Bureau of Alcohol, Tobacco & Firearms
Federal Building
1200 Pennsylvania Avenue
Washington, D.C. 20226

ATTN: Mr. John Linthicum
FAA Wine and Beer Branch

Re: Amended Petition to Establish
Sonoma Coast Viticultural Area
(formerly "Coastal Sonoma")

Gentlemen:

In accordance with 27 CFR 4.25(e)(1), the B.A.T.F. is hereby petitioned to establish the grape growing region known as the "Sonoma Coast" as an American Viticultural Area under Part 9 of 27 CFR. The establishment of the Sonoma Coast as a viticultural area and its subsequent use as an appellation of origin on wine labels and in wine advertisements will allow wineries to better designate where their wines come from and will enable consumers to better identify the wines from this area.

Every part of our agriculturally blessed County of Sonoma benefits from the cooling influence of the nearby Pacific Ocean. Indeed, each of the previously approved viticultural areas in the County was established on the basis of coastal influence as one of its distinguishing geographical features. In spite of this general similarity among its various grapegrowing areas, however, Sonoma County is outstanding in its viticultural diversity, offering a variety of exposures, elevations, soils, and microclimates.

The County's diversity of climate is well-known. Differences in climate within Sonoma County have been accepted in several instances as a basis to distinguish between adjacent areas. For example, the climate of the Russian River Valley Viticultural Area was contrasted with the warmer climate of the Alexander and Dry Creek Valleys. Sonoma County Green Valley Viticultural Area drew its eastern boundary based on climate. A section of the watershed of the Russian River was included in the Sonoma Valley Viticultural Area instead of the Russian River Valley Viticultural Area because of that section's more sheltered climate. Los Carneros was divided from the rest of Sonoma Valley based on extensive testimony describing dramatic gradations of coastal influence.

This climatic variability does not imply that any part of Sonoma County is without coastal influence. In fact, the maritime effect is its cause. On infrequent summer days when unusual atmospheric conditions keep the fog and ocean air off the coast, the County's climate is remarkably uniform and much warmer than usual. When the intrusion is normal, however, its cooling effect is far from uniform. Mountains

and hills interrupt the free circulation of cool, moist marine air and allow it to flow inland only through low passes and major breaks. As it moves along its permitted paths or "streamlines", the ocean air is modified by surface friction and changes in elevation and direction. Gradually its oceanic character diminishes. As a result of these factors, noticeable differences in marine effect can be observed within the County.

The proposed Sonoma Coast Viticultural Area is a distinctive grape growing region in Sonoma County. Extending from the shores of the Pacific, this area experiences a distinctly stronger marine effect than the more interior parts of Sonoma County because of the factors mentioned above. A relatively large area, it overlaps the Russian River Valley, Chalk Hill, Sonoma Valley, Los Carneros, and Northern Sonoma Viticultural Areas, and includes the Sonoma County Green Valley Viticultural Area.

There are some differences from place to place within the proposed viticultural area. These include various microclimates, unique local histories, specific geographical and hydrological features, etc. The existence of these differences has already been acknowledged in the establishment of the separate viticultural areas mentioned above. Now the establishment of a single Sonoma Coast Viticultural Area will recognize the underlying unity that exists within it, due to the region's special combination of location and topography that consistently expose this section of Sonoma County to a significantly stronger marine intrusion than the surrounding area.

The Sonoma Coast Viticultural Area covers approximately 750 square miles, of which 11,452 acres (approximately one-third of Sonoma County's total winegrape acreage) are currently devoted to grape growing. Approximately one-half of this acreage is planted to the two varieties most associated with cool growing conditions: Chardonnay and Pinot noir. There are 35 bonded wineries within the area.

THE NAME

The name Sonoma Coast (often used interchangeably with "Sonoma County coastal region" or "zone" or "Coastal Sonoma") refers to a distinctive area of Sonoma County that extends inland some distance from the sea's edge. Like other familiar areas (for instance, Los Carneros and Alexander Valley prior to their legal definition as viticultural areas) the Sonoma Coast is a designation that is locally and nationally used without consensus as to precise boundaries. The northern and western boundaries obviously coincide with the northern and western boundaries of the County. On the other hand, the southern and eastern boundaries remain vague, since in everyday usage they tend to vary with the context in which the area is being discussed. The approximate boundaries of the area known as the Sonoma Coast and its unifying geographical features will be discussed in detail in later sections of this petition.

The Sonoma Coast has a unique reputation in the history of North Coast viticulture. Sonoma Coast vineyards predated the more famous early vines of Sonoma Valley planted in 1823. As early as 1812 Russian colonists established vineyards at Fort Ross and in protected areas in Coleman Valley (west of Freestone). The Coleman Valley vines reportedly thrived and bore good grapes for many years. The vines overlooking the sea at Fort Ross provided cuttings for Cyrus Alexander's vineyard in the inland valley that now bears his name. By the 1840's, other vineyards were flourishing in the Sonoma Coast region at Petaluma and north of Bodega.

In spite of many well-documented pre-Prohibition vineyards and wineries throughout the coast region (e.g., see Exhibit A), much of the proposed viticultural area was for many years considered by authorities to be too cold for successful commercial vineyards because of its strongly marine climate. This conclusion was undoubtedly influenced by the varieties of grapes that were popular in the 19th century. Another factor was winemakers' preference for the warmer zones' riper reds, whose sweeter juice could be diluted to produce larger volumes--and higher incomes. Local wine historian and former Italian Swiss Colony winemaker Joe Vercelli reports that for this reason a large premium was paid for grapes grown north of the bridge over the Russian River at Healdsburg, in the warmer inland climate.

Agoston Haraszthy, who settled in the sheltered Sonoma Valley after frustrating viticultural failures in foggy San Mateo and San Francisco, was also extremely influential in disfavoring the coast. "The Father of California Viticulture" wrote from his Sonoma home in 1861, "The California climate with the exception of the sea-coast, especially where the prevailing western winds drive the fogs over the locality, is eminently adapted for the culture of grape vines."

A Heritage Lost, Returns:

Viticulture in Petaluma

Story and Photos
by Barry C. Lawrence

Curiously, when one thinks of the Sonoma County Wine Country, Healdsburg or Sonoma Valley usually come to mind. Forgotten is the fact that the second largest winery in California was once located in downtown Petaluma. It was the Lachman-Jacobi Winery, which fled San Francisco after the '06 earthquake and relocated to 325 E. Washington Street between Main Street (now called Petaluma Blvd. North) and Bridge Street (now called Lakeville). Their buildings covered ten acres with a wine storage capacity of 500,000 gallons. Petaluma was the perfect spot because it had no earthquake faults and offered river commerce direct to San Francisco, an important marketing consideration during those times.

Southern Sonoma County wine history, which includes Stony Point and Lakeville areas, Penngrove and Petaluma, goes back beyond even 1880 when the official State of California Viticultural Map, printed in the 1881 report of the Viticultural Commission of the State of California, clearly shows Petaluma near the center of the "Sonoma-Napa extension of vineyards." Sonoma Commissioner Isaac DeTurk, whose area included Marin, Mendocino, Lake, Humboldt, Trinity, Siskiyou and Del Norte Counties reports:

"From the southern to the northern extremity of the county the grape flourishes and good sound, saleable wine has been produced. A very interesting and successful experiment of William Bihler of lower Petaluma Valley, below Donahue Landing, has conclusively proven that the vine flourishes on the level with tide-water as well as upon the red volcanic soil of the interior up-lands. In view of Mr. Bihler's success, it may be justly claimed that the grape district of Sonoma County extends from the shore of the bay of San Pablo to Cloverdale..."

In the 1860's the winery which William Bihler built was sold to the legendary figure, U.S. Senator James Fair, for whom San Francisco's plush Fairmont Hotel was named. The winery was later known as the Belle R Brand Winery, a combination of the owners' names, Rudy and Isabelle Niemela. Today, three walls of the winery still stand and can be seen from Lakeville Highway or by boat on the Petaluma River. A lovely residence complete with swimming pool is located inside the walls of the building.

The 1889 California State Agriculture report shows the Petaluma area had over 764 acres of planted vines, by 38 growers, 3,151 tons of picked fruit and three wineries which later grew to six! William Bihler, the largest of the vine growers, had 170 acres and one of the larger wineries in the Lakeville area.

"Penn's Grove" (today known as Penngrove) boasted 66 acres of vines and 6 growers. One winemaker there, John Formschlag, produced six tons of Mission grapes at his winery that year.

Petaluma, the largest area, listed 256 acres of grapes. John Jordan and J. R. Jewell, the largest of 8 viticulturists, each had 80 acres of vines. The Jewell Winery located near the Marin County line, between Chileno Valley and Spring Hill Roads, produced 200 tons of "Zinfandel Burgandy."

The Stony Point area, near the Washoe House, grew 65 acres of vines and produced 1,633 tons of fruit, by 5 farmers. Although not listed in the 1889 report, the Grass Bros. Winery of Petaluma (actually Stony Point) was soon built and a 1920 newspaper clipping states that the Peter Grass estate is "one of the most valuable in the County and contains vast vineyards. The Winery is one of the largest and best equipped in this part of the County."

Petaluma historian Ed Manion has a copy of a receipt written in 1898 from the Peter Grass Stony Point Vineyards to the American Hotel, which shows sixteen gallons of claret sold for $4.80, "payment received."

In an interview with Petaluma resident Al Marcucci, he states that "during the late 1880's my uncles planted twenty-five acres of Zinfandel and three to four acres of Alicante Bouschet" (on the ranch in the Lakeville area). Mr. Marcucci recalls that harvest normally ran 80 to 90 tons from their vineyard. The harvest occurred in mid-October of each year and the grapes ran 26 percent sugar. Their wine ran some 16 percent alcohol.

After the repeal of Prohibition, they became Bonded Winery #575. Mr. Marcucci remembered that on at least one occasion they had to "cut" their wine because the government found the alcohol content too high. Prior to the removal of the vineyard in 1971 the Marcuccis sold their grapes to San Francisco Italian families and sometimes to Samuele Sebastiani.

The Foster Ranch, which lies adjacent to the Marcucci Ranch in the Lakeville area of Petaluma, had 300 acres of Zinfandel which produced some 900 tons of grapes each year. This vineyard was removed at the inception of Prohibition in 1933.

So it was...Prohibition killed the wine industry in the Petaluma area, to be replaced by the poultry and dairy industries. The wine industry soon became a forgotten entity — out of sight, out of mind — but destined to be fruitful once again.

Pre-Prohibition vineyards at Denman Ranch, Petaluma

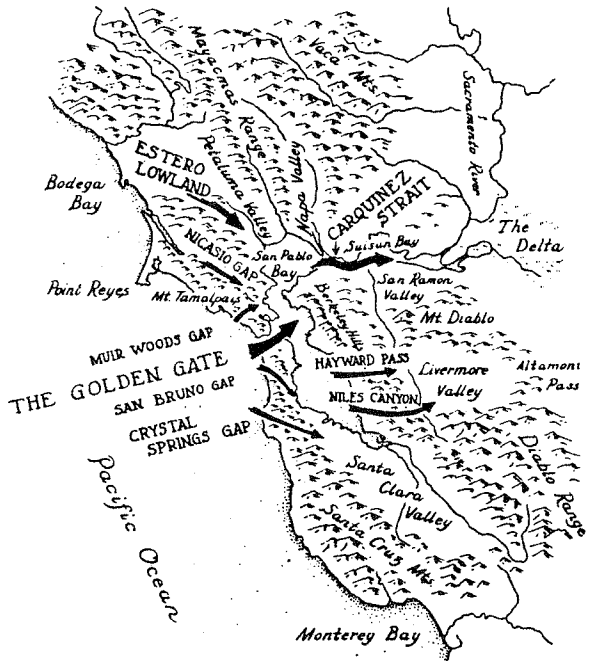
Today the Petaluma area boasts three new wineries. The first to be located in Petaluma in modern times was the award-winning La Crema Vinera, in 1979.

Springhill Vineyards, owned by Larry Braren, was granted a use permit for a winery in 1983 and will be releasing the first Petaluma-grown and -bottled wine in many years.

Eagle Ridge Winery of Penngrove, the newest, is located on the historical Denman Ranch, Sonoma County Historical District #133 and the only one of the three slated to have a tasting room open to the public.

The author is a wine instructor at Santa Rosa Junior College who teaches winemaking classes and the history of Sonoma, Napa, Mendocino, Lake, and Marin wines. He is a licensed flight instructor and General Partner of Eagle Ridge Winery in Penngrove.

FIGURE I



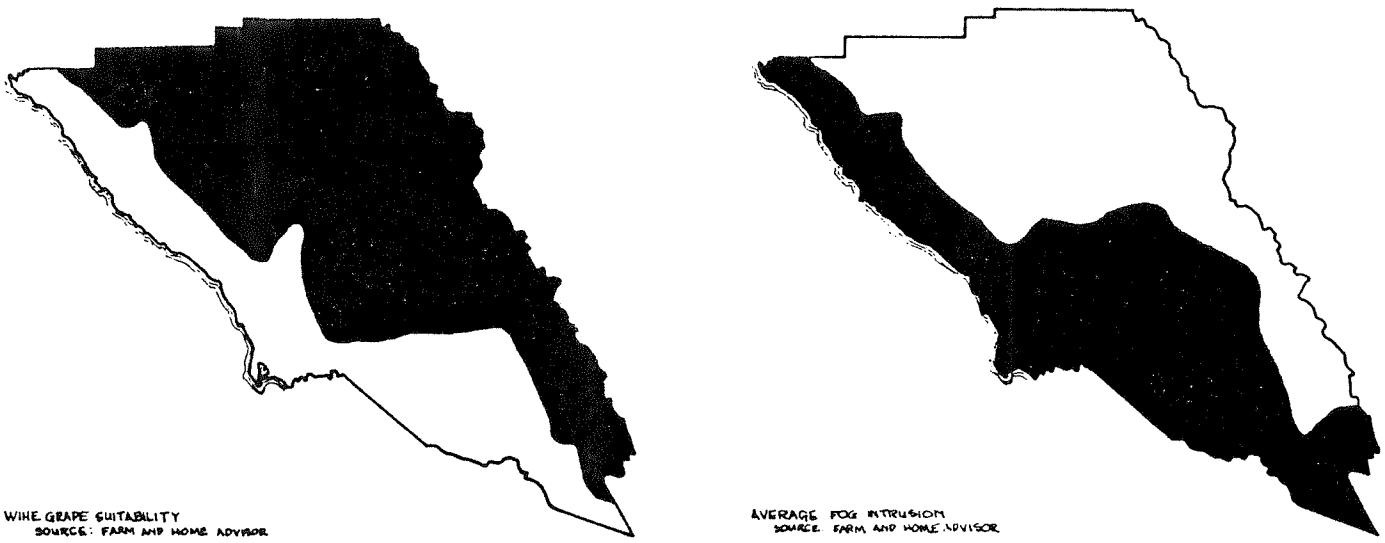
FOG GAPS AND BARRIERS

Of the seven Coast Range gaps in the San Francisco Bay Area, the San Bruno Gap on the Peninsula, the well-known Golden Gate, and the Estero Gap near Petaluma exert by far the most profound effect upon the Bay Area climate. Both the Golden Gate and the Estero Gap directly influence the weather in the Sonoma Coast region.

