CHAPTER 3: WATER QUALITY/MARINE RESOURCES

A. Policy Framework

The Coastal Act includes several policies to protect marine/terrestrial resources and water quality. Section 30230 of the Act requires that marine resources be protected, maintained, and, where feasible, restored. The biological productivity of coastal waters, including streams, estuaries, and wetlands, must be maintained. Requirements include controlling runoff and waste discharges to protect water quality, maintaining groundwater supplies and stream flows in order to sustain the biological productivity of coastal waters, and minimizing the alteration of riparian habitats and streams (Sections 30231 and 30240).

The San Luis Obispo County LCP is structured so that the County may work in tandem with the State Water Resources Quality Control Board to protect the beneficial use of coastal streams. Through various policies and ordinances, the LCP focuses on measures to "improve land and water use, alleviate flooding, and reduce erosion and sedimentation".[1] To control erosion and sedimentation, the LCP limits grading, based on the slope and timing of work. For grading or vegetation removal on steep slopes, a grading and erosion control plan is required. The LCP requires that "appropriate control measures" be used to minimize erosion and sedimentation. Agricultural practices must also minimize erosion and sedimentation. The LCP also requires that site design ensure that drainage does not increase erosion, either by using on-site retention or conveyance to storm drains or suitable watercourses. (See the following discussion for more detailed references of LCP policies.)

The LCP also requires that the integrity of groundwater basins be protected, and groundwater levels and surface flows be maintained. To protect groundwater basins, the LCP encourages on-site retention of runoff, where feasible. The hydrological system and ecosystem of coastal streams and riparian vegetation are to be protected and preserved. Policies limit alterations to streambeds, the removal of riparian vegetation, and requires that stream diversion structures not impede fish movements or affect stream flows. (See Chapters 2 and 4 for more detailed discussion of these policies).

B. Background

When certifying the LCP in 1988, the Commission identified a number of water quality issues including uncontrolled waste discharges at various locations in the County's coastal zone, water quality problems from irrigation and runoff of fertilizer and pesticides, erosion concerns, and water pollution from oil processing activities. Since certification of the LCP in 1988, much has been learned about water quality and the causes of water quality degradation. While early efforts at protecting water quality often focused on discrete sources of pollution (e.g., from factories and outfall pipes), non-point source pollution has since emerged as a key concern in protecting water

[1] Coastal Plan Policies pg. 9-1

quality. As understanding of the nonpoint source impacts on water quality from development and land use practices has increased, avoiding or minimizing these impacts has become a greater focus in land use planning and regulation along the coast and throughout the State.

Another important development is that, in 1990, Congress enacted the Coastal Zone Act Reauthorization Amendments to better link coastal water quality issues and land use activities. The amendments direct states and local governments to manage land use activities to prevent degradation of coastal waters and marine habitats; a primary emphasis of the amendments is to improve how non-point source pollution is managed. Under those amendments, the Coastal Commission has worked with the state and regional water quality control boards to develop a variety of management measures that reflect the Environmental Protection Agency's (EPA's) guidance for addressing the various aspects of nonpoint source pollution. Last year, the Coastal Commission and State Water Resources Control Board jointly adopted the *Plan for California's Nonpoint Source Pollution Control Program* which includes this framework of management measures to better manage polluted runoff and protect water quality throughout the State. A major component of the Commission's responsibilities under the plan is to facilitate the incorporation of appropriate management measures into LCPs throughout the coastal zone.

In the County, Morro Bay, Los Osos Creek, and San Luis Creek are identified as "impaired" waterbodies by the EPA and Regional Water Quality Control Board. Numerous other waterbodies, while not identified as impaired, are also degraded by nonpoint source pollution.[2] More recent studies and planning documents in the region indicate that threats to water quality in the coastal zone may be growing from a wide variety of sources. (See Appendix C for a summary of known water quality problems in the region.)

Coastal Watersheds

To fully address water quality impacts, the development and land use practices throughout a watershed must be addressed. San Luis Obispo County is divided into nine watersheds, each of which is further divided into smaller subwatersheds. The two watersheds which cover the coastal zone of the county are the Central Coastal Watershed, extending from Monterey County to south of the City of Grover Beach in San Luis Obispo County; and the Santa Maria Watershed, encompassing the southern part of San Luis Obispo County, and extending into Santa Barbara County. Map 3-A shows the watersheds and subwatershed boundaries for the region.

Central Coastal Watershed: This watershed, also termed the Estero Bay Hydrologic Unit by the Department of Water Resources (DWR), encompasses approximately 478,620 acres. Approximately 145,850 acres lie in the coastal zone. The watershed includes three

[2] The designation of impaired waterbodies is based on specific criteria for each waterbody, and does not address all sources of water pollution. The designation process is a continuing one, based on accumulated information. While waterbodies may not be currently designated as impaired, additional information could warrant future designation.

subwatersheds (or hydrologic areas): Cambria, Point Buchon, and Arroyo Grande. Each of these regions is further defined by smaller subareas (see Map 3-A and Appendix C). The entire watershed encompasses 19 rivers, including Arroyo de la Cruz, Arroyo Grande, Morro Creek, Pismo Creek, San Luis Obispo Creek, and Santa Rosa Creek. The coastal portion of the Central Coastal Watershed is predominately agricultural uses with small concentrations of developed areas. Much of the agricultural use is grazing. Appendix C summarizes the land uses for the Central Coastal Watershed.

A variety of land use activities and pollutants can affect the water quality of a watershed. For the Central Coastal Watershed, EPA's website lists the following as the most prevalent causes of water quality problems for rivers and streams: pathogens, siltation, metals, priority organics, nutrients.[3] The most prevalent sources include: urban runoff/storm sewers, agriculture, municipal point sources, resource extraction, and construction. For Morro Bay, which is part of the Central Coastal Watershed, the EPA has identified the following as potential sources of impairment: agriculture, boat discharges/vessel wastes, channel erosion, channelization, construction/land development, irrigated crop production, natural sources, nonpoint sources, resources extraction, septage disposal, surface mining, upland grazing, and urban runoff/storm sewers.

Santa Maria Watershed: This watershed encompasses approximately 1,197,630 acres, much of which lies to the east of the coastal zone boundary and/or in Santa Barbara County; approximately 12,625 acres of the watershed are within the coastal zone of San Luis Obispo County. The main watershed is defined by three subwatersheds or hydrologic areas: the Guadalupe, Cayuma Valley, and the Sisquoc. The Cayuma Valley and the Guadalupe subwatersheds lie within San Luis Obispo County; only the Guadalupe subwatershed lies, in part, in the coastal zone. Major rivers in the watershed include the Cayuma River, La Brea Creek, Manzama Creek, Santa Maria River, and the Sisquoc River.[4] The portion of the watershed in the coastal zone is predominately open space/recreation (Oceano Dunes State Vehicular Recreation Area) and agricultural uses, and falls under the LCP's South County area plan. Much of the land is dune habitat. The Santa Maria Oil Refinery and Chemical Plant and Guadalupe Dunes oil field are also defining uses in this area, on the southern edge of the County's coastal zone. The major threats to water quality in this watershed were identified as being from agricultural runoff into Santa Maria River and Estuary and Oso Flaco Lake, pollutants in groundwater from irrigation return and sewage plant discharge and oil processing and leakage concerns. (See Appendix C).

Coastal Groundwater Basins

In San Luis Obispo County, water quality issues are also directly tied to the water supply: as discussed in Chapter 2 (Development), much of the County's water supply comes from groundwater basins and coastal streams. Excessive withdrawals can lead to seawater intrusion, affecting water quality, and can alter surface flows, affecting the marine habitat and flora and

[3] EPA website: epa.gov/iwi/hucs/18060006/indicators/data/CArivers-cs98.html
[4] EPA Website: www.epa.gov/surf3hucs/1806008

fauna. Since certification, the problem of saltwater intrusion in groundwater basins appears to be an increasing threat to water quality. Prior to certification of the LCP, there were concerns of overdraft on the Pico, San Simeon, and Santa Rosa Creeks; Chorro and Morro basins, Los Osos Creek, Arroyo Grande Valley and Nipomo Mesa.[5,6,7,8,9] Currently, groundwater overdrafts and seawater intrusion remain a concern in these areas, as well as in the Cayucos basin.

General Regulatory Trends: The County relies on sedimentation and erosion control plans and/or drainage plans as a primary tool to protect water quality. Of the 2,481 Final Local Action Notices (FLANs) received by the Commission for development approved by the County, 533 (approximately 21%) have required either sedimentation/erosion plans and/or a drainage plan in an effort to control runoff and protect water quality. The vast majority of projects requiring these plans were for residential development in the urban areas of Cambria, Cayucos, and Los Osos (an estimated 460).

