

PETITION TO ESTABLISH A NEW AMERICAN VITICULTURAL AREA,  
TO BE NAMED WEST SONOMA COAST

The following petition serves as a formal request for the establishment and recognition of an American Viticultural Area to be named West Sonoma Coast, located in Sonoma County, California. The proposed AVA covers approximately 141,846 acres and includes at least 1,028 acres of planted and productive vineyards across at least 47 vineyards.<sup>1</sup> This petition is submitted by Patrick L. Shabram on behalf of the West Sonoma Coast Vintners, an association of wine grape growers and wineries in the region. Further, this petition has the support of other local professional organizations including the Petaluma Winegrowers Alliance, a group that recently submitted a petition for establishing the Petaluma Gap AVA adjacent to the West Sonoma Coast to the south. Members of the West Sonoma Coast Vintners are listed in Exhibit G.

The petition contains all the information required to establish an AVA in accordance with Title 27 Code of Federal Regulations (CFR) Part 9.3.

Following is a list of unique characteristics:

- Strong coastal influences, generally within a few miles of the Pacific Ocean. Mostly cooler than other locations within Sonoma County.
- Heavy fog intrusion creates very cool temperatures, but mountainous terrain allows for protected areas and elevated positions where viticulture receives sufficient insolation while still greatly influenced by these cool temperatures.
- Warmer nocturnal temperatures with little to no need for frost protection.
- Not as windy as other cool-climate grape growing areas in Sonoma County.
- Soils exclusively of sedimentary parent material with very little alluvium.

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<sup>1</sup> Vineyard acreage is based on the *everyvine.com* database of vineyards, but this database is not complete. While an exact acreage would be difficult to establish, vineyards not in the database are known to exist.

Table 1 - Distinguishing characteristics of West Sonoma Coast AVA relative to surrounding areas.

	<b>West Sonoma Coast</b>	<b>North</b>	<b>South</b>	<b>East</b>	<b>West</b>
<b>Topography</b>	Mountain	Mountain	Rolling hills	Mountain/hills, valley/plain	Ocean
<b>Most Common Geology</b>	Franciscan Complex	Franciscan Complex	Wilson Grove Formation	Wilson Grove Formation and Quaternary deposits	Ocean
<b>Microclimate</b>	Usually <2000 DD, mild nights, "Marine" to "Coastal Cool"	"Coastal Climate Zone"	Usually <2000 DD with consistent winds	Mostly 1800 DD to much higher DD, cooler nights, Coastal Cool to Coastal Warm	Ocean
<b>Soil</b>	Sedimentary parent material, no alluvium	Sedimentary parent material, no alluvium	Sedimentary parent material and alluvium	Sedimentary parent, alluvium, and volcanic parent	Ocean
<b>Common varietals</b>	Pinot Noir, Chardonnay	Pinot Noir, Chardonnay	Pinot Noir, Chardonnay	Pinot Noir, Chardonnay, and others (north)	N/A
<b>County</b>	Sonoma	Mendocino	Sonoma	Sonoma	N/A
<b>Existing AVAs</b>	North Coast, Sonoma Coast, Fort Ross-Seaview	North Coast, Mendocino Ridge	North Coast, Sonoma Coast	North Coast, Sonoma Coast, Northern Sonoma, Russian River Valley, Green Valley of Russian River Valley	N/A

DD = degree days

## Overview

The West Sonoma Coast viticultural area is located along the Sonoma Coast of Sonoma County in northern California. The proposed AVA is located entirely within the Sonoma Coast AVA and shares common boundaries with the Sonoma Coast AVA along the Pacific Ocean coast and the Sonoma County/Mendocino County line, but does not extend as far inland as the Sonoma Coast AVA. In addition, the Fort Ross-Seaview AVA is within the proposed West Sonoma Coast AVA, sharing a common eastern boundary.

The West Sonoma Coast encompasses a string of viticultural districts known for their extreme western location near the Pacific Ocean. Growing conditions closer to the coast have been known to experience greater coastal cooling characteristics than areas further inland. Growers, winemakers, wine writers, and consumers have long distinguished the western districts of the Sonoma Coast from areas further inland including the Russian River Valley, Green River Valley of Russian River Valley, Chalk Hill, Northern Sonoma, Sonoma Valley, and Los Carneros (all located or partially located within the Sonoma Coast AVA). This viticultural area represents the cool viticultural districts along the coast where coastal influences are at their greatest, but mountainous terrain allows for viticultural enclaves to exist throughout the area. As such, the diurnal temperature is generally cooler than the rest of the Sonoma Coast AVA, nocturnal temperatures are often slightly warmer, soils are limited to sedimentary parent material with very little alluvium, and Franciscan sedimentary rock dominates the underlying geology.

The West Sonoma Coast viticultural area is located entirely within the North Coast AVA and the Sonoma Coast AVA. Further, the Fort Ross-Seaview AVA is located entirely within the proposed West Sonoma Coast AVA. This petition supports the inclusion of the proposed West Sonoma Coast AVA in the North Coast AVA and the Sonoma Coast AVA. Further, this petition supports the inclusion of the Fort Ross-Seaview AVA within the proposed West Sonoma Coast AVA. Following is a discussion of each.

**North Coast AVA** – The North Coast AVA was established in 1983 (TD ATF-145), based primarily on climate. The Treasury decision specifically addresses maritime influences including coastal fog and, in the case of Lake County, “coastal air.” The

original petition to establish the North Coast AVA included the counties of Mendocino, Sonoma, and Napa, limiting North Coast to these counties based primarily on name recognition. During the public comment process, arguments were made for the inclusion of portions of Lake County, Solano County, and Marin County in the AVA. Like the North Coast AVA, West Sonoma Coast is influenced by maritime air. Further, it is located in Sonoma County.

**Sonoma Coast AVA** – The Sonoma Coast AVA, created in 1987 (TD ATF-253), was based primarily on Robert Sisson’s Coastal Cool climate classification and the area coming under the greatest coastal cooling influences. While the Treasury decision establishing the Sonoma Coast AVA specifically points to the Coastal Cool climate zone as opposed to the Coastal Warm climate type, the AVA as drawn includes areas defined by Sisson as Coastal Cool and areas defined as Marine climates. Further, the Treasury decision specifically correlates fog intrusion with the Sonoma Coast AVA.<sup>2</sup> Under all circumstances, the West Sonoma Coast is home to Coastal Cool and Marine climate types under Sisson’s model, and as such justification exists for its remaining part of the Sonoma Coast AVA.

**Fort Ross-Seaview AVA** – The Fort Ross-Seaview AVA was established in 2012 (TD TTB-98). The primary basis for the Fort Ross-Seaview was elevation, combined with cool coastal influences. The mountainous terrain of the West Sonoma Coast is consistent with Fort Ross-Seaview, as is the cool coastal influences. During the initial public comment period, several growers argued that characteristics of Fort Ross-Seaview are consistent with those found in Annapolis and in the area around Freestone and Occidental. As such, maintaining characteristics consistent with the West Sonoma Coast exist within Fort Ross-Seaview, even as certain elements, specifically that nearly all vineyards are above 920 feet and the applicability of the name “Fort Ross-Seaview,” distinguish this viticultural area from other areas of the West Sonoma Coast.

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<sup>2</sup> *Federal Register*, 52, no. 112, (June 11, 1987): 22303.

### Name Evidence

The name West Sonoma Coast has been used to distinguish the Pacific coastal areas of Sonoma County from the Sonoma Coast AVA. As areas closer to the Pacific Ocean are more traditionally referred to as “Sonoma Coast” (in other words, coastal Sonoma County), residents and growers have found the Sonoma Coast AVA as generating confusion between the area traditionally known as the Sonoma Coast, the interior of the county, and areas of Sonoma County on San Pablo Bay. As such, growers in the area have adopted various names to distinguish the geographic difference between the Sonoma Coast AVA and the traditional Sonoma Coast. Among the terms used were “True Coast,” “True Sonoma Coast,” “Far Coast,” “Sonoma Coastal Mountains,” “Sonoma Coastal Ridges,” and “West Sonoma Coast.” The most common and geographically descriptive term with the greatest viticultural significance is the name “West Sonoma Coast.” Outside of viticulture, “Sonoma Coast” is the most common moniker used in marketing of businesses, real estate brochures, media and books, etc. to identify the coastal communities and rural areas of Sonoma County, but this name cannot be used to distinguish coastal areas of the county because of the existing Sonoma Coast AVA, which includes land that would not be considered coastal Sonoma County. “West Sonoma Coast” offers the best descriptive delineator given the limitations of being able to use the most appropriate identifier. “West” as a modifier to distinguish the westernmost stretches of the Sonoma County is common both inside and outside the wine industry. Local monikers using “West” include “West County,” “West Sonoma County,” “Western Sonoma,” and “West Sonoma” in addition to West Sonoma Coast. A local newspaper for Sebastopol and areas west of Sebastopol is the *Sonoma West Times and News*, and much of the proposed AVA is within the West Sonoma County Unified School District. Steve Heimoff describes the area as “western Sonoma” along with other terms including “Sonoma coast” and “West County” in his book *A Wine Journey along the Russian River*.<sup>3</sup> He also refers to residents of the area as “West Sonomans.”

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<sup>3</sup> Heimoff, Steve, *A Wine Journey along the Russian River* (University of California Press, Berkeley, 2005). “Western Sonoma” reference is on page 235, “Sonoma coast” is used at several locations in the book, “West County” on page 239 and 240, and “West Sonoman(s)” at multiple places.

West County is too common and too generic to offer viticultural significance to a specific region, while West Sonoma County is too broad to be specific to the coast region of the county. Hence, West Sonoma Coast is the most accurate and precise geographic description, under the limitations that preclude using “Sonoma Coast” for this proposed AVA. In 2010, the West Sonoma Coast Vintners was created, an association of western Sonoma County growers and wineries. The purpose of the West Sonoma Coast Vintners is to “preserve and protect the history, landscape, and culture of the West Sonoma Coast, and to promote the region’s wines.”<sup>4</sup> The West Sonoma Coast Vintners currently comprises 37 growers and wineries, representing nearly the entire West Sonoma Coast wine industry.

Despite the variety of names in use, the name West Sonoma Coast has emerged as the most commonly used within the wine industry to specifically identify coastal Sonoma County. The name West Sonoma Coast is known both locally, as reflected by the West Sonoma Coast Vintners noted above and a number of local vineyards in the area, and nationally as noted by a number of media sources. Peay Vineyards, for example, highlight on their homepage of their website<sup>5</sup>, “Pinot Noir, Syrah, and Chardonnay from our estate vineyard on the West Sonoma Coast,” and Red Car Winery notes on its “About Us” web page<sup>6</sup>, “Red Car is a West Sonoma Coast winery specializing in cold climate Pinot Noir, Chardonnay and Syrah.” A number of other wineries and vineyards make note of their West Sonoma Coast location. Examples of national media sources referencing the name include *The Wall Street Journal*, which writes “It’s only in the last 20 years or so that the West Sonoma Coast has been recognized as a superb region for Burgundian varietals of Pinot Noir and Chardonnay.”<sup>7</sup> *Forbes* refers to the area as the “Western Sonoma Coast” in a 2014 article.<sup>8</sup> In a 2015 article appearing in *Wine &*

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<sup>4</sup> From Hirsch Vineyards website, URL: [www.hirschvineyards.com/The-Site/West-Sonoma-Coast](http://www.hirschvineyards.com/The-Site/West-Sonoma-Coast).

<sup>5</sup> Peay Vineyards website, URL: [www.peayvineyards.com](http://www.peayvineyards.com).

<sup>6</sup> Red Car Wine website, URL: [www.redcarwine.com/about.html](http://www.redcarwine.com/about.html)

<sup>7</sup> McInerney, “West Sonoma Coast Wines Are on the Rise,” *The Wall Street Journal* (July 18, 2013).

<sup>8</sup> Bell, Katie Kelly, “California’s Edgiest Wine Region: The Western Sonoma Coast,” *Forbes* (March 6, 2014).

*Spirits*, Elaine Chukan Brown discusses “the region unofficially known as ‘west Sonoma Coast.’”<sup>9</sup>

Outside the wine industry, its usage is also found. Real estate marketing, for example, has seen usage of the name. A webpage from Marie H. Claire of Coldwell Banker advertises property in Annapolis as “West Sonoma Coast Ranch Land” (Exhibit J).

No known usage of the name “West Sonoma Coast” is found outside Sonoma County, and no usage for the name is found in the Geographic Names Information System (GNIS) of the USGS Board on Geographic Names.

### Historical Evidence

Viticulture in the West Sonoma Coast area is thought to be the first in what is today the North Coast AVA. *Vitus vinefera* vines may have been planted as early as 1817, according to historian Charles L Sullivan.<sup>10</sup> These vines were planted by Russian settlers looking to establish agricultural outposts. Vines were reported to be bearing fruit in 1823.<sup>11</sup> By the 1880’s, vines were planted and wine was produced commercially in several places throughout western Sonoma County, including, but not necessarily limited to, the area around Freestone and Occidental, Bodega, Forestville, Guerneville, and Cazadero, according to Sullivan. Steve Heimoff, a wine writer, further notes ten acres of vineyard “at Plantation above Fort Ross Road, northwest of Cazadero.”<sup>12</sup>

Most of the West Sonoma Coast wine industry did not survive phylloxera outbreaks and prohibition. Lemoral Winery near Occidental, built in 1903, was in operation until the 1960’s.<sup>13</sup> It was not until the 1970’s that the area saw a rebound, starting with Michael

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<sup>9</sup> Brown, Elaine Chukan, “Sonoma’s Far Coast: A haven for pinot noir,” *Wines & Vines*, (August 31, 2015).

<sup>10</sup> Sullivan, Charles L., “‘A Miraculous Intersection’ A Short History of Viticulture and Winegrowing in Western Sonoma County,” unpublished work (2001).

<sup>11</sup> Ibid.

<sup>12</sup> Heimoff, Steve, *A Wine Journey along the Russian River*, (University of California Press Berkely, 2005): 224.

<sup>13</sup> Gaffney, William “Rusty”, “Part II: History of Fort Ross-Seaview Area,” *PinoFile*, Newsletter, 9, no. 28 (August 14, 2013).

Bohan in 1972 in the current Fort Ross-Seaview AVA. In 1973, several other growers started operations in the viticultural area, including Precious Mountain Vineyards in Fort Ross-Seaview.<sup>14</sup> Dr. John Young and his daughter, Joan Young Zeller, are believed to have planted grapes on Taylor Lane near Occidental in 1977, while wine grape vines in what was to become Annapolis Winery were planted 1978. Sea Ridge winery was established in Fort Ross-Seaview in 1979 and became the destination for many of these earliest coast grape plantings, especially in the Fort Ross-Seaview area. Additional plantings took place throughout the 1980's and 1990's. Mr. Sullivan credits a "growing interest in wines with a Burgundian style and flavor"<sup>15</sup> as a catalyst for westward movement to the extreme coastal environments. By 1999, growers in Fort Ross-Seaview were exploring the possibility of establishing an AVA and commissioned Patrick Shabram, a geographer and author of this petition, to study the geography of the area. A petition was submitted in 2003 to the Bureau of Alcohol, Tobacco and Firearms to establish the Fort Ross-Seaview AVA. Approval of the AVA was delayed for several reasons, including an interest by other growers in the West Sonoma Coast to establish an AVA that distinguished the entire region from the Sonoma Coast AVA. The Fort Ross-Seaview AVA was approved in 2012, but growers in the area, including growers in Fort Ross-Seaview continued to organize efforts to distinguish all the extreme coastal Sonoma viticulture.

### Geographic Evidence

Nearly all mountainous, topography obstructs inland intrusion of fog, allowing commercial grape production in localities within the viticultural area. The proximity to the coast generally leads to cooler day time temperatures and warmer night time temperatures. The area also is not as windy as other locations within the Sonoma Coast AVA. Further, the West Sonoma Coast has some modest distinguishing characteristics in the geology present and in the absence of alluvium.

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<sup>14</sup> Fort Ross-Seaview Winegrowers Association website, URL: <http://www.fortross-seaview.org/our-story/>.

<sup>15</sup> Sullivan: 2001.

**Topographic evidence** – The West Sonoma Coast is characterized by the mountainous terrain of the Coastal Ranges. Common to most of coastal California, the Coastal Ranges extend from the immediate coast to the Sacramento Valley. In Sonoma County, the Coastal Ranges are broken into three distinct ranges: The Mayacamas (Mayacmas) Mountains in the east, the Sonoma Mountains in the south-central part of the county and the multi-named ranges in the west. Referred to as the “Merced Hills,” “Sonoma Coast Highlands,” and other name variations, the different coastal mountains are, for the most part, better known by their ridgelines. Summits exceed 1000 feet in elevation. Such terrain distinguishes the West Sonoma Coast from the Russian River Valley AVA, which is home to some mountainous terrain with summits below 1000 feet, but also is home to the Santa Rosa Plain. Very little area within the West Sonoma Coast has slope of less than 5%, which is common to the Santa Rosa Plain. The Green Valley of the Russian River Valley AVA also experiences gentler slopes than those in West Sonoma Coast, while terrain in the Petaluma Gap does not exceed 1000 feet in elevation.

The mountainous topography plays an especially important role to viticulture in West Sonoma Coast. Because of the cooling marine influences from the Pacific Ocean, much of the West Sonoma Coast would not support commercial viticulture if not for this terrain. First, the various mountain ridges create protected areas throughout the region, allowing for viticulture to exist in areas including areas around Annapolis, Occidental, and Freestone. Second, the mountains allow for viticulture positioned above or near the top of fog inversions. This elevated position is especially beneficial to viticulture in the Fort Ross-Seaview area but also can be found near Occidental and in other places throughout the region.

While the topography protects viticulture from heavy fog intrusions or allows for elevated positions above the fog, the entire region is cooled by this invading marine air. Yet while diurnal temperatures are lower, the mountainous terrain helps keep nocturnal temperatures moderated. Specifically, mountain viticulture benefits from the air drainage of cooler air to lower elevations. Frost protection methods, important to Russian River

Valley, Green Valley, and Petaluma Gap viticulture, is almost (if not completely) non-existent within the West Sonoma Coast viticultural region.

**Geologic evidence** – The coastal mountains of Sonoma County are marked by a variety of geologic formations created through accretion resulting from the subduction of the former Farallon Plate under the North American Plate. Most of the West Sonoma Coast viticultural area is characterized by sedimentary rock of the Franciscan Complex, dominated by sedimentary rock including Franciscan sandstone. West of the San Andreas Fault, strike-slip faulting has caused offset of geological materials. Especially predominant are the German Rancho Formation and the Gualala Formation, also characterized by sedimentary rock. Most of the viticulture is located above Franciscan formations, which means most of the soils in the area have sedimentary parent material.

Geologically, the West Sonoma Coast is distinguished from the Petaluma Gap to the south and the Russian River Valley AVA. The Petaluma Gap is dominated by the Wilson Grove Formation of claystone, siltstone and fine sandstone<sup>16</sup> overlying Franciscan sedimentary rock. Interspersed among the Wilson Grove Formation is a Franciscan mélange of sandstone and shale. Much of the northwestern sections of the Russian River Valley AVA are characterized by Franciscan Complex bedrock, but the Wilson Grove Formation is more common in the southwest part of the Russian River Valley AVA. Not only do these differences in rock create subtle differences in soil type, they also show differences in weathering, and ultimately topography and associated micro-climatic patterns. Much of the terrain of the Wilson Grove Formation is characterized by lower rolling hills, while the alluvial deposits of the Santa Rosa plain are flat. That contrasts with the mountainous terrain common to areas of Franciscan bedrock. Further inland, the Santa Rosa Plain is characterized by Quaternary alluvium and fluvial deposits, which is uncommon in the West Sonoma Coast. The geological distinctions of the area affect soil formation, generally leading to less developed soils and thinner soils on steeper slopes. Hence, relative to surrounding viticultural areas that may have areas with less steep

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<sup>16</sup> Huffman, Michael E., *Geology for Planning on the Sonoma Coast Between the Russian River and Estero Americano*, California Division of Mines and Geology in cooperation with the Sonoma County Planning Department (1973). Description based on Merced formation.

slopes, viticulture in West Sonoma Coast is more likely subject to thinner soils with greater sand content leading to good drainage that can be important to disease prevention and further helps put some stress on the vines, which can help character development in the grape. Further, greater air drainage, moisture drainage, exposure, and even harvesting techniques all can be influenced by this steeper topography.

