Urban Runoff and Ocean Water Quality in Southern California: What Tools Does the Clean Water Act Provide?

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I. INTRODUCTION: URBAN RUNOFF AND OCEAN WATER QUALITY

The water quality effects of urban runoff—that is, "[s]torm water that flows through urbanized areas to receiving waters"[1]—are well known.

> Urban and suburban development, with the creation of buildings and roads, and the innumerable related activities, turns the rain and snow into unwitting agents of damage to our nation's waterways. This urban and suburban runoff, legally known as stormwater, is—with agricultural runoff—one of the most significant water pollution problems in the United States.[2]

One significant victim of urban runoff pollution is coastal water quality.

The nation's coastal waters are far from pristine. In January 2005, the U.S. Environmental Protection Agency (EPA) released its second *National Coastal Condition Report*,[3] concluding, as it had in the original 2001 report,[4] that the overall condition of the nation's coastal waters was somewhere between "fair" and "poor,"

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1 CAL. COASTAL COMM'N, *ET AL.*, MODEL URBAN RUNOFF PROGRAM: A HOW-TO GUIDE FOR DEVELOPING URBAN RUNOFF PROGRAMS FOR SMALL MUNICIPALITIES 1-2 (July 1998, as revised Feb. 2002), http://www.coastal.ca.gov/la/docs/murp/chapter1.pdf (listing the same pollutants).

2 Natural Res. Def. Council, *Introduction*, *in* STORMWATER STRATEGIES: COMMUNITY RESPONSES TO RUNOFF POLLUTION, http://www.nrdc.org/water/pollution/storm/intro.asp (last visited Feb. 25, 2006).

3 EPA, OFFICE OF RESEARCH & DEV. & OFFICE OF WATER, EPA-620/R-03/002, NATIONAL COASTAL CONDITION REPORT II, (Jan. 2005), *available at* http://www.epa.gov/owow/oceans/nccr2/ [hereinafter NATIONAL COASTAL CONDITION REPORT II].

4 EPA, OFFICE OF RESEARCH & DEV. & OFFICE OF WATER, EPA-620/R-01/005, NATIONAL COASTAL CONDITION REPORT, (Jan. 2005), http://www.epa.gov/owow/oceans/nccr/.

with the overall water quality index calculated as "fair."[5] Of greater concern was the fact that the EPA reported wholly "good" indicators only for the marine waters off the southeastern coast of the United States.[6] Of the thirty-six percent of the nation's estuaries that the EPA had assessed, over half were impaired in some way.[7] With respect to water quality, eleven percent of the assessed estuaries have "poor" water quality, while an additional forty-nine percent enjoy only "fair" water quality.[8] Thus, the nation's coastal water quality remains a significant issue.

In California, urban runoff is—and has been for at least a decade—a major contributor to coastal water quality problems.[9] Moreover, these water quality effects have implications for human health, regional economics, and environmental well-being. For example, "[l]and-based runoff is increasingly being recognized as a source of fecal bacteria and a public health concern at swimming beaches."[10] According to at least one study, "illness rates more than double when swimming at beaches near urban runoff outlets."[11] In the summer of 1999, elevated levels of bacteria led to the closures of miles of Huntington Beach in Orange County, with economic impacts for both that county and California as a whole.[12] Although "researchers still aren't sure what caused the bacteria levels to jump" in 1999, "many point the finger at urban runoff."[13] Soon after the Huntington Beach closures, researchers at the University of Southern California detected poliovirus, cocksackle virus, and hepatitis A virus in urban

5 NATIONAL COASTAL CONDITION REPORT II, *supra* note 3, at ES.2, fig. ES-1.

6 *Id*.

7 *Id*. at ES.7.

8 *Id*. at 28.

9 EPA, *National Summary of Water Quality Conditions* 12 tbl 4, *in* NATIONAL WATER QUALITY INVENTORY: 1994 REPORT TO CONGRESS (1994), *available at* http://www.epa.gov/owow/305b/94report/nat_sum.pdf (listing urban runoff and storm sewers as the leading cause of water quality impairment in estuaries).

10 Rachel T. Noble, *et al.*, *Storm Effects on Regional Beach Water Quality Along the Southern California Shoreline*, 1.1 J. WATER & HEALTH 23, 23 (2003).

11 *Id*. at 24 (citing R.W. Haile, *et al.*, *The Health Effects of Swimming in Ocean Water Contaminated by Storm Drain Runoff*, 104 J. EPIDEMIOLOGY 355–63 (1999)).

12 Sunny Jiang, Rachel Noble, & Weiping Chu, *Human Adenoviruses and Coliphages in Urban Runoff-Impacted Coastal Waters of Southern California*, 67:1 APPLIED & ENVTL. MICROBIOLOGY 179, 179 (Jan. 2001); Jeff Gottlieb, *UC Irvine Ocean Study Blames Familiar Suspect: Runoff; Germ-laden Discharge Makes Orange County Waters Worse that Santa Cruz's, Experts Find*, L.A. TIMES, Apr. 6, 2004, *available at* http://www.mindfully.org/Water/2004/Urban-Runoff-Waters6apr04.htm.

13 *See* Gottlieb, *supra* note 12; *see also* Noble, *supra* note 10 (surveying beaches from Santa Barbara, California, to Ensenada, Mexico, after storm events and finding that "[s]ixty percent of the shoreline failed water quality standards after the storm compared to only 6% during dry weather" and that "[f]ailure of water quality standards increased to more than 90% for shoreline areas adjacent to urban runoff outlets."); Jiang, Noble, & Chu, *supra* note 12, at 183 (noting that "[h]uman adenoviruses were detected at the mouths of four major urban rivers in Southern California, pointing to urban runoff as a source of coastal viral contamination.").

runoff pouring from storm drains into California beach waters, including Santa Monica Bay.[14] The EPA has also acknowledged the health effects of urban stormwater runoff in coastal waters.[15]

Despite implementation of urban runoff control measures in many southern California jurisdictions, urban runoff-related health issues have not disappeared from the southern California coastal waters.[16] In April 2004, researchers at the University of California, Irvine, reported that "[o]cean swimmers near densely populated areas are more likely to get sick than those who swim off rural coastlines," because "[t]he ocean off populated regions contains more germs because of the amount of untreated urban runoff discharged into the water."[17] Specifically, "[r]esearchers found that over a two-year period, surfers in Newport Beach and

14 Bob Calverley, *Researchers Probe Dangers in Urban Runoff*, USC NEWS (Sept. 9, 1999), *available at* http://uscnews.usc.edu/detail.php?recordnum=4753.

15 National Pollutant Discharge Elimination System—Regulations for the Revision of the Water Pollution Control Program Addressing Storm Water Discharges, 64 Fed. Reg. 68,722, 68,727 (Dec. 8, 1999) (codified at 40 C.F.R. Parts 9, 122, 123, and 124) [hereinafter Phase II Stormwater Regulations]. Specifically, the EPA stated that

> [u]rban wet weather flows have been recognized as the primary sources of estuarine pollution in coastal communities. Urban storm water runoff, sanitary sewer overflows, and combined sewer overflows have become the largest causes of beach closings in the United States in the past three years. Storm water discharges from urban areas not only pose a threat to the ecological environment, they also can substantially affect human health. A survey of coastal and Great Lakes communities reports that in 1998, more than 1,500 beach closings and advisories were associated with storm water runoff (Natural Resources Defense Council. 1999. "A Guide to Water Quality at Vacation Beaches" New York, NY). Other reports also document public health, shellfish bed, and habitat impacts from storm water runoff, including more than 823 beach closings/advisories issued in 1995 and more than 407 beach closing/advisories issued in 1996 due to urban runoff (Natural Resources Defense Council. 1996. Testing the Waters Volume VI: Who Knows What You're Getting Into. New York, NY; NRDC. 1997. Testing the Waters Volume VII: How Does Your Vacation Beach Rate. New York, NY; Morton, T. 1997. Draining to the Ocean: The Effects of Stormwater Pollution on Coastal Waters. American Oceans Campaign, Santa Monica, CA). The Epidemiological Study of Possible Adverse Health Effects of Swimming in Santa Monica Bay (Haile, R.W., et. al. 1996. "An Epidemiological Study of Possible Adverse Health Effects of Swimming in Santa Monica Bay." Final Report prepared for the Santa Monica Bay Restoration Project) concluded that there is a 57 percent higher rate of illness in swimmers who swim adjacent to storm drains than in swimmers who swim more than 400 yards away from storm drains. This and other studies document a relationship between gastrointestinal illness in swimmers and water quality, the latter of which can be heavily compromised by polluted storm water discharges.

Id.

16 *See*, *e.g.*, City of Santa Monica, *Urban Runoff: Working for a Cleaner Bay*, http://santa-monica.org/epd/residents/Urban_Runoff/urban.htm (last visited Feb. 25, 2006) (advising residents that "[b]y reducing the quantity of runoff and improving the quality of runoff, we lower levels of harmful bacteria, toxics, and other forms of pollutants affecting the bay. Reducing the amount of urban runoff and the amount of pollutants contained in the runoff are essential for the health and safety of our community.").

17 Gottlieb, *supra* note 12.

Huntington Beach were almost twice as likely to get sick than their counterparts in Santa Cruz County, about 400 miles north."[18] At least two surfing organizations now warn surfers about the health risks from surfing in California waters subject to urban runoff, particularly right after storms.[19]

Urban runoff also causes environmental problems for marine waters, many of which also come with associated economic costs.[20] For example, storm events that increase urban runoff often result in violations of state ocean water quality standards.[21] In addition, "[l]eft unregulated and uncontrolled, urban stormwater . . . closes or shrinks lucrative rockfish, shad, flounder, crab, oyster, and other commercial fisheries due to chemical contamination, oxygen starvation, and the resulting loss of habitat" and "fouls beaches and other recreational waters, causing losses in revenues from declines in boating, fishing, duck hunting and

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18 *Id.*

19 *See, e.g.*, Surfrider Found., *Beach Health Indicators: Surf Zone Water Quality*, *in* STATE OF THE BEACH 2005, http://www.surfrider.org/stateofthebeach/01-bi/body.asp?sub=ba (2005).

> Scientific research indicates that swimming in water with high bacteria levels can increase the swimmer's risk of experiencing adverse health conditions like fever, nausea, gastroenteritis, nasal congestion, sore throat, and cough. Beyond bacteria, other common pollutants found in the surf zone are heavy metals such as lead and arsenic, organic chemicals such as pesticides and oil, other pathogens such as viruses, and nutrients that can create harmful algal blooms. Polluted water affects both the mating and feeding habits of wildlife.

Id. (internal citations omitted); Pat Zabrocki, *What's that Smell? Oil, Litter, Pesticides, and Feces Wash Into The Ocean You Surf In*, SURFSHOT MAGAZINE, http://www.surfshot.com/items/magazine_item.html?context_id=221 &item_id=225 (last visited Feb. 25, 2006).

> Want to surf after it rains? Are you sure? The waves might be good, but is it worth the consequences? With the start of the rainy season, it's time for a reminder on the dangers of URBAN RUNOFF.
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> . . . .
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> There are some things all surfers should know. One of the most important things to realize is that the ocean we surf in is the trashcan for everything on land. In San Diego County, nearly 3,000 square miles of land eventually drain onto the beach. For example, someone who dumps oil down a storm drain in Julian would pollute the water in Ocean Beach.

Id.

20 *See, e.g.*, Natural Res. Def. Council, *Executive Summary*, *in* STORMWATER STRATEGIES: COMMUNITY RESPONSES TO RUNOFF POLLUTION, *supra* note 2.

> Most of the U.S. population lives in urban and coastal areas where the water resources are highly vulnerable to and are often severely degraded by urban runoff. Even a partial accounting shows that hundreds of millions of dollars are lost each year through added government expenditures, illness, or loss in economic output due to urban stormwater pollution. The ecological damage is at least as significant.

Id.

21 Noble, *supra* note 10 (surveying beaches from Santa Barbara, California, to Ensenada, Mexico, after storm events and finding that "[f]ailure of water quality standards increased to more than 90% for shoreline areas adjacent to urban runoff outlets.").

coastal tourism."[22]

Other kinds of ecological effects have also been detected in coastal waters plagued by urban runoff. For example, in February 2000, researchers at the University of California, Santa Cruz, concluded "that urea in urban and agricultural runoff may play a greater role than previously thought in triggering or sustaining harmful algal blooms found growing off California's coastline."[23] The harmful algal blooms at issue in that study were the red tides caused by rapidly increasing numbers of a type of phytoplankton (small marine plants) known as dinoflagellates, which secrete neurotoxins that make shellfish unsafe to eat and water potentially unfit for swimming.[24] Most recently, in November 2005, scientists "discovered sexually altered fish off the Southern California coast, raising concerns that treated sewage discharged into the ocean contains chemicals that can affect an animal reproductive system."[25]

Protection of coastal water quality from urban runoff depends on the interface of point and nonpoint source water quality regulation. As "runoff," urban runoff begins as nonpoint source water pollution—that is, as a diffuse, uncontrolled and uncontained source of pollutants.[26] However, many industries and communities collect this uncontrolled urban runoff into human-controlled disposal systems, potentially transforming the nonpoint source runoff into point source pollution. In coastal states like California, the interface between the regulation of nonpoint source urban runoff and point source urban runoff is delineated through the interaction between the Coastal Zone Management

22 Natural Res. Def. Council, *The Problem of Urban Stormwater Pollution*, http://www.nrdc.org/water/ pollution/fstorm.asp (last visited Mar. 19, 2006).

23 Press Release, U.C. Santa Cruz, Sewage in Urban Runoff May Spur Growth of Harmful Algal Blooms (Feb. 24, 2000), http://www.ucsc.edu/news_events/press_releases/archive/99-00/02-00/algal_blooms.htm.

24 *See id*.

25 Associated Press, *"Intersex" Fish Discovered off Southern California Coast* (Nov. 15, 2005), http://www.enn.com/today.html?id=9250. While treated sewage is generally not considered urban runoff *per se*, it is part of the urban discharges to ocean waters, and "[n]early a billion gallons of treated sewage are released into the Pacific Ocean every day through three underwater pipelines off Huntington Beach, Playa del Rey and Palos Verdes Peninsula." *Id*. Moreover, in parts of the country that have combined sewer overflows (CSOs), such sewage components can legitimately be considered part of the urban runoff problem.

26 *See* EPA, *What is Nonpoint Source (NPS) Pollution: Questions and Answers*, http://www.epa.gov/OWOW/NPS/qa.html (last visited Feb. 27, 2006) (describing various types of nonpoint source pollution); Robert I. Fassbender, *Reducing Great Lakes Toxics: Can we do More for Less Through Wastewater Effluent Trading?*, 1 WIS. ENVTL. L. J. 57, 63 (1994) ("Nonpoint sources of pollution include any diffuse source of pollutant loading, such as waste disposal sites, contaminated sediments, spills, and agricultural and urban runoff.").

Act's (CZMA's) nonpoint source management requirements[27] and the Clean Water Act's stormwater permitting requirements.[28] Essentially, since 1987, if the Clean Water Act's stormwater permit program does not cover a particular source of urban runoff pollution, that urban runoff is nonpoint source pollution governed by the CZMA.[29] However, complicating this interface is the fact that Congress provided for progressive implementation of the Clean Water Act's stormwater permit program, with the result that regulation of urban runoff has been shifting from a CZMA nonpoint source to a Clean Water Act point source regulatory approach.[30] This shift has positive implications for the protection of ocean water quality, because more and more urban runoff is now subject to the larger water quality protections of the Clean Water Act.

This article outlines the regulation of urban runoff in coastal states to protect coastal water quality. It begins with urban runoff's dual status as point and nonpoint source pollution and the CZMA's requirements for nonpoint source urban runoff in the coastal zone. This article then presents an overview of the Clean Water Act and that Act's stormwater permit program. Finally, this article discusses the more expansive water quality protections in the Clean Water Act, arguing that one of the main advantages of the stormwater permit program is its ability to subject urban runoff to the Clean Water Act's other protections for coastal water quality, including water quality-based effluent limitations, ocean discharge criteria, and the state certification and total maximum daily load (TMDL) requirements.

II. URBAN RUNOFF AS NONPOINT SOURCE POLLUTION AND THE COASTAL ZONE MANAGEMENT ACT (CZMA)

A. The Point Source/Nonpoint Source Divide

One of the most basic divisions in federal water quality regu-

27 Coastal Zone Management Act §§ 302–19, 16 U.S.C. §§ 1451–1466 (2000); s*ee also* EPA, *Management Measures for Urban Areas—I. Introduction*, http://www.epa.gov/owow/nps/MMGI/Chapter4/ch4-1.html (last visited June 27, 2006) (excluding from the CZMA nonpoint source guidance all sources covered by the Clean Water Act's stormwater permit program, discussed *infra* in Part IV. PROTECTING OCEAN WATER QUALITY THROUGH STORMWATER NPDES PERMITS).

28 Clean Water Act § 402(p), 33 U.S.C. § 1342(p) (2000).

29 *See, e.g.,* Coastal Nonpoint Pollution Control Program, 63 Fed. Reg. 27,053, 27,053 (May 15, 1998) (noting that CZARA nonpoint source programs "shall be developed in close coordination with State and local water quality plans and programs required under the Clean Water Act (CWA) and will provide an update to the State's nonpoint source program.").