Appeals and Amendments: Six local development permits were appealed to the Coastal Commission that raised water quality issues. In three of the six appeals, the Commission found that the County had not adequately addressed potential water quality impacts from the proposed development, particularly erosion from grading and ongoing runoff concerns during and after construction (A-SLO-93-113; A-3-SLO-98-61; A-SLO-99-50). Other projects raised issues of existing drainage problems and the effect on stockpiling sod and landscaping materials (A-3-SLO-94-10); a wastewater treatment system (A-3-SLO-97-40); and the oil spill cleanup at Guadalupe Dunes (A-3-SLO-98-91).

The Commission also acted on five amendments to the LCP that affect managing development for water quality. The major issue dealt with grading on steep slopes (LCPA 2-84). While the County proposed some restrictions to grading on steep slopes, the Commission found that the County's proposal would lead to potentially significant erosion and sedimentation, and would not adequately protect water quality. As a result, the Commission suggested modifications with more stringent restrictions to grading on steep slopes that the County subsequently adopted into its LCP. Other amendments approved by the Commission exempted certain development from requiring grading permits, although projects would still require County approval for grading plans, and deleted a requirement for curbs and gutters for multi-family developments in Cayucos and San Luis Bay (LCPA 1-87; 1-84). LCPA 2-84 required projects in the South Bay urban areas of Estero Bay to address erosion of hillsides and siltation through the preparation of drainage plans. Finally, as discussed also in Chapter 5 (Agriculture), LCPA 1-90 authorized the redesignation of agricultural lands in Los Osos to accommodate a wastewater treatment plant for Los Osos. The Commission found that the plant was necessary to protect water quality. More detail on the wastewater issue in Los Osos is presented in Chapter 2.

[5] San Luis Obispo County. 1978. Local Coastal Program. Phase 1 Work Program.
[6] San Luis Obispo County. 1978. Draft Natural Resource Area Study. Work Task 208 for San Luis Obispo County LCP.
[7] Findings on County of San Luis Obispo Local Coastal Program Land Use Plan. October 6, 1982.
[8] Crawford, Multari, Clark and Mohr. December 1999. Draft EIR for Estero Area Plan Update. pg. 5.4
[9] San Luis Obispo County. 1990. Resource Management Study.

C. Preliminary LCP Implementation Issues

C.1. Water Quality Impacts from Agricultural Operations

Agriculture is a major land use throughout the two coastal watersheds in San Luis Obispo County. Available information on the quality of coastal waters also shows agriculture as a major source of nonpoint source pollution.[10] Since Commission approval of the San Luis Obispo Land Use Plan in 1983, and final certification of the LCP in 1988, much has been learned about managing the water quality impacts from agricultural activities. Although the certified LCP contains a variety of policies and ordinances to address water quality, the LCP should be updated to include the best professional knowledge and understanding about effective water quality management, particularly nonpoint source pollution associated with agriculture and associated development.

Overview: In general, agriculture is the greatest source of water pollution in the U.S. Agricultural practices can lead to erosion and sedimentation; pollution of water through runoff of fertilizers and pesticides; increases in bacteria, nutrients, and heavy metals into waters; and the physical alteration of riparian and in-stream habitats.[11,12,13] These sources of nonpoint source pollution can occur from general grading practices and crop production, application of chemicals, runoff of animal waste, and grazing practices. Because agriculture is the predominant land use throughout the coastal zone of San Luis Obispo, addressing water quality issues associated with agriculture is central to ensuring the protection of water quality in the County, and to meeting the water quality goals of the Coastal Act.

Erosion and Sedimentation: Grazing and other agricultural practices are likely contributing factors to erosion and sedimentation of streams throughout San Luis Obispo County. According to data from the California Rivers Assessment Program, through the University of California at Davis, agriculture and grazing are suspected sources of siltation to San Carpoforo Creek in the North Coast area, and are potential sources of impacts in the Morro Bay watershed.[14] However, the local agricultural community believes that the cause of siltation is from landslides on Forest Service property. Agriculture is also one source of erosion into streams throughout the Estero region (See Appendix C). Overgrazing results in soil compaction and removal of vegetation, resulting in decreased infiltration of water and an increase in soil erosion.[15]

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[10] State Water Resources Control Board and California Coastal Commission. January 2000. Plan for California's Nonpoint Source Pollution Control Program. pg. 88
[11] Monterey Bay National Marine Sanctuary, Water Quality Protection Program. October, 1999. *Action Plan IV: Agriculture and Rural Lands.*
[12] Morro Bay National Estuary Program. August, 1999. *Turning the Tide for Morro Bay: Draft Comprehensive Conservation and Management Plan for Morro Bay.*
[13] California Coastal Commission. May, 1998. *Revised Staff Report for Consistency Determination CD-051-98 (Natural Resources Conservation Service).*
[14] University of California, Davis. Information Center for the Environment. California Rivers Assessment Program. (www/ice.ucdavis.edu).
[15] Monterey Bay National Marine Sanctuary, Water Quality Protection Program. October, 1999. *Action Plan IV: Agriculture and Rural Lands.*; pg. 15

The conversion of open space lands, including historic grazing lands, for cultivation can result in significant landform alteration, with the potential for increased erosion and sedimentation rates, and changes in drainage and runoff patterns. As discussed in Chapter 5 (Agriculture), the changes in agricultural lands to vineyards is increasing in the County. Because of the extent of bare ground associated with establishing new vineyards, the rates of erosion over the first few years can be significantly higher than for lands used for other agricultural crops or for grazing. While the growth in vineyards is more prevalent outside of the coastal zone, it remains a potential concern within the coastal zone. In fact, under the Estero Area Plan, the County is encouraged to find additional water sources to expand irrigated croplands and vineyards.[16]

Pesticides: In general, runoff containing residues of pesticides (and other chemicals) is a significant concern for the protection of water quality and marine resources. Some estimates note that between 1991-1998, pesticide use throughout San Luis Obispo County increased by approximately 53%, from approximately 1,572 pounds to approximately 2,403 pounds of active ingredients used.[17] Californians for Pesticide Reform (CPR) identify so-called "Bad Actor" pesticides as "California registered pesticides that are acute poisons, carcinogens, reproductive or developmental toxicants, neurotoxins, or groundwater contaminants" and estimate that in SLO County use of these pesticides rose by 24%.[18] While these are county-wide data, pesticides will be carried into coastal waters through stormwater runoff regardless of whether the initial application of the pesticide is within the coastal zone or inland of the coastal zone boundary.

The quantity and specific pesticides used will vary by the commodities grown. San Luis Obispo County has seen an increase in the production of wine grapes, avocados, lemons and nursery plants over the past decade.[19] In general, the increase in these crops has lead to an increase in pesticide use in the County. The change in pesticide use and the acres used for crop production of these commodities between 1993-1998 are illustrated in Table 3-1, below.

However, not all substances reported as pesticides may be harmful to the environment. Under the Department of Pesticide Regulation's requirements, all substances used as pesticides are reported, regardless of the potential for, and degree of, environmental impacts. In particular, a significant increase in pesticide use for avocados identified in Table 3-1 may be from substances such a petroleum oil and sugar, and may be substances certified as organic. In addition, Table 3-1 estimates the change in crop use and pesticide use for the entire San Luis Obispo County; data specific to the coastal zone are not available.

[16] Estero Area Plan. pg. 6-21.
[17] Kegley, Susan, Stephan Orme, and Lars Neumeister. *Hooked on Poison: Pesticide Use in California 1991-1998.* Published by Pesticide Action Network North America Regional Center and Californians for Pesticide Reform. 2000
[18] ibid. pg. 7.
[19] Robert Hopkins. County Agriculture Commissioner. Pers. comm 5/5/00.

Table 3-1: Change in Pesticide Use and Farm Acreage for Selected Crops, San Luis Obispo County, 1993-1998:

Crop	Change in Acres	Change in Pesticide Use*
Wine Grapes	increase 31%	increase 84%[20]
Avocados	increase 8%	increase 885%
Lemons	increase 5%	decline 22%
Nursery (includes greenhouse, outdoor grown plants, flowers)	increase 11%	increase 78%
Carrots	N/A	increase 352%
Apples	increase 69%	increase 66%
Peas	increase 22%	decrease 34%

* Pesticides reported may include organic substances. (Sources: County Agriculture reports 1994 and 1998 for acres; Pesticide Use Reporting; Department of Pesticide Regulation, www.cdpr.ca.gov; "Product Use and Data"; "Pesticide Use Reporting".)

Monitoring for Pesticides: Although some pesticides are known to be toxic to wildlife and humans, monitoring for the presence of pesticides is infrequent. There is evidence of pesticide residue in some coastal lagoons in Central California; many of the pesticides evident were those used in the past, but still present in the environment, including DDT.[21] Studies also show that pesticides, fertilizers, nutrients, and other pollutants from agriculture are evident in waterbodies in the Nipomo Mesa subarea, in Arroyo Grande Creek, and Oso Flaco Lake. As shown in Map 3-B, pesticides are used throughout the County, but are concentrated in the Santa Maria Estuary region in the South Bay. Ongoing and complete monitoring has not been undertaken to evaluate the presence of pesticides in the County's streams and estuaries, due in part to the expense of testing for pesticides.[22] The Regional Water Quality Control Board has recently begun conducting more ambient water quality monitoring, including some monitoring for pesticides.

