**Attachment 3  Status of GWMP**

Excerpt from DWR website:

AB 3030 (California Water Code Section 10750 et seq.) allows certain defined existing local agencies to develop a groundwater management plan in groundwater basins defined in DWR Bulletin 118. No new level of government is formed. Action is voluntary not mandatory.

Twelve technical components are identified in the Code and others may be included in the groundwater management plan. The plan can be developed only after a public hearing and adoption of a resolution of intention to adopt a groundwater management plan. If there is no majority opposition of assessed land value (no improvements), the plan can be adopted within 35 days. If the majority is opposed the plan can not be adopted and no new plan may be attempted for 1 year.

AB 3030 plans can not be adopted in adjudicated basins or in basins where groundwater is managed under other sections of the Water Code without the permission of the court or the other agency.

Once the plan is adopted, rules and regulations must be adopted to implement the program called for in the plan. Many plans that have been adopted are relatively simple and in some cases are a means of defining boundaries.

SB 1245 (Water Code Section 10756) requires DWR to publish a report to the Legislature that lists all agencies that have adopted groundwater management plans pursuant to any provision of the Water Code or to case law decided in court. Thus, groundwater management plans developed under AB 3030, adjudicated basins, groundwater management districts, city/county ordinances, and the other 22 types of local agencies are included in this report.

There is not an adopted GWMP for the Seasaide Groundwater Basin.  However the Basin is adjudicated and is not allowed to adopt a GWMP without the permission of the Watermaster. Judge Randall has directed to Watermaster to adopt a Basin Action Management Plan.  This plan is included as Exhibit 3.1.

The Seaside Groundwater Basin was adjudicated in 2007 by the Superior Court of Monterey County.  The Adjudication Decision (Case No. M66343) is attached as Exhibit 3.2.  The Decision created and tasked the Seaside Groundwater Basin Watermaster to track production and monitor groundwater levels, water quality, precipitation, and Streamflow..  The Decision defines the safe yield of the groundwater basin and assigns an operational yield to all identified Primary Pumpers.  The decision also outlines a number of tri-anneal 10% reductions to Primary Pumpers that are designed to bring the pumping in the basin back to safe yield levels.  For each Primary Pumper, the Watermaster tracks the balance between current operational pumping and the

natural safe yield. This balance must be paid back as replenishment water in actual water or a replenishment fee. Water Injected in to the Seaside Groundwater Basin can either be recovered by Cal Am and delivered to customers or left in the basin and used as replenishment water. Through this mechanism MPWMD's ASR Program is used to pay back replenishment owed by Cal Am to the Seaside Watermaster.

Here is the URL of the Watermaster http://www.seasidebasinwatermaster.org/

Exhibit 3.1

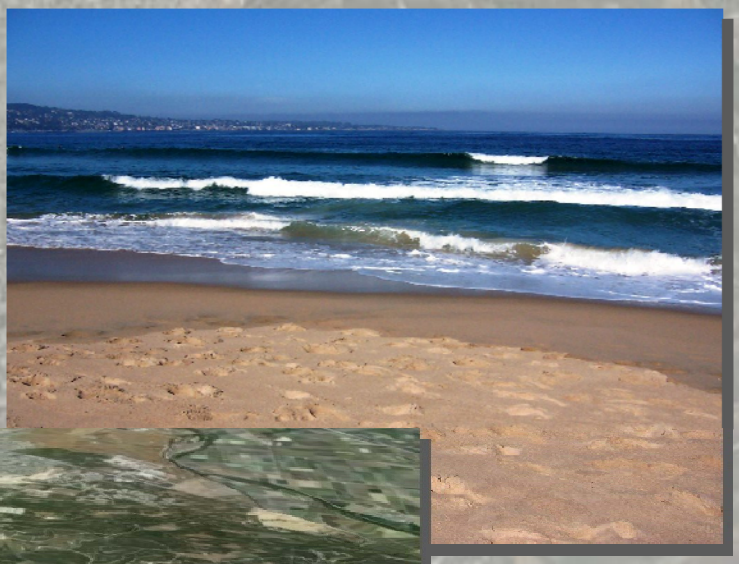
# Basin Management Action Plan
# Seaside Groundwater Basin
# Monterey County, California

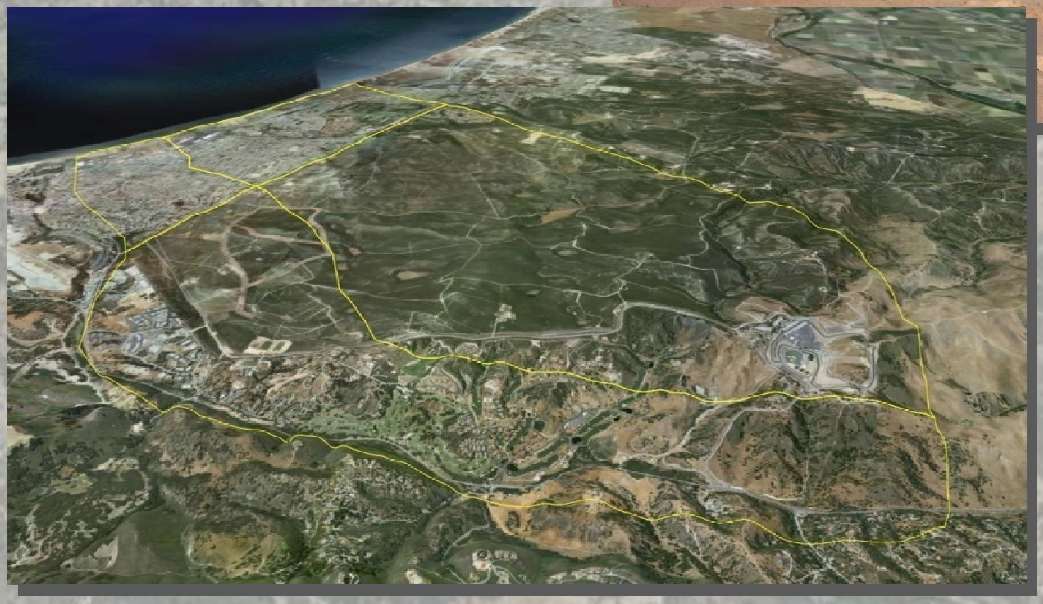
*Prepared for:*
*Seaside Groundwater Basin Watermaster*

**February 2009**

*Prepared by:*

HydroMetrics LLC





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# ABBREVIATIONS

ASR.....aquifer storage and recovery
BMAP.....Basin Management Action Plan
CAW.....California American Water Company
CDPH.....California Department of Public Health
CPUC.....California Public Utilities Commission
CSIP.....Castroville Seawater Intrusion Project
CWP.....Coastal Water Project
EIR.....Environmental Impact Report
FORA.....Fort Ord Reuse Authority
HDD.....horizontal directionally drilled
MCWD.....Marina Coast Water District
MCWRA.....Monterey County Water Resources Agency
mgd.....million gallons per day
MLPP.....Moss Landing Power Plant
M&MP.....Seaside Basin Monitoring and Management Plan
MPWMD.....Monterey Peninsular Water Management District
MRWPCA.....Monterey Regional Water Pollution Control Agency
msl.....mean sea level
NAVD 88.....North American Vertical Datum of 1988
O&M.....operation and maintenance
PEA.....Proponent's Environmental Assessment
RUWAP.....Regional Urban Water Augmentation Project
RWQCB.....Regional Water Control Board
SBWM.....Seaside Basin Watermaster
SIAR.....Seawater Intrusion Analysis Report
SIRP.....Seawater Intrusion Response Plan
SOC.....synthetic organic chemicals
SVIGSM.....Salinas Valley Integrated Ground and Surface Water Model
SVRP.....Salinas Valley Reclamation Plant
SWRCB.....State Water Resources Control Board
TAC.....Technical Advisory Committee

# EXECUTIVE SUMMARY

## INTRODUCTION

It is the Seaside Groundwater Basin's court-appointed Watermaster's role to administer and enforce the provisions of the Amended Decision (California American Water v. City of Seaside et al., 2007). One provision of the Amended Decision was the requirement to develop a Monitoring and Management Plan (M&MP). The Seaside Basin M&MP was subsequently developed in May 2006, and included general suggestions for a Basin Management Plan. This current document constitutes the Basin Management Plan outlined in the M&MP.

## STATE OF THE SEASIDE GROUNDWATER BASIN

The Seaside Groundwater Basin as delineated in Exhibit B of the original Decision (March 2006) is bound by the Pacific Ocean, faults, bedrock, and a groundwater flow divide on the northern boundary. The Basin is subdivided internally by the Laguna Seca Anticline which separates the northern and southern subbasins. This feature, including the segment of the Ord Terrace Fault that offsets the anticline, forms a subsurface hydraulic barrier to groundwater flow. The Amended Decision subdivides the subbasins into coastal and inland subareas even though groundwater flow is continuous between coastal and inland subareas.

The Seaside Groundwater Basin comprises three aquifers: a deep aquifer, a shallow aquifer, and surficial Aromas Sands. The deep aquifer generally consists of the Purisima Formation and Santa Margarita Sandstone. The shallow aquifer refers collectively to numerous discontinuous lenses of sand and gravel in the depth interval of the Paso Robles Formation overlying the Santa Margarita Sandstone and below the surficial Aromas Sand layer.

Much of the *Total Stored Groundwater* in the Seaside Groundwater Basin is not easily extracted due to the clustered location of wells in the Basin. The Basin's *Usable Stored Groundwater*, which is a subset of *Total Stored Groundwater*, is estimated to be at most 72,000 acre-feet as of fall 2007. In the unsaturated portion above the *Total Stored Groundwater* there is at most approximately 52,030 acre-feet of *Total Usable Storage Space*. Of this 52,030 acre-feet of *Total Usable Storage Space*, 31,770 acre-feet are in the Coastal and Northern Inland Subareas and 20,260 acre-feet are in the Laguna Seca Subarea. The total actual and potential groundwater

storage in the Seaside Groundwater Basin is approximately 124,000 acre-feet (*Total Stored Groundwater* plus *Total Usable Storage Space*). These initial storage estimates, as required by the Amended Decision, will be revised as improved tools for estimating storage become available.

Over the last five years since the last comprehensive study was completed, groundwater levels in much of the Seaside Groundwater Basin have continued the downward trend documented previously. This is reflected in the annual estimated loss of stored groundwater of between 1,300 and 1,430 acre-feet per year. The declines confirm that the current basinwide Operating Yield of 5,600 acre-feet per year exceeds the basinwide Natural Safe Yield of 3,000 acre-feet per year (as both set forth in the Amended Decision) plus approximately 1,000 acre-feet per year needed to prevent seawater intrusion. While no seawater intrusion or operational problems have been reported as a result of these lowering groundwater levels, this trend is not sustainable over the long-term.

## SUPPLEMENTAL WATER SUPPLIES

Long-term supplemental supplies will be needed in order to be able to reduce pumping in the Seaside Groundwater Basin to the Safe Yield, and to provide water which can be used to replenish the Basin. Developing these supplemental supplies is the strategy that will have the greatest impact on the Basin and allow for its long-term management and use in the future. The initial feasibilities of a number of supplemental supplies have been evaluated by various project proponents. Most of these supplies are being evaluated as parts of other larger programs. Many of the proposed supplemental supply projects are designed to provide up to 2,000 acre-feet per year of supplemental supply to Seaside Groundwater Basin for offsetting existing pumping, with one project proposing to provide up to 6,700 acre-feet per year. A supplemental supply of 2,000 acre-feet per year is below the 2,600 acre-feet of annual over-production, calculated as the difference between the current Operating Yield of 5,600 acre-feet and the Court's initially assumed Natural Safe Yield of 3,000 acre-feet per year. Therefore it is doubtful that any single supplemental supply project, other than combined Monterey Regional Water Supply Program projects, will be adequate for long-term basin management; project capacity of the supplemental supplies should be increased or projects combined, and coupled with demand reduction, to provide adequate supply.

Providing supplemental supplies on the order of 2,600 acre-feet per year will have the effect of halting water level decline, but will still leave groundwater levels below sea level. Supplemental supplies in excess of 2,600 acre-feet will be needed for a period of years to raise groundwater levels to protective levels. It is recommended that a groundwater model be used to evaluate the effectiveness of each supplemental supply and its impacts on groundwater levels. Furthermore, the model can be used to improve and refine the estimate of the amount of supplemental water needed to increase groundwater levels to protective levels.

All of the supplemental projects, except one, are physical projects with capital costs associated with them. The exception is water conservation which does not produce additional supply but rather results in a demand reduction. Water conservation should be given high priority with respect to Seaside Groundwater Basin Watermaster's (Watermaster) support of projects that reduce the amount of groundwater pumped from the Seaside Groundwater Basin.

## GROUNDWATER MANAGEMENT ACTIONS

A number of immediate actions could be implemented by various water agencies to initially meet requirements of the Amended Decision to reduce the Operating Yield by 10 percent triennially, as well as to delay the onset of seawater intrusion and maximize the use of existing groundwater. Any action that would assist in appropriate management of the Seaside Groundwater Basin should be encouraged and supported by the Watermaster.

Of the near-term management actions reviewed, the following appear to be the most cost-effective and most likely to be implemented, and provide the greatest benefit to the Seaside Groundwater Basin in the short-term:

1. Irrigate the Bayonet and Blackhorse Golf Courses with water from the Ord Community Water System,
2. Reactivate the Marina Coast Water District Desalination Plant,
3. Provide Interties Between CAW's Main, Bishop Ranch, and Ryan Ranch Water Systems,
4. Install new inland and coastal subarea wells in coordination with the Watermaster, and
5. Sand City Desalination Plant.

The recommended interim actions are not intended to provide long-term solutions for restoring groundwater levels in the Seaside Groundwater Basin, although many interim solutions will have long-term benefits.

## OTHER RECOMMENDATIONS

This BMAP identifies other basin management issues that need to be addressed and pursued by the Watermaster. One such issue is the dynamic nature of the Basin's northern boundary. This boundary (flow divide), although delineated in the Amended Decision will change location over time in response to changes in pumping in the Seaside area, Marina, the Salinas Valley and the lower El Toro Creek area. Given that this boundary is controlled by hydraulic factors, it is possible that if pumping in the Seaside area ceased completely and groundwater levels recovered to a certain point, groundwater in the northern portion of the Basin might flow into the Salinas Valley. Similarly, increased pumping in the Seaside Groundwater Basin might capture groundwater from the Salinas Valley.

Whatever management strategies are ultimately recommended, their impacts need to be assessed before implementation. Issues such as the fate of water that is recharged in the Basin at different locations, pumping redistribution, and establishing protective groundwater levels need to be addressed. For example, it will be important to know if recharge water will be lost to the ocean or the Salinas Valley, and whether the extraction wells in the Basin are located in the correct places to recover stored water. In order to assess these impacts, the most efficient method would be groundwater modeling. The model would be a management tool with which informed decisions regarding the management of the Basin can be made, assist in a better understanding of basin impacts from supplemental supplies on the groundwater basin, and to develop a plan for how the supplemental water could be best used to benefit the Seaside Groundwater Basin and water purveyors. A calibrated model should be developed in order to be ready to evaluate Basin impacts of planned supplemental supply projects and other management actions in a timely manner.

Selecting, evaluating and developing supplemental supplies for the Seaside Groundwater Basin should be done as expeditiously as possible. The Watermaster can support this by facilitating between parties, providing data and information on the Basin, and ensuring that Material Injury does not result from any of the proposed projects.

Managing the Basin requires evaluating impacts associated with implemented strategies. Monitoring of groundwater levels, quality and production are the means by which this can be done. The Watermaster should continue to install monitoring wells and continue with its monitoring program. In locations where the Watermaster determines additional data are needed, the monitoring network should be expanded.

# SECTION 1
# BACKGROUND AND PURPOSE

In 2006, an adjudication process was conducted by the State Water Resources Control Board (SWRCB) to determine water rights and establish management procedures for the Seaside Groundwater Basin. This process led to the issuance of the Court Decision (amended in 2007) that created the Seaside Groundwater Basin Watermaster (Watermaster). The Watermaster's role is to administer and enforce the provisions of the Amended Decision (California American Water v. City of Seaside et al., 2007). One provision of the Amended Decision was the requirement to develop a Monitoring and Management Plan (M&MP). The Seaside Basin M&MP was developed in May 2006, and included general suggestions for a developing a Basin Management Plan.

This current document, called the Basin Management Action Plan (BMAP), constitutes the Basin Management Plan outlined in Phase 2 of the M&MP Implementation Plan. This BMAP summarizes both short-term and long-term strategies to manage the Basin in accordance with the court's orders. Specifically, included in the BMAP are:

- A description of the state of the Seaside Groundwater Basin with emphasis on those basin properties that are called out in the Amended Decision, e.g. groundwater storage, and which have an impact on basin management;
- Potential supplemental supplies that are being considered for long-term augmentation of production from the Seaside Groundwater Basin,
- Potential management actions and interim water supplies that could be implemented in the short-term prior to developing supplemental supplies, and
- Recommended management actions and strategies that the Watermaster should support and/or encourage, which will help meet the groundwater pumping reductions required by the Amended Decision, and help prevent seawater intrusion.

Also discussed in the BMAP are issues from the Amended Decision that the Watermaster is required to address. The relevant Amended Decision sections are shown in parenthesis, and include:

- Determining *Total Useable Storage Space* and allocated storage for each producer in the Basin (III.H.4);
- Addressing efficiencies of storage (III.H.5); and
- Monitoring and studying the Seaside Groundwater Basin and all Seaside Groundwater Basin activities (III.L.3.j.xxi).

This BMAP is one of a number of documents and actions necessary for managing the Seaside Groundwater Basin. It is in effect a seawater intrusion prevention plan that focuses on providing groundwater management options to control groundwater levels, that if allowed to decline would lead to seawater intrusion. This document is intended to be used in coordination with the Watermaster's ongoing activities and the Seawater Intrusion Response Plan (HydroMetrics LLC, 2008). Implementing the recommendations included in this plan will result in a number of actions and strategies that will be necessary for effective groundwater management in the Seaside Groundwater Basin.

# SECTION 2
# STATE OF THE SEASIDE GROUNDWATER BASIN

This section details pertinent geologic and hydrogeologic aspects of the Seaside Groundwater Basin. These hydrogeologic details are presented as background for the ensuing discussions of supplemental supplies and potential groundwater management actions. Furthermore, paragraph III.H.4 of the Amended Decision requires that the Watermaster make a determination of the *Total Usable Storage Space*, which in turn can be used to establish the Storage Allocation for each producer. This section develops the initial estimate of *Total Usable Storage Space*, and compares recent yield numbers with the Natural Safe Yield of the Seaside Groundwater Basin prescribed in the Amended Decision. As this is the Watermaster's first effort to define *Total Usable Storage Space*, it includes a broad discussion of groundwater storage mechanisms and creates a conceptual framework for implementing the provisions of the Decision that address storage.

## 2.1 GEOLOGIC FRAMEWORK

The Seaside Groundwater Basin is commonly divided into three hydrostratigraphic units: a deep aquifer, a shallow aquifer, and surficial Aromas Sands. A complete geologic description of these aquifers can be found in Yates et al. (2005). The surficial Aromas Sands are unsaturated in many parts of the Seaside Groundwater Basin, and are not extensively pumped for municipal use. The main aquifers that are therefore the subject of this report are the shallow and deep aquifers.

The shallow aquifer consists of a mixture of continentally-derived sand, silt and clay sedimentary deposits, commonly known as the Paso Robles Formation. This is an unconfined aquifer that is overlain by surficial Aromas Sand.

The deep aquifer consists primarily of marine-derived, sedimentary sandstone, commonly known as the Santa Margarita Sandstone. Recent exploratory drilling associated with the Sentinel Wells suggests that parts of the deep aquifer in and near the Northern Coastal and Northern Inland Subareas consist of generally finer-grained sediments assigned to the Purisima Formation. Due to overlying low conductivity sediments, the deep aquifer is confined. Based on observed groundwater level behavior in the deep aquifer, there appears to be little leakage into the deep aquifer from the shallow aquifer.

Geologic data from the recently installed sentinel wells, shown as SBWM-1 through SBWM-4 on the well location map (Figure 1), were incorporated into a north-south geologic cross section by Feeney (2007) (see Figure 2 and Figure 3). Based on data from the four sentinel wells, two new geologic conclusions were reported that revise the most recent investigation of deep stratigraphy (WRIME, Inc. 2003). First, the Santa Margarita Sandstone does not extend north to the basin boundary as previously assumed. It was encountered only in the southernmost of the four sentinel wells (SBWM-4). Second, the lower two-thirds of the Tertiary continental deposits have been reclassified as Purisima Formation.

Exhibit B of the original Decision (California American Water v. City of Seaside et al., March 2006) demarcates the legal boundaries of the Seaside Groundwater Basin. Figure 4 shows this boundary. The southern boundary is defined by the Chupines fault. The northern boundary runs roughly parallel to a groundwater flow divide that acts as a groundwater ridge, separating groundwater flowing north toward the Salinas Valley from groundwater flowing south toward the Seaside Groundwater Basin.

The Laguna Seca Anticline separates the northern and southern subbasins of the Seaside Groundwater Basin. This feature—including the segment of the Ord Terrace Fault that offsets the anticline—forms a subsurface hydraulic partial barrier to groundwater flow. The northern and southern subbasins are further subdivided into coastal and inland subareas. It should be noted that this subdivision is based on land use and has no hydrogeologic justification. As such, groundwater flow is continuous between inland and coastal subareas.

The northern basin boundary, although delineated in the Amended Decision, will change position over time in response to changes in recharge and pumping. Pumping centers in the Seaside area, City of Marina, Salinas Valley and lower El Toro Creek area, control the local movement of groundwater, and thus the resultant groundwater flow divide locations. The flow divide in the deep aquifer is farther north than the flow divide in the shallow aquifer due to differing groundwater levels and hydraulic gradients in each of the aquifers (see Figure 5 and Figure 6). Given that the northern boundary of the groundwater basin is controlled by hydraulic factors, it is possible that if pumping in the Seaside area ceased completely and groundwater levels recovered to a certain point, groundwater in the northern part of the Seaside Groundwater Basin might flow into the Salinas Valley. However, it is also possible to influence the location of the northern boundary through the use of management strategies such as

deliberate placement of extraction wells to form a barrier that would prevent groundwater from flowing out of the Seaside Groundwater Basin.

*Figure 1: Location of Production and Monitoring Wells in and near the Seaside Groundwater Basin*