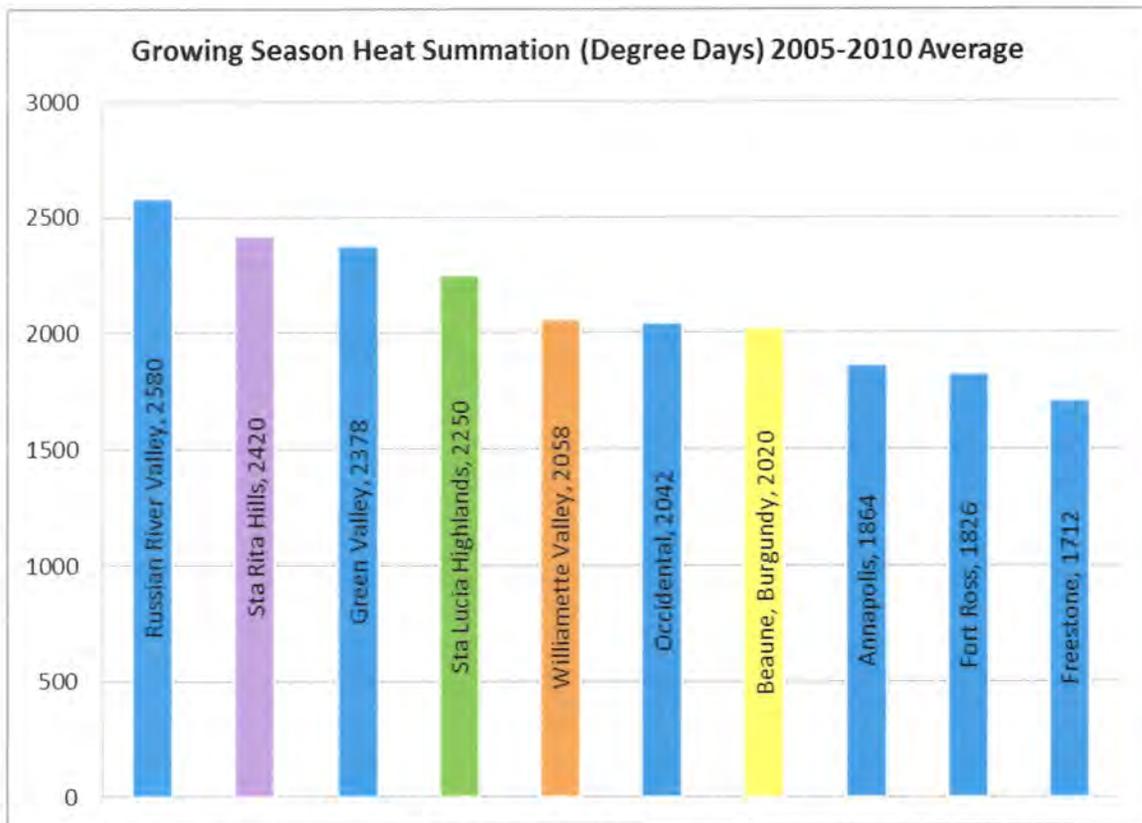
**Climatic evidence** – The West Sonoma Coast viticultural area experiences notably cooler climates than the rest of the Sonoma Coast AVA. Graph 1, provided by West Sonoma Coast Vintners, shows climatic Degree Day calculations in stations within the West Sonoma Coast cooler than Degree Day summations in other Sonoma Coast AVA stations including one from the Russian River Valley AVA and one from the Green Valley of Russian River Valley AVA (note the Green Valley is also within the Russian River Valley AVA). Despite the historical success of *v. vinifera* in the 19<sup>th</sup> Century, by the mid-20<sup>th</sup> Century, many had assumed that the West Sonoma Coast was too cool for successful commercial viticulture. Perhaps best illustrating this assumption is the work of Robert Sisson and Paul Vossen, former and current University of California Extension farm advisors. Sisson created a climate classification system for Sonoma County, dividing the county into Marine, Coastal Cool, and Coastal Warm climate types. This work was portrayed graphically in a map by Paul Vossen,<sup>17</sup> (Exhibit H). The intent of Sisson’s work was to direct growers to plant grapes favorable to cool-climate environments in the “Coastal Cool” climate type, grapes favorable to warmer climates in the “Coastal Warm” climate types, and to avoid planting grapes within the “Marine” climate type.<sup>18</sup>

## Graph 1

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<sup>17</sup> Vossen, Paul, *Sonoma County Climatic Zones*, University of California Cooperative Extension Service, Sonoma County (1986).

<sup>18</sup> Shabram, Patrick L., “Redefining Appellation Boundaries in the Russian River Valley, California,” M.A. thesis, San Jose State University (1998).



Source: West Sonoma Coast Vintners. Locations in blue are from the Sonoma Coast AVA, with Occidental, Annapolis, Fort Ross (Fort Ross-Seaview) and Freestone within the West Sonoma Coast viticultural area. All units are °F with heat summations derived using calculated Growing Degree Days as reported by different station operators. Table derived from the combined averages of multiple locations for Occidental, Annapolis, and Freestone. Fort Ross data taken from Red Car Estate Vineyard (Fort Ross-Seaview). Green Valley data taken from the town of Graton. Russian River Valley data taken from Westside Road near Bucher Vineyards. Readings from non-Sonoma County viticultural areas are presented for representation purposes only.

These classifications were based loosely on a method for establishing Degree Day totals based on hours of temperatures between 70°F and 90°F. The model was used in the establishment of several Sonoma County American viticultural areas, including the Sonoma Coast AVA and the Russian River Valley AVA. The Sonoma Coast AVA was established on the identification of the Coastal Cool climate type:

The climate of the area is manifested by persistent fog and the classification “Coastal Cool,” under Robert L. Sisson’s microclimate classification system. The system defines a “Coastal Cool” area as an area having a cumulative

duration of less than 1000 hours between 70° and 90° Fahrenheit, during the months of April through October.<sup>19</sup>

While the Sonoma Coast AVA was based on the Coast Cool climate type, the AVA includes much of the Coastal Cool and Marine climate types. Following is the description provided with Paul Vossens' map for the Marine climate type:

MARINE: The marine zone is under direct ocean influence, lying west of the first mountain ridges of the coast below 1,000 ft. and extending inland through river canyons and the Petaluma gap to Sonoma Mountain. Degree Days per year average 2,185, but range from less than 1,800 to 2,800 depending on the year. This zone also has less than 800 hours between 70 and 90°F during the growing season (April 1 to Oct. 31). It is the coolest of the three local climatic zones.

Sisson's understanding was that heat accumulations in the Marine climate type would be insufficient to allow for proper maturation in grapes.<sup>20</sup>

The West Sonoma Coast includes the western edge of the Coastal Cool climate type, but for the most part occupies areas identified as Marine climate type as represented on Vossen's map. The communities of Annapolis, Seaview, Occidental, and Freestone are all positioned at or near the line between Coastal Cool and Marine. Viticulture is found to the west of these communities, especially west of Freestone and Occidental, thereby occurring within areas identified as the Marine climate type, and hence in areas once thought too cool for successful commercial viticulture.

The climate classification system established by Sisson offers an important early guidance model as viticulture was reintroduced to Sonoma County (established during Sisson work in Sonoma County from approximately the 1950s to 1980s), but modern viticulture has demonstrated that Sisson's coolest climatic zone is inaccurate in its

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<sup>19</sup> T.D. ATF-253; Re: Notice No. 607, *Federal Register*, 52, no. 112 (June 11, 1987): 22303.

<sup>20</sup> Shabram, Patrick L., "Redefining Appellation Boundaries in the Russian River Valley, California," M.A. thesis, San Jose State University (1998).

original guidance. Successful viticulture exists in many of the areas originally classified as “Marine,” including West Sonoma Coast and much of the proposed Petaluma Gap AVA. Sisson noted as much in a 1997 telephone conversation with me, discussing viticulture in the highlands above Fort Ross and west of Occidental that run counter to the intended definition of the Marine climatic zone. Sisson noted that his assessment was based more on observation of fog intrusion, rather than on hard data, suspecting that locations below this fog would lack appropriate insolation, hence insufficient photosynthesis. Sisson, however, did not take into account the role the mountainous terrain played creating numerous protected areas and locations above the intruding fog. The climatic zones established by Sisson, while loosely based on Sisson’s Degree Day calculations, were based more on skyward observation of fog intrusion than on these calculations.<sup>21</sup> Sisson noted areas of heaviest and average fog intrusion that closely follow the Marine and Coastal Cool climate types, respectively (Exhibit I), but these observations are based on furthest inland penetration, not the role fog plays in specific locations. An additional 2007 conversation with Vossen supported Sisson’s contention that the Sisson climatic zones were based more on observation than data.<sup>22</sup> Vossen noted that approximately ten weather stations had been moved around the county in three year increments, but that this understanding of climatic shifts would undoubtedly be far from precise. Further Vossen noted that modern day equipment, data sets covering longer time periods, and further assessment would establish a much more accurate picture than the 1986 Vossen map. More importantly, improvements in viticultural practices allow for improved viticultural success. Even where Vossen’s map is accurate and Sisson’s model is correctly applied, viticulture is viable where it may not have been in 1986. Hence, long time observations by a noted former farm advisor to Sonoma County demonstrated significant fog intrusion playing a more dramatic role in West Sonoma Coast, but modern

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<sup>21</sup> Lawson, Carol Ann, “Guidelines for Assessing the Viticultural Potential of Sonoma County: An Analysis of the Physical Environment,” M.A. Thesis, University of California, Davis (1976).

<sup>22</sup> It should be noted that Sisson observed unsuccessful attempts of viticulture in areas he came to classify as the Marine climate type, and with limited resources for experimentation, established his model based on those experiences.

viticultural practices demonstrate the mountainous terrain plays a significant role in allowing successful viticulture in these extreme coastal locations.<sup>23</sup>

While the definition of the Marine climate type relative to viticulture may be debated, not debated is that it is “the coolest of the three local climatic zones” as suggested by Vossen. The West Sonoma Coast, most of which is identified by the Marine climatic zone in Vossen’s map, is clearly cooler than much of the rest of the Sonoma Coast AVA. That distinction, at least in terms of diurnal temperatures, is reflected in a review of climatic data from within the West Sonoma Coast and areas further to the east. Table 2 compares growing Degree Day calculations using two different methodologies for a station in Windsor operated by the California Irrigation Management Information System (CIMIS #103)<sup>24</sup> and a station near Occidental on the Handlery property.<sup>25</sup> The first methodology deploys the Winkler/Amerine heat summation method for calculation of growing Degree Days (monthly average above 50°F multiplied by the number of days in the month during the growing season<sup>26</sup>), while the second methodology utilizes daily Degree Day accumulations (sum of daily average temperatures above 50°F during the growing season).

Table 2 – Degree Day totals utilizing two different methodologies for calculation, from a station within the West Sonoma Coast and the adjacent Russian River Valley AVA.

Station	Winkler Method DD (°F)				Daily Accumulations DD (°F)			
	2011	2012	2013	2014	2011	2012	2013	2014*
Windsor	1860	2271	2466	2628	1918	2331	2513	2685
Occidental	1761	2024	2070	2358	1872	1991	2045	2411

\*Data are incomplete for a 17 day period in September and October at the Handlery (Occidental) station. Daily DD accumulations during these days are based on an average of temperatures two weeks prior and two weeks following this period. A review of historical weather at other comparative stations suggests most of this period was cooler than this average, so the Occidental 2014 Daily Accumulations reported here may be slightly higher than the actual accumulations.

<sup>23</sup>Research into climate change and local climatic patterns has been insufficient to assume that recent plantings in areas previously deemed as too cool for commercial wine grape production may be the result of a warming climate. A changing climate very well may partially explain the expansion of viticulture into areas previously deemed too cool for successful viticulture, but such suggestion would be speculative.

<sup>24</sup> Windsor CIMIS #103, 38.53°N, 122.83°W, 85 ft (25.9M).

<sup>25</sup> Willow Creek Road near Coleman Ranch Road.

<sup>26</sup> The original work of A.T. Winkler and M.A. Amerine simplified this method to 30 days per month.

Degree Day totals, believed to be utilizing 15 minute accumulations above 50°F from a handful of vineyards throughout the West Sonoma Coast were provided by members of the West Sonoma Coast Vintners in anticipation of this petition. Note this is a slightly different methodology for calculating Degree Days than utilized in Table 2 above. Unfortunately, many of these figures were not sequential and not necessarily from consistent years across stations, and the methodologies utilized could not be verified. Many of these calculations, however, were generated from what appears to be the same commercial software, so accuracy of calculations between the readings can be reasonably assumed.

Table 3 – Growing Degree Days using 15 minute intervals.

Station	Area	2008	2009	2010	2011	2012	2013	2014
Red Car Kings Ridge	Fort Ross-Seaview	2354	n/a	n/a	n/a	n/a	n/a	n/a
KJ Seascape	Occidental	n/a	n/a	2088	n/a	n/a	n/a	n/a
Handlery	Occidental	n/a	n/a	1835	2035	2206	2197	2403
Platt Vineyards*	Freestone	2500	2205	1911	1995	1900	2200	2450

\*2008, 2012, 2013, and 2014 Numbers for Platt Vineyards are rounded to the nearest 50 DD.

Albeit limited in availability, where years of data are comparable consistency is noted. Only Handlery and Platt in 2012 show any notable difference. Given comparisons of the Windsor station to the Handlery station noted in Table 2, all stations in Table 3 appear to have cooler climates in terms of Degree Days than present at Windsor CIMIS #103.

Because CIMIS data is made available in hourly increments, a direct comparison using identical Degree Day calculation methodologies is not possible for most of these stations without further research. The exception is the KJ Seascape station for which hourly raw data was provided for the 2010 growing season. Table 4 identifies 2010 growing Degree Days using hourly accumulations for the Windsor and KJ Seascape locations.

Table 4 – Degree Days for KJ Seascape and Windsor CIMIS #103 using hourly accumulations.

Station	2010 Degree Days (°F)
KJ Seascape	1873
Windsor CIMIS #103	2171

Hence, in nearly every scenario, under different types of calculations, the weather stations assessed within the West Sonoma Coast exhibit cooler temperatures than the

temperatures found in Windsor to the east in the Russian River Valley AVA. It should be noted, however, that Windsor is not a complete representation of the entire Russian River Valley AVA. The Chalk Hill AVA, located entirely within the Russian River Valley AVA is known to have a warmer climate than the Coastal Cool reputation of the Russian River Valley would suggest. Windsor was chosen in an analysis by Patrick Shabram (presented in Exhibit B) because it offers a good representation of the Russian River Valley, but certain areas of the Russian River Valley are cooler than Windsor. The West Sonoma Coast Vintners, for example, provided data to Mr. Shabram suggesting average 2005-2010 heat summations of 1656 at Falstaff Road in the Sebastopol Hills area of the Russian River Valley AVA, making this area of the Russian River Valley on par with the West Sonoma Coast in terms of Degree Days. It should be noted, however, that the Falstaff Road location is located at the western edge of the Russian River Valley AVA, approximately 1.3 miles east of Freestone and very close to the West Sonoma Coast AVA. In that regard, the Falstaff Road readings help confirm that temperatures west of the Green Valley of Russian River Valley AVA are cooler than temperatures to the east (Falstaff Road is west of the southern section of the Green Valley of Russian River Valley AVA). Similarly, readings for the Santa Rosa CIMIS #83 station offer Degree Day calculations similar to, or even lower than, temperatures found in the West Sonoma Coast (Table 5). Although this station is labeled “Santa Rosa,” it is located within the Laguna de Santa Rosa, a low lying area east of Sebastopol not conducive to viticulture because of wetter conditions and poor drainage.

Table 5 – Degree Day totals utilizing two different methodologies for calculation, from a station within the West Sonoma Coast and the adjacent Russian River Valley.

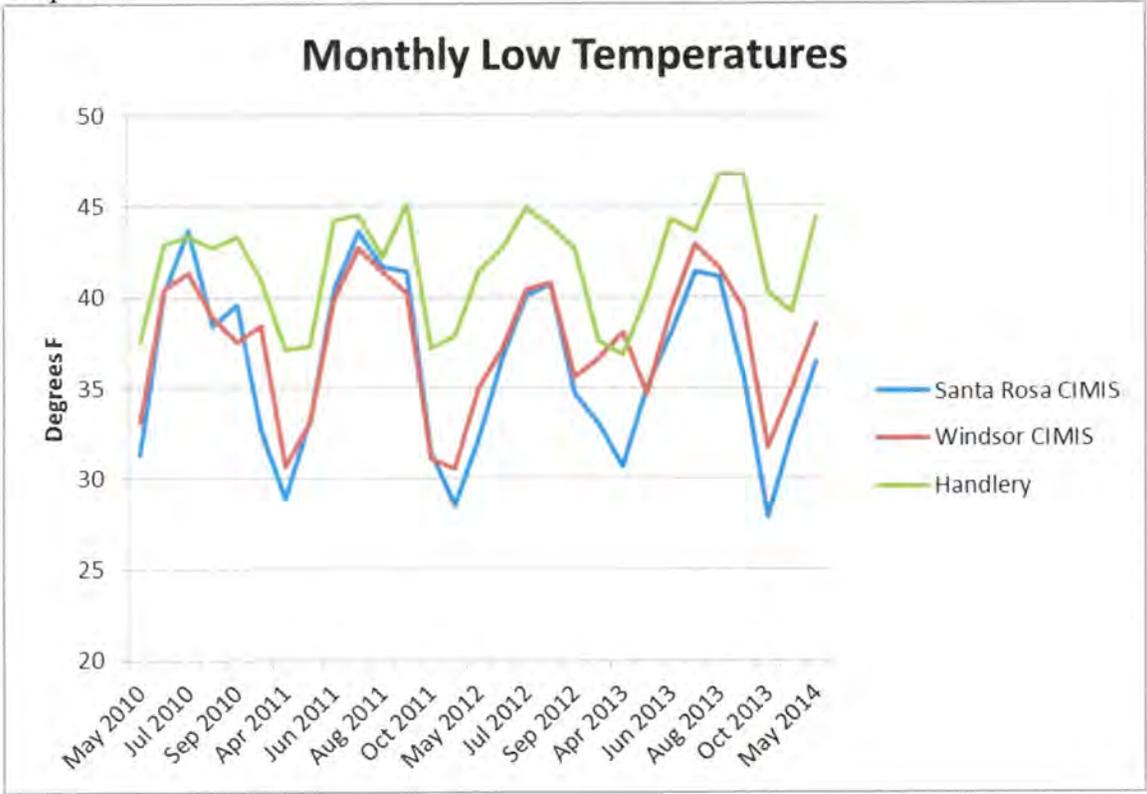
Station	Winkler Method DD (°F)			Daily Accumulations DD (°F)		
	2011	2012	2013	2011	2012	2013
Windsor	1860	2271	2466	1918	2331	2513
Occidental	1761	2024	2070	1872	1991	2045
Laguna	1588	1563	1961	1623	1596	1965

As noted above, the Santa Rosa CIMIS station is located east of Sebastopol in the Laguna de Santa Rosa, which acts as a bowl, collecting moisture and cooler nocturnal air draining into this low point. This down slope movement of cool air helps explain the cooler temperatures at the Santa Rosa CIMIS location. This point exemplifies another important

distinction between the West Sonoma Coast and the rest of the Sonoma Coast AVA; nocturnal temperatures are generally warmer in the West Sonoma Coast viticultural areas than areas outside it, including the Russian River Valley AVA and the proposed Petaluma Gap AVA.

Graph 2 demonstrates the monthly low temperatures between May 2010 and May 2015<sup>27</sup> for the Handlery station within the West Sonoma Coast AVA, with the Santa Rosa and Windsor CIMIS stations east of the proposed AVA (and within the neighboring Russian River Valley). Temperatures within the Handlery station seldom reach points as low or lower than those found at the two Russian River Valley AVA stations.

Graph 2

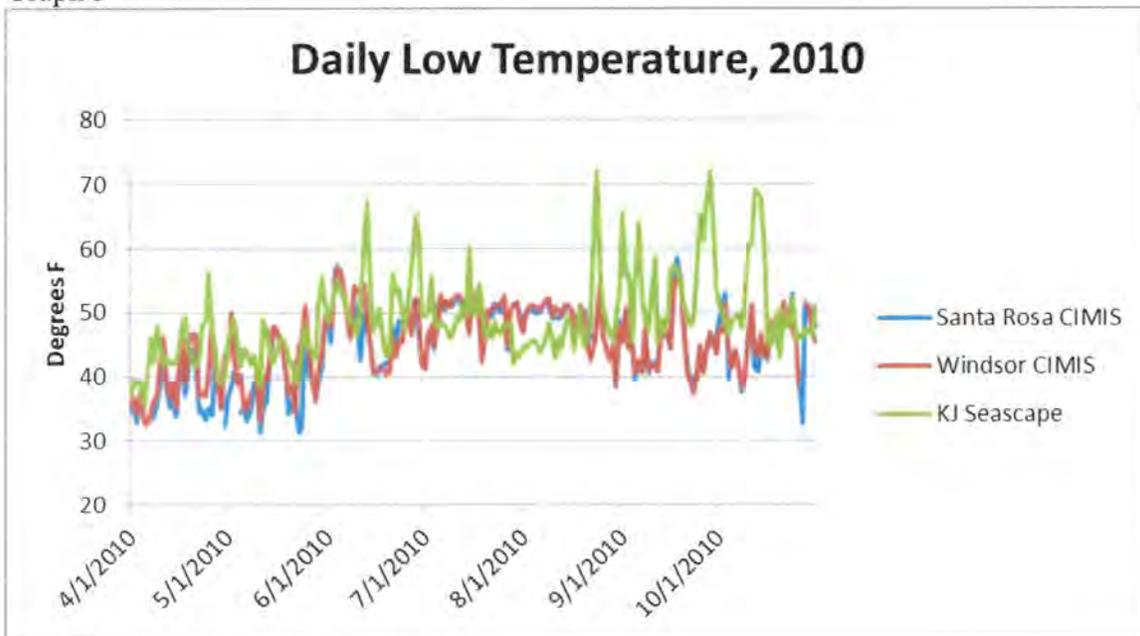


Graph 3 demonstrates 2010 low temperatures on a daily basis at the KJ Seascape vineyards compared to the Santa Rosa and CIMIS stations. With the exception of much

<sup>27</sup> Data for Handlery was incomplete for April 2010 and unavailable after May 2014.

of August, this chart also demonstrates low temperatures at the Seascap vineyard consistently higher than those found at the Russian River Valley stations. Warmer nocturnal temperatures were especially true late in the growing season as grapes ripen. These warmer nighttime temperatures play a role in the development of the fruit as it allows ripening to occur in cooler climates. This maturity in the grape also occurs during a time of day when sugars are not accumulating in the grape, affecting overall flavor.<sup>28</sup>

Graph 3



Warmer nighttime temperatures are found in the West Sonoma Coast for two primary reasons. First, the proximity to the Pacific Ocean has a moderating effect. The ocean waters take longer to heat up and cool down, a result of both higher specific heat and a greater vertical diffusion of insolation. As such, the temperature of the ocean surface waters change very little on a day-to-day basis and very slowly seasonally. The same influence that creates cooler diurnal temperatures helps moderate night time temperatures, albeit to a lesser degree as pressure gradients caused by inland heating subside. Second, hillside and mountainside viticulture benefits from air drainage. As air cools and becomes denser, it sinks into low topography points, thereby making air at

<sup>28</sup> Greenspan, Mark, "Climate and the Ripening Process," *Wine Business Monthly* (August 2007).

valley bottoms typically cooler than at higher elevations. Frost protection is nearly non-existent in West Sonoma Coast as temperatures very seldom fall to the point of causing damage to viticulture. The same cannot be said to the east where valley viticulture is more common, or even to the south into the Petaluma Gap where coastal influences are strong, but topography is not as pronounced.