LCP Implementation: The LCP currently has several general policies that address water quality and agriculture. Watershed Policy 12 states that agricultural practices shall minimize erosion and sedimentation through accepted management practices. Watershed Policy 14 states that proper soil conservation techniques and grazing methods shall be employed to the maximum extent feasible in accordance with the California Water Quality Control Board 208 standards. Agriculture Policy 8 "encourages" proper soil conservation techniques and grazing. Finally, the San Luis Bay Area Plan includes language to develop a program to reduce erosion impacts from grazing.

The County's LCP also regulates animal keeping. Ordinance 23.08.046 of the LCP states that where a permit is required for animal facilities, it must address the drainage patterns of the site, how the applicant will avoid soil erosion and sedimentation, and how disposal of animal waste will be done. It requires that sedimentation will not occur on public roads, adjacent property, or in any drainage channel. For beef and dairy feedlots, the LCP requires notice to the Regional Water Quality Control Board for review (Ordinances 23.08.052/23.06.100).

[20] For all grapes, the increase in pesticide use is 427%.
[21] Karen Worcester. Regional Water Quality Control Board. Pers. Comm. 6/13/00.
[22] Karen Worcester. Regional Water Quality Control Board. Pers. comm 6/13/00.

Review of locally issued permits indicates that while the County has not approved any large animal facilities or feed lots between 1988 and 1998, it has approved several permits for private and commercial horse stables. Although they are not specifically large animal facilities, these recreational livestock facilities can still degrade water quality through polluted runoff.[23] Review of the County's findings for these projects shows that the County has generally required actions to protect water quality, including the use of hay bales to control erosion during the rainy period and requiring measures to keep manure from being carried in runoff.[24]

Aside from regulating animal facilities, there are few cases where actual agricultural activities are regulated under the LCP because many are exempt from regulatory review.[25] Under the LCP Ordinance 23.03.040(d)(9), permits are not required for "[c]rop production and grazing where designated allowable by Coastal Table 'O' …, except where more than one-half acre of native vegetation is proposed to be mechanically removed". In addition, grading permits are not required for "agricultural cultivation activities including preparation of land for cultivation, other than grading for roadwork or pads for structures" (Ordinance 23.05.026). The County has reported a significant number of coastal development permits for new wells, mostly located in agricultural areas of the North Coast and Estero.

In addition to LCP implementation, other regional agencies have implemented programs to address sedimentation impacts from agricultural practices in San Luis Obispo County. The San Luis Resource Conservation District Chorro Flats Enhancement Project was undertaken to reduce sedimentation into Morro Bay. While the causes of sedimentation may not be solely from agricultural practices, the watersheds of Chorro Creek and Los Osos Creek, which drain into Morro Bay, are predominately agricultural. Sixty percent of the Chorro Creek watershed is rangeland.[26] A second project is a larger-scale management program for Morro Bay undertaken by the Morro Bay National Estuary Program (NEP). The NEP's proposed management plan seeks to improve water quality in Morro Bay by addressing the sedimentation problems, as well as a variety of other impacts to water quality. While not the sole cause of water quality degradation, agricultural activities are cited as one contributing factor.

Consistency Analysis: Where permits have been required in limited cases, the County has generally implemented LCP requirements to control runoff from agricultural activities. Since certification of the LCP, though, new, revised management tools have been developed to address many of the sources of polluted runoff from agricultural practices; thus, the LCP policies appear to need to be updated in order to protect water quality consistent with the Coastal Act.

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[23] Monterey Bay National Marine Sanctuary, Water Quality Protection Program. October, 1999. *Action Plan IV: Agriculture and Rural Lands.* pg. 7.
[24] FLANs 3-SLO-94-079 and 3-SLO-91-013.
[25] Grading for agricultural roads and the placement of agricultural accessory structures, such as barns, require coastal development permits under the LCP. The water quality issues related to these activities are discussed in the Urban and Rural Development section of this Chapter.
[26] Coastal San Luis Resource Conservation District. March 2000. Chorro Flats Enhancement Project Final Report. (www. coastalrcd.org).

The State's new *Plan for California's Nonpoint Source Pollution Control Program* identifies the various sources of nonpoint source pollution from agriculture and corresponding management measures. These management measures and a preliminary review of the relevant LCP policies and ordinances that implement them are presented in Appendix D. The objectives of the new management measures are to reduce solids and pollutants in runoff, contain or manage runoff from animal facilities and prevent seepage into groundwater, reduce contamination of groundwater and surface waters from pesticides, reduce use of pesticides, protect sensitive areas by reducing loading of animal wastes and sediments in grazing areas, and reduce pollution of surface waters caused by irrigation.

Although the County has generally implemented the existing LCP's policies and ordinances to reduce sediment, protect grazing lands, and limit discharge from animal facilities (Management Measures 1-4) the policies should be updated to protect water quality in light of current best management practices. For example, State and Regional Water Quality Control Boards have updated the Basin Plan Receiving Water Standards for maintaining water quality. Thus, the County policy reference in Agricultural Policy 8 to Section 208 standards is no longer the applicable standard. In addition, although grazing practices are encouraged to use proper soil conservation techniques to the maximum extent feasible, under the LCP, adding a grazing management program to the LCP could help to address water quality impacts from grazing. While Ordinance 23.08.046 regulates feedlots, and requires measures to address sedimentation and erosion, it does not fully implement the objectives of management measure 4, and therefore does not fully protect water quality. To fully address water quality impacts from feedlots, and meet the objectives of management measure 4, other sources of nonpoint source pollution must also be addressed, including standards to contain runoff and prevent contamination of groundwater.

In addition, the LCP does not have any specific mechanisms to address other sources of nonpoint source pollution from agricultural practices, including degradation of water quality from nutrients, pesticides, and irrigation (Management Measures 5-7). The Coastal Commission has had some success addressing such problems working programmatically with other agencies, such as the Natural Resource Conservation Service (NRCS). For example, in Elkhorn Slough in Monterey County, the Commission approved an NRCS program that provides outreach, education, and funding to strawberry farmers to assist them in implementing erosion control measures such as vegetated buffers and settling basins. A similar programmatic approach could be supported by the County's LCP. By developing a program to address these nonpoint source pollution concerns and by working with the RCS, NRCS, and local farmers, the County could better protect water quality from these practices.

Finally, the County's coastal permit exemption policies can result in impacts to water quality that are not consistent with Coastal Act policies. If removal of less than one-half acre of native vegetation is exempt from permit requirements, in these situations there is no mechanism to assure implementation of measures to protect streams, wetlands, or other coastal waters from erosion and sedimentation if grading is undertaken adjacent to those waterbodies. Limiting such exemptions to areas not immediately adjacent to coastal streams and wetlands would help minimize impacts to water quality. In addition, as noted previously and discussed further in Chapter 5 (Agriculture), the conversion of open space lands can result in significant landform alteration, potential erosion

concerns, and alteration of drainage and runoff patterns. Modifying the agricultural exemptions to require coastal development permits, or developing other programs to address water quality, where agricultural practices result in these changes would improve the protection of water quality (see Preliminary Recommendations 5-10 through 5-13, Chapter 5).

Section 30231 of the Coastal Act requires that the quality of coastal waters be maintained. The Commission has recognized that runoff from agricultural practices can be detrimental to marine resources and coastal water quality.[27] Since certification of the County's LCP, much has been learned both about the adverse impacts of agricultural activities on water quality, and about appropriate management techniques for addressing these impacts. Waterbodies such as Morro Bay and the many sensitive coastal streams in San Luis Obispo should be guaranteed the highest and most up-to-date levels of protection possible. Under continued implementation of the limited policies of the LCP, nonpoint source pollution of coastal waters from agricultural operations will likely continue. Updating the LCP to reflect improved management practices, through both regulatory changes and through non-regulatory programs, will better ensure that water quality and marine resources are adequately protected in conformity with Section 30231 of the Coastal Act.

Preliminary Policy Alternatives

As discussed above, the Coastal Act objective of protecting coastal water quality and marine resources will be enhanced by integrating new knowledge and management practices into the County LCP. There are several alternatives for modifying the LCP. Existing policies and standards can be updated to incorporate new best management practices. Non-regulatory programs to address water quality impacts from grazing, nutrient and pesticide runoff and water quality degradation from irrigation practices can be incorporated into LCP, using stakeholder coordination, multi-agency coordination, or other such actions. Ensuring a more comprehensive review through the regulatory program of related developments can also improve treatment of important water quality issues. For example, approvals of additional irrigation wells may need to be coupled with drainage plans that protect natural drainage areas and limit off site runoff. In addition, the county could work with pesticide manufacturers and distributors to develop more comprehensive means for reductions in pesticide use; including evaluation of pest, crop and field factors; use of Integrated Pest Management (IPM); consideration of environmental impacts in choice of pesticides; calibration of equipment; and use of anti-backflow devices. Integration with other agencies who have educational programs and regulatory authority to limit chemical application and water use can be identified. The County has already recognized the value of such intergovernmental stakeholder approaches in the most recent North Coast Area Plan project description, which discusses the possibility of establishing a Coordinated Resource Management Program (CRMP) for coastal creek watersheds such as San Simeon and Santa Rosa Creek. [28]

[27] California Coastal Commission. May, 1998. *Revised Staff Report for Consistency Determination CD-051-98 (Natural Resources Conservation Service).*

[28] San Luis Obispo County North Coast Area Plan. pg. 3-13.