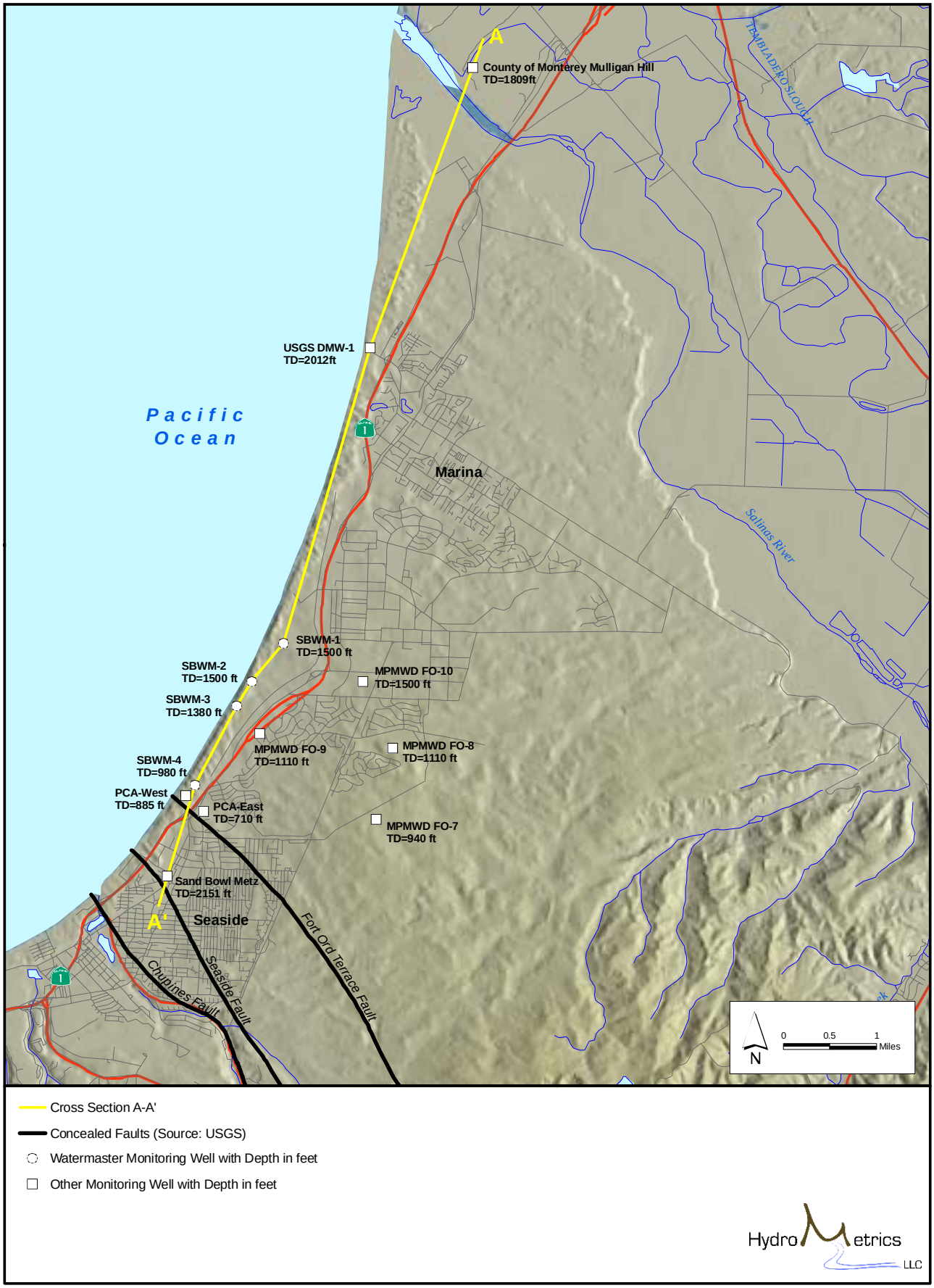



*Figure 2: Location of Cross Section A-A'*

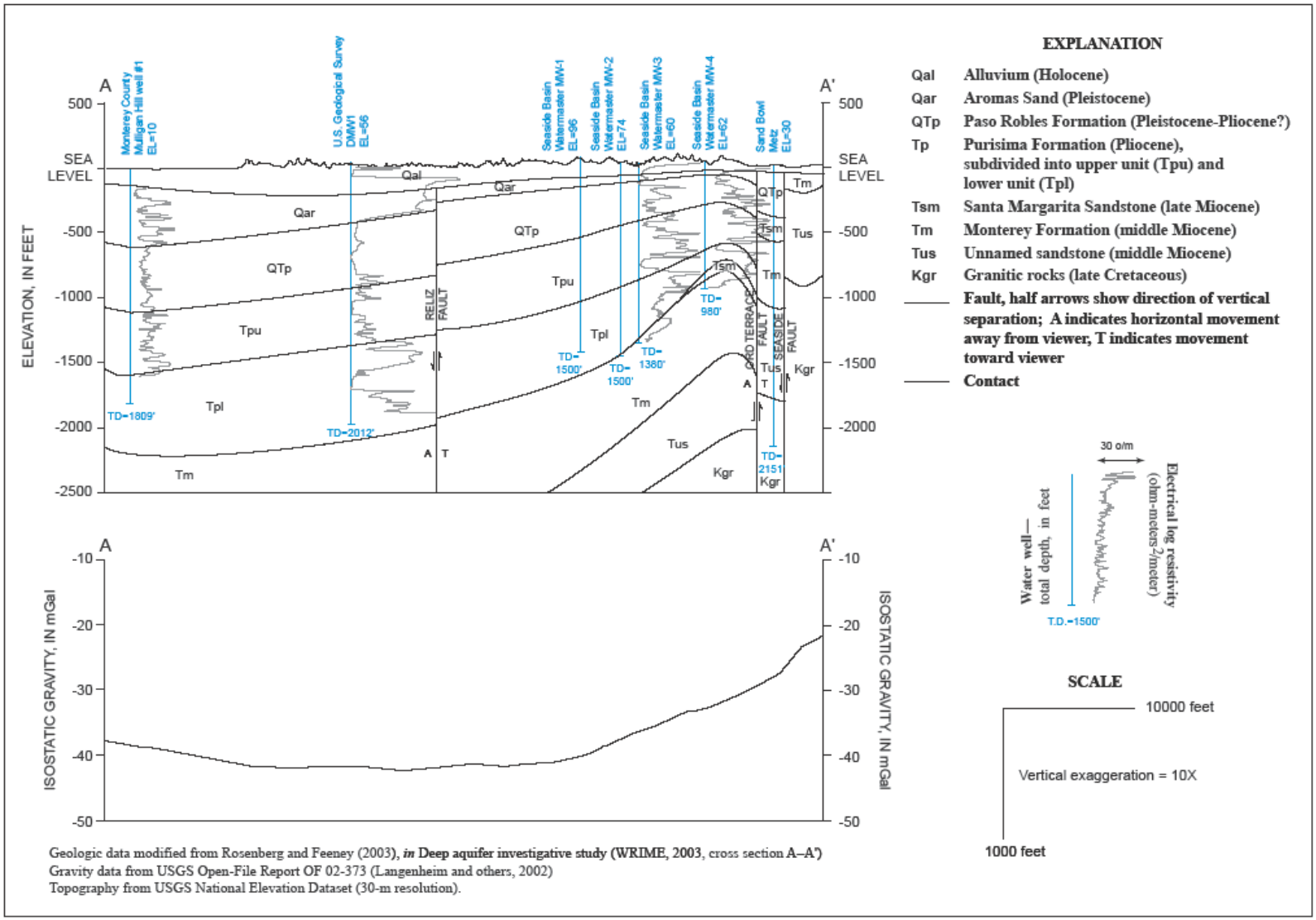



*Figure 3: Geologic Cross Section A-A′ (from Feeny, 2007)*

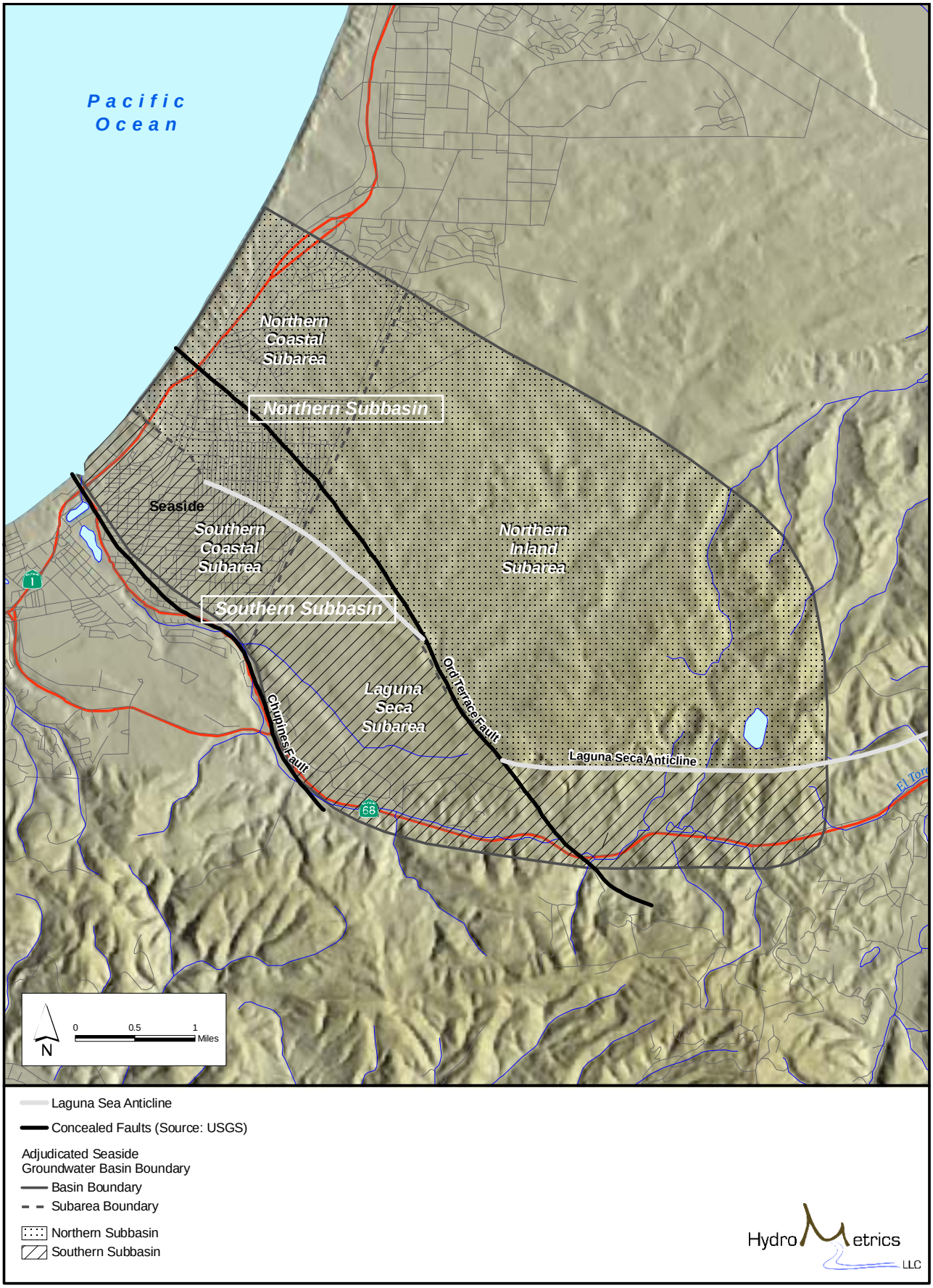
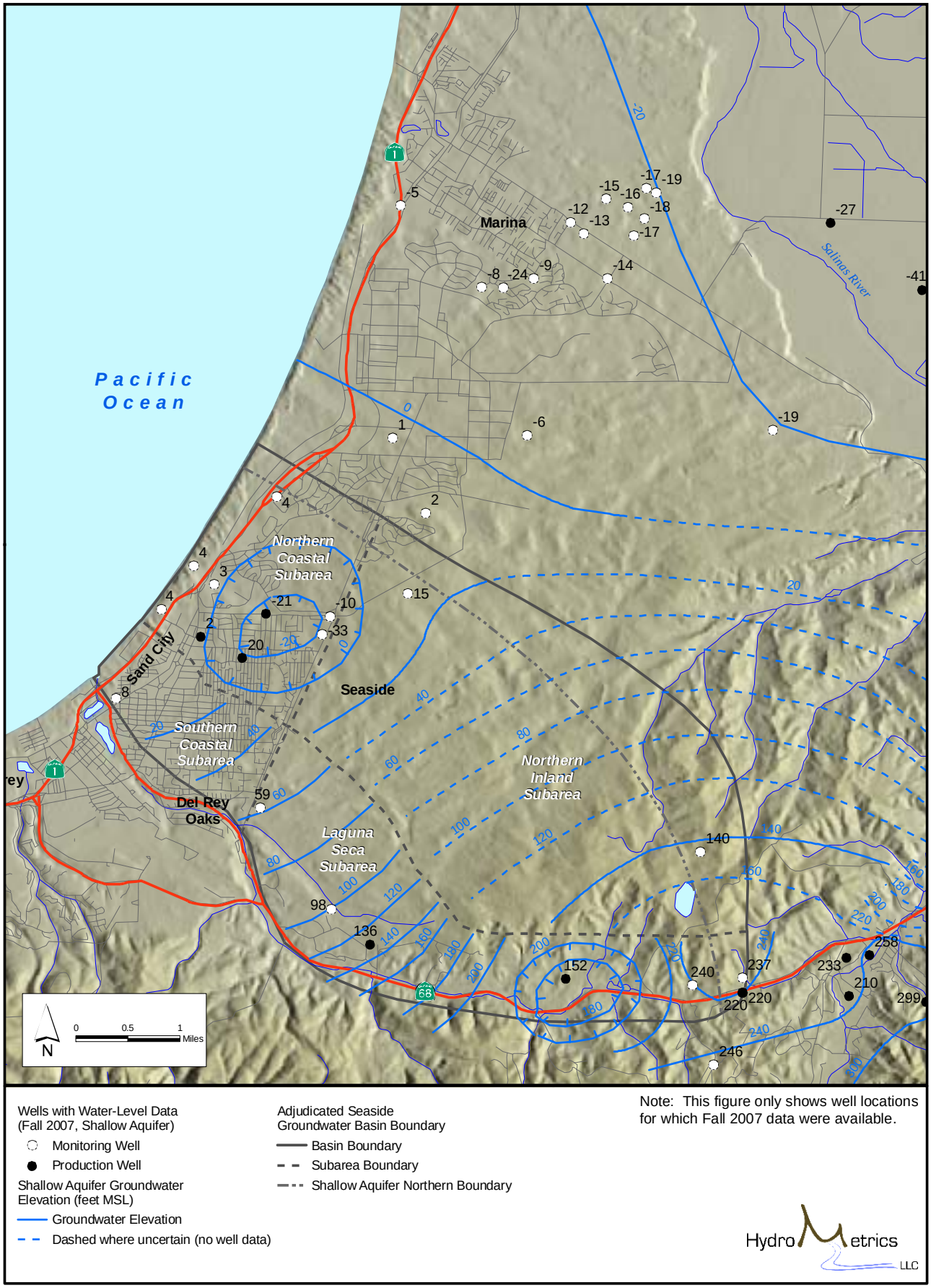



*Figure 4: Amended Decision Boundary of the Seaside Groundwater Basin with Subareas*




Wells with Water-Level Data (Fall 2007, Shallow Aquifer)

- Monitoring Well
- Production Well

Shallow Aquifer Groundwater Elevation (feet MSL)

- Groundwater Elevation
- Dashed where uncertain (no well data)

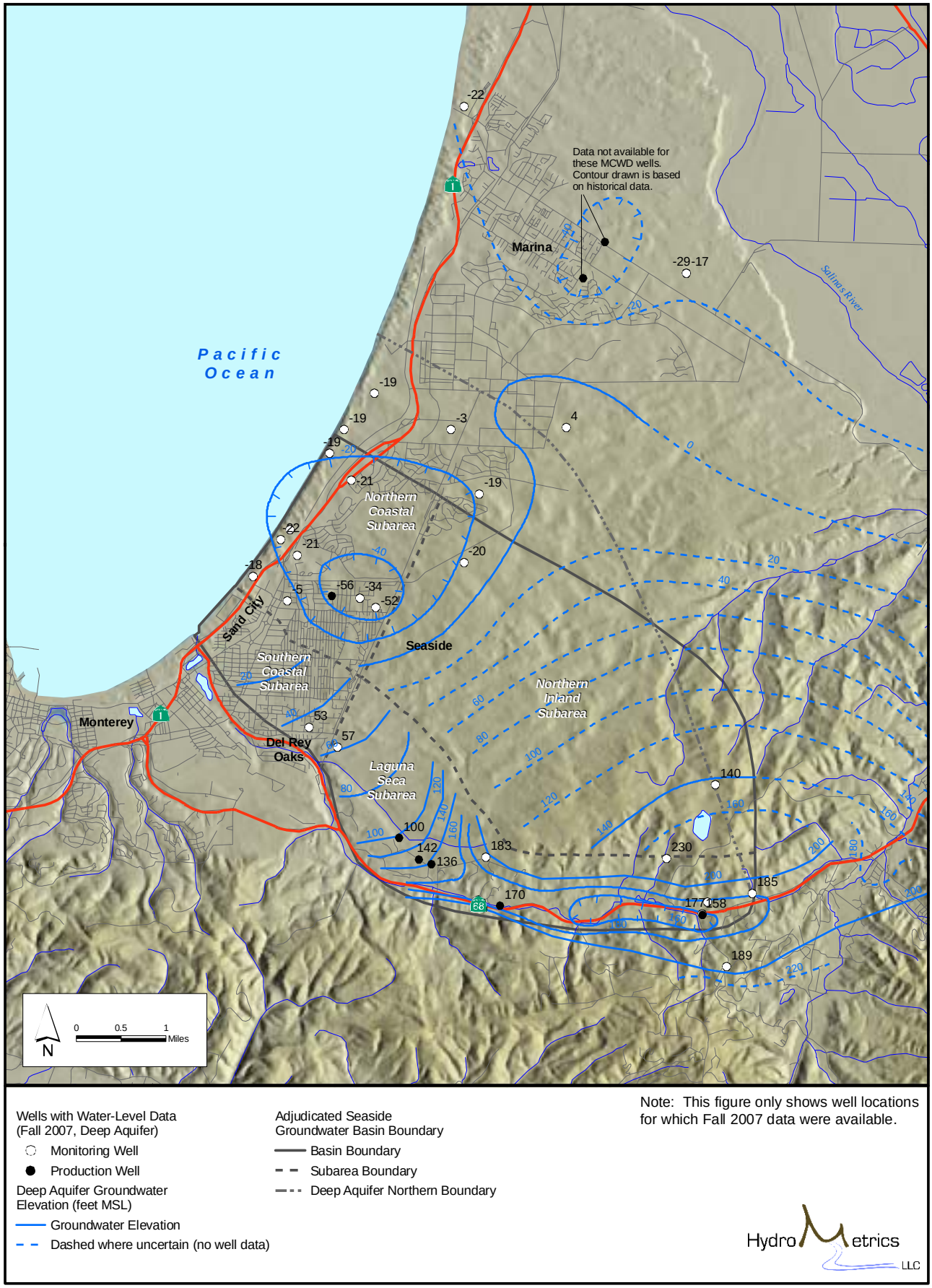
Adjudicated Seaside Groundwater Basin Boundary

- Basin Boundary
- Subarea Boundary
- Shallow Aquifer Northern Boundary

Note: This figure only shows well locations for which Fall 2007 data were available.

HydroMetrics LLC

*Figure 5: Groundwater Elevation Contours in the Shallow Aquifer (Correlated to the 400-Foot Aquifer in Salinas Valley) – Fall 2007*




Wells with Water-Level Data (Fall 2007, Deep Aquifer)

- Monitoring Well
- Production Well

Deep Aquifer Groundwater Elevation (feet MSL)

- Groundwater Elevation
- Dashed where uncertain (no well data)

Adjudicated Seaside Groundwater Basin Boundary

- Basin Boundary
- Subarea Boundary
- Deep Aquifer Northern Boundary

Note: This figure only shows well locations for which Fall 2007 data were available.

*Figure 6: Groundwater Elevation Contours in the Deep Aquifer (Correlated to the Deeper Aquifer in the Salinas Valley) – Fall 2007*

## 2.2 JURISDICTIONAL FRAMEWORK

In addition to the water management framework established by the court in *California American Water v. City of Seaside et al.*, Monterey County Superior Court, Case No. M66343, two public agencies--the Monterey County Water Resources Agency (MCWRA) and the Monterey Peninsula Water Management District (MPWMD)--have statutory powers over water resources in the Seaside Groundwater Basin. MCWRA is organized and existing under the Monterey County Water Resources Agency Act, Water Code Appendix, Chapter 52 (Agency Act), and its territory consists of "all of the territory of the county lying within the exterior boundaries of the county." (Agency Act, Section 52-4) Under the Act, MCWRA has broad powers to plan, design and implement flood control and water supply projects within its territory, including the power to "[a]ppropriate and acquire water and water rights, and import water into the agency and conserve within or outside the agency, water for any purpose useful to the agency." (Agency Act Section 52-9(d)(3)). While MCWRA retains its statutory powers in the Seaside Groundwater Basin, MCWRA is actively participating in Watermaster-directed efforts to address water supply issues in the Basin.

MPWMD is organized and existing under the Monterey Peninsula Water Management District Law, Water Code Appendix Chapter 118 (District Law) and its territory covers an area within the Monterey Peninsula as more particularly described in Section 118-102 of the District Law. MPWMD has the "power as limited in this law to do any and every lawful act necessary in order that sufficient water may be available for any present or future beneficial use or uses of the lands or inhabitants within the district, including, but not limited to, irrigation, domestic, fire protection, municipal, commercial, industrial, recreational, and all other beneficial uses and purposes." (District Law, Section 118-325). While MPWMD retains its statutory powers in the Seaside Groundwater Basin, MPWMD is actively participating in Watermaster-directed efforts to address water supply issues in the Basin. Historically, MPWMD and MCWRA have undertaken water monitoring and management activities within the Seaside Groundwater Basin pursuant to a Memorandum of Understanding between the two agencies.

Figure 7 includes a map depicting MCWRA's Zone 2C and the overlapping territories of MCWRA and MPWMD in the Seaside Groundwater Basin. The lands within Zone 2C are subject to certain restrictions, including but not limited

to restrictions on water exportation, which may limit the nature and scope of supplemental water supply projects or recommended groundwater management actions.

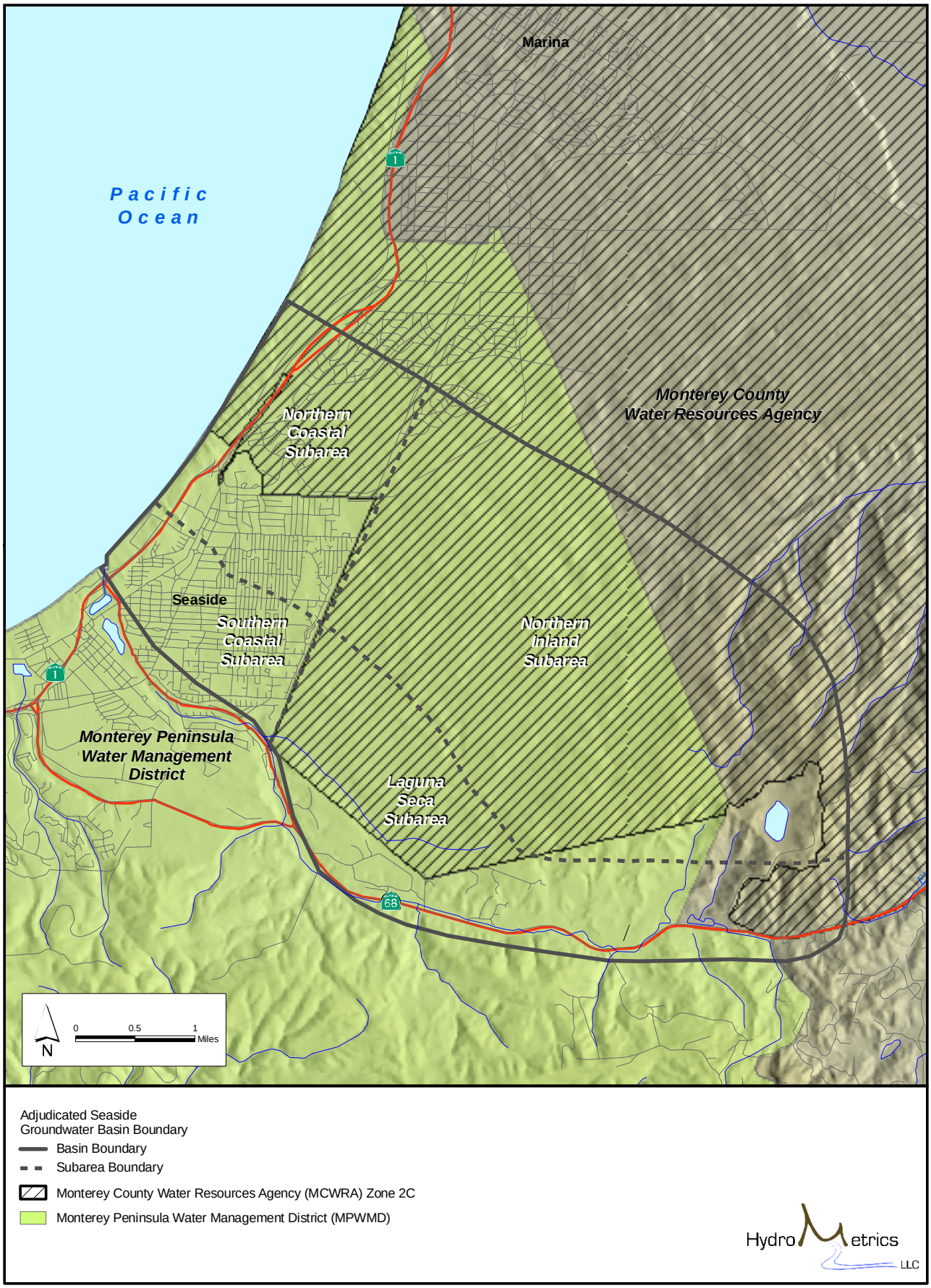



*Figure 7: Administrative Jurisdictions in the Seaside Groundwater Basin*

## 2.3 GROUNDWATER LEVELS

### 2.3.1 GROUNDWATER LEVEL MAPS

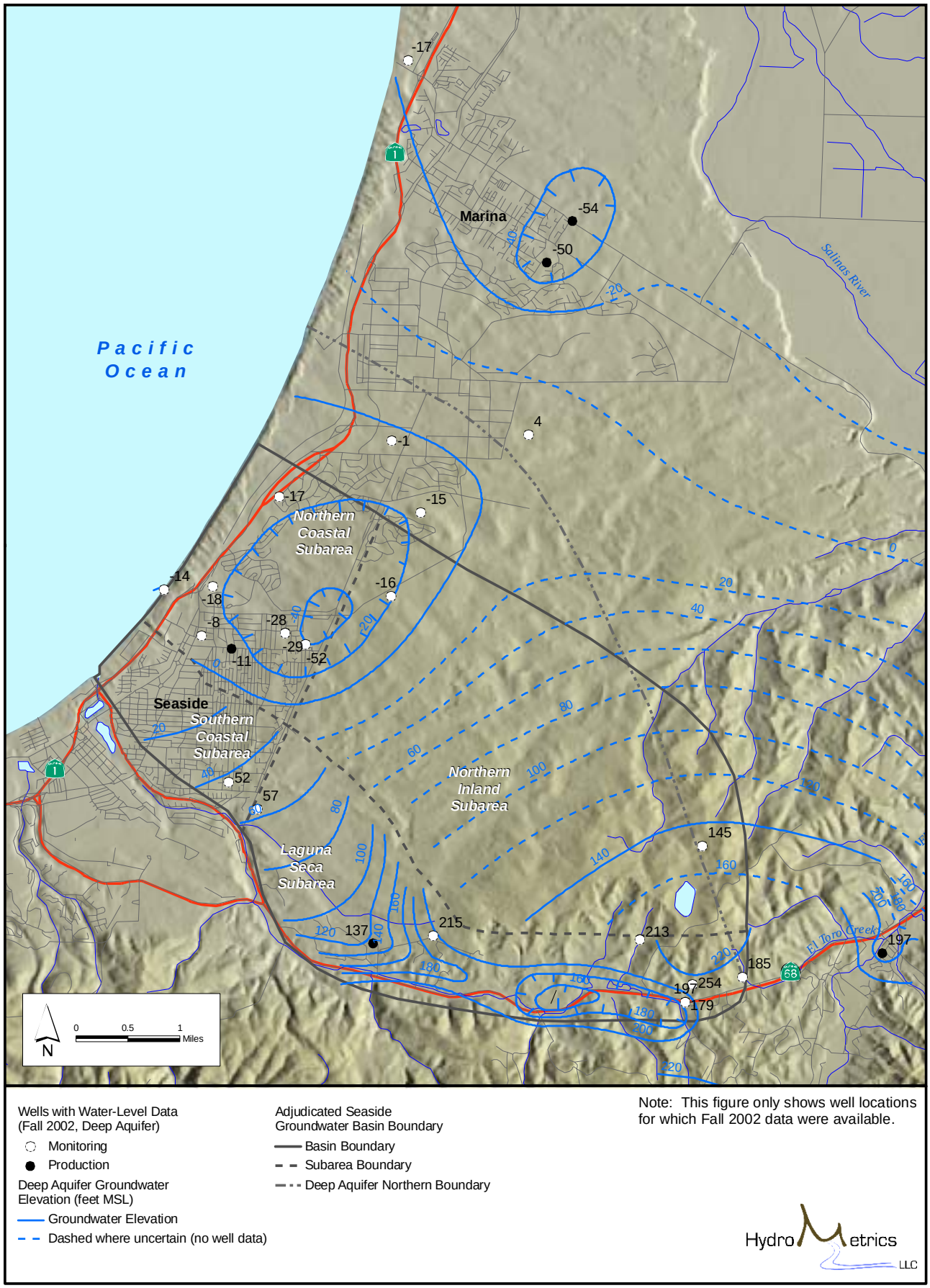
Basinwide contours of groundwater levels were prepared by Yates et al. (2005) using data from 2002. These contours were updated with data collected on or around October 2006 by HydroMetrics LLC (2007). The contours were again updated for the 2007 *Seawater Intrusion Analysis Report* (HydroMetrics LLC, 2008) using fall 2007 data. Consistent with previous studies, water levels were grouped by well depth and contoured by hand.

Groundwater levels from the Seaside Groundwater Basin shallow aquifer were combined with groundwater levels from the lower Pressure 180-foot and Pressure 400-foot aquifers in the former Fort Ord and Salinas Valley. Groundwater levels from the Seaside Groundwater Basin deep aquifer were grouped with the groundwater levels from the new sentinel wells and the deep aquifer zone in the Marina area. Figure 5 and Figure 6 show the resulting water-level contour maps for fall 2007. For reference, Figure 8 and Figure 9 show the corresponding contour maps for fall 2002 water levels.

The groundwater level maps show that water levels in the deep aquifer are generally below water levels in the shallow aquifer. This is because the shallow aquifer is unconfined, meaning it receives recharge from rainfall, and pumping results in relatively less drawdown. The deeper aquifer is confined, meaning little water leaks into it from above, and pumping results in relatively greater drawdown. The recharge mechanism for the deeper aquifer is poorly understood at this time.

In general, the contour maps show that the fall 2007 groundwater contours for the shallow and deep aquifers have retained the general shape as in previous years. The contour shape reflects the movement of groundwater, which flows from high to low elevations at right angles to the contours.

*Figure 8: Groundwater Elevation Contours in the Shallow Aquifer (Correlated to the 400-Foot Aquifer in Salinas Valley) – Fall 2002*




Wells with Water-Level Data (Fall 2002, Deep Aquifer)

- Monitoring
- Production

Deep Aquifer Groundwater Elevation (feet MSL)

- Groundwater Elevation
- Dashed where uncertain (no well data)

Adjudicated Seaside Groundwater Basin Boundary

- Basin Boundary
- Subarea Boundary
- Deep Aquifer Northern Boundary

Note: This figure only shows well locations for which Fall 2002 data were available.

HydroMetrics LLC

*Figure 9: Groundwater Elevation Contours in the Deep Aquifer (Correlated to the Deeper Aquifer in the Salinas Valley) – Fall 2002*

### 2.3.2 NORTHERN SUBBASIN HYDROGRAPHS

#### *2.3.2.1 NORTHERN COASTAL SUBAREA - SHALLOW AQUIFER*

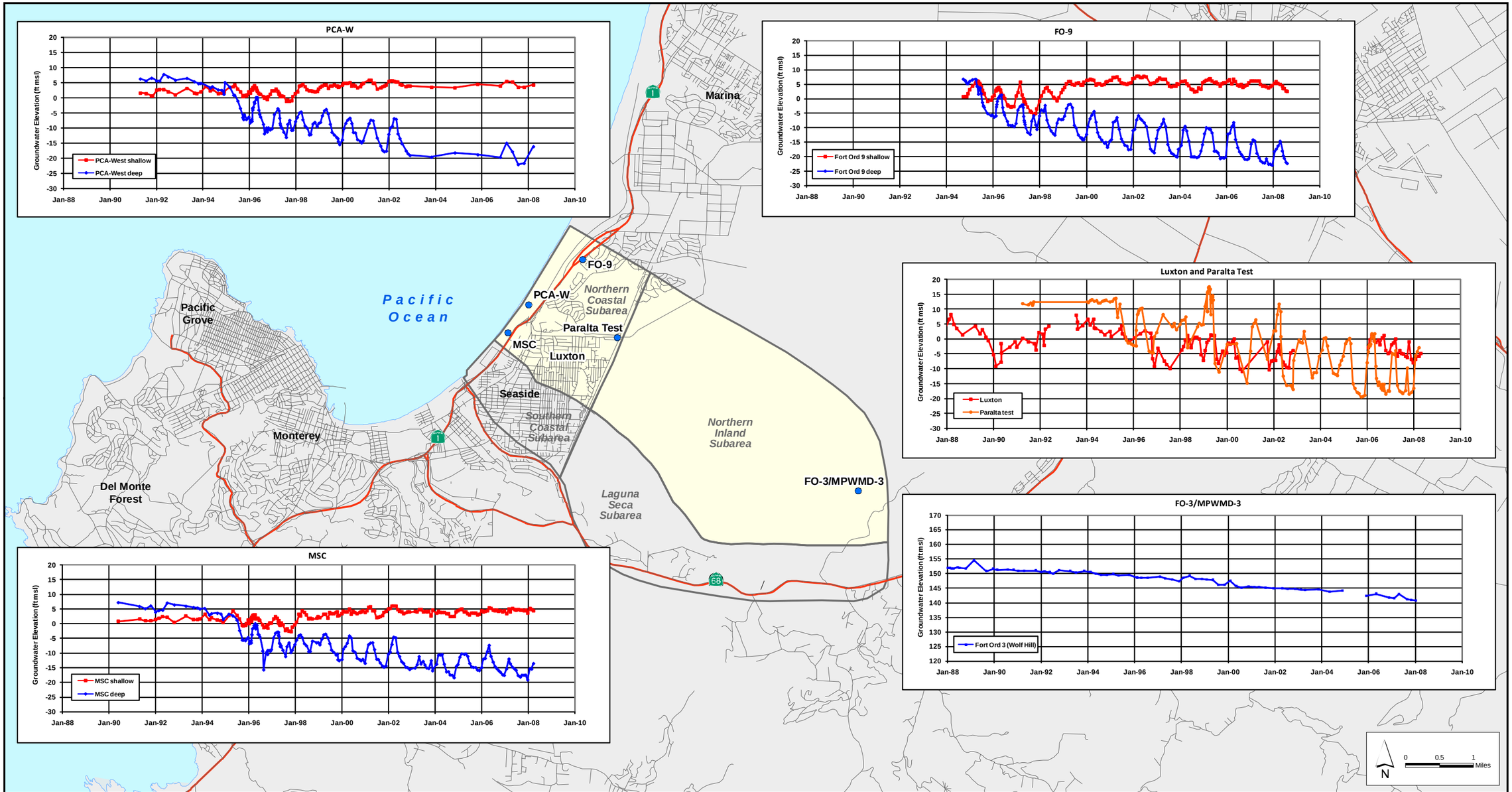
Shallow aquifer groundwater level trends in the Northern Coastal subarea can be seen on the red and orange lines in the hydrographs depicted on Figure 10. Groundwater levels in the shallow aquifer nearest the coast showed a slight rise over this period, while levels farther inland showed a slight lowering.

#### *2.3.2.2 NORTHERN COASTAL SUBAREA - DEEP AQUIFER*

Deep aquifer groundwater level trends in the Northern Coastal Subarea can be seen on the blue lines in the hydrographs depicted on Figure 10. Groundwater levels in the deep aquifer continued their ongoing decline, with an average net decline of 5 feet between 2002 and 2007.

Figure 11 shows groundwater levels in all four of the Watermaster's Sentinel Wells having similar seasonal water level trends. Groundwater in each well recovered from approximately -22 feet mean sea level (msl) in November-December 2007 to approximately -16 feet msl in late March 2008. Superimposed on the seasonal trend are daily fluctuations driven by ocean tides and variations in response to groundwater pumping at major production wells. The response to ocean tides observed in these hydrographs is a response to pressure loading from tidal changes, and does not imply a direct hydraulic flow path between the ocean and these sentinel wells.

The larger variations seen in the sentinel well hydrographs correlate to production at CAW's Paralta and Ord Grove wells (locations shown on Figure 1). The magnitude of the water-level response at the sentinel wells decreases with increasing distance from the CAW wells, further confirming that the water levels are responding to CAW pumping. This is particularly evident during the February 2008 pumping event where the decline in groundwater level decreases northwards away from the CAW wells. In general, the water-level responses were nearly simultaneous among the four wells, suggesting that the pressure drop propagated rapidly from the pumping wells. Review of pumping data from Marina Coast Water District's (MCWD) Wells 10 and 11 showed a lack of correlation with groundwater levels in the sentinel wells, thereby supporting the finding that the sentinel wells are influenced by wells in the Seaside Groundwater Basin.




Hydrograph Location

Note: Red and orange colors on hydrogrpahs indictae shallow aquifer wells, and blue indicates deep aquifer wells.

*Figure 10: Northern Subbasin Hydrographs*

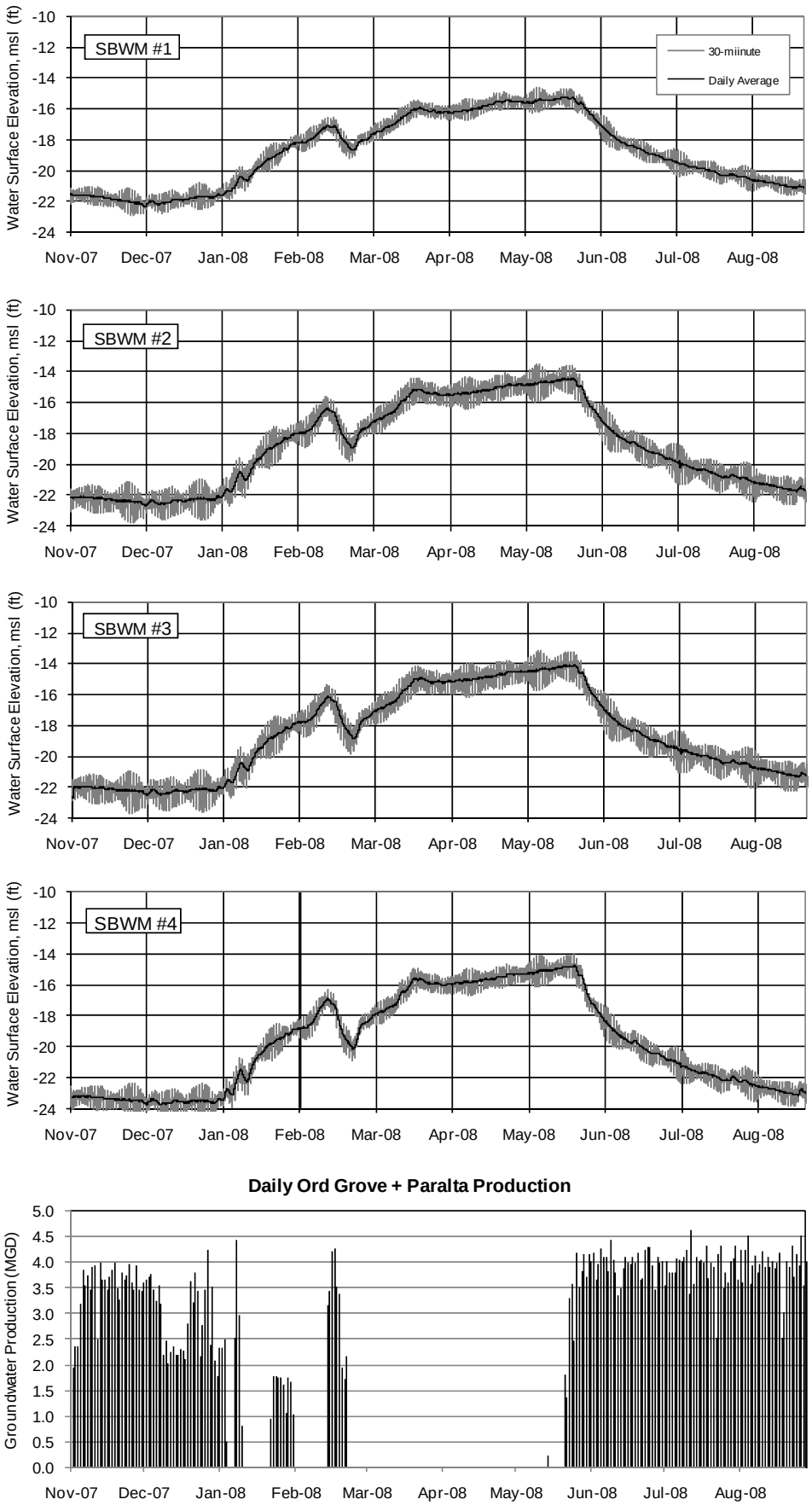



*Figure 11: Deep Sentinel Well Hydrographs and Nearby Pumping*

#### *2.3.2.3 Northern Inland Subarea*

As shown in Figure 10, groundwater levels in monitoring well Fort Ord 3 (Wolf Hill) near the most inland corner of the northern subbasin continues to decline at a rate of approximately 0.5 - 1 feet per year. Groundwater level data for this subarea is extremely limited due to a lack of wells.