Source: Weather of the San Francisco Bay Region, Howard Gilliam

Subsequent authors echoed Harazthy. T. Hart Hyatt, Editor of "California Rural Home Journal", wrote in Hyatt's Handbook of Grape Culture in 1876, "The prevailing winds in the summer from the colder latitudes of Behring's Strait become charged with a great deal of humidity as they seek admission upon the land through gaps in the Coast Range of mountains in the vicinity of San Francisco [Fig. I].... Excluding these localities near the coast, where cold sea-breezes and fogs prevail, it may be safely stated that all other portions of the State are suited to vine culture." In his book Viticulture on the Coast, Professor Frederick F. Bioletti (University of California 1890-1935) described the Western grape region: "...and from the foothills of the Sierra to the edge of the redwood forest that borders the coast." As recently as 1974, the Environmental Resources Section of the General Plan of the County of Sonoma contained a map of wine grape suitability [Fig. II] that excludes a large part of the proposed viticultural area. Even now, some of the commercial vineyards in the coastal region remain outside of all viticultural areas previously established within Sonoma County.

FIGURE II



Winegrape Suitability vs. Average Fog Intrusion

Historically, vineyards established in warmer areas of the County spread more rapidly than coastal acreage. European immigrants, with fresh memories of difficulties ripening their vintages, eagerly selected warmer, sunnier inland sites for their homesteads and vineyards. In the mid-1800's wine-growing increased most quickly in Sonoma Valley, and towards the end of the century it proliferated between Healdsburg and Cloverdale. These areas quickly surpassed the coast region in acreage. When Prohibition decimated Sonoma County acreage, the gap widened. Many very cool vineyard sites in the coastal region were abandoned and almost forgotten.

Since the 1970's, however, viticulture has increasingly spread toward the coast. In addition to the vineyards clustered around the lower Russian River and in the coastal foothills to the south, commercial vineyards currently grow as close as three miles to the Pacific Ocean and nearly as close to the San Pablo Bay. Vineyard sites around Petaluma, Penngrove, Lakeville, and Cotati and north of Bodega are now attracting attention; commercial vineyards and wineries have been reestablished there in recent years. Meanwhile, wine writers have begun to talk very favorably about the Sonoma Coast, e.g., articles by John Hutchison appearing in December, 1984 and by Jerry Mead in April 1985. (Jerry Mead predicted that Sonoma Coast "will become the most important new appellation for producing Burgundian grape varieties in the United States.") A growing interest in early ripening varieties and in sparkling wines, along with decreasing availability of agricultural land in other parts of the County, have contributed to the renaissance of the Sonoma Coast in viticulture.

THE BOUNDARIES

In the United States, the terms "East Coast" and "West Coast" refer to groups of states that border the Atlantic or Pacific Ocean, respectively. Within any one of these states, the terms "coast" and "coastal" refer to only part of the state--often to those counties or geographical features (such as mountain ranges) closest to the shore. Although more specific, this usage is still general enough to sometimes include parts of counties that have no ocean frontage (such as the inclusion of Lake County within the "North Coast" Viticultural Area). Inside a "coastal" county such as Sonoma, the terms "coast" and "coastal" are locally used to label a smaller area still.

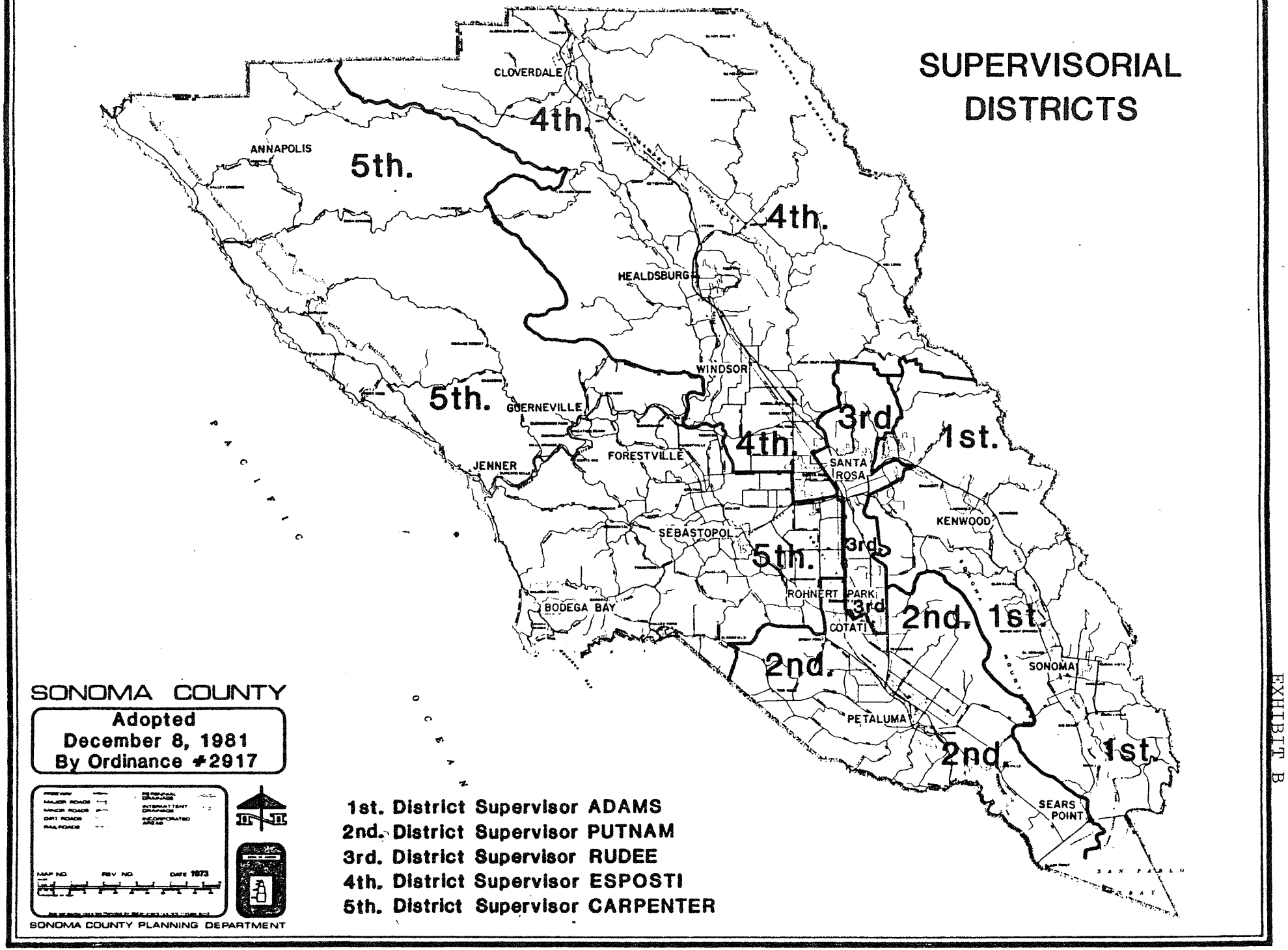
The rugged Sonoma Coast has lent its name to a section of Sonoma County that adjoins the Pacific shoreline and is closely identified with it in many ways. The ocean provides an obvious western boundary for the district, but the other limits of the coastal section are not clearly defined. In local usage the extent of the region varies, depending on the context and the unifying features under consideration.

Historical Sonoma Coast Region

In the early days of the County's settlement, the coastal region's identity arose naturally from its residents' dependence upon the sea for their commerce. Although some of the coastal population lived in seaside villages that grew up around a few natural harbors, there was also a widespread community of ranchers in the coastal hills and valleys. Often distant from each other, they had in common that the sea was their principal link with the outside world. Their potatoes, livestock, and timber reached otherwise inaccessible markets aboard the schooners that plied the coast. Because of the ease of ocean transportation, this coastal region was at one time more populated than the more inland areas of the County.

Political boundaries within Sonoma County, perhaps dating from those early days, reflect a general understanding that a relatively large area is considered to belong in the the County's coastal region. Sonoma County has been divided into five supervisorial districts for most of the last one hundred years. Although the boundaries have been revised somewhat over time, the general locations of the five districts are unchanged. The fifth district (Exhibit B) takes in the entire Pacific shoreline of the County, and includes the lower Russian River Valley and the fertile fruit-producing areas surrounding Forestville and Sebastopol.

This entire area, or much of it, has generally been referred to as Sonoma County's coastal region for a long time. An early indication of this is found in a report written July 20, 1893 by agricultural census-taker Allen B. Lemmon to


SUPERVISORIAL DISTRICTS
CLOVERDALE
ANNAPOLIS
HEALDSBURG
WINDSOR
GUERNEVILLE
FORESTVILLE
JENNER
SANTA ROSA
SEBASTOPOL
KENWOOD
ROHNERT PARK
COTATI
BODEGA BAY
SONOMA
PETALUMA
SEARS POINT
4th.
5th.
4th.
5th.
4th.
3rd.
1st.
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3rd.
3rd.
2nd.
1st.
2nd.
2nd.
1st.
SONOMA COUNTY
Adopted
December 8, 1981
By Ordinance #2917
SONOMA COUNTY PLANNING DEPARTMENT
1st. District Supervisor ADAMS
2nd. District Supervisor PUTNAM
3rd. District Supervisor RUDEE
4th. District Supervisor ESPOSTI
5th. District Supervisor CARPENTER

EXHIBIT B

Isaac DeTurk, Viticultural Commissioner for the Sonoma District. Although he was not constrained to use political boundaries for his viticultural study, Lemmon classified his findings by supervisory districts, stating, "After careful study of the county, this seemed to me to be the most satisfactory division of the territory." In describing each district, Lemmon matter-of-factly referred to the fifth supervisory district by what seems to have been its accepted label--"the coastal region of the county".

This title still applies to the fifth supervisory district today. The Sonoma County Planning Department has divided the County into nine "Planning Areas", most of which have no correspondence with the supervisory districts. It is significant, however, that the "Coastal Planning Area" comprises most of the area of the fifth supervisory district (Exhibit C).

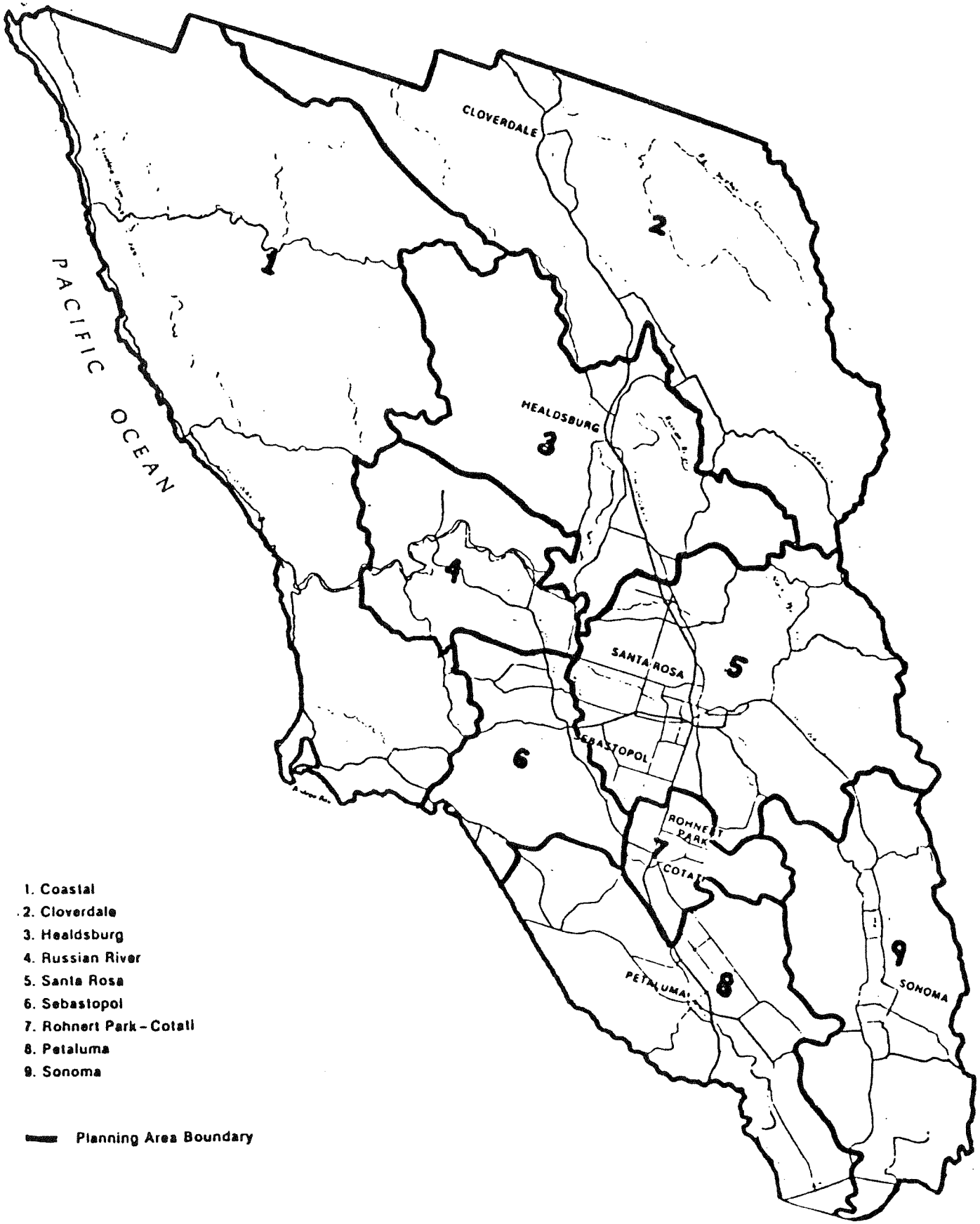
Promoting Sonoma County and the Sonoma Coast

Articles and pamphlets for tourists usually focus on the Pacific beaches and the few towns closest to the coastline when describing the recreational values of the Sonoma Coast. Books such as Sonoma County Bike Trails, Sonoma County Trips and Treats, and Making the Most of Sonoma County all feature a section on the "the coastal region", "Coastal Sonoma County", or "the Sonoma Coast". Bodega Bay, Jenner, Fort Ross, Timber Cove, Stewarts Point, Occidental, Freestone, Duncan Mills, Valley Ford, Graton, Forestville, and Sebastopol are frequently highlighted in promotional literature of various kinds or pictured on maps of the Sonoma Coast.