While the proposed West Sonoma Coast AVA is home to temperatures at the lower end of viable *v. vinifera* production, north of the Russian River the inland transition to significantly warmer temperatures takes place quickly. While adequate data are not available to demonstrate this rapid transition to Coastal Warm, the above referenced Sonoma County Climatic Zones map notes the narrow stretch of land cooler than the warmer inland locations. Unlike the southern areas of the Sonoma Coast AVA that experience fog intrusion through the Russian River, the Petaluma wind gap, and San Pablo Bay, no significant gap allows fog to intrude past the first few ridgelines. Significant shift in vegetation is noted, both as a result of decreased moisture and increased evapotranspiration rates. Hence, in defining the West Sonoma Coast, care is given in limiting viticulture to these first few ridges where temperatures are moderated.

Finally, the West Sonoma Coast experiences lower average wind speeds than what are found in the Petaluma Gap to the south and on the Santa Rosa Plain to the east. This distinction is noted in Shabram's report on the Petaluma Gap<sup>29</sup> and in the subsequent petition to the TTB to establish the Petaluma Gap AVA. While much of the Petaluma Gap petition focuses on wind speed duration and consistency during the afternoon hours when pressure gradients between coastal and inland areas are at their greatest, an even simpler analysis is readily identifiable for the West Sonoma Coast. Just comparing average wind speeds demonstrates lower wind speeds along the coast north of the Petaluma Gap and to the west of the Russian River Valley AVA. As higher wind speeds are thought to slow photosynthesis rates,<sup>30</sup> lower wind speeds further assist the maturity

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<sup>29</sup> Shabram, Patrick L, "Unique Geography Characteristics of the Petaluma Gap," unpublished, prepared for the Petaluma Gap Winegrowers Alliance (2015).

<sup>30</sup> Greenspan, Mark, "Row Direction—Which End is Up?," *Wine Business Monthly* (July 2008).

of grapes in this cooler climate and distinguish grapes produced in West Sonoma Coast from those produced in surrounding areas.

Table 6 – Avg. growing season wind speed within and outside the West Sonoma Coast

Station	Average Wind Speed (mph)			
	2013	2012	2011	2010
Valley Ford (BAAQMD) <sup>31</sup>	8.5	7.6	7.4	8.0
Windsor CIMIS #103	3.9	3.3	3.2	3.4
Santa Rosa CIMIS #83 (Laguna)	N/A	4.1	4.0	3.9
KJ Seascape	N/A	N/A	N/A	2.4
Handlery	1.5	1.6	1.4	1.6

*Climate summary* – In conclusion, collectively the climatic characteristics distinguish the West Sonoma Coast from surrounding viticultural areas. The West Sonoma Coast is cooler than most of the Green Valley of Russian River Valley AVA, Russian River Valley AVA and other sub appellations of the Sonoma Coast AVA. In addition, nocturnal temperatures are higher in the West Sonoma Coast than areas to the east and south. Finally, wind speeds are slower in the West Sonoma Coast than those found in the Petaluma Gap and the Santa Rosa Plain of the Russian River Valley AVA.

**Soil evidence** – As is typical of coastal California, a diverse range of soil types is found throughout the West Sonoma Coast. Given the size of the viticultural area, offsets caused by faulting, and varied accreted materials, the West Sonoma Coast is especially varied in soil series type. A look at soil associations of the STATSGO2 database, a generic geographic soil database produced by the Natural Resource Conservation Service (NRCS), does not offer much more distinction (Map 2). The Zeni-Yellowhead-Ornbaun-Kibesillah association is the most common to the viticulture producing areas, along with Wohly-Holohan-Casabonne and Tomales-Steinbeck-Los Osos. All three associations are found in adjacent areas outside the West Sonoma Coast.

<sup>31</sup> Weather station maintained by the Bay Area Air Quality Management District, 38.3084°N, 122.8974°W, 50 ft (15.2 m). The weather station is located south of Valley Ford just inside the Marin County line, hence just outside the Sonoma Coast AVA. The station is within the proposed Petaluma Gap AVA and is representative of wind speeds south of the West Sonoma Coast.

In terms of the soil, West Sonoma Coast is better distinguished from other viticultural areas of the region in the absence of certain soil types. First is the absence of alluvium. Common to the Santa Rosa Plain (e.g., the Zamora-Wright-Huichica association on Exhibit D) and the Petaluma River floodplain of the proposed Petaluma Gap AVA, alluvium represents a very small percent of the soils of the West Sonoma Coast and is not utilized for viticulture. Second is the absence of soils of igneous material. Igneous parent material is found in the eastern Russian River Valley AVA and at locations throughout the Sonoma Coast AVA, but all soils within the West Sonoma Coast are derived of sedimentary rock with small pockets of metamorphic parent material. Parent material can influence soil texture and soil development, which impacts moisture available to the vines, as well as mineral content. Minerology, and as more recent research at the University of California, Davis suggests, fungus and bacteria that live in different soils are thought to influence flavors in wine produced from vines grown in these soils.<sup>32</sup>

#### Establishment of the Fort Ross-Seaview AVA

While each petition for establishment of an AVA is considered on its own merits, correspondence and collaboration for establishment of the Fort Ross-Seaview AVA (T.D. TTB-98) should be taken into consideration. During the establishment of the Fort Ross-Seaview AVA, support was provided for the establishment of a coastal AVA encompassing the wine producing enclaves of Fort Ross-Seaview, Annapolis to the north and the Freestone-Occidental area to the south. It should be noted that the petition for the Fort Ross-Seaview AVA was prepared and presented by Patrick L. Shabram, the author of this petition.

The original petition to establish the Fort Ross-Seaview AVA was submitted in 2003. This followed over three years of study of the area, concerns over the most appropriate name of the viticultural region, and, finally, the preparation of the petition. The intent of the local growers was to establish an AVA that specifically identified this local enclave. A 30-day comment period opened in April 2005 per TTB Notice No. 34, and was

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<sup>32</sup> University of California, Davis, “Sequencing study lifts veil on wine’s microbial terror,” “News and Information,” press release, November 25, 2013.

extended to June 2005 in TTB Notice No. 42. A subsequent second petition was submitted in November 2005 by growers in the Annapolis area (referred to by the TTB as the “Northern Addition petition”) to extend the Fort Ross-Seaview AVA to the north to include the Annapolis area. In this second petition, a proposal also was submitted to modify the name Fort Ross-Seaview to “Fort Ross” and some other appendage to specify a name more locally specific to the Annapolis area.

This petitioner responded twice to the TTB in regards to the proposal to expand the AVA, once in October 2005 (prior to the submission of the Northern Addition), and more formally in February 2010 (noted by the TTB as “the Shabram response”). In both cases, I agreed with comments that suggested similarities exist in climate and other geographic characteristic between Fort Ross-Seaview and the Annapolis area, but I pointed out that the petition to establish the Fort Ross-Seaview AVA was based on local characteristics, including elevation, while an AVA inclusive of both Fort Ross-Seaview and the Annapolis area would be a more regional AVA. I even agreed that a more inclusive Sonoma coastal AVA was warranted, but I noted that the AVA petitioned by the Northern Addition would be exclusive of the Freestone-Occidental area, which also shares similar geographic characteristics. Supporting this argument were multiple books and articles that identified one coastal viticultural region along the Sonoma Coast with three viticultural localities. Comment 5 from Don Hartford also suggested a larger viticultural region inclusive of areas to the north and south. The TTB reopened the comment period in April 2011 for the Fort Ross-Seaview AVA proposed rulemaking as originally proposed. At this point, no opposing comments to the Fort Ross-Seaview AVA were received.

While the intent of the growers in Fort Ross-Seaview was to distinguish their locality, the interest in establishing a Sonoma coastal AVA has never waned, especially outside Fort Ross-Seaview. More recently, even many growers within the Fort Ross-Seaview AVA have agreed that the Sonoma coastal ridges present unique geographic characteristics reflective of all three growing areas and have come to support the West Sonoma Coast as a viticultural region. Hirsch Vineyard & Winery run by David Hirsch, co-petitioner of the

Fort Ross-Seaview AVA, is a member of the West Sonoma Coast Vintners and supports this petition. Other Fort Ross-Seaview-based winery members of the West Sonoma Coast Vintners include Fort Ross Vineyard and Winery and Flowers Vineyard and Winery. A number of growers within Fort Ross-Seaview also are supportive of the West Sonoma Coast Vintners.

#### Other Written Evidence

In addition to my previous commentary and the commentary of other growers for an AVA that distinguishes coastal Sonoma from the Sonoma Coast AVA are a number of other written sources. These references demonstrate a common, long-standing understanding and reputation that the West Sonoma Coast (identified in a variety of manners) is distinguished from the Sonoma Coast AVA. In the examples noted below, the sources pre-date the establishment of the West Sonoma Coast Vintners, and as such, cannot be a result of influence by subsequent promotion of this winegrowing region by this organization.

Steve Heimoff, in his book *A Wine Journey along the Russian River*,<sup>33</sup> titled his last chapter “Into the Fog, and Above It: The Sonoma Coast.” The reference to the “Sonoma Coast” is not a reference to the AVA but the Sonoma Coast as commonly identified. In this chapter, Heimoff quotes Ehren Jordan as saying “The true coast is Annapolis, Fort Ross, Occidental Ridges and all the stuff going on toward Freestone,” which Heimoff summarizes as saying “only along the immediate coast.”<sup>34</sup> Heimoff later states, “I think of the ‘true coast’ in much the same way as Ehren Jordan. It is clustered in three areas close to the shore: Annapolis up north, near the Mendocino County line; Fort Ross in the center; and (merging these two areas into one) Occidental Ridges and Freestone, in the south.” Hence Heimoff clearly views the three viticultural enclaves along the coast as constituting a viticultural area distinct from the Sonoma Coast AVA.

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<sup>33</sup> Heimoff, Steve, *A Wine Journey along the Russian River* (University of California Press, Berkeley, 2005).

<sup>34</sup> *Ibid*, 227

In his book *North American Pinot Noir*, John Winthrop Haeger also distinguishes the coastal areas as a unique winegrowing region. Map 11 titled “Sonoma Coast” shows only the area that is included in this petition.<sup>35</sup> A subsection of “Chapter 4: Where It Happens” is titled “The True Sonoma Coast,” which Haeger describes as “North and south of Jenner.”<sup>36</sup> With over four pages dedicated to this viticultural area, Haeger uses the term “true Sonoma Coast” throughout the book to identify what he also refers to as “true coast,” “coastal Sonoma,” and “western Sonoma County.” In describing the *terroir* of the region, Haeger states:

The true coast is part of the Sonoma Coast AVA...The true coast coincides with the northwestern corner of the AVA, but the AVA bulges eastward to encompass a huge territory that extends from north of Russian River to the Marin County line, and from the coast itself to east of Healdsburg, the town of Sonoma, and a corner of Carneros... Within the true coast region, vineyards have now come to be concentrated in three small areas. The first is the area southeast of Fort Ross where the first coastal vineyards were set out in the 1970s...The second, aforementioned, is the area south of the Russian River and north of Bodega, between Occidental and Bodega Bay. This area consists of the ridges that are separated by the various tributaries of Salmon Creek. And since 1997, a new coastal area has emerged north of the first two, within a few miles of the hamlet called Annapolis.

Haeger clearly sees a pinot noir growing region on the Sonoma coast unique from other viticultural areas and unique from the Sonoma Coast AVA as a whole.

More recent articles further identify a need to distinguish the West Sonoma Coast from the Sonoma Coast AVA. A recent *Chicago Tribune* article titled “With ‘Sonoma Coast’ on the Label, Hard to Tell What’s Inside,” by Bill St. John, for example, notes the distinction of coastal Sonoma County:

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<sup>35</sup> Haeger, John Winthrop, *North American Pinot Noir* (University of California Press, 2004). Maps are credited to Chambers, Mark and Nelson, Bill.

<sup>36</sup> *Ibid.*, 89-93.

I put together a tasting of wines, all of which carry the Sonoma Coast appellation. Some came from vineyards that hug the Pacific shores; some came from vineyards as far as 30 miles inland.

None of the wines was poorly made, but the differences between true coastal, or markedly cool-climate vineyards, and those from warmer regions within the AVA was striking.<sup>37</sup>

St. John's article points out that Sonoma Coast is simply not an adequate delineator for coastal vineyards given the size of the Sonoma Coast AVA. Another example comes from Elaine Chukan Brown in the article "Far Sonoma Coast: A haven for Pinot Noir," appearing in *Wines & Vines*. Brown states, "While the massive Sonoma Coast AVA includes plenty of warmer, flatter interior terroir, the region unofficially known as the 'west Sonoma Coast' has become a source of bright pinot noir with herbal and earth notes, conifer aromatics and a savory edge, thanks to the rugged terrain and generally cool temperatures."<sup>38</sup>

#### Boundary Description

The following boundary descriptions approximate the unique geography and reputation of the West Sonoma Coast wine growing region. The boundary approximates the inland extend of the heaviest coast influences. Temperatures inland increase significantly with distance, except to the south, where coastal fog invades the Russian River Valley. In the southern extend of the West Sonoma Coast, the boundary is directly west of the Russian River Valley AVA.

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<sup>37</sup> St. John, Bill, "With 'Sonoma Coast' on the label, hard to tell what's inside," *Chicago Tribune*, March 4, 2015, accessed online at <http://www.chicagotribune.com/entertainment/dining/recipes/sc-food-0306-wine-sonoma-coast-20150306-column.html>.

<sup>38</sup> Brown, Elaine Chukan, "Sonoma's Far Coast: A haven for pinot noir," *Wines & Vines* (August 31, 2015).

The western boundary follows the Pacific coastline. To the north, the Sonoma County line defines the northern extent of the name West Sonoma Coast. To the south, the area south of Salmon Creek is better identified as “Petaluma Gap” as also noted in the petition for the pending Petaluma Gap AVA. The boundary shares common boundaries in places with the Sonoma Coast AVA, Fort Ross-Seaview AVA, Russian River Valley AVA, Northern Sonoma AVA, and the proposed Petaluma Gap AVA.

This boundary follows points found on the following quadrangles of USGS 7.5' Series topographic maps:

McGuire Ridge, California

Stewarts Point, California

Annapolis, California

Tombs Creek, California

Fort Ross, California

Cazadero, California

Duncan Mills, California

Camp Meeker, California

Valley Ford, California

Two Rock, California

Bodega Head, California

Arched Rock, California

Plantation, California

Gualala, California

- 1) From a starting point at the intersection of the Sonoma County/Mendocino County boundary and the northwest corner of section 29, T11N, R14 on the McGuire Ridge map, proceed along a straight line 0.4 mile south to an unnamed hilltop elevation 820 feet, section 29, T11N, R14W, then
- 2) Proceed along a straight line 1.4 miles southeast to the intersection of the section 32/section 33 T11, R14W western boundary and the 800 foot elevation line, then

- 3) Proceed along the 800 foot elevation line in an east-southeasterly direction 3.1 miles onto to the Stewarts Point map, to its intersection with the T11N/T10N boundary, then
- 4) Follow the T11N/T10N boundary east 0.8 mile to its intersection with the 600 foot elevation section 2, T10N, R14W/section 35 T11N, R14W, then
- 5) Proceed along the 600 foot elevation line 3.3 miles in a southeasterly direction onto the Annapolis map to its intersection with the southern boundary of section 1, T10N, R14W, then
- 6) Proceed east along the southern boundary of section 1, T10N, R14W 0.1 mile to its intersection with the 600 foot elevation line, then
- 7) Proceed along the meandering 600 foot elevation line first north then in a general easterly direction 4.8 miles to its sixth intersection with the northern boundary of section 7, T10N, R13W, then
- 8) Proceed in a straight line southeast 0.2 mile to the intersection of Soda Springs Road and unnamed unimproved road elevation 725 feet, section 8, T10N, R13W, then
- 9) Proceed in a straight line south 0.6 mile to the intersection of Soda Springs Road and the western boundary of section 8, T10N, R13W, then
- 10) Proceed in a straight line southeast 1.6 miles to the intersection of the eastern boundary of section 17, T10N, R13W and the 800 foot elevation line in the southeast corner of this section, then,
- 11) Proceed along the 800 foot elevation line in a southeasterly direction 2.6 miles to its intersection with an unimproved road near the 862 benchmark, section 21, T10N, R13W, then
- 12) Proceed in a straight line 0.2 mile southeast to the intersection of the 600 foot elevation line and an intermittent stream, section 28, T10N, R13W, then
- 13) Proceed along the 600 foot elevation line in a southerly direction 1.7 miles to its intersection with the eastern boundary of section 33, T10N, R13W, then

- 14) Proceed in a straight line east-southeast to 0.5 mile to the Mendosoma Fire Station, section 34, T10N, R13W, then
- 15) Proceed along the unnamed, unimproved road at the Medosomoa Fire Station in a southeasterly direction 4.6 miles staying to the road that leads to and follows Skyline Ridge, section 1, T9N, R13W, to its intersection with the northern boundary of section 12, T9N, R13W, then
- 16) Proceed generally southeast along the unnamed, unimproved road on to the Tombs Creek map, Annapolis map, then back on to the Tombs Creek map, approximately 1.3 miles to the second intersection of that road with the 1,200-foot elevation line in section 13, T9N, R13W; then
- 17) Proceed generally southeast along the 1,200-foot line approximately 0.6 mile to the intersection of that elevation line with Allen Creek, section 18, T9N, R12W; then
- 18) Proceed generally north along Allen Creek approximately 0.2 mile to the intersection of Allen Creek with the 920-foot elevation line, section 18, T9N, R12W; then
- 19) Proceed generally east and then southeast along the meandering 920-foot elevation line, on to the Fort Ross map, Tombs Creek map, then back on to the Fort Ross map to the intersection of the elevation line with Jim Creek, section 21, T9N, R12W; then
- 20) Proceed generally southeast along Jim Creek approximately 0.7 mile to the northern boundary of section 27, T9N, R12W; then
- 21) Proceed east along the northern boundary of section 27, T9N, R12W to the northeast corner of section 27; then
- 22) Proceed south along the eastern boundaries of section 27 and 34, T9N, R12W, and continue south along the eastern boundary of sections 3, 10, 15, and 22, T8N, R12W, to Fort Ross Road; then
- 23) Proceed east along Fort Ross Road to the intersection of Fort Ross Road with the middle branch of Russian Gulch Creek, then

- 24) Proceed south along that creek for approximately 1.2 miles to the intersection of that creek and the 920 foot elevation line, section 26, T8N, R12W, then
- 25) Proceed in a straight line east southeast onto the Cazadero map 2.0 miles to the summit of Pole Mountain, section 30, T8N, R11W; then
- 26) Proceed southeast onto the Duncan Mills map 4.7 miles to the confluence of Austin Creek and the Russian River, T7N, R11W; then
- 27) Follow the Russian River in a easterly direction 3.1 to the intersection of the Russian River and the Bohemian Highway, then
- 28) Proceed along the Bohemian Highway in a southeasterly direction 10.1 miles onto the Camp Meeker map and through the towns of Camp Meeker and Occidental, then onto the Valley Ford map and through the town of Freestone to the intersection of the Bohemian Highway and Bodega Road, T6N, R10W (BM 214, identified as Bodega Road on Camp Meeker map); then
- 29) Follow Bodega Road 0.9 mile onto the Camp Meeker map to its intersection with Jovine Road to the north and an unnamed secondary highway at BM 486, T6N, R10W; then
- 30) Follow an the unnamed light duty road (Barnett Valley Road) in a southerly then easterly direction 2.2 miles onto the Valley Ford map then onto the Two Rock map to the intersection of Bennett Valley Road and Burnside Road, section 17, T6N, R9W; then
- 31) Follow Burnside Road in southeasterly direction 3.2 miles to its intersection with the 400 foot elevation line just north of an unnamed light duty road (BM 376), Cañada de Pogolimi land grant, T5N, R9W, then
- 32) Follow the 400 foot elevation line in a westerly direction 6.7 miles onto the Valley Ford map to its intersection with an unimproved road, Cañada de Pogolimi land grant, T6N, R9W, then
- 33) Follow this unimproved road north then southwest 0.9 mile to it terminus, Cañada de Pogolimi land grant, T6N, R9W, then

- 34) Follow a straight line 0.1 mile northwest to the summit of an unnamed hilltop elevation 448 feet, Cañada de Pogolimi land grant, T6N, R10W, then
- 35) Follow a straight line northwest 0.6 mile to BM 61 on an unnamed secondary highway (Freestone Valley Ford Road) along Ebabias Creek, Cañada de Pogolimi land grant, T6N, R10W, then
- 36) Follow a straight line 0.8 mile west-northwest to VABM 724 on an unnamed hilltop, Estero Americano land grant, T6N, R10W, then
- 37) Follow a straight line 1.0 miles west to the intersection of Salmon Creek and an intermittent stream, Estero Americano land grant, T6N, R10W, then
- 38) Follow Salmon Creek in a westerly direction 9.6 miles onto the Bodega Head map to its mouth at the Pacific Ocean
- 39) Follow the Pacific Coast in a northwesterly direction approximately 51.4 miles onto the Duncan Mills map then Arched Rock map then Fort Ross map then Plantation map then Stewarts Point map then Gualala map to the Sonoma County/Mendocino County line, then
- 40) Follow the Sonoma County/Mendocino County line southeast then in a northeasterly direction then east 5.6 miles onto the McGuire Ridge map to the starting point at the northwest corner of section 29, T11N, R14.