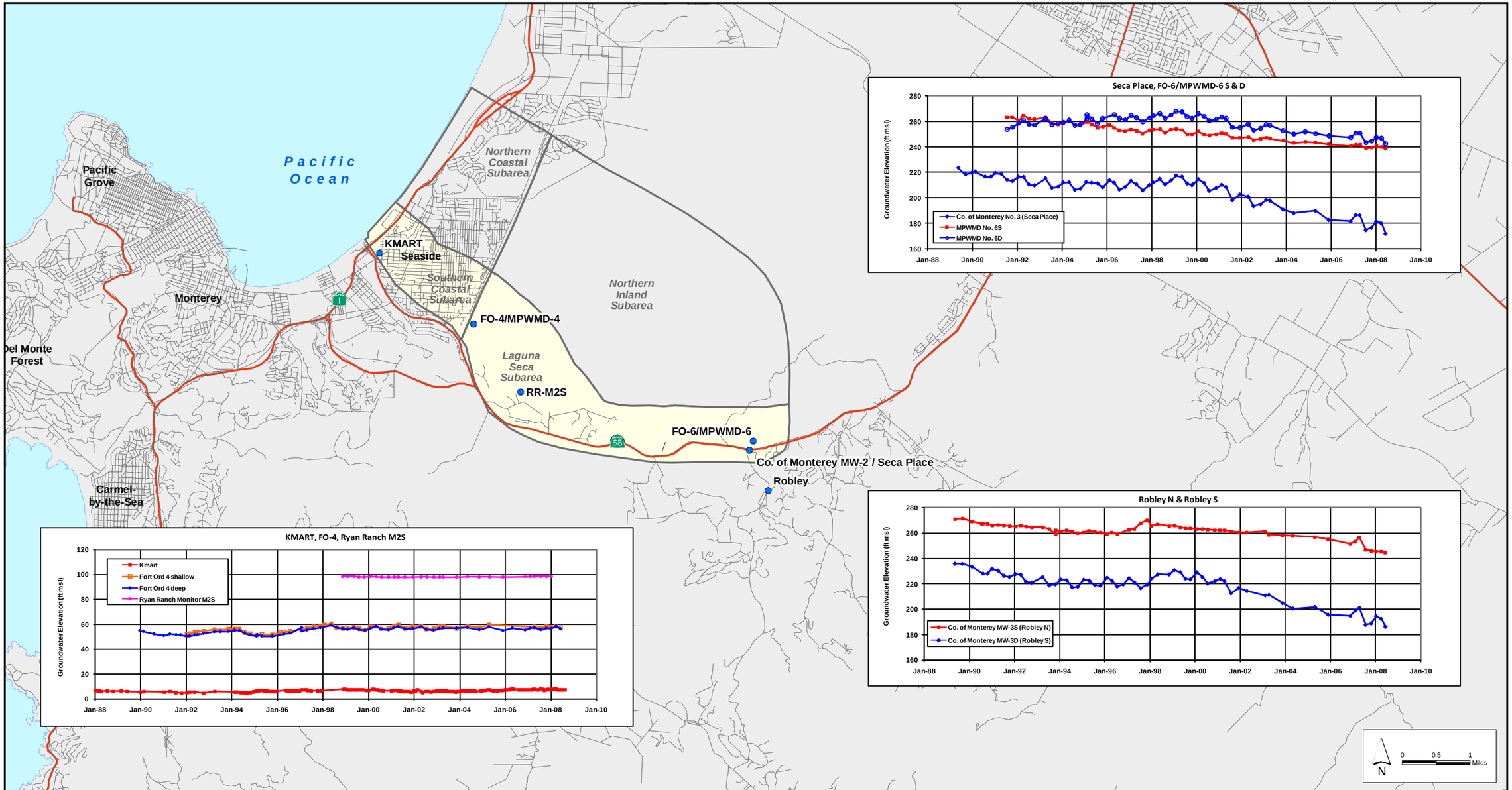
### 2.3.3 Southern Subbasin Hydrographs

#### *2.3.3.1 Southern Coastal Subarea*

Hydrographs for selected wells in both shallow and deep aquifer in the Southern Coastal subarea are shown in Figure 12. Groundwater levels in the Southern Coastal subarea have been stable in recent years, with essentially flat hydrographs.

#### *2.3.3.2 Laguna Seca Subarea*

Hydrographs for selected wells in the Laguna Seca subarea are shown in Figure 12. Groundwater levels in both the shallow and deep aquifers in this subarea are declining rapidly, at rates averaging as high as 4 feet per year (Figure 12).




Hydrograph Location

Note: Red and orange colors on hydrogrpahs indictae shallow aquifer wells, and blue indicates deep aquifer wells.

*Figure 12: Southern Subbasin Hydrographs*

### 2.3.4 GROUNDWATER LEVEL CONCLUSIONS

A number of observations and conclusions relevant to the storage analysis can be drawn from these water-level data:

- Although the sentinel wells are not screened completely in the Santa Margarita Sandstone, groundwater levels in these wells generally reflect conditions in the deep aquifer.

- The deep aquifer is highly confined. High confinement means there is very little leakage into the aquifer from above. It is apparent that vertical leakage within the aquifer system is low near the coast, which retards the downward movement of seawater. Supporting this statement are:

  - Drawdown of groundwater levels in the sentinel wells correlates closely with pumping cycles in the Ord Grove and Paralta production wells, despite being relatively distant from these wells. For responses to pumping at such a distance to be seen in the sentinel wells, confined conditions that are sensitive to such changes must be occurring.

  - The prominent tidal fluctuations observed in sentinel well groundwater levels is a common occurrence in confined aquifers.

- Including groundwater levels from the sentinel wells in the groundwater contours reveals a relatively flat groundwater surface extending north along the coast, at an elevation of about 20 feet below sea level. There is still a flow divide between the Seaside Groundwater Basin and the Salinas Valley, but the flow divide is below sea level.

- The presence of groundwater levels well below sea level along the coastline implies that seawater will likely eventually intrude into that area. Although intrusion may take many years or decades to occur, groundwater levels need to be increased to above sea level to ensure protection of the aquifers.

- The continued steady long-term decline of groundwater levels over the last 20 years at Well FO-3/MPWMD-3 indicates that coastal pumping

influences groundwater levels in the Northern Inland Subarea, (Figure 10).

- Water levels declined from fall 2002 to fall 2007 in all parts of the Seaside Groundwater Basin except the in Southern Coastal Subarea and in shallow wells near the coast in the Northern Coastal Subarea. In those locations, water levels remained stable or increased slightly. The overall water-level declines in the rest of the Seaside Groundwater Basin confirm that the current basinwide Operating Yield exceeds the basinwide Natural Safe Yield.

- The continued lowering of water levels in the Laguna Seca Subarea is creating a new flow divide in the vicinity of York Road Well. East of the new divide, groundwater will either be captured internally by the growing cone of depression, or could potentially begin flowing northeast in the direction of the El Toro Creek drainage, depending on the rate of decline in water levels in the adjacent El Toro area.

## 2.4 GROUNDWATER STORAGE

As this report is the first attempt to determine groundwater storage in the Seaside Groundwater Basin, it includes a broad discussion of storage concepts and creates a conceptual framework for implementing the provisions of the Amended Decision that deal with storage. The concepts are applied to obtain quantitative estimates of groundwater storage under current and historical conditions. Estimates of storage changes between 2002 and 2007 are used to refine the groundwater budget and review the Natural Safe Yield of the Seaside Groundwater Basin.

### 2.4.1 STORAGE CONCEPTS

Three key storage terms used in this section are *Total Stored Groundwater*, *Usable Stored Groundwater*, and *Total Usable Storage Space*.

- *Total Stored Groundwater* in a basin is the total volume of groundwater below the water table and above the impermeable geologic materials that form the bottom of the basin.

- *Usable Stored Groundwater* is a subset of total stored groundwater and reflects limitations imposed by well depths, well locations, seawater intrusion threats, aquifer layering, etc. Some of these limitations are fixed characteristics of the natural system that are difficult to change. Others are man-made characteristics such as well locations and land use that could be changed to optimize the amount of usable storage space.

- *Total Usable Storage Space* refers to the usable portion of the aquifer above the water table that is currently unsaturated and could be used for artificial recharge and storage. It can be thought of as the volume of storage that is currently unused, and therefore available for storage of replenishment water. It is defined in the Amended Decision (Section III.A.41) as:

  *"Total Useable Storage Space means the maximum amount of space available in the Seaside Groundwater Basin that can prudently be used for Storage as shall be determined and modified by Watermaster… less Storage space which may be reserved by the Watermaster for its use in recharging the Basin."*.

In practice, most of the *Total Useable Storage Space* and most of the *Usable Stored Groundwater* is in the shallowest portion of most basins because unconfined aquifers have more storage capacity. Water deep within a basin cannot be withdrawn without risking seawater intrusion, lowering groundwater levels at nearby wells, subsidence, or other undesirable outcomes. The simplest approach is to consider all groundwater and all storage space below sea level as unusable regardless of distance from the coast. A more realistic approach considers the difference in density between seawater and freshwater. For simplicity we have adopted the Ghyben-Herzberg assumption that the water table must be above sea level by a height equal to one-fortieth of the depth to which intrusion is to be prevented. In the Seaside Groundwater Basin, some active production wells extend to a depth of nearly 500 feet below mean sea level. In order to repel seawater down to that depth, a groundwater elevation about 13 feet above mean sea level would need to be maintained in the well.

The ability to use storage space is further limited by the locations of wells. The distribution of wells in the Seaside Groundwater Basin is extremely uneven. Moving production wells inland would smooth out and redistribute the coastal area cone of depression, resulting in less associated risk of seawater intrusion

and allow more efficient access to *Usable Stored Groundwater* in the Northern Inland subarea.

### 2.4.2 QUANTITATIVE ESTIMATES OF GROUNDWATER STORAGE

#### *2.4.2.1 TOTAL STORED GROUNDWATER*

The *Total Stored Groundwater* in the Seaside Groundwater Basin has been estimated in several previous technical studies and by MPWMD as part of their basin monitoring program. These estimates relied on various different assumptions, and areas, so the values may not be strictly comparable to each other. However, the method employed by all storage estimates is similar: it is calculated as the product of a geographic area, a vertical distance between two water-level surfaces, and a storage coefficient.

Table 1 summarizes previous estimates of *Total Stored Groundwater*. Those estimates that included the whole Seaside Groundwater Basin resulted in a range of groundwater in storage of between 439,000 and 730,200 acre-feet. The table also provides some of the key assumptions and parameter values used to develop the estimates. Of the different assumptions used, the greatest source of discrepancy among the estimates on Table 1 stems from the use of different geographic areas for the analysis.

## *Table 1: Previous Estimates of Seaside Groundwater Basin Groundwater in Storage*

| Investigation | Geographic Area: Name | Geographic Area: Size (ac) | Aquifer | Total Groundwater in Storage: Water-Level Range Defining Storage Volume: Upper | Total Groundwater in Storage: Water-Level Range Defining Storage Volume: Lower | Average Saturated Thickness (ft) | Gross Aquifer Volume (ac-ft) | Storage Coefficient | Storage Capacity (ac-ft) | Usable Groundwater in Storage: Lower Water-Level Range | Usable Groundwater in Storage: Storage Capacity (ac-ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K. S. Muir (1982) | Storage unit 1[1] | 6,200 | All | Fall 1979 | Top of Monterey Fm.? | 550 | 3,410,000 | 0.12 | 409,200 | Sea level | 170,000 |
| | Storage unit 2[1] | 5,700 | All | Fall 1979 | Top of Monterey Fm.? | 350 | 1,995,000 | 0.12 | 239,400 | Sea level | 60,000 |
| | Storage unit 3a[1] | 2,000 | All | Fall 1979 | Top of Monterey Fm.? | 200 | 400,000 | 0.12 | 48,000 | Sea level | 5,000 |
| | Storage unit 3b[1] | 1,400 | All | Fall 1979 | Top of Monterey Fm.? | 200 | 280,000 | 0.12 | 33,600 | Sea level | 4,000 |
| | Total | 15,300 | | | | | 6,085,000 | | 730,200 | | 239,000 |
| Converse Consultants (1985) | Southeast part of Northern Inland Subarea | 3,840 | SM | Top of Santa Margarita | Bottom of Santa Margarita | 200 | 768,000 | 0.12 | 92,000 | Bottom of Santa Margarita | 92,000 |
| Staal, Gardner & Dunne, Inc. (May 1987) | East[2] | 4,400 | All | Spring 1987 | Top of Monterey Fm. | 450 | 1,980,000 | 0.12 | 237,600 | | |
| | Central[2] | 3,900 | All | Spring 1987 | Top of Monterey Fm. | 250 | 975,000 | 0.12 | 117,000 | | |
| | Southern Subbasin[3] | 940 | All | Spring 1987 | Top of Monterey Fm. | 300 | 282,000 | 0.12 | 33,800 | Sea level | 2,900 |
| | Northern Coastal | | | | | | | | | | |
| | North Central[4] | 1,400 | All | Spring 1987 | Top of Monterey Fm. | 300 | 420,000 | 0.12 | 50,400 | | |
| | Northern Subbasin[5] | 970 | All | Spring 1987 | Top of Monterey Fm. | 300 | 291,000 | 0.12 | 34,900 | Sea level | 1,800 |
| | Offshore | 3,400 | PR | Spring 1987 | Top of Monterey Fm.(?) | 200 | 680,000 | 0.12 | 81,600 | | |
| | Total | 11,610 | | | | | 4,628,000 | | 555,300 | | 4,700 |
| Staal, Gardner & Dunne, Inc. (August 1990) | East[6] | 3,400 | All | Spring 1984 | Top of Monterey Fm. | 450 | 1,530,000 | 0.12 | 183,600 | | |
| | Central[7] | 3,790 | All | Spring 1984 | Top of Monterey Fm. | 250 | 948,000 | 0.12 | 113,800 | | |
| | Southern Subbasin[8] | 1,290 | All | Spring 1984 | Top of Monterey Fm. | 300 | 387,000 | 0.12 | 46,400 | Sea level | 3,000 |
| | Northern Coastal[9] | 790 | All | Spring 1984 | Top of Monterey Fm. | 400 | 316,000 | 0.12 | 37,900 | | |
| | Fort Ord[10] | 1,300 | All | Spring 1984 | Top of Monterey Fm. | 500 | 650,000 | 0.12 | 78,000 | Sea level | 3,250 |
| | Offshore Southern | 680 | PR | Spring 1984 | Top of Monterey Fm. | 100 | 68,000 | 0.12 | 8,200 | | |
| | Offshore Northern and Ft. Ord | 1,640 | All | Spring 1984 | Top of Monterey Fm.(?) | 500 | 820,000 | 0.12 | 98,400 | | |
| | Total | 11,250 | | | | | 4,719,000 | | 566,300 | | 6,250 |
| CH2M-HILL (2004) | Coastal subareas | ? | All | 1963 | Top of Monterey Fm. | Varies (contoured surfaces) | 1,633,000 | 0.09 | 147,000 | | |
| | Entire onshore basin | 14,000 | All | 1963 | Top of Monterey Fm. | Varies (contoured surfaces) | 5,378,000 | 0.09 | 484,000 | | |
| | Coastal subareas | ? | All | 2002 | Top of Monterey Fm. | Varies (contoured surfaces) | 1,633,000 | 0.09 | 147,000 | | |
| | Entire onshore basin | 14,000 | All | 2002 | Top of Monterey Fm. | Varies (contoured surfaces) | 4,878,000 | 0.09 | 439,000 | | |

Notes:

1 Muir's storage units 1 and 2 cover the eastern and central halves of the combined "Northern Inland" and "Laguna Seca" subareas of Fugro (1997), with minor external boundary differences. Storage units 3a and 3b together cover the coastal subareas of Fugro (1997), but the dividing line is very different from the boundary between the "Southern Coastal" and "Northern Coastal" subareas.

[2] SGD (1987) "East" and "Central" Subbasins are together approximately equivalent to the "Northern Inland Subarea" of subsequent studies.

[3] SGD (1987) "Southern Subbasin" corresponds to the "Southern Coastal Subarea" of subsequent studies.

[4] SGD (1987) "North Central Subbasin" corresponds to the "Fort Ord Subarea" of Fugro (1997) and is included in the "Northern Coastal" subarea of Yates et al (2005).

[5] SGD (1987) "Northern Subbasin" corresponds to the "Northern Coastal Subarea" of Fugro (1997) and is included in the "Northern Coastal" subarea of Yates et al (2005)

[6] Decreased from 1987 area based on updated hydrogeologic information.

[7] Decreased from 1987 area based on updated hydrogeologic information.

[8] Boundary between Southern Coastal and Laguna Seca subareas farther inland than in 1987 study.

[9] Corresponds to the "Northern Coastal Subarea" of Fugro (1997).

[10] Corresponds to the "Fort Ord Subarea" of Fugro (1997).

### 2.4.2.2 USABLE STORED GROUNDWATER

Current estimates of *Usable Stored Groundwater* were developed for this report using an approach similar to those used in previous investigations. As mentioned previously, storage was calculated as the product of a geographic area, a vertical distance between two water-level surfaces, and a storage coefficient. Two types of storage coefficients were used: specific yields and storativities. Specific yield (or drainable porosity) is the volume of water an unconfined aquifer will yield when all the water is allowed to drain out of it under the forces of gravity. Storativity is a measure of the volume of water a confined aquifer releases per unit surface area of the aquifer per unit change in head. Both specific yields and storativities are measured as percentages of the total aquifer volume. Storativities are orders of magnitude smaller than specific yields.

Different geographic areas were used for the shallow and deep aquifers in the northern subbasin, reflecting the different locations of the flow divides in those aquifers that define the northeast boundary of the Seaside Groundwater Basin ( Figure 5 and Figure 6). The southern boundary is the same for both aquifers.

A specific yield of 0.0805 and a storativity of 0.0005 were used in the storage calculations. The specific yield value was obtained by calibrating a groundwater model to long-term water-level changes (Yates et al., 2002) and is similar to the value obtained by CH2M HILL (2004) using a different method. The storativity value was used to calculate *Useable Stored Groundwater* for the confined deep aquifer; and a storativity-plus-specific-yield storage coefficient was used to calculate *Useable Stored Groundwater* for the shallow aquifer.

Several elevation surfaces were used to calculate components of storage, as follows:

- **Ghyben-Herzberg level.** This water-level surface reflects the head needed in onshore aquifers to compensate for the greater density of seawater. A map was prepared showing the elevations of the bottom of the screened intervals in all production wells near the coast. These elevations were contoured to create a smooth envelope extending downward from sea level at the coastline, passing below all of the production wells, and rising symmetrically back to sea level east of the

coastal wells. This envelope defined the depth to which seawater needs to be repelled to prevent impacts to these wells. These elevation contours were converted to a minimum Ghyben-Herzberg water-level surface by dividing the elevations by 40. The result is shown in Figure 13. The Paralta Well is the deepest well (477 feet below mean sea level) and is the reason for the observed mound in elevations on Figure 13. Although there are few coastal production wells near the northern edge of the Seaside Groundwater Basin, a minimum elevation of +2 feet msl was included in that area to provide a small amount of protection against density-driven inflow around the edge of the main pumping center. Note that because this map was based on the depths of production wells, the elevations on this map are only protective of these production wells, and do not protect against seawater intrusion throughout the Seaside Groundwater Basin. The purpose of the map was to produce an initial water surface that could be used only to estimate *Useable Stored Groundwater*. In order to protect the entire Seaside Groundwater Basin, this map must be extended to reflect the depths of all aquifers that should be protected against seawater intrusion. Using the protective elevations for all aquifers will result in a surface that would be generally higher near the coast than the one depicted on Figure 13.

**Pre-development water table.** This water surface is intended to represent the highest water levels that would occur under conditions of natural recharge and no groundwater pumping. This surface was estimated by constructing a simple groundwater model. Contours of the resulting simulated groundwater surface are shown in Figure 14.

- **Fall 2007 groundwater elevations.** These are contours of the groundwater elevations described in Section 2.2 - Groundwater Levels. The fall 2007 contours approximate current conditions.

A graphical representation of the relationship between the various surfaces is shown in Figure 15 . The amount of *Total Stored Groundwater* was calculated by subtracting two surfaces (i.e., predevelopment and Ghyben-Herzberg level; and fall 2007 and Ghyben-Herzberg level) and multiplying the resulting gross volumes by the storage coefficient. Table 2 lists the amount of *Usable Stored Groundwater* under pre-development and fall 2007 conditions, subtotaled by aquifer and grouped subareas.

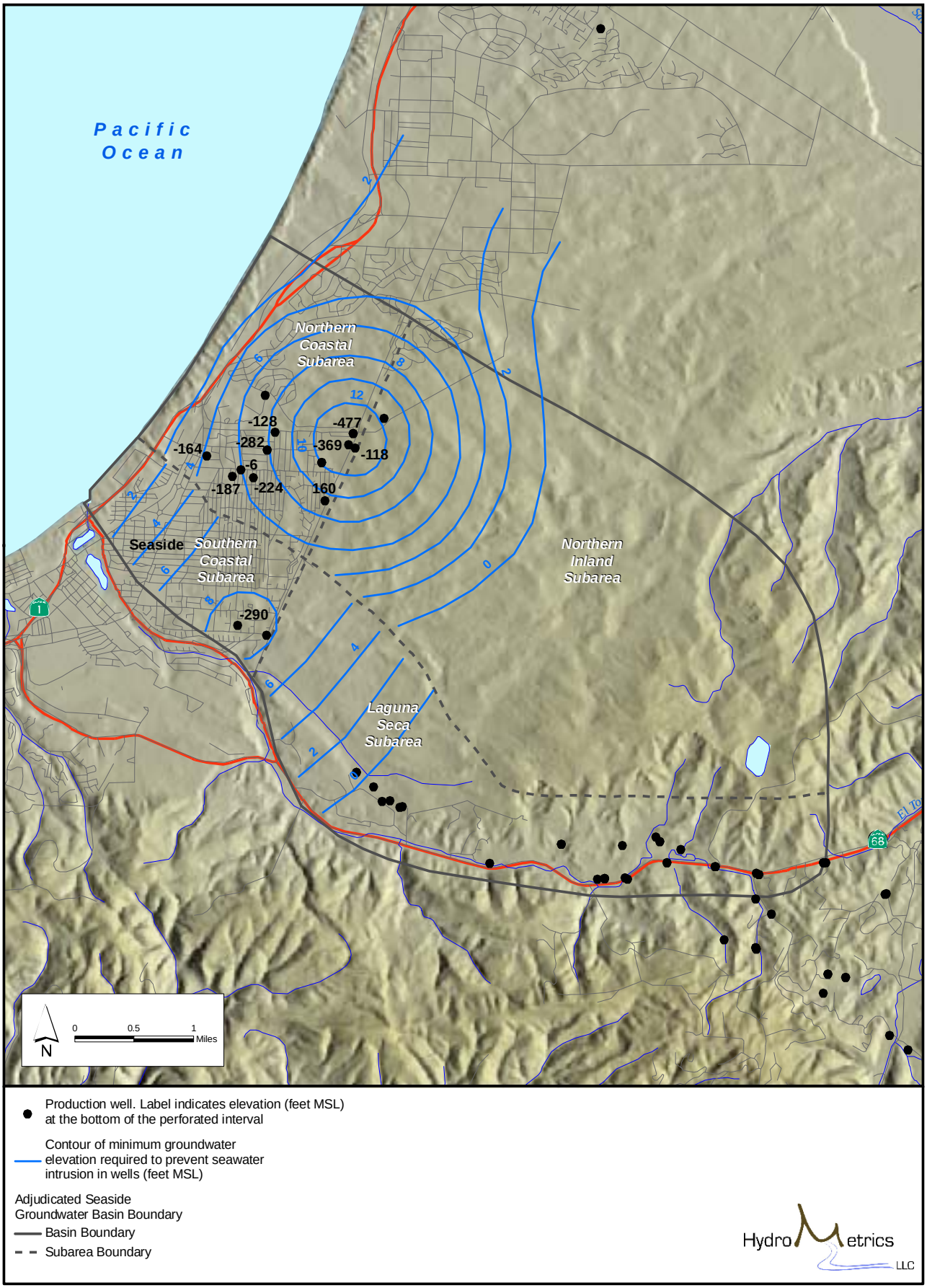



*Figure 13: Ghyben-Herzberg Protective Groundwater Levels Based on Well Depths*

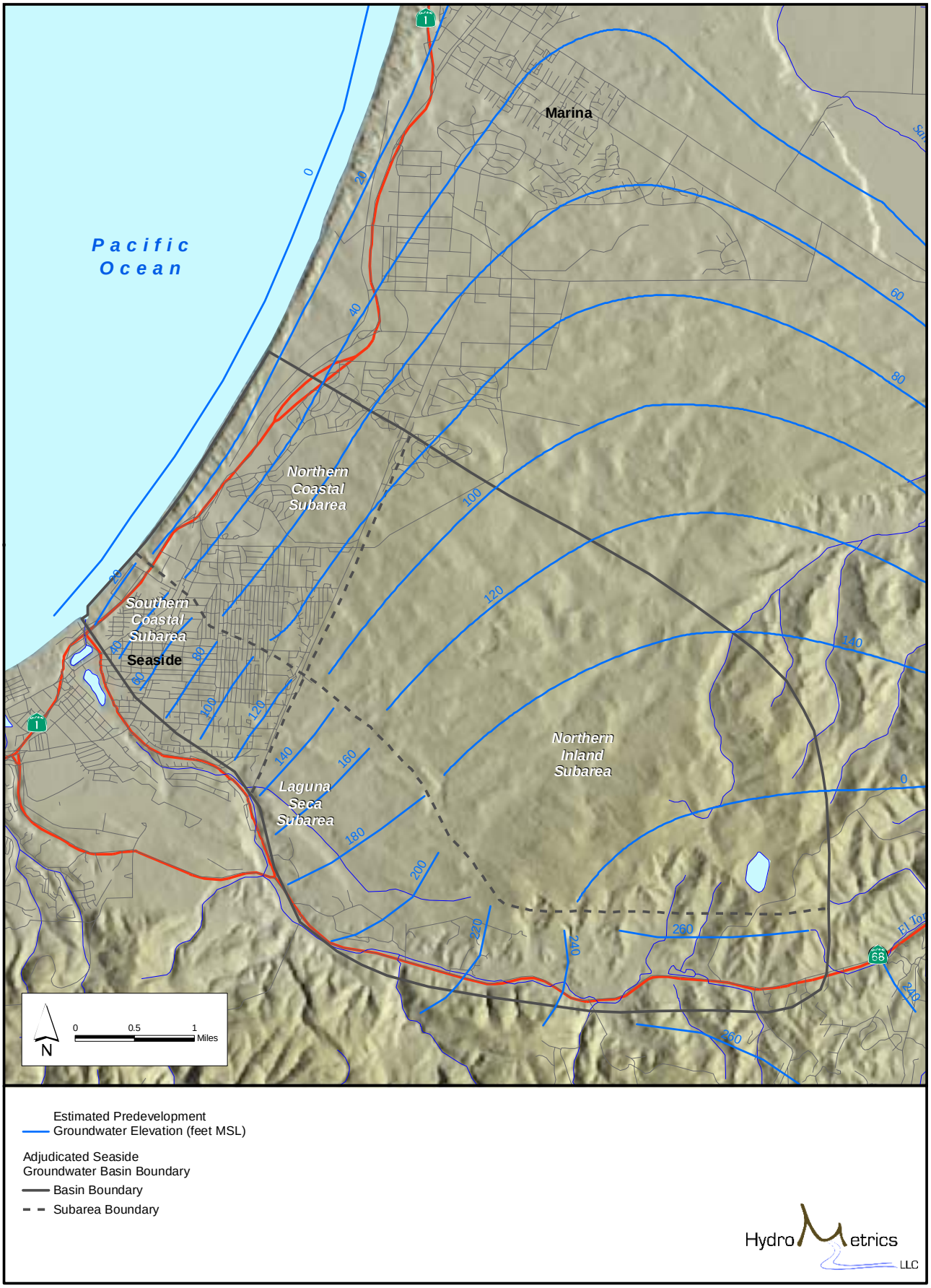



*Figure 14: Estimated Pre-Development Groundwater Levels*

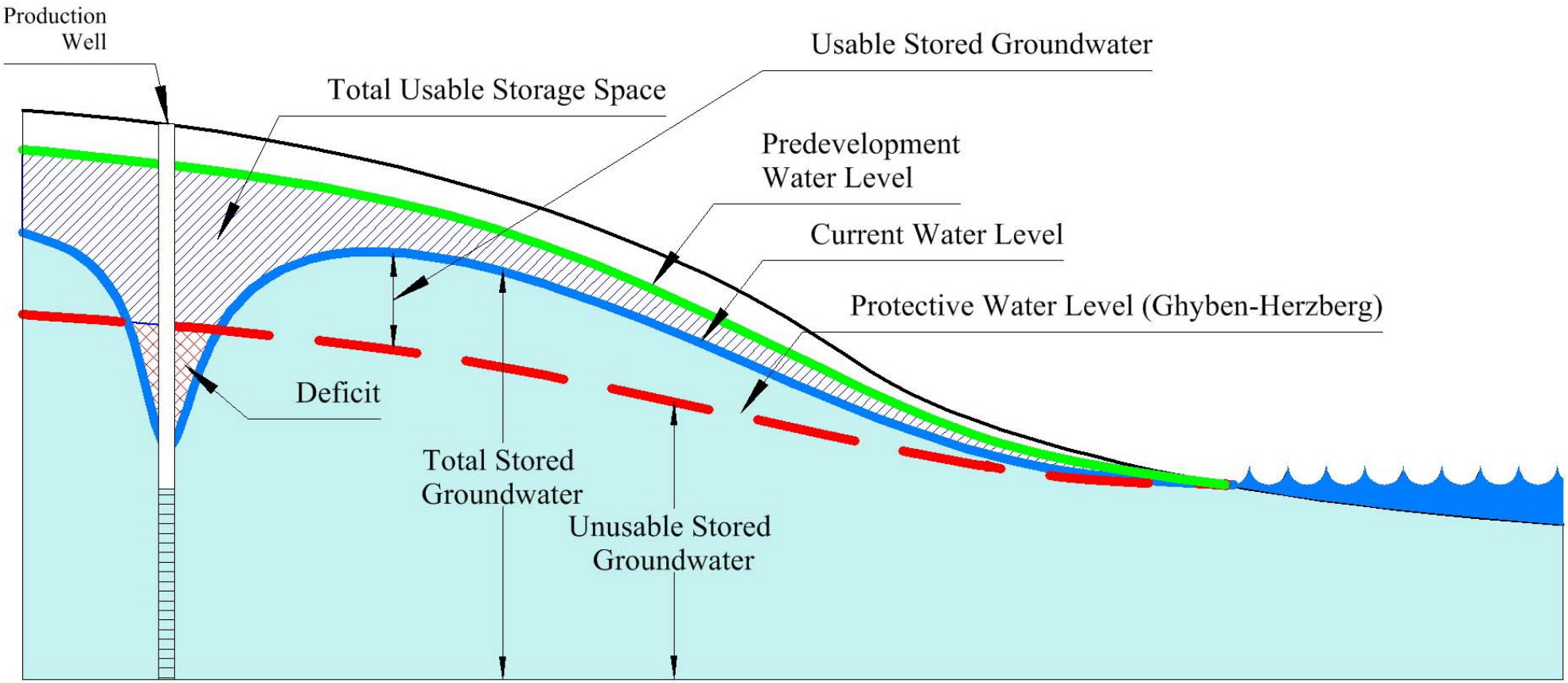



*Figure 15: Definition of Total Usable Storage Space*

*Table 2: Useable Stored Groundwater under Predevelopment and Fall 2007 Conditions Based on the Ghyben-Herzberg Level (GHL)*

| Groundwater Surface | Coastal and Northern Inland Subareas | | Laguna Seca Subarea | | Total | |
|---|---|---|---|---|---|---|
| | Storage above GHL | Deficit below GHL | Storage above GHL | Deficit below GHL | Storage above GHL | Deficit below GHL |
| | (acre-feet) | | | | | |
| Shallow Aquifer | | | | | | |
| Predevelopment | 60,919 | 0 | 64,526 | 0 | 125,445 | 0 |
| Fall 2007 | 27,332 | 2,102 | 44,409 | 0 | 71,741 | 2,102 |
| Deep Aquifer | | | | | | |
| Predevelopment | 549 | 0 | 401 | 0 | 950 | 0 |
| Fall 2007 | 198 | 65 | 260 | 0 | 458 | 65 |
| Total | | | | | | |
| Predevelopment | 61,468 | 0 | 64,926 | 0 | 126,394 | 0 |
| Fall 2007 | 27,530 | 2,167 | 44,669 | 0 | 72,199 | 2,167 |

Two significant conclusions can be drawn from these data:

- Over 99% of *Usable Stored Groundwater* is in the shallow aquifer because the specific yield value is 160 times larger than the confined storativity estimated for the deep aquifer.
- The amount of *Usable Stored Groundwater* in fall 2007 is slightly more than half of the pre-development amount.