The lower Russian River Valley is often included in descriptions of the coastal recreational area. For example, the Russian River Region, an organization that promotes tourism, distributes brochures that describe "the Sonoma Coast-Russian River recreational area" as a single region. The principal newspaper in the County, the Press Democrat, considers the coast and lower Russian River one area for purposes of daily weather forecasting. The brochure for the Bodega Bay Lodge also supports this view, recommending "Korbel and the boutique wineries along the Russian River" as attractions of the coastal area.

The area around Petaluma is also connected with the Sonoma Coast in promotional literature. The section on the Petaluma area in the booklet "Stay-A-Day in Sonoma County" reports a "fine highway over coastal hills leads to Pacific ocean beaches". The Bodega Bay Lodge brochure quoted above includes the Estero Lowlands (west of Petaluma) and the southern portion of Petaluma Valley in this description of the Sonoma Coast:

EXHIBIT C



1. Coastal
2. Cloverdale
3. Healdsburg
4. Russian River
5. Santa Rosa
6. Sebastopol
7. Rohnert Park – Cotati
8. Petaluma
9. Sonoma

Planning Area Boundary

Planning Areas

> "Located between the Russian River to the north and Tomales Bay and the Pt. Reyes Peninsula to the south, this unspoiled coastal region was chosen by Artist Christo for his famous Running Fence."

Any local resident can tell you that Christo's Running Fence stretched across southwestern Sonoma County, starting near Meacham Hill northeast of Petaluma and ending in the Pacific Ocean.

Evidently Thomas H. Thompson, one of the earliest geographers and promoters of Sonoma County, set a lasting precedent. In his writings Thompson considered the areas around Petaluma and the lower Russian River to be part of the coastal region. In the 1877 Atlas of Sonoma County he describes "the coast country" in the following passage:

> "The southern section of the coast country lying just north of Marin County is celebrated for its dairy products. The hills are rolling, destitute of trees or brush, and covered with a rich swath of grass, kept green most of the year by its proximity to the ocean. This dairy section extends nearly to the Russian River; along that River and north of it to the County line, the country is densely timbered."

The Coast Along San Pablo Bay

The "dairy section of the coast country" referred to by Thompson extends all the way to the shores of San Pablo Bay south of the towns of Petaluma and Sonoma, where hayfields grow alongside coastal marshes. Not surprisingly, the term "coastal" is frequently used in Sonoma County to refer both to areas near the Pacific Ocean and to areas near San Pablo Bay. The following examples illustrate this usage in several different contexts:

The California Department of Water Resources published a study in 1975 entitled "Sea-Water Intrusion in California: Inventory of Coastal Ground Water Basins" which identified eight coastal basins in Sonoma County: six basins that open to the Pacific Ocean (Gualala River, Russian Gulch, Russian River, Scotty Creek, Salmon Creek Valley, and Bodega Bay) and two (Petaluma Valley and Sonoma Valley) that open to the San Pablo Bay.

Exhibit D and Figure III are mappings of plant climate zones and vegetation communities in Sonoma County. Exhibit D indicates that the same maritime plantclimate exists along both shorelines. Figure III shows the distribution of uniquely coastal ecologies bordering both the ocean and the bay.

CLIMATE MAP: *San Francisco Bay Area and Inland*

EXHIBIT D

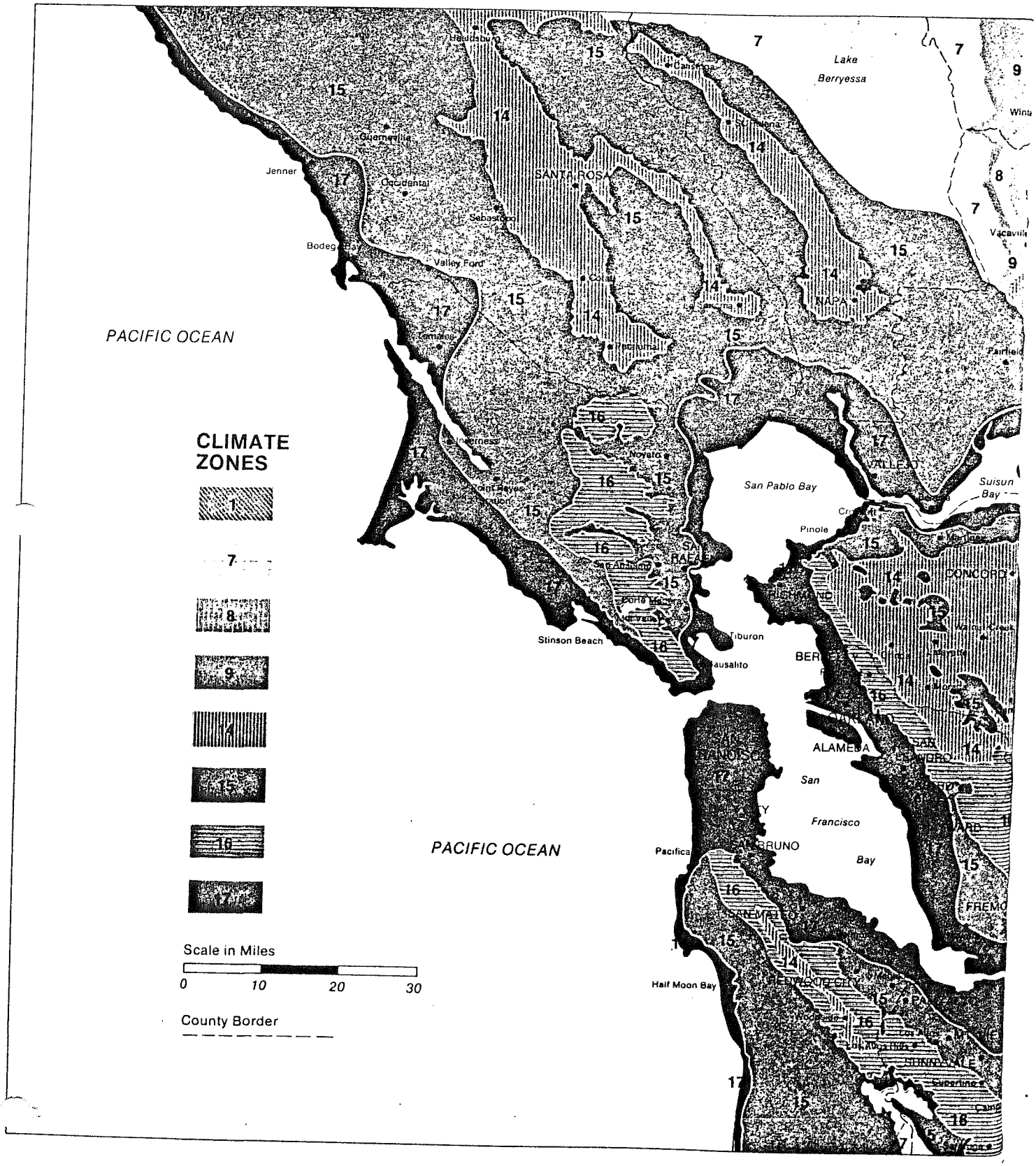
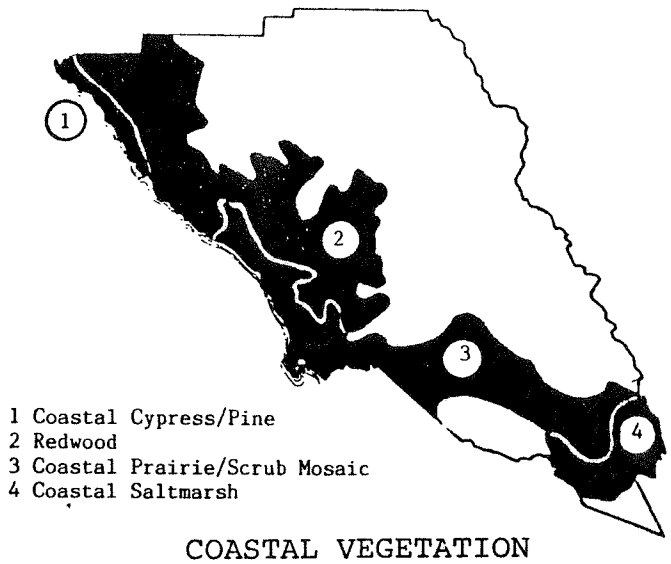


FIGURE III



COASTAL VEGETATION

Source: Natural Vegetation of Calif., A. W. Kuchler, 1977

Clyde Perry Patton, in an exhaustive study entitled "Climatology of Summer Fogs in the San Francisco Bay Area", correlated mean monthly temperatures to distance from the Pacific Ocean at various California locations. He found that the unusually cool summer weather at Graton, Petaluma, and Santa Rosa was best explained when the influence of both the Estero Gap and the Golden Gate (affecting Sonoma County via San Pablo Bay) were considered. By averaging the distance from the Golden Gate and the distance from the Pacific Ocean via the Estero Gap, he obtained excellent correlation. His experimental results indicate that the coastal nature of Sonoma County's climate depends very much on the proximity of the bay as well as the nearness of ocean.

A report entitled "Wind Resources Potential in California", published in 1978 by the California Energy Commission, divides the state into six regions. The "Coastal Belt" region (shown in Exhibit E) encompasses not only the seashore and bayshore margins of Sonoma County but also the entire Sonoma Coast Viticultural Area (while excluding the Dry Creek, Alexander Valley, and Knight's Valley areas of the County).

The Sonoma Coast in Viticulture

In the context of Sonoma County viticulture, the coast and its special maritime climate are almost synonymous. Since the days when Harazthy and others cautioned against planting vines too near the coast because of "the prevailing west

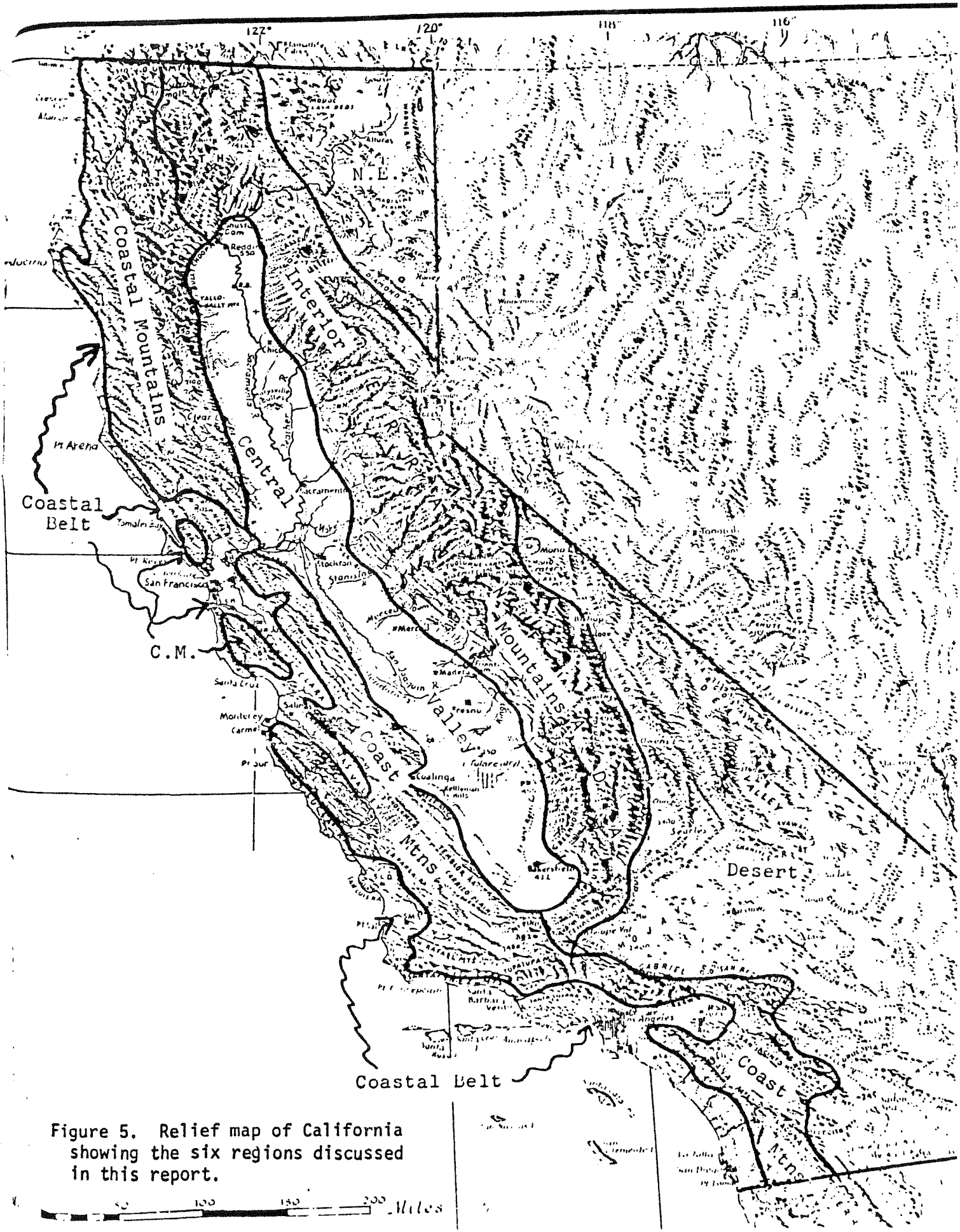


Figure 5. Relief map of California showing the six regions discussed in this report.

