

**ADMINISTRATIVE UPDATE OF THE *WATER QUALITY CONTROL PLAN FOR  
THE LOS ANGELES REGION* – CHAPTER 2 “BENEFICIAL USES”**

**DRAFT STAFF REPORT**

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, LOS ANGELES REGION

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## EXECUTIVE SUMMARY

The *Water Quality Control Plan for the Los Angeles Region* (Basin Plan) is the Regional Board's master water quality control planning document for the coastal watersheds of Los Angeles and Ventura Counties. The Basin Plan contains the region's water quality standards, which consist of beneficial uses, water quality objectives to protect those uses, and an anti-degradation policy along with a program of implementation, and non-regulatory descriptions of the region covered by the plan. The current Basin Plan was adopted by the Regional Board on June 13, 1994, and approved by the State Water Resources Control Board on November 17, 1994 and by the State Office of Administrative Law on February 23, 1995. Since then, several Basin Plan amendments have been adopted and more current background and geographical information has become available. These changes have yet to be reflected in the Basin Plan.

Recognizing the importance of a current planning document, an administrative update of the Basin Plan was identified as a priority project to be addressed during the most recent triennial review (Resolution No. R10-001). The administrative update is being conducted in phases, the first of which covers the update of Chapter 2 of the Basin Plan. Chapter 2 "Beneficial Uses" lists and provides standard definitions for the beneficial uses assigned to waterbodies in the Los Angeles Region. This chapter also contains beneficial use tables in which major surface waters, groundwater basins, coastal features, and wetlands are listed - each with their assigned hydrologic unit, and designated beneficial uses. Detailed maps of these features are included in this chapter.

The amendments to Chapter 2 update the surface water, groundwater, and coastal features maps contained in Figures 2-1 to 2-22 of Chapter 2. These updated maps are created from more current, higher resolution data sets that possess greater accuracy and complexity, and offer better ways to process and display data. In addition, the updated maps reflect changes in reach boundaries as a result of total maximum daily loads (TMDLs) and other Basin Plan amendments. The amendments also update the Beneficial Use Tables (Tables 2-1 to 2-4) in Chapter 2 to align them with the higher resolution maps, and to reflect reach name changes that have occurred as a result of TMDLs and other Basin Plan amendments. Information from the higher resolution geographical data sets has allowed the identification of previously unnamed waterbodies. These waterbodies have been included in the tributary table contained in Appendix 1 of the Basin Plan. Finally, as part of the update, the language from three previously adopted amendments to beneficial uses (Regional Board Resolution No. 98-018, Regional Board Resolution No. 2003-010 and State Board Resolution No. 2005-0015) has been incorporated into Chapter 2 of the Basin Plan.

This update to Chapter 2 of the Basin Plan is non-regulatory in nature and does not involve changes to beneficial use definitions. Neither does it assign, modify, or delete beneficial uses to any surface or ground waters within the Los Angeles region. It is part of a multi-step plan to administratively update the entire Basin Plan. Any regulatory updates to Chapter 2 of the Basin Plan will be addressed in the future as a separate Board action.

## TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY</b> .....	<b>1</b>
<b>I. PREVIOUSLY ADOPTED AMENDMENTS TO BENEFICIAL USES SINCE 1994</b> .....	<b>3</b>
Reconsideration of the Municipal Beneficial Use of Selected Ground Waters.....	3
Limited Water Contact Recreation .....	3
Suspension of Recreational Uses during High-Flow Conditions .....	4
<b>II. BACKGROUND ON GEOGRAPHIC DATA</b> .....	<b>5</b>
Geographic Information System (GIS) Technology and the Basin Plan .....	5
Surface Water GIS Data .....	5
The Hydrologic Classification System.....	6
Groundwater GIS Data .....	7
<b>III. UPDATING SURFACE WATER FEATURES</b> .....	<b>8</b>
GIS Editing—Streams .....	8
GIS Editing—Watersheds.....	10
GIS Editing—Lakes .....	11
GIS Editing—Wetlands.....	11
<b>IV. UPDATING GROUNDWATER BASINS</b> .....	<b>12</b>
GIS Editing—Groundwater Basins.....	12
<b>V. UPDATING MAPS AND BENEFICIAL USE TABLES FOR SURFACE WATER, GROUNDWATER AND COASTAL FEATURES</b> .....	<b>14</b>
Basin Plan Map Updates.....	14
Basin Plan Tables Update .....	14
<b>REFERENCES</b> .....	<b>16</b>

## **I. PREVIOUSLY ADOPTED AMENDMENTS TO BENEFICIAL USES SINCE 1994**

Since the adoption of the Basin Plan in 1994, three amendments to beneficial uses have been adopted. While these amendments have been in effect for some time, they have not been physically integrated into the Basin Plan.