### 2.4.2.3 TOTAL USABLE STORAGE SPACE

Similar to *Usable Stored Groundwater* calculated above, the *Total Usable Storage Space* was calculated as the product of a geographic area, a vertical distance between two water-level surfaces, and a storage coefficient. The lower surface for calculating the *Total Usable Storage Space* is the current groundwater level above the Ghyben-Herzberg protective level. The upper surface for calculating the *Total Usable Storage Space* is the estimated pre-development surface. It is possible to inject groundwater above this pre-development surface, but a more accurate

groundwater model would be required to estimate how much of the injected water could be recovered. Figure 15 shows the *Total Usable Storage Space* in blue diagonal lines. Unusable storage space, below the protective water levels, is shown with a red hatch and is referred to as deficit.

Based on the concepts presented above and illustrated in Figure 15, the *Total Usable Storage Space* can be estimated from data in Table 2. The *Total Usable Storage Space* is arrived at by calculating the difference between the total groundwater in storage under pre-development conditions with the *Total Stored Groundwater* in 2007. The resultant volumes are presented in Table 3.

*Table 3: Total Usable Storage Space Using Ghyben-Herzberg Surface (acre-feet)*

| | | **Pre-development** | **Fall 2007** | **Difference** |
|---|---|---|---|---|
| Coastal and Northern Inland Subareas | Storage | 61,470 | 27,530 | 33,940 |
| | Deficit | 0 | 2,170 | -2,170 |
| Laguna Seca Subarea | Storage | 64,930 | 44,670 | 20,260 |
| | Deficit | 0 | 0 | 0 |
| Total Basin | Storage | 126,400 | 72,200 | 54,200 |
| | Deficit | 0 | 2,170 | -2,170 |

Values obtained from Table 2 are rounded to the nearest 10

Combining the storage and deficit numbers in Table 3 results in the following:

*Total Usable Storage Space* in the
Coastal and Northern Inland Subareas ..... 31,770 acre-feet
*Total Usable Storage Space* in the Laguna Seca Subarea ..... 20,260 acre-feet
*Total Usable Storage Space*
in the entire Seaside Groundwater Basin ..... 52,030 acre-feet

For the purpose of allocating *Total Usable Storage Space*, the Watermaster has combined the *Total Usable Storage Space* of the Northern Inland Subarea with the *Total Usable Storage Space* of the Coastal Subareas, and allocated all of this space to the Coastal Subarea producers. This approach mirrors the way safe yield is allocated in the Amended Decision, which implicitly combines the Natural Safe Yield of the Northern Inland Subarea with the Natural Safe Yield estimate of the Northern and Southern Coastal Subareas.

Each producer's storage allocation is based on the amount of *Total Usable Storage Space* available in the Seaside Groundwater Basin. An initial estimate of storage allocation is provided in Table 4. Groundwater production is currently allocated in accordance with Sections III.B.2 and III.B.3 of the Amended Decision. This means that the producers listed in Table 2 of the Amended Decision have elected to participate in an Alternative Production Allocation at this time, and therefore do not currently have storage rights in the Basin as per the Amended Decision (Section III.B.3.b). Those producers are removed from the current allocation of storage space, and the remaining producers' allocation percentages are increased from the Standard Production Allocations (Table 1 of the Amended Decision) on a pro-rata basis to equal 100%. Alternative Producers may, however, subject to the provisions of the Amended Decision, convert to Standard Producers and thereby acquire storage rights. This is illustrated in the right-hand column of Table 4.

*Total Usable Storage Space* is a dynamic volume that changes with changing groundwater levels in the Seaside Groundwater Basin. The Watermaster is required under the Amended Decision to recalculate *Total Usable Storage Space* and adjust the allocation as needed. In particular, the estimates should be revised as improved tools for estimating storage space become available.

*Table 4: Initial Allocation of Usable Storage Space*

| Producer | Current Allocation (Using Table 1 of Amended Decision) | | Allocation if all Alternative Production Allocations are Converted to Standard Production Allocations (Using Table 1 of Amended Decision) | |
|---|---|---|---|---|
| | Allocation Percentage | Useable Storage Allocation (acre-feet) | Allocation Percentage | Useable Storage Allocation (acre-feet) |
| **Coastal and Northern Inland Subareas** | | | | |
| California American Water | 90.60% | 28,784 | 77.55% | 24,638 |
| City of Seaside (Municipal) | 7.43% | 2,361 | 6.36% | 2,021 |
| City of Seaside (Golf Courses)* | 0% | 0 | 10.47% | 3,326 |
| City of Sand City* | 0% | 0 | 0.17% | 54 |
| Granite Rock Company | 0.70% | 222 | 0.60% | 191 |
| SNG* | 0% | 0 | 2.89% | 918 |
| DBO Development No. 27 | 1.27% | 403 | 1.09% | 346 |
| Calabrese* | 0% | 0 | 0.27% | 86 |
| Mission Memorial Park* | 0% | 0 | 0.60% | 191 |
| **TOTAL** | **100%** | **31,770** | **100%** | **31,770** |
| **Laguna Seca Subarea** | | | | |
| California American Water | 100.00% | 20,260 | 45.13% | 9,143 |
| Pasadera Country Club* | 0% | 0 | 22.65% | 4,589 |
| Bishop* | 0% | 0 | 28.88% | 5,851 |
| York School* | 0% | 0 | 2.89% | 586 |
| Laguna Seca County Park* | 0% | 0 | 0.45% | 91 |
| **TOTAL** | **100%** | **20,260** | **100%** | **20,260** |

* Designates producer that is currently an Alternative Producer and therefore has no current storage allocation.

### 2.4.3 Recent Changes in Storage

The change in *Total Stored Groundwater* from fall 2002 to fall 2007 was estimated in order to compare it with the groundwater budget presented in the next subsection. For the northern subbasin, storage change was estimated by subtracting the 2002 water-level surface (Yates et al., 2005) from the 2007 water-level surface for the shallow and deep aquifers and multiplying the resulting volumes by their respective storage coefficients. This procedure resulted in an estimated net decrease in storage over the 5-year period of 3,650 acre-feet for the Northern Inland Subarea, or an average annual *Total Stored Groundwater* change of -730 acre-feet per year. The Northern Coastal Subarea portion of this subbasin had a decline in storage of -850 acre-feet over the 5-year period, or an average annual *Total Stored Groundwater* change of -170 acre-feet per year.

The storage change in the Southern Coastal subarea was calculated by multiplying the average water-level change at the Kmart and Fort Ord 4-shallow wells (+1.75 ft), the land surface area (1,052 acres) and storage factor (0.0805) to obtain a net storage increase during 2002-2007 of 148 acre-feet, or an average annual storage change of +30 acre-feet per year. The cause of this rise is unknown.

The method used to estimate the change in *Total Stored Groundwater* in the Northern Subbasin proved to be unsuitable for the Laguna Seca Subarea because of a large degree of local spatial variability in water levels at clusters of wells, and uncertainty in extrapolating contours to the edges of the basin. An alternative method was developed that takes advantage of the results of a previous groundwater modeling study of the Laguna Seca Subarea (Yates et al., 2002). The simulated annual changes in *Total Stored Groundwater* between 1995 and 2001 were compared with annual changes in measured water levels at five wells (Figure 16`). The resulting linear regression equation was used to estimate net *Total Stored Groundwater* change between fall 2002 and fall 2007 in the Laguna Seca Subarea. The average water-level change in the Laguna Seca wells between 2002 and 2007 was -13.42 feet, corresponding to an estimated *Total Stored Groundwater* change of -2,190 acre-feet, or an average annual *Total Stored Groundwater* change of -440 acre-feet per year.

To summarize, for the period between fall 2002 and fall 2007, the annual change in *Total Stored Groundwater* for each of the subareas was:

Coastal and Northern Inland Subareas ..... -870 acre-feet per year
Laguna Seca Subarea ..... -440 acre-feet per year
Entire Seaside Groundwater Basin..... -1,310 acre-feet per year

Note that the estimate presented above is preliminary only and is based on best available data, which is limited in some areas.

The decline in *Total Stored Groundwater* of 1,310 acre-feet per year since 2002 does not represent the amount of over-production in the Seaside Groundwater Basin. Over-production has been estimated as 2,600 acre-feet per year. The overproduction accounts for all basin recharge and discharge, and is approximately equal to the 1,310 acre-feet per year of storage loss plus the approximately 1,000 acre-feet per year needed to prevent seawater intrusion.

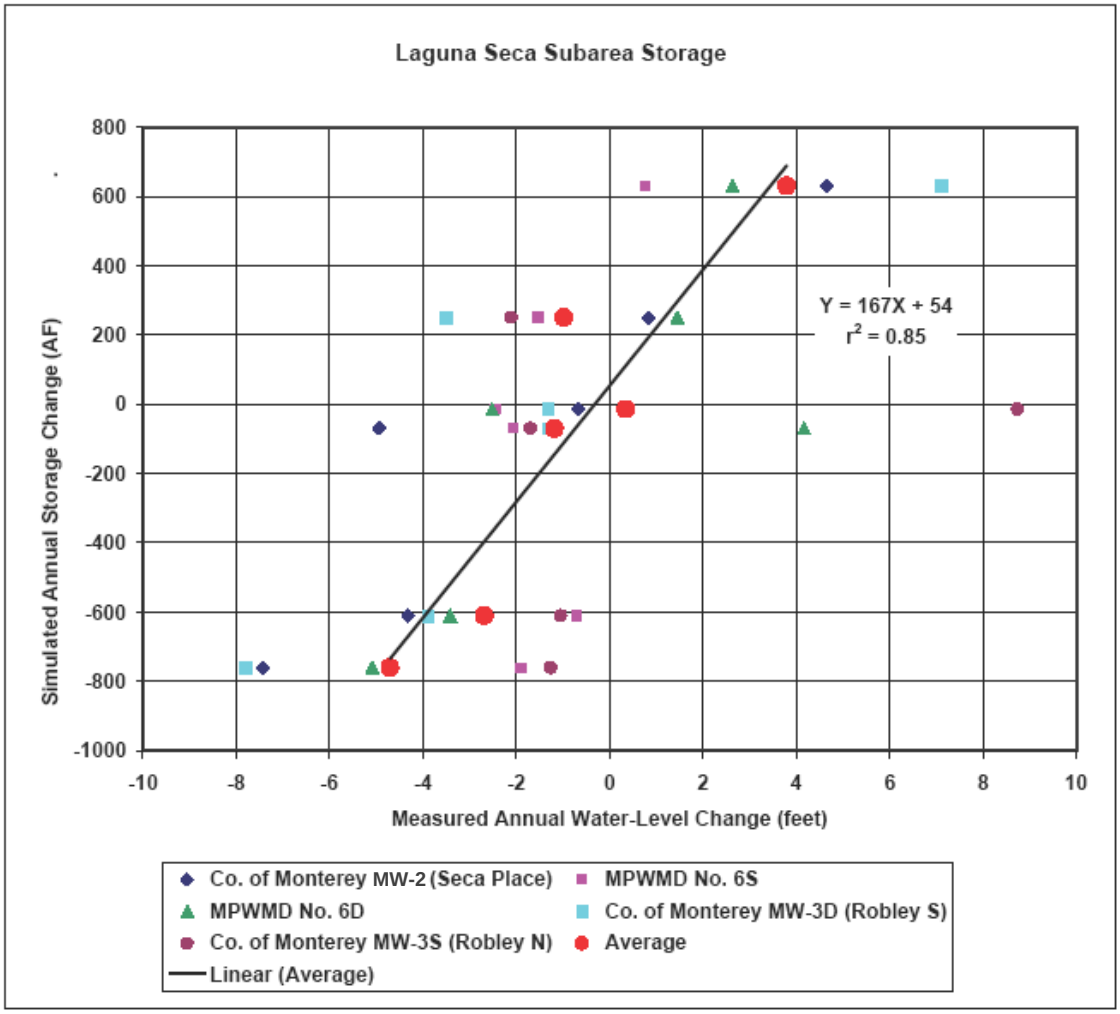



*Figure 16: Relationship between Measured Water Levels and Simulated Change in Storage in the Laguna Seca Subarea*

### 2.4.4 Storage Efficiency

Storage efficiency refers to the percentage of *Usable Stored Groundwater* in the Seaside Groundwater Basin that can be recovered at a later date; often a number of years after the water was stored. The Amended Decision notes that storage may result from recharge of non-native water, a producer's carryover (i.e., allocated production that is not extracted during a particular water year), and in-lieu storage from non-native water purchased by the Watermaster and used to reduce over-production. Inefficiency arises when stored groundwater flows out of the Basin to adjacent basins, creeks or the ocean, or when groundwater is consumed by vegetation.

Presently, the only outflows are along the ocean boundary and are considered, based on our current hydrogeologic understanding, to be relatively small. Outflow from the Southern Coastal Subarea is through alluvial deposits that are relatively thin at the coastline. Outflow from the Northern Coastal Subarea is only from a narrow coastal strip of the shallow aquifer

The storage efficiency of *Usable Stored Groundwater* in the Seaside Groundwater Basin depends on location, method of storage, groundwater levels and flow direction, nearby pumping, and the amount of time before extraction of the stored water. For example, water injected into the northern subbasin inland of Highway 1 under current hydraulic conditions could be stored and extracted in the short-term with a high percentage of efficiency. However, if hydraulic conditions change (i.e., pumping in Seaside is reduced), the stored water may flow towards the Salinas Valley thereby reducing storage efficiency. Another example of storage efficiency is when recharge is carried out by surface percolation. Some of the recharged water may remain unavailable to wells for several years as it lingers in transit through the unsaturated zone, and some may leave the Basin as outflow through the shallow Aromas Sands. A reliable tool such as a groundwater flow model is necessary to estimate storage efficiency numbers, and to develop storage efficiencies for individual supplemental water projects based on storage location and method.

## 2.5 GROUNDWATER BUDGET

A groundwater budget is an accounting of all the inflows and outflows to a groundwater basin. The groundwater budget developed by Yates et al., (2005) was updated to reflect conditions observed between 2003 and 2007. The revised water budget is shown in Table 5. Several minor budget entries had originally been developed as average annual values, and those values were retained in the updated budget. This includes percolation from streams, recharge from rainfall and irrigation, recharge from pipe leaks and recharge from septic systems. The average climatic conditions between 2003 and 2007 were close to the long-term average annual values.

Differences between Table 5's water budget and the water budget originally developed by Yates, et al. (2005) are:

- Amounts pumped and injected,
- Flow from inland subareas to coastal subareas,

- Inflows from beneath the ocean to the Northern Coastal Subarea, and
- Outflows from the coastal subareas to beneath the ocean.

*Table 5: Estimated Average Annual Groundwater Budget Water Years 2003 through 2007, units in acre-feet per year*

| Recharge Source | Northern Coastal Subarea | Northern Inland Subarea | Southern Coastal Subarea | Laguna Seca Subarea | Total |
|---|---|---|---|---|---|
| **Inflows** | | | | | |
| Percolation from streams | 0 | 0 | 0 | 0 | 0 |
| Rainfall and irrigation deep percolation | | | | | |
| Runoff from impervious areas | 190 | 10 | 140 | 40 | 380 |
| Irrigated areas | 470 | 20 | 150 | 130 | 770 |
| Nonirrigated areas | 250 | 1,050 | 100 | 530 | 1,930 |
| Pipe leaks | | | | | |
| Water pipes | 160 | 10 | 120 | 80 | 370 |
| Sewer pipes | 50 | 0 | 40 | 10 | 100 |
| Septic systems | 0 | 0 | 0 | 20 | 20 |
| Injection wells | 230 | 0 | 0 | 0 | 230 |
| Groundwater inflow | | | | | |
| From onshore subareas | 2,850 | 0 | 450 | 180 | 3,480 |
| From offshore area | 100 | 0 | 0 | 0 | 100 |
| *Total inflows* | *4,300* | *1,090* | *1,000* | *990* | *7,380* |
| **Outflows** | | | | | |
| Wells | 4,250 | 0 | 160 | 1,000 | 5,410 |
| Groundwater outflow | | | | | |
| To onshore subareas | 0 | 2,060 | 790 | 450 | 3,300 |
| To offshore area | 70 | 0 | 30 | 0 | 100 |
| *Total outflows* | *4,320* | *2,060* | *980* | *1,450* | *8,810* |
| **Storage Change** | | | | | |
| Based on Inflows-Outflows | -20 | -970 | 20 | -460 | -1,430 |
| Based on Water-Level Change* | -170 | -730 | 30 | -440 | -1,310 |

* Storage change based on measured groundwater levels is included in this table as a common-sense check on the inflow-outflows approach. The results from the two approaches compare thereby providing greater confidence in the values.

See Yates, et al., (2005) for descriptions of each water budget component.

### 2.5.1 GROUNDWATER RECHARGE

Based on climate data, groundwater recharge estimates were developed for the period between 2003 and 2007. The recharge estimates include both primary recharge and secondary recharge components. The primary recharge components include percolation from rainfall and infiltration below stream beds. The secondary recharge components include irrigation return flows, leaks from water pipes and sewer pipes, and septic system flows. These secondary recharge components were based on estimates included in Yates et al. (2005). Groundwater recharge from all of these components averaged 3,570 acre-feet per year.

Groundwater injection data were obtained from MPWMD, and represent the annual averages for water years 2003-2007. The average groundwater injection was 230 acre-feet per year.

### 2.5.2 BOUNDARY FLOWS

Flows across the ocean boundary for the coastal subareas were calculated using Darcy's Law. Gradients perpendicular to the coastline are relatively flat, so the boundary flows were small for any reasonable estimate of horizontal hydraulic conductivity. Hydraulic conductivity values of 4 feet per day for the shallow aquifer, and 8 feet per day for the deep aquifer were used in the calculations, reflecting values that best matched observed changes in storage, and the shallow/ deep aquifer hydraulic conductivity ratio from the calibrated Laguna Seca groundwater flow model (Yates et al., 2002). The use of lower hydraulic conductivity values decreased the estimated ocean boundary flows relative to values presented by Yates et al. in 2005.

In the Northern Coastal Subarea, the Darcy calculations estimated an annual inflow from beneath the ocean of approximately 100 acre-feet per year, and an annual outflow to beneath the ocean of approximately 70 acre-feet per year. The inflow from beneath the ocean occurs in the deep aquifer, and the outflow to the ocean occurs in the shallow aquifer. The net ocean boundary flow in the Northern Coastal Subarea is 30 acre-feet per year flowing onshore from beneath the ocean.

Water levels in the Southern Coastal Subarea and western half of the Laguna Seca Subarea remained nearly unchanged from 2002 to 2007. Inflow from the

Laguna Seca Subarea to the Southern Coastal Subarea was assumed to equal the simulated outflow from the calibrated groundwater model, i.e., 450 acre-feet per year. Of the 820 acre-feet per year that flows out of the Southern Coastal Subarea, 30 acre-feet per year (calculated using Darcy's Law) flows out to the ocean and the remainder is assumed to flow northwards across the subbasin boundary into the pumping trough in the Northern Coastal Subarea.

### 2.5.3 GROUNDWATER PUMPING AND OPERATING YIELD

Groundwater pumping data between 2003 and 2008 were compiled by the Watermaster and MPWMD. Between Water Year 2003 and Water Year 2008, an average of 5,400 acre-feet per year were extracted from the Seaside Groundwater Basin. The annual pumping volumes for 2006 through 2008 are shown on Figure 17. This figure also compares the recent annual pumping with the court mandated Operating Yield, and the estimated Natural Safe Yield values included in the Amended Decision

The current court mandated Operating Yield is 5,600 acre-feet per year. The Amended Decision calls for the Operating Yield to be reduced to 5,180 acre-feet per year on January 1 2009, to 5,040 acre-feet per year on October 1 2009 and by 10 percent every October 1 triennially until the Operating Yield is the equivalent of the Natural Safe Yield (Figure 17). The following four actions provided in the Amended Decision would be cause for the triennial reduction in pumping to cease for the duration of the described action:

- The Watermaster has secured and is adding an equivalent amount of non-native water to the Seaside Groundwater Basin on an annual basis; or

- The Watermaster has secured reclaimed water in an equivalent amount and has contracted with one or more of the Producers to utilize said water in lieu of their Production Allocation, with the Producer agreeing to forego their right to claim a Stored Water Credit for such forbearance; or

- Any combination of these which results in the decrease in production of Native Water required by this decision; or

- The Watermaster has determined that groundwater levels within the Santa Margarita [deep] and Paso Robles [shallow] aquifers are at sufficient levels to ensure a positive offshore gradient to prevent seawater intrusion.

Note that Figure 17 assumes the triennial 10 percent pumping reduction takes place provided none of the actions described above occur.

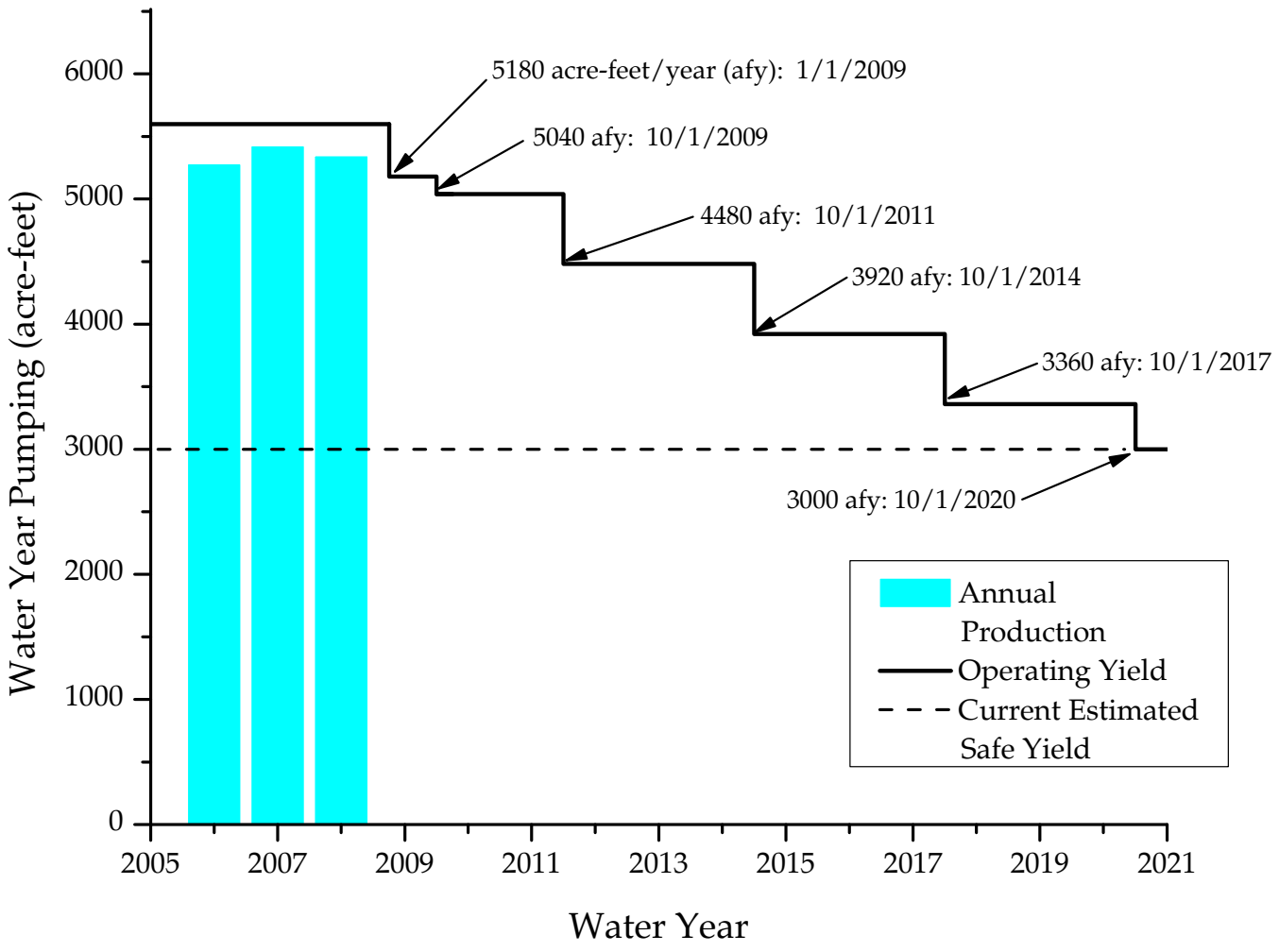



*Figure 17: Annual Groundwater Extractions and Operating Yield*

### 2.5.4 CHANGE IN STORAGE

As shown in Table 5 the estimated annual groundwater inflows into the Seaside Groundwater Basin between 2002 and 2007 averaged 7,380 acre-feet per year; and total outflows averaged 8,810 acre-feet per year. The net change in *Total Stored Groundwater* basinwide calculated by adding all inflows and outflows was an annual net loss of 1,430 acre-feet per year, calculated as:

$$7{,}380 - 8{,}810 = -1{,}430 \text{ acre-feet per year.}$$

This estimate compares well with the net *Total Stored Groundwater* change of -1,310 acre-feet per year estimated from water levels and storage coefficients, as discussed in Section 2.3.3. As noted earlier, this change in storage is not equal to the over-production in the Seaside Groundwater Basin.

## 2.6 REVIEW OF NATURAL SAFE YIELD

The Amended Decision stated that the Natural Safe Yield of the Basin is between 2,581 and 2,913 acre-feet per year, and was rounded up to 3,000 acre-feet per year. This range includes the estimate presented by Yates et al. (2005), which was developed using methods similar to those used here.

The recent Natural Safe Yield of the Seaside Groundwater Basin, for the last five years, is shown in Table 6. The estimated safe yield using recent data is 2,310 acre-feet per year for the Coastal and Northern Inland Subareas, and 540 acre-feet for the Laguna Seca Subarea, with an estimate of 2,850 acre-feet per year for the entire Seaside Groundwater Basin. This estimate of recent safe yield is within the estimate range specified in the Amended Decision. Therefore, until modeling enables more refined analyses to be made, the 3,000 acre-feet per year initial Natural Safe Yield value in the Amended Decision should continue to be used.

*Table 6: Estimated Recent Natural Safe Yield of the Seaside Groundwater Basin, 2002-2007, units in acre-feet per year*

| **Yield Components and Adjustments**[1] | **Coastal and Inland Subareas** | **Laguna Seca Subarea** | **Total** |
|---|---|---|---|
| Current pumping | 4,410 | 1,000 | 5,410 |
| Storage change[2] | -970 | -460 | -1,430 |
| Current ocean boundary inflow | 100 | 0 | 100 |
| Injected water | -230 | 0 | -230 |
| Yield (assuming no outflow to the ocean) | 3,310 | 540 | 3,850 |
| Ocean boundary outflow needed to prevent seawater intrusion[3] | 1,000 | 0 | 1,000 |
| Natural Safe Yield | 2,310 | 540 | 2,850 |

Note: values are rounded to nearest 10.

[1] The values for pumping, storage change and ocean boundary flows are from the subarea groundwater budgets in Table 5.
[2] The estimate of storage change equals the difference between inflows and outflows.
[3] Yates et al. (2005).

## 2.7 STATE OF THE BASIN AND MATERIAL INJURY

Over the last five years, groundwater levels in the Seaside Groundwater Basin continued the downward trends documented in previous studies. This is reflected in the annual estimated loss of *Total Stored Groundwater* of between 1,310 and 1,430 acre-feet per year. While no operational problems have been reported as a result of these lowering groundwater levels, this trend is not sustainable.

Lower groundwater levels do not by themselves define material injury. Section III.A.15 of the Amended Decision states:

> *"Material Injury means a substantial adverse physical impact to the Seaside Groundwater Basin or any particular Producer(s), including but not limited to: seawater intrusion, land subsidence, excessive pump lifts, and water quality degradation. Pursuant to a request by any Producer, or on its own initiative, Watermaster shall determine whether a Material Injury has occurred, subject to a review by the Court as provided for in Section III.N."*

No seawater intrusion has been detected in any monitoring or production wells completed in the shallow or deep aquifers in the Seaside Groundwater Basin. Furthermore, land subsidence has not been observed. Therefore, it could be concluded that the Seaside Groundwater Basin has not suffered Material Injury.

Individual producers may suffer Material Injury based on impacts to individual wells. The following conditions are examples of Material Injury to an individual well, but each claim should be considered on a case-by-case basis by the Watermaster:

- Seawater intrusion.
- Pumping groundwater levels falling below the top of a well screen that was previously submerged during pumping. Note, this must be shown to result from a general lowering of the piezometric head, not loss of well efficiency.
- Pumping groundwater levels falling below the pump intake. Note, this must be shown to result from a general lowering of the piezometric head, not loss of well efficiency. Furthermore, it must be shown that the pump intake is at a reasonable depth, and lowering the pump intake is infeasible.

There are no reports that any of the above situations have occurred in the Seaside Groundwater Basin. Therefore, it can be concluded that Material Injury has not occurred.

# SECTION 3
# SUPPLEMENTAL WATER SUPPLIES

This section summarizes water supply projects currently being considered to meet long-term water needs in the Seaside Groundwater Basin. These supplemental supply projects could achieve the goals of the Amended Decision by reducing pumping in the Basin to below the Natural Safe Yield, and providing additional water that can be used to replenish the Basin.

The supplemental supplies listed below have utility beyond offsetting pumping in the Seaside Groundwater Basin. Many of the supplemental supplies provide water to satisfy SWRCB Order No. 95-10, which requires California American Water Company (CAW) to reduce its withdrawal from the Carmel Valley Aquifer and diversions from the Carmel River by approximately 8,500 acre-feet per year (MPWMD, 2006). These supplemental supplies are the same projects that were used to calculate the Watermaster's 2009 Replenishment Assessments.

## 3.1 REGIONAL CONTEXT

A number of supplemental supply projects are described below. These projects are presented to inform the Watermaster of the range and type of projects that may provide supplemental supply. The feasibility of these projects is being reviewed and considered in several public input processes, most notably, in the Coastal Water Project (CWP) Draft Environmental Impact Report (EIR). The EIR process along with other associated public processes provides opportunities for the Watermaster to have input into which projects may be implemented in the Seaside Groundwater Basin. It is imperative that the Watermaster actively review and comment on the CWP EIR, as well as other documents such as cost opinions for the various projects.

This BMAP was originally designed to provide estimated costs, volumes of water available to the Seaside Groundwater Basin, implementation schedules, and organizational implementation descriptions for each project. However, these details are no longer included because many of these issues will be refined by the CWP EIR, which is due to be released in January 2009.

Although the projects are presented in the following sections individually, some of the individual projects will be included in larger programs and may not be

implemented unless the entire program is implemented. Therefore, the individual projects are grouped below into the associated larger programs to provide context for each project.

## 3.2 SUMMARY OF AVAILABLE ALTERNATIVES

Various long-term water supply alternatives, and the programs in which they are included, are presented below. A description of each alternative is presented, followed by estimates of the amount of water each alternative would supply.

### 3.2.1 COASTAL WATER PROJECT ENVIRONMENTAL IMPACT REPORT PROJECTS

CAW proposed the CWP which includes a desalination facility and aquifer storage and recovery within the Seaside Groundwater Basin. The Proponent's Environmental Assessment (PEA) describes the CWP and includes alternative locations and sizes for the desalination facility, including sites at Moss Landing and North Marina, in both local and regional sizes. The individual components that comprise the CWP are described below. The CWP projects described in this section can be implemented individually. The CWP would both provide sufficient water to offset the over-pumping in the Seaside Groundwater Basin and satisfy Order No. 95-10.