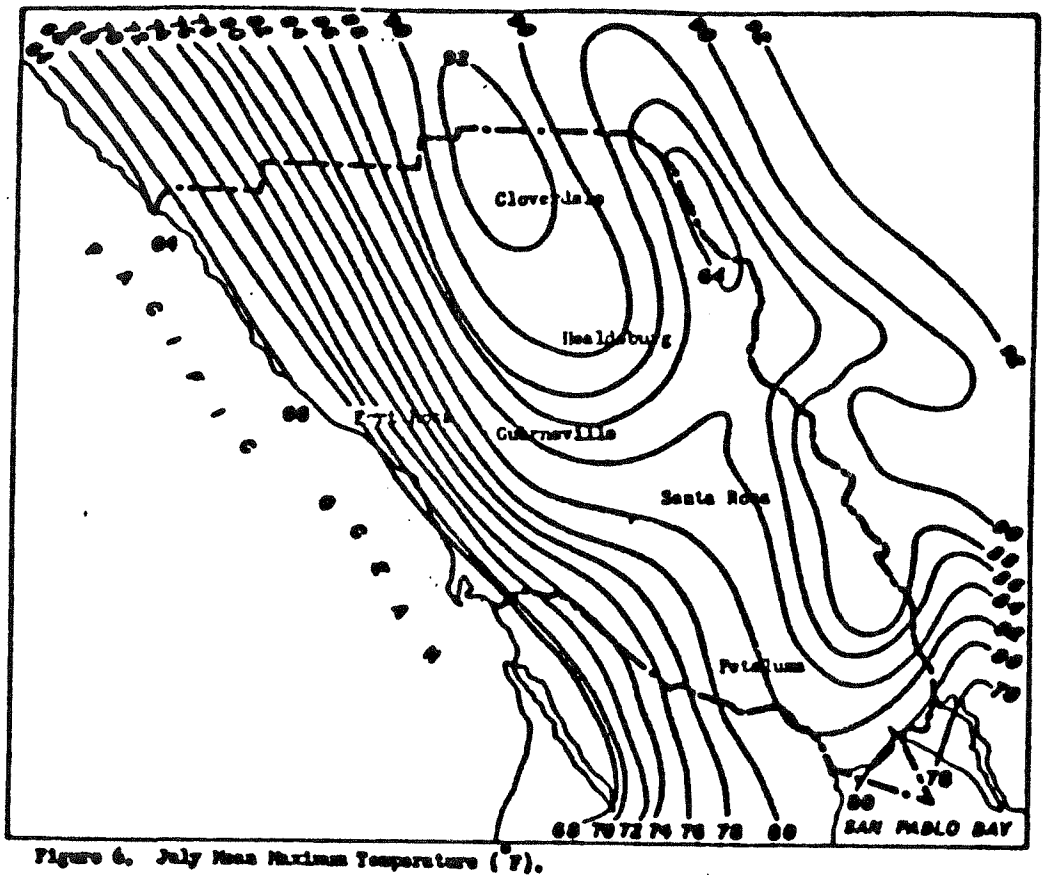


Figure 6. July Mean Maximum Temperature (°F).

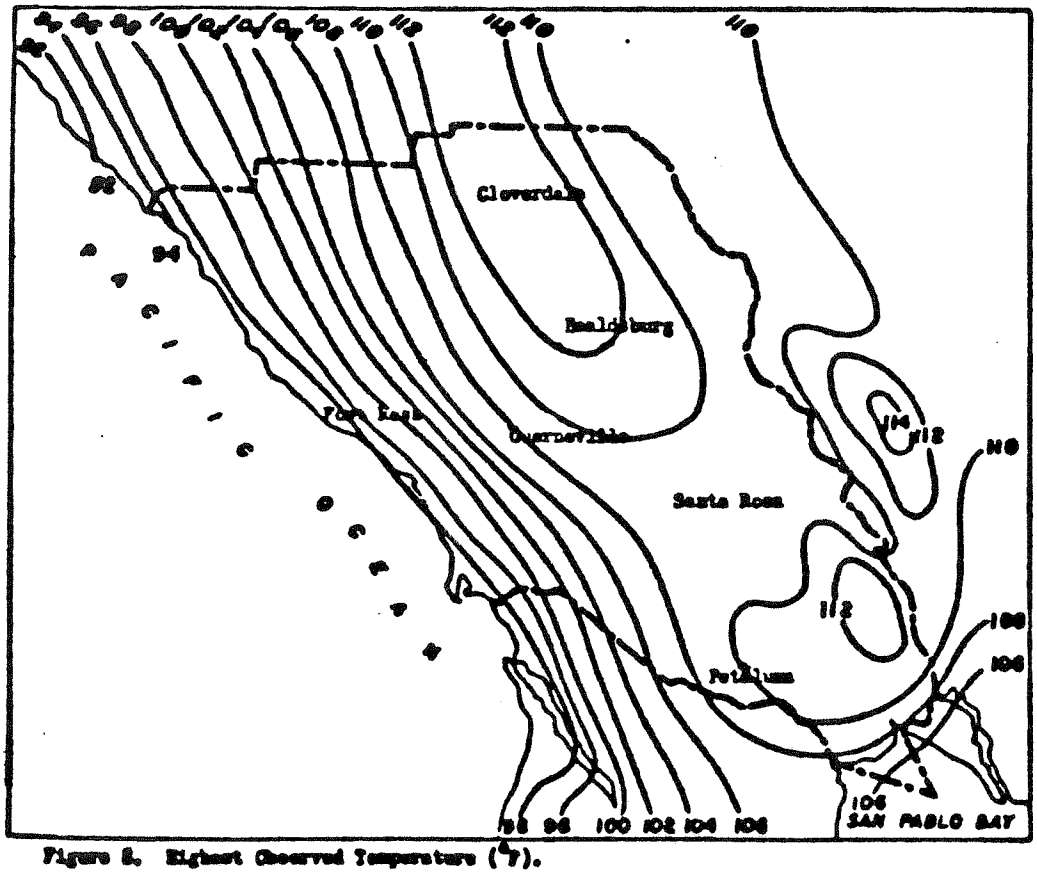


Figure 8. Highest Observed Temperature (°F).

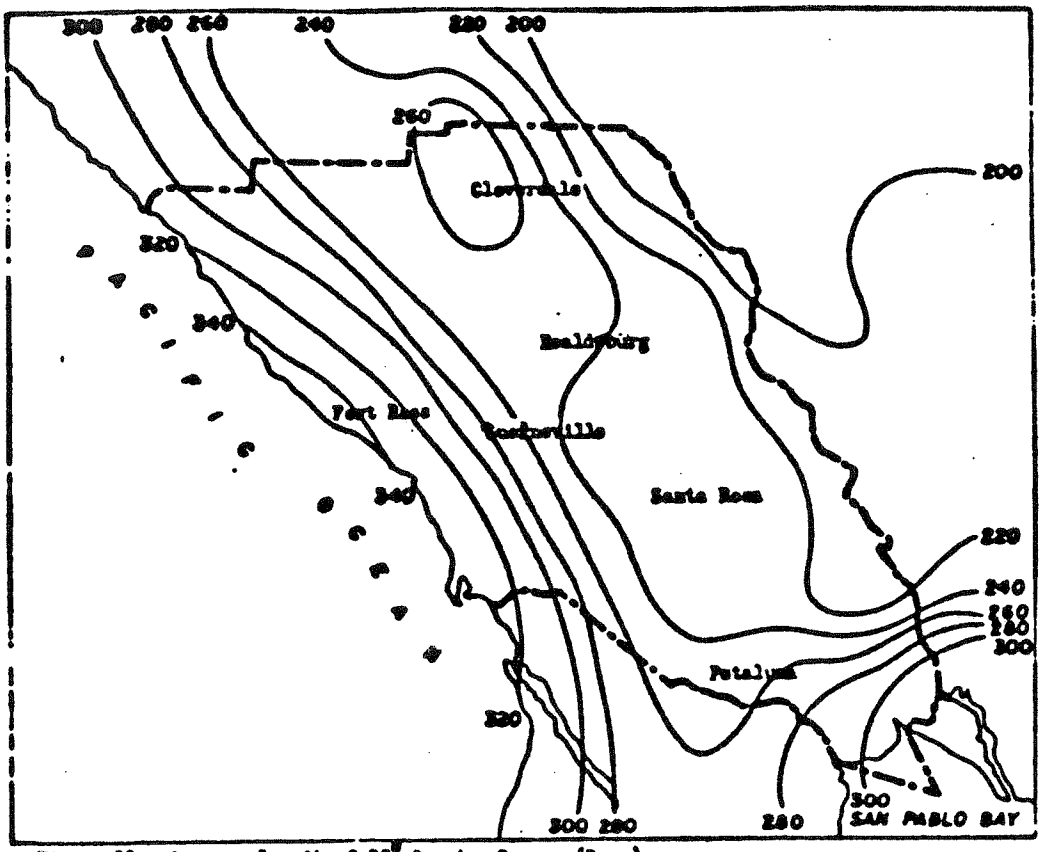


Figure 11. Average Length of 32° Growing Season (Days).

winds [that] drive the fogs over the locality", the Sonoma Coast has symbolized an entire region of the County whose climate is characterized by persistent fogs, strong summer breezes, and lower growing season temperatures.

This marine climate is now valued for prolonging the ripening period and maintaining acid levels of early maturing winegrape varieties. In the previous century, however, the coast climate was considered a disadvantage, and the sweeter grapes from the inland climate earned a substantial premium. Joe Vercelli, winemaker at Italian Swiss Colony for many years, recalls that the Russian River bridge at Healdsburg marked the boundary between vineyards producing the valued inland grapes and those yielding the cheaper coastal-grown grapes.

The following excerpt from an article that appeared in the Russian River Flag, a small Healdsburg weekly, on November 28, 1880 illustrates the prevailing prejudice against the cooler climate of Sonoma County's coastal region:

> "MAGNIFICENT GRAPE DISTRICT. DeTurk, the large wineman of Santa Rosa, declares that the Cloverdale grapes were far better than those raised around Santa Rosa. The winery men of Healdsburg pronounce the grapes of this vicinity of better quality--containing more saccharine matter--than any they have seen elsewhere. From Windsor to Cloverdale, a magnificent grape belt exists."

Today, while discrimination against the coast region is disappearing, the distinction between two types of viticultural climates in Sonoma County remains. Although the entire County experiences the influence of moist coastal air as the marine intrusion moves through and beyond it, those who live, work, and study within Sonoma County recognize distinct degrees of coastal influence here.

Retired Sonoma County Agricultural Extension Advisor Bob Sisson spent decades studying coastal influence on our county's climate. His research (described in more detail later) found a scientific basis for the traditional distinction between coastal and inland fruit grown in Sonoma County.[1] He mapped what he called the "Sonoma County

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[1] It is interesting to note that the Napa County Agricultural Advisor has also observed and named degrees of coastal influence within the climate of Napa County. A circular published by the Napa County Office of the University of California Agricultural Extension on May 25, 1973 described four plantclimates of Napa County: "Maritime, Coastal, Transitional, and Interior, depending largely on the

coastal warm zone" and the "Sonoma County coastal cool zone"; his nomenclature has become commonly accepted among winegrowers in the County and achieved national recognition. Within the areas most widely planted at the time of his research, Sisson placed the line dividing the two zones running between the Healdsburg city limits and the high midpoint of Chalk Hill Road southeast of that city.

The coastal/inland distinction within Sonoma County winegrowing areas is not a local secret. One of the best-selling books on Sonoma County wineries, California Wineries: Sonoma and Mendocino, describes it in detail. Author Patricia Latimer divides Sonoma County into two wine regions, Southern Sonoma and Northern Sonoma. Although her division is a very general one, she correctly draws the boundary between the "cooler, fog-shrouded coastal vineyard districts" of Southern Sonoma and the warmer, sunnier vinelands of Northern Sonoma in keeping with traditional wisdom. The southernmost point in her "Northern Sonoma" wine region is Healdsburg.

In the following description of the Russian River Valley, John Melville's Guide to California Wines acknowledges this historically accepted dividing line marking the beginning of a more inland climate in Sonoma County:

> "The lower Russian River Valley, around Guerneville, forms a small separate wine growing area, where some of the finest California champagne is produced. The inland or upper section of the valley takes in the area around Healdsburg northwards to Cloverdale and on into Mendocino County."

To the northeast and southeast of the Estero Gap--Sonoma County's major topographic opening to Pacific weather--lies an area that is flooded with cool, moist coastal air and fog every afternoon in the summer. This natural occurrence is the climatic link that bonds the area to the Sonoma Coast, for better or for worse. Now that cool climates for grape-growing are highly valued, that link is no longer a stigma.

Sea Ridge Winery, located only three miles inland of Fort Ross, has cultivated a national reputation for Burgundian style wines produced from grapes grown in marine climates. In addition to fruit from nearby neighbors in the area

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degree of ocean influence." The "Maritime" area includes all of the county lying south of the city of Napa. Because the Sonoma and Mayacmas mountain ranges lie between the Pacific Ocean and the Napa Valley, ocean air reaches Napa County primarily through the Golden Gate, traveling unhindered across the San Francisco Bay.

between Cazadero and Annapolis, Sea Ridge vinifies grapes from very cool vineyards near Occidental and Sebastopol. In fact, their winemaker considers a vineyard just outside Sebastopol on Atascadero Creek to be the coolest and latest ripening vineyard in the County.[2] Sea Ridge's brochure describing these "coastal vineyards" and "coastal grapes" refers specifically to each of their sources in widely separated but climatically kindred parts of the coastal region.