### *Reconsideration of the Municipal Beneficial Use of Selected Ground Waters*

In November 1998, the Regional Board adopted an amendment to the Basin Plan that removed the Municipal and Domestic (MUN) beneficial use designation from two areas of the West Coast Basin and eight channelized surface waters. This amendment also assigned additional beneficial uses to three surface waters, and removed the cold freshwater habitat (COLD) from portions of three surface water bodies. The amendment was approved by the State Water Resources Control Board (State Board Resolution No. 99-020) but subsequently disapproved by the Office of Administrative Law in July 1999 on the grounds that the proposed amendments to beneficial uses of the surface water did not meet OAL standards for approval. However, OAL did find that the two areas of the West Coast groundwater basin met the requirements for dedesignation of the municipal beneficial use.

In December 1999, State Board re-submitted modified regulatory provisions of the amendment to the Regional Board's Basin Plan, which only contained modifications to the municipal beneficial use of the two areas in the West Coast Groundwater Basin. This was approved by OAL in February 2000.

The two areas in the West Coast Groundwater Basin that had their MUN beneficial use removed are described in Regional Board Resolution No. 98-018 as follows:

- a. *The West Basin portion of the Los Angeles Coastal Plain underlying the Chevron Refinery in El Segundo and nearby areas, as defined by the Pacific Ocean to the west, Imperial Highway to the north, Sepulveda Boulevard to the east, and Valley Boulevard and 15<sup>th</sup> Street to the south; and*
- b. *The West Basin portion of the Los Angeles Coastal Plain underlying Terminal Island and portions of the Los Angeles and Long Beach Harbors, defined as seaward of the line formed by Shoshonean Road, Via Cabrillo Marina, West 22<sup>nd</sup> Street, Crescent Avenue, Harbor Boulevard, the Terminal Island Freeway (47), Pacific Avenue, John S. Gibson Avenue, "B" Street, Alameda Street, Anaheim Street, the Long Beach Freeway (710), and Shoreline Drive to the Eastern end of the Downtown Long Beach Marina.*

### *Limited Water Contact Recreation*

In June 2003, the Regional Board rejected proposed amendments to the Basin Plan to modify the recreational beneficial uses of Reaches 1 and 2 of Ballona Creek – a watershed within the Santa Monica Bay Watershed Management Area. The Regional Board's action was later reviewed by the State Water Board, and determined to have been in error. The State Water Board subsequently adopted the proposed amendments through State Water Board Resolution No. 2005-0015, thereby adding a subcategory of water contact recreation (REC-1) to the Basin Plan. This sub-category, Limited Water Contact Recreation (LREC-1), was defined as follows:

*Uses of water for recreational activities involving body contact with water, where full REC-1 use is limited by physical conditions such as very shallow water depth and restricted access and, as a result, ingestion of water is incidental and infrequent.*

This new beneficial use was applied to Reach 2 of Ballona Creek, while the swimming component of the potential REC-1 use was removed from both Reach 1 and 2 of Ballona Creek. These amendments are detailed in the Basin Plan amendment language in the attachment to State Water Board Resolution No. 2005-0015, which is available on the Regional Board's website at [http://63.199.216.6/larwqcb\\_new/bpa/docs/2003-XXX/2003-XXX\\_SB\\_RSL1.pdf](http://63.199.216.6/larwqcb_new/bpa/docs/2003-XXX/2003-XXX_SB_RSL1.pdf)

#### *Suspension of Recreational Uses during High-Flow Conditions*

In July 2003, the Regional Board adopted an amendment to the Basin Plan incorporating the suspension of recreational beneficial uses in engineered channels during unsafe wet weather conditions (Regional Board Resolution No. R03-010). This amendment defined the conditions under which the suspension would apply as follows:

*The High Flow Suspension shall apply to water contact recreational activities associated with the swimmable goal as expressed in the federal Clean Water Act section 101(a)(2) and regulated under the REC-1 use, non-contact water recreation involving incidental water contact regulated under the REC-2 use, and the associated bacteriological objectives set to protect those activities. Water quality objectives set to protect (1) other recreational uses associated with the fishable goal as expressed in the federal Clean Water Act section 101(a)(2) and regulated under the REC-1 use and (2) other REC-2 uses (e.g., uses involving the aesthetic aspects of water) shall remain in effect at all times for waters where the (ad) footnote appears in Table 2-1a. The High Flow Suspension shall apply on days with rainfall greater than or equal to ½ inch and the 24 hours following the end of the ½-inch or greater rain event, as measured at the nearest local rain gauge, using local Doppler radar, or using widely accepted rainfall estimation methods. The High Flow Suspension only applies to engineered channels, defined as inland, flowing surface water bodies with a box, V-shaped or trapezoidal configuration that have been lined on the sides and/or bottom with concrete. The water bodies to which the High Flow Suspension applies are identified in Table 2-1a in the column labeled "High Flow Suspension".*

The amendment also identified the waterbodies covered by the high flow suspension and directed the creation of a new Table 2-1a in the Basin Plan, which would contain all the recreational beneficial uses. These amendments are detailed in the Basin Plan amendment language in the attachment to Regional Board Resolution R03-010, which is available on the Regional Board's website at [http://63.199.216.6/larwqcb\\_new/bpa/docs/2003-010/2003-010\\_RB\\_BPA.pdf](http://63.199.216.6/larwqcb_new/bpa/docs/2003-010/2003-010_RB_BPA.pdf)

## II. BACKGROUND ON GEOGRAPHIC DATA

### Geographic Information System (GIS) Technology and the Basin Plan

Geographic Information System (GIS) technology allows for data to be mapped in real world coordinates and linked to identifying and descriptive attributes. This technology enables the user to display data from different sources together to analyze spatial relationships and to display and query these data based on their attributes.

When the 1994 Basin Plan was developed, GIS technology was relatively new and only a limited number of GIS data layers were available. Furthermore, the GIS software available to the Regional Board had limited functionality and was difficult to use. As a result, some of the maps in the 1994 Basin Plan were created using graphics software, which was not specifically designed to manipulate and display geographic data. These data and software limitations hampered the Regional Board's ability to create high resolution maps.

In the years following, GIS software has become much more robust and user-friendly and many high quality data sets have been developed. The Regional Board has kept pace with these developments and is now capable of creating, mapping, and analyzing GIS information with far greater precision and in more complex ways. However, these higher quality data sets and the advancements in the Regional Board's mapping capability are not reflected in the Basin Plan; hence, the need for this update.

The first step in updating the geographical information involved selecting the essential GIS layers to be used. GIS data is stored in a database as layers. A layer of streams, for example, includes an editable file or group of files that includes a spatial representation of the streams in a standardized coordinate system as well as attribute information about the streams. A collection of the essential layers to be used for a project is often referred to as a basemap. Assembling an accurate and comprehensive basemap that is consistent with industry standards was critical to the success of this effort.

The essential layers needed for the basemap included surface waters (streams, lakes, etc.), updated hydrologic units based on scientific watershed delineations, and updated groundwater basins. Research on available layers involved contact with staff of the State Water Board and USEPA to ensure consistency with their current and planned future practices. Based on their recommendations as well as a review of documentation from the United States Geological Survey (USGS) and California Department of Water Resources (DWR), the layers selected were the USGS National Hydrography Dataset (NHD) for surface waters, the USGS Watershed Boundary Dataset (WBD) for hydrologic units, and the DWR Bulletin 118-Update 2003 layer for groundwater basins.

### Surface Water GIS Data

The 1994 Basin Plan mapping was based on a surface water layer known as EPA Reach File 3 (RF3). RF3 was completed in 1992 and represented flowing waters (rivers and streams), standing waters (lakes and ponds), and wetlands—both natural and manmade—at a scale of 1:100,000. The Teale Data Center, one of the state's general purpose data centers, assisted with completing the RF3 for California. The data has undergone several revisions in the years since, improving both accuracy and completeness. The basemap layers most commonly used today are part of *The*

*National Map* produced by the USGS. The surface water component of *The National Map* is the NHD. The NHD replaces RF3 and is a comprehensive set of surface waters in the United States using common features such as lakes, ponds, streams, rivers, canals, stream gages, and dams. The NHD is now available for all of California at a scale of 1:24,000. The spatial precision and identifying and descriptive information in the NHD is vastly improved over the RF3. The USEPA and State Water Board both currently use the NHD.