#### *3.2.1.1 MOSS LANDING DESALINATION – LOCAL ALTERNATIVE*

The Moss Landing Desalination Plant would be located near the Dynegy Moss Landing Power Plant (MLPP). The feedwater supply for the desalination plant would be MLPP's existing seawater intake. Brine would be disposed through the MLPP's existing outfall. This desalination plant will likely be owned and operated by CAW.

This project would provide approximately 10,430 acre-feet per year, and when combined with the Seaside ASR project (described below), would both provide sufficient water to offset the over-pumping in the Seaside Groundwater Basin and satisfy Order No. 95-10. Desalination using seawater as feedwater would ensure a constant water supply with limited water quality variability.

### *3.2.1.2 Moss Landing Desalination – Regional Alternative*

A larger version of the Moss Landing Desalination Plant – Local Alternative is included in the CWP PEA and is referred to as the Regional Alternative. This larger desalination plant is intended to serve many communities in Monterey County including Moss Landing, North Monterey County, and Castroville. This alternative would produce approximately 19,000 acre-feet of water per year. The desalination plant will likely be owned and operated by CAW.

The project would both provide sufficient water to offset the over-pumping in the Seaside Groundwater Basin, and satisfy Order No. 95-10. This project would additionally provide supplemental supply throughout CAW's service area. Desalination using seawater as feedwater would ensure a constant water supply with limited water quality variability.

### *3.2.1.3 North Marina Desalination – Local Alternative*

A North Marina seawater desalination facility is proposed in the PEA as an alternative to the plant located at the MLPP. As described in the PEA, this plant would be owned and operated by CAW in the City of Marina's sphere of influence on Armstrong Ranch. This plant would either include a pipeline to the MLPP to discharge the brine, or use the Monterey Regional Water Pollution Control Agency's (MRWPCA) existing outfall. The plant is closer to end users, potentially resulting in less piping if the MRWPCA outfall option is chosen for brine disposal. The feedwater intake for this plant is a proposed set of coastal slant wells extending under the sea floor.

Currently, the plant is designed to produce up to 10,580 acre-feet per year (RBF, personal communication), and when combined with the Seaside ASR project (described below), would both provide sufficient water to offset the over-pumping in the Seaside Groundwater Basin and satisfy Order No. 95-10. Desalination using mostly seawater as feedwater would ensure a relatively constant water supply with limited water quality variability.

### *3.2.1.4 Seaside Aquifer Storage and Recovery Project – Phase 1*

Aquifer storage and recovery (ASR) is the storage of water in an aquifer during times when water is available, and recovery of the stored water from the same aquifer when it is needed. This project entails MPWMD diverting excess winter

flows from the Carmel River Basin during high flow periods using existing CAW wells. The diverted water is treated to potable drinking water standards and pumped through the CAW distribution system to the Seaside Groundwater Basin, where the water would be injected into MPWMD's ASR wells for recovery during dry periods. Existing infrastructure allows the diversion and transport of river water to the existing ASR sites for injection.

There would be variable supply available for this project, depending on the availability of excess winter flows in the Carmel River. However, it is expected that Phase 1 of the Seaside ASR project can potentially divert up to 2,426 acre-feet per year from December 1st to May 31st, with a maximum extraction of 1,500 acre-feet during peak summer months. There is also potential for expansion in the future which could provide additional water.

### 3.2.2 MONTEREY REGIONAL WATER SUPPLY PROGRAM PROJECTS

The Monterey Regional Water Supply Program will be included in the CWP EIR as an alternative to the CWP. Together, a group of proposed local projects, which make up the Program, will be considered. This Regional Program would provide water to users in the CAW service area, as well as water users in the Marina Coast Water District (MCWD), Castroville, Moss Landing and North Monterey County. Many of the projects described in this section can only be implemented as part of the larger program. This program has been designed to respond to and satisfy Order No. 95-10 and the Amended Decision.

#### *3.2.2.1 REGIONAL DESALINATION PROJECT*

The Regional Desalination Project is the primary component of the Monterey Regional Water Supply Program. The plant would be located on Armstrong Ranch. The plant would use a blend of ocean water and brackish groundwater for the desalination water supply and would be constructed in two phases. The present proposal includes desalination wells located on the inland side of the coastal dunes (Phase 1). Future opportunities for a second line of brackish wells inland of the initial Phase 1 wells will be considered as a part of future phases of the project. The brine from the desalination facility would be discharged to the ocean through the existing MRWPCA outfall with a salinity level approximately 10% above ambient seawater. At present, the MCWD is the proponent for this project. The Regional Desalination Project would share distribution

infrastructure with the Salinas River Surface Water Treatment Plant (SWTP) (described below).

The current Regional Water Supply Program includes an initial desalination plant capacity of approximately 10,000 acre-feet per year. When combined with the other projects such as the Seaside ASR Project, the Regional Urban Water Augmentation Project (described below), or the Seaside Groundwater Replenishment Project (described below), the program would both provide sufficient water to offset the over-pumping in the Seaside Groundwater Basin and satisfy the requirements of Order No. 95-10. Desalination using seawater as feedwater would ensure a constant water supply with limited water quality variability.

#### *3.2.2.2 Salinas River Surface Water Treatment Plant*

The Salinas River Surface Water Treatment Plant (SWTP) is part of the Monterey Regional Water Supply Program, and would work conjunctively with the Regional Desalination project described above. The SWTP would use a surface water diversion from the Salinas River to provide potable water to urban users overlying the Seaside Groundwater Basin. Diversions would occur during the winter and spring months when flows exceed the instream requirements (ENTRIX, Inc., 2007). Water diverted for urban use would be treated at a surface water treatment plant located south of the existing MRWPCA regional treatment plant on Armstrong Ranch.

The surface water facility could ultimately treat up to 10,000 acre-feet per year. Current planning has in initial treatment plant capacity of 13 mgd, treating an average of 3,000 acre-feet per year. When combined with the other elements of the Monterey Regional Water Supply Program, the project would both provide sufficient water to offset the over-pumping in the Seaside Groundwater Basin and satisfy Order No. 95-10.

#### *3.2.2.3 Sand City Water Supply Project*

The Sand City Water Supply Project is owned by the City of Sand City, and will be operated by CAW through a contractual agreement. It comprises a desalination facility and a potable water system that serves City of Sand City customers. Brackish source water for the desalination plant will be obtained from the shallow groundwater aquifer near Monterey Bay. Byproduct water will

be disposed of through a Horizontal Directionally Drilled well beneath the beach in Sand City.

The Sand City Desalination Plant is expected to provide approximately 300 acre-feet per year. The water produced by this project is not required to offset Order No. 95-10. It can therefore be used to offset production in the Seaside Groundwater Basin, subject to the best management practices of CAW, and only on an interim basis until Sand City customers use the water for their own purposes. The facilities are currently under construction.

#### *3.2.2.4 Regional Urban Water Augmentation Project*

The Regional Urban Water Augmentation Project (RUWAP) includes a recycled water distribution system that provides recycled water from the existing MRWPCA Salinas Valley Reclamation Plant to urban users within the Cities of Marina, Seaside, Monterey, Del Rey Oaks, and the County of Monterey. Additional recycled water may be provided to the Monterey Peninsula under a joint cooperative effort with MCWD, MRWPCA, and CAW.

A project-level EIR was certified for the RUWAP to provide up to 1,727 acre-feet per year of recycled water to the identified urban areas: 1,427 acre-feet per year within the former Fort Ord and 300 acre-feet per year to the Monterey Peninsula. Of the 1,427 acre-feet per year available to former Fort Ord, approximately 450 acre-feet would be available to two City of Seaside golf courses and approximately 250 acre-feet would be available to a proposed golf course at Del Rey Oaks. Therefore, the amount of water benefiting the Seaside Groundwater Basin may be on the order of 700 acre-feet per year. When combined with the other Monterey Regional Water Supply Program projects, the project would both help provide sufficient water to offset the over-pumping in the Seaside Groundwater Basin and satisfy Order No. 95-10.

As recycled wastewater is the source for this project, supply variability is not seen to be a problem based on historical wastewater production. Quality of the water is also expected to remain fairly consistent from the reclamation plant.

#### *3.2.2.5 Seaside Groundwater Replenishment Project*

The Seaside Groundwater Replenishment Project (GWR) is part of the Monterey Regional Water Supply Program, and would inject advanced treated recycled

water into the Seaside Groundwater Basin. The source water would be recycled water and dilution water. Three potential dilution water sources have been identified: the Salinas Industrial Wastewater Facility, the Blanco Drain System, and the Salinas Reclamation Ditch.

The treated water would be conveyed to the Seaside Groundwater Basin and recharged through a combination of vadose zone wells and groundwater injection wells (GEI Consultants et al., 2008). Existing potable water wells would capture the injected water, thus augmenting the overall groundwater basin yield for local potable water supply (RBF, 2007). The GWR project includes a large part of the Backbone Pipeline that was envisioned as part of the Regional Urban Water Augmentation project.

The Seaside Groundwater Replenishment Project could provide up to 6,700 acre-feet of water per year to the Seaside Groundwater Basin. This includes 700 acre-feet per year that would provide advanced treated water to that portion of Phase 1A of the Regional Urban Water Augmentation Project (RUWAP) designated for golf course irrigation. The GWR project would be sufficient to offset the over-pumping in the Seaside Groundwater Basin. The recharged water would have a high degree of reliability given historical wastewater production and availability.

#### *3.2.2.6 Pacific Grove Stormwater Project*

Although this project is outside the Seaside Groundwater Basin, it reduces demand on the CAW system, thus potentially satisfying part of the Seaside Groundwater Basin Adjudication. This expansion of Pacific Grove's existing stormwater collection system would deliver stormwater to the David Avenue Reservoir for storage. A treatment plant would be constructed, and the water would be treated and delivered to users for irrigation. The tentative plan is for the City of Pacific Grove to own the facilities, and for CAW to operate the treatment plant. The plan is preliminary and would require inter-agency agreements.

The amount of stormwater generated each year would be dependent on storm runoff, and as such, the supply would be variable from year to year. Recent data suggest the average annual supply would be approximately 200 acre-feet, stored in a 46 acre-foot tank (Everest, 2008).

### *3.2.2.7 CONSERVATION*

CAW and MPWMD proposed a conservation program to the CPUC which could be implemented immediately upon approval. Although water savings are not a new supply source, they could reduce overall demand and the need for potable water, thus contributing to satisfying SWRCB Order No. 95-10 and the Seaside Groundwater Basin Adjudication. The overall conservation measures would be administered by CAW and MPWMD within the MPWMD service area (including the Laguna Seca Subarea).

The conservation measures would include, but not be limited to:

- Water audits for residential, large landscape and commercial/industrial customers.
- Residential rebates for heavy use appliances including toilets and washers as well as irrigation system equipment to target outdoor water usage.
- Residential plumbing retrofits including low flow showerheads and faucet aerators, leak detection kits, evapotranspiration-based (ETo) irrigation equipment and timers. The ETo controllers would automatically control an outdoor sprinkler system using real-time or historical weather data, using data such as humidity, temperature, solar radiation, soil moisture, and rain gauge sensors.
- Commercial rebates for devices such as high efficiency or dual flush toilets, waterless urinals, dishwashers, and other devices.
- School Education Programs targeting grades K through 12.
- Implementing the Expanded Water Conservation and Standby Rationing Plan allowing for mandatory water rationing and conservation during either legal or actual supply shortages, including reductions ranging from 15% to 50% reduction goals (*California American Water Company's Application for a Special Conservation Program and Modification to Its Rate Design CPUC Application A.07-12-010*, 2007).

The capacity and reliability of this project is linked to the success of the local authority and public's participation in conservation measures. The capacity is difficult to quantify.

### 3.2.3 NON-PROGRAMMATIC PROJECTS

Two additional projects are described below. These two projects are not part of larger programs. These two projects could be implemented individually.

#### *3.2.3.1 MPWMD 95-10 DESALINATION PROJECT*

A desalination plant was proposed by Monterey Peninsula Water Management District (MPWMD) in 1995 in response to SWRCB Order No. 95-10. The proposal was not implemented at the time. Recently, the MPWMD Board has directed staff to update the desalination engineering analysis and the follow-up EIR analysis. The project would be owned and operated by the MPWMD.

The plant would collect seawater through either horizontal directionally drilled (HDD) wells or radial collector wells located along beaches in either the City of Sand City or the former Fort Ord. Based on the latest available analysis, the brine would be disposed of through either HDD wells along the coastline in the former Fort Ord, or through the existing MRWPCA outfall. Additional technical studies and analysis would be required to determine the feasibility of using the HDD wells for brine disposal (GEI Consultants et al., 2008).

The MPWMD 95-10 Desalination Project would provide up to 8,400 acre-feet of water per year. The water would offset the requirements of SWRCB Order No. 95-10, and therefore would not offset over-pumping in the Seaside Groundwater Basin. Desalination using mostly seawater as feedwater would ensure a relatively constant water supply with limited water quality variability.

#### *3.2.3.2 SEAWATER CONVERSION VESSEL*

Water Standard Company has proposed the Seawater Conversion Vessel project, consisting of a seawater desalination vessel anchored in Monterey Bay. The seawater is treated on the vessel and delivered to CAW and other customers. It would most likely be located less than five miles from the shore, which allows for feasible delivery. This would be a completely self-contained seawater desalination treatment plant installed on a ship, with electrical energy and propulsion provided by gas turbine engines fueled with bunker fuel or biodiesel. Water intake would be below the photic zone, or the level that light penetrates, in order to decrease impact to organisms. The brine would be mixed with seawater on the vessel to cool it, and then the mixture would be discharged

through diffusers into the open ocean, near the water surface. A seabed pipeline could be constructed to deliver water to the shore, or the water could be shuttled to shore by barges (GEI Consultants et al., 2008). Currently, there is no project proponent for this alternative.

The seawater conversion vessel could provide approximately 20,200 acre-feet per year of potable water. It could be outfitted to provide up to 85,000 acre-feet per year in the future. Although this alternative has not been fully defined, it is assumed that, if developed, it would both provide sufficient water to offset the over-pumping in the Seaside Groundwater Basin and satisfy Order No. 95-10. Although the water quality of the supply is reliable, the ability of this project to reliably deliver water is somewhat unknown since this option has not been proven in any other applications.

# SECTION 4
# GROUNDWATER MANAGEMENT ACTIONS

Supplemental water supplies from the long-term solutions identified in Section 3 will not be immediately available. Furthermore, after implementing the long-term water supply solutions, an additional amount of time will pass before the desired rise in groundwater levels is observed in the Seaside Groundwater Basin. To address these issues, this section presents local groundwater management actions and interim water supplies that could be implemented before the supplemental supplies begin to restore groundwater levels. Although many of the actions discussed in this section are not under Watermaster's direct control, the Watermaster should consider providing support where needed.

The purpose of these interim management actions is threefold:

1. Extending the life of the Seaside Groundwater Basin before supplemental supplies become available.
2. Optimizing the existing natural recharge and basin storage capacity.
3. Managing and reducing the near-term threat of seawater intrusion.

These actions are not intended to provide long-term solutions to restoring groundwater levels in the Basin. Rather, these actions assist with groundwater management and are intended to reduce the risk of seawater intrusion before the long-term solutions restore groundwater levels.

Two types of actions are presented: interim water supplies and local groundwater management actions.

## 4.1 INTERIM WATER SUPPLIES

Interim water supplies are those that can be developed rapidly, but might not be reliable as a long-term supply. These interim supplies provide a benefit by offsetting a portion of the current groundwater pumping. Reducing groundwater pumping will help raise groundwater levels, reducing the threat or slowing the rate of seawater intrusion.

### 4.1.1 TEMPORARILY TRANSFER GROUNDWATER FROM ORD COMMUNITY WATER SYSTEM TO THE SEASIDE GROUNDWATER BASIN

Marina Coast Water District (MCWD) is authorized to pump up to 6,600 acre-feet per year from the Salinas Valley Groundwater Basin for the Ord Community Water System which serves the former Fort Ord military base. Historical withdrawals by MCWD have ranged between 2,000 and 6,600 acre-feet per year. Current withdrawals by MCWD for the Ord Community Water System are approximately 2,300 acre-feet per year (Denise Duffy & Associates Inc., 2007).

Water could be transferred from the Ord Community Water System to the Seaside Groundwater Basin with relatively little new infrastructure. Assuming that up to 4,000 acre-feet are available and could be transferred annually, this transfer could significantly reduce the amount of water pumped from the Seaside Groundwater Basin.

This interim supply would require an inter-basin transfer of water, and therefore an agreement would be necessary between the Monterey County Water Resources Agency (MCWRA), the project proponent, and any other entities if necessary, as per the Adjudicated Decision requirements.

*ADVANTAGES*

- Provides a significant supply of water that could be used to offset groundwater pumping in the Seaside Groundwater Basin.
- Requires little change to the existing infrastructure.
- This action is easily reversible.

*DISADVANTAGES*

- The groundwater is extracted from the Salinas Valley Groundwater Basin. Transferring this water to the Seaside Groundwater Basin will require an inter-basin transfer agreement that addresses restrictions in the MCWRA's enabling legislation regarding such transfers.
- The Salinas Valley Groundwater Basin is seawater intruded. Increased pumping from the Salinas Valley Groundwater Basin could exacerbate this problem.

### 4.1.2 IRRIGATE THE BAYONET AND BLACKHORSE GOLF COURSES WITH WATER FROM THE ORD COMMUNITY WATER SYSTEM

Irrigation water for the Bayonet and Blackhorse golf courses is currently provided by on-site wells extracting from the Seaside Groundwater Basin. Both of these courses are on former Fort Ord land. Irrigation water for these golf courses could be provided by MCWD's existing wells in the Salinas Valley, and distributed through the Ord Community Water System, with no inter-basin transfer agreement. The golf courses have an Alternative Production Allocation of 540 acre-feet per year in the Amended Decision. The golf courses pumped 593 acre-feet during Water Year 2008.

*ADVANTAGES*

- Groundwater pumping could be reduced by approximately 500 acre-feet per year immediately.
- This plan requires little change to the existing infrastructure.
- This action is easily reversible.

*DISADVANTAGES*

- The Salinas Valley Groundwater Basin is seawater intruded. Increased pumping from the Salinas Groundwater Basin could exacerbate this problem.
- Water quality from MCWD wells in the Salinas Groundwater Basin may have sodium and chloride concentrations, which may be unsuitable for turf irrigation.
- Implementing this option may be complicated by the inability to transfer Alternative Production Allocation. This will need to be investigated further.

### 4.1.3 SEASIDE AQUIFER STORAGE AND RECOVERY PROJECT - PHASE 1

This project is covered in Section 3.2.1.4 discussing supplemental supplies. The Phase 1 Aquifer Storage and Recovery (ASR) project purpose is to offset the extraction deficit under SWRCB Order No. 95-10, therefore this project has only incidental storage benefits.

*ADVANTAGES*

- Minimal new infrastructure is needed for distribution or injection.
- The MPWMD and CAW have an existing water right to provide up to 2,426 acre-feet of recharge per year by diverting high flows from the Carmel River.

*DISADVANTAGES*

- The water supply is unpredictable. It will only be available in certain years, depending on flows in the Carmel River.
- New wells may be needed in Carmel Valley to capture the stream flows. CAW has recently completed construction of three replacement wells which may provide the needed winter capacity.
- The Phase 1 ASR project includes conditions that require extraction of injected water to meet CAW system demands resulting in only incidental (i.e., seasonal) storage benefits to the Seaside Groundwater Basin.

### 4.1.4 SEASIDE GROUNDWATER BASIN EXPANDED AQUIFER STORAGE AND RECOVERY PROJECT

The MPWMD Phase 1 ASR project could be expanded by installing new ASR wells and obtaining additional water rights, or another ASR project could be undertaken by a new project proponent.

*ADVANTAGES*

- Infrastructure for obtaining ASR water and distributing it close to new ASR wells is already in place.
- An expanded or new ASR system could include a long-term groundwater storage component by leaving injected ASR water in the ground at the end of every water year.
- A new or expanded ASR program will likely not be abandoned as other supplemental supplies are developed, so there is little risk of stranding assets by installing wells.

*DISADVANTAGES*

- The water supply is unpredictable. It will only be available in certain years, depending on flows in the Carmel River.
- If the Carmel River is used as the ASR water supply, a new or expanded water right from the State Water Resources Control Board for the Carmel River will be required. This may difficult and time consuming to obtain in the near future.

### 4.1.5 REACTIVATE THE MARINA COAST WATER DISTRICT DESALINATION PLANT

The MCWD owns a permitted and constructed municipal desalination plant on the Monterey Bay coast. The plant is currently not operating. The plant is capable of producing approximately 300 acre-feet per year of potable water. The plant uses beach well intakes, and does not reduce the amount of potable water in the Seaside Groundwater Basin. It will take approximately $1.5 million and support from CAW to reactivate the plant.

*ADVANTAGES*

- The water produced by the desalination plant could offset some of the existing groundwater pumping if it is piped to the Seaside Groundwater Basin, marginally raising water levels in the Seaside Groundwater Basin.
- The desalination plant already exists. A simple interconnect is needed to deliver water to CAW's delivery system.
- This action is easily reversible.

*DISADVANTAGES*

- The cost of desalinated water is relatively high.
- The plant is currently idle. It would require an approximately $1.5 million investment prior to restarting.
- Restarting the plant may require renewal of the RWQCB Waste Discharge Permit allowing brine discharge.
- Interagency agreements will be required to transfer water to the Seaside Groundwater Basin.

### 4.1.6 ENHANCED STORM WATER RECHARGE

Although there are some existing storm water percolation facilities, most of the stormwater from the City of Seaside is currently collected and discharged to the ocean through outfalls to Monterey Bay. A portion of this stormwater could be captured and recharged into the Seaside Groundwater Basin. This would potentially supplement the natural groundwater recharge, allowing for additional groundwater pumping.

*ADVANTAGES*

- No water right is needed
- A storm water recharge system will likely not be abandoned as other supplemental supplies are developed, so the up-front investment would not become obsolete if other supplemental supplies come on-line.
- Seaside has existing stormwater disposal capacity problems that this project might help remedy.

*DISADVANTAGES*

- There is an unknown capital cost involved in designing, constructing, and managing stormwater recharge facilities.
- The recharge facilities should be sited in a place where the recharge water can be captured by existing wells. This may require a pump station(s) to move the stormwater to the recharge location(s).
- Depending on recharge location and method, recharged water may not be available in the immediate future. The benefits of this project might not be immediate.
- Depending on recharge location and method, recharged water may flow out to ocean.
- Urban runoff includes street runoff that contains contaminants. Water proposed for recharge will need to be treated before it can be recharged.
- Land is needed for recharge facilities.
- It may be difficult to quantify the volume of recharge enhancement due to the project.

### 4.1.7 SAND CITY DESALINATION

The City of Sand City is currently constructing a 300 acre-foot per year capacity desalination plant. The source water for the desalination plant is shallow brackish water from the Southern Coastal Subarea. The City of Sand City was granted rights to pumping this brackish water in the Amended Decision. Byproduct water from the plant is disposed through a horizontal well beneath the beach in Sand City. The plant is scheduled to begin operating in early 2009. Water produced by this plant will be supplied to the CAW system on an interim basis until Sand City customers use the water for their own purposes. The water is not dedicated to offsetting the extraction deficit under SWRCB Order No. 95-10.

*ADVANTAGES*

- The water produced by the desalination plant can be temporarily used to offset up to 300 acre-feet per year of existing groundwater pumping subject to the best management practices of CAW. This offset would diminish over time as Sand City uses the water for its redevelopment purposes. This would marginally raise water levels in the Seaside Groundwater Basin.
- The desalination plant is already being constructed. Water will be available in early 2009.
- All of the necessary agreements are in place to deliver this water to the CAW distribution system.

*DISADVANTAGES*

- The cost of desalinated water is relatively high.

## 4.2 LOCAL GROUNDWATER MANAGEMENT ACTIONS

Local groundwater management actions are activities that may reduce or delay the threat of seawater intrusion without any new water sources. These actions provide a benefit by either reducing the amount of groundwater pumping in the Seaside Groundwater Basin, or moving pumping centers to reduce drawdown near the coast.

### 4.2.1 CONSERVATION

Conservation reduces demand, effectively reducing the requirement for pumping groundwater from the Seaside Groundwater Basin. This plan is covered in Section 3.2.2.7. The concept is repeated here because it could be implemented before many of the other supplemental supplies are implemented.

Examples of conservation efforts may include:

- Installing climate based irrigation systems that measure evapotranspiration and precipitation in order to automatically control irrigation.
- Encouraging water use audits.
- Requiring separate outdoor irrigation water metering.
- Implementing an enhanced tiered pricing that focuses on differences between summer and winter use, to discourage excessive landscape irrigation.
- Promoting residential graywater irrigation systems.
- Promoting use of more water efficient fixtures.

*ADVANTAGES*

- No infrastructure needed for many efforts.
- Although some conservation measures require capital investments, they will be of continuing value even after a long-term water supply comes on-line.

*DISADVANTAGES*

- The Watermaster does not have authority to regulate water use, but could support conservation plans of others.
- Conservation may require implementing agencies to adopt new regulations. The Watermaster would not be an implementing agency.
- Conservation may require willing residents and businesses to implement the plans. This reduces the reliability of water savings from conservation because it relies on ongoing individual actions.

### 4.2.2 REDISTRIBUTE PUMPING AMONG EXISTING WELLS

Extractions from the Northern Coastal Subarea during Water Year 2007 were concentrated at two wells: CAW's Ord Grove and Paralta wells. Of the 4,283 acre-feet pumped from the Northern Subbasin during Water Year 2007, 2,898 acre-feet were derived from these two wells. These two wells constitute 68% of the total pumping from this subbasin. Spreading the pumping among multiple wells in the subbasin could result in a broader, shallower cone of depression. The shallower cone of depression would slow the rate of seawater intrusion.

*ADVANTAGES*

- This action potentially reduces the rate of potential seawater intrusion
- This action is easily reversible.

*DISADVANTAGES*

- Most of the underused wells are in the shallower Paso Robles Formation Additional pumping in the Paso Robles Formation may be more likely to induce intrusion because it appears to have a better connection to the ocean than the Santa Margarita Sandstone.
- CAW has few wells in the Paso Robles Formation, and the wells they do have, have limited production capacity.
- This action would require funding approval from California Public Utilities Commission (CPUC).
- Additional distribution piping will likely be required to get water to existing infrastructure.

### 4.2.3 INSTALL NEW COASTAL SUBAREA WELLS

As noted in Section 4.2.2, extraction from the Northern Coastal Subarea is concentrated at two existing wells. Pumping could be distributed more evenly across the Coastal Subareas by installing new production wells in the Northern or Southern Coastal Subareas. The Southern Coastal Subarea would be particularly advantageous, because it appears to have more water stored above sea level than the Northern Coastal Subarea. Installing these new wells could result in a broader, shallower cone of depression across the coastal portion of the

Seaside Groundwater Basin. The shallower cone of depression would slow the rate of seawater intrusion.

*ADVANTAGES*

- This action potentially reduces the rate of potential seawater intrusion.
- There is an opportunity to transfer pumping to the Paso Robles aquifer if it does not result in an increase in the overall drawdown near the coast.
- CAW may already own land for the new wells, resulting in no land acquisition issues.

*DISADVANTAGES*

- Potential well sites are likely located in urban areas with limited available land, leading to possibly difficult well installations.
- The new wells would be located relatively close to the coast, resulting in marginal improvements in reducing seawater intrusion in the Northern Coastal Subarea.
- Increasing pumping in the Southern Coastal Subarea increases the risk of seawater intrusion in this subarea.
- These actions would require funding approval from the CPUC.
- Additional distribution piping will likely be required to get water to existing infrastructure.

### 4.2.4 INSTALL NEW INLAND WELLS

All pumping in the Northern Subbasin occurs in the Northern Coastal Subarea. Installing wells in the Northern Inland Subarea would spread out the cones of depression more effectively than simply redistributing pumping among existing wells. The shallow and disperse cones of depression would slow the rate of seawater intrusion.

*ADVANTAGES*

- This action potentially reduces the rate of potential seawater intrusion.
- The new wells more effectively take advantage of groundwater stored in the Northern Inland Subarea.

- The wells would have lasting value even after a long-term water supply becomes available because inland wells will always be more effective at capturing basin yield with less intrusion risk than the existing coastal wells.
- The wells would have lasting value after a long-term water supply becomes available because they will provide future pumping flexibility.

*DISADVANTAGES*

- Obtaining access and permits to install wells on former Fort Ord land may be difficult.
- There may be significant costs to obtain right of way, install new distribution piping, install new wells, and obtain new power drops.
- Water level data from the Sentinel Wells suggest that significant cones of depression from CAW's existing pumping extend miles from the extraction locations. If the inland portion of the Santa Margarita Sandstone is as confined as the coastal portion, the cone of depression around the new wells could extend a long distance (miles) out from the wells.
- Water quality is untested, and may require additional treatment costs.
- Overlapping jurisdictions in this area may require interagency agreements for wells located within MCWRA's Zone 2C.
- These actions would require funding approval from the CPUC.

### 4.2.5 PROVIDE INTERTIES BETWEEN WATER SYSTEMS

Pumping in the Laguna Seca Subarea could be better managed by installing interties between individual systems. CAW's Main system is already tied to the Ryan Ranch system with an emergency intertie. This could be enhanced to serve as an intertie that would transfer water whenever excess water is available in the Main system. For example, excess water available during the winter could be transferred to the Ryan Ranch area, reducing winter pumping in the Laguna Seca Subarea. Additionally, an intertie between the Bishop Ranch system and Ryan Ranch water system would allow some flexibility for limited costs.

*ADVANTAGES*

- Interties allow pumping flexibility, effectively moving pumping troughs.
- Upgrading the intertie between the Main system and Ryan Ranch/Bishop systems, such that water could be transferred in average or wet years, would allow for in-lieu recharge in the Laguna Seca Subarea.
- Upgrading the intertie between the Main system and Ryan Ranch/Bishop systems, such that water could be transferred in average or wet years, would allow water to be transferred in excess of the needs of these two systems when it is available. The excess water would provide enhanced recharge or ASR opportunities in the Laguna Seca Subarea.

*DISADVANTAGES*

- A full intertie with CAW's Main system will require some infrastructure costs.
- The advantages are relatively small on a basinwide scale, although they may be significant for the Laguna Seca Subarea.
- System interties would require CPUC and MPWMD permission and approval.
- Local residents or homeowner associations may be resistant to a full intertie with the main CAW's Peninsula system.
- A water accounting system would be necessary to reassure compliance with the requirements of the Amended Decision.

### 4.2.6 RAINFALL ENHANCEMENT

Rainfall enhancement uses silver iodide to nucleate water droplets over mountains. The silver iodide can be disbursed by either aircraft or ground based dispensers. Increasing rainfall will supplement the natural recharge of the Seaside Groundwater Basin, allowing additional pumping from the Basin.

*ADVANTAGES*

- Rainfall enhancement provides a new source of water without a water right or any significant permitting.

- Increased winter flows may result in longer durations of Carmel River flow, allowing for greater yield for the ASR program, which could have incidental benefits for the Seaside Groundwater Basin

*DISADVANTAGES*

- Rainfall enhancement is not a reliable source of water in the Seaside Groundwater Basin.
- Liability issues may occur in urbanized areas if there is a flood event.

The topography of the Seaside Groundwater Basin may not be conducive to rainfall enhancement. Higher hills than those in the main Seaside Groundwater Basin may be needed. Therefore, rainfall enhancement may be more effective in the Carmel Valley than in the Seaside Groundwater Basin.

# SECTION 5
# RECOMMENDED MANAGEMENT STRATEGIES

This section presents recommendations for managing the Seaside Groundwater Basin. Recommendations are based on the results presented in Sections 2, 3, and 4, as well as discussions with the Watermaster TAC.

This report has outlined some interim actions that could be implemented to initially meet requirements of the Amended Decision. However, to address the majority of over-pumping of the Seaside Groundwater Basin, long-term supplemental supplies are needed. These supplies will have the greatest impact on the Basin and allow for its long-term management.

Whatever management strategies are ultimately pursued, their impacts need to be assessed before implementation. Issues such as the fate of water that is recharged in the Basin at different locations need to be addressed. For example, it will be important to know if recharged water will be lost to the ocean or to the Salinas Valley, and whether the extraction wells in the Basin are located in the optimum locations to recover stored water.