Bound together by many historical and geographic factors, the Sonoma Coast region has a unique identity. Its most viticulturally significant feature, its climate, will be discussed in greater detail in the next section. Climate is the primary feature of the proposed viticultural area that distinguishes it from surrounding areas.

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[2] Temperature data from other vineyard locations in the heart of the coastal region offer similar evidence that the Sonoma Coast weather penetrates deep into the area. In the late '70's Sonoma-Cutrer Vineyards recorded thermograph readings totalling only 1800 degree days (well below Region I) at their Cutrer vineyard southwest of Windsor. Some of Korbel's Guerneville area vineyards are jokingly considered to fall in "Region One Half" because of their exceptional coolness.

DISTINGUISHING FEATURES

Climate is of overwhelming importance in viticulture. Soils act as a reservoir for water, determine the productivity of the vines, and have a subtle influence on the character of the wine produced by affecting its mineral composition. But climate, specifically its temperature component, is the principal quality factor, since it directly influences the sugar-acid ratio, total acidity, tannin content, and other constituents at maturity.

The Effect of Topography on Sonoma County's Climate

The climate of Sonoma County runs contrary to most people's common sense notions. In the summer, as one goes north, it generally gets warmer, not cooler. The same is typically true of higher elevations, because of a local phenomenon known as a temperature inversion which persists all summer long. Generalizations like these can be made about Sonoma County's weather, even though residents realize that the weather can vary within the space of a mile--sometimes even within one vineyard--due to the interaction of Pacific air with local terrain.

Sonoma County's complex coastal climate is the result of the combined influence of large scale weather patterns with the County's topography. Although mountains to the east provide a barrier that protects Sonoma County from the very hot weather of the Central Valley during the summer months, in general as one goes eastward from the Pacific the climate becomes more continental (drier, with wider daily and seasonal temperature fluctuations). However, this pattern is modified by gaps and passes in the ranges which permit easy penetration of seacoast weather inland, as well as by topographic barriers that halt the intrusion and geographic factors that alter its character.

Two places about the same distance from the ocean may have widely varying climates because of their different proximity to passes in the coastal hills. The strength of the marine effect varies consistently with distance from the ocean only if that distance is measured on the "streamlines" along which ocean air is channeled through the hills. As it follows the streamlines, the ocean air is slowed by surface friction and changes in direction resulting from the configuration of the troughs through which it funnels. It is also warmed gradually by contact with the land.

At locations protected by hills and mountains, the leeward climate is significantly warmer for two reasons: (1) The coldest ocean air (the lower layers that were in direct contact with the water) are excluded by the topographic barrier. (2) Marine air from a deep intrusion that spills over the top of the barrier is warmed as it descends by adiabatic heating (a natural rise in temperature that

accompanies the compression of a body of air).

As a result of the guiding and moderating effect of topography on the marine intrusion in Sonoma County, the warmest areas of the County tend to be the upper Russian River Valley near Sonoma County's north end (Dry Creek and Alexander Valleys), and Glen Ellen (in Sonoma Valley) and the mountains east of the Valley, which lie in the lee of Sonoma Mountain (Exhibit F).

Coastal influence, a kind of natural air conditioning system, works by a variety of mechanisms. One of the primary mechanisms is fog. Onshore "monsoon" winds are generated during spring and summer between a north Pacific high pressure system and a thermal low pressure area in California's Central Valley. Fog is produced by condensation when warm, moisture-laden ocean air passes over the particularly cold California current that flows down the Northern California Coast in the summertime. A thick layer of fog hangs offshore almost continually in a normal summer.

As the season progresses and the interior heats up, the onshore winds get stronger and penetrate inland where gaps in the westernmost coast ranges permit their entry. The major gap influencing Sonoma County climate is the Estero Gap opening to the Pacific at Bodega Bay. The Golden Gate and the mouths of the Gualala and Russian Rivers also provide entrances for cooling winds and fog. The winds precede the fog, and can drop air temperatures rapidly, long before the sun sets. The fog follows when the sun is no longer hot enough to "burn it off" and holds the cool temperatures through the night and into the next day. Fog will often hang over many vineyards in the coastal region until mid to late morning.

The major river of fog entering through the gap at Bodega flows inland across the Estero Lowlands west of Petaluma (the beginning of what is locally called "The Petaluma Wind Gap"). Most of the hills between Petaluma and the ocean are below 500 feet, but elevations in Marin County to the southwest reach 1000 to 1500 feet. Fog and wind are thus funneled north through the Sebastopol area and east across Petaluma to the base of the Sonoma Mountains. From there a finger of fog flows southeast, through a pass in the mountains, into the Schellville/Carneros region of the Sonoma Valley. (Continuing from there unimpeded over the waters of the San Pablo Bay, cooling winds from the Petaluma Wind Gap can reach the Central Valley through the Carquinez Strait.)

Another fork of the river of fog is deflected northward along the base of the mountains over Santa Rosa and beyond, usually reaching between Windsor and Healdsburg before its further progress is stalled. After dark, when daytime temperatures have already dropped, the fog will often move farther north. These last areas to be blanketed are also the first exposed early the next morning, so they experience much less climatic

modification from the fog's brief nocturnal visits. Timing is an important factor in the fog's climatic influence.

The coastal section of Sonoma County north of the westward stretch of the Russian River is significantly steeper and the coastline is unbroken by gaps until the mouth of the Gualala. In this part of the Sonoma Coast region the fog penetrates only a few miles inland to the heads of the first canyons and is stopped by the higher ridges from further progress.

The attached fog intrusion map (Exhibit G) shows the areas of the County subject to frequent summer fogs. The actual area covered varies daily. Occasionally fog may extend north past Cloverdale and east into Napa. Fog usually burns off well before noon inland, and is seldom thicker than 1000 feet.

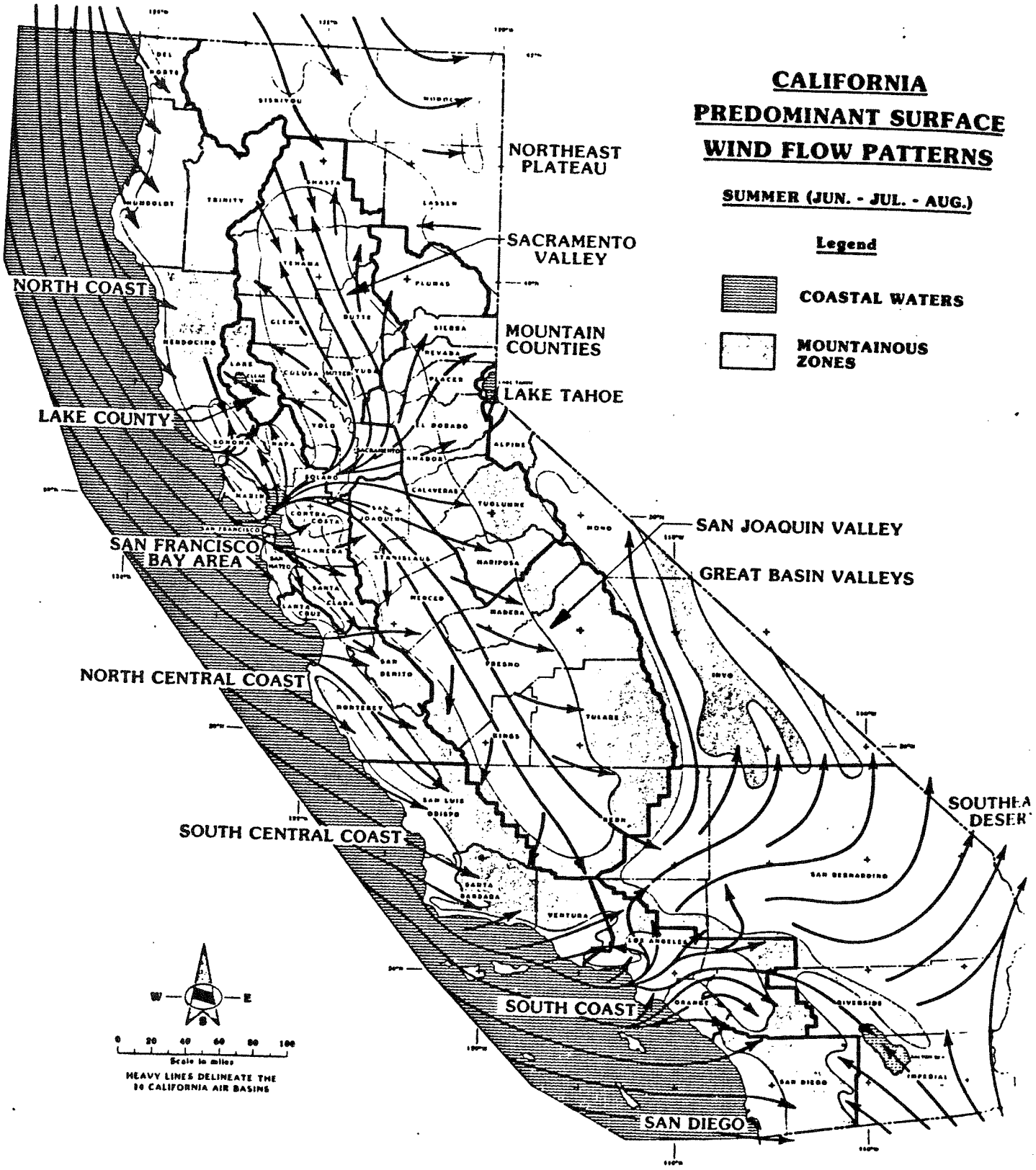
Another marine cooling mechanism is surface air flow. The seasonal "monsoon" winds referred to above cause significant cooling effects through the Petaluma Wind Gap, across Stage Gulch Gap into southern Sonoma Valley, and up through the Santa Rosa plains area, even when no fog is formed (Exhibit H). A second type of cooling wind is the simple sea breeze, arising when cool ocean air flows inland during the day to replace rising air heated at the earth's surface (Exhibit I). This moderating breeze is the primary factor in the cool climate of low coastal ridges north of Jenner where vineyards grow above the fog line. As is the case with fog in this area, the cooling effect of the sea breezes diminishes farther inland as elevations increase.

Although the temperature of the San Pablo Bay is several degrees warmer than the Pacific Ocean during the summer months, the temperature gradient between the water and the land is sufficient to produce a similar air movement. A "bay breeze" off San Pablo Bay is also an important influence in the southern parts of Sonoma and Petaluma Valleys.

The Distinctive Climate of the Sonoma Coast Region

The name "fog belt" is often used by residents of Sonoma County referring to the coastal portion of the County, because it is characterized by frequent occurrences of persistent fogs. Although the term is used locally without precise scientific delineation, the "fog belt" is recognized by California meteorologists as a specific climatic zone, distinguished by the presence of characteristic vegetation, especially the Redwood (Sequoia sempervirens) and the California Laurel (Umbellularia californica) trees, a narrow seasonal range of temperature, and the delay of the maximum summer temperature until late August or September.

Several quantitative definitions of the fog belt climatic zone have been suggested. In the widely recognized Koeppen system of mapping the climates of California, the fog belt is mapped as that part of the cool summer Mediterranean


CALIFORNIA
PREDOMINANT SURFACE
WIND FLOW PATTERNS
SUMMER (JUN. - JUL. - AUG.)
Legend
COASTAL WATERS
MOUNTAINOUS ZONES
NORTHEAST PLATEAU
SACRAMENTO VALLEY
NORTH COAST
MOUNTAIN COUNTIES
LAKE TAHOE
LAKE COUNTY
SAN JOAQUIN VALLEY
SAN FRANCISCO BAY AREA
GREAT BASIN VALLEYS
NORTH CENTRAL COAST
SOUTHEA DESER
SOUTH CENTRAL COAST
SOUTH COAST
SAN DIEGO
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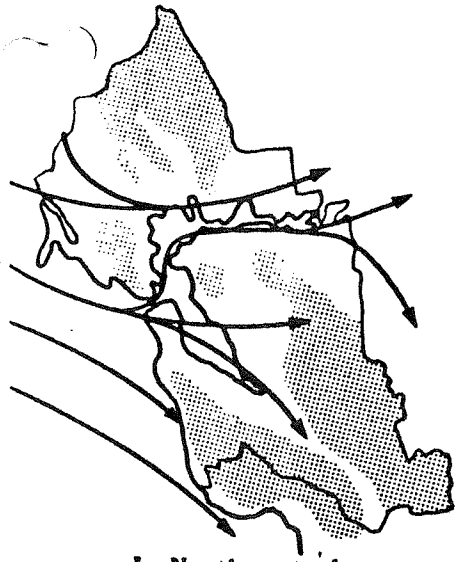
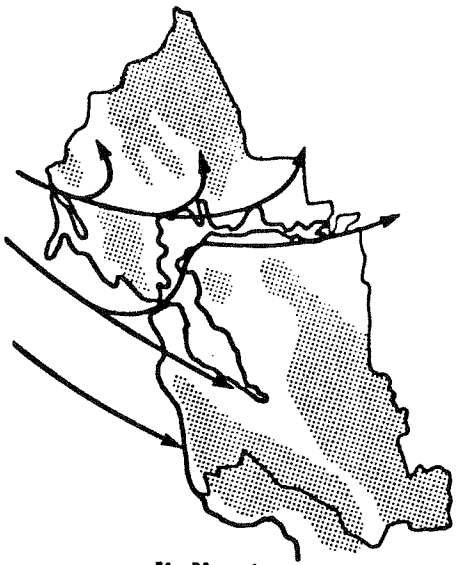
E
S
0 20 40 60 80 100
Scale in miles
HEAVY LINES DELINEATE THE 14 CALIFORNIA AIR BASINS
CALIFORNIA AIR RESOURCES BOAR
AEROMETRIC DATA DIVISION