In addition to the basemap layers, other secondary GIS data were used for this project. The Los Angeles County Department of Public Works (LACDPW) has made two important layers available. The first is a layer of watersheds that represent the drainage basins as used for the National Pollutant Discharge Elimination System (NPDES) Permit. This is an important resource representing local drainage areas from both natural streams and storm drain systems. The second is the Storm Drain Geodetic Network. This is a comprehensive layer of the storm water management infrastructure owned, operated, and maintained by multiple jurisdictions. This includes a number of open channels as well as subterranean drains that chart the complex drainage system in Los Angeles County. Similar information for Ventura County was obtained from the Ventura County Watershed Protection District.

Another key layer that was available for this update is the National Wetlands Inventory (NWI). The US Fish and Wildlife Service formed the NWI in 1975 for the purpose of providing current GIS information on the extent and characteristics of wetland areas. This layer was used to assist in mapping the wetland areas identified in the Los Angeles Region's Basin Plan. Other helpful information that was used in conjunction with GIS layers for this project included high resolution color aerial imagery and USGS topographic maps. Overlaying the essential layers on these images was key to identifying both the locations and names of many features.

#### *The Hydrologic Classification System*

The DWR hydrologic classification system was the basis for assigning the hydrologic units and watersheds in the 1994 Basin Plan update. This system was based on the 1978 USGS Watershed Boundary Delineation, which was the best information available at the time. At that time, this information was produced at a scale of 1:250,000 and was based on a combination of watershed and administrative boundaries. This dataset is often referred to as CalWater 1.0 because it was the basis for what eventually evolved into the widely used CalWater 1.1 hydrologic unit layer. CalWater 1.1 was developed in 1995 as a joint State and Federal effort by the National Water Resources Council. It was updated several times as versions 2.0, 2.2, and 2.2.1. The State Water Board still uses CalWater 2.2.1 to define hydrologic units. All of these CalWater layers employed an 8-digit hydrologic unit code (HUC) that identified areas at four levels (region, subregion, hydrologic basin, hydrologic sub-basin).

The watershed component of *The National Map* is the WBD. The WBD uses established standards for delineating watersheds scientifically, including the use of elevation models and enlisting input from local experts. Administrative boundaries are no longer factored into the delineations. It adds two additional levels of hierarchy (watershed and sub-watershed) resulting in a 12-digit HUC. The mapping precision has

also improved to a scale of 1:24,000. USEPA currently uses the WBD and the State Water Board is planning to switch to this system in the near future.

As previously mentioned, the hydrologic units that were used in the 1994 Update of the Basin Plan were based on a mixture of hydrologic and administrative boundaries that did not provide an accurate depiction of watershed boundaries. Since these delineations were not purely hydrologic, confusion has sometimes arisen regarding the assignment of hydrologic units. As an example, the HUC 405.15 was associated with parts of the Los Angeles River and San Gabriel River and all of Los Cerritos Channel even though in reality these are three distinct watersheds.

Newer data is both more precise and more scientific in dividing the region into hydrologically based watershed areas. Such information is critical in pursuing a watershed-based approach toward identifying drainage areas and discharge sources that affect each surface water body.

#### Groundwater GIS Data

DWR Bulletin 118-Update 2003 replaces DWR Bulletin 118-80. DWR Bulletin 118-80 served as the foundation for the groundwater basins depicted in the current Basin Plan. The State Water Board and USEPA currently use DWR Bulletin 118-Update 2003. The 2003 Update includes modifications to both the boundaries of the groundwater basins and the numbering system. There is an important difference between the nature of the DWR layers and those of the NHD and WBD layers. The latter two layers are intended to be comprehensive inventories of all features. The DWR layer is not intended to map all groundwaters but rather “more important ground water basins” that represent significant usable water resources to help meet the water supply demand. As a result, basins may or may not be included from one update to another based on the DWR’s evaluation of the basin’s value as a usable water resource. The criteria for the evaluation of groundwater basins in DWR Bulletin 118-Update 2003 “includes, but is not limited to, the following: the review and summary of boundaries and hydrographic features, hydrogeologic units, yield data, water budgets, well production characteristics, and water quality and active monitoring data; development of a water budget for each groundwater basin; development of a format and procedures for publication of water budgets on the Internet; development of the model groundwater management ordinance; and development of guidelines for evaluating local groundwater management plans.”