## RECOMMENDATION 1: ENCOURAGE IMPLEMENTATION OF SELECTED INTERIM ACTIONS

From the interim water supplies and groundwater management actions outlined in Section 4, the following six are the most likely to be implemented cost-effectively and to provide the greatest benefit to the Seaside Groundwater Basin in the short-term:

1. *Irrigate the Bayonet and Blackhorse Golf Courses with Water from the Ord Community Water System*
   This interim supply would provide an immediate reduction in pumping in the Seaside Groundwater Basin that is readily implementable. Water from the Ord Community Water System is extracted from the Salinas Valley Groundwater Basin.

2. *Reactivate the Marina Coast Water District Desalination Plant*
   This action is recommended because desalination facilities are already in place, which will facilitate implementation.

3. *Provide Interties Between Water Systems*
   This is a low-cost option that will allow for better management of CAW's water supplies if and when there is excess water in their Main system. This option also provides the Laguna Seca Subarea with the greatest benefit of all the potential interim supplies.

4. *Install New Inland Wells*
   This management strategy has both short and long-term benefits to the Seaside Groundwater Basin. In particular, inland wells can capture natural recharge while posing less of a seawater intrusion risk than coastal wells. A feasibility study of the effort needed to install new inland wells will need to be undertaken as an initial step.

5. *Install New Coastal Subarea Wells*
   This strategy further spreads pumping across the Seaside Groundwater Basin. It could be implemented more quickly than the inland wells strategy because land is available to CAW in the Coastal Subarea.

6. *Sand City Desalination*
   The facilities for the plant are currently under construction. Plant is scheduled to begin operating in early 2009.

These actions will be undertaken by various water agencies. It is recommended that the Watermaster support these actions in whatever way it can. As stated in Section 4, the recommended actions are not intended to provide long-term solutions for restoring groundwater levels in the Seaside Groundwater Basin. Rather, they will assist with groundwater management and are intended to reduce the risk of seawater intrusion prior to and during implementation of long-term solutions. Some of these strategies, however, will continue to provide groundwater management benefits after the long-term solutions are implemented.

## RECOMMENDATION 2: SUPPORT DEVELOPMENT OF SUPPLEMENTAL SUPPLIES

Reducing the pumping of the Seaside Groundwater Basin aquifers to the level of the Natural Safe Yield will require developing supplemental water supplies. The Watermaster may not develop supplemental sources of water itself; however the

Watermaster should lend support to plans to develop these supplies. A number of potential supplemental supplies are presented in Section 3. The feasibility of many supplemental supply projects are currently being reviewed and considered in the CWP EIR. This EIR process, and other public processes, provides opportunities for the Watermaster to have input into which projects may be implemented in the Seaside Groundwater Basin. It is imperative that the Watermaster actively review and comment on the CWP DEIR, as well as other documents such as cost opinions for the various projects.

Many individual projects will offset less than 2,000 acre-feet per year of pumping from the Seaside Groundwater Basin. This amount is below the 2,600 acre-feet of over-production, calculated from the difference between current production of 5,600 acre-feet and the Court's initially assumed Natural Safe Yield of 3,000 acre-feet per year. However, the combination of multiple projects will supply adequate water to offset the entire 2,600 acre-feet of over production.

Providing supplemental supplies on the order of 2,600 acre-feet per year will have the effect of halting water level decline, but will still leave groundwater levels below sea level. Supplemental supplies in excess of 2,600 acre-feet will be needed for a period of years to raise groundwater levels to protective levels. It is recommended to use a groundwater model to evaluate the effectiveness of each supplemental supply and its impacts on groundwater levels. Furthermore, the model can be used to improve and refine the estimate of the amount of supplemental water needed to increase groundwater levels to protective levels.

All of the supplemental projects, except water conservation, are physical projects with capital costs associated with them. Water conservation does not produce additional supply but rather results in a demand reduction. Conservation is readily implementable and should be given high priority with respect to Watermaster's support of projects that reduce the amount of groundwater pumped from the Seaside Groundwater Basin.

Evaluating, selecting, and developing supplemental supplies for the Seaside Groundwater Basin should be done as expeditiously as possible. The Watermaster should provide support where possible to aid in facilitating between parties, provide data and information on the Basin, and ensure that Material Injury does not result from any of the proposed projects.

## RECOMMENDATION 3: CONTINUE ONGOING GROUNDWATER MONITORING

Groundwater level and groundwater quality monitoring is currently being conducted in accordance with the Seaside Basin M&MP and Seawater Intrusion Response Plan (SIRP). The M&MP is a key component of basin management that is already being implemented by the Watermaster. Continued monitoring in accordance with the M&MP and SIRP will provide the data necessary for making future management decisions.

As presented in the Watermaster's 2007 and 2008 Annual Reports, the need for additional monitoring wells has been evaluated and should continue to be addressed regularly by the Watermaster. Supplementary to the monitoring well site already recommended, additional monitoring wells within the Northern Inland Subarea may need to be considered, particularly if pumping is redistributed from the coastal area to more inland areas. Furthermore, northern inland monitoring wells are necessary to better define the basin boundary and to monitor groundwater interaction with the adjacent Salinas Groundwater Basin. Monitoring well data will also contribute to understanding the amount of water in storage and the amount of useable storage space available for groundwater management purposes.

## RECOMMENDATION 4: CONTINUE ANNUAL ANALYSES

The Amended Decision requires that an Annual Report be prepared by the Watermaster. The Annual Report is to address the specific Watermaster functions set forth in Section III.L.3.x of the Decision. The Annual Reports filed in November of 2007 and 2008 included a section pertaining to Water Quality Monitoring, and also included the summaries of the Seawater Intrusion Analysis Report (SIAR) for each of these years.

The annual reports are important documents that serve to, 1) provide a spring and fall snap shot of groundwater quality and groundwater levels for each year, 2) allow for a year-by-year comparison of basin conditions, and 3) document basin management decisions and actions, and their resultant impacts on the Basin.

The analyses that are included in the Annual Reports should be continued.

## RECOMMENDATION 5: IMPROVE BASIN MANAGEMENT TOOLS AND TECHNIQUES

To improve overall basin management, a number of tools and techniques are recommended. A primary tool for managing the Seaside Groundwater Basin is a calibrated groundwater flow model. If the model is well calibrated there will be a high level of confidence that the model is able to accurately simulate groundwater conditions.

Before model development starts, the Watermaster should determine the goals, objectives, and detail of the model. Once the model has been developed and appropriately calibrated, potential future management scenarios can be run to evaluate impacts on groundwater levels and water quality. Among other things, a groundwater model is an effective tool for analyzing and estimating:

1. Combined impacts of several simultaneous basin management actions.
2. Changes in Total Useable Storage Space as a result of individual or combined basin management actions.
3. Storage Efficiency, as required by the Amended Decision. A groundwater model could predict the amount and availability of artificially recharged water, or water that is stored in-lieu that can be successfully recovered at a later date.

The protective elevations contained in this BMAP are based on protection of production wells and not the entire aquifer. Setting protective elevations for specific aquifers is another management technique that will be possible with the groundwater modeling planned for 2009.

## RECOMMENDATION 6: DEVELOP LONG-TERM FINANCING PLAN FOR REPLENISHMENT WATER

The Amended Decision identifies three separate budgets that the Watermaster oversees: (1) the Monitoring and Management Plan budget, (2) an annual Administrative budget, and (3) a Replenishment budget. The Monitoring and Management Plan budget and the Administrative budget are set every year by the Watermaster. The Replenishment budget is based on an estimated cost of obtaining replenishment water to offset cumulative overproduction.

The replenishment assessments are only intended to offset overproduction that has occurred after the Decision was issued. The current replenishment assessments are not sufficient to buy water that offsets overpumping that occurred prior to the Decision. The overpumping prior to the decision added to the Seaside Groundwater Basin's deficit. Offsetting only the overproduction that occurred after the Amended Decision may not be sufficient to raise groundwater levels in the Seaside Groundwater Basin sufficiently to prevent seawater intrusion. The Watermaster should develop a plan to address this issue.

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Exhibit 3.2

FILED

MAR 27 2006

LISA M. GALDOS
CLERK OF THE SUPERIOR COURT
D. VALENZUELA DEPUTY

IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA

IN AND FOR THE COUNTY OF MONTEREY

| | |
|---|---|
| CALIFORNIA AMERICAN WATER,<br><br>Plaintiff,<br><br>vs.<br><br>CITY OF SEASIDE; CITY OF MONTEREY; CITY OF SAND CITY; CITY OF DEL REY OAKS; SECURITY NATIONAL GUARANTY, INC.; GRANITE ROCK COMPANY, INC.; D.B.O. DEVELOPMENT COMPANY NO. 27, INC.; MURIEL E. CALABRESE 1987 TRUST; ALDERWOODS GROUP (CALIFORNIA), INC.; PASADERA COUNTRY CLUB, LLC; LAGUNA SECA RESORT, INC; BISHOP MC INTOSH & MC INTOSH, a general partnership; THE YORK SCHOOL, INC.; COUNTY OF MONTEREY; and DOES 1 through 1,000, Inclusive,<br><br>Defendants.<br><br>MONTEREY PENINSULA WATER MANAGEMENT DISTRICT,<br><br>Intervenor.<br><br>MONTEREY COUNTY WATER RESOURCES AGENCY,<br><br>Intervenor.<br><br>AND RELATED CROSS-ACTIONS | Case No. M66343<br><br>DECISION<br><br>Action Filed: August 14, 2003<br>Trial Date: December 13, 2005<br>Dept.: 21<br><br>(Assigned to Hon. Roger D. Randall, Ret.) |

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## I. INTRODUCTION

This Decision sets forth the adjudicated rights of the parties to this lawsuit (with certain exceptions noted in section I.D. below), including Plaintiff California American Water, and Defendants the City of Seaside, the City of Monterey, the City of Sand City, the City of Del Rey Oaks, Security National Guaranty, Inc., Granite Rock Company, D.B.O. Development Company No. 27, Muriel E. Calabrese 1987 Trust, Alderwoods Group (California), Inc., Pasadera Country Club, LLC, Laguna Seca Resort, Inc., Bishop, McIntosh & McIntosh, and The York School, Inc. (hereinafter "Water User Defendants") to use the water resources of the Seaside Groundwater Basin ("Seaside Basin" or "Basin") and provides for a physical solution for the perpetual management of the Basin, which long-term management will provide a means to augment the water supply for the Monterey Peninsula.

A. Seaside Groundwater Basin.

The Seaside Basin is located in Monterey County and underlies the Cities of Seaside, Sand City, Del Rey Oaks, Monterey, and portions of unincorporated county areas, including the southern portions of Fort Ord, and the Laguna Seca Area. The boundaries of the Basin are depicted in Exhibit B of this Decision. Generally, the Seaside Basin is bounded by the Pacific Ocean on the west, the Salinas Valley on the north, the Toro Park area on the east, and Highways 68 and 218 on the south. The Seaside Basin consists of subareas, including the Coastal subarea and the Laguna Seca subarea in which geologic features form partial hydrogeologic barriers between the subareas.

B. The Parties.

1. Plaintiff California American Water ("Plaintiff" or "California American") is an investor-owned public utility incorporated under the laws of the State of California. (*See* Pub. Utilities Code, §§ 1001 et seq. and 2701 et seq.) California American produces groundwater from the Seaside Basin and delivers it for use on land within its certificated service area that both overlies portions of the Seaside Basin, and is located outside of the Seaside Basin Area, all within the County of Monterey.

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2. Defendant City of Seaside ("Seaside") is a general law city situated in the County of Monterey. Seaside produces groundwater from the Seaside Basin (1) for use on two city-owned golf courses that overly the Basin, and (2) for municipal water service to its residents. (*See* Call. Const., Art. XI, § 9; Gov. Code, § 38730.)

3. Defendant City of Sand City ("Sand City") is a charter city situated in the County of Monterey. Sand City produces groundwater from the Seaside Basin and delivers it for use on private and publicly owned lands within its incorporated boundaries, all of which overlie the Seaside Basin. (*See* Cal. Const., Art. XI, § 9; Gov. Code, § 38730.)

4. Defendant City of Del Rey Oaks ("Del Rey Oaks") is a general law city situated in the County of Monterey. Land within Del Rey Oaks' incorporated boundaries overlies the Seaside Basin. The two wells Del Rey Oaks presently operates for irrigation of public lands are located outside the Seaside Basin area and are, therefore, excluded from this Stipulation. (*See* Cal. Const., Art. XI, § 9; Gov. Code, § 38730.)

5. Defendant City of Monterey ("Monterey") is a charter city situated in the County of Monterey. Monterey owns and controls land that overlies the Seaside Basin area.

6. Defendant Security National Guaranty, Inc. ("SNG") is a California corporation with its principal place of business in the City and County of San Francisco. SNG's primary business activity is real estate development. As part of its operation, SNG and/or its predecessors-in-interest have produced groundwater from the Seaside Basin. SNG also owns land overlying the Seaside Basin.

7. Defendant Granite Rock Company ("Granite") is a California corporation with its principal place of business in the County of Santa Cruz. Granite's primary business activity is the production and sale of concrete aggregate and building materials. As part of its Seaside concrete and building materials plant, Granite has produced groundwater from the Seaside Basin. Granite also owns land overlying the Seaside Basin.

8. Defendant D.B.O. Development No. 27 ("D.B.O."), erroneously sued herein as D.B.O. Development Company, is a California limited liability company with its principal place of business in the County of Monterey. D.B.O.'s primary business activity is the ownership and

development of real property for commercial, industrial, residential, and public uses. As part of their ownership and development of land overlying the Seaside Basin, D.B.O. and/or its predecessor in interest have produced groundwater from the Basin. D.B.O. also owns and controls land overlying the Seaside Basin.

9. Defendant Muriel E. Calabrese 1987 Trust ("Calabrese") is an irrevocable trust that holds property in the County of Monterey. Calabrese and/or its predecessor in interest have produced groundwater from the Seaside Basin in relation to the operation of its paving, grading and construction business and operation of a concrete batch plant in Sand City. Calabrese also owns and controls land overlying the Seaside Basin.

10. Defendant Alderwoods Group (California), Inc. ("Alderwoods Group"), DBA Mission Memorial Park ("Mission Memorial") is a California corporation with its principal place of business in the County of Monterey. Mission Memorial's primary business activity is the operation of a cemetery in the City of Seaside. As part of maintenance of the cemetery, Mission Memorial has produced groundwater from the Seaside Basin. Mission Memorial also owns land overlying the Seaside Basin.

11. Defendant Pasadera Country Club, LLC ("Pasadera") is a California limited liability company with its principal place of business in the County of Monterey. Pasadera's primary business activity is the operation of a private golf course. As part of its golf course operations, Pasadera has produced groundwater from the Seaside Basin. Pasadera also owns land overlying the Seaside Basin.

12. Defendant Bishop, McIntosh & McIntosh ("Bishop") is a general partnership, with its principal place of business in the County of Monterey. Bishop owns land overlying the Laguna Seca Subarea of the Seaside Basin. Defendant Laguna Seca Resort, Inc.("Laguna Seca") is a California corporation with its principal place of business in the County of Monterey. Laguna Seca's primary business activity is the operation of a public golf course on land owned in fee by Bishop. Laguna Seca operates the golf course pursuant to a lease with Bishop. As part of the golf course's operations, groundwater is produced from the Laguna Seca Subarea of the Seaside Basin for irrigation purposes. Laguna Seca filed a cross-complaint against California

American, and Bishop filed a cross-complaint against California American and all defendants other than Laguna Seca Defendants Laguna Seca Resort, Inc. and Bishop, McIntosh & McIntosh shall collectively be referred to as "Laguna Seca/Bishop." However, the pumping allocation established in Section III.B., below, is held only by Bishop, as the overlying property owner. Laguna Seca is a Water User Defendant now exercising Bishop's pumping allocation and operating the golf course facilities. The damages provided for in Section III.G. shall be based on the Average Gross Annual Income of the entity operating thee golf course facilities, which is now Laguna Seca (Bishop's lessee).

13. Defendant County of Monterey owns land on which is operates the Laguna Seca Park. County of Monterey has produced groundwater from the Seaside Basin for use at Laguna Seca Park. County of Monterey owns land overlying the Seaside Basin.

14. Intervenor Monterey Peninsula Water Management District ("MPWMD") is a district formed pursuant to Water Code Appendix sections 118-1 et seq. MPWMD intervened as a party defendant as against California American, cross-complained against the other parties as a plaintiff, and is a defendant in a cross-complaint filed by Seaside and joined in by City defendants.

15. Intervenor Monterey County Water Resources Agency ("MCWRA") is a duly constituted Water Resources Agency created pursuant to California Water Code Appendix section 52-3 et seq. MCWRA intervened inn this action as a plaintiff as against all parties.

16. Defendant The York School, Inc. ("York" or "York School"), is a nonprofit corporation, founded in 1959 as an independent day school providing college preparatory education. Its primary activity is the operation of a school. York leases approximately 31.4 acres of property from the United States, Department of the Army, on the former Fort Ord. This property is located immediately north of the main campus, across York Road, and is a portion of a larger parcel, approximately 107 acres in size, that is scheduled to be transferred as a public benefit conveyance to York from the federal government. This parcel overlies the Seaside Basin and is subject to this Decision. York has produced groundwater from the Seaside Basin. York is not an agent of the United States, nor can York bind the United States to this Decision.

C. The Complaint.

On or about August 14, 2003, Plaintiff filed a complaint against Defendants and Does 1 through 1,000 requesting a declaration of Plaintiff's and Defendants' individual and collective rights to groundwater and a mandatory and prohibitory injunction requiring the reasonable use and coordinated management of groundwater within the Seaside Basin pursuant to Article X, Section 2 of the California Constitution. The pleadings further allege that Plaintiff and Defendants collectively claim substantially all rights of groundwater use, replenishment and storage within the Seaside Basin area, that the Natural Safe Yield (as defined in Section III.A.) is being exceeded, and that absent a physical solution and coordinated groundwater management strategy, the Seaside Basin is in imminent risk of continued lowering of water levels, increased pump-lifts, diminution of water supply and quality, seawater intrusion, and possible land subsidence. Accordingly, Plaintiff requested: (1) a determination of the Seaside Basin's safe yield; (2) an operating plan for the management of the Basin; (3) a declaration of the rights of the parties named in this Complaint; (4) a declaration and quantification, as part of a physical solution, of the parties' respective rights to make use of the Seaside Basin's available storage space; and (5) the appointment of a Watermaster to administer the Court's Decision. Subsequently, Plaintiff has twice amended its complaint and the operative complaint is now the Second Amended Complaint, which sets forth the same general allegations as the original complaint.

D. Defendants' Responses.

Water User Defendants in this action have all responded to the Complaint pursuant to Answers. In addition, they have all joined in a motion seeking Court approval of a Stipulated Judgment. The Monterey Peninsula Water Management District and the County of Monterey, including the Monterey County Water Resources Agency, did not join in the Stipulation.

On or about September 24, 2003, Intervenor MPWMD filed a complaint in intervention against the defendants named in the Complaint. Defendants to that complaint responded to the cross-complaint pursuant to an Answer, containing a general denial and affirmative defenses.

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Seaside, on or about January 9, 2004, filed a cross-complaint against MPWMD. MPWMD responded to the cross-complaint by filing an Answer, containing a general denial and affirmative defenses.

Laguna Seca, on or about April 23, 2004, filed a cross-complaint against California American. California American responded to the cross-complaint pursuant to an Answer, containing a general denial and affirmative defenses.

Bishop, on or about September 23, 2004, filed a cross-complaint against California American and against all defendants other than Laguna Seca. California American, Granite, Sand city, Alderwoods Group, York School, D.B.O., Monterey, MPWMD, Seaside, and Pasadera responded to the cross-complaint pursuant to Answers containing general denials and affirmative defenses.

SNG, on or about July 26, 2005, filed a cross-complaint against MPWMD. MPWMD responded to the cross-complaint by filing an Answer, containing a general denial and affirmative defenses.

At the conclusion of argument on December 22, 2005, the various defendant cross-complainants agreed that the relief they had sought via their cross-complaints had been subsumed in the litigation of the complaint and complaints in intervention, the answers thereto, and the Settlement Agreement and General Mutual Release executed by all parties save the intervenors and the County of Monterey.

E. Joint Motion for Entry of Judgment.

Plaintiff and Water User Defendants filed a Motion for the Entry of Judgment along with a Stipulation for Entry of Judgment, which was opposed by both intervenors. The Motion for Entry of Judgment requested that the Court approve the Stipulation and enter the Judgment. The motion was heard by this Court on December 12, 2005. At the request of the moving parties, it deferred its ruling until it had taken evidence in the trial of this matter.

Having now received the evidence, and having considered written and oral argument from the various parties, the Court denies the Motion for Entry of Judgment. The Court accepts the stipulation of certain of the parties entitled "Settlement Agreement and General Mutual Release"

filed with the Court during trial insofar as the stipulation does not conflict with the ruling set forth herein.

F. Jurisdiction. This Court has jurisdiction to enter a Judgment declaring and adjudicating Plaintiff's and Water User Defendants' rights to the reasonable and beneficial use of groundwater in the Seaside Basin Area, including the imposition of a physical solution, pursuant to Article X, Section 2 of the California Constitution.

## II. FINDINGS

A. Importance of Groundwater. Groundwater is an important water supply source for businesses, individuals and public agencies that overlie or Extract groundwater from the Seaside Basin. The overwhelming majority of the groundwater appropriated from the Seaside Basin has been and continues to be dedicated to a public use in accordance with the provisions of the California Constitution, Article X, Section 5. The Plaintiff and the Water User Defendants rely upon continued availability of groundwater to meet their demands. The intervenors, MPWMD and MCWRA, have a legislatively mandated interest in the preservation and enhancement of groundwater in the Basin.

B. Status of the Groundwater Basin.

1. Perennial Natural Safe Yield. The Perennial Natural Safe Yield (as defined in Section III.A. and hereinafter referred to as "Natural Safe Yield") of the Seaside Basin is solely the result of natural percolation from precipitation and surface water bodies overlying the Basin. The Court finds that the Natural Safe Yield of the Basin as a whole, assuming no action is taken to capture subsurface flow exiting the northern boundary of the Basin, is from 2,581 to 2,913 acre feet per year. The Natural Safe Yield for the Coastal Subarea is estimated from 1,973 to 2,305 acre feet peer year, and the Natural Safe Yield for the Laguna Seca Subarea is 608 acre feet per year.

2. Groundwater Production. Production records demonstrate that the cumulative annual groundwater production of the Parties from the Seaside Basin area in each of the five (5) years immediately preceding the filing of this action has been between approximately 5,100 and 6,100 acre feet. Therefore, the Court finds that groundwater production has exceeded the Natural

Safe Yield during the preceding five (5) years throughout the Seaside Basin and in each of its subareas. While no one can predict with precision when it will occur, all parties agree continued indefinite production of the Basin Groundwater in excess of the Natural Safe Yield will ultimately result in seawater intrusion, with deleterious effects on the Basin. The evidence demonstrates that the stage is set for such an occurrence in the foreseeable future.

C. Legal Claims.

1. Groundwater Rights. Certain Parties allege that they have produced groundwater openly, notoriously, continuously, and without interruption in excess of the Natural Safe Yield of the Basin for more than five (5) years. As a result, these Parties allege that they have accrued prescriptive rights as articulated by the California Supreme Court in *City of Pasadena v. City of Alhambra* (1948) 33 Cal.2d 908. In defense of these claims, other Parties deny that the elements of prescription have been satisfied, and further allege the affirmative defense of "self help" as recognized in *Pasadena, supra*, 33 Cal.2d at pp. 932-32. Those Parties responsible for public water service also raise Civil Code section 1007 as an affirmative defense against prescription.

The Court finds that there is merit to the claim that certain prescriptive rights have accrued, but also finds that there is merit to the aforementioned affirmative defenses. Accordingly, the Court finds that the Parties collectively possess a variety of rights based in prescription and other original rights (including overlying and appropriative rights). Each Party's right to produce naturally occurring groundwater from the Seaside Basin therefore reflects the amount of their historical production from the Basin, and respects the priority of allocations under California law. The physical solution set forth by this Decision is intended to ultimately reduce the drawdown of the aquifer to the level of the Natural Safe Yield; to maximize the potential beneficial use of the Basin; and to provide a means to augment the water supply for the Monterey Peninsula.

2. Storage Rights. The Court finds that the public interest is served by augmenting the total yield of the Seaside Basin through artificial groundwater recharge, storage, and recovery. It is well established that an entity which artificially recharges a groundwater basin with the intent to later recapture that water maintains an exclusive right to recapture that quantity of water by which said recharge augments the retrievable water supply of the groundwater basin, so long as

such recharge and recapture (i.e., storage) does not materially harm the groundwater basin or any other entity's prior rights associated with the groundwater basin. (*City of Los Angeles v. City of San Fernando* (1975) 14 Cal.3d 199, 264; *City of Los Angeles v. City of Glendale* (1943) 23 Cal.2d 68, 76-77; see also Water Code, § 7075.) The Court finds, therefore, that the right to store and recover water from the Seaside Basin shall be governed by the provisions of the Decision, and the rules and regulations promulgated by the Seaside Basin Watermaster, the basic provisions of which are described in Section III.H.

3. *De Minimis* Production. The Court finds that production of groundwater by any person or entity less than five (5) acre feet per year is not likely to significantly contribute to a Material Injury (as defined in Section III.A.) to the Seaside Basin or any interest related to the Seaside Basin. Accordingly, this Decision is not intended to govern the production of groundwater by any person or entity that produces a total quantity of groundwater that is less than five (5) acre feet peer year. However, to the extent the Court determines in the future that this exemption has contributed to or threatens to contribute to a Material Injury to the Seaside Basin or any interest related to the Seaside Basin, including any contribution caused by production subject to this exemption in combination with all other production from the Seaside Basin, the Court will modify or eliminate this exemption as it deems prudent pursuant to its reserved jurisdiction provided in Section III.O.

4. Transferability of Seaside Basin Rights. The Court finds that maximum beneficial use of the Seaside Basin's resources is encouraged by the ability to sell and lease production allocations. Such transferability will also provide necessary flexibility to satisfy future water supply needs. Accordingly, the Court finds that production allocations should be assignable, subject to the rules and regulations promulgated by the Watermaster, and subject to certain Parties' participation in the Alternative Production Allocation, described in Section III.B.3, which election will restrict their transfers of water.

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## III. DECISION

**IT IS HEREBY ORDERED, ADJUDGED AND DECREED:**

A. Definitions.

1. "Administrative Year" is the twelve (12)month period from January 1 through December 31.

2. "Alternative Production Allocation" is the amount of Groundwater that a Producer participating in this allocation method may Produce from a Subarea of the Seaside Basin as provided in Section III.B.3.

3. "Artificial Replenishment" means the act of the Watermaster, directly or indirectly, engaging in or contracting for Non-Native Water to be added to the Groundwater supply of the Seaside Basin through Spreading or Direct Injection to offset the cumulative Over-Production from the Seaside Basin in any particular Administrative Year pursuant to Section III.L.3.j.iii. It shall also include programs in which Producers agree to refrain, in whole or in part, from exercising their right to produce their full Production Allocation where the intent is to cause the replenishment of the Seaside Basin through forbearance in lieu of the injection or spreading of Non-Native Water.

4. "Base Water Right" is the percentage figure or the fixed amount assigned to each Party as provided in Section III.B.2, which is used to determine various rights and obligations of the Parties as provided in Sections III.B.2, III.B.3, III.L.3.c, and III.L.3.j.iii.

5. "Brackish Water" means water containing greater than 1,000 parts of chlorides to 1,000,000 parts of Water.

6. "Carryover" means that portion of a Party's Production Allocation that is not Extracted from the Basin during a particular Administrative Year. Each acre-foot of Carryover establishes an acre-foot of Carryover Credit.

7. "Carryover Credit(s)" means the quantity of Water established through Carryover, that a Party is entitled to Produce from the Basin pursuant to Section III.F.

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8. "Coastal Subarea" means those portions of the Seaside Basin that are west of North-South Road, and further as shown on the Basin map attached as Exhibit B to this Decision.

9. "Direct Injection" means a method of Groundwater recharge whereby Water is pumped into the Basin through wells or other artificial channels.

10. "Extraction," "Extractions," "Extracting," "Extracted," and other variations of the same noun or verb, mean pumping, taking, diverting or withdrawing Groundwater by any manner or means whatsoever from the Seaside Basin.

11. "Feasible" means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.

12. "Groundwater" means all Water beneath the ground surface in the Seaside Basin, including Water from Natural Replenishment, Artificial Replenishment, Carryover, and Stored Water.

13. "Laguna Seca Subarea," or "Laguna Seca Area," means those portions of the Basin that are east of the Southern Coastal Subarea and south of the Northern Inland Subarea, as shown on the Seaside Basin map attached as Exhibit B to this Decision.

14. "Landowner Group" means all Producers that own or lease land overlying the Seaside Basin and Produce Groundwater solely for use on said land, except California American, Seaside (Municipal), Monterey, Del Rey Oaks, and Sand City.

15. "Material Injury" means a substantial adverse physical impact to the Seaside Basin or any particular Producer(s), including but not limited to: seawater intrusion, land subsidence, excessive pump lifts, and water quality degradation. Pursuant to a request by any Producer, or on its own initiative, Watermaster shall determine whether a Material Injury has occurred, subject to review by the Court as provided for in Section III.N.

16. "Natural Replenishment" means all processes by which Water may become a part of the Groundwater supply of the Seaside Basin without the benefit of the Physical Solution and the coordinated management it provides. Groundwater that occurs in the Seaside Basin as a

result of the Physical Solution, which is not Natural Replenishment, includes, but is not limited to Storage, Carryover, and Artificial Replenishment.

17. "Natural Safe Yield" or "Perennial Natural Safe Yield" means the quantity of Groundwater existing in the Seaside Basin that occurs solely as a result of Natural Replenishment. The Natural Safe Yield of the Seaside Basin as a whole, assuming no action is taken to capture subsurface flow exiting the northern boundary of the Basin, is from 2,581 to 2,913 acre feet per year. The Natural Safe Yield for the Coastal Subareas is from 1,973 to 2,305 acre feet per year. The Natural Safe Yield for the Laguna Seca Subarea is 608 acre feet per year.

18. "Non-Native Water" means all Water that would not otherwise add to the Groundwater supply through natural means or from return flows from surface applications other than intentional Spreading.

19. "Overdraft" or "Overdrafted" refers to a condition within a Groundwater basin resulting from long-term depletions of the basin over a period of years.

20. "Operating Safe Yield" means the maximum amount of Groundwater resulting from Natural Replenishment that this Decision, based upon historical usage, allows to be produced from each Subarea for a finite period of years, unless such level of production is found to cause Material Injury. The Operating Safe Yield for the Seaside Basin, as a whole, is 5,600 acre feet. The Operating Yield is 4,611 acre feet for the Coastal Subarea and 989 acre feet for the Laguna Seca Subarea. The Operating Yield established here will be maintained for three (3) years from the date of this Decision or until a determination is made by the Watermaster, concurred in by this Court, that continued pumping at this established Operating Yield will cause Material Injury to the Seaside Basin or to the Subareas, or will cause Material Injury to a Producer due to unreasonable pump lifts. In either such event the Watermaster shall determine the modified Operating Yield in accordance with the Principles and Procedures attached hereto as Exhibit A, and through the application of criteria that it shall develop for this purpose.

21. "Over-Production" and other variations of the same term means (1) with regard to all Production from the Seaside Basin, that quantity of Production which exceeds an initially assumed Natural Safe Yield of 3,000 afy (or such adjusted calculation of Natural Safe Yield as

further study of the Basin by the Watermaster shall justify); or (2) with regard to each Producer, that quantity of Water Produced in any Administrative Year in excess of that Producer's Base Water Right, as applied to an initially assumed Natural Safe Yield of 3,000 afy (subject to adjustment as further study shall justify). For a Party producing under the Alternative Production Allocation, the calculation shall be based upon the Base Water Right assigned to them in Table 1, infra, only to the extent that Party has elected to convert all or part of an Alternative Production Allocation into a Standard Production Allocation, pursuant to Section III.B.3.e.

22. Operating Yield Over-Production means pumping of Native Water by Producers in excess of their Standard Production Allocation or Alternative Production Allocation, as discussed in Section III.L.3.j.iii.

23. "Person" or "Persons" includes individuals, partnerships, associations, governmental agencies and corporations, and any and all types of entities.

24. "Physical Solution" means the efficient and equitable management of Groundwater resources within the Seaside Basin, as prescribed by this Decision, to maximize the reasonable and beneficial use of Water resources in a manner that is consistent with Article X, Section 2 of the California Constitution, the public interest, and the basin rights of the Parties, while working to bring the Production of Native Water to Natural Safe Yield.