30 *See* Clean Water Act §§ 402(p)-(q), 33 U.S.C. §§ 1342(p)-(q) (2000) (describing exceptions to permit requirements after Oct. 1, 1994).

lation is the distinction between point source and nonpoint source pollution. This division derives from the Federal Water Pollution Control Act, more popularly known as the Clean Water Act.[31] Specifically, the distinction between point and nonpoint source water pollution derives from the Clean Water Act's most basic operative provision for individual dischargers, section 301(a), which states that, "[e]xcept as in compliance with [the Act], the discharge of any pollutant by any person shall be unlawful."[32] The Act then defines "discharge of a pollutant" to mean: "(A) any addition of any pollutant to navigable waters from any *point source,* (B) any addition of any pollutant to the waters of the contiguous zone or the ocean from any *point source other than a vessel or other floating craft*."[33] Thus, the Clean Water Act's prohibition on discharges applies only to *point source* discharges.

The Clean Water Act defines "point source" fairly broadly to include:

> any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. This term does not include agricultural stormwater discharges and return flows from irrigated agriculture.[34]

Nevertheless, while the Act's definition of "point source" is broad,[35] it does not cover all forms of water pollution. By negative implication, any source of water pollution that is not a point source is a nonpoint source.[36] Section 319 of the Act assigns

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31 33 U.S.C. §§ 1251–1387 (2000).

32 Clean Water Act § 301(a), 33 U.S.C. § 1311(a) (2000).

33 Clean Water Act § 502(12), 33 U.S.C. § 1362(12) (2000) (emphasis added).

34 Clean Water Act § 502(14), 33 U.S.C. § 1362(14) (2000).

35 *See*, e.g., Borden Ranch P'ship v. United States Army Corps of Eng'rs, 261 F.3d 810, 815 (9th Cir. 2001) (holding that bulldozers and tractors used to pull waste through soil were "point sources" and commenting that the statutory definition of "point source" is "extremely broad"); Barcelo v. Brown, 478 F.Supp. 646, 664 (D.P.R. 1979), *rev'd on other grounds*, 643 F.2d 835 (1st Cir. 1981), *aff'd sub nom*., Weinberger v. Romero-Barcelo, 456 U.S. 305, (1982) (the release or firing of ordnance from aircraft into the water is a point source); Avoyelles Sportsmen's League v. Marsh, 715 F.2d 897, 922 (5th Cir. 1983) (bulldozers and backhoes constitute point sources); Concerned Area Residents for Env't v. Southview Farm, 34 F.3d 114, 119 (2d Cir. 1994), *cert. denied*, 514 U.S. 1082 (1995) (manure spreader which distributed manure in field deemed a point source); United States v. W. Indies Transp., Inc., 127 F.3d 299, 308 (3d Cir. 1997), *cert. denied,* 522 U.S. 1052 (1998) (barge from which cement blocks were dumped and paint chips from sandblasting were projected is a point source); Stone v. Naperville Park Dist., 38 F.Supp.2d 651, 655 (D.Ill. 1999) (shooting range where lead shots and airborne clay targets ultimately land in the water is a point source); *see also* United States v. Plaza Health Lab., Inc., 3 F.3d 643, 651–652 (2d Cir. 1993) (Oakes, J., dissenting) (asserting that "point source" should be defined broadly and listing cases defining the term in such a manner).

36 *See* City of Arcadia v. State Water Res. Control Bd., 2006 WL 177789 (4th Dist. 2006) ("The Clean Water Act does not define nonpoint source pollution, but it has been

regulation of nonpoint source pollution largely to the states.[37]

The Clean Water Act's focus on "discernible, confined, and discrete conveyances" generally means that diffuse stormwater runoff does *not* qualify as point source pollution,[38] as the Act's specific elimination of agricultural stormwater runoff makes clear. Indeed, runoff is the quintessential form of nonpoint source pollution, unless humans intervene and collect or channel that runoff in some way.[39]

Nevertheless, urban runoff implicates both sides of the point source/nonpoint source divide in the Clean Water Act's regulatory regime. Because urban runoff begins as a form of diffuse and uncollected stormwater runoff, it often defaults to being nonpoint source pollution that is not subject to the Clean Water Act's permit requirements.[40] Thus, when urban runoff flows freely into rivers, streams, and the ocean itself, it is nonpoint source pollution.[41] However, when cities and counties collect ur-

described as ' " 'nothing more [than] a [water] pollution problem not involving a discharge from a point source.' " ' " (quoting Defenders of Wildlife v. EPA, 415 F.3d 1121, 1123–24 (10th Cir. 2005)).

37 Clean Water Act § 319, 33 U.S.C. § 1329 (2000). As is discussed later, however, in coastal states, section 6217 of the 1990 Coastal Zone Act Reauthorization Amendments (CZARA) has largely displaced section 319 of the Clean Water Act regarding nonpoint source pollution of the coastal zone.

38 *See* Concerned Area Residents for Env't v. Southview, 34 F.3d 114, 120 (C.A.2 NY 1994) ("We agree that agricultural stormwater run-off has always been considered nonpoint-source pollution exempt from the [Water Quality] Act."); Howard County v. Davidsonville Area Civic and Potomac River Ass'ns, Inc., 527 A.2d 772, 775, 72 Md. App. 19, 26 (Md. App. 1987) (nonpoint sources include "farm runoff, urban storm water, ground water inflow," etc.); *c.f.* Sarasota, Florida v. EPA, 799 F.2d 674, 677 (11th Cir. 1986) ("In the opinion of the Washington office, the data did not indicate and the city could not establish that the treatment plant discharge rather than nonpoint source pollution (urban stormwater runoff, siltation from coastal development, etc.) had degraded the waters of the Bay.")

39 *See* Conservation Law Found. v. Hannaford Bros. Co., 327 F. Supp. 2d 325, 326 (D. Vt. 2004) (when stormwater runoff is collected by a storm drain and channeled through a pipe to a local brook, the storm drain and pipe constitute a "point source" under the Clean Water Act); Envtl. Def. Ctr. v. EPA, 344 F. 3d 832, 841, 842 n.8 (9th Cir. 2003) (noting that storm sewers are "established as point sources subject to NPDES permitting requirements," whereas "[d]iffuse runoff, such as rainwater that is not channeled through a point source, is considered nonpoint source pollution and is not subject to federal regulation."); Natural Res. Def. Council v. Costle, 186 U.S. App. D.C. 147 (D.C. Cir. 1977) (discussing storm sewers containing storm runoff as point sources).

40 Envtl. Def. Ctr., Inc. v. EPA, 344 F.3d 832, 841 & n.8 (9th Cir. 2003) (comparing urban storm sewers, which "are established point sources subject to NPDES permitting requirements," to "[d]iffuse runoff, such as rainwater that is not channeled through a point source," which "is considered nonpoint source pollution and is not subject to federal regulation" (citing Or. Natural Desert Ass'n v. Dombeck, 172 F.3d 1092, 1095 (9th Cir. 1998)).

41 *See* Dana R. Flick, *The Future of Agricultural Pollution Following USDA and EPA Drafting of a Unified National Strategy for Animal Feeding Operations*, 8 DICK. J. ENVTL. L. & POL'Y 61, 67 n.50 (1999).

> The EPA has adopted the following non-regulatory definition: "Nonpoint source pollution is caused by diffuse sources that are not regulated as point

ban runoff into storm drains and stormwater systems, urban runoff arguably becomes point source pollution.[42] Similarly, when commercial and industrial sources collect and channel urban runoff, the collected water and the pollutants it contains are considered point source pollution.[43]

As the EPA has noted, "[h]istorically, overlaps and ambiguity have existed between programs designed to control urban nonpoint sources and programs designed to control urban point sources. For example, runoff that originates as a nonpoint source may ultimately be channelized and become a point source."[44] Both kinds of urban runoff are problems for southern California coastal waters.[45] "The City of Santa Monica, California, for ex-

> sources and normally is associated with agricultural, silvicultural and urban runoff, runoff from construction activities, etcetera. In practical terms, nonpoint source pollution does not result from a discharge at a specific single location, but generally results from land runoff, precipitation, atmospheric deposition, or percolation."

Id. (quoting Susan E. Schell, The Uncertain Future of Clean Water Act Agricultural Pollution Exemptions, 31 Land & Water L. Rev. 113, 113 n.3 (1996)).

42 Envtl. Def. Ctr., Inc. v. EPA, 344 F.3d 832, 841 (9th Cir. 2003); *see also* Daryl G. Ward, *The Uncertainty Surrounding Grazing and Section 401 of the Clean Water Act; Predicting the Outcome of* Oregon Natural Desert Association v. Dombeck, 13 BYU J. PUB. L. 391, 399 (1999) ("Runoff is normally considered a nonpoint source pollution, but once it has been collected and discharged from a discrete point, like a storm drain system, it becomes a point source."); Jonathan Schneeweiss, *Watershed Protection Strategies: A Case Study of the New York City Watershed in Light of the 1996 Amendments to the Safe Drinking Water Act*, 8 VILL. ENVTL. L. J. 77, 102 n.117 (1997) ("Runoff from diffuse sources which would otherwise be non-point sources become point sources . . . when they are conveyed into a manmade pipe, ditch or conduit."); Robert D. Fentress, *Nonpoint Source Pollution, Groundwater, and the 1987 Water Quality Act: Section 208 Revisited?*, 19 ENVTL. L. 807, 812 n.17 (1989) ("When urban runoff, construction site runoff, and runoff associated with industrial activities, resource extraction, certain feedlots and waste disposal units is collected and discharged from a discrete conveyance such as a storm sewer, the discharge becomes a point source." (citing National Pollution Discharge Elimination System Permit Application Regulations for Storm Water Discharges, 53 Fed. Reg. 49,416, 49,417 (1988) (to be codified at 40 C.F.R. pts. 122–24, 504))).

43 *See* Fentress, *supra* note 42, at 812 n.17.

44 EPA, *Polluted Runoff: Overlap Between this Management Measure Guidance for Control of Coastal Nonpoint Sources and Storm Water Permit Requirements for Point Sources*, http://www.epa.gov/OWOW/ NPS/MMGI/Chapter4/ch4-1.html (last visited Mar. 2, 2006) [hereinafter EPA, Polluted Runoff]; *see also* National Pollutant Discharge Elimination System Permit Application Regulations for Storm Water Discharges, 55 Fed. Reg. 47,990, 47,991 (Nov. 16, 1990) (noting that "urban runoff was considered to be a diffuse source or nonpoint source pollution. From a legal standpoint, however, most urban runoff is discharged through conveyances such as separate storm sewers or other conveyances which are point sources under the CWA. These discharges are subject to the NPDES program.").

45 Noble, *supra* note 10, at 28.

> Non-point runoff concerns are exacerbated in southern California because its rivers are highly modified stormwater conveyance systems that are independent of the sewage treatment systems, so urban runoff flows unimpeded to the ocean. When storm events occur, runoff plumes can become large oceanographic features that extend for many kilometers . . . . Moreover, southern California has an arid environment with a short rainy season and long dry periods when the rivers provide minimal runoff. Thus, bacteria and other con-

ample, has over 2000 catch basins and 64 storm drain lines running to 5 outfalls that empty directly into the Santa Monica Bay and the Pacific Ocean."[46]

B. Nonpoint Source Pollution and the Oceans: An Introduction

According to the EPA,

> [t]he United States has made tremendous advances in the past 25 years to clean up the aquatic environment by controlling pollution from industries and sewage treatment plants. Unfortunately, we did not do enough to control pollution from diffuse, or nonpoint, sources. Today, nonpoint source (NPS) pollution remains the Nation's largest source of water quality problems.[47]

This statement holds true for ocean water quality, because "[c]oastal waters are affected by both point and nonpoint sources of pollution, with the latter a significant and, in many cases, dominant form of pollution impacting coastal water bodies."[48]

Urban runoff is an especially significant source of coastal pollution,[49] because "urbanization typically results in changes to the physical, chemical, and biological characteristics of the watershed."[50] In a detailed six-year study (1977 to 1983), the EPA's National Urban Runoff Program (NURP) conducted an "extensive survey of stormwater pollutants from a total of 2300 storms in 28 major metropolitan areas."[51] In its final NURP report, the EPA concluded that:

> there are both existing and potential pollutant problems with urban storm water runoff. NURP found significant instances of high levels of heavy metals (especially copper, lead and zinc) in urban runoff. Freshwater water quality standards (chronic) were exceeded for lead (94% of all samples), copper (82%), zinc (77%) and cadmium (48%).

> taminants accumulate on land between storms, enhancing runoff quality concerns compared to temperate areas where rainfall is more frequent.

Id.

46 Roland Wall, *Urban Stormwater: A Hidden Problem*, http://www.acnatsci.org/education/kye/hi/kye82001.html (last visited Mar. 2, 2006).

47 EPA, EPA841-F-96-004A, THE NATION'S LARGEST WATER QUALITY PROBLEM, Pointer No. 1, http://www.epa.gov/owow/nps/facts/point1.htm (last visited Apr. 1, 2006) [hereinafter EPA, NATION'S LARGEST].

48 EPA, *Coastal Nonpoint Sources*, http://www.epa.gov/owow/oceans/treasure/pg5.html (last visited Apr. 1, 2006) (adapted from EPA, EPA/842/B-96/001, TREASURED WATERS 5 (June 1996)).

49 EPA, EPA841-F-96-004E, PROTECTING COASTAL WATERS FROM NONPOINT SOURCE POLLUTION, Pointer No. 5, http://www.epa.gov/owow/nps/facts/point5.htm (last visited Apr. 1, 2006); *see also* Roland Wall, *supra* note 46 (noting that urban runoff may be responsible for "over 25% of problems with estuaries" (citing EPA, EPA841-S-00-001, THE QUALITY OF OUR NATION'S WATERS (1998))).

50 EPA, *Polluted Runoff*, *supra* note 44, at F.1.

51 Roland Wall, *supra* note 46 (citing EPA, RESULTS OF THE NATIONAL URBAN RUNOFF PROGRAM: VOLUME 1—FINAL REPORT (1983)).

> Nationwide, BOD loadings from runoff were estimated as comparable to that from secondary POTWs [publicly owned treatment works], while TSS [total suspended solids] loadings were estimated to be a factor of 10 higher than loadings from POTWs. Fecal coliform levels also indicated significant impacts from urban storm runoff, especially from runoff into lakes and shellfish harvesting areas.[52]

As the NURP report indicated, urban runoff picks up and carries with it a number of kinds of pollutants that impair ocean water quality, including: sediment, which can decrease light penetration and smother coastal ecosystems such as coral reefs; nutrients, which can cause plankton blooms, known as harmful algal blooms, and ultimately lead to decreased dissolved oxygen levels; oxygen-demanding substances, such as decaying organic matter, which also lead to decreases in dissolved oxygen levels; pathogens and disease-causing organisms, which lead to beach closures; road salts (in areas of the country with snow), which can result in toxic concentrations of chlorine; hydrocarbons from oil products, which can kill marine organisms; heavy metals such as copper, lead, chromium, and zinc, which are often toxic; and other toxic pollutants.[53] On the West Coast, polluted urban runoff has been implicated in commercial shellfish closures in Puget Sound, Washington and linked to toxic pollution in the southern part of San Francisco Bay.[54] In addition, urban runoff can cause temperature changes and disruptions to natural salinity levels in coastal waters and estuaries, interfering with natural ecosystem function.[55]

C. Coastal Nonpoint Source Urban Runoff Pollution and the CZMA

1. Introduction to the CZMA

Congress originally enacted the CZMA in 1972 in recognition of the fact that:

> The increasing and competing demands upon the lands and waters of our coastal zone occasioned by population growth and economic development, including requirements for industry, commerce, residential development, recreation, extraction of mineral resources and fossil fuels, transportation and navigation, waste disposal, and harvesting of fish, shellfish, and other living marine resources, have resulted in the loss of living marine resources, wildlife, nutrient-rich areas, permanent and adverse changes to ecological systems, decreasing open space

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52 National Pollutant Discharge Elimination System Permit Regulations, 49 Fed. Reg. 37,998, 38,103 (Sept. 26, 1984) [hereinafter EPA, NPDES Permit Regulations].

53 *Id.*; *see also* CAL. COASTAL COMM'N, *supra* note 1 (listing the same pollutants).

54 EPA, *Polluted Runoff*, *supra* note 44, at F.2.a.

55 *Id.* at F.2.b.

for public use, and shoreline erosion.[56]

The "coastal zone," for purposes of this Act, is "the coastal waters (including the lands therein and thereunder) and the adjacent shorelands (including the waters therein and thereunder), strongly influenced by each other and in proximity to the shorelines of the several coastal states, and includes islands, transitional and intertidal areas, salt marshes, wetlands, and beaches."[57] For most states, the "coastal zone" extends to the three-mile limit of state jurisdiction established through the Submerged Lands Act,[58] which is also roughly equivalent to the three-mile "territorial sea" that states can regulate as part of their "navigable waters" under the Clean Water Act.[59]

In 1990, Congress enacted the Coastal Zone Act Reauthorization Amendments (CZARA)[60] to amend the federal CZMA to address coastal nonpoint source pollution, including urban runoff. Indeed, Congress specifically recognized in these amendments that "[n]onpoint source pollution is increasingly recognized as a significant factor in coastal water degradation" and that "[i]n urban areas, stormwater and combined sewer overflow are linked to major coastal problems."[61] Since CZARA, the CZMA has been the most important federal law for addressing nonpoint source urban runoff in the coastal zone, despite earlier provisions in the Clean Water Act to address nonpoint source pollution.[62]

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56 Coastal Zone Management Act of 1972, Pub. L. No. 92-583, § 302(c), 86 Stat. 1280 (codified at 16 U.S.C. § 1451(c) (2000)).

57 Coastal Zone Management Act, 16 U.S.C. § 1453(1) (2000)). In more detail, the zone extends:

> seaward to the outer limit of State title and ownership under the Submerged Lands Act (43 U.S.C. §§ 1301 et seq.), the Act of March 2, 1917, (48 U.S.C. § 749), the Covenant to Establish a Commonwealth of the Northern Mariana Islands in Political Union with the United States of America, as approved by the Act of March 24, 1976 (48 U.S.C. § 1681), or section 1 of the Act of November 20, 1963 (48 U.S.C. § 1705), as applicable. The zone extends inland from the shorelines only to the extent necessary to control shorelands, the uses of which have a direct and significant impact on the coastal waters, and to control those geographical areas which are likely to be affected by or vulnerable to sea level rise. Excluded from the coastal zone are lands the use of which is by law subject solely to the discretion of or which is held in trust by the Federal Government, its officers or agents.