### III. UPDATING SURFACE WATER FEATURES

Following selection of the appropriate GIS data, the geometry and attributes for all surface water features in the Los Angeles Region were updated based on the previously described basemap layers. Geometry refers to the way the waterbody features are represented spatially and connected to each other in the GIS database. Examples include digitizing (i.e. representing) reach breaks as points, streams as lines, and lakes as polygons. Attributes refer to the identifying and descriptive information for the spatially digitized features in the GIS database. Examples of attributes include names, HUCs, and reach break descriptions.

The NHD was the primary reference for surface water geography. All of the NHD reaches in the Los Angeles Region were assessed for accuracy and completeness from the coastline continuing up through each entire watershed, including all tributaries. The layer was found to be a great improvement over the RF3 in spatial accuracy and naming. A few errors in the NHD were discovered and corrected. These will be reported to the USGS and are listed as follows:

- Revolon Slough/Calleguas Creek—incorrectly depicted as one stream along a segment where they are actually parallel channels
- Oxnard Industrial Drain—missing
- Ashland Avenue Drain—missing
- Arroyo Santa Rosa—one segment missing

#### GIS Editing—Streams

The NHD is a detailed layer that breaks streams down into many small segments. In order to have the NHD data correspond better with the reach breaks in the current Basin Plan it was necessary to conduct some editing in GIS. The small segments were combined to create continuous segments that represented the entire water body. Then those reaches that have been further defined since 1994 - in TMDLs and other Basin Plan amendments, and the 2008-10 303(d) list of impaired waters – were split at the defined reach breaks. As an example, the Ventura River is represented in the NHD by 61 stream segments. These were combined into one continuous stream, then split at the reach boundaries defined in the 303(d) list to create Ventura River Reaches 1, 2, 3, 4, and 5. This procedure was repeated for every major river in the region that has been subdivided during the development of TMDLs or other Basin Plan amendments, or during the State's biennial water quality assessment, including the Santa Clara River, Calleguas Creek, Ballona Creek, Los Angeles River, San Gabriel River, and several significant tributaries to these rivers and creeks.

Each of the streams in the Los Angeles Region was also associated with an HUC from the WBD. While the WBD is a vast improvement, the switch to the WBD was problematic due to the differences in hydrologic boundaries. In some cases CalWater 1.0 had defined multiple sub-basins where just one sub-watershed is defined in the WBD. In other cases, the opposite occurred with multiple WBD sub-watersheds defined for an area previously represented in CalWater 1.0 by just one sub-basin. Due to the administrative nature of this update, it was critical to reflect the new HUCs, while maintaining the existing assignments of beneficial uses to waterbodies. The system for resolving this situation for reaches that cross these boundaries is outlined in the table below:

**TABLE 1: RECONCILING WBD AND CALWATER HYDROLOGIC UNIT CODES**

<b>WBD sub-watersheds</b>	<b>CalWater 1.0 sub-basins</b>	<b>1994 beneficial uses the same?</b>	<b>Resolution</b>
Area under single HUC	Same area under single HUC	Yes	Apply the same beneficial uses to the new HUC
Area under single HUC	Same area under multiple HUCs	Yes	Apply the same beneficial uses to each new HUC
Area under single HUC	Different areas under multiple HUCs	No	Under the new HUC, maintain differentiation between segments with different beneficial uses
Area under multiple HUCs	Same area under single HUC	Yes	Apply the same beneficial uses to each of the multiple HUCs

Once hydrologic units were determined, each waterbody was then assigned to a specific watershed using GIS. The watersheds and watershed management areas (WMA) within the Los Angeles Region include:

- Calleguas Creek Watershed
- Channel Islands WMA
- Dominguez Channel and Los Angeles/Long Beach Harbors WMA
- Los Angeles River Watershed
- Los Cerritos Channel/Alamitos Bay WMA
- Misc. Ventura Coastal Streams WMA
- San Gabriel River Watershed
- Santa Clara River Watershed
- Santa Monica Bay WMA \*
- Ventura River Watershed

\*Santa Monica Bay WMA includes the Ballona Creek Watershed, the Malibu Creek Watershed, and Los Angeles County coastal streams.