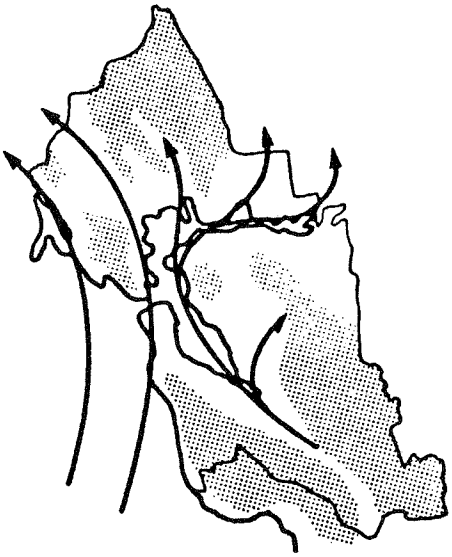
BAY AREA AIR FLOW PATTERN TYPES



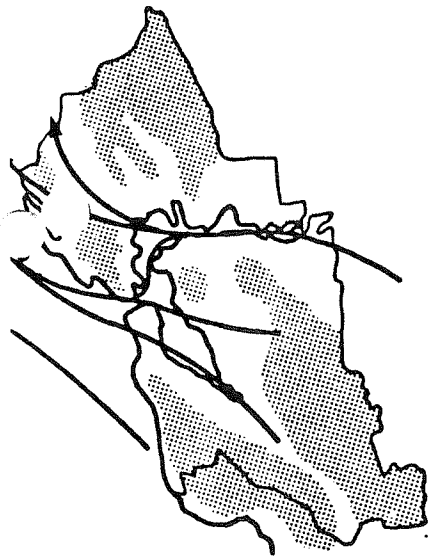
Ia Northwesterly
(moderate to strong)



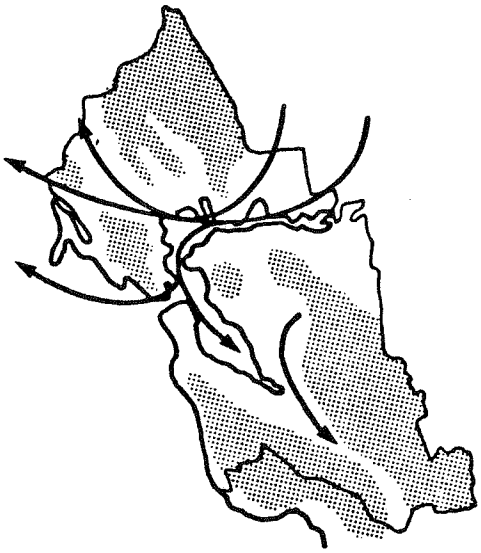
Ib Northwesterly
(weak)



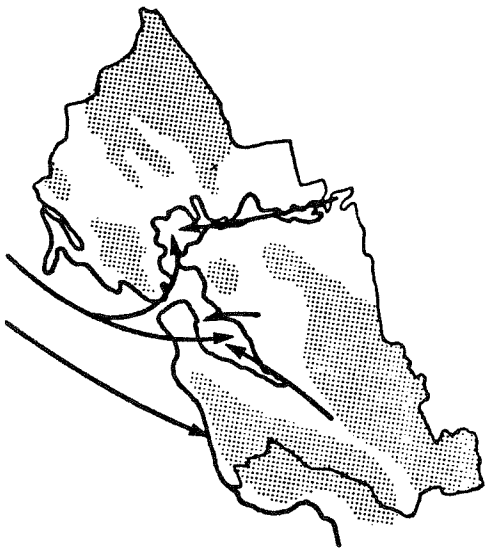
II Southerly



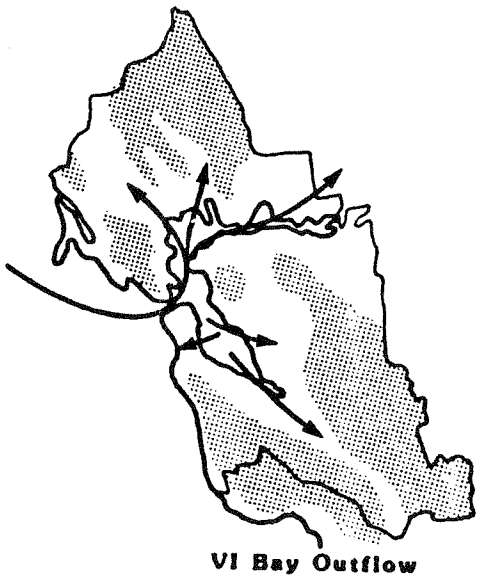
III Southeasterly



IV Northeasterly



V Bay Inflow



VI Bay Outflow

SAN FRANCISCO BAY AREA AIR BASIN SURFACE AIRFLOW TYPES
SEASONAL AND DIURNAL PERCENTAGE OF OCCURRENCE
(1977-1981 Data)

Types / Time - PST	Ib Northwesterly (Weak)	Ia Northwesterly (Moderate to Strong)	II Southerly	III Southeasterly	IV Northeasterly	V Bay Inflow	VI Bay Outflow	VII Calm
Winter								
4 a.m.	3	4	19	14	8	21	5	24
10 a.m.	4	5	19	20	10	11	19	9
4 p.m.	16	16	16	12	13	3	22	1
10 p.m.	6	9	14	14	10	20	3	21
All Times	7	9	17	15	10	14	12	14
Spring								
4 a.m.	27	25	11	2	4	15	5	12
10 a.m.	29	25	14	6	5	3	17	1
4 p.m.	22	60	7	4	4	2	2	*
10 p.m.	40	34	8	2	4	5	3	5
All Times	29	36	10	3	4	6	7	5
Summer								
4 a.m.	40	37	4	*	0	6	2	10
10 a.m.	37	44	4	*	1	1	13	0
4 p.m.	20	77	2	0	1	0	*	0
10 p.m.	39	55	2	0	*	1	1	1
All Times	34	53	3	0	1	2	4	3
Fall								
4 a.m.	25	13	7	6	3	22	3	19
10 a.m.	28	15	6	11	6	7	23	4
4 p.m.	31	46	5	2	6	2	7	*
10 p.m.	37	24	6	4	3	13	1	12
All Times	30	24	6	6	4	11	9	9
Yearly								
4 a.m.	24	20	10	6	4	16	4	16
10 a.m.	25	22	11	9	6	6	18	4
4 p.m.	22	50	8	5	6	2	7	*
10 p.m.	31	30	8	5	4	10	2	10
All Times	26	30	9	6	5	8	8	8

* < 0.5 percent

General Nature of the Sea Breeze and Its Movement Inland

In many respects the sea breeze that penetrates inland from the central coast of California presents a classic pattern (4, 14). The breeze is caused by temperature differences between the land and the ocean water. In the early morning hours the warmer land begins to heat the air near its surface. The heated air rises and is replaced by air--the sea breeze--that flows in from the ocean (Fig. 4).

The sea breeze starts in the morning and strengthens during the day. The breeze is felt first at the coast but gradually pushes farther and farther inland. Large scale air circulation patterns, both near the surface and aloft in the atmosphere, help determine the extent and timing of this penetration.

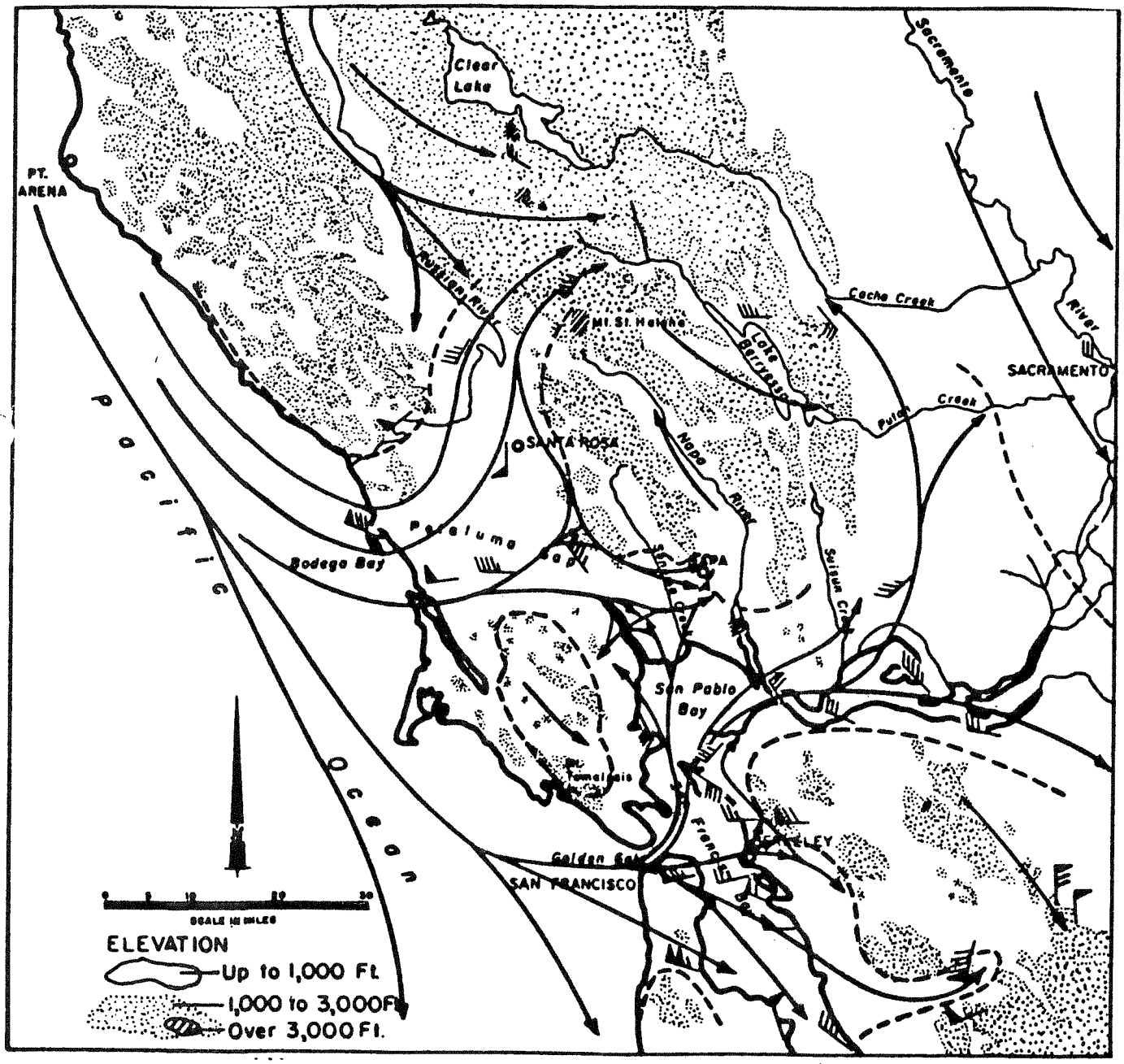


Fig. 5 Topography plays an important role in determining how the sea breeze penetrates inland.

climate area [3] in which no month has a mean temperature over 64.4° F. The maximum mean temperature and its timing are both well-accepted objective measures of coastal influence.

This definition provides a convenient reference for studying gradations of coastal influence in and around the Sonoma Coast region. Figure IV is a table of summer mean temperatures for locations in and surrounding the proposed viticultural area, showing trends or degrees of coastal influence in terms of the maximum mean temperatures achieved, the summertime range of mean temperatures, and the delay of maximum mean temperature.

The locations are arranged in descending order by maximum mean temperature. Fresno has the most continental climate. It experiences the highest mean monthly temperatures in the summer, and July, its hottest month, is substantially warmer than September. Sacramento, although an inland city, receives some coastal air through the Carquinez Straits. Mean temperatures for summer months there are significantly lower than at Fresno, and the difference between July and September is less.

Among locations within the North Coast Viticultural Area (marked with an "*"), Clearlake Park has the highest maximum mean temperature and the greatest variation between July and September. Reading down the table, the maximum mean temperatures decrease, and the variation between July and September tends to also decrease.

The last four locations listed (San Francisco, Fort Ross, Point Arena, and Eureka) are all situated directly on the Pacific coastline. For each of these locations, August or September is warmer than July, the maximum mean temperature is less than 64.4°. These are all "fog belt" locations by Koeppen's definition.

Of the locations within the proposed viticultural area (marked with a "+"), only Fort Ross is directly on the coastline. Nevertheless, the more inland locations show a pattern that varies only slightly from Koeppen's definition of the fog belt climate zone. Although at Santa Rosa, Petaluma, and Graton July is the warmest month, there is very little variation between July and September (approximately one degree or less). These three cities experience a maximum mean temperature which is barely above the 64.4° cutoff point

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[3] Mediterranean climate is characterized by at least three times as much rainfall in its wettest winter month as received during its driest summer month. Koeppen recognized two types of Mediterranean climate: a hot summer type with its warmest month averaging above 71° F, and a cool summer type with its warmest month averaging below 71°.

used by Koeppen and well below the 71° mark that distinguishes the cool summer Mediterranean climate from the hot summer Mediterranean climate.

In contrast, the locations that are within the North Coast Viticultural Area but outside of the proposed viticultural area generally show both higher mean temperatures and greater variation between July and September.