25. "Produce," "Produced," or "Production" means (1) the process of Extracting Water or (2) the gross amount of Water Extracted.

26. "Producer" means a Party possessing a Base Water Rights.

27. "Production Allocation" is the amount of Groundwater that a Producer may Produce from a Subarea of the Seaside Basin based on the Parties' election to proceed under either the Standard Production Allocation or the Alternative Production Allocation set forth in Sections III.B.2 and III.B.3, respectively.

28. "Replenishment Assessment" means an assessment levied by the Watermaster per each acre-foot of Over-Production against each party Over-Producing Groundwater in the previous Administrative Year. The amount of the assessment shall be sufficient to cover the cost of Artificial Replenishment in an amount necessary to off-set that Producer's Over-Production,

and levied as provide in Section III.L.3.j.iii. The assessment must of necessity be initially determined based upon the estimated cost of providing Non-Native water to replenish the Basin, as determined by the Watermaster.

29. "Seaside Basin" is the underground water basin or reservoir underlying the Seaside Basin Area, the exterior boundaries of which are the same as the exterior boundaries of the Seaside Basin Area.

30. "Seaside Basin Area" is the territory depicted in Exhibit B to this Decision.

31. "Spreading" means a method of introducing Non-Native Water into the Seaside Basin whereby Water is placed in permeable impoundments and allowed to percolate into the Seaside Basin.

32. "Standard Production Allocation" is the amount of Groundwater that a Producer participating in this allocation method may Produce from a Subarea of the Seaside Basin as provided in Section III.B.2, which is determined by multiplying the Base Water Right by the Operating Yield.

33. "Storage" means the existence of Stored Water in the Seaside Basin.

34. "Storage Allocation" means that quantity of Stored Water in acre feet that a Party is allowed to Store in the Coastal Subarea or the Laguna Seca Subarea at any particular time.

35. "Storage Allocation Percentage" means the percentage of Total Usable Storage Space allocated to each Producer proceeding under the Standard Production Allocation. Producers proceeding under the Alternative Production Allocation are not allocated Storage rights and, consequently, their share of the Total Usable Storage Space is apportioned to the Producers proceeding under the Standard Production Allocation. Pursuant to the terms of Section III.B.3, Parties proceeding under the Alternative Production Allocation enjoy a one-time right to change to the Standard Production Allocation. Due to the recalculation of the Storage Allocation Percentage necessitated when a Party changes to the Standard Production Allocation, the Watermaster will maintain the up-to-date Seaside Basin Storage Allocation Percentages.

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36. "Storage and Recovery Agreement" means an agreement between Watermaster and a Party for Storage pursuant to Section III.L.3.j.xx.

37. "Store" and other variations of the same verb refer to the activities establishing Stored Water in the Seaside Basin.

38. "Stored Water" means (1) Non-Native Water introduced into the Seaside Basin by a Party or any predecessors-in-interest by Spreading or Directly Injecting that Water into the Seaside Basin for Storage and subsequent Extraction by and for the benefit of that Party or their successors-in-interest; (2) Groundwater within the Seaside Basin that is accounted for as a Producer's Carryover; or (3) Non-Native water introduced into the Basin through purchases by the Watermaster, and used to reduce and ultimately reverse Over-Production.

39. "Stored Water Credit" means the quantity of Stored Water augmenting the Basin's Retrievable Groundwater Supply, which is attributable to a Party's Storage and further governed by this Decision and a Storage and Recovery Agreement.

40. "Subarea(s)" means either the Laguna Seca Subarea or the Coastal Subarea.

41. "Total Useable Storage Space" means the maximum amount of space available in the Seaside Basin that can prudently be used for Storage as shall be determined and modified by Watermaster pursuant to Section III.L.3.j.xix, less Storage space which may be reserved by the Watermaster for its use in recharging the Basin.

42. "Transfer" and other variations of the same verb refers to the temporary or permanent assignment, sale, or lease of all or part of any Producer's Production Allocation, Storage Allocation, Carryover Credits, or Stored Water Credits. Pursuant to Section III.B.3., Transfer does not include the use of Water on properties identified in Exhibit C for use under an Alternative Production Allocation.

43. "Water" includes all forms of Water.

44. "Watermaster" means the court-appointed Watermaster pursuant to Section III.L. of this Decision for the purpose of executing the powers, duties, and responsibilities assigned therein.

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45. "Watermaster Rules and Regulations" means those rules and regulations promulgated by the Watermaster consistent with the terms of this Decision.

B. Physical Solution.

1. Groundwater Rights. The Parties have Produced Groundwater from the Seaside Basin openly, notoriously, continuously, and without interruption, which Production has been determined to be in excess of the Natural Safe Yield of the Seaside Basin and each of its Subareas for more than five (5) years. Accordingly, Parties have accrued mutual prescriptive rights and/or have preserved their overlying, appropriative, and prescriptive rights against further prescription by self-help. These individual and competitive rights, whether mutually prescriptive, appropriative or overlying rights, can be most efficiently exercised and satisfied by the implementation of this Physical Solution and in the manner expressly set forth herein.

2. Standard Production Allocation. Each Producer is authorized to Produce its Production Allocation within the designated Subarea in each of the first three Administrative Years. Except for those certain Parties electing to proceed under the Alternative Production Allocation, as set forth in Section III.B.3., each Producer's Production Allocation for the first three Administrative Years shall be calculated by multiplying its Base Water Right, as set forth in Table 1 below, by that portion of the Operating Yield which is in excess of the sum of the Alternative Production Allocations. The Operating Yield for the Seaside Basin, as a whole, is set at 5,600 acre feet annually ("afa"). The Operating Yield for the Coastal Subarea is 4,611 afa, with 743 afa committed to Alternative Production Allocations and 3,868 afa committed to Standard Production Allocations. The Operating Yield for the Laguna Seca Subarea is 989 afa, with 644 afa committed to Alternative Production Allocations and 345 afa committed to Standard Production Allocations. The Operating Yield established here will be maintained for three (3) Administrative Years from the date Judgment is granted or until a determination is made by the Watermaster, concurred in by this Court, that continued pumping at this established Operating Yield will cause Material Injury to the Seaside Basin or to the Subareas or will cause Material Injury to a Producer due to unreasonable pump lifts. In the event of such Material Injury the Watermaster shall determine the modified Operating Yield in accordance with the Principles and

Procedures attached hereto as Exhibit A, and through the application of criteria that it shall develop for this purpose.[1]

Commencing with the fourth Administrative Year, and triennially thereafter the Operating Yield for both Subareas will be decreased by ten percent (10%) until the Operating Yield is the equivalent of the Natural Safe Yield unless:

a. The Watermaster has secured and is adding an equivalent amount of Non-Native water to the Basin on an annual basis; or

b. The Watermaster has secured reclaimed water in an equivalent amount and has contracted with one or more of the Producers to utilize said water in lieu of their Production Allocation, with the Producer agreeing to forego their right to claim a Stored Water Credit for such forbearance; or

c. Any combination of a and b which results in the decrease in Production of Native Water required by this decision; or

d. The Watermaster has determined that Groundwater levels within the Santa Margarita and Paso Robles aquifers are at sufficient levels to ensure a positive offshore gradient to prevent seawater intrusion.

**TABLE 1[2]**

**Standard Production Allocations**

| Party: | Percentage of Operating Yield Coastal Subarea |
|---|---|
| California American Water | 77.55% |
| City of Seaside (Municipal) | 6.36% |
| City of Seaside (Golf Courses) | 10.47% |
| City of Sand City | 0.17% |
| | |

[1] If the Operating Yield changes, Standard Production Allocations will be calculated by multiplying the portion of the changed Operating Yield committed to Standard Production Allocations by the Standard Producers' Base Water Rights. This calculation will result in a remaining quantity of water already committed to Standard Production Allocations (due to the Base Water Right percentages assigned to Alternative Producers but which are not used to calculate the Standard Production Allocations), which will be further allocated to the Standard Producers in proportion to their Base Water Rights until no quantity remains unallocated.

[2] Certain Parties including Seaside (Golf Courses), Sand City, SNG, Calabrese, Mission Memorial, Pasadera, Bishop and York School hold an Alternative Production Allocation in the fixed amount shown in Table 2. If any of these Parties subsequently elects to convert to the Standard Production Allocation, then the Base Water Right shown in Table 1 for such converting Party will be used to determine that Party's Standard Production Allocation consistent with the terms provided in Section III.B.3.e.

| | |
|---|---|
| Granite Rock Company | 0.60% |
| SNG | 2.89% |
| D.B.O. Development No. 27 | 1.09% |
| Calabrese | 0.27% |
| Mission Memorial Park | 0.60% |

| **Producer:** | **Percentage of Operating Yield for Laguna Seca Sec area** |
|---|---|
| California American Water Company | 45.13% |
| Pasadera Country Club | 22.65% |
| Bishop | 28.88% |
| York School | 2.89 % |
| Laguna Seca County Park | 0.45%* |

* Because the County of Monterey has not joined in the Settlement Agreement and General Mutual Release, its right to Produce water will be governed by the provisions made for those Producers selecting Alternative Production Allocations.

3. Alternative Production Allocation. The following Parties, which all assert overlying Groundwater rights, have chosen to participate in an Alternative Production Allocation: Seaside with regard to the Groundwater that it Produces for irrigation of its golf courses; Sand City, SNG, Calabrese, Mission Memorial, Pasadera, Bishop, York School, and Laguna Seca.

The Alternative Production Allocation provides the aforementioned Parties with a prior and paramount right over those Parties Producing under the Standard Production Allocation to Produce the amount set forth in Table 2 in perpetuity, and said Alternative Production shall not be subject to any reductions under Section III.B.2 or at such times as the Watermaster determines to reduce the Operating Yield in accordance with Section III.L.3.j.ii., subject to the following terms:

a. The Alternative Production Allocation may not be transferred for use on any other property, but shall be limited to use on the respective properties (including subdivisions thereof) identified in Exhibit C;

b. The Party electing the Alternative Production Allocation may not establish Carryover Credits or Storage rights;

c. The Party electing the Alternative Production Allocation is obligated to adopt all reasonably Feasible Water conservation methods, including methods consistent with generally accepted irrigation practices;

d. In the event a Party electing the Alternative Production Allocation is required to utilize reclaimed Water for irrigation purposes, pursuant to the terms of sections 13550 and 13551 of the California Water Code, that Party shall have the first opportunity to obtain and substitute reclaimed Water for its irrigation demands. Should that Party not pursue such substitution with due diligence, any other Party may provide reclaimed Water for the irrigation purpose pursuant to the terms of sections 13550 and 13551 of the California Water Code. Under either circumstance, the Party providing the reclaimed Water for substitution shall obtain a credit to Produce an amount of Groundwater equal to the amount of substituted reclaimed Water in that particular year, provided that such credit shall be reduced proportionately to all reductions in the Operating Yield in accordance with Section III.L.3.j.ii. The Alternative Production Allocation of the Party utilizing the reclaimed Water shall be debited in an amount equal to the reclaimed Water being substituted.

e. In the event that this Court, the Watermaster, or other competent governmental entity requires a reduction in the Extraction of Groundwater from the Seaside Basin or either of its Subareas, then Parties exercising a Standard Production Allocation in the affected subarea shall reduce their Groundwater Extractions *pro rata* to accommodate the required reduction. Only after such Parties exercising a Standard Production Allocation reduce their Extractions to zero, may Parties exercising an Alternative Production Allocation in the affected subarea be required to reduce their Groundwater Extractions. In such case, those Parties exercising an Alternative Production Allocation shall reduce their pumping in an amount correlative to each other in accordance with the California law pertaining to allocation of rights to Overdrafted Groundwater basins between overlying landowners.

**TABLE 2**

**Alternative Production Allocations**

| Party: | Coastal Subarea |
|---|---|
| Seaside (Golf Courses) | 540 afa |
| SNG | 149 afa |
| Calabrese | 14 afa |
| Mission Memorial | 31 afa |
| Sand City | 9 afa |

| Producer: | Alternative Production Allocation |
|---|---|
| Pasadera | 251 afa |
| Bishop | 320 afa |
| York School | 32 afa |
| Laguna Seca County Park | 41 afa* |

* The County of Monterey possesses certain water rights based upon its use of water from the aquifer for maintenance of Laguna Seca Park. Its historic Production of Groundwater has averaged 41 afy. It has not joined in the stipulation of the other Producers, but is entitled to draw up to 41 afy from the Laguna Seca Subarea as if it were a party to the Alternative Production Allocations.

At any time prior to the expiration of the initial three-year operating period of this Decision, as designated in Section III.B.2, any of the aforementioned Parties, except the County of Monterey, may choose to change all or a portion of their Alternative Production Allocation to the Standard Production Allocation method set forth in Section III.B.2 and shall be entitled to all of the privileges associated with said Production Allocation as set forth herein (e.g., transferability, Storage rights, and Carryover rights). A Party choosing to change to the Standard Production Allocation shall do so by filing a declaration with the Court, and serving said declaration on all other parties. Once a Party chooses to change to the Standard Production Allocation method set forth in Section III.B.2, that Party shall not be allowed to thereafter again choose to participate in the Alternative Production Allocation. The Parties under the Standard Production Allocation shall not be allowed at any time to change from the Standard Production Allocation to the Alternative Production Allocation.

C. Production of Brackish Water. Sand City shall have the right to Produce Brackish Water from the brackish Groundwater aquifer portion of the Coastal Subarea of the Seaside Basin for the purpose of operating its proposed desalinization plant, said Production being limited to the Aromas Sands Formation, so long as such Production does not cause a Material Injury. Upon receiving a complaint supported by evidence from any Party to this Decision that the Production of Brackish Water by Sand City is causing a Material Injury to the Seaside Basin or to the rights of any Party to this Decision as set forth herein, the Watermaster shall hold a noticed hearing. The burden of proof at such hearing shall be on the Party making the complaint to show, based on substantial evidence, that the Production of Brackish Water by Sand City is causing a Material

Injury. If the Watermaster determines, based on substantial evidence, that the Production of Brackish Water by Sand City is causing a Material Injury to the Seaside Basin or to the rights of any Party to this Decision as set forth herein, the Watermaster may impose conditions on such Production of Brackish Water that are reasonably necessary to prevent such Material Injury.

D. Injunction of Unauthorized Production. Each Producer is prohibited and enjoined from Producing Groundwater from the Seaside Basin except pursuant to a right authorized by this Decision, including Production Allocation, Carryover, Stored Water Credits, or Over-Production subject to the Replenishment Assessment. Further, all Producers are enjoined from any Over-Production beyond the Operating Yield in any Administrative Year in which Watermaster has declared that Artificial Replenishment is not available or possible.

E. No Abandonment. It is in the interest of reasonable beneficial use of the Seaside Basin and its Water supply, that no Producer be encouraged to take and use more Water in any Administrative Year than is actually required, Therefore, failure to Produce all of the Water to which a Producer is entitled hereunder for any amount of time shall, in and of itself, not be deemed to be, or constitute an abandonment of such Producer's Base Water Right or Production Allocation, in whole or in part. The Water unused by any Party (either as Production or Carryover) will otherwise contribute to the ongoing efficient administration of the Decision and the Physical Solution.

F. Right to Carryover Unused Production Allocation; Carryover Credits. Except for those certain Parties electing to proceed under the Alternative Production Allocation, as set forth in Section III.B.3., for the first three Administrative Years each Producer who, during a particular Administrative Year, does not Extract from the Basin a total quantity equal to such Producer's Standard Production Allocation for the particular Administrative Year may establish Carryover Credits, up to the total amount of that Producer's Storage Allocation; provided, however, in no circumstance may the sum of a Producer's Storage Credits and Carryover Credits exceed that Producer's available Storage Allocation. Use (Extraction) of Carryover Credits shall be governed as otherwise provided in this Decision and the Watermaster Rules and Regulations. In

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consideration of the Seaside Basin's hydrogeologic characteristics, the Watermaster may discount the quantity of Water that may be Extracted pursuant to a Carryover Credit.

G. Damages and Prohibition on Enjoining Municipal Pumping. The Parties recognize that California American's pumping is for municipal purposes, including drinking Water supplies for most of the Monterey Peninsula, including within all of the Defendant Cities and to all of the Defendant landowners. In this context, if California American's Groundwater pumping causes an "Intrusion" upon a Water User Defendant's Production Allocation, then it shall compensate the Water User Defendant for damages caused by this Intrusion. An "Intrusion" occurs when a Water User Defendant exercising an Alternative Production Allocation is directed by the Watermaster, this Court or any other competent governmental entity to reduce its Groundwater pumping to a level below that Water User Defendant's Alternative Production Allocation, while California American continues pumping Groundwater from the same subarea. This damages provision does not alter the priority of the Alternative Production Allocation over the Standard Production Allocation pursuant to Section III.B.3, and is intended to address potential exigent circumstances that might arise regarding California American's municipal water service.

1. Damages from an Intrusion shall be calculated based upon the losses incurred by the Water User Defendant that are caused by the Intrusion. These losses may include the loss of crop yield and associated income, measured against the average achieved over the preceding five (5) years from the date of the loss. Where an Intrusion occurs with respect to a Water User Defendant's exercise of an Alternative Production Allocation for golf course irrigation (i.e., an Intrusion to a "Golf Course Water User"), the Intrusion may cause discoloration, thinning and damage to the golf course turf and may require replacement of golf course turf and other golf course landscaping. Such conditions may, in turn, cause the loss of income from reduced golf course facilities usage and loss of good will. It may be difficult to quantify such damages to a sum certain. Accordingly, where a Golf Course Water User demonstrates that an Intrusion caused discoloration, thinning or loss of golf course turf, the following criteria shall be utilized to determine damages for an Intrusion to a Golf Course Water User.

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a. Lost Income.

i. The Golf Course Water User's "Average Gross Annual Income" shall be determined by summing its gross annual income from each of the five (5) years preceding the year of the Intrusion and dividing that sum by five, except where a Golf Course Water User (Pasadera) has not been in operation for seven (7) years at the time of the Intrusion, the Average Gross Annual Income shall be determined by summing the gross annual income from each of the three years preceding the year of the Intrusion and dividing that sum by three;

ii. The Golf Course Water User's gross annual income during the year of an Intrusion shall be subtracted from its Average Gross Annual Income, with the resulting difference constituting the amount of lost income damages for that year of Intrusion; and

iii. If an Intrusion occurs in two or more years within a five-year period, damages shall be calculated using an Average Gross Annual Income based on the last consecutive five-year period preceding the first year of Intrusion, or if a Golf Course Water User (i.e., Pasadera) has not been in operation for a full seven (7) years at the time of the Intrusion, damages shall be calculated using an Average Gross Annual Income based on the last consecutive three-year period proceeding the first year of Intrusion. Gross Annual Income shall not be calculated based upon a year in which an Intrusion occurred.

iv. Water User Defendants shall make Feasible efforts to mitigate damages caused by an Intrusion (e.g., including use of evapotranspiration rates to schedule turf grass irrigation).

b. Property Damage/Out-of-Pocket Repair Costs.

i. Actual costs of repairing and/or replacing golf course turf and/or other golf course landscaping and associated labor costs shall be added to the lost income damages calculated as set forth in subparagraph (1), above.

ii. The Golf Course Water User shall make Feasible efforts to mitigate damages by employing the best irrigation practices, including use of evapotranspiration rates to schedule turf grass irrigation.

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2. A damages Claim with all substantiating gross annual income data shall be provided to California American within 120 days after December 31 of the year in which the Intrusion occurred. California American shall accept or reject the Claim within 30 days thereafter. If within 35 days after receipt of a Claim, California American fails to notify the claimant of California American's acceptance or rejection of that Claim, such Claim is deemed accepted. If the Claim is affirmatively accepted, payment will be made at the time of Claim acceptance. If the Claim is deemed accepted by California American's failure to timely accept or reject the Claim, payment will be made within 30 days after the date the Claim is deemed accepted. If the Claim is rejected, all or in part, the Water User Defendant may proceed to a hearing before the Court to determine the appropriate damages, considering the above referenced criteria. The hearing shall be by motion with all supporting documentation and contest thereto submitted and supported by declaration.

H. Allowed Storage.

1. Public Resource. Underground Storage within the Seaside Basin is and shall remain a public resource. Subject to this paramount public right, the Parties hereto shall be permitted to utilize available Storage space for bona fide Groundwater Storage projects. This use shall be subject to the supervision of the Watermaster and this Court and shall be governed by the following more specific provisions.

2. In General. Except for those certain Parties electing to proceed under the Alternative Production Allocation as set forth in Section III.B.3., each Producer is entitled to Store Water in the Basin as provided for in this Decision and Watermaster's Rules and Regulations up to the amount of their Storage Allocation. Each Producer's Allowed Storage Allocation in each Subarea shall be calculated by multiplying its Storage Allocation Percentage by the Total Useable Storage Space, less space reserved by the Watermaster as herein below set forth. The initial Storage Allocation Percentages are equal to the Base Water Rights, Table 1, less Storage reserved for the Watermaster and certain public agencies. Parties with an Alternative Production Allocation are entitled to their Storage Production Allocation when they elect to change to Standard Production Allocation

3. California American Storage Allocation. All Storage Allocation held by California American shall be held in trust by California American: (i) first for the benefit of California American's retail Water service customers within its service territory on the Monterey Peninsula and the County of Monterey and cities within its service territory which it serves; and (ii) then for other purposes as California American deems appropriate. In the event of a reduction in service from the Seaside Basin, California American will allocate service, including that which is associated with its Storage Allocation, in a manner that is consistent with and proportionate to its historic deliveries to all then current customers. Further, to the extent that California American has excess Storage Allocation available after meeting its responsibilities to its retail Water service customers within its service territory on the Monterey Peninsula and the cities which it serves, upon request by the County of Monterey, Monterey, Seaside, Sand City, or Del Rey Oaks, California American shall make available portions of its Storage Allocation within the Coastal Subarea for use by the requesting city in the Coastal Subarea as provided herein. Specifically, the city's request shall be made in writing and generally describe the public purpose and proposed use of the Storage Allocation by the requesting city. California American shall not deny the request unless making the requested portion of the Storage Allocation available to the city would unreasonably interfere with California American's ability to operate its system or to otherwise provide service to its customers. Should California American not be able to accommodate all requests by all cities without unreasonably interfering with its operations and service responsibilities, first priority to excess Storage Allocation shall be given to each respective city requesting the use of a portion of the Storage Allocation up to an amount equal to the percentage that the total quantity of Water delivered by California American for retail service to the requesting city bears to the total quantity of Water delivered to all cities at the date the Decision is entered. Notwithstanding the paramount rights of each city described in this section, 5 percent of any Storage Allocation held in trust by California American will be reserved for *de minimis* Storage opportunities and made available for the benefit of any requesting city on the basis of first in time, first in right. Additionally, provision of Storage Allocation by California American to a requesting city shall not be construed as a waiver of California American's rights under

section 1501 et seq. of the California Public Utilities Code or consent to duplication of its retail Water service. Moreover, California American shall not charge any fee for use of its Storage Allocation by Monterey, Seaside, Sand City, or Del Rey Oaks. However, the capital or other value of California American's Storage Allocation shall belong to California American. Finally, no city may request use of California American's Storage Allocation unless it has first used all of its own Storage Allocation as provided herein.

4. Determination of Total Useable Storage Space. Watermaster shall determine and declare the Total Useable Storage Space in the Basin, and may annually adjust the Total Useable Storage Space pursuant to Section III.L.3.j.xix of this Decision. If and when Watermaster adjusts the Total Useable Storage Space in the Basin, each Producer's Storage Allocation shall be adjusted accordingly.

Each Storage Allocation is of the same legal force and effect, and each is without priority with reference to any other Producer's Storage Allocation. Watermaster shall, however, consider each proposal to Store Water independently pursuant to Section III.L.3.j.xx.

5. Carryover. Each Producer operating under the Standard Production Allocation shall have the right to use their respective Storage Allocation to Store any Carryover Water subject to the provisions of this Decision. Unused (not Extracted) Stored Water Credits and Carryover Credits shall be carried over from year to year for the first three Administrative Years. Thereafter Carryover Water withdrawal is subject to a percentage decrease consistent with percentage decreases in the Operating Yield, according to the terms of this Decision. Due to the hydrogeologic characteristics of the Seaside Basin, naturally occurring losses of stored Water may require Watermaster to discount the percentage of Stored Water that may be Extracted. Watermaster shall study the efficiencies of Storage in the Seaside Basin and set a uniform percentage for withdrawals of Stored Water.

6. Injection and/or Spreading. Each Producer operating under the Standard Production Allocation, and the Watermaster, and certain public agencies, shall have the right to Store Water by Direct Injection, Spreading, or other artificial means so long as such Storage does not cause Material Injury to any other Party. Except as provided in Section III.H.5., no Producer

herein granted a Storage Allocation may Store Water in the Seaside Basin without first executing a Storage and Recovery Agreement with Watermaster, pursuant to Section III.L.3.j.xx. Each Storage and Recovery Agreement shall further define the terms and conditions by which a Producer may exercise its Storage Allocation and associated Stored Water Credits.

I. Injunction Against Unauthorized Storage. Each Producer is enjoined and restrained from Carrying Over or Storing any quantity of Water in the Seaside Basin greater than that Producer's Storage Allocation. Further, each Producer is enjoined from Storing any Water in the Seaside Basin except as provided in Section III.H.5. (establishment of Carryover Credits) or as authorized by a Storage and Recovery Agreement issued by Watermaster pursuant to Section III.L.3.j.xx.

J. Measurement of Extractions and Storage. All Producers shall install, maintain, and use adequate measuring devices on all Groundwater Production facilities as directed by Watermaster and report accurate measurements of all Groundwater Produced from the Seaside Basin in the manner required by Watermaster's Rules and Regulations. Such measuring devices shall not conflict with any monitoring devices required by MPWMD. All Producers shall comply with the provisions for measurement of any Storage of Water in the Seaside Basin, as provided in Watermaster's Rules and Regulations, and as may be further provided for in a Storage and Recovery Agreement issued by Watermaster for such Storage.

K. Order of Accounting for the Production of Groundwater. Unless otherwise requested by a Producer in writing to Watermaster, Watermaster shall account for all Production of Water form the Seaside Basin by a Producer in any Administrative Year as follows: Production shall first be deemed Production of that Producer's Production Allocation up to that Producer's total Production Allocation, and thereafter shall be deemed Production of that Producer's Carryover Credits, if any, and thereafter shall be deemed Production of that Producer's Stored Water Credits, if any. So long as consistent with this section, Watermaster may prescribe administrative rules within its Rules and Regulations concerning the method and manner of accounting for the Production of Groundwater.

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L. Appointment of Watermaster; Watermaster Administrative Provisions.

1. Establishment of Watermaster. A Watermaster shall be established for the purposes of administering and enforcing the provisions of this Decision and any subsequent instructions or orders of the Court. The Watermaster shall consist of thirteen (13) voting positions held among nine (9) representatives. California American, Seaside, Sand City, Monterey, and Del Rey Oaks shall each appoint one (1) representative to Watermaster for each two-year term of Watermaster. The Landowner Group shall appoint two (2) representatives to Watermaster for each two-year term of Watermaster. The MPWMD shall have one (1) representative and the MCWRA shall have one (1) representative. The representatives elected to represent the Landowner Group shall include one (1) representative from the Coastal Subarea and one (1) representative from the Laguna Seca Subarea. The California American representative shall possess three (3) voting positions; the Seaside, MPWMD, and MCWRA representatives shall each possess two (2) voting positions; and every other representatives shall posses one (1) voting position. Each representative from the Landowner Group shall carry one-half of the Landowner Representative vote. Each representative under the Landowner Group may also act as an alternate for the other.

The right to assign a representative to Watermaster and the representative's respective voting power shall only transfer upon permanent sale of 51 percent or more of the Party's Base Water Right, but not upon the lease of any portion of the member's Base Water Right.

2. Quorum and Agency Action. A minimum of six (6) representatives shall be required to constitute a quorum for the transaction of Watermaster affairs. Unless otherwise provided herein, the affirmative vote of seven (7) voting positions shall be required to constitute action by Watermaster.

3. Qualification, Nomination, Election, and Administrative Procedures.

a. Qualification. Any duly authorized agent of the entities or groups provided for in Section III.L.1. is qualified to serve as a representative on the Watermaster board.

b. Term of Office. Each new Watermaster board shall assume office at the first regular meeting in January of every second year. Each Watermaster board member shall

serve for a two-year term, subject to the retained jurisdiction of the Court. Should a vacancy arise on the Watermaster board for any reason, the respective entity or group from which that vacancy arises shall appoint a replacement representative in the manner prescribed by Watermaster Rules and Regulations. Such replacement shall complete the remainder of the term of the vacated office. Within 30 days of the appointment of any new Watermaster board member, any Party may file a motion with the Court challenging the appointment The Court, acting *sua sponte*, may reject any Watermaster board appointment within the 30-day period. Challenges shall be based on allegations that the appointed board member does not possess the requisite skills necessary to effectively serve as a member of the Watermaster board.

c. Nomination and Election of Landowner Representative. The nomination and election of the Landowner Group representatives shall occur in November of every second year in the manner designated by Watermaster Rules and Regulations. The nomination and election of the Landowner Group representatives shall be by cumulative voting with each member of the Landowner Group entitled to one (1) vote for each acre-foot of annual entitlement under the member's Alternative Production Allocation. Voting rights may only be transferred upon permanent sale of 51 percent or more of the Landowner Party's Base Water Right.

d. Organization. At he first meeting of each newly comprised Watermaster board, the Watermaster shall elect a chairman and a vice-chairman from its membership. It shall also select a secretary, a treasurer and such assistant secretaries and assistant treasurers as may be appropriate, any of whom may, but need not, be representatives appointed to Watermaster.

e. Minutes. Minutes of all Watermaster meetings shall be kept and shall reflect a summary of all actions taken by the Watermaster. Copies thereof shall be furnished to all Parties and interested Persons as provided for inn Section III.P.2. Copies of minutes shall constitute notice of any Watermaster action therein reported.

f. Regular Meetings. The Watermaster shall hold regular meetings at places and times to be specified in the Watermaster Rules and Regulations. Its first meeting must be held within 15 days from the date Judgment is granted in this case. Notice of the scheduled or

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regular meetings of the Watermaster and of any changes in the time or place thereof shall be mailed to all Parties and interested Persons as provided for in Section III.P.2.

g. Special Meetings. Special meetings of the Watermaster may be called at any time by the chairman or vice chairman or by any three (3) representatives appointed to Watermaster by written notice delivered personally or mailed to all Parties and interested Persons as provided for in Section III.P.2., at least twenty-four (24) hours on a business day before the time of each such meeting in the case of personal delivery, and five (5) days' notice prior to such meeting in the case of mail if the special meeting is being called under urgent circumstances. If a special meeting is called and no urgent circumstance exists, then at least ten (10) days' notice must be provided to all Parties. The notice shall specify the time and place of the special meeting and the business to be transacted at such meeting.. No other business shall be considered at such meeting.

h. Meeting Procedures. Watermaster shall designate the procedure for conducting meetings within its Rules and Regulations. Rules and regulations for conducting meetings shall conform to the procedures established for meetings of public agencies pursuant to the California Open Meetings Law ("Brown Act"), California Government Code section 54950 et seq., as it may be amended from time to time.

i. Appointment of the Initial Watermaster Board. The initial Watermaster board, which shall take office immediately from the date Judgment is granted, shall be composed of the duly authorized representatives of California American, Seaside, Sand City, Del Rey Oaks, Monterey, MCWRA, MPWMD, and two individuals to be designated by the landowners as the initial representatives of the Landowner Group for the Coastal and Laguna Seca Subareas, respectively.

j. Duties, Powers and Responsibilities of the Watermaster. To assist the Court in the administration and enforcement of the provisions of this Decision, the Watermaster shall have and is limited to the following duties, powers, and responsibilities:

i. Preparation of Monitoring and Management Plan. Within sixty (60) days from the date Judgment is granted, Watermaster will prepare a comprehensive

monitoring and management plan for the Seaside Basin ("Monitoring and Management Plan"). The Monitoring and Management Plan must be consistent with the criteria set forth in Exhibit A.

ii. Declaration of Operating Yield. Based upon the evidence at trial concerning historic Production in the Basin, the Court sets the Operating Yield for the Seaside Basin, as a whole, as 5,600 acre feet. The Operating Yield for the Coastal Subarea is 4,611 acre feet and 9889 acre feet for the Laguna Seca Subarea. The Operating Yield established here will be maintained for three (3) years from the date Judgment is granted, or until a determination is made by the Watermaster, concurred in by this Court, that continued pumping at this established Operating Yield will cause Material Injury to the Seaside Basin or to the Subareas or will cause Material Injury to a Producer due to unreasonable pump lifts. In that event, the Watermaster shall determine the modified Operating Yield in accordance with the Principles and Procedures attached hereto as Exhibit A, and through the application of criteria that it shall develop for this purpose.

iii. Artificial Replenishment and Replenishment Assessments. Each Administrative Year, the Watermaster will determine a Replenishment Assessment for Artificial Replenishment of the Seaside Basin necessary to offset the cumulative Basin Over-Production (as defined in Section III.A.21.), and levy a Replenishment Assessment. Said Replenishment Assessment does not apply to Production under an Alternative Production Allocation so long as such Production is within the fixed amount established for that Producer in Table 2 of Section III.B.3. Funds so generated may be accumulated for multiple Administrative Years, if necessary, and shall be utilized solely for replenishment of the Basin Groundwater supply with Non-Native water.