Id.

58 *Id*. (referencing the Submerged Lands Act, 43 U.S.C. §§ 1301–1356a (2000)).

59 *See* Clean Water Act §§ 301(a) (prohibiting the "discharge of any pollutants"), 502(12) (defining "discharge of a pollutant" to include additions of pollutants into the navigable waters), 502(7) (defining "navigable waters" to include the territorial sea), 502(8) (defining "territorial sea" to be the first three miles of ocean waters), 33 U.S.C. §§ 1311(a), 1362(12), (7), (8); *see also* discussion *infra* Part III.B. The Applicability of the Clean Water Act to Coastal Water Quality.

60 Pub. L. No. 101-508, § 6217, 104 Stat. (1990) (codified as amended at 16 U.S.C. § 1455b (2000)).

61 Pub. L. No. 101-508, § 6202(a)(5), 104 Stat. 1388, 1388–300 (1990).

62 *See* EPA, *Guidance for Control of Coastal Nonpoint Sources and Storm Water*

Under CZARA, the EPA and the National Oceanic and Atmospheric Administration (NOAA) had 18 months from the amendments' effective date (November 5, 1990) to prepare final guidance for states regarding nonpoint source pollution control in the coastal zone.[63] Coastal states then had two and one-half years to prepare and submit coastal nonpoint source control programs for approval by these agencies.[64] States were supposed to coordinate these nonpoint source control programs both with their existing CZMA programs and with their Clean Water Act section 319 nonpoint source management programs.[65]

To be approved, state coastal nonpoint source control programs had to implement management measures to control coastal nonpoint source pollution in conformity with the EPA/NOAA guidance.[66] "Management measures" are defined as:

> economically achievable measures for the control of the addition of pollutants from existing and new categories and classes of nonpoint sources of pollution, which reflect the greatest degree of pollutant reduction achievable through the application of the best available nonpoint pollution control practices, technologies, processes, siting criteria, operating methods, or other alternatives.[67]

Thus, implementation of these management measures should have achieved fairly stringent controls on nonpoint sources of coastal water pollution.

In addition, the CZARA programs had to meet seven other statutory criteria, including implementation of any additional management measures applicable to various land uses that were necessary to ensure that the coastal zone meets the applicable water quality standards.[68] States that failed to submit approvable programs would lose an increasing percentage of both their federal coastal zone management assistance under the CZMA and their water pollution control assistance funds under the

Permit Requirements for Point Sources, http://www.epa.gov/OWOW/NPS/MMGI/Chapter4/ch4-1.html (last visited Apr. 1, 2006) (noting that the CZMA nonpoint source management measures apply when the Clean Water Act's NPDES permit program does not); EPA, Office of Wetlands, Oceans, and Watersheds, EPA841-F-96-004E, *supra* note 49 (emphasizing the importance of the 1990 amendments to the CZMA); Nat'l Ocean Serv., Office of Ocean and Coastal Res. Mgmt., *Coastal Nonpoint Pollution Control Program*, http://www.ocrm.nos.noaa.gov/czm/6217/ (last visited Apr. 1, 2006) (noting that prior programs for addressing nonpoint source pollution were to be wrapped into the CZMA management programs in order to "more effectively manage nonpoint source pollution in coastal areas.").

63 Coastal Zone Act Reauthorization Amendments § 6217(g)(3)(B), 16 U.S.C. § 1455b(g)(3)(B) (2000) [hereinafter "CZARA"].

64 CZARA § 6217(a)(1), 16 U.S.C. § 1455b(a)(1) (2000).

65 CZARA § 6217(a)(2), 16 U.S.C. § 1455b(a)(2) (2000).

66 CZARA § 6217(b), 16 U.S.C. § 1455b(b) (2000).

67 CZARA § 6217(g)(5), 16 U.S.C. § 1455b(g)(5) (2000).

68 CZARA § 6217(b)(3), 16 U.S.C. § 1455b(b)(3) (2000).

Clean Water Act.[69]

Conversely, states that submitted approvable programs would be eligible to request federal grants to develop their coastal nonpoint source control programs.[70] Once states had their coastal nonpoint source management programs approved, they were supposed to implement those programs through amendments to the existing state coastal zone management plans under the CZMA and/or amendments to the state nonpoint source management program created pursuant to section 319 of the Clean Water Act.[71]

Thirty states and five territories are located along coastlines, and therefore are eligible to participate in the CZMA programs.[72] Of those, thirty-three states and territories have fully approved coastal zone management plans[73] and hence are subject to the CZARA nonpoint source control program requirement. By January 2006, twelve of these coastal states, including California, and four of the territories had fully approved coastal nonpoint source control programs in place.[74] The other seventeen coastal states and territories subject to CZARA's nonpoint source requirements had received conditional approval, with full approval pending.[75]

2. Nonpoint Source Urban Runoff Management Measures Under the CZMA

Management of nonpoint source urban runoff is a challenge for water quality managers, "requir[ing] that a number of objectives be pursued simultaneously."[76] These challenges only multiply in light of the increasing numbers of coastal residents and increasing urbanization of coastal communities.[77] "Protection of water quality in urbanized areas is difficult because of a range of factors," including "diverse pollutant loadings, large runoff volumes, limited areas suitable for surface water runoff treatment

69 CZARA § 6217(c)(3)-(4), 16 U.S.C. § 1455b(c)(3)-(4) (2000).

70 CZARA § 6217(f), 16 U.S.C. § 1455b(f) (2000).

71 CZARA § 6217(c)(2), 16 U.S.C. § 1455b(c)(2) (2000).

72 Nat'l Ocean Serv., Office of Ocean and Coastal Res. Mgmt., *Coastal Zone Management Program*, http://www.ocrm.nos.noaa.gov/czm/national.html (last visited Apr. 1, 2006).

73 *Id.* Indiana's coastal zone management program is in development, while Illinois' is inactive.

74 Nat'l Ocean Serv., *Program Approval Findings*, http://www.ocrm.nos.noaa.gov/czm/6217/findings.html (last visited Mar. 16, 2006).

75 *Id.*

76 EPA, *Management Measures for Urban Areas, I. Introduction*, *supra* note 27.

77 *Id.* ("Urbanization first occurred in coastal areas and this historical trend continues. Approximately 80 percent of the Nation's population lives in coastal areas. The negative impacts of urbanization on coastal and estuarine waters has been well documented in a number of sources, including the Nationwide Urban Runoff Program (NURP) and the States .305(b) and .319 reports [pursuant to the Clean Water Act].").

systems, high implementation costs associated with structural controls, and the destruction or absence of buffer zones that can filter pollutants and prevent the destabilization of streambanks and shorelines."[78]

In general, controlling "nonpoint source pollution requires the use of two primary strategies: the prevention of pollutant loadings and the treatment of unavoidable loadings."[79] For CZMA purposes, the EPA advocates a "watershed approach" for addressing urban runoff. Under the watershed approach, urban runoff is controlled by focusing on "pollution prevention or source reduction practices."[80] Specifically, the EPA has noted that "[t]he major opportunities to control NPS loadings [in urban runoff] occur during the following three stages of development: the siting and design phase, the construction phase, and the postdevelopment phase."[81]

In coastal areas such as southern California that were already highly urbanized by 1990, the postdevelopment management measures are often the most important. According to the EPA's guidance, these management measures have three goals: (1) to "[r]educe surface water pollution loadings from areas where development has already occurred[;]" (2) to "[l]imit surface water runoff volumes in order to minimize sediment loadings resulting from the erosion of streambanks and other natural conveyance systems; and" (3) to "[p]reserve, enhance, or establish buffers that provide water quality benefits along waterbodies and other tributaries."[82]

Some of the "nonstructural" management measures that the EPA recommends, such as stabilization of shorelines, stream banks, and channels or restoration and protection of wetlands, help to control the detrimental effects of urban runoff[83] without changing its legal status as nonpoint source pollution. However, the EPA admits that preservation and restoration of buffers and other natural controls may not be possible in all areas. "Where existing development precludes the use of effective nonstructural controls, structural practices may be the only suitable option to

78 EPA, *Management Measures for Urban Areas, IV. Existing Development, A. Existing Development Management*, http://www.epa.gov/OWOW/NPS/MMGI/Chapter4/ch4-4.html (last visited Apr. 1, 2006).

79 EPA, *Management Measures for Urban Areas, I. Introduction. F. Background. 3. Opportunities*, http://www.epa.gov/OWOW/NPS/MMGI/Chapter4/ch4-1.html (last visited Apr. 1, 2006).

80 *Id.*

81 *Id.*

82 EPA, *Management Measures for Urban Areas, IV. Existing Development, A. Existing Development Management*, *supra* note 78.

83 *Id.*

decrease the NPS pollution loads generated from developed areas," such as "the construction of new surface water runoff treatment structures and the retrofit of existing surface water runoff management systems."[84] Thus, many of the recommended control measures under the CZMA for nonpoint source urban runoff involve the collection and treatment of that runoff—a process that, through the phase-in of the Clean Water Act's stormwater permit requirements, eventually subjects this urban stormwater to the Clean Water Act's controls for point source pollution.[85]

California implements a Nonpoint Source (NPS) Pollution Control Program,[86] which it originally enacted pursuant to section 319 of the Clean Water Act.[87] As Congress intended in CZARA, however, "[i]n lieu of developing a separate NPS program for the coastal zone, California's NPS Pollution Control Program was updated in 2000 to address the requirements of both the CWA section 319 and CZARA section 6217 on a statewide basis."[88]

The California Coastal Commission provides management measure guidance for urban runoff not subject to the Clean Water Act—currently, only uncollected urban runoff and runoff in municipal separate storm sewers (MS4s) from small municipalities (less than 100,000 people) that do not qualify as "urban areas."[89] Specifically, the Commission has established "[t]he model urban runoff program, or MURP, [which] is a 'how-to' guide for addressing polluted urban runoff."[90] The Commission views urban runoff "as an environmental problem that affects every urban community in California," because "[p]olluted runoff threatens the water quality of our oceans and streams and degrades our groundwater supplies."[91] Its MURP advocates "'best management practices' or BMPs—practical ways to initiate a polluted runoff management program without heavy-handed regulatory

84 *Id*.

85 *See infra* Part III.C.2.d. The Stormwater NPDES Permit Program.

86 CAL. COASTAL COMM'N, *supra* note 1.

87 *Id*. (noting that California's NPS control program "details how the state will promote the implementation of management measures and BMPs to control and prevent polluted runoff, as required by Section 319 of the federal Clean Water Act," referring to 33 U.S.C. § 1329).

88 *Id*. at 1-4. The Commission, the California Water Resources Control Board (CWRCB), and the nine Regional Water Quality Control Boards (RWQCBs) were the lead agencies in upgrading the program. *Id*. The CWRCB and the RWQCBs administer the Clean Water Act NPDES permit program in California. *Id*.

89 EPA, OFFICE OF WATER, EPA 833-F-00-002, STORMWATER PHASE II FINAL RULE: SMALL MS4 STORMWATER PROGRAM OVERVIEW 1 (Dec. 2005), *available at* http://www.epa.gov/npdes/pubs/fact2-0.pdf.

90 CAL. COASTAL COMM'N, *supra* note 1.

91 *Id.* (listing the same pollutants).

requirements."[92] However, "[t]he minimum program elements recommended by the MURP are the 'minimum control measures' required in the NPDES Phase II [stormwater] regulations"—namely, "[p]ublic education and outreach[,] [p]ublic involvement and participation[,] [i]llicit discharge detection and elimination[,] [p]ollution prevention and good housekeeping in municipal operations[,] [c]onstruction site urban runoff control[, and] [p]ost-construction runoff management in new development and redevelopment."[93]

3. The CZMA's Federal Consistency Requirement and Urban Runoff

In addition to providing financial incentives to states to develop coastal zone management programs, the CZMA's primary incentive for states is the Act's federal consistency provisions, which require that "[e]ach Federal agency activity within or outside the coastal zone that affects any land or water use or natural resource of the coastal zone shall be carried out in a manner which is consistent to the maximum extent practicable with the enforceable policies of approved State management programs."[94] When states incorporate their CZARA coastal nonpoint source control programs into their existing CZMA coastal management programs, the nonpoint source requirements become subject to the CZMA's federal consistency requirements.[95] Moreover, because the nonpoint source management measures must be enforceable, federal agency activities must comply with them.

Consistency determinations regarding coastal stormwater have already been the subject of CZMA litigation.[96] Moreover, California historically has insisted that federal agencies comply with the consistency requirement: the California coast was the subject of one-third of the forty-five reported CZMA consistency decisions in the federal courts.[97] Thus, to the extent that federal

92 *Id.* The Commission has emphasized that "BMPs are common sense methods for controlling, preventing, reducing, or removing pollutants in urban runoff. Street sweeping, for example, is an effective BMP." *Id.* at 1-6.

93 *Id.* at 1-9.

94 CZMA § 307(c)(1)(A), 16 U.S.C. § 1456(c)(1)(A) (2000).

95 CZMA § 307(a), 16 U.S.C. § 1456(a) (2000) ("In carrying out his functions and responsibilities under this Act, the Secretary shall consult with, cooperate with, and, to the maximum extent practicable, coordinate his activities with other interested Federal agencies.").

96 *See, e.g.,* Knaust v. City of Kingston, 978 F. Supp. 86 (N.D. N.Y. 1997).

97 Sec'y of the Interior v. California, 464 U.S. 312 (1984); Amber Res. Co. v. United States, 68 Fed. Cl. 535 (2005); City of Sausalito v. O'Neill, 386 F.3d 1186 (9th Cir. 2004); California v. Watt, 712 F.2d 584 (D.C. Cir. 1983); California v. Watt, 683 F.2d 1253 (9th Cir. 1982); Am. Petroleum Inst. v. Knecht, 609 F.2d 1306 (9th Cir. 1979); City of Sausalito v. O'Neill, 211 F. Supp.2d 1175 (N.D. Cal. 2002); Cal. Coastal Comm'n v. United States, 5 F. Supp.2d 1106 (S.D. Cal. 1998); Sierra Club v. Marsh, 692 F. Supp. 1210 (S.D. Cal.

agency activities contribute urban runoff to the California coast, such as through various military and energy facilities or national parks, it is likely that California will use the consistency requirement to ensure that its CZMA nonpoint source requirements are met.

III. CHANGING NONPOINT SOURCE URBAN RUNOFF INTO POINT SOURCE URBAN RUNOFF: THE CLEAN WATER ACT AND ITS STORMWATER PERMITTING REGIME

A. Introduction to the Clean Water Act

Congress enacted the contemporary version of the Clean Water Act through the Federal Water Pollution Control Act (FWPCA) Amendments of 1972,[98] which set out "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."[99] Specifically, the 1972 amendments established "the national goal that the discharge of pollutants into the navigable waters be eliminated by 1985"[100] and "that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983"[101] (the so-called "fishable/swimmable" goal).[102] The 1972 amendments pursued these goals by transforming the FWPCA's previous state-focused approach to water quality regulation, which was based almost entirely on ambient water quality standards, into a federal permitting scheme based primarily on end-of-the-pipe, technology-based effluent limitations for individual dischargers.[103]

B. The Applicability of the Clean Water Act to Coastal Water Quality

In addition to emphasizing the "point source" limitation, the

1988); Cal. Coastal Comm'n v. Mack, 693 F. Supp. 821 (N.D. Cal. 1988); Granite Rock Co. v. Cal. Coastal Comm'n, 590 F. Supp. 1361 (N.D. Cal. 1984); California v. Watt, 520 F. Supp. 1359 (C.D. Cal. 1981); S. Pac. Transp. Co. v. Cal. Coastal Comm'n, 520 F. Supp. 800 (N.D. Cal. 1981); County of San Francisco v. United States, 443 F. Supp. 1116 (N.D. Cal. 1977).

98 Pub. L. 92-500, 86 Stat. 816 (Oct. 18, 1972).

99 Clean Water Act § 101(a), 33 U.S.C. § 1251(a) (2000).

100 Clean Water Act § 101(a)(1), 33 U.S.C. § 1251(a)(1) (2000).

101 Clean Water Act § 101(a)(2), 33 U.S.C. § 1251(a)(2) (2000).

102 EPA, *Water Quality*, http://www.epa.gov/history/topics/25year/WATER.PDF (last visited Mar. 11, 2006).

103 For a complete history of the evolution of the Federal Water Pollution Control Act into the contemporary Clean Water Act, see ROBIN KUNDIS CRAIG, THE CLEAN WATER ACT AND THE CONSTITUTION: LEGAL STRUCTURE AND THE PUBLIC'S RIGHT TO A CLEAN AND HEALTHY ENVIRONMENT 9–37 (2004).

Clean Water Act's definition of "discharge of a pollutant" makes it clear that the Act applies to at least three categories of waters: the "navigable waters," the "contiguous zone," and the "ocean."[104] The Act's definitions of these three terms effectively segment the waters of the coastal zone and the ocean.