It should be noted that the County's recent efforts to revise the grading ordinance provides a good opportunity to revise and update the current standards. After several months of analysis and review, the County Board of Supervisors adopted a resolution to repeal the existing grading ordinances in the certified LCP (Sections 23.05.020 through 23.05.050) and replace it with Ordinance 2864. The results of this effort are part of a larger LCP amendment that has been submitted to the Commission for certification into the LCP. Commission staff is currently completing its evaluation of this revision and will be making a recommendation to the Commission for action in March 2001.

Some preliminary recommendations to address the concerns raised in this report are outlined below.

Preliminary Recommendation 3-1: Modify and adopt the following polices and standards in the LCP. (***Bold italics*** indicate new language; strikeouts indicate language proposed to be removed.)

Agriculture Policy 8: Proper soil conservation techniques and grazing methods should be encouraged in accordance with ~~208 Water Quality Standards~~ ***Basin Plan receiving water objectives*** adopted to meet the water quality requirements of the California Regional Water Quality Control Board.

Coastal Watershed Policy 14: Proper soil conservation techniques and grazing methods shall to the maximum extent feasible be employed in accordance ~~with 208 water quality standards~~ ***Basin Plan receiving water objectives*** adopted by the California Water Quality Control Board.

Ordinance 23.08.046 c(2): Application content. Where this section requires land use permit approval for a specific animal raising activity, the permit application shall include the following in addition to all information required by Sections 23.02.030 …

(i) Site drainage patterns and a statement of measures proposed by the applicant to avoid soil erosion and sedimentation caused by the keeping of animals.

(ii) The applicant's plans for animal waste disposal, ***including plans showing measures to confine runoff, adequate capacity to allow for proper wastewater disposal, and measures to prevent seepage to groundwater***.

(iii) …

e(2): Erosion and Sedimentation control. In no case shall an animal keeping operation be managed or maintained so as to produce sedimentation ***or runoff*** on any public road, adjoining property, or in any drainage channel. …

Preliminary Recommendation 3-2: Modify LCP to incorporate mechanisms to fully implement the management measures identified in Appendix D. Appendix D identifies preliminary policy alternatives to achieve this goal.

C. 2 Water Quality Impacts from Urban and Rural Development

As with agricultural activities, much has been learned since certification of the San Luis Obispo County LCP about the effective management of impacts to water quality from urban development. The San Luis Obispo County LCP should be updated to fully protect water quality from urban development. In addition, while the County has required erosion control measures in many cases, review of the County's LCP implementation raises some concerns regarding the protection of water resources. These concerns include the adequacy of existing policies and standards, and the effectiveness of the County's typical conditions applied under these policies to mitigate impacts of development.

Overview: While there is no up-to-date, comprehensive water quality monitoring done in San Luis Obispo County, runoff from urban development is known to be a factor in many of the water quality problems identified through past studies (see Appendix C). Urban development can affect water quality due to a number of factors. The location and siting of development can be a key element in minimizing the extent of erosion, sedimentation, and water runoff from a site, thereby reducing nonpoint source pollution and better protecting water quality. For example, development on steep slopes can lead to significantly greater erosion and runoff than development located on a more gentle grade; the runoff from the site can ultimately affect the water quality of nearby or downcoast streams and other waterbodies. As discussed previously, the coastal zone of San Luis Obispo County is characterized by various nodes of urban development, including the towns of Cambria, Cayucos, Los Osos/Baywood Park, Avila Beach, and Oceano. Parts of Cayucos and Cambria have steep slopes where erosion and runoff is a significant concern. Septic systems are also causing water quality problems and concerns in areas such as Los Osos.

A recent erosion and sedimentation study by the Natural Resources Conservation Service in the Lodge Hill area of Cambria identified impacts of runoff in developed areas. The findings from this 1999 study indicate that residential development and road construction have led to increased runoff from the impervious surfaces, resulting in a higher rate and volume of runoff, and possible changes in flow patterns and rates of sedimentation into streams.[29] The report also states that unpaved roads are a primary source of erosion and that the area lacks a coherent system to manage storm water runoff. The study also notes that the forest plays an important role in increasing water infiltration, and reducing runoff and velocities. The study concludes that runoff will increase with increased development of the area.

In addition to urban areas, much of the rest of the County's coastal zone is by characterized less dense, rural residential and agriculture development, and a mix of rolling hills, valleys, and steep slopes. As noted previously, about 10% of the new residential development approved was outside the urban nodes. This ex-urban development raises water quality issues, due, in part, to the less concentrated development patterns. Residential development on large rural lots can lead

[29] USDA Natural Resources Conservation Service. February, 1999. *Cambria Erosion and Sediment Study; Lodge Hill Study Area; Cambria, California.*

to an increase in impervious surfaces through, for example, larger structures and separate, long access roads to reach the residential development. This increase in impervious surfaces can increase polluted runoff, erosion, and sedimentation.

Other aspects of development that can affect water quality include impacts from construction activities and managing ongoing runoff from development after it is constructed. The extent of impervious surfaces in an area also significantly increases the extent and rate of water runoff, and can increase the level of pollutants carried downstream into waterbodies. Conversely, the extent of open space and vegetation retained on site can serve to increase water infiltration, reducing the downstream potential for erosion, and reduce the extent of polluted runoff.

Industrial uses can also affect water quality by contributing to runoff of toxic chemicals in surface waters and/or by polluting groundwater. In San Luis Obispo County, water quality has been affected by both MTBE leaking from gas stations and from oil leaks at Avila Beach and Guadalupe Dunes.

MTBE: MTBE was added to gasoline in 1992 to address concerns over air quality. However, the additive has raised concerns over water quality.[30] The Regional Water Quality Control Board began a monitoring program in 1996 for MTBE in San Luis Obispo County. Samples from underground fuel tanks are taken regularly to test for evidence of MTBE in groundwater. In the last several years, the frequency and concentration of MTBE in groundwater has been increasing.[31] Upon detection of contamination, further monitoring is done to determine the scope of the contamination and a remediation plan is developed. Contaminated sites occur throughout the San Luis Obispo County. Although no contaminated surface waters have been identified, 28 service stations show MTBE concentrations in ground water, ranging from concentrations of 710,000 ppb to 1.2 ppb.[32] The majority of these sites are inland of the coastal zone. Unfortunately, the communities of Cambria, Los Osos, and the City of Morro Bay have been struggling with MTBE contamination that is threatening groundwater supplies. As noted in Chapter 2, in Cambria, the CSD has recently had to drill an emergency well to protect its residential water supply.

LCP Implementation: To address nonpoint source pollution from urban development, the County's LCP focuses on controlling erosion and sedimentation, on managing drainage patterns to reduce erosion and runoff, and on siting development off steeper slopes. Specifically, the LCP requires that: measures to control erosion and sedimentation be used at the start of site preparation; requires that land clearing and grading avoid the rainy season if there is a potential for "serious" erosion and sedimentation; requires erosion control measures be in place before the rainy season; and requires that the area of exposed soil be minimized (Watershed Policies 8, 9, 13).

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[30] On March, 25, 1999, Governor Davis issued Executive Order D-5-99, stating that the "California Energy Commission (CEC), in consultation with the California Air Resources Board, shall develop a timetable by July 1, 1999 for the removal of MTBE from gasoline at the earliest possible date, but not later than December 31, 2002.
http://www.governor. ca.gov/briefing/execorder/d599.html

[31] Jay Cano, Regional Water Quality Control Board. Pers comm. 4/28/00

[32] Regional Water Board data, May 2000

The County implements these goals by requiring sedimentation and erosion control plans and/or drainage plans. Sedimentation/erosion control plans are required when: (1) grading requiring a permit is conducted or left in unfinished state from October 15 through April 15; (2) land disturbance activities, including removal of more than one-half acre of native vegetation in geologically unstable areas, on slopes over 30%, on soils rated severe erosion hazards, or within 100 ft of a `watercourse shown on current 7 ½ minute USGS quad map; or (3) placing or disposal of material above or below anticipated high water line of watercourse where it may be carried into waters by rainfall or runoff in quantities deleterious to fish, wildlife, or other beneficial uses (Ordinance 23.05.036).