FIGURE IV

SUMMER MEAN TEMPERATURES
(based on long-term averages)

Location	May	June	July	Aug	Sept	Oct	° difference July-Sept
Fresno	67.7	75.2	81.7	79.8	73.8	64.7	7.9
Sacramento	64.6	70.9	75.3	74.3	71.6	63.5	3.7
*Clearlake Park	61.2	68.4	75.1	73.1	68.1	59.2	7.0
*Cloverdale	63.5	69.4	72.9	71.7	70.3	63.3	2.6
*St. Helena	61.8	67.2	70.8	69.7	67.5	60.8	3.3
*Healdsburg	62.3	67.2	69.4	68.0	62.1	62.1	1.4
*Sonoma	59.7	65.7	69.0	67.8	66.6	60.3	2.4
*Napa St. Hosp.	60.6	64.9	67.3	66.6	66.6	61.7	0.7
*+Santa Rosa	59.9	64.5	66.8	66.4	66.1	61.0	0.7
*+Petaluma	59.2	64.1	66.5	66.3	66.3	61.5	0.2
*+Graton	59.2	63.6	65.8	65.4	64.7	59.6	1.1
San Francisco	56.9	58.8	58.9	59.5	61.8	61.0	-2.9
*+Fort Ross	54.7	57.7	57.8	58.2	59.2	57.1	-1.4
*Pt. Arena	53.7	57.0	57.0	57.6	57.4	55.2	-0.4
Eureka	52.4	54.8	56.0	56.6	56.1	54.0	-0.1

*locations within the "North Coast Viticultural Area"
+locations within the proposed viticultural area

Viticultural research supports the climatological conclusions suggested by Figure IV. The first widely accepted sytematization of viticultural climates was developed at the University of California at Davis. In General Viticulture by Winkler, Cooke, Kliewer, and Lider, the authors describe this system, which divides California into agricultural regions I through V (from coolest to warmest) based on heat summation. They consider region I locations synonymous with proximity to the coast. These region I locations are generally indicated on a map in the text, and include the southern end of Sonoma Valley, the Petaluma Valley, and the Santa Rosa plain (the lower Russian River Valley).

Further climatic studies by Robert Sisson, student of Professor Winkler and head of the University of California Extension Service in Sonoma County from 1950 to 1985, led him to modify the system for practical application within Sonoma County. He found two climatic regions in the County, which he calls "coastal cool" (2000 to 2800 heat units) and

"coastal warm" (2800 to 3500 heat units) (Exhibit J). Because of inherent limitations in the calculation of heat units, Sisson's research suggests that coastal cool sites can more accurately be characterized as having less than 1,000 hours during the growing season in the highly effective photosynthetic range between 70 and 90 degrees. Coastal warm sites consistently experience over 1,000 such hours.

The Sonoma County Coastal Cool Zone described by Sisson's research is the same part of the County that was considered in the 19th century to produce inferior grapes because of its cooler climate. Sisson notes that "the boundary between these two climate zones reflects the usual break point of the heaviest part of the fog intrusion when it occurs." He considers that the City of Healdsburg and the high mid-point of Chalk Hill Road approximately mark the farthest inland boundaries of the Sonoma County Coastal Cool Zone.

The Sonoma Coast Viticultural Area encompasses the region of the County designated after decades of research as "coastal cool" (containing region I and cool region II areas with strong coastal influence). This distinguishes the proposed area from the warmer, more protected Dry Creek Valley and Alexander Valley in northern Sonoma County; the sunnier eastern portion of Chalk Hill with its higher elevations; the rugged mountainous area inland from the northwestern coastal strip, and the warmer, more sheltered Sonoma Valley north of the town of Sonoma (Exhibit K).

Sonoma Valley

Temperature and growing season maps reproduced from Robert Elford's Climate of Sonoma County (Exhibit F) illustrate the temperature moderating effect along Sonoma County's Pacific coastline that also swings eastward to follow the shores of San Pablo Bay, climatically uniting southern Sonoma Valley with the rest of the Sonoma Coast region. In "Connoisseur's Guide to California Wine" (Vol. 4 No. 4), the effect of the Bay on the climate of the Sonoma Valley Viticultural Area is discussed in detail. The article states,

> "The entire southern portion of the Valley below the town of Sonoma to the San Pablo Bay is cooled by its proximity to the water. The land is low-lying and retains its chill into mid-morning. By the same token, afternoon winds off the Bay can generally be counted on to cool down the heat of the day. The Valley narrows north of Sonoma, traps more of the heat and is especially kind to warmer varieties.... The amount of heat increases as one moves further from the Bay."

The article also identifies nine separate microclimates within Sonoma Valley Viticultural Area (Exhibit L). The two closest to the Bay ("Carneros/Huichica" and "Schellville")

DEGREE DAY TOTALS OF TYPICAL COASTAL COOL SITES

The following is a representative selection of degree day totals for typical coastal cool sites studied by the University of California Extension Service in Sonoma County. Except where indicated, readings are corrected by adding or subtracting the number of degree days by which the nearest long-term station differed in the year of the reading from its long-term average. The application of this correction factor allows a better understanding of the probable long-term behavior of each field location.

Location	Corrected Heat Units	
Atkinson Ranch (Graton area)	2189	
Martini Ranch (Trenton area)	2181	
Korbel Ranch (lower Russian River)	2214	
Sonoma Vineyards (River Road area)	2311	
Benoit Ranch (lower Russian River)	2416	
Fenton Acres (lower Russian River)	2581	(11 yr. average)
Harmeson Ranch (lower Russian River)	2682	(4 yr. average)
Dutton Ranch (Graton area)	2217	
Hansen Ranch (Occidental area)	2391	(3 yr. average)
Graton Station (uncorrected)	2475	
Braren Ranch (Petaluma area)	2701	(3 yr. average)
Sebastiani (Schellville area)	2590	
12 location mean =	2412	

In contrast, a 10 location mean of a representative selection of typical "coastal warm" field sites studied by the University of California Extension Service comes to an average of 2996 degree days.

EXHIBIT K

MAP OF EXTENSION
SERVICE TEST SITES

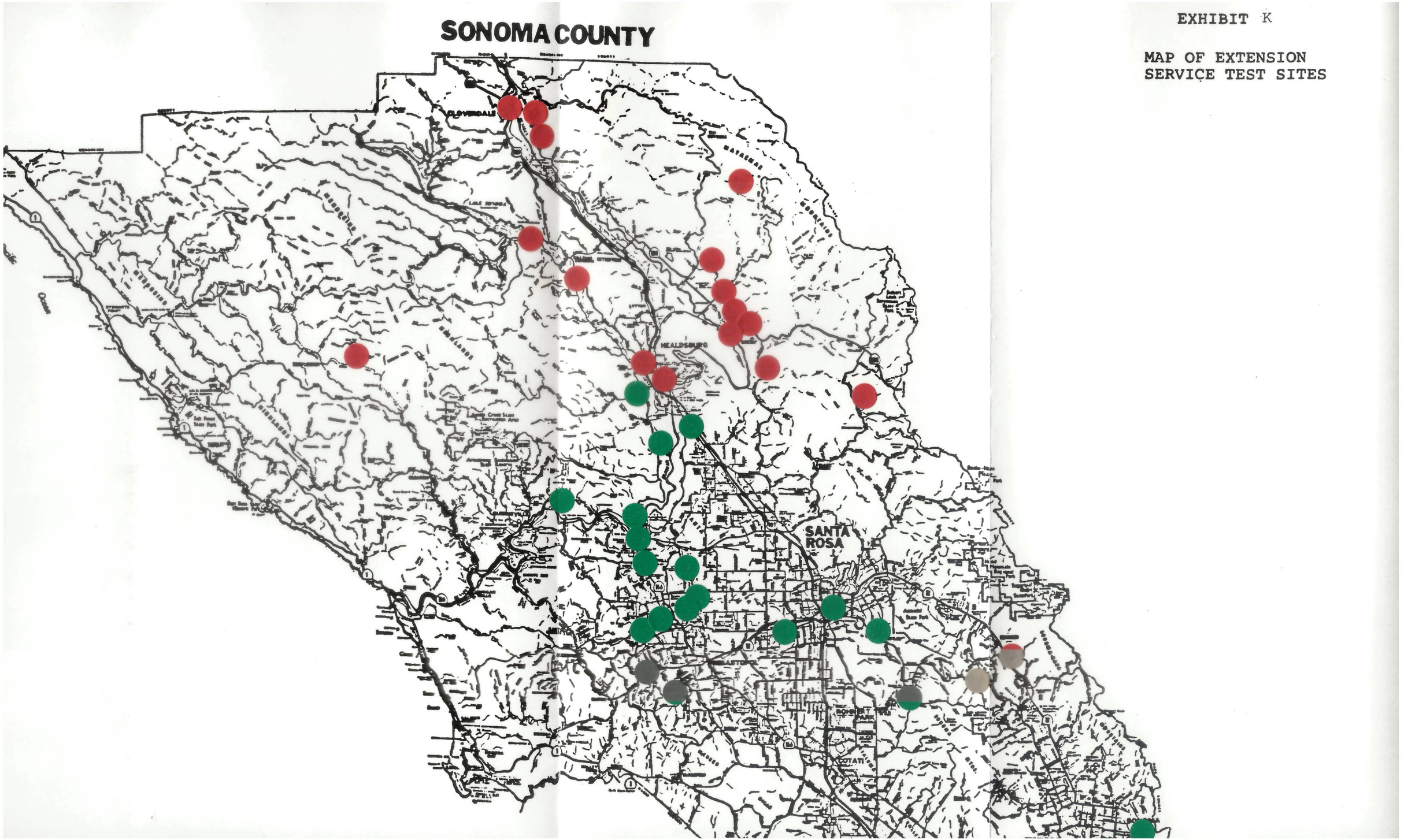
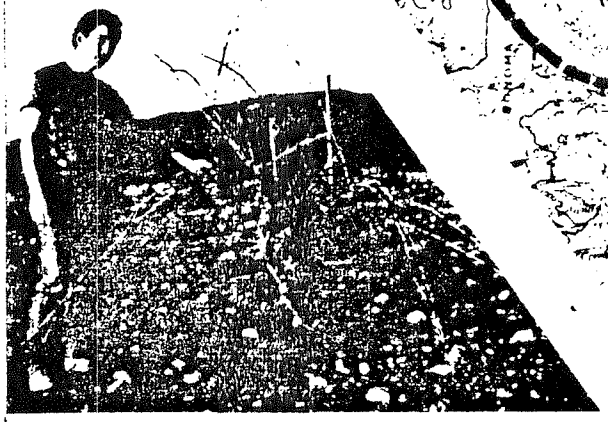


EXHIBIT L

Sonoma Valley



ONOMA VALLEY
INEMAKERS [from top]
obert Magnani of
rand Cru; Robert
ozlowski of Kenwood;
nd Richard Arrowood
f Chateau St Jean

VITICULTURAL SUBREGIONS [key to map]

1. Carneros/Huichica
2. Schellville
3. Vineburg
4. Sonoma Foothills
5. East Valley Mountains
6. Westside Mountains
7. Glen Ellen Moguls
8. Kenwood
9. Bennett Valley

are included within the Sonoma Coast Viticultural Area. Carneros/Huichica is described as the Valley's coolest winegrowing area, and Schellville is declared similar to Carneros in its cold, windy climate. The article confirms that the third subregion in southern Sonoma Valley, "Vineburg", is more sheltered than Carneros and Schellville.

The boundary of the proposed viticultural area deviates from the recently approved boundary of the Los Carneros Viticultural Area in its northwestern corner. That mountainous panhandle was included in Los Carneros based on evidence that it has the cool climate characteristic of Los Carneros, despite slightly higher elevation, due to cool breezes from the Petaluma Valley that penetrate gaps in the mountains. Indeed, winds from the Petaluma Wind Gap reaching the southern end of the Sonoma Valley through Stage Gulch Gap are a significant factor in the climate of the entire Los Carneros section of Sonoma Valley. During the Los Carneros approval process, winegrower Dennis Richardson and others testified to the fact that ocean air blowing from Petaluma cools the southern end of Sonoma Valley dramatically.

The northwestern panhandle of Los Carneros is located in the streamline along which ocean air reaches southern Sonoma Valley, but part of this streamline was excluded when the Carneros boundary was drawn. The additional area encompassed by the Sonoma Coast Viticultural Area includes other vineyards on the streamline. (One of these vineyards has been described as "the wind tunnel of the world" by Rich Thomas, Sonoma County's highly respected viticulture instructor and vineyard consultant, because of its position on the streamline.) The owners and vineyard managers of the vineyards in the panhandle area were consulted before the boundaries of the proposed viticultural area were finalized, and unanimous agreement was reached.

Chalk Hill

The proposed boundary of the Sonoma Coast Viticultural Area excludes a portion of the Chalk Hill Viticultural Area in spite of the fact that coastal influence is one of Chalk Hill's distinguishing features. It does not negate that fact to recognize that there is a gradation of coastal influence within Chalk Hill's borders. The marine intrusion has lost some of its original force by the time it reaches the Chalk Hill area. This factor, combined with the steeper terrain of the eastern two-thirds of Chalk Hill, give that section a somewhat more inland character. A brochure of Donna Maria Vineyards describes differences in climate associated with terrain in the Chalk Hill Viticultural Area:

> "The [Chalk Hill viticultural] region's cool climate is ideal for growing varietal grapes. Morning coastal fogs modulate the warm afternoons and permit

> slow, even ripening.... [We plant Pinot noir, Chardonnay, and Gewurztraminer] in our lower, north facing vineyards--where the fog lingers late in the morning, and the vines are exposed to moderate sunlight. Cabernet, Merlot, and Sauvignon Blanc prosper in our higher, south facing slopes and ridges--those are rarely shrouded in fog."

The mountainous area east of the vineyards along Chalk Hill Road contains no vineyards until the Franz Valley area, east of Franz Valley Road (which is the farthest inland boundary of the Chalk Hill and Russian River Valley Viticultural Areas). An Extension Service test site in a Franz Valley vineyard (Exhibit K) indicates that that mountainous section of the County is "coastal warm".

Russian River Valley

The most northern portion of the Russian River Valley Viticultural Area has also been excluded. A cut-off point just south of Healdsburg was chosen because of the weight of historical evidence and because of current consensus among the many authorities and industry members consulted, that a relatively dramatic temperature change occurs between Healdsburg and Windsor. The proposed boundaries of the Sonoma Coast Viticultural Area were publicized by mail to two hundred fifty wineries and growers in the County, and individually discussed with many of them. Not a single person commented that the boundary should be moved farther north or east to include the balance of the Russian River Valley Viticultural Area.

Other Areas

Higher elevations represent a distinctly different climate pattern because of the summer inversion that characterizes Sonoma County weather. Cool, heavy marine air is trapped beneath a layer of warmer air, so the usual atmospheric condition in which temperature decreases with elevation is reversed. At the level of the inversion, a rise of 20 or 30 feet can make a difference of 10 or 15 degrees. Because of this dramatic climatic change, contour lines form the boundary of the Coastal Sonoma Viticultural Area wherever possible to exclude higher elevations, except in a narrow strip along the northern shoreline which is kept continuously cool by summer sea breezes.