#### Supporting Evidence

Prior to proceeding with a petition to create the West Sonoma Coast AVA, West Sonoma Coast Vintners retained Patrick L. Shabram, the author of this petition, to do an assessment of the West Sonoma Coast, establishing what characteristics of the viticultural area distinguish it from other areas of the Sonoma Coast AVA. Patrick Shabram is a geographer specializing in viticulture analysis. Much of the text of this petition pertaining to geographical distinctions of the West Sonoma Coast has been taken from this report. Given his familiarity with the region and based on the findings of that report, Patrick Shabram was asked and agreed to prepare this petition. A complete copy of this report is included as Exhibit B.

As part of the Shabram analysis, Jordan Thomas was hired to create several maps including a boundary map and a soil map. Jordan Thomas is a viticultural cartographer and the founder of Everyvine, a vineyard mapping website popular in the wine industry. The Thomas maps are provided as Exhibits C, D, E, and F.

Other exhibits support text found within in this petition. A number of copyrighted sources also were quoted and referenced in this petition. In the case of websites, complete URLs were provided. Copies of other materials may be provided upon request as needed by the TTB and as allowed under fair use guidelines for copyrighted material.

### Exhibits

Following are a list of exhibits supporting this petition:

Exhibit A – USGS maps outlining the proposed West Sonoma Coast AVA.

Exhibit B – Shabram, Patrick L., “Distinguishing Characteristics of the West Sonoma Coast,” 2016.

Exhibit C – Aerial image of West Sonoma Coast viticultural area, prepared by Jordan Thomas.

Exhibit D – STATSGO2 Soil Association map of West Sonoma Coast, prepared by Jordan Thomas.

Exhibit E – Shaded relief map of West Sonoma Coast, prepared by Jordan Thomas.

Exhibit F – Topographic map of West Sonoma Coast, prepared by Jordan Thomas.

Exhibit G – Members of West Sonoma Coast Vintners.

Exhibit H – Vossen, Paul, “Sonoma County Climatic Zones,” 1986.

Exhibit I – “Line of Heaviest and Average Maximum Fog Intrusion,” from Shabram, Patrick L., “Redefining Appellation Boundaries in the Russian River Valley, California,” M.A. thesis, San Jose State University, 1998, referenced from Lawson, Carol Ann,

“Guidelines for Assessing the Viticultural Potential of Sonoma County: An Analysis of the Physical Environment,” M.A. thesis, University of California, Davis, 1976.

Exhibit J – “Annapolis Fairfax: West Sonoma Coast Ranch Land,” real estate webpage of Marie H. Clay, Coldwell Banker (likely created in 2014 but printed in 2016).

# Proposed West Sonoma Coast AVA and Surrounding AVAs



**1--Proposed West Sonoma Coast AVA**

**2--Fort Ross-Seaview AVA**

**3--Sonoma Coast AVA**

## Distinguishing Characteristics of the West Sonoma Coast



Originally prepared April 2015, updated July 2016

by Patrick L Shabram

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## Distinguishing Characteristics of the West Sonoma Coast

### Summary

The West Sonoma Coast is a wine growing region located at the western edge of the much larger Sonoma Coast AVA. Nearly all mountainous, the region's topography diminishes inland intrusion of fog, limiting commercial grape production to isolated localities within the viticultural area. The region's proximity to the coast, however, generally leads to cooler day time temperatures and warmer night time temperatures. The area also is not as windy as other locations within the Sonoma Coast AVA. Further, the West Sonoma Coast is almost entirely mountainous and has some modest distinguishing characteristics in the geology present and the absence of alluvium.

### Background

The West Sonoma Coast viticultural area is located along the Sonoma Coast of Sonoma County in northern California. While located entirely within the Sonoma Coast AVA, the West Sonoma Coast has characteristics unique from the rest of the larger Sonoma Coast AVA. The Sonoma Coast AVA is already divided into smaller AVAs offering more specific geographic recognition, including sections of the Russian River Valley and the appellations contained within it, the Sonoma Valley AVA, Los Carneros AVA, and the proposed Petaluma Gap AVA. (Of the AVAs that currently occupy parts of the Sonoma Coast AVA, only Green Valley of Russian River Valley, located entirely within the Russian River Valley AVA, and Fort Ross-Seaview AVA are entirely within the Sonoma Coast AVA.) With a growing reputation for cool climate grape production, wine writers, consumers, and local industry members have distinguished the West Sonoma Coast from the rest of the Sonoma Coast AVA. Growers believed the distinctions significant enough to form their own winegrowers association, the West Sonoma Coast Vintners. A well-known and well-attended tasting event focusing on just West Sonoma Coast wines, the West of West Festival was created in 2011 to further identify the unique characteristics of wines produced from the area.

While many industry professionals recognize the distinction of the West Sonoma Coast, it is not officially recognize by the Alcohol and Tobacco Tax and Trade Bureau (TTB). In anticipation of petitioning the TTB for establishment of the West Sonoma Coast AVA, West Sonoma Coast Vintners have commissioned this report outlining the characteristics that distinguish this coastal region from the other locations in the Sonoma Coast AVA and in Sonoma County in general. As recommended in the report, the entire proposed AVA would be located within the Sonoma Coast AVA and share common boundaries with the Sonoma Coast AVA along the Pacific Ocean coast and the Sonoma County line. The West Sonoma Coast, however, is limited to the Pacific coastal areas and does not move as far inland as the Sonoma Coast AVA. The West Sonoma Coast AVA, if approved, would include all of the Fort Ross-Seaview AVA and share a common eastern boundary with Fort Ross-Seaview. The AVA would also share a common boundary with the Russian River Valley AVA and the proposed Petaluma Gap AVA, both of which would be adjacent to the West Sonoma Coast AVA. If approved, the AVA would be at a scale similar to the Russian River Valley and Sonoma Valley AVAs, both of which

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occupy part of the larger Sonoma Coast AVA but have smaller AVAs located entirely within them.

### **Geographical Characteristics**

**Topography** – The West Sonoma Coast is characterized by the mountainous terrain of the Coastal Ranges. Common to most of coastal California, the Coastal Ranges extend from the immediate coast to the Sacramento Valley. In Sonoma County, the Coastal Ranges are broken into three distinct ranges: The Mayacamas (Mayacmas) Mountains in the east, the Sonoma Mountains in the south-central part of the county and the multi-named ranges in the west. Referred to as the “Merced Hills,” “Sonoma Coast Highlands,” and other name variations, the different coastal mountains are, for the most part, better known by their ridgelines. Summits exceed 1000 feet throughout this terrain. Such terrain distinguishes the West Sonoma Coast from the Russian River Valley AVA, which is home to some mountainous terrain with summits below 1000 feet, but also is home to the Santa Rosa Plain. Very little area within the West Sonoma Coast has slope of less than 5%, which is common to the Santa Rosa Plain. The Green Valley of the Russian River Valley AVA also experiences gentler slopes than those in West Sonoma Coast.

The mountainous topography has a dramatic effect on climate. Because of the cooling marine influences from the Pacific Ocean, much of the West Sonoma Coast would not support commercial viticulture if not for this terrain. First, the various mountain ridges protect isolated pockets, allowing for viticulture to exist in such places as the area around Annapolis, Occidental, and Freestone. Second, the mountains allow for viticulture positioned above fog inversions. This elevated position is especially beneficial to viticulture in the Fort Ross-Seaview area but also can be found near Occidental and in other isolated spots throughout the region.

While the topography protects viticulture from heavy fog intrusions or allows for elevated positions above the fog, the entire region is cooled by this invading marine air. Yet while diurnal temperatures are lower, the mountainous terrain helps keep nocturnal temperatures moderated. Specifically, mountain viticulture benefits from the air drainage of cooler air to lower locations. Frost protection methods, important to Russian River Valley, Green Valley, and Petaluma Gap viticulture, is almost (if not completely) non-existent within the West Sonoma Coast viticultural region.

**Geology** – The coastal mountains of Sonoma County are marked by a variety of geologic formations created through accretion resulting from the subduction of the former Farallon Plate under the North American Plate. Most of the West Sonoma Coast viticultural area is characterized by sedimentary rock of the Franciscan Complex, dominated by sedimentary rock including Franciscan sandstone. West of the San Andreas Fault, strike-slip faulting has caused offset of geological materials. Especially predominant are the German Rancho Formation and the Gualala Formation, also characterized by sedimentary rock. Most of the viticulture is located above Franciscan formations, which means most of the soils in the area have sedimentary parent material.

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Photo 1 – Annapolis Viticulture



Viticulture in Annapolis in the northern part of the viticultural area is positioned among redwood and Douglas fir forests. At elevations in the 700 ft to 900 ft range, coastal fog is typically found at the level of the vines. The mountainous terrain, however, filters intruding air allowing for sufficient insolation. Vineyards in Fort Ross-Seaview are typically located above the fog, while viticulture around the communities of Freestone and Occidental are protected by ridgelines that funnel coastal air into the Petaluma Gap.

Geologically, the West Sonoma Coast is distinguished from the Petaluma Gap to the south and the Russian River Valley AVA. The Petaluma Gap is dominated by the Wilson Grove Formation of claystone, siltstone and fine sandstone<sup>1</sup> overlying Franciscan sedimentary rock. Interspersed among the Wilson Grove Formation is a Franciscan mélange of sandstone and shale. Much of the northwestern sections of the Russian River Valley AVA are characterized by Franciscan Complex bedrock, but the Wilson Grove Formation is more common in the southwest part of the Russian River Valley AVA. Not only do these differences in rock create subtle differences in soil type, they also show differences in weathering, and ultimately topography and associated micro-climatic patterns. Much of the terrain of the Wilson Grove Formation is characterized by lower rolling hills, while the alluvial deposits of the Santa Rosa plain are flat. That contrasts with the mountainous terrain common to areas of Franciscan bedrock. Further inland, the

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<sup>1</sup> Huffman, Michael E., *Geology for Planning on the Sonoma Coast Between the Russian River and Estero Americano*, California Division of Mines and Geology in cooperation with the Sonoma County Planning Department, 1973. Description based on Merced formation.

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Santa Rosa Plain is characterized by Quaternary alluvium and fluvial deposits, which is uncommon in the West Sonoma Coast.

Map 1 – Terrain Map of West Sonoma Coast (shaded relief)



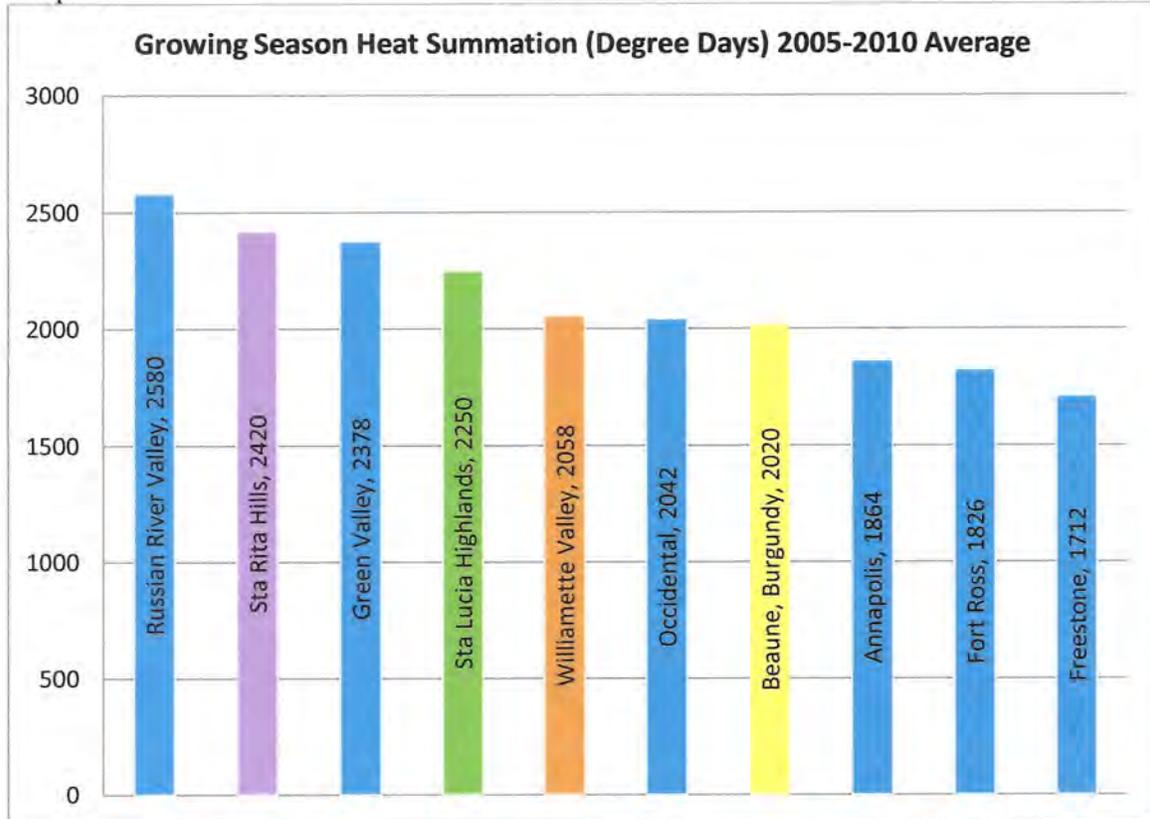
Map produced by Jordan Thomas of Everyvine.

**Climate** – The West Sonoma Coast viticultural area experiences notably cooler climates than the rest of the Sonoma Coast AVA. Graph 1, provided by West Sonoma Coast Vintners, shows climatic Degree Day calculations in stations within the West Sonoma Coast cooler than Degree Day summations in other Sonoma Coast AVA stations including one from the Russian River Valley AVA and one from the Green Valley of Russian River Valley AVA (note the Green Valley is also within the Russian River Valley AVA). Despite the historical success of *v. vinifera* in the 19<sup>th</sup> Century, by the mid-20<sup>th</sup> Century, many had assumed that the West Sonoma Coast was too cool for successful commercial viticulture. Perhaps best illustrating this assumption is the work of Robert Sisson and Paul Vossen, former and current University of California Extension farm

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advisors. Sisson created a climate classification system for Sonoma County, dividing the county into Marine, Coastal Cool, and Coastal Warm climate types. This work was portrayed graphically in a map by Paul Vossen,<sup>2</sup> (Appendix A). The intent of Sisson's work was to direct growers to plant grapes favorable to cool-climate environments in the "Coastal Cool" climate type, grapes favorable to warmer climates in the "Coastal Warm" climate types, and to avoid planting grapes within the "Marine" climate type.<sup>3</sup>

Graph 1



Source: West Sonoma Coast Vintners. Locations in blue are from the Sonoma Coast AVA, with Occidental, Annapolis, Fort Ross (Fort Ross-Seaview) and Freestone within the West Sonoma Coast viticultural area as proposed by the West Sonoma Coast Vintners. All units are °F with heat summations derived using calculated Growing Degree Days as reported by different station operators. Table derived from the combined averages of multiple locations for Occidental, Annapolis, and Freestone. Fort Ross data taken from Red Car Estate Vineyard (Fort Ross-Seaview). Green Valley data taken from the town of Graton. Russian River Valley data taken from Westside Road near Bucher Vineyards. Readings from non-Sonoma County viticultural areas are presented for representation purposes only. Data and methodology not verified by the author of this report.

These classifications were based loosely on a method for establishing Degree Day totals based on hours of temperatures between 70°F and 90°F. The model was used in the establishment of several Sonoma County American viticultural areas, including the

<sup>2</sup> Vossen, Paul, *Sonoma County Climatic Zones*, University of California Cooperative Extension Service, Sonoma County, 1986.

<sup>3</sup> Shabram, Patrick L., "Redefining Appellation Boundaries in the Russian River Valley, California," M.A. thesis, San Jose State University, 1998.

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Sonoma Coast AVA and the Russian River Valley AVA. The Sonoma Coast AVA was established on the identification of the Coastal Cool climate type:

The climate of the area is manifested by persistent fog and the classification “Coastal Cool,” under Robert L. Sisson’s microclimate classification system. The system defines a “Coastal Cool” area as an area having a cumulative duration of less than 1000 hours between 70° and 90° Fahrenheit, during the months of April through October.<sup>4</sup>

While the Sonoma Coast AVA was based on the Coast Cool climate type, the AVA includes much of the Coastal Cool and Marine climate types. Following is the description provided with Paul Vossens’ map for the Marine climate type:

MARINE: The marine zone is under direct ocean influence, lying west of the first mountain ridges of the coast below 1,000 ft. and extending inland through river canyons and the Petaluma gap to Sonoma Mountain. Degree Days per year average 2,185, but range from less than 1,800 to 2,800 depending on the year. This zone also has less than 800 hours between 70 and 90°F during the growing season (April 1 to Oct. 31). It is the coolest of the three local climatic zones.

Sisson’s understanding was that heat accumulations in the Marine climate type would be insufficient to allow for proper maturation in grapes.<sup>5</sup>

The West Sonoma Coast includes the western edge of the Coastal Cool climate type, but also much of the Marine climate type as represented on Vossen’s map. The communities of Annapolis, Seaview, Occidental, and Freestone are all positioned at or near the line between Coastal Cool and Marine. Viticulture is found to the west of these communities, especially west of Freestone and Occidental, thereby occurring within areas identified as the Marine climate type, and hence in areas once thought too cool for successful commercial viticulture.

The classification system established by Sisson offers an important early guidance model as viticulture was reintroduced to Sonoma County (established during Sisson work in Sonoma County from approximately the 1950s to 1980s), but the model is in need of an update. Successful viticulture exists in many of the areas originally classified as “Marine,” including sections of the West Sonoma Coast and much of the proposed Petaluma Gap AVA. Sisson noted as much in a 1997 telephone conversation with me, discussing viticulture in the highlands above Fort Ross and west of Occidental that run counter to the Vossen map. Sisson noted that the map was based more on observation of fog intrusion, rather than on hard data, suspecting that locations below this fog would lack appropriate insolation, hence insufficient photosynthesis. Sisson, however, did not take into account highland viticulture sitting above the fog or pockets of terrain protected from this intruding fog. The climatic zones established by Sisson, while loosely based on

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<sup>4</sup> T.D. ATF-253; Re: Notice No. 607, *Federal Register*, Vol. 52, No. 112, June 11, 1987: 22303.

<sup>5</sup> Shabram, Patrick L., “Redefining Appellation Boundaries in the Russian River Valley, California,” M.A. thesis, San Jose State University, 1998.

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Sisson's Degree Day calculations, were based more on observation of fog intrusion than on these calculations.<sup>6</sup> Sisson noted areas of heaviest and average fog intrusion that closely follow the Marine and Coastal Cool climate types, respectively (Appendix B). An additional 2007 conversation with Vossen supported Sisson's contention that the Sisson climatic zones were based more on skyward observation than data.<sup>7</sup> Vossen noted that approximately ten weather stations had been moved around the county in three year increments, but that this picture would undoubtedly be far from precise. Further Vossen noted that modern day equipment, data sets covering longer time periods, and further assessment would establish a much more accurate picture than the 1986 Vossen map. More importantly, improvements in viticultural practices allow for improved viticultural success. Even where Vossen's map was accurate and Sisson's model is correctly applied, viticulture is viable where it may not have been in 1986. Hence, not only has a more accurate picture of microclimates emerged in Sonoma County, but the definition of the Marine climate type is in need of modification.<sup>8</sup>

While the extent and definition of Coastal Cool and Marine climate types can be debated, that the Marine climate type is "the coolest of the three local climatic zones" is not open to debate. Likewise, that the West Sonoma Coast is cooler than much of the rest of the Sonoma Coast AVA is also evident. That distinction, at least in terms of diurnal temperatures, is clearly reflected in a review of climatic data from within the West Sonoma Coast and areas further to the east. Table 1 compares growing Degree Day calculations using two different methodologies for a station in Windsor operated by the California Irrigation Management Information System (CIMIS #103)<sup>9</sup> and a station near Occidental on the Handlery property.<sup>10</sup> The first methodology deploys the Winkler/Amerine heat summation method for calculation Degree Days (monthly average above 50°F multiplied by the number of days in the month during the growing season<sup>11</sup>), while the second methodology utilized Daily Degree day accumulations (sum of daily average temperatures based above 50°F during the growing season).

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<sup>6</sup> Lawson, Carol Ann, "Guidelines for Assessing the Viticultural Potential of Sonoma County: An Analysis of the Physical Environment," M.A. Thesis, University of California, Davis, 1976.

<sup>7</sup> It should be noted that Sisson observed unsuccessful attempts of viticulture in areas he came to classify as the Marine climate type, and with limited resources for experimentation, established his model based on those experiences.

<sup>8</sup> Research into climate change and local climatic patterns has been insufficient to assume that recent plantings in areas previously deemed as too cool for commercial wine grape production may be the result of a warming climate. A changing climate very well may partially explain the expansion of viticulture into areas previously deemed too cool for successful viticulture, but such suggestion would be speculative.

<sup>9</sup> Windsor CIMIS #103, 38.53°N, 122.83°W, 85 ft (25.9M).

<sup>10</sup> Willow Creek Road near Coleman Ranch Road.

<sup>11</sup> The original work of A.T. Winkler and M.A. Amerine simplified this method to 30 days per month

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Table 1 – Degree Day totals utilizing two different methodologies for calculation, from a station within the West Sonoma Coast and the adjacent Russian River Valley AVA.