Drainage plans are required for projects which (1) disturb 40,000 sq. ft or more of land; (2) result in impervious surface of 20,000 sq. ft or more; (3) are in areas with a history of flooding, ponding, or in a flood hazard combining designation; (4) disturb land within 50 ft of a watercourse; (5) are on hillsides over 10% slope; or (6) are on a coastal bluff (Ordinance 23.05.042).

The North Coast Area Plan also has additional requirements for development in the Lodge Hill area of Cambria. Development in this region must meet the following criteria:

- runoff from impervious surfaces must be collected and detained on-site or passed through an erosion control system approved by the County engineer;
- projects must include permanent erosion control devices;
- a sedimentation/erosion control plan is required if grading occurs between Oct 15-April 15;
- activities must minimize fill and site disturbance;
- activities must protect disturbed soils and stockpiles from rain and erosion;
- activities revegetate disturbed areas;
- developments must minimize impervious surfaces to the smallest functional use.

A second strategy used by the County is to restrict development on steep slopes. Generally, the LCP restricts development to slopes of less than 20%, with some exceptions allowing grading on slopes between 20-30%. The area plans generally reiterate these restrictions. These policies are discussed in more detail below.

For industrial development, the LCP focuses on ensuring adequate oil spill prevention and cleanup plans. Energy Policy 1 requires that "adverse environmental impacts" from siting or expansion of industrial and energy facilities be mitigated to the maximum extent feasible. Marine terminals also shall be designed and operated to minimize oil spilled, minimize the risk of collisions, and have oil spill contingency plans (Energy Policy 5). Pipelines for oil and gas are to be routed to minimize erosion (Energy Policy 8) and the extent of ground disturbance for projects is to be reduced to the minimum necessary (Energy Policy 9). Access roads are to follow contours of the land to the extent feasible and be located to minimize landform alteration

(Energy Policy 20). Finally, site restoration is required for abandoned facilities if natural revegetation would take too long and would result in substantial erosion (Energy Policy 10).

The San Luis Bay, South County, and Estero area plans reiterate the requirement for oil spill contingency plans for future oil development in San Luis Harbor, and for any expansion or modifications to existing oil refinery and chemical facilities.

Non-Mandatory LCP Programs: In addition to these standards, the County's LCP contains several non-mandatory programs related to water quality. In the North Coast the LCP includes a program for the County to reduce erosion in the Lodge Hill Pine Forest, and specifically requires control and prevention of siltation to Santa Rosa Creek. For the Estero region, the LCP includes a program to undertake detailed drainage studies for the planning area, in order to design drainage systems to promote groundwater recharge. Finally, in San Luis Bay, programs note the need to monitor effects of development on runoff, particularly within the Pismo Creek drainage, and to undertake an erosion/sedimentation study of the Arroyo Grande fringe.

Adequacy of Erosion Control Plans and Related Conditions: The primary focus in San Luis Obispo County's LCP is to address erosion and sedimentation concerns from construction of new development. In comparison to other coastal jurisdictions in California, San Luis Obispo County has one of the strongest LCPs with regard to erosion control. The LCP requires that sedimentation and erosion control plans address both temporary and final measures, and that they include a) slope surface stabilization, b) erosion and sedimentation control devices, and c) final erosion control measures (revegetation within 30 days of completion of grading) (Ordinance 23.05.036). Under the LCP, drainage plans must also include erosion and sedimentation control measures and are to be reviewed by the County Engineer (Ordinance 23.05.044a).

The County has required the submittal of sedimentation and erosion control plans and/or drainage plans in approximately 21% of all approved projects between 1988 and 1998.[33] As noted above, the LCP requires erosion and sedimentation plans only for grading during certain times and for activities in certain locations. The plans were required most often for residential development , grading projects [34], and commercial development. More than one quarter of the 809 new single family homes were required to complete grading plans, with the majority of these occurring in Cambria. The County also required plans on other projects, including subdivisions, public works, and bluff or shoreline protection projects and incorporated a variety of measures to address sedimentation and erosion.

Review of many of the County's FLANs shows that numerous other projects incorporated other measures to address sedimentation and erosion. For example, some projects referenced and incorporated recommendations from engineering or geologic studies done for the proposed project. Other projects were conditioned to require erosion control plans if grading occurred between October 15th and April 15th. A number of projects also specified that runoff shall be

[33] These figures are based on notices of local actions received by Commission staff. In some cases, the County required both sedimentation and drainage plans for one development.
[34] Some of these grading projects may be part of residential projects.

collected on site and conveyed to existing stormdrains. For many projects in the Lodge Hill area of Cambria, the County required that runoff be retained on-site, or released through an approved erosion control device, as required by the area plan standards. The County's findings for these projects generally state that the proposed clearing of topsoil is the minimum necessary. They also state that "site preparation and drainage improvements have been designed to prevent soil erosion and sedimentation of streams through undue surface runoff, because, as conditioned, the project meets drainage and erosion control standards specified by the Engineering Department."

In some cases, the conditions lacked specific standards. For example, in a project for a retail stand, the County required the parking area to be designed and located "to minimize cut and fill and avoid sedimentation and erosion".[35] Although the permit is also conditioned to require drainage plans, there are no specific details to ensure that water quality concerns are addressed, whether they be sedimentation or on-going runoff from the parking lot.

The LCP policies and ordinances do not specify performance standards or necessarily require the use of up-to-date best management practices to assure that water quality is adequately protected when erosion control and drainage plans are required. Monitoring requirements to determine the effectiveness of the measures taken are also not required. Discussions with County staff indicate that erosion control measures are developed on a case-by-case process. Performance standards are generally not used, and only minimal monitoring is conducted.[36]

The Commission's actions on several appeals identify the same concerns regarding the County's erosion control plans. [37] In these appeals, the Commission found that the County had not adequately addressed water quality protection due, in part, to the lack of specific requirements for erosion control plans required under the LCP. In appeal A-3-SLO-98-061, the Commission found that the final design of drainage plans, required to address drainage of runoff into a marsh area, had not yet been submitted. This information is required to determine if the locally required modifications to the originally proposed drainage facilities effectively address the potential for site drainage to cause erosion into the Morro Bay Estuary.

In appeal A-3-SLO-93-113, the Commission found that the erosion and sedimentation control plans required by the County to address runoff into Santa Rosa Creek did not specify measures for the control of polluted runoff. It also did not identify appropriate best management practices (BMPs) that would ensure the protection of water quality in Santa Rosa Creek. The Commission also found that while the County required runoff from the proposed project to be routed directly into Santa Rosa creek, it did not evaluate the impacts on water quality from runoff during construction or from the cumulative effects from runoff from streets, parking areas, and lawns which would be directed into the creek under the proposed project.

[35] FLAN 4-SLO-91-183
[36] Tim Tomolson, County Engineering Dept. Pers comm. 9/28/00.
[37] A-3-SLO-93-113; A-3-SLO-98-061; A-3-SLO-99-050.

In the third appeal (A-3-SLO-99-050), the Commission again raised the adequacy of the erosion control and runoff plans. The Commission found that final drainage plans had not been submitted, and that the existing record had few details concerning the existing drainage situation and the effect, if any, of the proposed development on adjacent properties and the potential for increased erosion. On appeal, the Commission required final drainage and erosion control plans to ensure that erosion and runoff would be adequately managed. Requirements included that erosion on-site be controlled to avoid adverse impacts; specified temporary erosion control measures to be used; required permanent measures installed to direct runoff to the street, avoiding slopes, bluffs, and beach areas; a site plan showing the location of erosion control measures; and a schedule for installation of those measures.

Review of the County's actions shows a number of examples where water quality impacts were not addressed for projects that raise water quality concerns, particularly concerns with runoff after construction. Examples include approval for grading for an access road without requiring an erosion control plan, and a number of single family residences.[38] These projects are examples where the LCP requirements for erosion control plans may not be sufficient to fully protect water quality and marine resources.

The County has addressed runoff from industrial developments as well. Of the 27 permits the County issued for industrial development between 1988 and 1998, many of the projects authorized oil spill clean up or improved spill containment areas. Other projects approved were for activities to prevent future degradation of water resources by conducting maintenance activities on existing facilities and pipelines. Due to the nature of the projects, the County's actions will help protect water quality. For future development, lands zoned for industrial uses are very limited in the County. The primary areas for industrial use are the existing Chevron facilities in the Estero area and the Santa Maria facility in the South County. Revision and upgrading of policies on erosion control plans will also contribute to improved runoff control from industrial sites.

Siting of New Development*:* In addition to the use of sedimentation and erosion control plans, the LCP also addresses water quality issues by restricting development on steep slopes. As noted above, development on steeper slopes significantly increases the potential for nonpoint source pollution through increased erosion, sedimentation and elevated runoff levels. Watershed Policy 7 and Ordinance 23.05.034 do not allow grading for new development on slopes greater than 20%. However, the policy and ordinances identify numerous exceptions to this policy, including allowing grading on steeper slopes for development of existing residential lots where a residence could not be sited on slopes under 20%. In authorizing exceptions for grading on slopes between 20-30%, the County must consider "the proximity of nearby streams or wetlands, the erosion potential and slope stability of the site, the amount of grading necessary, neighborhood drainage characteristics and measures proposed by the applicant to reduce potential erosion and sedimentation" There must also be no other feasible method of establishing an allowable use on the site without such grading (Watershed Policy 7; Ordinance 23.05.034(b)).