An attribute field was added to identify the receiving water of each waterbody. An additional attribute field was added to identify whether the waterbody is listed as impaired on the Federal Clean Water Act Section 303(d) List. The GIS database was set up to allow for additional attribute data to be included in the future including stream class (perennial or intermittent), whether the reach is engineered or natural, the stream level, and the stream order. Attributes from the NHD and the LACDPW and Ventura County WPD datalayers, aerial imagery, and field knowledge of the various locations will be used to assign these attributes to waterbodies over time.

During this process, a number of previously unnamed stream reaches were identified. The NHD provides some of these names, but most were found by referencing the USGS topographic maps. Identifying these reaches provides a more comprehensive catalogue of the streams in the Los Angeles Region. The tributary table contained in Appendix 1 of the Basin Plan was updated to include these waterbodies. These waterbodies, though

previously unidentified in the Basin Plan, have always been protected under state and federal law. The number of waterbodies identified for each watershed is provided in Table 2 below.

**TABLE 2: NUMBER OF NEWLY-NAMED STREAMS IN THE LOS ANGELES REGION**

<b>Watershed</b>	<b>Number of Waterbodies Newly-named</b>
Calleguas Creek Watershed	32
Channel Islands WMA	9
Dominguez Channel and Los Angeles/Long Beach Harbors WMA	9
Los Angeles River Watershed	184
Los Cerritos Channel/Alamitos Bay WMA	2
Misc. Ventura Coastal WMA	3
San Gabriel River Watershed	114
Santa Clara River Watershed	239
Santa Monica Bay WMA	
Ballona Creek Watershed	1
Los Angeles County Coastal Steams	25
Malibu Creek Watershed	13
Ventura River Watershed	30
<b>Total</b>	<b>661</b>

Other edits made to the streams GIS layer include: (i) correcting an error from the 1994 Basin Plan in which part of Walnut Creek Wash had accidentally been called Puddingstone Wash (Puddingstone Wash actually needed to be included with a different HUC) (ii) identifying all the tributaries of Coyote Creek, including those in the Santa Ana Region, (iii) correcting an error in which Canyon Streams of Palos Verdes had been mistakenly identified as being tributary to Coastal Streams of Palos Verdes in the 1994 Basin Plan.

GIS Editing—Watersheds

As part of this update, the Los Cerritos Channel/Alamitos Bay and the Los Angeles/Long Beach Harbors Watershed Management Areas were defined in more detail:

The Los Cerritos Channel/Alamitos Bay WMA is currently included in the Basin Plan as part of the Los Angeles County coastal streams. During the development of the 1994 Basin Plan the GIS resources were not available to determine that this was a distinct watershed. CalWater 1.0 assigned this area to the same HUC as parts of the Los Angeles River and the San Gabriel River. In particular, it was often lumped together with the San Gabriel River because historically they would have been part of the same extensive wetlands. In reality, however, there is a physical barrier separating Los Cerritos Channel from the nearby San Gabriel River.

The current day Los Cerritos Channel drains a small urbanized area of east Long Beach. The estuary portion of the channel extends to Anaheim Road. The channel connects with Alamitos Bay through the Marine Stadium and an adjacent remnant wetland connects to the Channel a short distance from the lower end of the Channel. Alamitos Bay is composed of the Marine Stadium, Long Beach Marina, and the Bay proper.

This WMA was added to the watershed layer using the LACDPW NPDES watershed layer as a reference. The surface waters of this WMA are now under a separate heading in the beneficial use tables. The Alamitos Bay area was also digitized to delineate significant features such as Marine Stadium that were mentioned in the preceding paragraph. These Alamitos Bay features are depicted in Figure 2-22.

The Dominguez Channel and Los Angeles/Long Beach Harbors WMA is located in the southern portion of the Los Angeles Basin. Historically, the area consisted of marshes and mudflats and flow from the Los Angeles River entered where Dominguez Channel now drains. Since then, channels were dredged, marshes were filled, the Los Angeles River was diverted, and a breakwater was constructed as the harbor area was developed. Dominguez Channel was created by completely channelizing a former slough and became the drainage endpoint for runoff from a highly industrialized area. The two harbors are now both among the largest ports in the country.

