo River			x	
11	Pygmy Forest Ecological staircase		x		
12	Big River			x	
13	Albion River			x	
14	Navarro River			x	
15	Garcia River	x		x	
16	Kelpbeds at Saunders Reef		x		
17	Del Mar Landing Ecological Reserve		x		
18	Gerstle Cove		x		
19	Bodega Marine Life Refuge		x		
20	Estero Americano	x		x	
21	Estero de San Antonio	x		x	