Station	Winkler Method DD (°F)			Daily Accumulations DD (°F)		
	2011	2012	2013	2011	2012	2013
Windsor	1860	2271	2466	1918	2331	2513
Occidental	1761	2024	2070	1872	1991	2045

Degree Day totals, believed to be utilizing 15 minute accumulations above 50°F from a handful of vineyards throughout the West Sonoma Coast were provided by members of the West Sonoma Coast Vintners in anticipation of this report. Note this is a slightly different methodology for calculating Degree Days than utilized in Table 1 above. Unfortunately, many of these figures were not sequential and not necessarily from consistent years across stations. Further, I was unable to verify the methodology utilized. Many of these calculations, however, were generated from what appears to be the same commercial software, so accuracy of calculations between the readings can be reasonably assumed.

Table 2 – Growing Degree Days using 15 minute intervals.

Station	Area	2008	2009	2010	2011	2012	2013	2014
Red Car Kings Ridge	Fort Ross-Seaview	2354	n/a	n/a	n/a	n/a	n/a	n/a
KJ Seascape	Occidental	n/a	n/a	2088	n/a	n/a	n/a	n/a
Handlery	Occidental	n/a	n/a	1835	2035	2206	2197	2403
Platt Vineyards*	Freestone	2500	2205	1911	1995	1900	2200	2450

\*2008, 2012, 2013, and 2014 Numbers for Platt Vineyards are rounded to the nearest 50 DD.

Albeit limited in availability, where years of data are comparable consistency is noted. Only Handlery and Platt in 2012 show any notable difference. Given comparisons to the Handlery station noted in Table 2, all stations appear to have cooler climates in terms of Degree Days than present at Windsor CIMIS #103.

Because CIMIS data is made available in hourly increments, a direction comparison using identical Degree Day calculation methodologies is not possible for most of these stations without further research. The exception is the KJ Seascape station for which hourly raw data was provided for the 2010 growing season. Table 3 identifies 2010 Growing Degree Days using hourly accumulations for the Windsor and KJ Seascape locations.

Table 3 – Degree Days for KJ Seascape and Windsor CIMIS #103 using hourly accumulations.

Station	2010 Degree Days (°F)
KJ Seascape	1873
Windsor CIMIS #103	2171

Hence, in nearly every scenario, under different types of calculations, the weather stations assessed within the West Sonoma Coast exhibit cooler temperatures than the temperatures found in Windsor to the east in the Russian River Valley. It should be

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noted, however, that Windsor is not a complete representation of the entire Russian River Valley AVA. The Chalk Hill AVA, located entirely within the Russian River Valley AVA is known to have a warmer climate than the Coastal Cool reputation of the Russian River Valley would suggest. Windsor was chosen in this initial analysis because it offers a good representation of the Russian River Valley, but certain areas of the Russian River Valley are cooler than Windsor. The West Sonoma Coast Vintners, for example, provided data suggesting average 2005-2010 heat summations of 1656 at Falstaff Road in the Sebastopol Hills area of the Russian River Valley AVA, making this area of the Russian River Valley on par with the West Sonoma Coast in terms of Degree Days. It should be noted, however, that the Falstaff Road location is located at the western edge of the Russian River Valley AVA, approximately 1.3 miles east of Freestone and very close to the West Sonoma Coast AVA. In that regard, the Falstaff Road readings help confirm that temperatures west of the Green Valley of Russian River Valley AVA are cooler than temperatures to the east (Falstaff Road is west of the southern section of the Green Valley of the Russian River Valley AVA). Similarly, readings for the Santa Rosa CIMIS #83 station offer Degree Day calculations similar to, or even lower than, temperatures found in the West Sonoma Coast (Table 4). Although this station is labeled “Santa Rosa,” it is located within the Laguna de Santa Rosa, a low lying area east of Sebastopol not conducive to viticulture because of wetter conditions and poor drainage.

Table 4 – Degree Day totals utilizing two different methodologies for calculation, from a station within the West Sonoma Coast and the adjacent Russian River Valley.

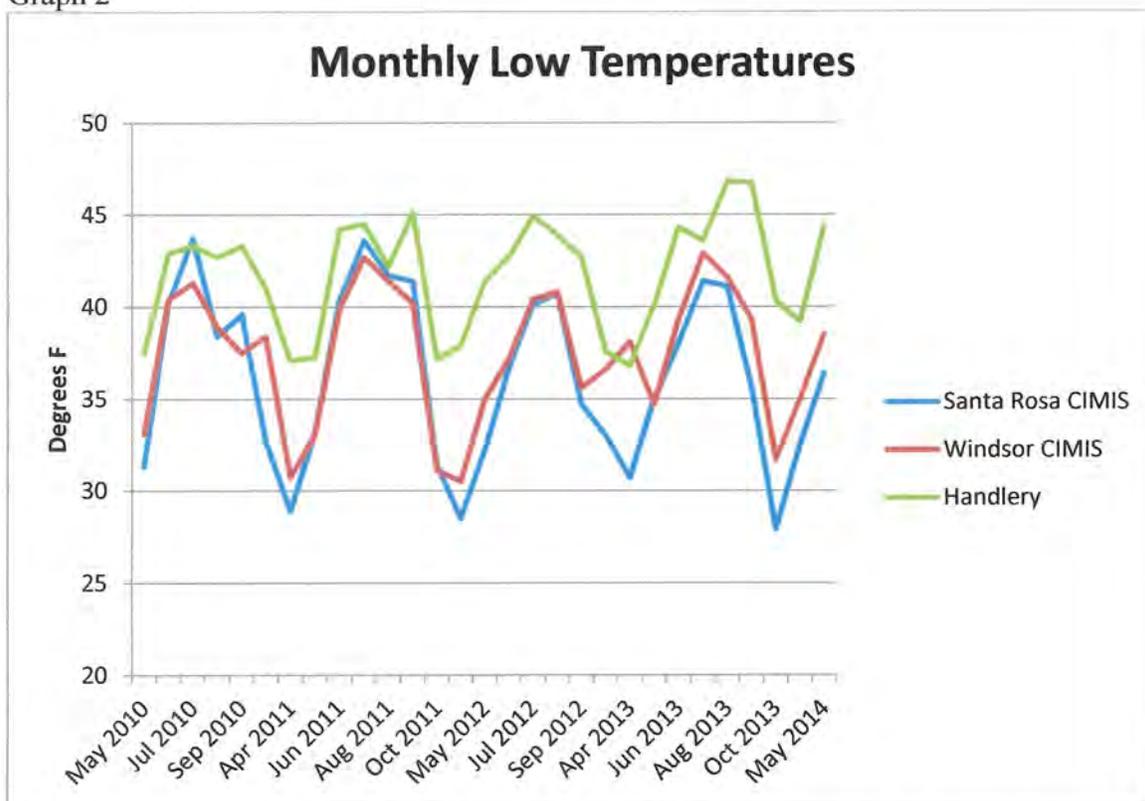
Station	Winkler Method DD (°F)			Daily Accumulations DD (°F)		
	2011	2012	2013	2011	2012	2013
Windsor	1860	2271	2466	1918	2331	2513
Occidental	1761	2024	2070	1872	1991	2045
Laguna	1588	1563	1961	1623	1596	1965

As noted above, the Santa Rosa CIMIS station is located east of Sebastopol in the Laguna de Santa Rosa, which acts as a bowl, collecting moisture and cooler nocturnal air draining into this low point. This down slope movement of cool air helps explain the cooler temperatures at the Santa Rosa CIMIS location. This point brings this report to an important distinction between the West Sonoma Coast and the rest of the Sonoma Coast AVA; nocturnal temperatures are generally warmer in the West Sonoma Coast viticultural areas than areas outside it, including the Russian River Valley AVA and the proposed Petaluma Gap AVA.

Graph 2 demonstrates the monthly low temperatures between May 2010 and May 2015<sup>12</sup> for the Handlery station within the West Sonoma Coast AVA, with the Santa Rosa and Windsor CIMIS stations east of the proposed AVA (and within the neighboring Russian River Valley). Temperatures within the Handlery station seldom reach points as low or lower than those found at the two Russian River Valley AVA stations.

<sup>12</sup> Data for Handlery was incomplete for April 2010 and unavailable after May 2014.

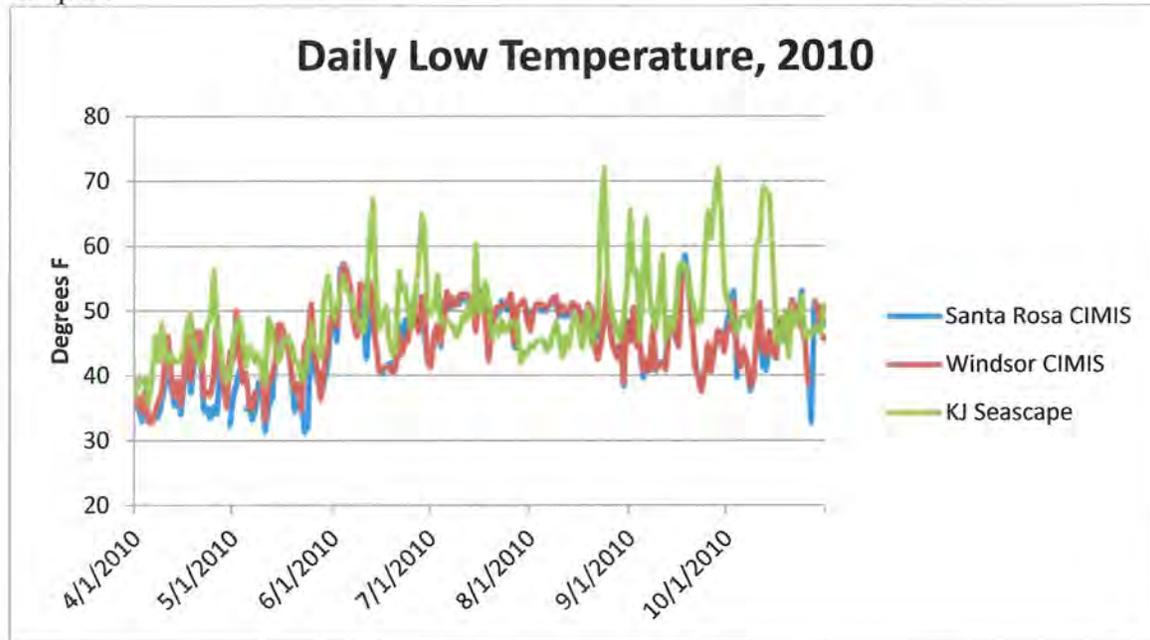
Graph 2



Graph 3 demonstrates 2010 low temperatures on a daily basis at the KJ Seascapes vineyards compared to the Santa Rosa and CIMIS stations. With the exception of much of August, this chart also demonstrates low temperatures at the Seascapes vineyard consistently higher than those found at the Russian River Valley stations. Warmer nocturnal temperatures were especially true late in the growing season as grapes ripen. These warmer nighttime temperatures play a role in the development of the fruit as it allows ripening to occur in cooler climates. This maturity in the grape also occurs during a time of day when sugars are not accumulating in the grape, affecting overall flavor.<sup>13</sup>

<sup>13</sup> Greenspan, Mark, "Climate and the Ripening Process," *Wine Business Monthly*, August 2007.

Graph 3



Warmer nighttime temperatures are found in the West Sonoma Coast for two primary reasons. First, the proximity to the Pacific Ocean will have a moderating effect. The ocean waters take longer to heat up and cool down, a result of both higher specific heat of water than rock and soil and a greater vertical diffusion of insolation. As such, the temperature of the ocean surface waters change very little on a day-to-day basis and very slowly seasonally. The same influence that creates cooler diurnal temperatures helps moderate night time temperatures, albeit to a lesser degree as pressure gradients caused by inland heating subside. Second, hillside and mountainside viticulture benefits from air drainage. As air cools and becomes denser, it sinks into low topography points, thereby making air at valley bottoms typically cooler than at higher elevations. Frost protection is nearly non-existent in West Sonoma Coast as temperatures very seldom fall to the point of causing damage to viticulture. The same cannot be said to the east where valley viticulture is more common, or even to the south into the Petaluma Gap where coastal influences are strong, but topography is not as pronounced.

The West Sonoma Coast also demonstrates climatic variations, but rather than a range of climatic variations within viable viticultural options, variations within the West Sonoma Coast distinguish areas of viticultural viability from climates currently considered too cool for commercial viticulture. Viticulture within the West Sonoma Coast represents those areas within the otherwise too cool region that insolation and temperatures are adequate to assure successful commercial viticulture, emphasizing the importance of topography and topographic barriers to this region. For example, a weather station at Sea Ranch,<sup>14</sup> has an average heat summation (using the monthly Winkler/Amerine

<sup>14</sup> Source: Weather Underground, Unit 18, The Sea Ranch, CA KCATHESE2, 38.71N, 123.45W, 80 ft., obvious errors are noted in 2011 and these data have not been considered. Approximately one week of data are incomplete for September 2012, but the effect on the overall calculations are likely minimal.

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methodology) of 1215°F from 2010 through the 2014 growing season (excluding 2011 because of incomplete data). Hence, Sea Ranch would likely be too cool for commercial vineyard in the West Sonoma Coast, emphasizing the cooler temperatures within the West Sonoma Coast and demonstrating that wine grape growing in the West Sonoma Coast is on the edge of adequate temperature summations for successful commercial farming.

While the proposed West Sonoma Coast AVA is home to temperatures at the lower end of viable *v. vinifera* production, north of the Russian River the inland transition to significantly warmer temperatures takes place quickly. While adequate data are not available to demonstrate this rapid transition to Coastal Warm, the above referenced Sonoma County Climatic Zones map notes the narrow stretch of land cooler than the warmer inland locations. Unlike the southern areas of the Sonoma Coast AVA that experience fog intrusion through the Russian River, the Petaluma wind gap, and San Pablo Bay, no significant gap allows fog to intrude past the first few ridgelines. Significant shift in vegetation is noted, both as a result of decreased moisture and increased evapotranspiration rates (Photos 2 and 3). Hence, in defining the West Sonoma Coast, care is given in limiting viticulture to these first few ridges where temperatures are moderated.

Photos 2 and 3 – Hillside vegetation transition along Stewarts Point-Skaggs Springs



These photos, taken approximately eight miles southeast of Annapolis looking northeast, show the relatively short transition from redwood forest to oak woodland.

Finally, the West Sonoma Coast experiences lower average wind speeds than are found in the Petaluma Gap to the south and on the Santa Rosa Plain to the east. This distinction is noted in my report on the Petaluma Gap and in the subsequent petition to the TTB to establish the Petaluma Gap AVA. While much of the Petaluma Gap petition focuses on wind speed duration and consistency during the afternoon hours when pressure gradients between coastal and inland areas are at their greatest, an even simpler analysis is readily identifiable for the West Sonoma Coast. Just comparing average wind speeds demonstrates lower wind speeds along the coast north of the Petaluma Gap and to the west of the Russian River Valley AVA. As higher wind speeds are thought to slow

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photosynthesis rates,<sup>15</sup> lower wind speeds further assist the maturity of grapes in this cooler climate and distinguish grapes produced in West Sonoma Coast from those produced in surrounding areas.

Table 5 – Avg. growing season wind speed within and outside the West Sonoma Coast

Station	Average Wind Speed (mph)			
	2013	2012	2011	2010
Valley Ford (BAAQMD) <sup>16</sup>	8.5	7.6	7.4	8.0
Windsor CIMIS #103	3.9	3.3	3.2	3.4
Santa Rosa CIMIS #83 (Laguna)	N/A	4.1	4.0	3.9
KJ Seascape	N/A	N/A	N/A	2.4
Handlery	1.5	1.6	1.4	1.6

*Climate summary* – In conclusion, collectively the climatic characteristics distinguish the West Sonoma Coast from surrounding viticultural areas. The West Sonoma Coast is cooler than most of the Green Valley of Russian River Valley AVA, Russian River Valley AVA and other sub appellations of the Sonoma Coast AVA. In addition, nocturnal temperatures are higher in the West Sonoma Coast than areas to the east and south. Finally, wind speeds are slower in the West Sonoma Coast than those found in the Petaluma Gap and the Santa Rosa Plain of the Russian River Valley AVA.

**Soils** – As is typical of coastal California, a diverse range of soil types is found throughout the West Sonoma Coast. Given the size of the viticultural area, offsets caused by faulting and varied accreted materials, the West Sonoma Coast is especially varied in soil series type. A look at soil associations of the STATSGO2 database, a generic geographic soil database produced by the Natural Resource Conservation Service (NRCS), does not offer much more distinction (Map 2). The Zeni-Yellowhead-Ornbaum-Kibesillah association is the most common to the viticulture producing areas, along with Wohly-Holohan-Casabonne and Tomales-Steinbeck-Los Osos. All three associations are found in adjacent areas outside the West Sonoma Coast.

In terms of the soil, West Sonoma Coast is better distinguished from other viticultural areas of the region in the absence of certain soil types. First is the absence of alluvium. Common to the Santa Rosa Plain (e.g., the Zamora-Wright-Huichica association on Map 2) and Petaluma River floodplain of the proposed Petaluma Gap AVA, alluvium represents a very small percent of the soils of the West Sonoma Coast and is not utilized for viticulture. Second is the absence of soils of igneous material. Igneous parent material is found in the eastern Russian River Valley AVA and at locations throughout the Sonoma Coast AVA, but all soils within the West Sonoma Coast are derived of sedimentary rock with small pockets of metamorphic parent material.

<sup>15</sup> Greenspan, Mark, “Row Direction—Which End is Up?,” *Wine Business Monthly*, July 2008.

<sup>16</sup> Weather station maintained by the Bay Area Air Quality Management District, 38.3084°N, 122.8974°W, 50 ft (15.2 m). The weather station is located south of Valley Ford just inside the Marin County line, hence just outside the Sonoma Coast AVA. The station is within the proposed Petaluma Gap AVA and is representative of wind speeds south of the West Sonoma Coast.

Map 2 – NRCS STATSGO2 Soil Associations of the West Sonoma Coast



Source: Jordan Thomas of Everyvine

### Overlapping/Nested AVAs

With a revision to its regulations in 2007, the TTB has taken steps to prevent overlapping AVAs in future new AVAs and AVA expansions. The justification for this adjustment to the AVA system is the basic dilemma of how two AVAs can be unique viticultural areas, and yet share common territory. The possibility exists for overlapping AVAs, but a strong justification must be made. AVAs may be seeded entirely within another AVA, but justification must be made as to why the sub-AVA is unique from other areas within the larger AVA, but still consistent with the larger AVA. Similarly, an AVA may be created that entirely encompasses another AVA, but again, adequate justification must be made for how the encompassed AVA is consistent with the larger area.

In the case of the West Sonoma Coast, three AVAs must be considered. The first two are the North Coast AVA and the Sonoma Coast AVA. The West Sonoma Coast is located

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entirely within both of these AVAs. The third is the Fort Ross-Seaview AVA, which is located entirely within the West Sonoma Coast. Following is a discussion of each.

**North Coast AVA** – The North Coast AVA was established in 1983 (TD ATF-145), based primarily on climate. The Treasury decision specifically addresses maritime influences including coastal fog and, in the case of Lake County, “coastal air.” The original petition to establish the North Coast AVA included the counties of Mendocino, Sonoma, and Napa, limiting North Coast to these counties based primarily on name recognition. During the public comment process, arguments were made for the inclusion of portions of Lake County, Solano County, and Marin County. Like the North Coast AVA, West Sonoma Coast is influenced by maritime air. Further, it is located in Sonoma County.

**Sonoma Coast AVA** – The Sonoma Coast AVA, created in 1987 (TD ATF-253), was based primarily on Robert Sisson’s Coastal Cool climate classification and the area coming under the greatest coastal influences. While the Treasury decision establishing the Sonoma Coast AVA specifically points to the Coastal Cool climate as opposed to the Coastal Warm climate type, the AVA as drawn includes areas defined by Sisson as Coastal Cool and areas defined as Marine climates. Further, the Treasury decision specifically correlates fog intrusion with the Sonoma Coast AVA.<sup>17</sup> Under all circumstances, the West Sonoma Coast comprises Coastal Cool and Marine climate types under Sisson’s model, and as such, justification exists for remaining part of the Sonoma Coast AVA.

**Fort Ross-Seaview AVA** – The Fort Ross-Seaview AVA was established in 2012 (TD TTB-98). The primary basis for the Fort Ross-Seaview AVA was elevation, combined with cool coastal influences. The mountainous terrain of the West Sonoma Coast is consistent with Fort Ross-Seaview, as is the cool coastal influences. During the initial public comment period, several growers argued that characteristics of Fort Ross-Seaview are consistent with those found in Annapolis and in the area around Freestone and Occidental. As such, maintaining characteristics consistent with the West Sonoma Coast exist within Fort Ross-Seaview, even as certain elements, specifically the names “Fort Ross” and “Seaview” and that nearly all vineyards are above 900 feet, distinguish this viticultural area from other areas of the West Sonoma Coast.

### Conclusion

The West Sonoma Coast, which like the Sonoma Coast AVA is cooled by intruding maritime air, is distinguished from other areas of the Sonoma Coast AVA. Specifically, the overall climate of the West Sonoma Coast is cooler even as night time temperatures are generally warmer than what is typical of the Sonoma Coast AVA to the east. Further, winds are not as persistent in the West Sonoma Coast viticultural districts as they are in the Petaluma Gap to the south or on the Santa Rosa Plain to the east. Finally, the absence

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<sup>17</sup> *Federal Register*, Vol. 52, No. 112, June 11, 1987, page 22303.

## Distinguishing Characteristics of the West Sonoma Coast

of alluvium and subtle differences in geology help distinguish the West Sonoma Coast viticultural area from surrounding areas.