There are several significant features in the harbor areas that are assessed individually by the Regional Board, including Consolidated Slip, inner and outer Fish Harbor, and inner, middle, and outer Long Beach Harbor, and inner and outer Los Angeles Harbor. The entire harbor area including San Pedro Bay was digitized to delineate significant features, including harbors, marinas, beaches, piers, breakwaters, and bridges. The extent of the San Pedro Bay was determined by using bathymetry data to distinguish between nearshore and offshore zones. These features are depicted in Figure 2-21.

Finally, Bixby Slough and Harbor Lake in the Dominguez Channel Watershed were updated to reflect recent changes. Harbor Lake has been renamed Machado Lake and Bixby Slough was not previously identified in a GIS layer. A separate area to the southeast of Machado Lake was digitized to represent what remains of the historically vast expanse of Bixby Slough.

#### GIS Editing—Lakes

The most important edit to the lakes layer was the inclusion of Peck Road Park Lake. The NHD also served as the base layer for lakes in the region. Peck Road Park Lake was represented in the NHD but not named. A few significant lakes were missing from the NHD and digitized in based on aerial photography: Dume Lagoon, Madrona Marsh, and Topanga Lagoon. Several other lakes were re-digitized using aerial photography to better represent their spatial extents. A naming error in which Upper Van Norman Reservoir had been misidentified in the 1994 Basin Plan as Solano Reservoir, was also corrected. Solano Reservoir is a covered distribution reservoir near the Van Norman complex.

#### GIS Editing—Wetlands

Two important wetlands from the beneficial use tables were not included in the GIS layer: Ballona Wetlands and the previously discussed Los Cerritos Wetlands. These were digitized in using the NWI information as a reference.

#### IV. UPDATING GROUNDWATER BASINS

##### GIS Editing—Groundwater Basins

The DWR Bulletin 118-Update 2003 groundwater basins were not edited in GIS but required significant spatial analysis. The boundaries varied significantly, some basins were deleted, and names and numbers were changed. As previously mentioned, these changes reflect the resource-management nature of the DWR's mission. The groundwater basin layer is not a complete list of all groundwaters, but rather a list of those regarded by DWR as significant resources for meeting water supply demand. The differences created a complex issue in associating the names and numbers used in the 1994 update of the Basin Plan with the current information. Table 3 provides an example of the differences between the two versions that was identified in the former Ventura Central Groundwater Basins area.

**TABLE 3: EXAMPLE DEPICTING THE DIFFERENCES BETWEEN GROUNDWATER BASINS IN BULLETINS 118-80 AND 188-UPDATE 2003**

Bulletin 118-80 Name	Bulletin 118-80 No.	Bulletin 118-Update 2003 Name	Bulletin 118-Update 2003 No.
Ventura Central (Oxnard Plain)	4-4	Santa Clara River Valley (Oxnard)	4-4.02
Ventura Central (North Las Posas and South Las Posas)	4-8	Las Posas Valley	4-8
Ventura Central (Pleasant Valley)	4-6	Pleasant Valley	4-6
Ventura Central (Arroyo Santa Rosa)	4-7	Arroyo Santa Rosa Valley	4-7
Thousand Oaks	4-19	Merged into Conejo	4-10
Russell Valley	4-20	Split into Russell Valley and Thousand Oaks Area	4-20 and 4-19

GIS proved to be a valuable tool in resolving these issues. By displaying the two versions together it was possible to determine which new basins corresponded to which old basins. Resolution of discrepancies followed a similar procedure to that used for assigning HUCs. Basins that were not included by DWR in the current version were maintained in the beneficial use table, since the protection of groundwater in these basins is important to the mission of the Los Angeles Regional Board. The procedure for resolving these issues is outlined in the table below:

**TABLE 4: RECONCILING GROUNDWATER BASINS IN BULLETIN 118-UPDATE 2003 WITH THOSE IN BULLETIN 118-80**

<b>Bulletin 118-Update 2003 basins</b>	<b>Bulletin 118-80 basins</b>	<b>1994 beneficial uses the same?</b>	<b>Resolution</b>
Area under single basin	Same area under single basin	Yes	Apply the same beneficial uses
Area under single basin	Same area under multiple basins	Yes	Apply the same beneficial uses
Area under single basin	Same area under multiple basins	No	Include all Bulletin 118-80 basins with their beneficial uses and assign same Bulletin 118-Update 2003 name and number to each
Area under multiple basins	Same area under single basin	Yes	Use multiple Bulletin 118-Update 2003 names and numbers and assign same beneficial uses to each
None	Area under single basin	Yes	Keep Bulletin 118-80 basin in table with corresponding beneficial uses and without Bulletin 118-Update 2003 name or number