An additional Watermaster Replenishment Assessment shall be levied after the close of each Administrative Year against all Producers that incurred Operating Yield Over-Production during the Administrative Year. Said assessment shall be in addition to the Replenishment Assessment addressed in Section III.A.21. The Replenishment Assessment based upon Operating Yield Over-Production shall be levied against the Parties participating in the Alternative Production Allocation for only such Production that exceeds the Parties' respective fixed

Alternative Production Allocation identified on Table 2. In the event Watermaster cannot procure Artificial Replenishment Water to offset Operating Yield Over-Production during the ensuing Administrative Year, the Watermaster shall so declare in December and no Operating Yield Over-Production then in effect may occur during the ensuing Administrative Year. Funds generated by the Operating Yield Over-Production Assessment shall be utilized by the Watermaster to engage in or contract for Replenishment of the Operating Yield Over-Production occurring in the Preceding Administrative Year as expeditiously as possible.

Replenishment Assessments based on Over-Production and on Operating Yield Over-Production shall be assessed on a per acre-foot basis on each acre-foot, or portion of an acre-foot, of Over-Production. The per acre-foot amount of the Replenishment Assessments shall be determined and declared by Watermaster in January of each Administrative Year in order to provide Parties with advance knowledge of the cost of Over-Production in that Administrative Year.

Payment of the Replenishment Assessment shall be made by each Producer incurring a Replenishment Assessment within 40 days after the mailing of a statement for the Replenishment Assessment by Watermaster. If payment by any Producer is not made on or before said date, the Watermaster shall add a penalty of 5 percent thereof to such Producer's statement. Payment required of any Producer hereunder may be enforced by execution issued outside of this Court, by order of this Court, or by other proceedings by the Watermaster or by any Producer on the Watermaster's behalf. All proceeds of Replenishment Assessments shall be used to procure Non-Native water, including, if appropriate, substitute reclaimed water.

iv. Budget Assessments. The Watermaster budget for each Administrative Year, and for the initial funding of the Monitoring and Management Plan, shall be funded by Budget Assessments. The Watermaster budget will be composed of three separate budgets. The first budget is solely for the funding of the Monitoring and Management Plan. The initial, one-time funding for the Monitoring and Management Plan shall not be in excess of $1,000,000. The annual budget for the Monitoring and Management Plan shall not be in excess of $200,000 for the first Administrative Year, and thereafter as determined by the Watermaster.

The Budget Assessment for the Monitoring and Management budget shall be assessed against each Producer (except those in the Landowner Group) by multiplying the amount of the Monitoring and Management Plan budget for the ensuing Administrative Year by the following percentages:

| | | |
|---|---|---|
| (1) | California American | 91% |
| (2) | City of Seaside | 7% |
| (3) | Granite Rock Company | 1% |
| (4) | D.B.O. Development No. 27 | 1% |

At such times as a Party within the Coastal Subarea chooses to change its Alternative Production to a Standard Production Allocation that Party will be assessed a proportionate share of the Budget Assessment for the Monitoring and Management Plan Budget based upon a modification of the percentages to include any new Standard Production.

The administrative budget shall be fixed at $100,000 annually for the first Administrative Year, and thereafter as determined by the Watermaster. The Budget Assessment for the administrative budget shall be assessed against each Producer (except those inn the Landowner Group) by multiplying the amount of the budget for the ensuing Administrative Year by the following percentages:

| | | |
|---|---|---|
| (1) | California American | 83% |
| (2) | City of Seaside | 14.4% |
| (3) | City of Sand City | 2.6% |

The Replenishment Budget shall be calculated based upon the anticipated cost of obtaining replenishment water, and shall be assessed as set forth in Section III.A.21, and in Section III.L.3.j.iii.

Except for the initial Budget Assessment which shall be due 30 days from the date Judgment is granted, payment of the Budget Assessment, subject to any adjustment by the Court as provided in Section III.N., shall be made by each Producer prior to the beginning of the Administrative Year to which the Budget Assessment relates, or within 40 days after the mailing of the tentative budget, whichever is later. If such payment by any Producer is not made on or

before said date, the Watermaster shall add a penalty of 5 percent thereof to such Producer's statement. Payment required of any Producer hereunder may be enforced by execution issued outside of this Court, by order of this Court, or by other proceedings by the Watermaster or by any Producer on the Watermaster's behalf.

v. Reports, Information, and Records. The Watermaster will require Parties to furnish such reports, information, and records as may be reasonably necessary to determine compliance or lack of compliance by any Party with the provisions of this Decision.

vi. Requirement of Measuring Devices. The Watermaster will require all Parties owning or operating any Groundwater Extraction and/or Storage facilities to install appropriate Water measuring devices, and to maintain said Water measuring devices at all times in good working order at such Party's own expense. Such devices shall not interfere with any measuring gauges required by MPWMD.

vii. Inspections by the Watermaster. The Watermaster will make inspections of Water Production facilities and measuring devices at such times and as often as may be reasonable under the circumstances, and to calibrate or test such devices.

viii. Collection of Arrears. The Watermaster will undertake any and all actions necessary to collect the arrears of any Party with regard to any and all components of the Budget Assessment and/or the Replenishment Assessment.

ix. Hearing Objections; Review and Approvals. The Watermaster will hear all objections and/or review and determine approval or denial of the action(s) of any Party as provided for by any other provision of this Decision.

x. Annual Report. The Watermaster will prepare, file with the Court and mail to each of the Parties on or before the 15th day of February, an annual report for the preceding Administrative Year, the scope of which shall include but not be limited to the following:

- Groundwater Extractions;
- Groundwater Storage;
- Amount of Artificial Replenishment, if any, performed by Watermaster;

- Leases or sales of Production Allocation;
- Use of imported, reclaimed, or desalinated Water as a source of Water for Storage or as a Water supply for lands overlying the Seaside Basin;
- Violations of the Decision and any corrective actions taken;
- Watermaster administration costs;
- Replenishment Assessments;
- All components of the Watermaster budget; and
- Recommendations.

xi. Annual Budget and Appeal Procedure in Relation Thereto. The Watermaster will annually adopt a tentative budget for each Administrative Year stating the anticipated expense for administering the provisions of this Decision, including reasonable reserve funds. The adoption of each Administrative Year's tentative budget shall require the affirmative vote of seven (7) voting positions. The Watermaster shall mail a copy of said tentative budget to each of the Producers hereto at least 60 days before the beginning of each Administrative Year. The Landowner Group representative shall not participate in any vote concerning the approval of the Watermaster budget. If any Producer hereto has any objection to said tentative budget, it shall present the same in writing to the Watermaster within 15 days after the date of mailing of said tentative budget by the Watermaster. If no objections are received within said period, the tentative budget shall become the Final budget. If objections are received, the Watermaster shall, within 10 days thereafter, consider such objections, prepare a Final budget, and mail a copy thereof to each Producer, together with a statement of the amount assessed to each Producer (Administrative Assessment). Any Producer may apply to the Court within 15 days after the mailing of such Final budget for a revision thereof based on specific objections thereto in the manner provided in Section III.N. The Producer challenging the budget shall make the payments otherwise required of them to the Watermaster, despite the filing of the request for revision with the Court. Upon any revision by the Court, the Watermaster shall either remit to the Producers their pro rata portions of any reduction in the budget, or credit their accounts with respect to their Administrative Assessment for the next ensuing Administrative Year, as the Court

shall direct. The amount of each Producer's Budget Assessment shall be determined as provided in Section III.L.3.j.iv.

Any money in Watermaster's budget not expended at the end of any Administrative Year shall be applied to the budget of the succeeding Administrative Year.

xii. Rules and Regulations. The Watermaster will adopt and amend from time to time such Rules and Regulations as may be reasonably necessary to carry out its duties, powers and responsibilities under the provisions of this Decision. The Rules and Regulations and any amendments thereto, shall be effective on such date after the mailing thereof to the Parties as is specified by the Watermaster, but not sooner than thirty (30) days after such mailing. The Watermaster shall adopt initial Watermaster Rules and Regulations within ninety (90) days from the date Judgment is granted.

xiii. Acquisition of Facilities. The Watermaster may purchase, lease, acquire and hold all necessary property and equipment as necessary to perform the duties, powers, and responsibilities provided to Watermaster by this Decision; provided, however, that Watermaster shall not acquire any interest in real property in excess of year-to-year tenancy for necessary quarters and facilities.

xiv. Employment of Staff and Consultants. The Watermaster may employ such administrative, engineering, geologic, accounting, legal, or other specialized personnel or consultants as may be deemed appropriate to the carrying out of its duties, powers, and responsibilities and to require appropriate bonds from all officers and employees handling the Watermaster funds.

xv. Investment of Funds. The Watermaster may hold and invest any and all funds that the Watermaster may possess in investments authorized from time to time for public agencies in the State of California.

xvi. Borrowing. The Watermaster may borrow in anticipation of receipt of assessment proceeds an amount not to exceed the annual amount of assessments levied but uncollected.

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xvii. Contracts. The Watermaster may enter into contracts for the performance of any administrative power herein granted.

xviii. Cooperation with Public and Private Entities. The Watermaster may act jointly or cooperate with any public or private entity to the end that the purposes of the Physical Solution may be fully and economically carried out. Where it is more economical to do so, Watermaster is directed to use such facilities of a public or private entity as are available to it to execute the duties, powers, and responsibilities provided to Watermaster under this Decision.

xix. Declaration of Total Usable Storage Space. The Watermaster will declare the Total Useable Storage Space and periodically issue adjustments to the same.

xx. Review of Storage Applications; Regulation of Storage; Issuance of Storage and Recovery Agreements. The Watermaster will review applications for Storage in the Seaside Basin, regulate the Storage of Non-Native Water in the Seaside Basin, and issue Storage and Recovery Agreements, all as provided below. All applications for Storage in the Seaside Basin shall be considered and voted on before a noticed meeting of the Watermaster. However, all such applications shall be approved absent the issuance of findings that a Material Injury to the Seaside Basin or Producers will or is likely to occur as a result of the proposed Storage program and no reasonable conditions could be imposed to eliminate such risk. If a Storage application is approved, the Watermaster shall issue a Storage and Recovery Agreement. The Storage and Recovery Agreement may include, among other possible elements and/or provisions, the following conditions to avoid Material Injury: (1) the quantity of Water authorized to be Spread or Directly Injected into the Seaside Basin, (2) the location of the authorized Spreading or Direct Injection, (3) the location(s) where the Water may be recaptured, (4) the particular Water quality characteristics that are required pursuant to the Storage and Recovery Agreement, (5) the amount of Water that may be recaptured pursuant to the Stored Water Credits calculated by Watermaster, (6) any other terms and conditions deemed necessary to protect the Seaside Basin and those areas affected by the Seaside Basin. Such Storage and Recovery Agreements may provide for different locations for introduction and Extraction of Stored Water if deemed appropriate by the Watermaster.

xxi. Monitoring and Study of the Seaside Basin and All Seaside Basin Activities. The Watermaster will monitor and perform or obtain engineering, hydrogeologic, and scientific studies concerning all characteristics and workings of the Seaside Basin, and all natural and human-induced influences on the Seaside Basin, as they may affect the quantity and quality of Water available for Extraction, that are reasonably required for the purposes of achieving prudent management of the Seaside Basin in accord with the provisions of this Decision.

xxii. Relocation of Authorized Production Locations. The Watermaster will order relocation of the authorized quantity of Production pursuant to any Producer's Production Allocation from a specific location or from a specific aquifer within the same Subarea of the Seaside Basin, provided that it allows equivalent Production from any other location/aquifer in the Seaside Basin within the same Subarea that would not also create a reasonable potential for Material Injury. Watermaster may only order relocation of Production after issuing findings that a Material Injury has occurred or is likely to occur as a result of the then-authorized quantity and geographic distribution of Production. Watermaster may not order the relocation of Production by any Producer that is a member of the Landowner Group.

xxiii. Water Quality. The Watermaster will take any action within the Seaside Basin, including, but not limited to, capital expenditures and legal actions, which in the discretion of Watermaster is necessary or desirable to accomplish any of the following:

- Prevent contaminants from entering the Groundwater supplies of the Seaside Basin, which present a significant threat to the Groundwater quality of the Seaside Basin, whether or not the threat is immediate;
- Remove contaminants from the Groundwater supplies of the Seaside Basin presenting a significant threat to the Groundwater quality of the Seaside Basin;
- Determine the existence, extend, and location of contaminants in, or which may enter, the Groundwater supplies of the Seaside Basin;
- Determine Persons responsible for those contaminants; and
- Perform or obtain engineering, hydrologic, and scientific studies as may be reasonably required for any of the foregoing purposes.

xxiv. Other Specified Powers Pursuant to Decision Terms. The Watermaster will undertake any other powers, duties, or responsibilities provided through any other provision of this Decision.

xxv. No Power to Alter Allocation or Rights. Watermaster has no power to adjust any Producer's Base Water Right or the formula for determining Production Allocation, except to accommodate the intervention of a new Party pursuant to Section III.O.1.b. However, should an adjustment of Base Water Right and/or Production Allocation within a Subarea be required to accommodate the intervention of a new Party, no adjustment shall be made to the Base Water Right or Production Allocations possessed by any Party operating under the Alternative Production Allocation within the Landowner Group until the Production Allocations for that Subarea possessed by Parties operating under the Standard Production Allocation have been reduced to zero.

xxvi. Effect of Non-Compliance by Watermaster With Time Provisions. Failure of the Watermaster to perform any duty, power or responsibility set forth in this Decision within the time limitation herein set forth shall not deprive the Watermaster of authority to subsequently discharge such duty, power, or responsibility, except to the extent that any such failure by the Watermaster may have rendered some otherwise required act by a Party impossible.

xxvii. Public Records. Watermaster shall conform to the procedures established under the California Public Records Act, California Government Code section 54950 et seq., as it may be amended from time to time.

M. Additional Provisions of Physical Solution.

In order to provide flexibility to the injunctive provisions set forth in Section III.D of this Decision, and to assist in a Physical Solution to meet Water requirements in the Basin, the determination of rights and responsibilities, and the injunctive provisions so set forth are subject to the following provisions:

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1. California American Obligation to Augment Water Supply

a. Long-Term Supplemental Water Supplies. California American shall undertake all reasonable best efforts to promptly and diligently pursue, and if necessary collaborate with other entities, to obtain and develop sufficient long-term supplemental Water supplies to augment the Water supply available for its service territory within Monterey County.

b. Interim Supplemental Water Supplies. During the interim period, until long-term supplemental Water supplies are available, California American shall undertake all reasonable best efforts to ensure that it has sufficient Water supplies to meet all present Water supply needs, including the Water credits allocated to the various political subdivisions pursuant to the MPWMD's Water Allocation Program, in such quantities as set forth in Exhibit D, and the Water credits issued to various properties pursuant to the MPWMD's Water Allocation Program.

c. Regulatory Authorization. California American's duties under Sections III.M.1.a and III.M.1.b above will be measured and construed in the context that there are various regulatory approvals that must be obtained for California American to successfully implement the measures reasonably contemplated to secure supplemental Water. For example, it is acknowledged and understood that California American's ability to complete a supplemental Water supply project will require approvals and authorizations from the State Water Resources Control Board ("SWRCB") and the California Public Utilities Commission ("CPUC"). Accordingly, California American will not be considered in default under this Section III.M.1 if it uses reasonable best efforts to obtain the required approvals and authorizations.

d. Credit Toward Replenishment Assessment. California American's expenditures for water supply augmentation may also provide replenishment water for the Basin. Accordingly, on an annual basis, California American will provide the Watermaster with an accounting of all expenditures it has made for water supply augmentation that it ~~believes have~~ Cmbody has or will ~~also~~ result in replenishment of the Basin. The Watermaster shall review

these expenditures and reduce California American's Replenishment Assessment obligation, for that year, by an amount equal to the amount claimed by California American. To the extent that the Watermaster disputes any of the claimed amounts, it shall provide California American with an explanation of its contest and allow California American an opportunity to meet and confer on the disputed amount. In the event that the Watermaster and California American cannot resolve their dispute, the matter will be referred to the Court through a request filed by the Watermaster.

2. Assignment and Transfer of Production Allocation. Subject to other provisions of this Decision, and any applicable Watermaster Rules and Regulations, the Parties may assign and transfer any portion of their respective Production Allocation either on an annual Administrative Year basis or in perpetuity to any Person for use within the Basin.

The Parties may also assign and transfer the right to Extract any quantity of Water associated with an existing Stored Water Credit or Carryover Credit, subject to other provisions of this Decision, and any applicable Watermaster Rules and Regulations.

3. Export of Groundwater Outside of Subarea or Seaside Basin.

a. Exports Authorized from the Coastal Subarea. Producers may export Water Produced from the Coastal Subarea for reasonable and beneficial uses within another Subarea of the Seaside Basin. Only California American may export water outside the Basin, and then only to provide water to its current customers. This means that, in any Administrative Year, any Producer may export from the Coastal Subarea up to, but not in excess of, a quantity equal to the sum of that Producer's Production Allocation, plus Stored Water Credits, plus Carryover Credits. Export of Groundwater in excess of a Producer's total rights (Production Allocation, plus Stored Water Credits, plus Carryover Credits), however, is prohibited.

b. Exports of Natural Replenishment Water Prohibited from the Laguna Seca Subarea. Exports from the Laguna Seca Subarea of Natural Replenishment Water and Carryover Credits not caused by Artificial Replenishment are prohibited.

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c. Portability Authorized Within Subareas; Portability Prohibited Between Subareas. Any Producer may change the location of its Production facilities within its respective Subarea or join other Production facilities within its Subarea, so long as such relocation does not cause a Material Injury or threat of Material Injury to the Basin or interfere with the Production by any pre-existing Production facilities operated by another Producer(s). No Party may Produce Groundwater from the Coastal Subareas pursuant to any right recognized by this Decision in the Laguna Seca Subarea, and *vice versa*.

N. Watermaster Decision Review Procedures. Any action, decision, rule or procedure of the Watermaster pursuant to this Decision shall be subject to review by the Court on its own motion or on timely motion by any Party, as follows:

1. Effective Date of the Watermaster Action. Any order, decision or action of the Watermaster pursuant to this Decision on noticed specific agenda items shall be deemed to have occurred on the date of the order, decision or action.

2. Notice of Motion. Any Party may, by a regularly noticed motion, petition the Court for review of the Watermaster's action or decision pursuant to this Decision. The motion shall be deemed to be filed when a copy, conformed as filed with the Court, has been delivered to the Watermaster together with the service fee established by the Watermaster sufficient to cover the cost to photocopy and mail the motion to each Party. The Watermaster shall prepare copies and mail a copy of the motion to each Party or its designee according to the official service list which shall be maintained by the Watermaster according to Section III.P.2. A Party's obligation to serve notice of a motion upon the Parties is deemed to be satisfied by filing the motion as provided herein. Unless ordered by the Court, any such petition shall not operate to stay the effect of any Watermaster action or decision that is challenged.

3. Time for Motion. A motion to review any Watermaster action or decision will be filed within thirty (30) days after such Watermaster action or decision, except that motions to review Budget Assessments and Replenishment Assessments hereunder shall be filed within fifteen (15) days of mailing of notice of the Assessment.

4. De Novo Nature of Proceedings. Upon filing of a petition to review a Watermaster action, the Watermaster shall notify the Parties of a date when the Court will take evidence and hear argument. The Court's review shall be de novo and the Watermaster decision or action shall have no evidentiary weight in such proceeding.

O. Reserved Jurisdiction and Other Remedies.

1. Continuing Jurisdiction.

a. Jurisdiction Reserved. Full jurisdiction, power and authority are retained by and reserved by the Court upon the application of any Party or by the Watermaster, by a noticed motion to all Parties, to make such further or supplemental orders or directions as may be necessary or appropriate for interpretation, enforcement, or implementation of this Decision. The Court may also modify, amend or amplify any of the provisions of this Decision upon noticed motion to all the Parties. The Court, through its reserved and retained jurisdiction, however, shall not have the authority to adjust any Producer's Base Water Right or Production Allocation, except to accommodate the intervention of a new Party pursuant to Section III.O.1.b. However, should an adjustment of Base Water Right and/or Production Allocation within a Subarea be required to accommodate the intervention of a new Party, no adjustment shall be made to the Base Water Right or Production Allocations possessed by any Party operating under the Alternative Production Allocation within the Landowner Group until the Production Allocations within that Subarea possessed by Parties operating under the Standard Production Allocation have been reduced to zero.

b. Intervention After Decision. Any non-party who is Producing or proposes to Produce Groundwater from the Seaside Basin in an amount equal to or greater than five (5) acre feet per year, may seek to become a Party to this Decision through (1) a stipulation for intervention entered into with the Watermaster or (2) any Party or the Watermaster filing a complaint against the non-party requesting that the non-party be joined in and bound by this Decision. The Watermaster may execute said stipulation on behalf of the other Parties herein, but such stipulation shall not preclude a Party from opposing such

intervention at the time of the Court hearing thereon. A stipulation for intervention must be filed with the Court, and the Court will then consider an order confirming said intervention following thirty (30) days' notice to the Parties. Thereafter, if approved by the Court, such intervenor shall be a Party bound by this Decision and entitled to the rights and privileges accorded under the Physical Solution herein.

2. Reservation of Other Remedies.

a. Claims By and Against Non-Parties. Nothing in this Decision shall expand or restrict the rights, remedies or defenses available to any Party in raising or defending against claims made by any non-party. Any Party shall have the right to initiate an action against any non-party to enforce or compel compliance with the provisions of this Decision.

b. Claims Between Parties on Matters Unrelated to the Decision. Nothing in this Decision shall either expand or restrict the rights or remedies of the Parties concerning any subject matter that is unrelated to the use of the Seaside Basin for Extraction and/or Storage of Water as allocated and equitably managed pursuant to this Decision.

P. General Provisions.

1. Decision Constitutes Inter Se Adjudication. This Decision constitutes an inter se adjudication of the respective rights of all Parties.

2. Service Upon and Delivery to Parties and Interested Persons of Various Papers. This Decision and all future notices, determinations, requests, demands, objections, reports and other papers and processes Produced from this Court shall be served on all Parties by first class mail, postage prepaid, addressed to the designee and at the address designated for that purpose in the list attached as Exhibit E to this Decision, or in any substitute designation filed with the Court.

Each Party who has not heretofore made such a designation, within thirty (30) days from the date Judgment is granted, shall file with the Court, with proof of service of a copy upon the Watermaster, a written designation of the Person to whom, and the address at which, all future notices, determinations, requests, demands, objections, reports and other papers and

processes to be served upon that Party or delivered to that Party are to be so served or delivered.

A later substitute designation filed and served in the same manner by any Party shall be effective from the date of the filing as to the then future notices, determinations, requests, demands, objections, reports and other papers and processes to be served upon or delivered to that Party.

Watermaster shall maintain at all times a current list of Parties to whom notices are to be sent and their address for purposes of service. Copies of such lists shall be available to any Person. If no designation is made, a Party's designee shall be deemed to be, in order of priority: (a) the Party's attorney of record; (b) if the Party does not have an attorney of record, the Party itself at the address on the Watermaster list.

Watermaster shall also maintain a list of interested Persons that shall include all Persons whom, by written request to Watermaster, request to be added to Watermaster's list of interested Persons. All notices, determinations, requests, demands, objections, reports and other papers and processes required to be delivered to interested Persons shall be delivered to all Parties and all Persons on Watermaster's list of interested Persons.

Delivery to or service upon any Party or interested Person by Watermaster, by any other Party, or by the Court, of any document required to be served upon or delivered to a Party under or pursuant to this Decision shall be deemed made if made by deposit thereof (or by copy thereof) in the mail, first class postage prepaid, addressed to the designee of the Party and at the address shown in the latest designation filed by that Party.

Any Party desiring to be relieved of receiving deliveries from Watermaster may file a waiver of notice on a form to be provided by Watermaster.

3. Decision Binding on Successors. All provisions contained in this Decision are applicable to and binding upon and inure to the benefit of not only the Parties to this action, but also to their respective heirs, executors, administrators, successors, assigns, lessees, licensees and to the agents, employees and attorneys in fact of any such Persons.

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Q. The Complaints in Intervention

The Complaint in Intervention of MPWMD seeks declaratory relief regarding its statutory right to manage and control pumping in the Basin, to store water in and Extract water from the Basin, to store and use reclaimed water, to manage all water distribution facilities within the Basin, and "the quantification and prioritization of its water and storage rights". It also sought a Physical Solution for the management of the Basin's water resources, with MPWMD being appointed as Watermaster to administer the Court's judgment. It also sought parallel injunctive relief against the parties to the lawsuit.

The Complaint in Intervention of MCWRA sought declaratory and injunctive relief regarding its right to manage and control water resources including, inter alia, those within the boundaries of the Seaside Basin, and a permanent injunction prohibiting any party to the lawsuit from exercising control "in any fashion" of the Basin in contravention of its water management authority.

On December 12, 2005, the Court asked the parties to brief the issue of whether MPWMD should be designated as Watermaster. Briefs were submitted by MPWMD , Plaintiff, Cal Am, and the City of Seaside. The court had previously received an Amicus brief from the Sierra Club which dealt with the issue of the powers of MPWMD land the effect on those powers if the court were to appoint a Watermaster other than MPWMD. The Court has read and considered each submitted brief. It has also read the Act which created MPWMD (Water Code Appendix, Chapter 118), and has had the benefit of the arguments of the parties concerning the subject. Being so informed it has concluded that the appointment of a collaborative Watermaster does not interfere with the powers of the District.

The District has argued that appointment of a Watermaster other than itself would violate the Separation of Powers doctrine. It urges that the legislature has vested it with the power to regulate pumping, and therefore only it is qualified to serve as Watermaster. On the other hand, the District has asked the Court to adopt a Physical Solution for the Basin. In so arguing, it necessarily concedes that this Court possesses power to regulate use of the Basin beyond any power the District currently possesses. Furthermore, the undisputed evidence in this case has

shown that, although the District is empowered to adopt a Groundwater management plan it has never done so. The language of Water Code Section 10753 is instructive regarding the issue of the Separation of Powers:

> "(a) Any local agency, whose service area includes a groundwater basin...<u>that is not subject to groundwater management pursuant to...a court order, judgment, or decree</u>, may...adopt and implement a groundwater management plan."
> (Emphasis added.)

Pursuant to the quoted provisions of the foregoing section, the District will not be able in the future to adopt a Groundwater management plan for the Seaside Basin. Clearly the legislature contemplated that courts had the power to develop management plans for aquifer management even if a water management district already existed in a geographical area.

The District further argues that if the Court appoints a Watermaster other than itself, the authority of the Watermaster must not conflict with the MPWMD's authority. It is certainly true that the District possesses certain authority, which it is free to exercise according to the legislative mandate which created it. However, it is apparent the legislature did not intend that all of the powers it granted to the District be held exclusively by the District, else it would not at a later time have created the Monterey County Water Resources Agency and endowed it with many of the powers granted to the MPWMD. Rather, in creating the MCWRA, the legislature mandated that the two agencies cooperate with one another (Water Code Appendix Section 52-85). Similarly, the judgment contemplated in this Decision requires the Watermaster to "...act jointly or cooperate with any public...entity to the end that the purposes of the Physical Solution may be fully...carried out." (Section III.L.3.j.xviii)

On pages 15-16 of its brief, the District lists 9 powers and asserts those powers would "encompass the duties of any appointed watermaster." The Court has compared those 9 asserted powers and has concluded that those powers, to the extent that they exist or are currently being utilized by the District, do not encompass all the duties of a Watermaster appointed by the judgment. Furthermore, to the extent the Watermaster may be given powers akin to those of the District, this Court retains jurisdiction to determine any conflict which may arise in the future.

For example, the Decision directs that any metering of Production wells by the Watermaster shall be done in a way which does not conflict with the MPWMD gauging already in place on all producing wells. The MPWMD is still able to develop water resources within its boundaries and can store water for the benefit of the District in the Basin, although it has not to date done either of those things with regard to the Seaside Basin.

One asserted power deserves more precise attention: the asserted "...power and duty to manage and regulate the transferability of the water among users- (Water Code Appendix) Section 328(g)." The plain reading of the referenced section does not encompass the right asserted. Furthermore, to the extent those that section purports to grant the District the power to "...declare rights in the natural flow of any subterranean supply of water..." it is apparent that the legislature did not intent to interfere with the ultimate right of the courts to determine the water rights of parties claiming such rights. To read the section otherwise would be to create a true Separation of Powers issue.

In fairness to the District, it had, of necessity, to confine its analysis of the duties of the proposed Watermaster to those set forth in the Proposed Stipulated Judgment. The Decision, while obviously relying on the structure and format of the Stipulated Judgment, does not track all provisions of said Judgment. For example, many of the concerns of the District revolve around its statutory right to store water in subterranean reservoirs. The Decision preserves that right. Similarly, while the Decision allows the assignment of Production rights (which the District is not empowered to affect by its referenced legislation, Water Code Section 328(g)), it does not provide for the transferability of Storage rights, a matter which might be of concern to the District under certain circumstances.

The District argues that the proposed powers of the Watermaster regarding maintenance and modification of the Operating Safe Yield would conflict with the District's authority. Much of its argument is addressed to language in the Proposed Stipulated Judgment which does not appear in the Decision. The Decision grants certain rights of control to the Watermaster for the purpose of maintaining the viability of the aquifer. However, it does not purport to forbid any regulation of the Basin which may be required by a public agency possessing the power to

impose such regulation. In this regard it should be noted that the complaint in this case first raised the issue of the Overdraft status of the Basin, and the initial pleadings of the District stated that it did not know if that were true or not. The Decision does not conflict with any procedure or plan currently in place by the District to establish an Operating Yield for the Basin.

Of concern to the District is the fact that the Watermaster will be empowered to augment the underground water supply. While Water Code Section 118-343 gives the District the power to levy a Groundwater charge for the purpose of augmenting underground water supplies, in fact from the time of its creation in 1977 to the present the District has established no such charge, and has not augmented the underground water supply of the Basin. The fact that the Watermaster is authorized in the contemplated judgment to assess charges for replenishment of the Basin does not prevent the District in the future from undertaking such augmentation, if it determines it is appropriate to do so.

Based upon the evidence adduced at trial, which demonstrated that a collaborative Watermaster will likely provide more tangible results than any single individual or entity Watermaster, the Court has decided to appoint a collaborative board as Watermaster.

The prayer of MPWMD for injunctive relief is denied, except insofar as the court will issue injunctive relief as set forth in the Decision at the request of all parties. The prayer that the Court adopt a Physical Solution for the Seaside Basin is granted. The request for declaratory relief is granted to the extent that the court finds that the statutory rights of MPWMD are not in conflict with the Physical Solution and the appointment of a Watermaster in this proceeding.

The Complaint in Intervention of MCWRA also seeks declaratory and injunctive relief, but does not urge the appointment of itself or any other entity as Watermaster. The request for injunctive relief is denied as moot, since the lawsuit does not challenge the statutory authority of the Agency. The request for declaratory relief is granted to the extent that the Court finds that the statutory rights of MCWRA are not in conflict with the Physical Solution adopted by the Court in this proceeding.

A statement of decision, if requested by any party, will be prepared by Plaintiff. If no party within ten days of the filing of this Decision specifies controverted issues or makes

proposals not covered in the Decision this Decision shall become the Statement of Decision, and Plaintiff shall prepare a judgment thereon.

Dated: ~~February~~ March 22, 2006

By_____

Honorable _____
Roger D. Randall