1. "Navigable Waters"

The Act's "navigable waters" are "the waters of the United States, including the territorial seas."[105] The territorial seas, in turn, are "the belt of the seas measured from the line of ordinary low water along that portion of the coast which is in direct contact with the open sea and the line marking the seaward limit of inland waters, and extending seaward a distance of three miles."[106] Therefore, as a practical matter, the Clean Water Act's "navigable waters" designate all of the waters that are generally subject to state jurisdiction, including both the inland waters (lakes, rivers, streams, and some wetlands) and, at least roughly, the offshore coastal waters that Congress gave to states through the Submerged Lands Act, which generally allows states to control the waters three miles off their coastlines.[107]

The definition of "navigable waters" has become controversial regarding intrastate and apparently isolated wetlands, both statutorily and constitutionally.[108] However, the federal government's broad Commerce Clause authority over the oceans and all waters subject to the ebb and flow of the tide has left the Clean Water Act's extension to the coastal marine waters relatively uncontested.[109]

104 *See* Clean Water Act § 502(12), 33 U.S.C. § 1362(12) (2000) (defining "discharge of a pollutant" to include both "any addition of any pollutant to *navigable waters* from any point source" and "any addition of any pollutant to *the waters of the contiguous zone or the ocean* from any point source other than a vessel or other floating craft" (emphasis added)).

105 Clean Water Act § 502(7), 33 U.S.C. § 1362(7) (2000).

106 Clean Water Act § 502(8), 33 U.S.C. § 1362(8) (2000).

107 Submerged Lands Act, 43 U.S.C.A. §§ 1301–1356 (West 2005). However, it is worth noting that the Submerged Lands Act allows states to claim more than three miles' jurisdiction offshore, and some states have succeeded in making such claims. When such conflicts arise, the Clean Water Act's three-mile designation for the "territorial sea" controls for Clean Water Act purposes. Natural Res. Def. Council, Inc. v. EPA, 863 F.2d 1420, 1434–36 (9th Cir. 1988) (holding that the Act's definition of "territorial sea" controlled despite Florida's claim of jurisdiction over three marine leagues (approximately 10.3 miles) into the Gulf of Mexico).

108 *See generally, e.g.*, United States v. Riverside Bayview Homes, Inc., 474 U.S. 121, 457 (1985) (delineating the federal agencies' jurisdiction over wetlands adjacent to more traditionally "navigable" waters); Solid Waste Agency of N. Cook County v. United States Army Corps of Eng'rs, 531 U.S. 159, 170–71 (2001) (refusing to decide the Commerce Clause limits of the Clean Water Act but implying that the Act cannot extend to isolated, intrastate wetlands).

109 *See*, *e.g.*, United States v. Locke, 529 U.S. 89, 99 (2000) (emphasizing the strength of the federal government's interest in interstate commerce in the oceans); United States v. California, 332 U.S. 19, 36 (1947) (recognizing the United States' "paramount rights in

2. "Contiguous Zone"

One of the more potentially ambiguous ocean zones under the Clean Water Act is the "contiguous zone," which the Act defines as "the entire zone established or to be established by the United States under article 24 of the Convention of the Territorial Sea and the Contiguous Zone."[110] This definition references one of the four Conventions created through the 1958 United Nations Conference on the Law of the Sea (UNCLOS I), which allowed ratifying nations to claim a contiguous zone beyond their territorial seas and extending twelve nautical miles out to sea.[111] While international developments quickly rendered the 1958 zones obsolete for most purposes,[112] they remain in place for the Clean Water Act because Congress has never amended these statutory definitions. Thus, the "contiguous zone" for the Clean Water Act most logically still refers to the zone from three to twelve nautical miles out to sea.[113]

3. "Ocean"

The Clean Water Act defines "ocean" to be "any portion of the high seas beyond the contiguous zone."[114] Obviously, the United States cannot regulate all of the world's high seas. Instead, in concert with international law, the United States asserts jurisdiction over a 200-nautical-mile-wide exclusive economic zone

and power over" the ocean and coastal zone).

110 Clean Water Act § 502(9), 33 U.S.C. § 1362(9) (2000).

111 Convention on the Territorial Sea and the Contiguous Zone, art. 24(2), Apr. 29, 1958, 15 U.S.T. 1606, 1612–13, 516 U.N.T.S. 205, *available at* http://untreaty.un.org/ilc/summaries/8_1.htm("The contiguous zone may not extend beyond twelve miles from the baseline from which the breadth of the territorial sea is measured."); *see also* U.N. Div. for Ocean Affairs and the Law of the Sea, *The United Nations Convention on the Law of the Sea (A HistoricalPerspective)* (2006), http://www.un.org/Depts/los/convention_agreements/convention_historical_perspective.htm (describing the 1958 United Nations Conference on the Law of the Sea and the four Conventions created at the conference).

112 Internationally, by 1973, a year after Congress transformed the prior Federal Water Pollution Control Act into what we now think of as the Clean Water Act, the Third United Nations Conference on the Law of the Sea began work on the third United Nations Convention on the Law of the Sea (UNCLOS III), which opened for signature in 1982 and became effective in 1994. JOSEPH J. KALO, *ET AL.*, COASTAL AND OCEAN LAW: CASES AND MATERIALS 333, 337 (West 1999). Under this convention, ratifying nations could claim a twelve nautical-mile-wide territorial sea and a twenty-four nautical-mile-wide contiguous zone. *Id.* at 341. Domestically, in 1988, the United States claimed a twelve nautical-mile-wide territorial sea and, in 1999, claimed a contiguous zone extending from twelve nautical miles to twenty-four nautical miles out to sea. Proclamation No. 5928, 54 Fed. Reg. 777 (Jan. 9, 1989); Proclamation No. 7219, 64 Fed. Reg. 48,701 (Sept. 8, 1999).

113 *See* Natural Res. Def. Council, Inc. v. EPA, 656 F.2d 768, 778 & n.6 (D.C. Cir. 1981) (explicitly defining the Act's "contiguous zone" as extending to twelve miles); *see also* 40 C.F.R. § 220.1(a)(3)(ii) (defining "contiguous zone" as extending beyond the territorial sea out to twelve miles for purposes of ocean dumping). Case law on this point is limited, given the relative unimportance to the "contiguous zone" to the Act's regulatory requirements.

114 Clean Water Act § 502(10), 33 U.S.C. § 1362(10) (2000).

(EEZ)[115] and has claimed a 200-nautical-mile-wide exclusive fishing zone since at least 1976.[116] Thus, while the Clean Water Act is not precise about the extent of its reach into the oceans, the most logical construction is that federal jurisdiction over point source discharges currently extends 200 nautical miles out to sea.

4. Regulatory Significance of the "Contiguous Zone" and the "Ocean"

As a practical matter, the Clean Water Act's distinction between the "contiguous zone" and the "ocean" is largely irrelevant, because almost all of the Act's provisions that apply to one of these zones will apply to the other as well. Instead, the critical regulatory line is three nautical miles out to sea, because the Act's "territorial sea" is part of the "navigable waters" that the Act regulates most comprehensively, while the "contiguous zone" and the "ocean" are not.[117] In particular, the distinction between the "territorial sea" and the rest of the "ocean" can become critical for determining: (1) what Clean Water Act permit programs can apply to a discharge; (2) which governmental entity can issue the permit; and (3) what exceptions are available.

C. The Clean Water Act's Two Permit Programs

1. The Section 404 "Dredge and Fill" Permit Program

The Clean Water Act's more limited permit program is the section 404 permit program. Under this program, the Secretary of the Army, acting through the U.S. Army Corps of Engineers,[118] received the initial authority to "issue permits . . . for the discharge of dredged or fill material into the navigable waters at specified disposal sites."[119] Section 404 allows states and Tribes to acquire "dredge and fill" permitting authority,[120] but to date only two states, Michigan and New Jersey, have done so.[121] Ei-

115 Proclamation No. 5030, 48 Fed. Reg. 10,605 (Mar. 14, 1983). The 1982 UNCLOS III allows ratifying nations to claim such an EEZ. KALO, *ET AL.*, *supra* note 112, at 341. However, the United States has not yet ratified this Convention and hence claims its EEZ on the basis of customary international law.

116 *See* Pub. L. No. 94-265, § 101, 90 Stat. 331 (1976) (establishing this zone as part of the enactment of the Fishery Conservation and Management Act of 1976).

117 *See*, *e.g.*, Natural Res. Def. Council, Inc. v. EPA, 863 F.2d 1420, 1434–36 (9th Cir. 1988) (holding that the three-mile line of the territorial sea is the critical line for section 401 certifications); Pac. Legal Found. v. Costle, 586 F.2d 650, 655–56 (9th Cir. 1978) (holding that beyond the three-mile limit of the territorial sea, only the EPA can issue NPDES permits for discharges into the ocean).

118 Clean Water Act §§ 404(a), (d), 33 U.S.C. §§ 1344(a), (d) (2000).

119 Clean Water Act § 404(a), 33 U.S.C. § 1344(a) (2000).

120 Clean Water Act §§ 404(g)-(h), 33 U.S.C. §§ 1344(g)-(h) (2000).

121 EPA, *State or Tribal Assumption of the Section 404 Permit Program*, http://www.

ther way, the U.S. Environmental Protection Agency (EPA) oversees the section 404 permitting program: it issued the Section 404(b)(1) Guidelines,[122] which emphasize that "dredged or fill material should not be discharged into the aquatic ecosystem, unless it can be demonstrated that such a discharge will not have an unacceptable adverse impact either individually or in combination with known and/or probable impacts of other activities affecting the ecosystems of concern"[123] and it can veto any particular section 404 permit or proposed discharge.[124]

Because the section 404 permit program applies only to "discharge[s] of dredged or fill material *into the navigable waters*,"[125] the section 404 program's applicability to the sea is confined to the territorial sea. As a result, the section 404 permit program does not apply more than three nautical miles out to sea.[126] However, the Army Corps *does* regulate ocean dumping more than three miles out to sea through the Ocean Dumping Act.[127]

The section 404 permit program is of limited value to regulating urban runoff, however, because that program is also limited to discharges of dredged or fill material.[128] According to the Army Corps' regulations, the "discharge of dredged material" is "addition of dredged material into, including redeposit of dredged material other than incidental fallback within, the waters of the United States."[129] "Dredged material," in turn, is "material that is excavated or dredged from waters of the United States."[130] The "discharge of fill material" is "the addition of fill material into waters of the United States,"[131] with "fill material" being:

> material placed in waters of the United States where the material has the effect of:
>
> (i) Replacing any portion of a water of the United States with dry land; or
>
> (ii) Changing the bottom elevation of any portion of a water of the

epa.gov/owow/ wetlands/facts/fact23.html (last visited Apr. 1, 2006).

122 Clean Water Act § 404(b)(1), 33 U.S.C. § 1344(b)(1) (2000).

123 40 C.F.R. § 230.1(c) (2004).

124 Clean Water Act § 404(c), 33 U.S.C. § 1344(c) (2000).

125 Clean Water Act § 404(a), 33 U.S.C. § 1344(a) (2000) (emphasis added).

126 Clean Water Act § 502(7), 33 U.S.C. § 1362(7) (2000) (defining "navigable waters"); 33 C.F.R. § 328.4(a) (2004).

127 33 U.S.C. § 1411(b) (2000); *see also* Clean Water Act § 502(8) (defining territorial sea); 40 C.F.R. § 230.2(b) (2004) (Regulation of discharges of dredged and fill material into the ocean is in fact more complex than this simple dichotomy would suggest, however, because the Army Corps has determined that discharges of dredged material, but not discharges of fill material, *into the territorial sea* are also regulated pursuant to the Ocean Dumping Act.).

128 Clean Water Act § 404(a), 33 U.S.C. § 1344(a) (2000).

129 33 C.F.R. § 323.2(d)(1) (2004) (emphasis removed).

130 *Id*. § 323.2(c) (emphasis removed).

131 *Id*. § 323.2(f) (emphasis removed).

United States.[132]

Because urban runoff, even when channeled and controlled, does not constitute an addition of dredged material or an intentional attempt to fill coastal waters, the section 404 program does not apply.

2. The Clean Water Act's National Pollutant Discharge Elimination System (NPDES) Permit Program

Given the section 404 permit program's many limitations, the Clean Water Act's NPDES permit program governs most point source discharges of pollutants into the nation's waters, including urban stormwater point source discharges.[133] Under this program, the Administrator of the EPA received the initial authority to "issue a permit *for the discharge of any pollutant*, or combination of pollutants, notwithstanding section 1311(a) of this title, upon condition that such discharge will meet" a list of applicable requirements.[134] Section 402's incorporation of "discharge of a pollutant" extends the NPDES program to the full oceanic range of the Act's jurisdiction.[135]

Section 402 of the Act, which governs the NPDES permit program, allows states to assume NPDES permitting authority.[136] Most states have assumed NPDES permitting authority,[137] subject to the EPA's oversight.[138] Thus, states now issue most NPDES permits. However, states lack authority to issue NPDES permit to point sources that discharge pollutants more than three miles out to sea.[139] Thus, the EPA still issues the NPDES permit for any such discharge, regardless of the coastal state's delegated authority under the Clean Water Act.

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132 *Id*. § 323.2(e).

133 *See* Clean Water Act § 402, 33 U.S.C.A. § 1342 (West 2005).

134 33 U.S.C. § 1342(a)(1) (2000) (emphasis added); *see also* Clean Water Act § 402(a)(1) (referencing the Clean Water Act section corresponding to section 1311(a) of the U.S.C., 301(a)).

135 *Id.*; *see also* Clean Water Act § 502(12), 33 U.S.C. § 1362(12) (2000) (defining "discharge of a pollutant" to include all ocean waters).

136 Clean Water Act § 402(b), 33 U.S.C. § 1342(b) (2000).

137 *See* EPA, *National Pollutant Discharge Elimination System (NPDES): State Program Status*, http://cfpub.epa.gov/npdes/statestats.cfm (listing status of NPDES programs by state) (last visited Apr. 1, 2006).

138 Clean Water Act §§ 402(b), (d), (i), 33 U.S.C. §§ 1342(b), (d), (i) (2000).

139 Clean Water Act § 402(a)(5), 33 U.S.C. § 1342(b) (2000) (authorizing State NPDES permits for discharges into navigable waters within the State's jurisdiction); *see also* Natural Res. Def. Council v. EPA, 863 F.2d 1420, 1435 (9th Cir. 1988) (holding that the state NPDES permit authority only included navigable waters, which includes "only those waters *landward* from the outer boundary of the territorial seas"); Pac. Legal Found. v. Costle, 586 F.2d 650, 655–56 (9th Cir. 1978) (holding that state NPDES permit authority did not extend to discharges past the three-mile territorial sea), *rev'd on other grounds*, 445 U.S. 198 (1980).

The actual terms of an NPDES permit are based on many kinds of discharge requirements. Moreover, many of these permit terms apply differently to discharges into the sea[140] than they do to discharges into inland fresh waters.

a. Effluent Limitations

Of the Clean Water Act's many requirements for point source discharges, the most important are the technology-based effluent limitations, which are set on the basis of the relevant industrial category or subcategory and the type of pollutant discharged[141] and then incorporated into individual NPDES permits. According to the Act, an "effluent limitation" is "any restriction established by a State or the Administrator on quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources into navigable waters, the waters of the contiguous zone, or the ocean, including schedules of compliance."[142] Therefore, most effluent limitations are numerical standards dictating the allowable concentrations of specific pollutants at the "end of the pipe"—that is, as effluent enters waters subject to the Act's jurisdiction.

Section 301 of the Clean Water Act emphasizes that technology-based effluent limitations "shall be applied to all point sources of discharge of pollutants."[143] By incorporating the phrase "discharge of pollutants," section 301 extends the technology-based effluent limitation requirement to the territorial sea, the contiguous zone, and the ocean. However, some requirements do change three miles out to sea, when the "territorial sea" becomes the "contiguous zone" and the "ocean." For example, section 301 specifically prohibits the discharge of "any radiological, chemical, or biological warfare agent, any high-level radioactive waste, or any medical waste."[144] However, this absolute prohibition applies only to discharges into the *navigable waters*.[145] Therefore, this prohibition does not extend beyond the three-nautical-mile limit of the Act's territorial sea.

140 *See, e.g.,* Clean Water Act § 403, 33 U.S.C. § 1343 (2000) (ocean discharge criteria). Section 403 establishes special requirements for discharges into the ocean regions defined in the Clean Water Act—the territorial sea, the contiguous zone, and the ocean. Robin Kundis Craig & Sarah Miller, *Ocean Discharge Criteria and Marine Protected Areas: Ocean Water Quality Protection Under the Clean Water Act*, 29 B.C. ENVTL. AFF. L. REV. 1, 19–23 (2001). "All NPDES permits for discharges into the territorial sea, the contiguous zone, and the ocean must comply with these guidelines." *Id*. at 19–20 (citing 33 U.S.C. § 1343(a) (2000)); *see also* discussion *infra* Part III.C.2.b. The Section 403 Ocean Discharge Criteria.

141 *See* Clean Water Act § 301(b), 33 U.S.C. § 1311(b) (2000).

142 Clean Water Act § 502(11), 33 U.S.C. § 1362(11) (2000).

143 Clean Water Act § 301(e), 33 U.S.C. § 1311(e) (2000).

144 Clean Water Act § 301(f), 33 U.S.C. § 1311(f) (2000).

145 *Id.*

The Act also allows for variances from some kinds of effluent limitations for discharges into the ocean. In general, the EPA sets technology-based effluent limitations for point source categories that can affect marine waters in the same way that it sets effluent limitations for all other categories of industrial polluters. Some of the most obvious examples are the technology-based effluent limitations that apply to the various categories of seafood processors and to offshore oil and gas producers.[146] However, and despite some courts' recognition that the Clean Water Act especially protects the oceanic receiving waters,[147] two provisions in section 301 allow the EPA to modify the normal effluent limitations for discharges into the sea.