## **V. UPDATING MAPS AND BENEFICIAL USE TABLES FOR SURFACE WATER, GROUNDWATER AND COASTAL FEATURES**

### **Basin Plan Map Updates**

All 22 Basin Plan maps, identified as Figure 2-1 through Figure 2-22, were revised based on the changes resulting from the GIS update. The new reach designations were described and the previously unnamed streams were displayed. The same basic layout from the 1994 Basin Plan was used for the revision. The watershed boundaries and major freeways were added to the maps for the purpose of orientation. County boundaries and Regional Board boundaries are displayed more prominently. The Los Cerritos Channel Watershed was combined with the Dominguez Channel Watershed map. Various enhancements have also been made regarding color schemes, labeling, and other map features, including insets that identify the extent of the map within the Regional Board boundary. The resulting maps preserve the simplicity and familiarity of the previous maps, while reflecting the changes from the GIS update and adding more location identifying elements. The revised maps are included in the Proposed Basin Plan Language.

### **Basin Plan Tables Update**

All of the tables from Chapter 2 of the Basin Plan were updated to reflect the changes from the GIS update. The primary consideration in updating the tables was to maintain the existing assignments of beneficial uses to waterbodies due to the administrative nature of this Basin Plan update. While names were changed to reflect current reach boundaries and hydrologic units were changed to the WBD codes, the beneficial uses assigned to waterbodies remain the same. A cross-reference table to be included in Appendix 1 of the Basin Plan was created in order to facilitate the comparison of the previous Basin Plan tables with the updated ones. No new waterbodies were added to the beneficial use tables.

In Table 2-1 (Beneficial Uses of Inland Surface Waters) the organization by watershed was the same as before with the exception that the waterbodies in the Los Cerritos Channel Watershed were moved under a separate heading. As a rule, the streams were listed from downstream to upstream with tributaries identified at the point of confluence. The exceptions to this rule were in the Calleguas-Conejo Creek Watershed and Santa Clara River Watershed, where the more complex reach numbering system did not lend itself well to this approach. In these cases, the reaches were simply listed by reach number. Tables 2-2, 2-3, and 2-4 were updated in a similar way and cross-reference tables were developed for each and are included in Appendix 1 to the Basin Plan.

The updated reach names and boundaries from the GIS update were used in the tables. For clarification purposes, when a waterbody was listed more than once as a result of being in more than one hydrologic unit a description was added to define the extent of each segment. When a reach from the 1994 Basin Plan was split into smaller reaches each of the smaller reaches was assigned the same beneficial uses as the previous larger reach.

As explained in the *GIS Editing—Streams* section, care was taken with regard to converting the hydrologic unit codes. In some cases, where a segment of a stream was assigned one HUC in the 1994 system it was found to have two or more HUCs in the

WBD. In these cases, the stream was listed for each HUC (with descriptions of the extents) and each segment was assigned the same beneficial uses that were assigned to the one HUC in the 1994 update. In other cases, a segment of a stream was found to have two or more HUCs in the 1994 system, but only one HUC in the WBD. In these cases, if the beneficial uses were the same for all the 1994 HUCs then the segments were combined into one and listed under the single WBD HUC. If any beneficial uses were different, two entries were made with extents described and corresponding beneficial uses for each segment carried over.

Cross-reference tables were developed to facilitate the transition between the current and updated tables and are organized in the same order as the beneficial use tables in the current Basin Plan. The previous reach names and HUCs are listed along with the new names and HUCs. All cross-reference tables are included in Appendix 1 of the Basin Plan.

As previously mentioned, a new tributary table was created to replace the one currently contained in Appendix 1 of the Basin Plan (Inventory of Major Surface Waters and Waters to which they are Tributary). This table includes all of the newly named streams and is organized by watershed. The table includes updated names and hydrologic units and receiving waters.

Finally, as discussed in Section I, a new beneficial use table – Table 2-1a - was created solely for the recreational uses of the region's waterbodies. This was in keeping with directives from a previously adopted Basin Plan amendment. This table, along with the revised beneficial use tables, is included in the Proposed Basin Plan Language.

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