[38] FLANs 3-SLO-93-075; 3-SLO-98-136; 4-SLO-90-290; 3-SLO-92-96; 3-SLO-92-105; 3-SLO-93-20; 3-SLO-93-24; 3-SLO-93-28; 3-SLO-94-84; 3-SLO-94-129; 3-SLO-94-139; 3-SLO-94-140; 3-SLO-95-122; 3-SLO-95-142; 3-SLO-96-015; 3-SLO-96-63

A number of standards in the area plans reiterate restrictions of development on steep slopes. For rural lands in the North Coast adjacent to Cambria, the area plan prohibits any *structural* development on slopes greater than 20%. However, in the Lodge Hill area, the area plan allows development on slope of 25% or greater with a minor use permit. The Estero area plan has several standards regarding development on steep slopes: for parcels in the GSA and SRA combining designations, and *outside* of the urban reserve or village reserve lines, the area plan requires that new building sites and driveways be located on slopes under 30%. In addition, the area plan prohibits development on slopes over 30% in the Morro Palisades hillside area. The San Luis Bay and South County planning area plans do not specifically restrict development based on slope percentage, but require that new development be concentrated moderate slopes.

Based on available data from the County's actions, the County has approved development on at least 165 parcels with slopes of 20% or greater, including granting 38 variances for grading on slopes greater than 30%. The County has also granted an additional 61 permits for development on "steeply sloping" parcels.[39] While these parcels raise the most concerns regarding water quality impacts from grading, construction, and on-going runoff after construction, another 194 parcels are identified as having a combination of gently or moderate to steep slopes.

From a review of a sample of local permits for development on slopes greater than 20%, it appears that the County does not specifically address the criteria required under Watershed Policy 7 in findings. Typical findings on permits usually stated that the project was designed to minimize the area disturbed and that the topography was "considered" in the design and siting of "physical improvements". While minimizing the area of site disturbance can greatly reduce erosion, the County generally does not discuss the other factors identified in Watershed Policy 7, including specific measures to reduce erosion and sedimentation. Therefore, it is unclear how effectively the County is addressing erosion and runoff concerns.

For the variances granted, the County generally required sedimentation and/or drainage plans to address erosion issues. The County found that without granting the variance, there was no feasible alternative to develop the site. However, as discussed above, requiring development of sedimentation and drainage plans alone may not fully address water quality issues if such plans lack specific standards, requirements to use best management practices, and if they do not provide for long-term monitoring.

A related issue regarding the siting of new development and adequate protection of water quality centers on where the County has created new parcels for future development through subdivisions. As reported in Chapter 2, the County has approved an estimated 32 permits for new subdivisions between certification of the LCP in 1988 and 1998, authorizing over 438 new lots. While the subdivision permits themselves do not necessarily include grading and actual development of the site, the locations approved for new development can have important

[39] These numbers may underestimate the amount of development on steep slopes. Information on slopes for parcels, whether represented as percent slope or description of "flat", "gently sloping", "moderate to steep", etc, is evident only on approximately half of the local notices received by the Commission.

consequences for future development and for water quality issues. As parcels of land decrease in size through the subdivisions, the ability to site new development with minimal impacts to resources decreases. If new lots are created on steep slopes or adjacent to streams, development of those sites may lead to greater impacts on water quality through increased erosion and runoff.

Two subdivision permits included grading on slopes over 30%, for which the County granted variances. Under FLAN 3-SLO-97-022, a subdivision above Avila Beach, the County found that the proposed development was covered by an existing Master Development Plan, and found that the variance was necessary for the "preservation of the property rights of the applicant". In FLAN 3-SLO-96-120, the County states the variance allows "for greater development than would otherwise be allowed on the site." As discussed in Chapter 2, this commercial subdivision project is currently in litigation, partly concerning the availability of water to supply the project. Although each of these projects raise a variety of concerns, with respect to water quality protection, neither action included findings on how the newly created lots would result in siting development that would avoid impacts to water quality on these steep slopes. Through both the approvals of development on steep slopes and the creation of new lots in steep slopes, it appears that the County has authorized development in a manner that will increase the potential for erosion and runoff, thus contributing to potential water quality degradation.

Controlling Post-Construction Runoff: One of the main areas where the LCP needs to be updated is in addressing ongoing runoff from development. All development, regardless of whether it requires an erosion or grading plan under the existing LCP or the modifications proposed by the County, has the potential to affect water quality through post-construction runoff. As discussed above, the County has approved a number of projects without requiring a sedimentation/erosion control plan. While these projects may be in conformance with existing LCP policies, they still have a potential to affect water quality. Therefore, all new development should incorporate measures to address ongoing nonpoint source pollution, regardless of location, type or size of the development.

Updating LCP Policies to Incorporate New Knowledge: While the LCP's grading and drainage ordinance was amended in the early and mid 1990s, the State has recently adopted the *Plan for California's Nonpoint Source Pollution Control Program*, detailing a variety of management measures to further improve protection of water quality. The management measures from that plan which address nonpoint source pollution from urban development are identified in Appendix D . This appendix also includes a preliminary review of the corresponding LCP policies and ordinances that currently implement each management measure. These management measures can be generally identified as: 1) preventing and reducing erosion; 2) preventing degradation to areas important to water quality functions, particularly riparian areas; 3) limiting impervious surfaces; 4) limiting discharge of toxic materials and/or nutrients; and 5) addressing runoff from existing developed areas, including runoff from roads and bridges. The management measures address nonpoint source pollution concerns during the siting phase, construction phase, and post-development.

Commission staff notes that the County's LCP is among the strongest in the state with respect to erosion control policies. Nonetheless, the LCP would benefit from revisions to incorporate new

information and knowledge about effective best management practices for protecting water quality. For example, while the LCP grading ordinance focuses on methods to control sedimentation, it has few policies to address other sources of nonpoint source pollution from urban development, such as toxins, pesticides, and oils and grease, or the ongoing runoff concerns after construction of the project. Much has been learned since LCP certification about how to manage these pollutants in an urban setting. Many of the management measures in the *Plan for California's Nonpoint Source Pollution Control Program* focus on these other sources of nonpoint source pollution. By incorporating policies and other mechanisms into the LCP to implement these management measures, as part of a comprehensive water quality component discussed in Preliminary Recommendation 3-7 below, the County can improve protection of water quality and marine resources. In addition, staff is recommending minor changes to some existing language, discussed below; these modifications are again to reflect more current knowledge and improve existing policies.

Consistency Analysis: Coastal Act policies 30230 and 30231 require that marine resources and the quality of coastal waters be protected. As the Commission found in adopting the State plan for controlling runoff, urban runoff is a major source of pollution adversely affecting coastal waters and recreational use of the shoreline. As such, urban runoff needs to be controlled in order to ensure protection of coastal waters. Water quality studies for San Luis Obispo County, both before and since certification of the LCP, indicate that urban runoff is contributing to degradation of water resources (see Appendix C). As discussed above, the implementation of the County's LCP is no longer adequate to ensure protection of water quality.

Preliminary Policy Alternatives:

Recent efforts by the County propose revisions to the LCP which may improve control of polluted runoff. While these proposed LCP amendments have not yet been reviewed by the Commission they illustrate some alternative ways to improve control of urban runoff.

Preliminary Recommendation 3-3*: Area Plan Updates*. The proposed update of the North Coast Area Plan (January 2000) includes a variety of policies including: Policies to prohibit point-source discharges into the marine environment; Rural Area Program to designate Areas of Special Biological Significance (ASBS) for protection from development of impacts of any future wastewater outfall structure(s); Improved controls on land divisions and lot line adjustments to minimize the impact of water extraction from riparian creek areas for non-agricultural uses and policies and programs specific to Lodge Hill. The proposed revisions to the North Coast Area Plan Standards offer the opportunity to strengthen the water quality protection provisions of the LCP if expanded to address the issues raised through this review.

Preliminary Recommendation 3-4: *Expanding Erosion Control Studies*. The County has targeted problems in the Lodge Hill area and proposes to implement recommendations of the 1999 erosion control study. These recommendations generally focus on 1) paving roads, and 2) developing a comprehensive master plan for the community. The master plan should design for buildout of the community and incorporate the street drainage network into the plan. The report

notes that until such a plan is developed, "critical lots should be identified that could provide storm water infrastructure, or are at extreme risk due to their location in a drainage path. The County could target these lots for purchase in order to development a system for storm water management …."[40] In general, implementing the study's recommendations could reduce erosion and sedimentation, and improve water quality in Lodge Hill. The comprehensive plan, though, should also address drainage issues from road paving, and should encourage infiltration of water and maintenance of the natural flow regime, to the extent feasible, by encouraging dispersal of sheet flow from roads into natural vegetated areas. The County should also incorporate measures to site development to retain forest cover.