Given the unique geographic characteristics of the West Sonoma Coast viticultural area, establishment of a viticultural area distinguishing it from the Sonoma Coast AVA is warranted. This AVA would help distinguish the West Sonoma Coast from the Russian River Valley AVA and the Petaluma Gap AVA. Further, it would unite viticultural districts along the coast that share more in common with each other than with the Sonoma Coast AVA as a whole.

### **Proposed Boundaries**

The following descriptions identify the recommended boundaries based on this study. Boundaries are primarily limited to mountainous coastal areas and are limited to the first few ridgelines along the coast. The northern section of the AVA boundary is even more constrained given the relatively rapid increase in temperature moving inland. To help delineate the extreme cool coastal climate, vegetation and existing vineyards planted to cool climate grapes have been considered.

#### *Description:*

- 1) From a starting point at the intersection of the Sonoma County/Mendocino County boundary and the northwest corner of section 29, T11N, R14 on the McGuire Ridge map, proceed along a straight line 0.4 mile south to an unnamed hilltop elevation 820 feet, section 29, T11N, R14W, then
- 2) Proceed along a straight line 1.4 miles southeast to the intersection of the section 32/section 33 T11, R14W western boundary and the 800 foot elevation line, then
- 3) Proceed along the 800 foot elevation line in an east-southeasterly direction 3.1 miles onto to the Stewarts Point map, to its intersection with the T11N/T10N boundary, then
- 4) Follow the T11N/T10N boundary east 0.8 mile to its intersection with the 600 foot elevation section 2, T10N, R14W/section 35 T11N, R14W, then
- 5) Proceed along the 600 foot elevation line 3.3 miles in a southeasterly direction onto the Annapolis map to its intersection with the southern boundary of section 1, T10N, R14W, then
- 6) Proceed east along the southern boundary of section 1, T10N, R14W 0.1 mile to its intersection with the 600 foot elevation line, then

## Distinguishing Characteristics of the West Sonoma Coast

- 7) Proceed along the meandering 600 foot elevation line in a general easterly direction 4.8 miles onto the Annapolis map to its intersection with the northern boundary of section 7, T10N, R13W, then
- 8) Proceed in a straight line southeast 0.2 mile to the intersection of Soda Springs Road and an unnamed unimproved road elevation 725 feet, section 8, T10N, R13W, then
- 9) Proceed in a straight line south 0.6 mile to the intersection of Soda Springs Road and the western boundary of section 8, T10N, R13W, then
- 10) Proceed in a straight line southeast 1.6 miles to the intersection of the eastern boundary of section 17, T10N, R13W and the 800 foot elevation line in the southeast corner of this section, then,
- 11) Proceed along the 800 foot elevation line in a southeasterly direction 2.6 miles to its intersection with an unimproved road near the 862 benchmark, section 21, T10N, R13W, then
- 12) Proceed 0.2 mile southeast to the intersection of the 600 foot elevation line and an intermittent stream, section 28, T10N, R13W, then
- 13) Proceed along the 600 foot elevation line in a southerly direction 1.7 miles to its intersection with the eastern boundary of section 33, T10N, R13W, then
- 14) Proceed in a straight line east-southeast to 0.5 mile to the Mendosoma Fire Station, section 34, T10N, R13W, then
- 15) Proceed along the unnamed, unimproved road at the Medosomoa Fire Station in a southeasterly direction 4.6 miles staying to the road that leads to and follows Skyline Ridge, section 1, T9N, R13W, to its intersection with the northern boundary of section 12, T9N, R13W, then
- 16) Proceed generally southeast along the unnamed, unimproved road on to the Tombs Creek map, approximately 1.3 miles to the second intersection of that road with the 1,200-foot elevation line, section 13, T9N, R13W; then

## Distinguishing Characteristics of the West Sonoma Coast

- 17) Proceed generally southeast along the 1,200-foot line approximately 0.6 mile to the intersection of that elevation line with Allen Creek, section 18, T9N, R12W; then
- 18) Proceed generally north along Allen Creek approximately 0.2 mile to the intersection of Allen Creek with the 920-foot elevation line, section 18, T9N, R12W; then
- 19) Proceed generally east and then southeast along the meandering 920-foot elevation line, on to the Fort Ross map, to the intersection of the elevation line with Jim Creek, section 21, T9N, R12W; then
- 20) Proceed generally southeast along Jim Creek approximately 0.7 mile to the northern boundary of section 27, T9N, R12W; then
- 21) Proceed east along the northern boundary of section 27, T9N, R12W to the northeast corner of section 27; then
- 22) Proceed south along the eastern boundaries of section 27 and 34, T9N, R12W, and continue south along the eastern boundary of sections 3, 10, 15, and 22, T8N, R12W, to Fort Ross Road; then
- 23) Proceed east along Fort Ross Road to the intersection of Fort Ross Road with the middle branch of Russian Gulch Creek, then
- 24) Proceed south along that creek for approximately 1.2 miles to the intersection of that creek and the 920 foot elevation line, section 26, T8N, R12W, then
- 25) Proceed in a straight line east-southeast onto the Cazadero map 2.0 miles to the summit of Pole Mountain, section 30, T8N, R11W; then
- 26) Proceed southeast onto the Duncan Mills map 4.7 miles to the confluence of Austin Creek and the Russian River, T7N, R11W; then
- 27) Follow the Russian River in a easterly direction 3.1 to the intersection of the Russian River and the Bohemian Highway, then
- 28) Proceed along the Bohemian Highway in a southeasterly direction 10.1 miles onto the Camp Meeker map and through the towns of Camp Meeker, Occidental, and

## Distinguishing Characteristics of the West Sonoma Coast

- Freestone, then onto the Valley Ford map to the intersection of the Bohemian Highway and Bodega Road, T6N, R10W; then
- 29) Follow Bodega Road 0.9 mile onto the Camp Meeker map to its intersection with Jovine Road to the north and an unnamed light duty road to the south at BM 486, T6N, R10W; then
  - 30) Follow an the unnamed light duty road (Barnett Valley Road) in a southerly then easterly direction 2.2 miles onto the Valley Ford map then onto the Two Rock map to the intersection of Bennett Valley Road and Burnside Road, section 17, T6N, R9W; then
  - 31) Follow Burnside Road in southeasterly direction 3.2 miles to its intersection with the 400 foot elevation line just north of oan unnamed light duty road (BM 376), Cañada de Pogolimi land grant, T5N, R9W, then
  - 32) Follow the 400 foot elevation line in a westerly direction 6.7 miles onto the Valley Ford map to its intersection with an unimproved road Cañada de Pogolimi land grant, T6N, R9W, then
  - 33) Follow this unimproved road north then southwest 0.9 mile to it terminus, Cañada de Pogolimi land grant, T6N, R9W, then
  - 34) Follow a straight line 0.1 mile northwest to the summit of an unnamed hilltop elevation 448 feet, Cañada de Pogolimi land grant, T6N, R10W, then
  - 35) Follow a straight line 0.6 mile to BM 61 on an unnamed light duty road (X Road) along Ebabias Creek, Cañada de Pogolimi land grant, T6N, R10W, then
  - 36) Follow a straight line 0.8 mile west-northwest to VABM 724 on an unnamed hilltop, Estero Americano land grant, T6N, R10W, then
  - 37) Follow a straight line 1.0 miles west to the intersection of Salmon Creek and an intermittent stream, Estero Americano land grant, T6N, R10W, then
  - 38) Follow Salmon Creek in a westerly direction 9.6 miles onto the Bodega Head map to it mouth at the Pacific Ocean; then
  - 39) Follow the Pacific Coast in a northwesterly direction approximately 51.4 miles onto the Duncan Mills map then Arched Rock map then Fort Ross map then

## Distinguishing Characteristics of the West Sonoma Coast

Plantation map then Gualala map to the Sonoma County/Mendocino County line;  
then

- 40) Follow the Sonoma Count/Mendocino County line southeast then in a northeasterly direction then east 5.6 miles onto the McGuire Ridge map to the starting point at the northwest corner of section 29, T11N, R14.

## Distinguishing Characteristics of the West Sonoma Coast

Map 3 – Proposed West Sonoma Coast AVA on USGS topo map



Source: Jordan Thomas of Everyvine

## Distinguishing Characteristics of the West Sonoma Coast

Map 4 – Proposed West Sonoma Coast AVA, aerial image



Source: Jordan Thomas of Everyvine

## Distinguishing Characteristics of the West Sonoma Coast

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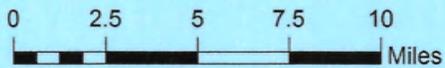
Winkler, A.J., *General Viticulture*. Berkeley: University of California Press, 1962



### Legend

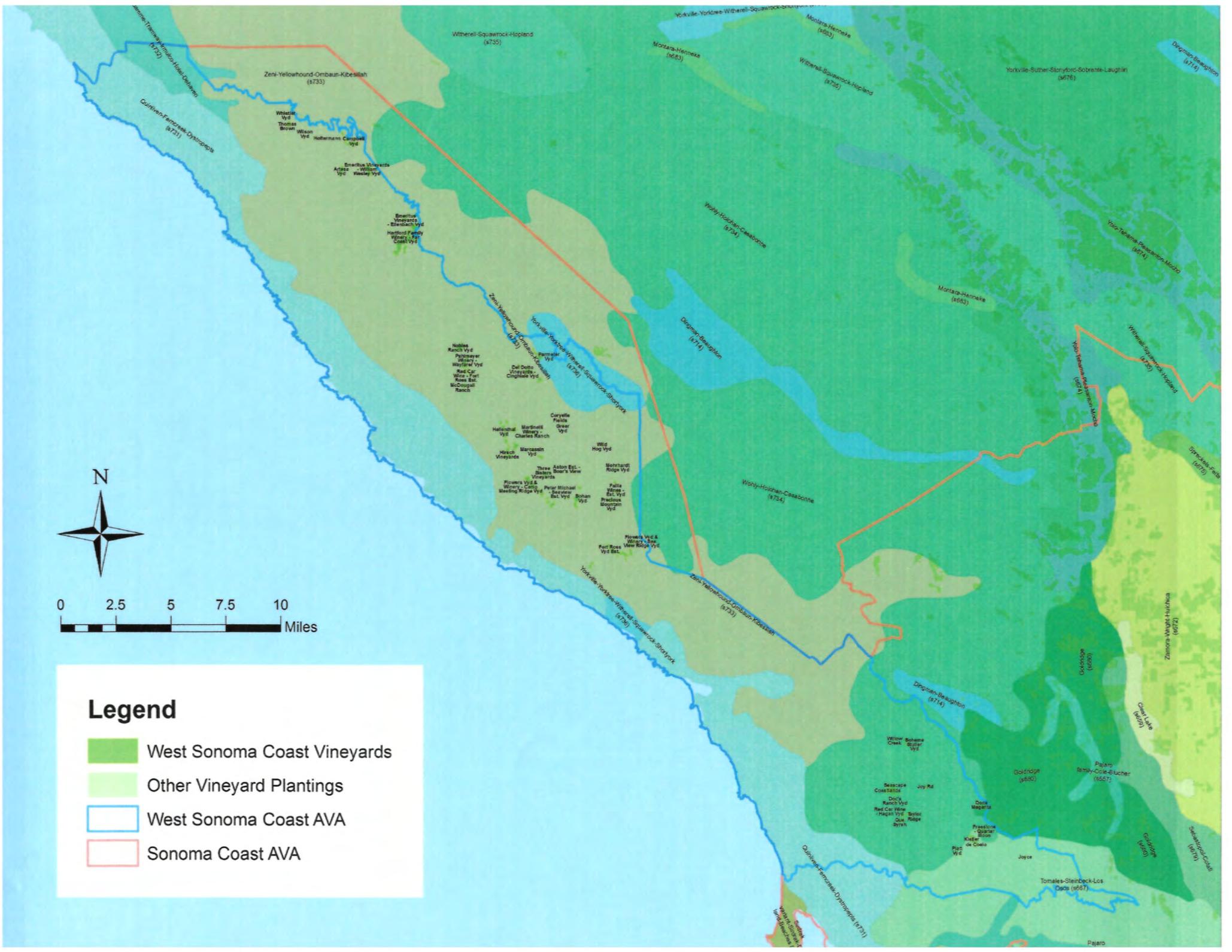
- West Sonoma Coast Vineyards
- Other Vineyard Plantings
- West Sonoma Coast AVA
- Sonoma Coast AVA

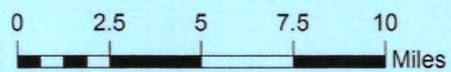




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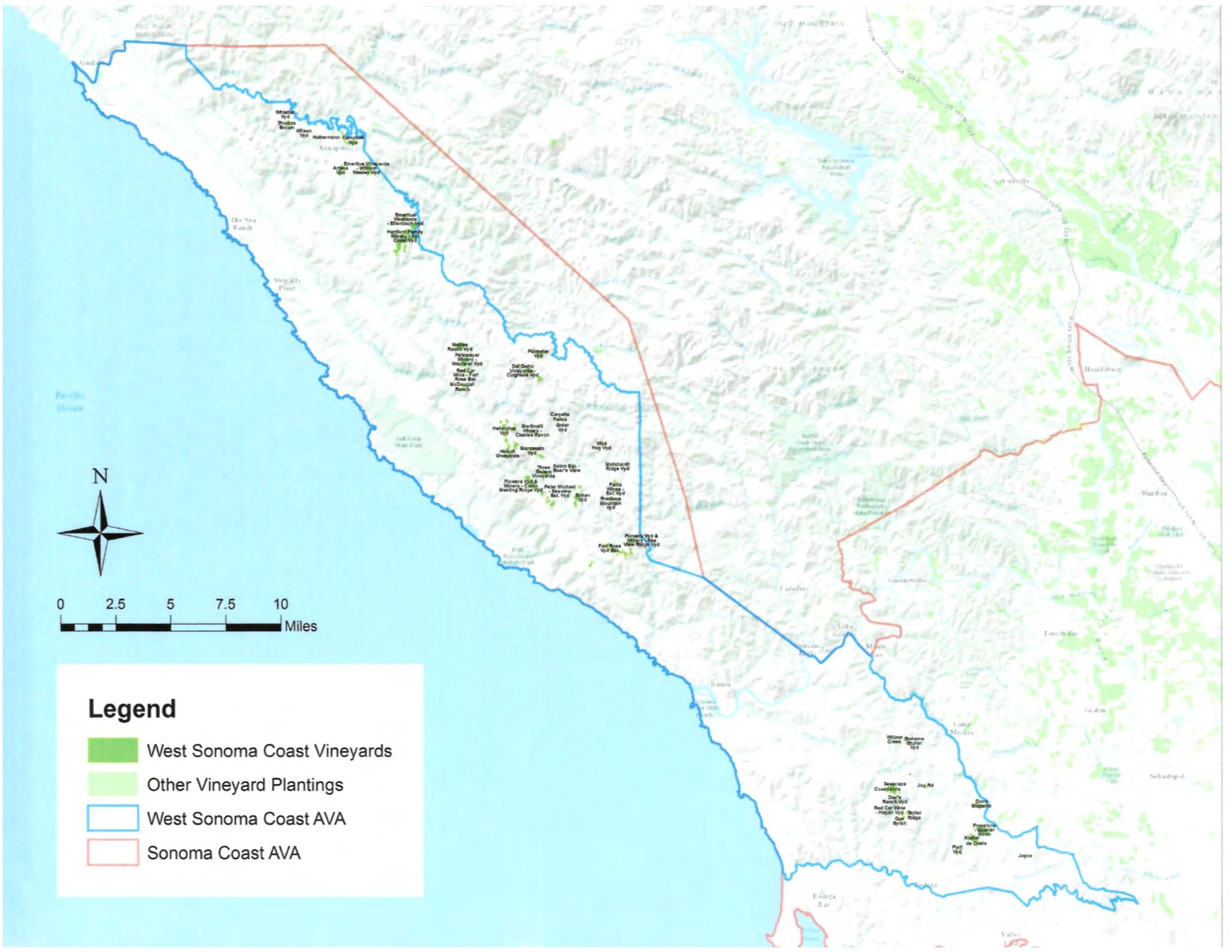
-  West Sonoma Coast Vineyards
-  Other Vineyard Plantings
-  West Sonoma Coast AVA
-  Sonoma Coast AVA





### Legend

-  West Sonoma Coast Vineyards
-  Other Vineyard Plantings
-  West Sonoma Coast AVA
-  Sonoma Coast AVA





### Legend

- West Sonoma Coast Vineyards
- Other Vineyard Plantings
- West Sonoma Coast AVA
- Sonoma Coast AVA

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32 Winds Wine  
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Baker Lane Vineyards  
Banshee Wines  
Ceritas Wines  
Claypool Cellars  
Crossbarn by Paul Hobbs  
DuMol  
Emeritus Vineyards  
Ernest Vineyards  
Evening Land Vineyards  
Failla Wines  
Flowers Vineyard & Winery  
Fort Ross Vineyard & Winery  
Freeman Vineyard & Winery  
Furthermore Pinot Noir  
Gregory James Wines  
Gros Ventre Cellars  
Hartford Family Winery  
Hirsch Vineyards  
Joseph Phelps Vineyards  
La Pitchoune  
LIOCO Wine Co.  
Littorai Wines  
Lynmar Estate  
MacPhail Family Wines  
Martinelli Winery  
Peay Vineyards  
Ramey Wine Cellars  
Red Car Wine Company  
Senses Wines  
Siduri  
Small Vines Wines  
Sojourn Cellars  
Soliste  
Wayfarer  
Zepaltas Wines

## SONOMA COUNTY CLIMATIC ZONES

The major climatic influence in Sonoma County is determined by the marine (ocean) airflow and the effects of geography in diverting that airflow. During an average summer there are many days when fog maintains a band of cold air all along the coastline and cold breezes blow a fog bank in through the Petaluma gap northward toward Santa Rosa, and northwestward toward Sebastopol. It also moves around Sonoma Mountain, not quite reaching Glen Ellen. This fog bank is accompanied by a rapid decrease in temperature which can be as much as 50 °F. The time of day when this occurs and the duration of the fog designates three distinct major climatic zones.

Several microclimates also exist especially near the borders of the 3 major zones. Microclimates can be designated by elevation, air drainage, proximity to mountain peaks, and sun exposure. Chilling hours (below 45°F) range from 700 to 1,850 hours and average 1,300 hours per year.

**MARINE:** The marine zone is under direct ocean influence, lying west of the first mountain ridges of the coast below 1,000 ft. and extending inland through river canyons and the Petaluma gap to Sonoma Mountain. Degree Days<sup>1</sup> per year average 2,185, but range from less than 1,800 to 2,800 depending on the year. This zone also has less than 800 hours between 70 and 90°F during the growing season (April 1 to Oct. 31). It is the coolest of the three local climatic zones.

**COASTAL COOL:** The coastal cool zone includes a narrow band of ridge tops along the coast above 800 to 1,000 ft., the areas east of the western hills of Sebastopol, areas bounded on the north by the Russian River, and the northern and southern portions of the Valley of the Moon. Cold foggy air is diverted by Sonoma Mountain and the Santa Rosa plain in the south; western and eastern mountains contain it, and hills and distance (time) reduces its northern migration. This climatic zone averages 2,582 degree days per year, but can range from 1,900 to 3,600 depending on the year. It has 800 to 1,100 hours between 70 and 90°F per year.

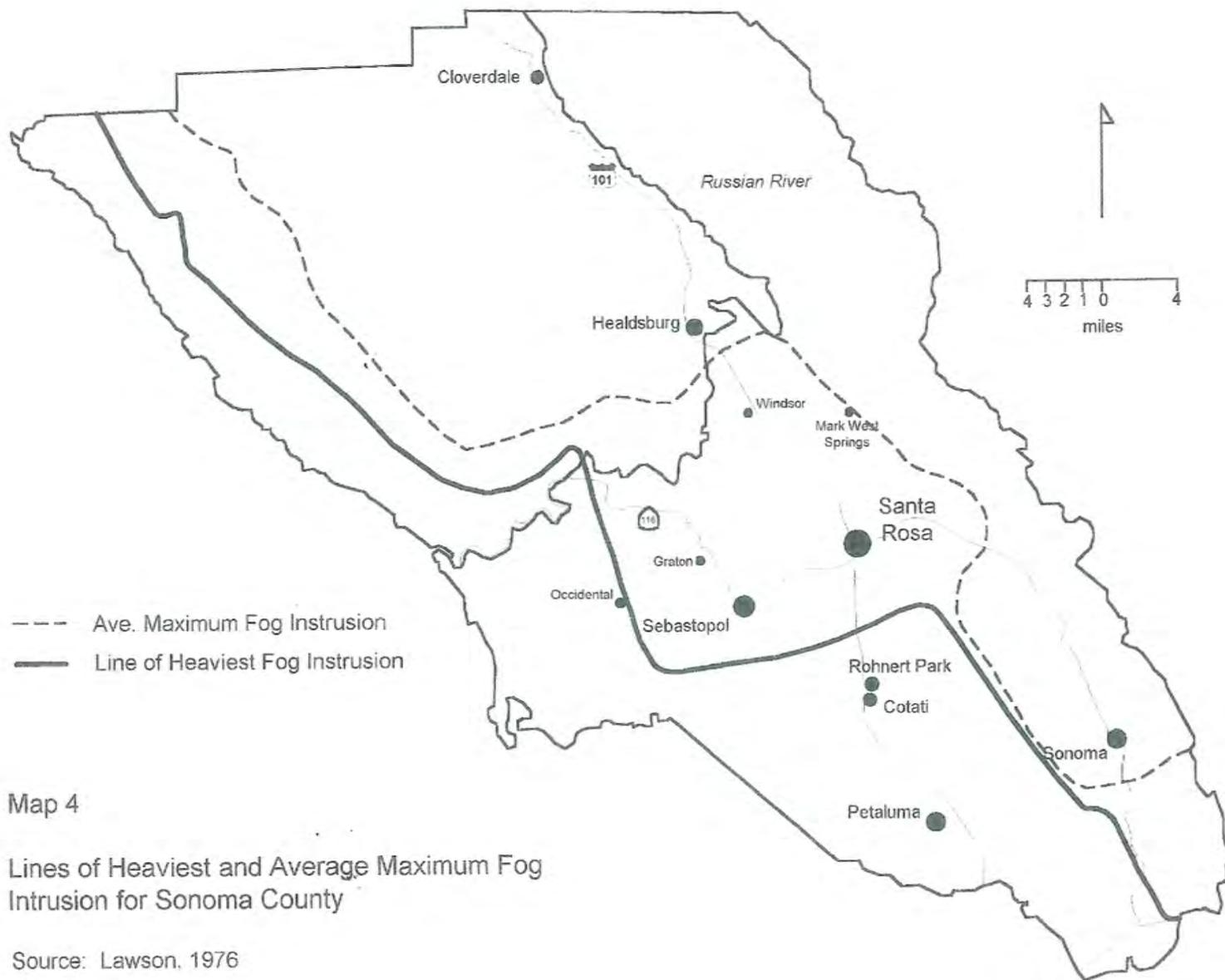
**COASTAL WARM:** The coastal warm zone is protected from the early fog bank by elevation, mountain ranges, and distance (time). It averages 2,920 degree days per year but ranges from 2,100 to 4,200 depending on the year. This zone has over 1,100 hours between 70 and 90°F and very little fog during the growing season. It is the warmest of three climatic zones.