First, section 301(m) of the Act allows the EPA, with the relevant state's concurrence, to modify the normal discharge requirements relating to biological oxygen demand and pH for industrial discharges of pollutants "into deep waters of the territorial seas."[148] Allowance of such modifications depends largely on a cost-benefit analysis.[149] The modified effluent limitations for a successful applicant must "be sufficient to implement the applicable State water quality standards, to assure the protection of public water supplies and protection and propagation of a balanced, indigenous population of shellfish, fish, fauna, wildlife, and other aquatic organisms, and to allow recreational activities in and on the water."[150] In addition, the EPA Administrator must terminate any modified permit "if the effluent . . . is contributing to a decline in ambient water quality of the receiving waters."[151]

Second, and more importantly, section 301(h) allows the EPA to modify the standard secondary-treatment-based effluent limi-

146 40 C.F.R. § 408 (effluent limitations for seafood processors); 40 C.F.R. §§ 435.12 to 435.14 (effluent limitations for offshore oil and gas operations); *see generally* Natural Res. Def. Council, Inc. v. EPA, 863 F.2d 1420 (9th Cir. 1988) (deciding a challenge to the toxic effluent limitations for oil and gas operations outside of the territorial sea); Am. Petroleum Inst. v. EPA, 858 F.2d 261 (5th Cir. 1988) (same); Ass'n of Pac. Fisheries v. EPA, 615 F.2d 794 (9th Cir. 1980) (challenging BPT- and BAT-based effluent limitations for seafood processors).

147 Weyerhaeuser Co. v. Costle, 590 F.2d 1011, 1041–44 (D.C. Cir. 1978).

148 Clean Water Act § 301(m)(1), 33 U.S.C. § 1311(m)(1) (2000).

149 Clean Water Act §§ 301(m)(1)(B), (I), 33 U.S.C. §§ 1311(m)(1)(B), (I) (2000). In addition, the applicant must show that it qualifies for the right kind of NPDES permit, that it will engage in monitoring, that the modified requirements will not impose additional requirements on any other point or nonpoint source, that it will not increase the volume of its discharge, that the receiving waters have a strong tidal influence and other characteristics that will dilute the effluent, that the applicant will spend money on research and development of water pollution control technology, and that its exemption will not create a precedent for other dischargers. Clean Water Act §§ 301(m)(1)(A), (C)-(H), 33 U.S.C. §§ 1311(m)(1)(A), (C)-(H) (2000).

150 Clean Water Act § 301(m)(2), 33 U.S.C. § 1311(m)(2) (2000).

151 Clean Water Act § 301(m)(4), 33 U.S.C. § 1311(m)(4) (2000).

tations for publicly owned treatment works (POTWs, or sewage treatment plants) that discharge into marine waters.[152] In order to take advantage of the modified effluent limitations, the POTW must demonstrate to the Administrator that its discharge meets nine statutory requirements.[153] In addition, no NPDES permit issued under this provision can allow a POTW to discharge sewage sludge into the marine waters, and the receiving marine or estuarine waters must already enjoy fairly decent water quality before the EPA can approve modification of the standard secondary-treatment-based effluent limitations.[154]

The EPA issued its final 301(h) regulations in August 1996.[155] It received 208 applications for waivers of the secondary treatment requirements, eighty-seven of which were either withdrawn or became ineligible and seventy-six of which were denied.[156] Thus, as of 2003, "36 communities have waivers from EPA allowing them to operate at less than secondary treatment

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152 Clean Water Act § 301(h), 33 U.S.C. § 1311(h) (2000). For purposes of this provision, "the discharge of any pollutant into marine waters" means:

> a discharge into deep waters of the territorial sea or the waters of the contiguous zone, or into saline estuarine waters where there is strong tidal movement and other hydrological and geological characteristics which the Administrator determines necessary to allow compliance with [water quality requirements and the Act's "fishable/swimmable" goal].

Id. Section 30(h) is thus one of the few provisions of the Clean Water Act that effectively distinguishes between the contiguous zone and the ocean: modifications are expressly allowed for discharges into the territorial sea and contiguous zone, but implicitly *not* for discharges into the ocean.

153 *Id.*

154 *Id.* Specifically:

> In order for a permit to be issued under this subsection for the discharge of a pollutant into marine waters, such marine waters must exhibit characteristics assuring that water providing dilution does not contain significant amounts of previously discharged effluent from such treatment works. No permit issued under this subsection shall authorize the discharge of any pollutant into saline estuarine waters which at the time of application do not support a balanced indigenous population of shellfish, fish and wildlife, or allow recreation in and on the waters or which exhibit ambient water quality below applicable water quality standards adopted for the protection of public water supplies, shellfish, fish and wildlife or recreational activities or such other standards necessary to assure support and protection of such uses. The prohibition contained in the preceding sentence shall apply without regard to the presence or absence of a causal relationship between such characteristics and the applicant's current or proposed discharge.

Id. For a discussion of the section 301(h) exemption, see generally Natural Res. Def. Council, Inc. v. EPA, 656 F.2d 768 (D.C. Cir. 1981).

155 *See* Modification of Secondary Treatment Requirements for Discharges into Marine Waters, 69 Fed. Reg. 45,832, 45,832-33 (Aug. 29, 1996). The EPA's regulations for effluent limitation modifications under this provision are found at 40 C.F.R. Part 125, Subpart G, comprising 40 C.F.R. §§ 125.56 through 125.68 and an appendix.

156 EPA, Office of Water, *Amendments to Regulations Issued Pursuant to the Clean Water Act Section 301(h) Permit Program*, http://www.epa.gov/owow/oceans/discharges/301h.html (last visited Apr. 1, 2006).

levels without harming the marine environment,"[157] while an additional nine communities are revising their applications to apply again for a waiver that was previously denied.[158]

> The majority of 301(h) waivers recipients are small POTWs that discharge less than 5 million gallons per day (MGD), although the flows from these small POTWs represent only 4 percent of the 620 MGD of wastewater under the 301(h) program. Less than half of the 45 applicants/permittees are located within the continental United States in four states (California, Maine, Massachusetts, and New Hampshire). Beyond the continental United States, there are 9 applicants in Alaska, 2 in Hawaii, 6 in Puerto Rico, and 8 in U.S. territorial islands in the Pacific and Atlantic Oceans.[159]

Given the limited number of applications granted and the small size of the POTWs involved, one would anticipate that the section 301(h) modification procedure has not had a significant effect on ocean water quality.

Nevertheless, the section 301(h) waiver has proven controversial in California, where three coastal communities—Goleta, Morro Bay, and Orange County—make use of that waiver for their sewage discharges.[160] Orange County is one of the largest section 301(h) waiver recipients and "dumps approximately 240 million gallons per day of partially treated wastewater 4 miles offshore of Huntington Beach."[161] Goleta treats only 4.8 million gallons of sewage per day but dumps that waste only one mile offshore.[162] Morro Bay discharges sewage "just over a half-mile offshore" and allegedly has a "negligible effect on the ocean."[163]

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157 EPA, Office of Water, *Ocean Discharge: Point Source Discharge from Sewage Treatment Plants*, http://www.epa.gov/owow/oceans/treasure/pg8.html (last visited Apr. 1, 2006) (adapted from EPA, TREASURED WATERS, *supra* note 48, at 8.

158 EPA, Office of Water, *Amendments to Regulations Issued Pursuant to the Clean Water Act Section 301(h) Program*, *supra* note 156.

159 *Id*.

160 EPA, Office of Water, *Current 301(h) Waiver Recipients and 301(h) Applications Pending Final Decision*, http://www.epa.gov/owow/oceans/discharges/301list.html (last visited Mar. 18, 2006). POTWs in San Diego and San Luis Obispo also apparently operate at less than full secondary treatment, although they do not appear on the EPA's official section 301(h) waiver list. *See Victory in California: Orange County Sanitation District Persuaded to Vote Down Sewage Waiver*, MAKING WAVES, Aug. 2002 at 4, *available at* http://www.surfrider.org/makingwaves/makingwaves18%2D4/MW_18-4.pdf (listing these two cities as operating under section 301(h) waivers); Sierra Club, *The Great Coastal Places Campaign: Order Issued to Upgrade Sewage Treatment* (July 2002), http://www.sierraclub.org/ca/coasts/victories/goleta.asp (last visited Mar. 18, 2006) (discussing San Diego's refusal to upgrade its sewage treatment facilities).

161 *Victory in California*, *supra* note 160; Sierra Club, *The Great Coastal Places Campaign*, *supra* note 160 (noting that Orange County sends 240 million gallons of sewage a day 4.5 miles offshore of Huntington Beach).

162 Sierra Club, *The Great Coastal Places Campaign*, *supra* note 160.

163 Lindsay Christians, *Sewer Plant Upgrade Under Consideration: Morro Bay, Cayucos Weigh a Plan to Triple-treat Sewage, a Move Supported by the State and Environmentalists to Clean Discharge into the Sea*, SAN LUIS OBISPO TRIBUNE, June 29, 2004, at B1, B2.

Public interest organizations such as the Sierra Club and Surfrider have been protesting these waivers for over a decade, and it appears that all three communities will be upgrading their sewage treatment plants in the near future.[164]

b. The Section 403 Ocean Discharge Criteria

While water quality standards may not affect all point source discharges into the sea, point sources that "discharge into the territorial sea, the waters of the contiguous zone, or the oceans" must comply with the EPA-set ocean discharge criteria as part of their NPDES permit requirements,[165] including the stormwater permit requirements. As the EPA has noted, the ocean discharge criteria "provide a level of protection in addition to the technology- or water quality-based requirements applicable to discharges into inland waters and are intended to protect the marine environment."[166]

The section 403(c)(1) guidelines "determine[e] the degradation of waters of the territorial seas, the contiguous zone and the oceans."[167] In establishing these guidelines, the EPA weighed seven statutory factors while examining how certain amounts of disposal would affect the ocean waters.[168]

Congress included the ocean discharge criteria requirements in the 1972 enactment of the Clean Water Act, but their promulgation was not smooth. In 1973, the "EPA promulgated combined regulations implementing section 102(a) of the Marine Protection, Research, and Sanctuaries Act and section 403(c) of the CWA. The primary focus of these regulations was on the ocean disposal of waste material . . . by dumping from moving ves-

164 *See* Sierra Club, *The Great Coastal Places Campaign*, *supra* note 160; *Victory in California*, *supra* note 160; Notice of Lodging of Consent Decree Under the Clean Water Act, 69 Fed. Reg. 68,979, 68,979–80 (Nov. 26, 2004) (reporting that a consent decree among the United States, the California Regional Water Quality Control Board, and the Orange County Sanitation District requires Orange County to construct secondary treatment facilities); CAL. REG,L WATER RES. CONTROL BD., REGION 3, DRAFT WASTE DISCHARGE REQUIREMENTS FOR GOLETA SANITARY DISTRICT WASTEWATER TREATMENT FACILITY 1-2 (Nov. 19, 2004), *available at* http://www.swrcb.ca.gov/rwqcb3/Board/Agendas/111904/ItemReports/Item6/documents/Item6attach1wdr.pdf (discussing the history of Goleta's section 301(h) waiver and the state's most recent denial of certification); Christians, *supra* note 163 (reporting that Morro Bay is planning to upgrade to tertiary treatment); CAL. WATER RES. CONTROL BD., WORKSHOP—OFFICE OF CHIEF COUNSEL: SEPT 30, 2003: ITEM 6 (draft dated Sept. 15, 2003), *available at* http://www.swrcb.ca.gov/agendas/2003/september/0930-06.doc (proposing denial of certification of Goleta's section 301(h) waiver).

165 Clean Water Act § 403, 33 U.S.C. § 1343 (2000).

166 EPA, Office of Wetlands, Oceans, and Watersheds, *Ocean Discharge Criteria*, http://www.epa.gov/owow/oceans/regulatory/oceandischcriteria.html (last visited Mar. 18, 2006).

167 Clean Water Act § 403(c)(1), 33 U.S.C. § 1343(c)(1) (2000).

168 Clean Water Act § 403(c)(1), 33 U.S.C. § 1343(c)(1) (2000).

sels."[169] These regulations, however, proved "unworkable" as ocean discharge criteria, and the EPA withdrew them.[170] In 1979, the Pacific Legal Foundation sued the EPA to force the agency to promulgate new ocean discharge criteria, and the court ordered such promulgation.[171] In response, the EPA published the existing ocean discharge criteria on October 3, 1980,[172] and has not amended the criteria since.

Under the EPA's section 403 regulations, applicants for NPDES permits who propose to discharge into coastal or ocean waters must submit complete chemical, biochemical, and ecological analyses of their proposed discharges,[173] including an "[a]nalysis of the location where pollutants are sought to be discharged, including the biological community and the physical description of the discharge facility" and an "[e]valuation of available alternatives to the discharge."[174] Based on these analyses, the EPA then determines whether the discharge will result in an "unreasonable degradation of the marine environment."[175] The EPA assesses "unreasonable degradation of the marine environment" on the basis of ten factors.[176] However, if a pollutant discharge complies with the applicable state water quality standards, the EPA will presume no unreasonable degradation of the marine environment "for any specific pollutants or conditions specified . . . in the standard."[177]

If the EPA determines that the proposed discharge, either as proposed or with regulatory conditions, will not unreasonably degrade the marine environment, the NPDES permit may issue.[178] Conversely, if the discharge will unreasonably degrade the marine environment despite all possible conditions that could be imposed, the NPDES permit application must be denied.[179]

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169 Ocean Discharge Criteria, 45 Fed. Reg. 65,942, (Oct. 3, 1980) (codified at 40 C.F.R. pt. 125).

170 *Id.*

171 *Id*.; Pac. Legal Found. v. Costle, 586 F.2d 650, 655–56 (9th Cir. 1978).

172 Ocean Discharge Criteria, 40 C.F.R. §§ 125.120-.124 (2001).

173 *Id*. § 125.124.

174 *Id*.

175 *Id*. §§ 125.123(a), (b), (c). "Unreasonable degradation" includes:

> (1) Significant adverse changes in ecosystem diversity, productivity and stability of the biological community within the area of discharge and surrounding biological communities, (2) Threat to human health through direct exposure to pollutants or through consumption of exposed aquatic organisms, or (3) Loss of esthetic, recreational, scientific or economic values which is unreasonable in relation to the benefit derived from the discharge.

Id. § 125.121(e).

176 *Id*. § 125.122(a).

177 *Id*. § 125.122(b).

178 *Id*. § 125.123(a).

179 *Id*. § 125.123(b).

Because section 403 applies to discharges into "territorial seas," which are part of the "navigable waters," ocean discharge criteria also apply to state-issued NPDES permits.180 The EPA, however, may not waive its review of state-issued NPDES permits for discharges into the territorial sea as it can for other state-issued NPDES permits.181 Moreover, no NPDES permit for discharges into the territorial sea, the contiguous zone, or the ocean can be issued "where insufficient information exists on any proposed discharge to make a reasonable judgment on any of the guidelines."182 Thus, assured compliance with the ocean discharge criteria is an absolute prerequisite to permitting point source discharges into any part of the ocean. According to the EPA,

> [c]urrently, there are 265 NPDES discharge permits subject to the Ocean Discharge Criteria. Of the 265 permits, 154 (or 58%) were issued to POTWs, 22 (or 8%) were to industrial facilities or activities that discharge conventional pollutants, 61 (or 23%) were to industrial facilities or activities including storm water discharges that discharge toxic pollutants, and 28 (or 11%) were to electric utilities.183

c. Other NPDES Permit Requirements

Several other requirements also can dictate the terms of NPDES permits. New sources that fall within industrial categories listed in the Act or specified by the EPA184 must comply with any applicable new source performance standards (NSPS), "which reflect the greatest degree of effluent reduction which the Administrator determines to be achievable through application of the best available demonstrated control technology [BADT], processes, operating methods, or other alternatives, including,

180 Clean Water Act § 403(b), 33 U.S.C. § 1343(c) (2000).

181 Clean Water Act § 403(b), 33 U.S.C. § 1343(b) (2000) (referencing Clean Water Act § 402(d), 33 U.S.C. § 1342(d) (2000)); 40 C.F.R. § 123.24(d)(1) (2005).

182 Clean Water Act § 403(c)(2), 33 U.S.C. § 1343(c)(2) (2000); 40 C.F.R. § 122.4(h) (2005).

183 EPA, Office of Wetlands, Oceans, and Watersheds, *Ocean Discharge Criteria*, *supra* note 166.

184 Clean Water Act § 306(b), 33 U.S.C. § 1316(b) (2000). Congress dictated that the EPA set NSPS for:

> pulp and paper mills; paperboard, builders paper and board mills; meat product and rendering processing; dairy product processing; grain mills; canned and preserved fruits and vegetables processing; canned and preserved seafood processing; sugar processing; textile mills; cement manufacturing; feedlots; electroplating; organic chemicals manufacturing; inorganic chemicals manufacturing; plastic and synthetic materials manufacturing; soap and detergent manufacturing; fertilizer manufacturing; petroleum refining; iron and steel manufacturing; nonferrous metals manufacturing; phosphate manufacturing; steam electric powerplants; ferroalloy manufacturing; leather tanning and finishing; glass and asbestos manufacturing; rubber processing; and timber products processing.

Clean Water Act § 306(b)(1)(A), 33 U.S.C. § 1316(b)(1)(A) (2000).

where practicable, a standard permitting no discharge of pollutants."[185] Section 307 allows the EPA Administrator to set, for particular industrial categories or classes of dischargers, toxic effluent standards for the toxic pollutants that are more stringent than the BAT-based toxic effluent limitations, up to and including a complete prohibition on the discharge.[186] All dischargers with NPDES permits are also subject to inspection, monitoring, recordkeeping, and reporting requirements.[187] However, none of these other statutory requirements differ for discharges into the coastal waters or the ocean.

d. The Stormwater NPDES Permit Program

As the EPA has noted repeatedly, the United States and the states have done a much better job of reducing water pollution from point sources than from nonpoint sources.[188] Thus, any mechanism that converts nonpoint source pollution into point source pollution is likely to improve the regulation of the sources involved and the quality of the waters that they affect.