Preliminary Recommendation 3-5: *Address Post-Construction Runoff*. While the County's pending grading ordinance revision proposes some new and revised measures to improve the management of erosion, sedimentation, and runoff, it does not fully address all the potential sources of nonpoint source pollution from new development as identified through the management measures in Appendix D, including measures to address post-construction runoff. The Model Urban Runoff Program (MURP), a joint program among the Commission, Monterey Bay Sanctuary, the Regional Water Board, and the Cities of Monterey and Santa Cruz, has developed a checklist of three questions to help coastal planners identify and mitigate water quality impacts of proposed development (see Table 3-2, below). One alternative for improving management of polluted runoff is to incorporate this tool into the planning process to identify when additional measures must be taken to fully address water quality impacts and to trigger additional measures if review of the checklists identifies potential water degradation from the proposed development. The MURP has also developed cost-effective mechanisms to address many of the management measures identified in Appendix D.

Table 3-2: Water Quality Checklist

1. Would the proposal result in changes in soil infiltration rates, drainage patterns, or the rate and amount of surface runoff?
2. Would the proposal result in discharge into surface waters or wetlands or other alteration of surface water/wetland quality (e.g., temperature, dissolved oxygen, or turbidity)?
3. Would the proposal result in impacts to groundwater quality?

If the proposed project raises water quality issues based on the above questions, or other review, best management practices (BMPs) could be incorporated into the project design to address post-construction runoff. Assuring the appropriate design goals is critical for the successful function of BMPs in removing pollutants in stormwater. The majority of runoff is generated from small storms. Additionally, storm water runoff typically conveys a disproportionate amount of pollutants in the initial period that runoff is generated during a storm event. Designing BMPs for the small more frequent storms, rather than for the large infrequent storms, results in improved BMP performance at lower cost.[41]

[40] USDA Natural Resources Conservation Service. February, 1999. *Cambria Erosion and Sediment Study; Lodge Hill Study Area; Cambria, California.* pg. 8
[41] ASCE/WEF, 1998. Urban Runoff Quality Management. WEF Manual of Practice No. 23, ASCE Manual and Report on Engineering Practice No. 87.

The Commission has previously found that sizing post-construction BMPs to accommodate the runoff from the 85th percentile storm runoff is often appropriate to address runoff concerns. Sizing BMP capacity beyond this standard leads to insignificant increases in pollutants removal, and hence water quality protection, relative to the additional costs. Therefore, one alternative in addressing post-construction runoff is to design post-construction structural BMPs, with case-by-case considerations, to treat, infiltrate or filter stormwater runoff from each storm, up to and including the 85th percentile, 24-hour storm event[42] for volume-based BMPs, and/or the 85th percentile, 1-hour storm event, with an appropriate safety factor, for flow-based BMPs.

The "85th percentile, 24-hr" design goal is applicable to volume-based BMPs such as detention and infiltration basins, wet ponds, and constructed wetlands. The "85th percentile, 1-hr" design goal (with an appropriate safety factor[43]) is applicable to flow-based BMPs that remove pollutants primarily through filtering and limited settling. These include media filters such as filter inserts in catch basins, oil/water separators, and biofilters such as vegetated filter strips and grassy swales. However, if swales are constructed primarily to contain and then induce infiltration, they should be subject to the "85th percentile, 24-hr" design goal.

Preliminary Recommendation 3-6: *Adopt Policies and Ordinances to fully implement Management Measures from the State NPS Plan*: While the existing LCP, and above alternatives, address primarily issues of erosion, sedimentation, and water runoff from new development, the state has recognized additional sources of nonpoint source pollution through the management measures detailed in the State's nonpoint source pollution control plan. For example, mechanisms to address runoff from existing development and water degradation from residential septic systems are detailed in Appendix D. Implementation of these measures, and other preliminary measures identified in Appendix D would further improve the County's protection of water and marine resources.

Preliminary Recommendation 3-7: *Develop watershed plans for each water basin and/or planning area to address cumulative NPS pollution*: As the Commission found in reviewing the Avila Beach Specific Plan, water quality cannot be protected without managing inland development and land uses. The Commission recommended that the County "coordinate the development and implementation of a comprehensive watershed management program designed to protect the water quality of the entire watershed of all coastal creeks and streams throughout the planning area." This recommendation should be carried out throughout the County's coastal zone, especially for drainages that have a documented water quality problem. Implementation of this alternative will address the management measures focusing on existing developed areas. The program should be designed to manage changes in land use and development, support

[42] Considering the long-run records of local storm events in a 24-hour period, the 85th percentile event would be larger than or equal to 85% of the storms. The 85th percentile storm can be determined by reviewing local precipitation data or relying on estimates by other regulatory agencies. For example, the Los Angeles Regional Water Quality Control Board has determined that 0.75 inch is an adequate estimate of the 85th percentile, 24-hour storm event for typical municipal land uses within its jurisdiction.

[43] The San Diego RWQCB has adopted a safety factor of "2" for their flow-based BMP design standard. This means doubling the runoff treatment capacity necessary to handle the local 85th percentile hourly rainfall intensity. The safety factor is meant to deal with the reduced efficiency that occurs with flow-through BMPs that are not adequately maintained.

riparian corridor restoration, and encourage the implementation of best management practices throughout the planning area's watersheds. As recommended by the Commission, the watershed program should:

- identify specific measures to minimize the cumulative impact of new development on the watershed and avoids the alteration of natural drainage patterns;
- Assess the cumulative impacts of development on water quality and hydrology in order to designate areas to further emphasize on site management of runoff.
- include a component which identifies which areas of the watershed which, if restored, could improve water quality;
- include a public participation component;
- integrate agriculture management measures including developing watershed specific nutrient and pesticide management programs
- and include a monitoring component, including to evaluate the effectiveness of BMPs used to control polluted runoff.

This approach should be applied throughout the coastal zone. To better facilitate the protection of marine resources and water quality, the existing LCP watershed chapter could be expanded to develop a comprehensive water quality component of the LCP. Policies, standards, and programs which address Water Quality issues, including addressing nonpoint source pollution from agricultural practices (as discussed in section C.1), urban and rural development, marinas and boating areas (see section C.3, below), water quality measures related to groundwater protection (see Chapter 2), and water quality measures related to the protection of hydrologic systems and riparian habitat (see Chapter 4) could be consolidated to provide an integrated, watershed-based approach to addressing water quality. The Water Quality chapter should incorporate the management measures, and mechanisms to implement those management measures, in the *Plan for California's Nonpoint Source Pollution Control Program.*

Preliminary Recommendation 3-8: *Modify criteria defining "wet season" in LCP to reflect new information:* The current LCP requires an erosion and sedimentation plan when grading occurs between October 15 and April 15. Based on information from the Commission's Model Urban Runoff Program, the rainy season should begin on October 1. References in the LCP, and proposed new grading ordinance, should be updated to reflect this change.

Preliminary Recommendation 3-9: *Modify criteria citing watercourses on USGS maps:* One requirement for sedimentation and erosion control plans is land activities are "within 100 feet of a watercourse shown on current 7 ½ minute USGS quad map". Staff recommends adding the following additional criteria, any one of which would define a natural watercourse or drainage system: a) supports fish, b) has significant flow 30 days after last significant storm, or c) has a channel, free of soil and debris.

Preliminary Recommendation 3-10: Incorporate performance standards and monitoring requirements as part of erosion control/ sedimentation plans.

Preliminary Recommendation 3-11: Prohibit subdivisions on slopes over 30%.

Preliminary Recommendation 3-12: Modify Drainage Plan ordinance (23.05.042) or revise grading ordinance to incorporate requirement for a Drainage and Pollution Control plan (D/PC plan) ordinance that requires development to integrate BMPs into site design or prepare a D/PC plan that identifies BMPs/management measures that will mitigate potential NPS impacts and achieve the identified site design goals. (See Table D-4, Appendix D for preliminary proposed language.)

C. 3. Water Quality Impacts from Recreational Boating

The LCP should be updated to adequately address polluted runoff from marinas and recreational boating areas to reflect new information and management measures.