<sup>1</sup> **Degree Days** are calculated by adding daily maximum and minimum temperatures and dividing by two to get the average daily temperature. A minimum threshold temperature of 50°F is subtracted from the daily average to get the degree-day figure for that day. Daily degree days are added up for the entire growing season, April 1 to October 31.

\* Climate data for this map was developed over a period of 30 years by R.L. Sission, retired Sonoma County Farm Advisor.

\*\* Current climatic data and map were developed by Paul Vossen, Sonoma County Horticulture Farm Advisor, University of California, 1986





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# THE WALL STREET JOURNAL.

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ON WINE: JAY MCINERNEY

## West Sonoma Coast Wines Are on the Rise

The weather is cool and the market is hot. The Pinot Noirs and Chardonnays of the West Sonoma Coast, as distinct from the inland "Sonoma Coast," put Jay McInerney in mind of good Burgundies.



HIGH POINT | Fog above Peay Vineyards PEAY VINEYARDS



By

Jay McInerney

Updated July 18, 2013 4:10 p.m. ET

The French have had a thousand or more years to map out and subdivide their grape-growing regions, to determine which grapes grow best in which spots—and even as they seem to slide into spiritual and economic malaise, they can at least be proud that no country makes finer wine. Viticulturally speaking, the map of California is still being drawn; trial and error, coupled with geological and meteorological data, is gradually helping to refine our sense of regionality, of *location, location, location* as a key determinant of wine character.

It's only in the last 20 years or so that the West Sonoma Coast has been recognized as a superb region for Burgundian varieties of Pinot and Chardonnay, with Hirsch Vineyards, which I wrote about in my last column, playing a pivotal role in that discovery. Wines from David Hirsch's vineyard made by Ted Lemon, Burt Williams and Steve Kistler inspired a new generation to explore the rugged, sparsely populated ridges along the coast.

### OENOFILE: STANDOUT WINES FROM THE WEST SONOMA COAST



Click to view the interactive F. MARTIN RAMIN/THE WALL STREET JOURNAL

When Nick and Andy Peay started scouting the West Sonoma Coast for likely-looking vineyard land in the mid-'90s, there wasn't much competition and land prices were low. "We'd tasted the Hirsch wines and we liked the florality and the acidity," Andy told me when I visited their remote vineyard a few miles from the coast last month. They both liked Burgundy and wanted to make wines like those, more restrained and less fruity than those from Carneros—at that time the hot area for Pinot and Chardonnay.

Wine was served at dinner when the brothers were growing up in Ohio, but Nick's interest was really piqued by his Bowdoin College roommate, Hugh Davies, whose family owned Schramsberg Vineyards in Napa. After graduation, Nick went west with Mr. Davies to work at the winery, which led to other winery jobs and graduate study in oenology at the University of California, Davis; younger brother Andy, after spending

two years in New York working for Chase Manhattan, studied at Berkeley and got increasingly passionate about wine under the influence of his older brother.



Andy, left, and Nick Peay with winemaker Vanessa Wong PEAY VINEYARDS

"We started scouting the Sonoma Coast in 1994 and 1995," Andy said. "We wanted to be pioneers. We got the U.S. Geological Survey maps and started driving around." They were looking if anything for even more extreme terrain than Mr. Hirsch's property, which was above the fogline. "We were looking for bracken fern and Spanish moss. Water is a big problem on these ridges, and if you have ferns, you have water, and if you have moss, you have fog."

Eventually, they found an old farm surrounded by redwoods about 4 miles from the Pacific that still feels, more than 15 years after they found it, like it's near the end of the earth.

Happily for the brothers, a caretaker living on the

property had kept detailed temperature records for years. "He handed me this spiral notebook," said Nick, "with detailed temperature readings." Nick—who is a true geek, and loves nothing better than to talk rootstocks and diurnal swings—clearly cherished this particular document. A bonus was the 1906 farmhouse on the highest point of the property, which they planted with Pinot Noir, Chardonnay and Syrah in 1998.

—ADVERTISEMENT—



Nick, who presides over viticulture (and whose appearance and wry sense of humor put me in mind of a young Michael Keaton), spends a good part of the year on the remote property. It's more than an hour west of Healdsburg, which their winery is near, and more than two hours west of St. Helena, where Nick's future wife, Vanessa Wong, was living when they began dating. She was working as a winemaker at Peter Michael, after studying at UC Davis and apprenticing in Bordeaux and Burgundy. Vanessa became the winemaker for Peay Vineyards in 2001. Andy, who seems the more gregarious and extroverted of the two brothers, handles sales and promotion for the winery from his home base in Berkeley.

The Peay wines soon developed a following—as did the wines made from Peay grapes by Williams Selyem and Failla Vineyards—and helped to burnish the reputation of the West Sonoma Coast as a source of distinctive, refined and aromatic wines, especially Pinots and Chardonnays. Peay has also gained a following for its Northern Rhône varietals, notably Syrah and Viognier. Flowers, Marcassin and Failla were among the other pioneers that demonstrated the potential of these remote coastal ridges, though it turns out the word "coast" can be very broadly construed.



Pomarium Pinot Noir PEAY VINEYARDS

In 1987, the Alcohol and Tobacco Tax and Trade Bureau had created a

Sonoma Coast AVA, or American Viticultural Area, that encompassed more than 500,000 acres of land and included vineyards more than an hour from the coast—an area so large and climactically heterogenous as to be almost meaningless.

Many informed observers have started speaking of the true Sonoma Coast, or a West Sonoma Coast. "Wines grown on the true coast possess an undeniable link to their maritime origins—a link wines growing further inland lack," said Matt Licklider, who makes excellent Pinots and Chardonnays under the Lioco label.

"That the appellation is so huge and covers areas with a 20-degree temperature variation and very different soils makes a farce out of the idea behind appellations," said Andy Peay. Recently, the area that includes Hirsch, Flowers and Marcassin and other great sites got its own AVA, Fort Ross-Seaview, and further subdivisions are inevitable, as in Burgundy.

A few years ago, Mr. Peay and some of his neighbors (Failla, Freeman, Littorai, Freestone and Red Car) formed the West Sonoma Coast Vintners, which now has 40 members. Even within this cool coastal area, there is diversity. Higher-elevation vineyards above the fogline produce richer wines, while Cobb and Rivers-Marie in suburban Occidental, a good hour and a half south of Annapolis, are producing brilliant, crisp Pinots in a slightly warmer microclimate than Peay's. Cobb Wines is a father-son venture founded in 2001 by David and Ross Cobb; son Ross also has a day job as winemaker at Hirsch Vineyards. Rivers-Marie is owned by superstar winemaker Thomas Rivers Brown (who makes Maybach, Schrader and numerous other wines) and his partner, Genevieve Marie Welsh, who recently acquired the Summa Vineyard in Occidental, from which Burt Williams and Ted Lemon of Littorai made legendary wines. Their own Summa Old Vines, made from 5 acres of gnarled vines planted in 1979 in Occidental, has quickly become a cult classic. The couple paid \$2.5 million for the vineyard, some 15 years after the Peay brothers acquired their own vineyard for about \$4,000 an acre—an indication of the vineyard's renown, but also a sign of just how hot the cool-weather West Sonoma Coast has become.

See wine videos and more from Off Duty at [youtube.com/wsj.com](https://www.youtube.com/wsj.com). Email Jay at [wine@wsj.com](mailto:wine@wsj.com).

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*Marimar Torres's dog, Brandy, is her constant companion at the winery.*

we walked a hill at the edge of the sleeping vines, picking our way around the muddiest spots. Marimar is a lovely, aristocratic woman, born to an old Spanish family, and no shrinking violet when it comes to asserting herself; but against the “tree huggers,” as she calls them, she found herself helpless.

Marimar wanted to show me her new drainage system and water purification pond, built at enormous cost in order to ensure that any runoff would end up in the right spot and be clean enough to drink. It was impermissible, she insisted, for anyone to accuse her of allowing even a drop of dirty water into the watershed—it was a matter of pride for Marimar herself. She also wanted to show how well-tended her vineyard was, how she had left old trees standing that she could have cut down, and how she had gone the extra mile to be respectful of the land. No ugly signs, no garish outbuildings; even her new horse barn looked as though it had been there for a hundred years.

All to no avail, however. The vandals struck again, and the officials once again were unable to do anything. For self-defense, Marimar had been forced to erect a chain-link fence around her property—something she hated to do, and which only enraged her antagonists all the more. She finally invited some locals to her house and cooked them a splendid paella. The attacks have since stopped.

I have friends who live in West County, and it is difficult for them to accept any planned use for the land at all. This point of view is certainly understandable in view of the pristine beauty of the environment. But most of the land is privately owned, and it is impossible to stop owners from developing their property if it is done in accordance with local ordinances. It also seems to me that a pretty little organic vineyard is far preferable to, say, a housing development or a tacky motel. Steve Domenichelli, who considers himself “both east and west,” praises **West Sonomans** for having “a

great mentality when it comes to the environment." But, he adds, "they can be extreme."

"We've got guys living out here who are completely off the grid," says Greg Adams, at Flowers. Here and there, in hidden clearings in the forest, marijuana plantations are zealously guarded by shotgun-wielding thugs, and unwary people who accidentally stumble on the pot farms risk being shot and even killed. During the growing season, everyone—hunters, mushroom gatherers, ordinary hikers—is on high alert (or should be) while prowling these woods.

The marijuana guards are not the only dangers. Bigfoot, or Sasquatch, is reportedly seen from time to time, lumbering his—or her—way through the forest. Everyone knows about the 1980 incident at Occidental, when two local teenage brothers, camping out overnight on some remote acreage their parents owned, had a terrible misadventure. Someone, or something, attacked their tent in the middle of the night, shaking it so violently, they later said, that they were terrified for their lives. The boys crouched in a corner of the tent, holding on to each other and wielding an axe to protect themselves should the intruder enter. Finally, when things quieted down, they cautiously made their way to their truck and drove home. The next morning, the entire family returned to the area, searching for clues, and supposedly found small redwood trees snapped in two at the seven-foot height. The mother was quoted as saying, "[The Sasquatches] have been here long before us and are probably just as curious of us as we are of them." A very West County libertarian attitude, indeed.

I remember a West Sonoman I met in the high hills above Fort Ross while I was driving the coastal byways. There had been a terrific winter storm; many trees were flattened, presumably by the wind, not Bigfoot. I was driving up the mountain on a one-lane dirt road (little more than a

fire trail) in my old Volkswagen; it was a bumpy ride. On one side of the trail, the mountain rose up like the wall of a skyscraper, only to disappear far above in a dark clot of redwood and fir; on the other side, it plunged down five hundred feet to a brush-choked ravine.

The road broke out onto a ridge, leveled off, and widened. Suddenly, I found the way blocked by a large tree limb that had toppled. An old pickup truck was pulled over in a clearing. A tall, skinny, bearded man, with hair well below his shoulders held by a red headband, was cutting the branch into pieces with a chain saw.

We chatted while he sawed. The man said he was on contract with the county to keep the roads clear. He had lived in the area since the 1960s but was planning to move on.

"Where?" I asked.

"Alaska."

"Why?"

He grunted. "Gettin' too crowded." The chain saw bit noisily into the wood, sending out a spray of dust.

Too crowded? We were in the middle of nowhere. I remembered something that Julie Martinelli, whose family owns 2,000 acres in the Fort Ross area, had said. "Out on those old country roads, you pass one car and you think, 'Oh, my God, there's too much traffic!'"

The man complained about an onslaught of newcomers, tourists, city folk (I blushed a little at this), and—worst of all, from his point of view—rich grape growers, who were flocking to the coast in order to plant their damned vineyards. His voice oozed annoyance and resentment.

"Every day now, you hear 'em overhead in their helicopters, vroom, vroom, lookin' for a spot to grow grapes. Not peaceful anymore. It's gettin'," he spat the words out, "like San Francisco!"

I took his point.

Elevations of WSCV Member Vineyards Inside and Outside the Fort Ross-Seaview AVA and within Boundaries of West Sonoma Coast AVA

(Based on membership at time of West Sonoma Coast AVA petition.)

This is not a complete list. Those vineyards with available elevation and/or accurate location information are included.

Vineyard	Elevation (feet asl)	Fort Ross-Seaview AVA
Alma Fria (Holterman Vineyard)	700-800	No
Alma Fria (Dona Margarita Vineyard)	500-625	No
Banshee Wines (Coastland Vineyards)	1200	No
Ceritas Wines (Hellenthal)	1100	Yes
DuMol (Joy Road Vineyard)	900-1000	No
Emeritus Vineyard	500-800	No
Failla Wines	1350-1450	Yes
Flowers Vineyard & Winery (Campmeeting Ridge)	1100-1300	Yes
Flowers Vineyard & Winery (Sea View Ridge Vineyard)	1500-1700	Yes
Fort Ross Vineyard & Winery	1400-1700	Yes
Freeman Vineyard & Winery (Yu-ki Estate)	700-850	No
Gros Ventre Cellars (Campbell Ranch Vineyard)	750	No
Gros Ventre Cellars (Undisclosed Vineyard)	1000+	Yes
Hartford Family Winery	600-700	No
Hirsch Vineyards	1100-1500	Yes
LIOCO Wine Company (Hirsch Vineyards)	1100-1500	Yes
Littorai Wines (B.A. Thieriot Vineyard)	900	No
Littorai Wines (The Haven)	1200	No
Littorai Wines (Platt Vineyard)	500	No
Martinelli Winery (Charles Ranch)	900-1000	Yes
Peay Vineyards	550-720	No
Ramey Wine Cellars (Platt Vineyards)	500	No
Senses Wines (B.A. Thieriot Vineyard)	900	No
Red Car Wine Company (Fort Ross Estate)	1050-1150	Yes
Red Car Wine (Hagen Vineyard)	800-950	No
Siduri (Hirsch Vineyards)	1100-1500	Yes
Wayfarer	1100	Yes

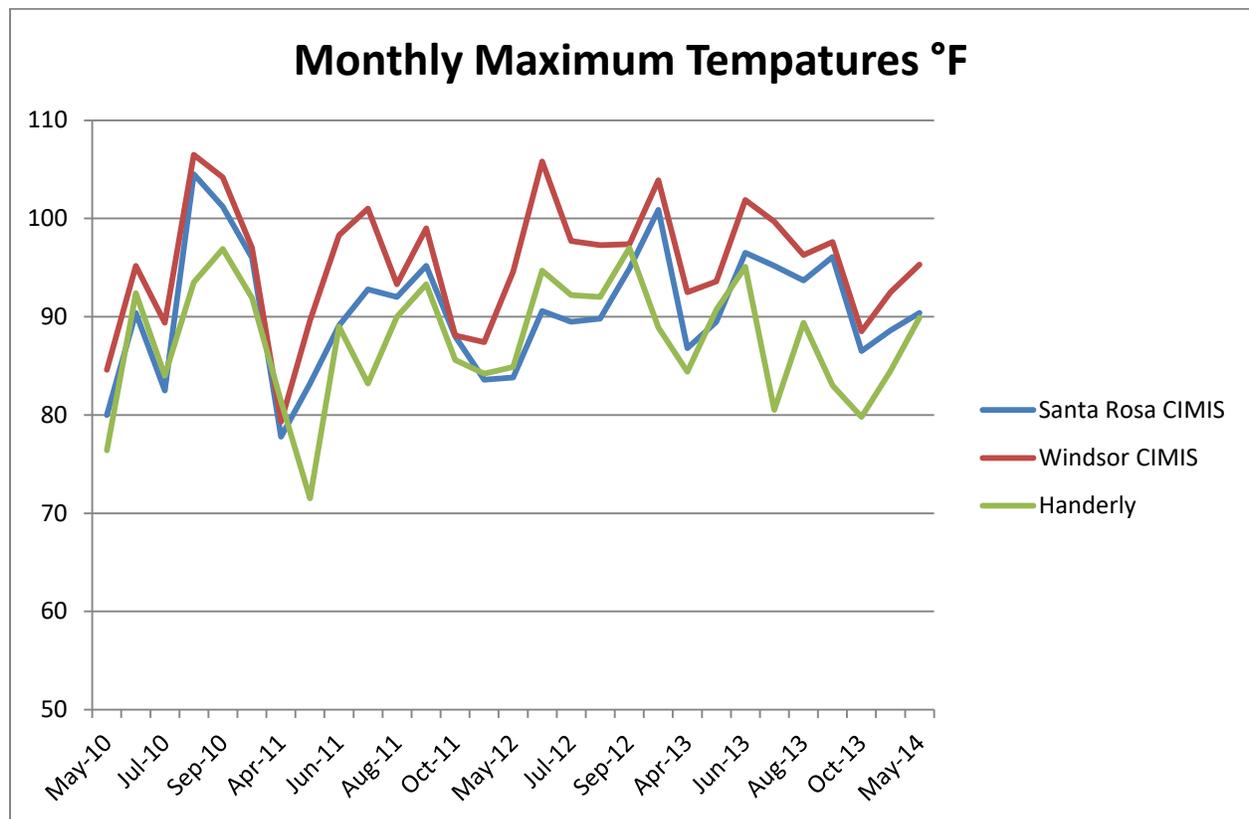
Sources: Everyvine.com, Google Earth, and websites of many of the wineries on this list.

## Addendum 1 to Petition to Establish the West Sonoma Coast AVA: Maximum Temperatures

In response to inquiry regarding Graph 2 and Graph 3 in the Petition to Establish the West Sonoma Coast AVA, additional analyses of maximum temperatures for the Santa Rosa CIMIS #83, Windsor CIMIS #103, Handlery, and KJ Seascape weather stations were conducted.

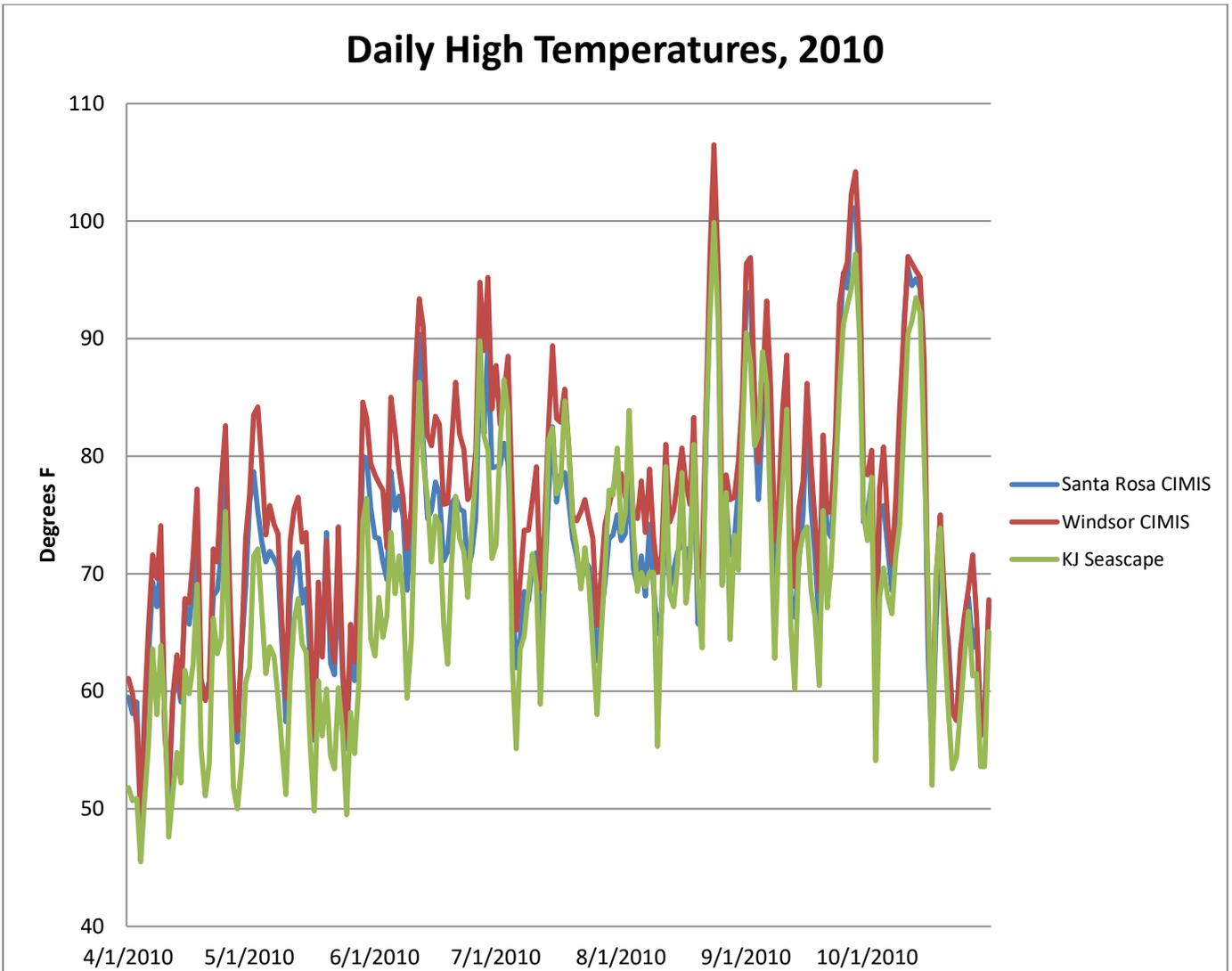
Addendum 1 Graph 1 shows that the maximum temperature by month, during the same time period as that covered by Graph 2 in the petition, at the Windsor and Santa Rosa CIMIS stations usually exceed those found at Handlery in the proposed West Sonoma Coast AVA.