In the Water Quality Act of 1987, Congress amended the Clean Water Act to subject urban stormwater discharges from industrial facilities and municipal stormwater systems to the Act's NPDES permit requirement.[189] The basic objectives of the amendments were to: (1) clarify what kinds of stormwater discharges were point source discharges subject to the NPDES permitting requirement and what kinds were not; and (2) progressively require industrial and municipal facilities to obtain NPDES permits for their stormwater discharges.[190] In coastal states especially, because of the EPA's and various states' rec-

185 Clean Water Act § 306(a)(1), 33 U.S.C. § 1316(a)(1) (2000). The EPA's NSPS are found at 40 C.F.R. § 401.12 (2005).

186 Clean Water Act § 307(a)(2), 33 U.S.C. § 1317(a)(2) (2000). In addition, "[a]ny effluent standard promulgated under this section shall be at that level which the Administrator determines provides an ample margin of safety." Clean Water Act § 307(a)(4), 33 U.S.C. § 1317(a)(4) (2000). It is also worth noting in this context that the Act itself makes it "unlawful to discharge any radiological, chemical, or biological warfare agent, any high-level radioactive waste, or any medical waste, into the navigable waters." Clean Water Act § 301(f), 33 U.S.C. § 1311(f) (2000).

187 Clean Water Act § 308, 33 U.S.C. § 1318 (2000).

188 *See* EPA, NATION'S LARGEST, *supra* note 47 (pointing out that, despite the tremendous advances in controlling point source pollution, the lack of focus on controlling nonpoint source pollution has resulted in nonpoint source pollution being the Nation's largest source of water quality problems.); EPA, NATIONAL WATER QUALITY INVENTORY 2000 REPORT ES-1 (2000), *available at* http://www.epa.gov/305b/2000report/execsum.pdf (reporting that nonpoint source pollution is the "leading source of impairment" of our nation's waters); EPA, NATIONAL WATER QUALITY INVENTORY 1998 REPORT ES-1 to 2 (1998), *available at* http://www.epa.gov/305b/98report/execsumm.pdf (reporting the same).

189 Pub. L. No. 100-4, § 405, 101 Stat. 7, 69 (1987), *codified at* 33 U.S.C. § 1342(p) (2000).

190 *Id.*

ommended management measures for nonpoint source urban runoff, the 1987 stormwater permit amendments are having the effect of converting nonpoint source urban runoff into point source urban runoff subject to the Clean Water Act's NPDES permit requirements.[191]

1. Stormwater Permitting Prior to 1987

Congress has been aware of stormwater pollution issues—and the expense of preventing such pollution—since at least the 1972 amendments that overhauled the FWPCA into the modern Clean Water Act.[192] Nevertheless, the federal government's commitment to controlling stormwater discharges has varied. For example, in 1977, the Senate voted to eliminate federal grants for stormwater collection facilities, reasoning that:

> The cost of controlling stormwater is substantial even after consideration of other options such as land use controls which may be more cost-effective in some situations. The Federal share for stormwater projects is beyond the reach of the limitations of the Federal budget. It is, furthermore, a cost for which water quality benefits have not been sufficiently evaluated, particularly since stormwater discharges occur on an episodic basis during which water use is minimal. Because of these factors, the committee believes it is in the public interest to eliminate stormwater discharges from eligibility for grants until a better assessment can be made of the benefits and of noncapital intensive solutions for stormwater control projects.[193]

The EPA also has a long and checkered history of attempting

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191 *See*, *e.g.*, Memorandum from Charles Sutfin, Director, Assessment & Watershed Prot. Div., EPA and John King, Acting Chief, Coastal Programs Div., Office of Ocean & Coastal Res. Mgmt., NOAA Ocean Serv. to State Water Div. Dirs. and EPA Reg'l Water Div. Dirs., *available at* http://www.ocrm.nos.noaa.gov/pdf/NPDES_CZARA_Policy_Memo.pdf (last visited Mar. 18, 2006) (clarifying that activities now regulated under the Phase II Clean Water Act stormwater regulations are no longer regulated under the CZMA's coastal nonpoint source programs); *see also* CAL. COASTAL COMM'N, *supra* note 1 (emphasizing that "it is important to realize that new federal and state regulatory requirements will soon address urban runoff in local communities. Indeed, the U.S. Environmental Protection Agency has already placed such requirements on municipalities with populations greater than 100,000.").

192 *See*, *e.g.*, S. REP. NO. 93-630 (1973), *reprinted in* 1973 U.S.C.C.A.N. 3367. In response to the EPA's 1973 survey of the states, the Report noted:

> [c]osts reported in [the combined sewer overflow] category for facilities to reduce pollution from combined sewer overflows also reflected only a portion of the total expenditures which could have been justified nationally under the survey guidelines if more cities had completed the required studies. EPA estimates, from the new studies available to date, that costs for facilities to reduce by 50–80% of the major pollutant concentrations in combined sewer overflows throughout the country would cost from $40 to $80 billion—and would roughly double the reported costs for all six categories. No fewer than 10 States have reported that they would have projects for correction of stormwater overflows from combined sewers on their priority list for fiscal year 1975 involving a substantial share of their allocation.

193 S. REP. NO. 95-370, at 39 (1977), *reprinted in* 1977 U.S.C.C.A.N. 4326, 4364.

to deal with stormwater under the NPDES program. For example, in 1973, in its first stormwater regulations, the EPA "exempted certain sources, among them storm water runoff discharges uncontaminated by industrial or commercial activity, from the requirement to obtain an NPDES permit," reasoning that "although these discharges fell within the definition of point source, they were ill-suited for inclusion in the NPDES permit program and better dealt with through non-point source controls" and "that to issue permits to the tremendous number of storm water sources would be administratively unworkable within the framework of the NPDES permit program."[194] However, the U.S. District Court for the District of Columbia and the U.S. Court of Appeals for the D.C. Circuit overturned these regulations, concluding that the EPA had no authority to exempt acknowledged point sources from the NPDES permit requirement.[195]

In response to this litigation, "[o]n March 18, 1976, . . . [the] EPA published final storm water regulations which required NPDES permits for all storm water discharges, other than rural runoff, which the Agency contended was better considered non-point sources."[196] These regulations established two categories of stormwater discharges that were subject to the NPDES permit requirement.[197]

> First, a "separate storm sewer" is defined as a conveyance or system of conveyances primarily used for collecting and conveying storm water runoff which is located in an urbanized area as designated by the Bureau of the Census or which is designated by the Director on a case-by-case basis as a "separate storm sewer." Second, a conveyance which discharges storm water runoff contaminated by contact with wastes, raw materials, or pollutant-contaminated soil from areas used for industrial or commercial activities are not considered "separate storm sewers," but are nonetheless considered point sources which must obtain [an] NPDES permit. [However, a] conveyance or system of conveyances operated primarily for the purpose of collecting and conveying storm water runoff which does not fit within either of the above described categories is not considered a point source and need not obtain an NPDES permit.[198]

These regulations were also challenged in court, and, as part of the settlement of that litigation, the EPA again reconsidered its stormwater rules, publishing new final regulations in 1984.[199]

194 EPA, NPDES Permit Regulations, *supra* note 52, at 38,010.

195 Natural Res. Def. Council, Inc. v. Train, 396 F. Supp. 1393, 1396–97 (D.D.C. 1975), *aff'd sub nom* Natural Res. Def. Council, Inc. v. Costle, 568 F.2d 1369 (D.C. Cir. 1977).

196 EPA, NPDES Permit Regulations, *supra* note 52, at 38,010.

197 *Id.*

198 *Id*. at 38,011.

199 *Id*. at 37,998–99.

The 1984 rules were more detailed in their classification of point and nonpoint source stormwater, emphasizing the importance of regulating urban stormwater under the NPDES program. Specifically, "[t]he final rule classifies as a point source any storm water discharge which is located in an urbanized area, discharges from land or facilities used for industrial or commercial activities, or is designated by the Director as a point source."[200] Nevertheless, the EPA's ambivalence regarding the point source/nonpoint source distinction remained. For example, the EPA emphasized that it "recognizes that in many cases these discharges may be better controlled as non-point sources," but, "as several commenters pointed out, [the] EPA may not exclude discharges without some basis."[201] In addition, the 1984 regulation

> retains the classification of rural runoff as non-point sources. The Agencyis convinced that most rural runoff cannot be effectively regulated by NPDES permits. In those cases where it can be, the regulationsspecifically classify the discharges as point sources (such as animal feedlots) or the Director has the authority to individually designate a discharge as a storm water point source. This is also consistent with Congressional intent that agricultural runoff be uniformly regulated through non-point source controls. This is indicated by the 1977 Clean Water Act amendments which exempted irrigation return flows from the point source definition.202 The D.C. Circuit also overturned these regulations.[203]

As a result of the constant litigation over the EPA's stormwater regulations, the applicability of the Clean Water Act's NPDES permit requirement to urban runoff and other forms of stormwater pollution remained largely a matter for the courts until the 1987 amendments.[204] For example, in response to the EPA's many versions of the stormwater regulations, the federal courts generally questioned the EPA's authority to *require* industry to collect and treat stormwater, converting it to point source pollution,[205] while simultaneously acknowledging the EPA's authority—and duty—to regulate discharges of stormwater that

200 *Id*. at 38,013.

201 *Id*.

202 *Id*.

203 Natural Res. Def. Council, Inc. v. EPA, 22 F.3d 1125 (D.C. Cir. 1987).

204 Water Quality Act of 1987, Pub. L. No. 100-4, § 405, 101 Stat. 7, 69 (1987).

205 *See*, *e.g.*, Kennecott Copper Corp. v. EPA, 612 F.2d 1232, 1243 (10th Cir. 1979) (noting that the EPA lacked authority to require mining companies to collect nonpoint source storm runoff); Appalachian Power Co. v. Train, 545 F.2d 1351, 1373–74 (4th Cir. 1976) (holding that the EPA cannot regulate suspended solids in rainfall runoff from construction sites or ash piles when such runoff is nonpoint source pollution, despite contact with human-generated wastes); Am. Petroleum Inst. v. EPA, 540 F.2d 1023, 1035 (10th Cir. 1976) (holding that the EPA had no statutory authority to require refineries to collect and treat stormwater runoff at their facilities); Hooker Chemicals & Plastics Corp. v. Train, 537 F.2d 620, 638–39 (2d Cir. 1976) (holding that the EPA cannot regulate rainwater runoff contaminated by chemical dust at phosphorus production facilities).

regulated entities voluntarily collected and channeled.[206]

2. The 1987 Stormwater Permit Amendments

In the Water Quality Act of 1987, Congress amended the Clean Water Act specifically to address the stormwater permitting issue.[207] The amendments began by announcing a general moratorium on all NPDES permitting for stormwater discharges until October 1, 1992.[208] The Act then provided five exceptions to the moratorium, including: stormwater discharges for which NPDES permits had already been issued; "discharge[s] associated with industrial activity"; "discharge[s] from a municipal separate storm sewer system serving a population of 250,000 or more"; "discharge[s] from a municipal separate storm sewer system serving a population of 100,000 or more but less than 250,000"; and "discharge[s] for which the Administrator or the State, as the case may be, determines that the stormwater discharge contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States."[209]

Industrial stormwater discharges were subject to all of the relevant NPDES requirements,[210] while municipalities had to "include a requirement to effectively prohibit non-stormwater discharges into the storm sewers" and "require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as

206 *See*, *e.g.*, United States v. Frezzo Bros., 642 F.2d 59, 61–62 (3d. Cir. 1981) (holding that discharges of compost runoff were "not an agricultural point source" that required a permit); Sierra Club v. Abston Const. Co., Inc., 620 F.2d 41, 44–45 (5th Cir. 1980) (holding that rainfall collected and channeled by miners was point source pollution subject to regulation if there was human effort in the collection); Kennecott Copper Corp. v. EPA, 612 F.2d 1232, 1242–43 (10th Cir. 1979) (holding that the EPA could regulate stormwater point source discharges if the mining companies collected the stormwater); United States v. Earth Sciences, Inc., 599 F.2d 368, 373 (10th Cir. 1979) (holding that the EPA could regulate point source activities in agriculture, silviculture, and mining); Marathon Oil Co. v. EPA, 564 F.2d 1253, 1274–75 (9th Cir. 1977) (holding that collected stormwater runoff was part of the discharge regulated through an oil platform's NPDES permit); Natural Res. Def. Council, Inc. v. Costle, 568 F.2d 1369, 1379 (D.C. Cir. 1977) (holding that the EPA must require NPDES permits for stormwater point sources); O'Leary v. Moyer's Landfill, Inc., 523 F. Supp. 642, 655 (E.D. Pa. 1981) ("Notwithstanding that it may result from such natural phenomena as rainfall and gravity, the surface run-off of contaminated waters, once channeled or collected, constitutes discharge by a point source."); United States v. Oxford Royal Mushroom Prods., Inc., 487 F. Supp. 852, 854 (E.D. Pa. 1980) (noting that while "uncollected surface runoff may, but does not necessarily, constitute discharge from a point source," the overspraying of waste water onto fields that then caused the runoff was a point source discharge).

207 Water Quality Act of 1987, Pub. L. No. 100-4, § 405, 101 Stat. 7, 69 (1987).

208 *Id*., as codified at 33 U.S.C. § 1341(p)(1) (1988).

209 *Id*., as codified at 33 U.S.C. § 1342(p)(2)(A)-(E) (1988).

210 *Id*. as codified at 33 U.S.C. § 1342(p)(3)(A) (1988).

the Administrator or the State determines appropriate for the control of such pollutants."[211] However, Congress progressively phased in permitting of all moratorium-exempt stormwater discharges, starting with the largest municipalities and industrial discharges, "in order to provide a sufficient period of time to develop and implement methods for managing and controlling discharges from municipal storm sewers."[212] Under these timetables, the EPA had two years to issue permit regulations for industrial dischargers and large municipal separate storm water systems (MS4s)—those facilities serving populations of 250,000 or more.[213] These dischargers did not have to apply for NPDES permits until February 4, 1990, with such permits to issue by February 4, 1991, and compliance achieved within three years of issuance.[214] For medium MS4s—those facilities serving populations of 100,000 to 250,000—the EPA had to issue stormwater permit regulations by February 4, 1991.[215] The relevant municipalities then had to apply for permits by February 4, 1992, with permits to issue by February 4, 1993, and compliance achieved within three years of issuance.[216] Congress also required the EPA to complete a study of stormwater discharges by October 1, 1988, and to submit its final report on that study to Congress one year later.[217] "After October 1, 1992, the permit requirements of the Clean Water Act are restored for municipal separate storm sewer systems serving a population of fewer than 100,000 persons."[218]

Notably, it is also clear from the Water Quality Act of 1987 that Congress understood the connection between urban runoff and ocean water quality. Specifically, the 1987 amendments created both the National Estuary Program and the marine estuary fund reservation.[219] The marine estuary reservation fund made funds available to states for water quality projects,

> two-thirds [of which] shall be available to address water quality problems of marine bays and estuaries subject to lower levels of water quality due to the impacts of discharges from combined storm water

211 *Id*., as codified at 33 U.S.C. § 1342(p)(3)(B)(ii), (iii) (1988).

212 *Section-by-Section Analysis: Hearing on Water Quality Act of 1987*, 100th Cong. 131 (1987) (statement of Hon. James J. Howard, Chairman of the House Committee on Public Works and Transportation).

213 Water Quality Act of 1987, Pub. L. No. 100-4, § 405, 101 Stat. 7 (1987), as codified at 33 U.S.C. § 1341(p)(4)(A) (1988).

214 *Id*.

215 *Id*., as codified at 33 U.S.C. § 1342(p)(4)(B).

216 *Id*.

217 *Id*., codified at 33 U.S.C. § 1342(p)(5) (1988).

218 *Section-by-Section Analysis*, *supra* note 212.

219 Pub. L. No. 100-4, §§ 210, 317, 101 Stat. 7, 21, 61 (1987), *codified as* 33 U.S.C. §§ 1285(*l*), 1330.

> and sanitary sewer overflows from adjacent urban complexes, and one-third [of which] shall be available for the implementation of section 1330 of this title, relating to the national estuary program.[220]

Thus, unlike the stormwater permits, the marine estuary fund specifically addressed *combined* sewer and stormwater systems and the overflows that often result when precipitation and runoff overwhelms such systems, dumping raw or partially treated sewage into the receiving waters.[221]

Through the national estuary program, in turn, Congress sought to protect estuaries of significance from all kinds of pollution sources, including both forms of urban runoff.[222] Once an estuary is selected for inclusion in the program,[223] the EPA holds a management conference in order to assess the overall water quality trends within the estuary, to "develop the relationship between the inplace loads and point and nonpoint loadings of pollutants to the estuarine zone and the potential uses of the zone, water quality, and natural resources," and to

> develop a comprehensive conservation and management plan that recommends priority corrective actions and compliance schedules addressing point and nonpoint sources of pollution to restore and maintain the chemical, physical, and biological integrity of the estuary, including restoration and maintenance of water quality, a balanced indigenous population of shellfish, fish and wildlife, and recreational

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220 33 U.S.C. § 1285*(l)*(2) (2000); *see also* Clean Water Act § 205(*l*)(2) (referencing section 320 of the Act, which corresponds to U.S.C. title 1330).