Overview: As discussed under Chapter 11, San Luis Obispo County has three marinas and boating areas: Port San Luis, San Simeon Harbor, and Leffingwell Landing. Marinas, boat yards and boating areas can impact water quality not only during construction activities, but also through ongoing boating uses. For example, water quality may become degraded from pollutants being discharged from boats, pollutants washed from docks in stormwater runoff, or from pollutants generated from boat maintenance activities on land and in water.[44] While comprehensive water quality monitoring has not been done for the boating areas in San Luis Obispo County, several studies indicate that boating activities contribute to water quality degradation.[45,46]

Since certification of the San Luis Obispo LCP, no major new boating facilities have been authorized; however, the continued use and/or expansion of the existing boating areas is anticipated in the LCP. For Port San Luis, the San Luis Bay Area Plan identifies coastal dependent uses, including commercial fishing, sport fishing, and recreational boating, as priority uses for the Harbor. In addition, the area plan details a number of goals for Port San Luis, including improving facilities for fishing and boating, enlarging a boat haul-out and repair area, enlarging the area for harbor operations, and providing a storage area for commercial fishermen and recreational boats. These improvements will include major renovation and repair of existing structures. Development plans for Port San Luis also allow for future offshore oil support facilities. San Simeon Harbor is limited to a small-scale recreational boating areas, boat-launching ramp, and parking area (Boating Policy 11). Leffingwell Landing provides a ramp for boat launches. Both facilities are in the North Coast. The LCP does not identify any planned expansions for these facilities.

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[44] State Water Resources Control Board and California Coastal Commission. January 2000. Plan for California's Nonpoint Source Pollution Control Program.
[45] Dept. of Parks and Recreation. June, 1988. *Morro Bay State Park General Plan*.
[46] Downing J, Fairey R, Roberts C, Landrau E, Clark R, Hunt JW, Anderson BS, Phillips BM, Wilson C, La Caro F, Kapahi G, Worcester K, Stephenson M, Puckett HM. 1998. *Chemical and biological measures of sediment quality in the Central Coast Region*. California State Water Resources Control Board. Sacramento, CA.

LCP Implementation: Coastal plan policies state that where feasible, oceanfront recreational development should give priority to boat ramps, dry storage, and other recreational boating facilities, if consistent with policies of the Coastal Act (Boating Policy #2). However, the LCP has few specific policies addressing water quality issues from these boating areas.

LCP Ordinance 23.07.178 does require that "development shall be sited and designed to mitigate impacts that may have adverse effects upon the [marine] habitat, or that would be incompatible with the continuation of such habitat areas. In addition, construction activities to expand harbor and boating areas must comply with the watershed policies in the LCP which protect water quality. These policies, discussed in more detail in Section C.2 (Urban Development), include clearing and grading during the non-rainy season to minimize erosion and sedimentation, implementing slope and erosion control measures, and ensuring that drainage does not increase erosion (Watershed Policies 8, 9, 10).

The San Luis Bay area plan states that grading at Harbor Terrace, within Port San Luis, should be designed to minimize potential discharges of sediment and pollutants into the bay. Disturbed areas should also be reseeded. For potential offshore oil support facilities, development plans must include an assessment of immediate and cumulative impact assessment on water quality and development of an oil contingency plan. The project location, design, and county requirements must mitigate the adverse environmental impacts to the maximum extent feasible (Boating Policy 7).

There have been only a few cases to illustrate the County's implementation of the LCP in this area. Since 1988, the County has approved only three projects involving marinas and boating areas.[47] In two cases, the County authorized extensions to existing boat ramps, one adjacent to Leffingwell Creek.[48] The third project involved expansion to an existing sport launch building, including a sport launch, retail sales, water taxi, and boat equipment and repair facility.[49] In acting on these permits, the County addresses water quality impacts from construction in some cases. As part of one of the projects[50], the County required that construction activities: 1) occur during the dry season and low tides, 2) minimize earthwork, and 3) that sand and soil excavations are moved away from the surfzone and wetland areas of Leffingwell Creek each day. These practices help reduce erosion and sedimentation into the Creek and surf zone. It is unclear whether similar approaches were taken in the two other permits. However, because of the small number of projects, the County actions do not raise significant inconsistencies with Coastal Act policies.

The statewide plan for nonpoint source pollution discusses issues regarding boating areas and contains management measures to address them, listed in Table 3- 3 (next page). While the existing LCP policies address some of these pollution sources, it does not have policies or programs to address others. It is important that the LCP contain the most current standards and

[47] FLANs 3-SLO-91-101; 3-SLO-90-210; 3-SLO-95-143
[48] FLAN 3-SLO-91-101 and 3-SLO-90-210
[49] FLAN 3-SLO-95-143
[50] FLAN 3-SLO-91-101

management practices in order to improve control of nonpoint source pollution from boating areas and protect water quality.

The LCP currently addresses several of the management measures identified in Table 3-3. Management Measure 2 is designed to protect aquatic resources. LCP Ordinance 23.07.178 requires that development within or adjacent to marine habitats be sited and designed to mitigate impacts on kelp beds, offshore rocks, reefs, and intertidal areas. The LCP also partially addresses the concerns of polluted runoff from maintenance areas (management measure 3) through controls on grading and requiring erosion control plans. However, as discussed previously, these erosion control plans under the current LCP may not be adequate to fully address polluted runoff.

The LCP also does not directly address other sources of pollution to marine waters, including pollutants discharged from boats, such as sewage, oil, and fuel, and pollutants generated from boat maintenance activities on land or in water. The development authorized in FLAN 3-SLO-93-143 authorizes uses such as a water taxi and boat repair operations which can contribute pollutants such as oils, cleaners, solvents, and paint into coastal waters. From review of the County staff report, the County's authorization did not appear to contain specific measures to ensure that water pollution is avoided or minimized from these activities. Updating the LCP policies to address these sources of nonpoint source pollution through the regulatory process, where feasible, is important in order to provide adequate guidance for future projects.

While the case discussed above required regulatory review from the County, in many other cases, the sources of nonpoint source pollution occur from ongoing uses of existing areas and from activities that often do not require regulatory review from the County. As a result, many of the measures to protect water quality will need to focus on programs and educational efforts. Providing for these non-regulatory and educational programs in the LCP, as well the regulatory requirements, may improve the County's ability to manage polluted runoff from boating areas and better protect the water quality of coastal waters.

Consistency Analysis: Section 30230 of the Coastal Act requires that marine resources be protected. Because of their location, development and operation of harbor and boating facilities have the potential to significantly degrade marine waters. As noted, the County has taken few actions that implemented boating and harbor related policies of the LCP. However, in the few examples evaluated, the County's application of LCP policies to address potential water quality impacts was somewhat uneven. More important, the LCP policies and standards, certified in the late 1980s, do not reflect more up to date management measures to address this source of pollution to coastal waters. As such, the Commission believes that the LCP should be updated in order to fully comply with Section 30230 of the Coastal Act.

Table 3-3: Management Measures for Marinas and Boating Areas:

1. Assess water quality as part of marina siting and design.
2. Site and design marinas to ensure flushing or recycling of water through the site.
3. Site and design marinas to protect against adverse impacts on aquatic resources, including shellfish, wetlands, submerged aquatic vegetation, riparian vegetation, or other important aquatic habitat areas as designated by local, state, or federal governments.
4. Where shoreline or streambank stabilization is required to protect existing structures from damage by erosion, vegetative methods of stabilization should be considered over structural methods.
5. Implement effective runoff control strategies, including pollution prevention activities and proper design of hull maintenance areas. Reduce the average annual loadings of total suspended solids (TSS) in runoff from hull maintenance areas by 80 percent.
6. Design fuel stations so spills can be contained and easily cleaned, and ensure fueling stations have spill containment equipment and spill contingency plans.
7. Install pumpout, dump station, and restroom facilities where needed at new and expanding marinas to reduce release of sewage to surface waters. Design these facilities to allow ease of access and post signage to promote use by the boating public.
8. Properly dispose of solid wastes produced by operation, cleaning, maintenance, and repair of boats to prevent entry of solid wastes to surface waters.
9. Promote sound fish waste management through fish-cleaning restrictions, public education, and proper disposal of fish waste.
10. Provide and maintain appropriate storage, transfer, containment, and disposal facilities for liquid material (e.g. new and used oil, solvents, antifreeze and paints), and encourage recycling of such materials.
11. Reduce amount of fuel and oil from boat bilges and fuel tank air vents entering marina and surface waters.
12. Perform in-water hull cleaning operations to minimize the release of cleaners, solvents, and paint to surface waters.
13. Ensure that sewage pumpout facilities are maintained in operational condition and encourage the use of sewage pumpout facilities.
14. Where necessary, restrict boating activities to decrease turbidity and physical destruction of shallow water habitat.
15. Public education, outreach, and training programs should be instituted for boaters, as well as marina owners and operators, to prevent improper disposal of polluting material.

Preliminary Policy Alternatives: To bring the LCP into compliance with the new statewide water quality plan and to achieve improved management measures, the LCP will need a mix of regulatory actions (policies and ordinances implementing some of the management measures) and education and programs to implement others.

Preliminary Recommendation 3-13: If overall runoff policies are revised, then new standards could be implemented when facilities are modified or expanded. Relevant management measures from Appendix D to update the LCP could be incorporated as tools to manage sources of pollution.

Also, programs could be developed to address ongoing operations of harbors and boating facilities. Many of the sources of water quality degradation occur from ongoing activities. Education programs incorporating best management practices for waste disposal and maintenance activities can help protect water quality.