Addendum 1 Graph 1



Addendum 1 Graph 2, covering the same time period as Graph 3 in the petition, also demonstrates that daily high temperatures at the Santa Rosa and Windsor CIMIS weather stations generally exceed daily high temperatures found at KJ Seascape found within the proposed West Sonoma Coast AVA.

Addendum 1 Graph 2



These graphs further support the establishment of the West Sonoma Coast AVA by demonstrating the even greater moderating effects Pacific air has on these West Sonoma Coast locations.

**From:** Patrick Shabram  
**To:** [Thornton, Karen](mailto:Karen.Thornton@ttb.gov)  
**Subject:** [EXTERNAL]RE: Quick West Sonoma Coast question  
**Date:** Tuesday, July 19, 2016 3:17:22 PM

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Hi Karen,

Sorry if I wasn't clearer in that. West Sonoma Coast shares a common boundary with Petaluma Gap (southern boundary of West Sonoma Coast and northern boundary of Petaluma Gap). It was mutually agreed to by the two parties as to what would be the best distinction point between the two. They should align, although I had to write them in reverse of each other, so I hope I did not make any errors in that regards.

Patrick

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**From:** Thornton, Karen [mailto:Karen.Thornton@ttb.gov]  
**Sent:** Tuesday, July 19, 2016 12:08 PM  
**To:** Patrick Shabram (patrick@shabram.com)  
**Subject:** Quick West Sonoma Coast question

Hi, Patrick,

I put a receipt letter for West Sonoma Coast in the mail today. I've started giving the petition a quick glance, and I have one question for you. Where does Petaluma Gap fit in to the picture? Does the proposed West Sonoma Coast's southern boundary align with the proposed Petaluma Gap's northern boundary? Or is the Petaluma Gap just a smidge farther south? I don't think you're proposing a partial overlap with Petaluma Gap, are you?

*Karen A. Thornton*  
AVA Program Manager  
TTB Regulations and Rulings Division  
202-453-2175

**From:** Patrick Shabram  
**To:** [Thornton, Karen](#)  
**Subject:** [EXTERNAL]West Sonoma Coast - Additional requested materials  
**Date:** Tuesday, June 12, 2018 12:04:12 PM  
**Attachments:** [Exhibit G Supplement - Elevations of WSCV Member Vineyards.pdf](#)  
[West Sonoma Coast Wines Are on the Rise - WSJ.pdf](#)  
[Heimoff Reference - West Sonoman.pdf](#)

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Hello Karen,

Attached are requested materials in support of the petition to establish the West Sonoma Coast AVA.

-Elevations of many of the West Sonoma Coast vineyards, both inside and outside the Fort Ross-Seaview AVA, owned or utilized by members of the West Sonoma Coast Vintners

-Digital version of the *Wall Street Journal* article "West Sonoma Coast Wines are on the Rise."

-Pages from the Steve Heimoff book, *A Wine Journey along the Russian River*, taken from Chapter 9 "Into the Fog, and Above It." Usage of the terms "West Sonomans" and "West Sonoman" are highlighted.

Please let me know if you require anything else.

Thank you,  
Patrick

Patrick L. Shabram  
925-354-2677  
[www.shabram.com](http://www.shabram.com)

**From:** Patrick Shabram  
**To:** [Thornton, Karen](#)  
**Subject:** [EXTERNAL]FW: West Sonoma Coast boundary  
**Date:** Monday, January 16, 2017 2:09:59 PM

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Hi Karen,

I just received confirmation from Carroll Kemp that Skyline Road intersects Skaggs Springs Road west of Annapolis Road:

“Yes. It intersects Skaggs Springs Road just west of the point where Annapolis Road intersects Skaggs Springs Road. It is a tiny, unmaintained dirt road that looks more like a private road than public one.”

Let me know if you need me to adjust the description in to identify that the referenced road becomes (or merges with) Skyline Road.

Thanks,  
Patrick

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**From:** Patrick Shabram [mailto:patrick@shabram.com]  
**Sent:** Sunday, January 15, 2017 5:58 PM  
**To:** Karen Thornton (karen.thornton@ttb.gov)  
**Subject:** West Sonoma Coast boundary

Hi Karen,

Thank you for the opportunity to review the boundaries you provided for West Sonoma Coast. For the most part, the edits looks good to me. I had a couple of comments:

On point 8, you say “southeast” twice (“Proceed southeast in a straight line southeast for 0.2 mile...”).

On point 14, Skaggs Springs Road is correct (I also see references to “Stewarts Point-Skaggs Spring Road), but I can’t confirm that this is Skyline Road at the referenced intersection. My interpretation of Google Earth and Google Maps is that Skyline Road continues west and intersects Skaggs Springs Road west of its intersection with Annapolis Road. I might suggest we use the name Skaggs Spring Road here, but continue to identify this second road as an unnamed road. Note, if this road is not called Skyline Road at this intersection, it eventually does merge into Skyline Road.

On point 21, I calculate 0.5 mile.

On point 22, I calculate 5.1 miles.

On point 23, tough to say on the distance. My measurement on the map is 190 feet, but when I look at Google Earth (and this was a long time ago, but I also think I remember this from field observation when doing Fort Ross-Seaview), the main gulch is slightly west of the Section 22 border, not east. Going by the actual gully that likely constitutes the blue line on the USGS map, I come up with 310

feet on Google Earth. So I would be good with your measurement of 262 feet, or in keeping with the identifiable blue line on the USGS map, 190 feet.

Everything else looks good. I would be happy to talk with you some more about these if you like.

Thank you again,  
Patrick

**PATRICK**  
**SHABRAM**  
Geographic Consulting

4329 Suncreek Dr, Loveland, CO 80538  
(925) 354-2677 [www.shabram.com](http://www.shabram.com)

**From:** Patrick Shabram  
**To:** [Thornton, Karen](#)  
**Subject:** [EXTERNAL]West Sonoma Coast Max Temps  
**Date:** Monday, October 17, 2016 8:29:50 PM  
**Attachments:** [Addendum 1 Maximum Temp.pdf](#)

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Hi Karen,

I hope you are doing well. If you remember, a few weeks ago you asked me about maximum temperatures at the weather stations analyzed for the West Sonoma Coast AVA petition. Attached are graphs showing the max temperatures. Please let me know if you have any questions.

Thank you,  
Patrick

**PATRICK**  
**SHABRAM**  
Geographic Consulting

4329 Suncreek Dr, Loveland, CO 80538  
(925) 354-2677      [www.shabram.com](http://www.shabram.com)

## West Sonoma Coast AVA Boundary

### ORIGINAL (IN PETITION)

1. From a starting point at the intersection of the Sonoma County/Mendocino County boundary and the northwest corner of section 29, T11N, R14 on the McGuire Ridge map, proceed along a straight line 0.4 mile south to an unnamed hilltop elevation 820 feet, section 29, T11N, R14W, then
2. Proceed along a straight line 1.4 miles southeast to the intersection of the section 32/section 33 T11, R14W western boundary and the 800 foot elevation line, then
3. Proceed along the 800 foot elevation line in an east-southeasterly direction 3.1 miles onto the Stewarts Point map, to its intersection with the T11N/T10N boundary, then
4. Follow the T11N/T10N boundary east 0.8 mile to its intersection with the 600 foot elevation section 2, T10N, R14W/section 35 T11N, R14 W, then
5. Proceed along the 600 foot elevation line 3.3 miles in a southeasterly direction onto the Annapolis map to its intersection with the southern boundary of section 1, T10N, R14W, then
6. Proceed east along the southern boundary of section 1, T10N, R14W 0.1 mile to its intersection with the 600 foot elevation line, then
7. Proceed along the meandering 600 foot elevation line first north then in a general easterly direction 4,8 miles to its sixth intersection with the northern boundary of section 7, T10N, R13W, then
8. Proceed in a straight line southeast 0.2 mile to the intersection of Soda Springs Road and an unnamed unimproved road elevation 725 feet, section 8, T10N, R13W, then
9. Proceed in a straight line south 0.6 mile to the intersection of Soda Springs Road and the western boundary of section 8, T10N, R13W, then
10. Proceed in a straight line southeast 1.6 miles to the intersection of the eastern boundary of section 17, T10 N, R13W and the 800 foot elevation line in the southeast corner of this section, then

11. Proceed along the 800 foot elevation line in a southeasterly direction 2.6 miles to its intersection with an unimproved road near the 862 benchmark, section 21, T10N, R13W, then
12. Proceed in a straight line 0.2 mile southeast to the intersection of the 600 foot elevation line and an intermittent stream, section 28, T10N, R13W, then
13. Proceed along the 600 foot elevation line in a southerly direction 1.7 miles to its intersection with the eastern boundary of section 33, T10N, R13W, then
14. Proceed in a straight line east-southeast 0.5 mile to the Mendosoma Fire Station, section 34, T10N, R13W, then
15. Proceed along the unnamed, unimproved road at the Mendosoma Fire Station in a southeasterly direction 4.6 miles staying to the road that leads to and follows Skyline Ridge, section 1, T9N, R13W, to its intersection with the northern boundary of section 12, T9N, R13W, then
16. Proceed generally southeast along the unnamed, unimproved road onto the Tombs Creek map, Annapolis map, then back onto the Tombs Creek map, approximately 1.3 miles to the second intersection of that road with the 1,200-foot elevation line in section 13, T9N, R13W, then
17. Proceed generally southeast along the 1,200-foot line approximately 0.6 mile to the intersection of that elevation line with Allen Creek, section 18, T9N, R12W, then
18. Proceed generally north along Allen Creek approximately 0.2 mile to the intersection of Allen Creek with the 920-foot elevation line, section 18, T9N, R12W, then
19. Proceed generally east and then southeast along the meandering 920-foot elevation line, onto the Fort Ross map, Tombs Creek map, then back onto the Fort Ross map to the intersection of the line with Jim Creek, section 21, T9N, R12W, then
20. Proceed generally southeast along Jim Creek approximately 0.7 mile to the northern boundary of section 27, T9N, R12W, then
21. Proceed east along the northern boundary of section 27, T9N, R12W to the northeast corner of section 27, then

22. Proceed south along the eastern boundaries of section 27 and 34, T9N, R12W, and continue south along the eastern boundary of sections 3, 10, 15, and 22, T8N, R12W, to Fort Ross Road, then
23. Proceed east along Fort Ross Road to the intersection of Fort Ross Road with the middle branch of Russian Gulch Creek, then
24. Proceed south along that creek for approximately 1.2 miles to the intersection of that creek and the 920 foot elevation line, section 26, T8N, R12W, then
25. Proceed in a straight line east southeast onto the Cazadero map 2.0 miles to the summit of Pole Mountain, section 30, T8N, R11W, then
26. Proceed southeast onto the Duncan Mills map 4.7 miles to the confluence of Austin Creek and the Russian River, T7N, T11W, then
27. Follow the Russian River in an easterly direction 3.1 miles to the intersection of the Russian River and the Bohemian Highway, then
28. Proceed along the Bohemian Highway in a southeasterly direction 10.1 miles onto the Camp Meeker map and through the towns of Camp Meeker and Occidental, then onto the Valley Ford map and through the town of Freestone to the intersection of the Bohemian Highway and Bodega Road, T6N, R10W (BM 214, identified as Bodega Road on Camp Meeker map), then
29. Follow Bodega Road 0.9 mile onto the Camp Meeker map to its intersection with Jovine Road to the north and an unnamed secondary highway at BM 486, T6N, R10W, then
30. Follow an unnamed light duty road (Barnett Valley Road) in a southerly then easterly direction 2.2 miles onto the Valley Ford map then onto the Two Rock map to the intersection of Bennett Valley Road and Burnside Road, section 17, T6N, R9W, then
31. Follow Burnside Road in a southeasterly direction 3.2 miles to its intersection with the 400 foot elevation line just north of an unnamed light duty road (B< 376), Canada de Pogolimi land grant, T5N, R9W, then
32. Follow the 400 foot elevation line in a westerly direction 6.7 miles onto the Valley Ford map to its intersection with an unimproved road, Canada de Pogolimi land grant, T6N, R9W, then

33. Follow this unimproved road north then southwest 0.9 mile to its terminus, Canada de Pogolimi land grant, T6N, R9W, then
34. Follow a straight line 0.1 mile northwest to the summit of an unnamed hilltop elevation 448, Canada de Pogolimi land grant, T6N, R10W, then
35. Follow a straight line northwest 0.6 mile to BM 61 on an unnamed secondary highway (Freestone Valley Ford Road) along Ebabias Creek, Canada de Pogolimi land grant, T6N, R10W, then
36. Follow a straight line 0.8 mile west-northwest to VABM 724 on an unnamed hilltop, Estero Americano land grant, T6N, R10W, then
37. Follow a straight line 1.0 miles west to the intersection of Salmon Creek and an intermittent stream, Estero Americano land grant, T6N, R10W, then
38. Follow Salmon Creek in a westerly direction 9.6 miles onto the Bodega Head map to its mouth at the Pacific Ocean, then
39. Follow the Pacific Coast in a northwesterly direction approximately 51.4 miles onto the Duncan Mills map then Arched Rock map then Fort Ross map then Plantation map then Stewarts Point map then Gualala map to the Sonoma County/Mendocino County line, then
40. Follow the Sonoma County/Mendocino County line southeast then in a northeasterly direction then east 5.6 miles onto the McGuore Ridge map to the starting point at the northwest corner of section 29, T11N, R14W.

**REVISED (confirmed with petitioner 1/17/17)**

1. The beginning point is on the McGuire Ridge map the intersection of the Sonoma County/Mendocino County boundary and the northwest corner of section 29, T11N/R14W. From the beginning point, proceed southeast in a straight line for 0.4 mile to an unnamed hilltop with a marked elevation of 820 feet in section 29, T11N/R14W; then
2. Proceed southeast in a straight line for 1.4 miles to the intersection of the eastern boundary of section 32 and the 800-foot elevation contour, T11/R14W; then
3. Proceed southeast along the 800-foot elevation contour for 3.1 miles, crossing onto the Stewarts Point map, to its intersection with the northern boundary of section 3, T10N/R14W; then

4. Proceed east along the northern boundary of section 3 and then along the northern boundary of section 2 for a total of 0.8 mile to the intersection of the northern boundary of section 2 and the 600-foot elevation contour, T10N, R14W; then
5. Proceed generally southeast along the 600-foot elevation contour for 3.3 miles, crossing onto the Annapolis map, to its intersection with the northern boundary of section 12, T10N/R14W; then
6. Proceed east along the northern boundary of section 12, T10N/R14W, for 0.1 mile to its intersection with the 600-foot elevation contour; then
7. Proceed north then generally east along the meandering 600-foot elevation contour for 4.8 miles to its sixth intersection with the northern boundary of section 7, T10N/R13W; then
8. Proceed southeast in a straight line for 0.2 mile to the intersection of an unnamed light-duty road known locally as Kelly Road and an unnamed, unimproved road with a marked elevation of 725 feet, known locally as Oak Hill LO Road, in section 8, T10N/R13W; then
9. Proceed south in a straight line for 0.6 mile to the intersection of Soda Springs Road and the eastern boundary of section 7, T10N/R13W; then
10. Proceed in a straight line southeast for 1.6 miles to the intersection of the eastern boundary of section 17, T10N/R13W, and the 800-foot elevation contour; then
11. Proceed southeast along the 800-foot elevation contour for 2.6 miles to its intersection with an unnamed, unimproved road near the 862-foot benchmark in section 21, T10N/R13W; then
12. Proceed southeast in a straight line for 0.2 mile to the intersection of the 600-foot elevation contour and an intermittent stream in section 28, T10N/R13W; then
13. Proceed south along the 600-foot elevation contour for 1.7 miles to its intersection with the eastern boundary of section 33, T10N/R13W; then
14. Proceed southeast in a straight line for 0.5 mile to the intersection of an unnamed light-duty road known locally as Skaggs Springs Road and an unnamed, unimproved road known locally as Skyline Road, near the Mendosoma Fire Station in section 34, T10N/R13W; then

15. Proceed southeast along the unnamed, unimproved road (Skyline Road) for total of 5.9 miles as it follows Skyline Ridge and crosses onto the Tombs Creek map, back onto the Annapolis map, then back on to the Tombs Creek map, to the intersection of the road with the 1,200-foot elevation contour in section 13, T9N/R13W; then
16. Proceed southeast along the 1,200-foot elevation contour for 0.6 mile to the intersection with Allen Creek in section 18, T9N/R12W; then
17. Proceed north along Allen Creek for 0.2 mile to the intersection with the 920-foot elevation contour in section 18, T9N/R12W; then
18. Proceed east and then southeast along the meandering 920-foot elevation contour, crossing onto the Fort Ross map, then onto the Tombs Creek map, and then back onto the Fort Ross map, to the intersection of the elevation contour with Jim Creek in section 21, T9N/R12W; then
19. Proceed southeast along Jim Creek for 0.7 mile to the intersection of the creek with the northern boundary of section 27, T9N, R12W, then
20. Proceed east along the northern boundary of section 27 for 0.5 mile to the northeast corner of section 27; then
21. Proceed south along the eastern boundaries of sections 27, 34, 3, 10, 15, and 22 for 5.1 miles to the intersection of the eastern boundary of section 22 and Fort Ross Road, T8N/R12W; then
22. Proceed east along Fort Ross Road for approximately 262 feet to the intersection of the road with the middle branch of Russian Gulch Creek in section 23, T8N/R12W; then
23. Proceed south along the middle branch of Russian Gulch Creek for 1.2 miles to the intersection with the 920-foot elevation contour in section 26, T8N/R12W; then
24. Proceed southeast in a straight line east for 2 miles, crossing onto the Cazadero map, to the summit of Pole Mountain in section 30, T8N/R11W; then
25. Proceed southeast in a straight line for 4.7 miles, crossing onto the Duncan Mills map, to the confluence of Austin Creek and the Russian River, T7N/R11W; then

26. Proceed generally east (upstream) along the Russian River for 3.1 miles to the intersection of the Russian River and the Bohemian Highway in section 7, T7N/R10W; then
27. Proceed southeast along the Bohemian Highway for a total of 10.1 miles, crossing onto the Camp Meeker map and through the towns of Camp Meeker and Occidental, then crossing onto the Valley Ford map and through the town of Freestone, to the intersection of the Bohemian Highway and an unnamed medium-duty road known locally as Bodega Road near benchmark (BM) 214 in section 12, T6N/R10W; then
28. Proceed northeast along Bodega Road for 0.9 mile, crossing onto the Camp Meeker map, to the intersection of the road with an unnamed light-duty road known locally as Barnett Valley Road north of the marked 486-foot elevation point in the Cañada de Jonive land grant, T6N/R10W; then
29. Proceed south then east along Barnett Valley Road for 2.2 miles, crossing onto the Valley Ford map and then onto the Two Rock map, to the intersection of Bennett Valley Road with Burnside Road in section 17, T6N/R9W; then
30. Proceed southeast along Burnside Road for 3.2 miles to its intersection with the 400-foot elevation contour just north of an unnamed light duty road known locally as Bloomfield Road in the Cañada de Pogolimi land grant, T5N/ R9W; then
31. Proceed west along the 400-foot elevation contour for 6.7 miles, crossing onto the Valley Ford map, to the intersection of the elevation contour with an unimproved road, Canada de Pogolimi land grant, T6N/R9W; then
32. Proceed northwest then southwest along the unnamed, unimproved road for 0.9 mile to its terminus, Canada de Pogolimi land grant, T6N/R9W; then
33. Proceed northwest in a straight line for 0.1 mile to the marked 448-foot summit of an unnamed hilltop, Canada de Pogolimi land grant, T6N/R10W; then
34. Proceed northwest in a straight line for 0.6 mile to the 61-foot benchmark along an unnamed secondary highway known locally as Freestone Valley Ford Road, Canada de Pogolimi land grant, T6N/R10W; then
35. Proceed west-northwest in a straight line for 0.8 mile to VABM 724 in the Estero Americano land grant, T6N/R10W; then
36. Proceed west in a straight line for 1.0 miles to the intersection of Salmon Creek and an intermittent stream, Estero Americano land grant, T6N/R10W; then

37. Proceed west (downstream) along Salmon Creek for 9.6 miles, crossing onto the Bodega Head map, to the mouth of the creek at the Pacific Ocean; then
38. Proceed north along the Pacific coastline for 51.4 miles, crossing over the Duncan Mills, Arched Rock, Fort Ross, Plantation, and Stewarts Point maps and onto the Gualala map to the intersection of the coastline with the Sonoma County/Mendocino County line; then
39. Proceed east along the Sonoma County/Mendocino County line for 5.6 miles, crossing onto the McGuire Ridge map, and returning to the beginning point.