221 The NPDES permit program now also addresses combined sewer overflows (CSOs). Clean Water Act § 402(q), 33 U.S.C. § 1342(q) (2000). CSOs have been the subject of a number of Clean Water Act cases. *See, e.g.*, Nw. Envtl. Advocates v. City of Portland, 56 F.3d 979, 983 (9th Cir. 1995) (holding that the City's NPDES permit covered its CSO events); Natural Res. Def. Council, Inc. v. EPA, 790 F.2d 289, 307–08 (3d. Cir. 1986) (holding that the EPA could not ignore CSO events when calculating the amount of toxic waste that POTWs can remove from effluent); Montgomery Envtl. Coal. v. Costle, 646 F.2d 568 (D.C. Cir. 1980) (generally discussing a dispute regarding whether the CSO discharge outfalls were part of a POTW); Illinois v. City of Milwaukee, 599 F.2d 151, 171–72 (7th Cir. 1979) (holding that the Clean Water Act's prohibition of "discharges of pollutants" implicitly prohibited CSOs); Upper Chattahoochee Riverkeeper Fund v. City of Atlanta, 98 F. Supp. 2d 1380, 1384–86 (N.D. Ga. 2000) (holding that a dry weather CSO event violated the Clean Water Act).

222 An "estuary," for purposes of this program, is "all or part of the mouth of a river or stream or other body of water having unimpaired natural connection with the open sea and within which the sea water is measurably diluted with fresh water derived from land drainage." Clean Water Act § 104(n)(3), 33 U.S.C. § 1254(n)(3) (2000) (as referenced by Clean Water Act § 320(k), 33 U.S.C. § 1330(k) (2000)).

223 State governors nominate estuaries within their borders to the EPA to be considered "an estuary of national significance," Clean Water Act § 320(a)(1), 33 U.S.C. § 1330(a)(1) (2000), or the EPA can select any estuary for inclusion in the program if that estuary "requires the control of point and nonpoint sources of pollution to supplement existing controls of pollution in more than one State." Clean Water Act § 320(a)(2)(A), 33 U.S.C. § 1330(a)(2)(A) (2000). Congress itself included a list of 17 estuaries to which the EPA was to give "priority consideration." Clean Water Act § 320(a)(2)(B), 33 U.S.C. § 1330(a)(2)(B) (2000).

activities in the estuary, and assure that the designated uses of the estuary are protected.[224]

Once the EPA approves the management plan,[225] grants are available to state, interstate, and regional agencies, and to "other public or nonprofit private agencies, institutions, organizations, and individuals" to implement the plan, up to fifty percent of the annual aggregate costs.[226]

The national estuary program thus provides states and the EPA with a mechanism for comprehensively addressing estuarine water quality, including both point and nonpoint forms of urban runoff. Currently, the National Estuary Program covers twenty-eight estuaries, concentrated on the west, Gulf, and northeast coasts of the United States.[227] In addition, the Clean Water Act explicitly mandates similar management for Chesapeake Bay.[228]

California is home to three of the six National Estuaries on the west coast—San Francisco Bay, Morro Bay, and Santa Monica Bay.[229] These three estuaries illustrate the often close connection between urban runoff and coastal water quality protections. Urban runoff and urban discharges are a priority issue for the Morro Bay National Estuary,[230] and "one of the main goals" of the Santa Monica Bay National Estuary Program is "to address public concerns regarding potential health risks . . . . [of] storm drain runoff contain[ing] pathogens and viruses."[231]

3. Implementation of Stormwater Permitting after 1987

On November 16, 1990, the EPA published its Phase I

224 Clean Water Act §§ 320(b)(1)-(4), 33 U.S.C. §§ 1330(b)(1)-(4) (2000).

225 *See* Clean Water Act § 320(f)(1), 33 U.S.C. § 1330(f)(1) (2000). Links to the current management plans are available at EPA, Office of Wetlands, Oceans, and Watersheds, *Comprehensive Conservation and Management Plans*, http://www.epa.gov/owow/estuaries/ccmp/index.htm (last visited Apr. 1, 2006).

226 Clean Water Act § 320(g), 33 U.S.C. § 1330(g) (2000).

227 EPA, Office of Wetlands, Oceans, and Watersheds, *Which Estuaries are in the NEP?*, http://www.epa.gov/owow/estuaries/find.htm (last visited Apr. 1, 2006).

228 *See* Clean Water Act § 117, 33 U.S.C. § 1267 (2000). The home page for the Chesapeake Bay Program is located at http://www.chesapeakebay.net/ (last visited Mar. 20, 2006).

229 *See* EPA, Office of Wetlands, Oceans, and Watersheds, *Programs on the West Coast*, http://www.epa.gov/owow/estuaries/programs/pac.htm (last visited Apr. 1, 2006).

230 *See generally* EPA, Office of Wetlands, Oceans, and Watersheds, *Morro Bay*, http://www.epa.gov/owow/estuaries/programs/morro.htm (last visited Apr. 1, 2006).

231 EPA, Office of Wetlands, Oceans, and Watersheds, *Santa Monica Bay*, http://www.epa.gov/owow/estuaries/programs/smb.htm (last visited Apr. 1, 2006). The problem of urban runoff is more oblique in San Francisco Bay, one of the first National Estuaries, but human population growth in the cities surrounding the Bay is clearly a problem for the estuary. EPA, Office of Wetlands, Oceans, and Watersheds, *San Francisco Estuary: San Francisco Estuary Project*, http://www.epa.gov/owow/estuaries/programs/sfe.htm (last visited Apr. 1, 2006).

stormwater permitting rules,[232] almost two years late for large MS4s and the eleven categories of industrial activity that the rules addressed but on time for medium MS4s, which the rules also addressed.[233] Under the Phase I rules, over 100,000 industrial facilities and about 850 municipalities received NPDES stormwater permits.[234]

As noted, Congress originally envisioned the moratorium for other stormwater discharges ending on October 1, 1992.[235] However, as that deadline approached, both Congress and the EPA sought extensions in order to cope with the enormous task of addressing all other stormwater discharges. In 1991, Congress allowed the EPA generally to extend municipal permit application deadlines for municipalities' industrial discharges.[236] In 1992, Congress extended the original October 1, 1992, deadline to October 1, 1994.[237] As the House Report explained:

> For a variety of reasons, the section 402(p) regulatory program has taken longer to establish and implement than Congress envisioned. As numerous public officials and water quality experts have testified, most states and EPA are not ready to establish permitting programs for phase II discharges.
>
> Hearings throughout the 102d Congress by the Subcommittee on Water Resources, including an April 25, 1991 hearing specifically on stormwater regulations, have highlighted EPA's and the states' need for more time to develop reasonable, workable approaches to stormwater discharges. EPA and others are particularly concerned about the scope and complexity of the phase II program. By some estimates, a phase II program could include tens of thousands of currently unregulated municipalities and a million or more currently unregulated facilities (such as certain industrial and commercial facilities). EPA and the states simply will not be in a position to regulate phase II discharges by October 1, 1992.[238]

The EPA began its Phase II stormwater permit regulations in 1995,[239] but the final Phase II stormwater regulations did not

232 National Pollutant Discharge Elimination System Permit Application Regulations for Storm Water Discharge, *supra* note 44.

233 *See* EPA, Office of Water, *Phases of the NPDES Stormwater Program*, http://cfpub.epa.gov/npdes/stormwater/swphases.cfm (last visited Apr. 1, 2006).

234 EPA, OFFICE OF WATER, EPA 833-R-96-008, OVERVIEW OF THE STORM WATER PROGRAM 1, 4 (1996), *available at* http://www.epa.gov/npdes/pubs/owm0195.pdf (last visited Apr. 1, 2006).

235 Claudia Copeland, Stormwater Permits: Status of EPA's Regulatory Program 1, 4 (2005), *available at* http://www.ncseonline.org/nle/crsreports/05aug/97-290.pdf.

236 Intermodal Surface Transportation Efficiency Act of 1991, Pub. L. No. 102-240, § 1068, 105 Stat. 1914, 2007–08 (1991) (codified as amended at 33 U.S.C. § 1342(b)(1) (2000)).

237 Water Resources Development Act of 1992, Pub. L. No. 102-580, § 364(1), 106 Stat. 4797, 4862 (1992) (codified as amended at 33 U.S.C. § 1342(p) (2000)).

238 H.R. REP. NO. 102-921 at 2 (1992).

239 Amendment to Requirements for National Pollutant Discharge Elimination Sys-

appear until 1999.[240] These regulations "automatically cover[ed] on a nationwide basis all small MS4s located in 'urbanized areas' (UAs) . . . and on a case-by-case basis those small MS4s located outside of UAs that the NPDES permitting authority designates."[241] The regulations also extend the stormwater permitting program to construction activities that disturb one to five acres of land.[242] The regulations impose three general requirements on covered small MS4s, which those MS4s generally achieve through the application of best management practices (BMPs): (1) "[r]educe the discharge of pollutants to the 'maximum extent practicable' (MEP)"; (2) "[p]rotect water quality"; and (3) "[s]atisfy the appropriate water quality requirements of the Clean Water Act."[243]

As is true of most NPDES permits, states now issue most of the stormwater NPDES permits. During Phase I, for example, California issued two types of stormwater permits: "[m]unicipal permits for separate storm sewer systems located in urban areas with populations of 100,000 or more," and state-wide general permits for ten categories of industrial activities and for construction projects that impacted five acres or more.[244]

IV. PROTECTING OCEAN WATER QUALITY THROUGH STORMWATER NPDES PERMITS

None of the EPA's regulatory pronouncements for the stormwater permit program contain any special provisions for stormwater discharges into the marine waters, although the EPA did note in 1990 that, regarding sources of impairment "for estuaries, 28% [of pollutants came] from separate storm sewers and 27% from land disposal; and for coastal areas, 20% from separate storm sewers and 29% from land disposal."[245] Nevertheless, the advantage that the Clean Water Act provides over the CZMA in protecting ocean water quality is the many enforceable mecha-

tem (NPDES) Permits for Storm Water Discharge Under Section 402(p)(6) of the Clean Water Act, 60 Fed. Reg. 40,230 (Aug. 7, 1995) (codified as amended at 40 C.F.R. pts. 122, 124).

240 Phase II Stormwater Regulations, *supra* note 239.

241 EPA, OFFICE OF WATER, EPA 833-F-00-002, STORM WATER PHASE II FINAL RULE: SMALL MS4 STORMWATER PROGRAM OVERVIEW, *supra* note 89, at 1.

242 EPA, Office of Water, *Phases of the NPDES Stormwater Program*, *supra* note 233.

243 EPA, OFFICE OF WATER, EPA 833-F-00-002, STORM WATER PHASE II FINAL RULE: SMALL MS4 STORMWATER PROGRAM OVERVIEW, *supra* note 89, at 1.

244 CAL. REG'L WATER QUALITY CONTROL BD.: LOS ANGELES REGION (4), WATER QUALITY CONTROL PLAN: LOS ANGELES REGION: BASIN PLAN FOR THE COASTAL WATERSHEDS OF LOS ANGELES AND VENTURA COUNTIES, 4-22 (1995), *available at* http://www.epa.gov/ost/standards/wqslibrary/ca/ca_9_los_angeles.pdf [hereinafter LOS ANGELES BASIN PLAN].

245 National Pollutant Discharge Elimination System Permit Application Regulations for Stormwater Discharges, *supra* note 44, at 47,991.

nisms that the Clean Water Act provides to ensure that the most basic standards for ocean water quality are met. For example, like sewage treatment plants discharging into the ocean, urban stormwater discharges subject to the Clean Water Act's NPDES permit requirement must comply with the section 403 ocean discharge criteria when those discharges occurs directly into the territorial sea or the ocean.[246] Currently, ten stormwater discharges must comply with the ocean discharge criteria.[247]

More importantly, urban stormwater discharges governed by the NPDES permit program are also subject to all of the Act's provisions that connect point source discharge requirements to the attainment of ocean water quality standards.[248] These provisions can result in more stringent discharge limitations than the standard effluent limitations and ocean discharge criteria would otherwise require.[249]

A. Section 303 Water Quality Standards

1. Clean Water Act Water Quality Standard Requirements

Despite the technology-based effluent limitations, the Clean Water Act also requires an NPDES permit to include "any more stringent limitation" that is "required to implement any applicable water quality standard established pursuant to this chapter."[250] Under section 303, the states retain their pre-1972 authority to set water quality standards for the waters within their borders. According to the current Act, a

> water quality standard shall consist of the designated uses of the navigable waters involved and water quality criteria for such waters based upon such uses. Such standards shall be such as to protect the public health or welfare, enhance the quality of water and serve the purposes of this Act. Such standards shall be established taking into consideration their use and value for public water supplies, propagation of fish and wildlife, recreational purposes, and agricultural, industrial, and other purposes, and also taking into consideration their use and value for navigation.[251]

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246 EPA, Office of Wetlands, Oceans, and Watersheds, *Ocean Discharge Criteria*, *supra* note 166.

247 EPA, Office of Wetlands, Oceans, and Watersheds, *Ocean Regulatory Programs: Table 1. Types of NPDES Permitted Ocean Dischargers*, http://www.epa.gov/owow/oceans/regulatory/criteriatable1.html (last visited Apr. 1, 2006).

248 *See* EPA, Office of Wetlands, Oceans, and Watersheds, *Ocean Discharge Criteria*, *supra* note 166.

249 *See* discussion *infra* Part IV.B-D.

250 33 U.S.C. § 1311(b)(1)(C) (2000); *see also* Clean Water Act § 301(b)(1)(C) (using the word "Act" instead of chapter).

251 Clean Water Act § 303(c)(2)(A); *see also* 33 U.S.C. § 1313(c)(2)(A) (2000) (using the term "chapter" in place of "Act").

Thus, the state water quality standards establish the ambient water quality goals that the regulation of discharges into any particular body of water is supposed to achieve. The standards also specify the uses that the state wants the body of water to be able to support, and the water quality criteria specifying the levels of water quality necessary to support those designated uses. In addition, as part of its water quality standards program, the state must adopt an antidegradation policy to limit its ability to degrade the existing condition of its waters.[252]

The EPA reviews the submitted standards for consistency with the Act and is charged with promulgating water quality standards for the state if the state will not correct its own standards.[253] However, most states, including California, have enacted their own water quality standards.[254]

2. The 2000 Pathogen Water Quality Standards Requirement

The Clean Water Act makes clear that the section 303 water quality standards should define the ambient water quality goals for the first three miles of marine waters—that is, the territorial sea.[255] Both the states and the EPA Administrator have a general duty to prepare water quality standards for the "navigable waters," which include the territorial sea.[256] Moreover, in 2000, Congress emphasized the role of water quality standards in the territorial sea by amending section 303 to address the problem of disease-causing organisms—some of the causes of beach closures—in coastal waters used for recreation.[257] Under these new requirements, the EPA had to establish water quality criteria for

252 40 C.F.R. § 131.12 (2004).

253 Clean Water Act § 303(a)(3)(C), 33 U.S.C. § 1313(a)(3)(C) (2000) ("If the Administrator determines that any such standards are not consistent with the applicable requirements of this Act . . . he shall . . . notify the State and specify the changes to meet such requirements.").

254 *See*, *e.g.*, EPA, Office of Water, *Repository of Documents: California*, http://www.epa.gov/ost/standards/wqslibrary/ca/ca.html (last visited Apr. 1, 2006) (providing access to California's water quality documents, including its various collections of water quality standards).

255 *See* Clean Water Act §§ 303 (c)(2)(A), (c)(4), 33 U.S.C. § 1313(c)(2)(A), (c)(4) (2000) (requiring water quality standards to consist of criteria for "navigable waters"); Clean Water Act §§ 301(a) (prohibiting the "discharge of any pollutants"), 502(12) (defining "discharge of a pollutant" to include additions of pollutants into the navigable waters), 502(7) (defining "navigable waters" to include the territorial sea), 502(8) (defining "territorial sea" to be the first three miles of ocean waters), 33 U.S.C. §§ 1311(a), 1362 (12), (7), (8) (2000).

256 Clean Water Act §§ 303(c)(2)(A), (c)(4), 33 U.S.C. § 1313(c)(2)(A), (c)(4) (2000); *see also* 40 C.F.R. § 131.40 (2004) (promulgating water quality standards for Puerto Rico's territorial seas).

257 Beaches Environmental Assessment and Coastal Health Act of 2000, Pub. L. No. 106–284, § 2, 114 Stat. 870 (2000) (codified as Clean Water Act § 303(i), 33 U.S.C. § 1313(i) (2000)).

various ocean-borne pathogens and pathogen indicators, and coastal states then had to adopt water quality criteria and water quality standards for those disease-causing organisms.[258] The EPA must set such water quality standards for any coastal state that fails to do so.[259]

The new pathogen water quality standards requirement applies to "coastal recreation waters," which are the Great Lakes and any "marine coastal waters (including coastal estuaries)" for which the state's designated uses include "swimming, bathing, surfing, or similar water contact activities."[260] Thus, application of this requirement depends on the state's designation of uses for its coastal waters. However, given the widespread use of southern California beaches for recreation, and given the relationship between urban runoff and coastal pathogen contamination, these new coastal recreational water quality standards are particularly important for addressing urban runoff problems in southern California.

3. California's Ocean Water Quality Standards

Wastewater discharges into the ocean are a significant part of California's NPDES permit program. In 1988, for example, there were approximately 8,500 point source dischargers in California, over one-third (roughly 2,900) of which discharged into the ocean.[261] Moreover, "[b]y volume, most of the waste discharge is to the ocean from the cities of San Diego and Los Angeles, Los Angeles County Sanitation District, Orange County Sanitation District, the city of San Francisco, and numerous other cities and special districts along the coast."[262]

In recognizing the significance of ocean discharges, the California Water Resources Control Board (CWRCB) promulgated water quality standards for California's oceans in its Ocean Plan.[263] The CWRCB originally adopted such standards in

258 Clean Water Act § 303(i)(1)(A), 33 U.S.C. § 1313(i)(1)(A) (2000).

259 *Id.*; *see also* 40 C.F.R. § 131.41 (2004) (providing for the establishment of bacteriological criteria for noncompliant states).

260 Clean Water Act § 502(21)(A), 33 U.S.C. § 1362(21)(A) (2000).

261 William R. Atwater & James Markle, Symposium, *Overview of California Water Rights and Water Quality Law*, 19 PAC. L.J. 957, 1001 (1988).

262 *Id.*

263 CAL. EPA, STATE WATER RES. CONTROL BD., WATER QUALITY CONTROL PLAN: OCEAN WATERS OF CALIFORNIA: CALIFORNIA OCEAN PLAN (2001), *available at* http://www.epa.gov/ost/standards/wqslibrary/ca/ca_9_wqcp_waters.pdf. "Ocean waters," for purposes of this Plan, "are the territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. [However,] [i]f a discharge outside the territorial waters of the State could affect the quality of the waters of the State, the discharge may be regulated to assure no violation of the Ocean Plan will occur in ocean waters." *Id.* at 25. The CWRCB has enacted a separate plan that establishes water quality standards for estuaries and

1972[264] and has amended them six times since, most recently in 2001.[265] The entire Ocean Plan applies to point source discharges to the ocean, while the beneficial uses, water quality objectives, and program of implementation apply to nonpoint sources.[266]

California's Ocean Plan states that:

> The beneficial uses of ocean waters of the State that shall be protected include industrial water supply; water contact and non-contact recreation, including aesthetic enjoyment; navigation; commercial and sport fishing; mariculture; preservation and enhancement of designed Areas of Special Biological Significance (ASBS); rare and endangered species; marine habitat; fish migration; fish spawning and shellfish harvesting.[267]

The water quality objectives, in turn, are designed "to ensure the reasonable protection of beneficial uses and the prevention of nuisance."[268] The bacterial water quality objectives, for example, establish average total coliform limits of 1,000 organisms per 100 milliliters of water, not to exceed 10,000 organisms per 100 millilters in any sample.[269] Fecal coliform, however, is limited to an average of 200 organisms per 100 milliliters based on at least five samples taken over thirty days, with less than ten percent of all samples in any sixty-day period exceeding 400 organisms per 100 milliliters.[270] However, in shellfish harvesting waters, only seventy organisms per 100 milliliters are allowed.[271] Other water quality objectives address physical characteristics such and solids and sediments; chemical characteristics such as dissolved oxygen, pH, organics, nutrients, and toxics, with separate toxic standards for protection of marine life, protection of human health from noncarcinogens, and protection of human health from carcinogens; and biological characteristics, such as a prohibition on the degradation of marine communities and on bioaccumulation of organic materials.[272] In addition, "[w]aste management systems that discharge to the ocean must be designed and operated in a manner that will maintain the indigenous marine life and a healthy and diverse marine community," and the discharge must be located to ensure that "[m]aximum protection is provided to the marine environment."[273] Finally, "[w]aste shall

enclosed bays.

264 *Id*. at Resolution No. 2000-108, ¶ 1.

265 *Id*.

266 *Id*. at 1, § C. Applicability, ¶ 1.

267 *Id*. at 3 (internal citations omitted).

268 *Id*. at 4 (internal citations omitted).

269 *Id*. (internal citations omitted).

270 *Id*.

271 *Id*. at 5.

272 *Id*. at 5–9.

273 *Id*. at 10.

not be discharged to areas designated as being of special biological significance."[274]

B. Connecting Ocean Water Quality Standards to Urban Runoff Stormwater Permits #1: Federal Consistency and Section 401 Certifications

Section 401 of the Clean Water Act is stronger than the CZMA's federal consistency requirement and essentially allows states to veto or condition federally authorized projects that cause point source discharges into the state's waters. Specifically, under section 401(a)(1),

> [a]ny applicant for a Federal license or permit to conduct any activity . . . which may result in any discharge into the *navigable waters*, shall provide the licensing or permitting agency with a certification from the State in which the discharge originates or will originate . . . that any such discharge will comply [with the Act's requirements].[275]

The federal agencies cannot issue the permit if the state denies the certification,[276] and states can condition the certification on conformity with specific requirements designed to ensure compliance with the Act,[277] including both the water quality criteria and the designated uses in the relevant state water quality standards.[278] In coastal waters, therefore, section 401 becomes one means by which states can ensure that their coastal water quality standards are met.

By its terms, the section 401 certification requirement applies only to discharges into the navigable waters.[279] In the ocean, therefore, this requirement is limited to federally permitted discharges into the territorial sea.[280] In California, this requirement has been most significant with respect to the EPA-issued section 301(h) waivers for sewage discharges into the ocean.[281]

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274 *Id*. at 19. The CWRCB has designated 34 ASBSs. *Id*. at 38–39. Discharges that could affect these areas "shall be located a sufficient distance from such designated areas to assure maintenance of natural water quality conditions in these areas." *Id*. at 19.

275 Clean Water Act § 401(a)(1), 33 U.S.C. § 1341(a)(1) (2000) (emphasis added).

276 *Id*.

277 Clean Water Act § 401(d), 33 U.S.C. § 1341(d) (2000).

278 *See, e.g.,* PUD No. 1 of Jefferson County v. Wash. Dept. of Ecology, 511 U.S. 700 (1994).

279 Clean Water Act § 401(a)(1), 33 U.S.C. § 1341(a)(1) (2000).

280 *See, e.g.,* Natural Res. Def. Council, Inc. v. EPA, 863 F.2d 1420, 1434–36 (9th Cir. 1988).

281 *See supra* Part III.C.2.a. Effluent Limitations and accompanying footnotes.

C. Connecting Ocean Water Quality Standards to Urban Runoff Stormwater Permits #2: Section 302 Water-Quality-Based Effluent Limitations

In a typical NPDES permit, technology-based effluent limitations dictate the majority of the discharge requirements for point sources.[282] However, if the discharge

> would interfere with the attainment or maintenance of that water quality in a specific portion of the navigable waters which shall assure protection of public health, public water supplies, agricultural and industrial uses, and the protection and propagation of a balanced population of shellfish, fish and wildlife, and allow recreational activities in and on the water . . . [283]

the NPDES permit must include more stringent water-quality-related effluent limitations to ensure that these uses are protected.

The section 302 water-quality-based effluent limitations apply only when point source discharges interfere with the water quality of the *navigable waters*.[284] Therefore, the section 302 requirement applies to point source discharges into inland waters and the territorial sea, but *not* to discharges into the contiguous zone or the ocean more than three miles out to sea.

Nevertheless, coverage of the territorial sea is sufficient to protect much of the quality of coastal waters. For example, California must adjust the effluent limitations and other requirements in any stormwater NPDES permit to ensure that its ocean water quality standards are being met, a requirement that can become particularly important when stormwater discharges are associated with pathogens and public health risks.

D. Connecting Ocean Water Quality Standards to Urban Runoff Stormwater Permits #3: Coastal Water Quality Standards and TMDLs

The Act's primary mechanism for connecting water quality standards and NPDES permit requirements is the TMDL requirement.[285] Under section 303 of the Act, "[e]ach State shall identify those waters within its boundaries for which the [technology-based] effluent limitations . . . are not stringent enough to implement any water quality standard applicable to such waters" and then rank those waters in order of priority, "tak[ing] into ac-

282 Clean Water Act § 302(a), 33 U.S.C. § 1312(a) (2000).
283 *Id.*
284 *Id.*
285 *See* Clean Water Act §§ 303(d)(1)(A)–(C), 33 U.S.C. §§ 1313(d)(1)(A)–(C) (2000).

count the severity of the pollution and the uses to be made of such waters."[286] The state then sets TMDLs for specific pollutants for each water on the list, "at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality."[287] The TMDL represents the total amount of a given pollutant that can be added to the water body in a set unit of time without violating the applicable water quality standard.

Under Section 303, permitting agencies must modify the effluent limitations included in Clean Water Act NPDES permits to implement the established TMDL.[288] Moreover, until the water body attains its water quality standards, effluent limitations based on the TMDL

> may be revised only if (i) the cumulative effect of all such revised effluent limitations based on such total maximum daily load or waste load allocation will assure the attainment of such water quality standard, or (ii) the designated use which is not being attained is removed in accordance with regulations established under this section.[289]

V. CONCLUSION: BRINGING IT ALL TOGETHER IN SANTA MONICA BAY

Santa Monica Bay provides an excellent example of how the various Clean Water Act programs can come together to address coastal water pollution from urban runoff. Under California's system of water quality management, the Los Angeles Regional Water Quality Control Board (Region 4) implements water quality requirements for Santa Monica Bay, which "dominates a large portion of the Region's open coastal waters."[290] In terms of beneficial uses, "these coastal waters provide habitat for marine life and are used extensively for recreation, boating, shipping, and commercial and sport fishing."[291] In addition, as noted, the Santa Monica Bay estuary is of such national significance that it was designed a National Estuary in 1988, one year after Congress enacted the National Estuary Program.[292]

However, urban stormwater is and has been a major water

286 Clean Water Act § 303(d)(1)(A), 33 U.S.C. § 1313(d)(1)(A) (2000).
287 Clean Water Act § 303(d)(1)(C), 33 U.S.C. § 1313(d)(1)(C) (2000).
288 *See* Clean Water Act § 303(d), 33 U.S.C. § 1313(d) (2000).
289 Clean Water Act § 313(d)(4)(A), 33 U.S.C. § 1313(d)(4)(A) (2000).
290 LOS ANGELES BASIN PLAN, *supra* note 244, at 1-21.
291 *Id*. at 2-4.
292 EPA, Office of Wetlands, Oceans, and Watersheds, *Santa Monica Bay*, *supra* note 231.

quality problem for Santa Monica Bay. The entire region is impacted by "[m]unicipal and industrial wastewater discharges" and "[n]onpoint source runoff (urban and agricultural runoff in particular)."[293] "More than 1,000 miles of storm drains beneath the streets of Los Angeles collect runoff from city streets, eventually dumping this flow into streams and coastal waters."[294] Similarly, "[t]he City of Santa Monica, California . . . has over 2000 catch basins and 64 storm drain lines running to 5 outfalls that empty directly into the Santa Monica Bay and the Pacific Ocean."[295] Urban runoff problems have been so significant for so long in this region that in 1990, Los Angeles County applied for and received an "early" stormwater permit, which covered several cities in the County and provided that they would come into compliance with the NPDES permit requirements in three phases over three years.[296] In addition, when a health study in 1995 confirmed that pathogens coming from storm drain runoff were still impairing water quality in the Bay and posing health risks to swimmers,[297] the Santa Monica Bay Restoration Project (SMBRP) "initiated one of the first stormwater runoff permit programs in the nation in order to reduce the amount of pollution entering the bay."[298] With the promulgation of the Phase II stormwater permit regulations, "all stormwater runoff to [Santa Monica Bay] beaches is regulated as a point source."[299] In other words, all urban runoff that can impair Santa Monica Bay is now subject to the Clean Water Act's broader water quality requirements as well as to the NPDES permitting requirements.

Compliance with the Los Angeles County and other stormwater NPDES permits required the covered cities to enact stormwater management programs. As one example, the City of Santa Monica sought to address urban runoff into the Bay through a variety of mechanisms. To address a broad range of activities that produce and pollute urban runoff, it enacted its Storm Water Ordinance,[300] which imposes general good house-

293 LOS ANGELES BASIN PLAN, *supra* note 244, at 1-22.

294 *Id*. at 4-40.

295 Roland Wall, *supra* note 46 (citing EPA, OFFICE OF WATER, RESULTS OF THE NATIONAL URBAN RUNOFF PROGRAM: VOLUME 1—FINAL REPORT (1983)).

296 LOS ANGELES BASIN PLAN, *supra* note 244, at 4-22.

297 EPA, Office of Wetlands, Oceans, and Watersheds, *Santa Monica Bay*, *supra* note 231.

298 *Id*.

299 CAL. REG'L WATER QUALITY CONTROL BD., LOS ANGELES REGION, RESOLUTION NO. 2002-022, ATTACHMENT A (Dec. 12, 2002), *available at* http://www.epa.gov/ost/standards/wqslibrary/ca/ca_9_reg4bactimp.pdf.

300 SANTA MONICA, CA., MUNICIPAL CODE OF ORDINANCES §§ 7.10.010 - 7.10.090 (1992). The ordinance makes clear that it fulfills Santa Monica's obligations as a co-permittee on the NPDES permit. *Id*. § 7.10.010(c).

keeping requirements on a variety of activities,[301] urban runoff reduction requirements for new development,[302] and urban runoff requirements for construction sites.[303] The City enforces these requirements through notices, penalties of up to $100.00 per day of violation, and injunctions.[304] Santa Monica also addresses city-controlled urban runoff through a variety of means. For example, stormwater runoff at the city's bus washing facility "and the surrounding parking lot drains into two large sub-surface infiltration basins, removing stormwater pollutants and recharging groundwater."[305] The City has installed permeable pavement in some areas of the city, and "[i]nfiltration pits, porous concrete, bioswales, and French drains were also installed on City property to reduce runoff."[306] In addition, in April 1999, the City and Los Angeles began building the Santa Monica Urban Runoff Recycling Facility (SMURRF), which was completed in December 2000. The facility can divert approximately 500,000 gallons per day from the storm sewers of Los Angeles and Santa Monica for treatment to remove pollutants, with the treated water becoming available for re-use.[307]

Nevertheless, such stormwater permitting and urban runoff control measures have not been sufficient to ensure that waters of Santa Monica Bay meet the applicable water quality standards, especially the pathogen water quality standards and especially during storms. For example, "[d]uring rain events, SMURRF is inoperable and stormwater runoff is discharged to Santa Monica Bay."[308]

As a result, restoration and protection of the Bay's water quality is now shifting to the Clean Water Act's other water quality protection mechanisms.

> Many of the beaches along Santa Monica Bay were listed on California's 1998 section 303(d) list, due to impairments for coliform or for beach closures associated with bacteria generally. The beaches appeared on the 303(d) list because the elevated bacteria and beach clo-

301 *Id*. § 7.10.040.

302 *Id*. § 7.10.060.

303 *Id*. § 7.10.070.

304 *Id*. §§ 7.10.050(a)(1), (a)(2).

305 EPA, Office of Water, *Stormwater Case Studies Search Results: Urban Runoff BMPs for Municipal Facilities, Santa Monica, California*, http://cfpub.epa.gov/npdes/stormwater/casestudies_specific.cfm?case_id=2&CFI (last visited Apr. 1, 2006).

306 *Id*.

307 *Id*. According to the EPA, SMURRF "treats an average of 350,000 gallons per day of dry-weather urban runoff for reuse in Santa Monica. Approximately 50% of the dry weather flows originate in the City of Los Angeles, which is an equal partner in this project." EPA, Office of Water, *Stormwater Case Studies Search Results: Urban Runoff BMPs for Municipal Facilities, Santa Monica, California*, *supra* note 305.

308 *Id*.

> sures prevented full support of the beaches' designated use for water contact recreation (REC-1).[309]

Litigation followed the 1998 303(d) list, resulting in a March 1999 consent decree that required TMDLs for the entire Los Angeles region within thirteen years and a bacteria TMDL for Santa Monica Bay by March 2002.[310]

The Regional Water Quality Control Board for the Lost Angeles Region issued its bacteria TMDL for Santa Monica Bay on December 12, 2002, covering forty-four beaches.[311] "The Regional Board's goal in establishing the . . . TMDL is to reduce the risk of illness associated with swimming in marine waters contaminated with bacteria."[312] Specifically, the TMDL seeks to ensure "that the risk of illness to the public from swimming at Santa Monica Bay beaches generally will be no greater than 19 illnesses per 1,000 swimmers, which is defined by the US EPA as an 'acceptable health risk' in marine recreational waters."[313]

The Los Angeles Region will implement the Santa Monica Bay wet weather bacteria TMDL over ten years.[314] It identifies stormwater as the primary source of the bacteria.[315] Each POTW covered by the TMDL has received a waste load allocation of zero days of exceedance of the bacteria standards, and, because there are no nonpoint source urban runoff problems, the load allocation is also zero days of exceedance.[316] As a result, compliance with the TMDL will be achieved primarily by adjusting the requirements of the stormwater NPDES permits governing urban runoff from the surrounding cities.[317]

Santa Monica Bay has thus benefited from the evolution of the Clean Water Act's applicability to ocean water quality. Improvement of the Bay's water quality has evolved from basic sewage treatment regulation[318] through standard NPDES per-

309 CAL. REG'L WATER QUALITY CONTROL BD., LOS ANGELES REGION, RESOLUTION NO. 2002-022, *supra* note 299, at ¶ 4.

310 *Id*. at ¶ 5.

311 *Id*. at ¶ 8.

312 *Id*. at ¶ 10.

313 *Id*. (internal citation omitted).

314 *Id*. at ¶ 16.

315 *Id*. Attachment A, at 4.

316 *Id*. Attachment A, at 5–6.

317 *Id*. Attachment A, at 6.

318 *See* California v. City of Los Angeles, 189 P.2d 489, 491 (Cal. App. 1948) (noting that it was widely known by contaminating cities and their sanitation departments that contamination of the beaches surrounding Santa Monica Bay by sewage from Los Angeles was occurring, and requiring the Los Angeles sewage treatment facilities to get a permit); California v. City of Los Angeles, 325 P.2d 639, 642 (Cal. App. 1958) ("The facts alleged in the first cause of action [in which plaintiffs seek an injunction to stop Los Angeles from polluting Santa Monica Bay's waters], if true, disclose the existence of a public nuisance of the most serious character, endangering the health and comfort of the inhabitants of

mitting to stormwater permitting of urban runoff and TMDLs. One hopes that by implementing the TMDL, urban runoff permitting will finally result in achieving the Clean Water Act's primary goal: attaining California's ocean water quality standards while at the same time protecting public health.

[Santa Monica], created by the city of Los Angeles . . . .").