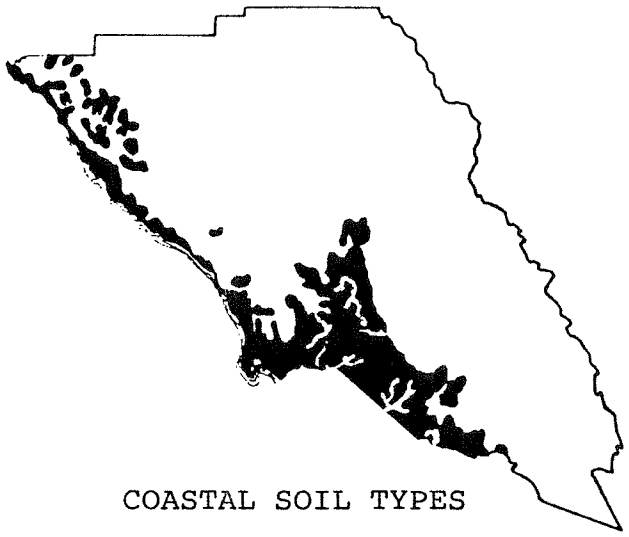
The level of the inversion usually varies between 400 and 800 feet at the Pacific shoreline, and slants upward from the coast to the interior. At the Sonoma Mountains the level is usually between 800 and 1000 feet, and on the eastern side of the Coast Ranges the boundary lies at about 2000 feet above sea level.

On western Sonoma Mountain the boundary of the proposed viticultural area has been changed from the 400 foot contour line to the 1000 foot contour line based on reports of mountain residents that the thermal belt is perceptible around 550 Sonoma Mountain Road (between 800-1000 feet above sea level). The 1000 foot mark was chosen to avoid cutting across a vineyard site.

Other Geographical Features

Although the soils of Sonoma County are very diverse, even within a single parcel of property, the United States Soil Conservation Service has identified certain Sonoma County soils that are associated specifically with the region "along the coast" on "coastal benches, terraces, and uplands". These are the Baywood, Caspar, Cotati, Empire, Goldridge, Kinman, Kneeland, Mendocino, Noyo, Rohnerville, Sebastopol, Sheridan, and Steinbeck series. Collectively, they cover approximately 12% of the area of the County, all of which is within the boundaries of the proposed viticultural area (Figure V).

FIGURE V



COASTAL SOIL TYPES

Source: Soil Survey of Sonoma County, California, 1972

The great majority of grapes in the proposed area are grown at elevations of 400 feet and under, although in the northwestern section along the Pacific coast, vineyards are found at elevations up to 1400 feet. Annual rainfall in the area averages from 20 inches near San Pablo Bay to as much as 60-70 inches northwest of Cazadero; most of this precipitation occurs between the months of October and April each year. The average annual temperature is approximately 56 degrees.

SUMMARY

Its Pacific Ocean and San Pablo Bay shorelines have a profound effect on winegrowing in Sonoma County. Although these immense bodies of seawater affect the weather even beyond Sonoma County, their climatic influence within its borders is literally legendary. Patterns of settlement and viticultural traditions have been shaped by patterns of coastal influence.

Patterns of coastal influence arise because Sonoma County's topography permits the expansion of coast weather inland into some areas while limiting marine intrusion in others. Following natural troughs through lowlands and skirting mountainous barriers, ocean winds and fog inevitably affect the County unevenly. The section of Sonoma County that is geographically exposed to the coast and thus most accessible to its weather experiences a significantly different climate than more sheltered parts.

This difference has been studied and measured by several individuals. One of these is former Sonoma County Agricultural Extension Director Bob Sisson, whose decades of viticultural research led him to divide the County into two zones--"coastal cool" and "coastal warm"--depending on the degree to which the summertime fog affects average daily temperature, vine photosynthesis, and rates of grape ripening in areas of the County. Examination of wind speed and direction data, monthly mean temperatures and their timing, and plant communities also help delineate the coastal region of Sonoma County.

The proposed Sonoma Coast Viticultural Area, which coincides with Sisson's "Sonoma County Coastal Cool Zone", had its own identity even before he empirically determined its boundaries and coined a new name to add to its several others. The existence of a distinctive Sonoma Coast region has been noted throughout the County's viticultural history by such famous authorities as Agoston Harazthy as well as by settlers and winemakers whose lives are now obscure. Modern authors, meteorologists, promoters, and others have also recognized the strong links that bind this region to the Sonoma coast and distinguish it from surrounding areas.

SPECIFIC BOUNDARIES (U.S.G.S. MAP ENCLOSED)

The revised boundaries of the proposed Sonoma Coast Viticultural Area are delineated on the enclosed United States Geological Survey Topographic Map of Sonoma County, California (1970), scale 1:100,000. This scale map was chosen because twenty-five 7.5 minute series maps would have been required, and 15 minute maps are not available for the entire area.

(1) The point of beginning is where the Sonoma and Mendocino County boundary meets the Pacific Ocean.

(2) Then generally south along the shore of the Pacific Ocean to the Sonoma and Marin County boundary;

(3) Then generally southeast along the boundary between Marin and Sonoma Counties to the shore of the San Pablo Bay;

(4) Then generally northeast along the shore of the San Pablo Bay to the boundary between Sonoma and Napa Counties;

(5) The generally northward along the boundary between Sonoma and Napa Counties to Highway 12;

(6) Then generally westward along Highway 12 to Napa Road;

(7) Then generally westward along Napa Road to Leveroni Road;

(8) Then generally westward along Leveroni Road to its intersection with Carriger Creek;

(9) Then northeast along Carriger Creek approximately 15,000 feet to its confluence with a small unnamed tributary;

(10) Then southwest along this tributary to its headwaters;

(11) Then due west (approximately 1,300 feet) to the 1,000 foot contour line;

(12) Then southwest and northwest following the 1,000 foot contour line though Stage Gulch Pass (unnamed on the map) and along the side of Sonoma Moutain to its intersection with Crane Creek;

(13) Then southwest along Crane Creek to its intersection with the 400 foot contour line;

(14) Then following the 400 foot contour line to its intersection with Warrington Road approximately 6,500 feet southwest of the peak of Taylor Mountain (elevation 1401 feet);

(15) Then southwest along Warrington Road to its intersection with Petaluma Hill Road;

(16) Then generally northwest along Petaluma Hill Road until its intersection with Santa Rosa Avenue;

(17) Then generally northwest along Santa Rosa Avenue until it becomes Mendocino Avenue;

(18) Then generally northwest along Mendocino Avenue until it becomes Old Redwood Highway;

(19) Then generally northwest along Old Redwood Highway to the point where it intersects a Pacific Gas & Electric power line (indicated by a dotted, broken line);

(20) Then generally northwest along the Pacific Gas & Electric power line to its intersection with an unnamed road (Grant School Road) approximately 1,800 feet southwest of an unnamed peak of 993 feet elevation;

(21) Then generally west along said road to its westernmost point;

(22) Then due west in a straight line approximately 3,300 feet to the Russian River;

(23) Then south along the Russian River to where Foreman Lane meets the river at the mouth of Dry Creek;

(24) Then west along Foreman Lane to where it crosses Westside Road and becomes Felta School Road;

(25) Then west on Felta School Road to the point where it crosses Felta Creek;

(26) Then 18,000 feet up Felta Creek to its headwaters approaximately 5,500 feet northwest of Wild Hog Hill (elevation 1150 feet);

(27) Then southwest in a straight line 58 degrees W approximately 27,000 feet to an intersection with Hulbert Creek in Section 25, T. 8 N., R. 11 W.;

(28) Then south and southeast along Hulbert Creek to its confluence with the Russian River;

(29) Then generally southwest along the Russian River to its confluence with ~~Austin Creek;~~

(30) Then northwest in a straight line approximately 4.75 miles to the peak of Pole Mountain (elevation 2204 feet);

(31) Then northwest in a straight line approximately 3 miles to the peak of Big Oat Mountain (elevation 1404 feet);

(32) Then northwest in a straight line approximately 6.5 miles to the peak of Oak Mountain (elevation 1691 feet);

(33) Then northwest in a straight line approximately 14.5 miles to the northeast corner of Section 25, T. 11 N., R. 14 W., being the point where the boundary between Sonoma and Mendocino Counties makes a 90 degree turn to the north);

(34) Then west and southwest following the boundary between Mendocino and Sonoma Counties to the point of beginning.

We hereby request that the necessary steps be taken by the Bureau of Alcohol, Tobacco and Firearms to rule that Sonoma Coast be named a Viticultural Area in California.

Very truly yours,

/s/ Brice C. Jones, President, Sonoma-Cutrer Vineyards
Sara Schorske
Daniel E. Wickham, Sea Ridge Winery
Basil Scalabrini, Scalabrini Vineyards
Jeff Libarle, Diamond Oak Vineyards
Ronnette and Bill Rose, Rose Family Winery
Liz Young, Grower
E. A. Durell, Durell Vineyards
Rod L. Berglund
Thomas R. Sellards, Sellards Winery
John B. Merritt, The California Wine Company
Peter Friedman, Belvedere Wine Company
Barry C. Lawrence, Eagle Ridge Winery
Joseph A. Swan, Joseph Swan Vineyards
Donald A. Schatzberg, Grower
Louis M. Foppiano, L. Foppiano Wine Company
Robert Pelligrini, Pellegrini Vineyards
Christopher John Scantland, grower
Jim Soper, Soper-Wheeler Ranch
Dennis Samson, Grower
William Q. Lawrence, Grower

LIST OF EXHIBITS:

Exhibit	Name	Source
A	"Viticulture in Petaluma" by Barry Lawrence	"Wine West" Oct./Nov. 1985 issue
B	Supervisorial Districts	Sonoma County Planning Department
C	Planning Areas	Sonoma County Economic Development Board Data File
D	Plantclimate Map	Sunset New Western Garden Book
E	Relief Map of California Showing "Coastal Belt"	Calif. Energy Commission "Wind Resources Potential in California"
F	Fig. 6: July Mean Max. Temp. Fig. 8: Highest Observed Temp. Fig. 11: Ave. Length of Growing Season	Robert Elford's Climate of Sonoma County
G	Climate Map showing fog intrusion	Sonoma County General Plan
H	California Predominant Surface Wind Flow Patterns; Bay Area Flow Pattern Types and Frequencies	Calif. Air Resources Board "California Surface Wind Climatology"
I	General Nature of Sea Breeze and its Movement Inland	California Division of Forestry "Calif. Fire Control Notes"
J	Degree Day Totals of Typical Coastal Cool Sites	U. of Calif. Extension Service, Sonoma County
K	Map of Extension Service Test Sites	U. of Calif. Extension Service, Sonoma County
L	Viticultural Subregions of Sonoma Valley	Connoisseur's Guide to Calif. Wines (Vol 4. No. 4)

High atop Sonoma Mountain

TTB Note: The following two comments were submitted in support of the Sonoma Coast AVA prior to the public comment period.

Received 3/31/86

From the desk of:

Barry C. Lawrence

- ☐ Teacher Santa Rosa Junior College
- ☐ Eagle Ridge Winery
- ☐ Director Petaluma Resource Conservation Dist.
- ☐ Commercial Pilot
- ☐ Vice-President Quintrea Inc. Investment Corp.
- ☐ Member Petaluma Airport Advisory Committee
- ☐ FAA & NABER Test Examiner
- ☐ German Wine Ambassador
- ☐ Aerial Photography
- ☐ Member Society of Wine Educators
- ☐ Certified Flight Instructor
- ☐ Aero Courses
- ☐ Listed in Who's Who
- ☐ Notary Public

March 22, 1986

B.A.T.F
Federal Building
1200 Pennsylvania Avenue
Washington D.C. 20226

Re: Coastal Sonoma Appellation

Dear Sir:

I am writing to show my support for the Coastal Sonoma Appellation and to offer my expert testimony on why the appellation should be approved.

Being a vineyardist and winery owner as well as a commercial pilot, flight instructor and FAA (Federal Aviation Administration) designated test examiner and wine instructor at Santa Rosa Junior College, I feel I am eminently qualified to say that the weather patterns including temperatures, wind patterns, and fog movements do in fact exist and are accurate as outlined in the proposal, and do make this a distinguishable viticultural area.

I offer photographic proof (enclosed) showing the fog intrusion around the 1000 foot level on the Western side of Sonoma Mountain and around the proposed appellation.

Most all pilots and meteorologists will agree that the photos represent the most common and accurate fog movements year around.

The enclosed map of Sonoma County shows its airports and the prevailing winds at each of these airports and its most common active runway throughout the year. Remember airplanes land into the wind so the most active runway is the opposite direction of the winds.

2900 SONOMA MOUNTAIN ROAD • PETALUMA, CALIFORNIA 94952
Telephone 707-795-AERO (2376)

High atop Sonoma Mountain

From the desk of:

Barry C. Lawrence

☐ Teacher
Santa Rosa
Junior College

☐ Eagle Ridge
Winery

☐ Director
Petaluma Resource
Conservation Dist.

☐ Commercial Pilot

☐ Vice-President
Quintrea Inc.
Investment Corp.

☐ Member Petaluma
Airport Advisory
Committee

☐ FAA & NABER
Test Examiner

☐ German
Wine Ambassador

☐ Aerial
Photography

☐ Member
Society of
Wine Educators

☐ Certified Flight
Instructor

☐ Aero Courses

☐ Listed in
Who's Who

☐ Notary Public

And lastly temperatures. For the last eight years I have lived on Sonoma Mountain (all of my life in Sonoma County) and anyone who lives on the mountain knows the distinct temperature change on the mountain between 800 - 1000 Feet. It is common from May to November to be anywhere from 10 to 20 degrees warmer above the 1000 foot level than below.

I hope these facts will weigh positively in your approval of the Coastal Sonoma Appellation.

Sincerely,

Barry C. Lawrence

Barry C. Lawrence

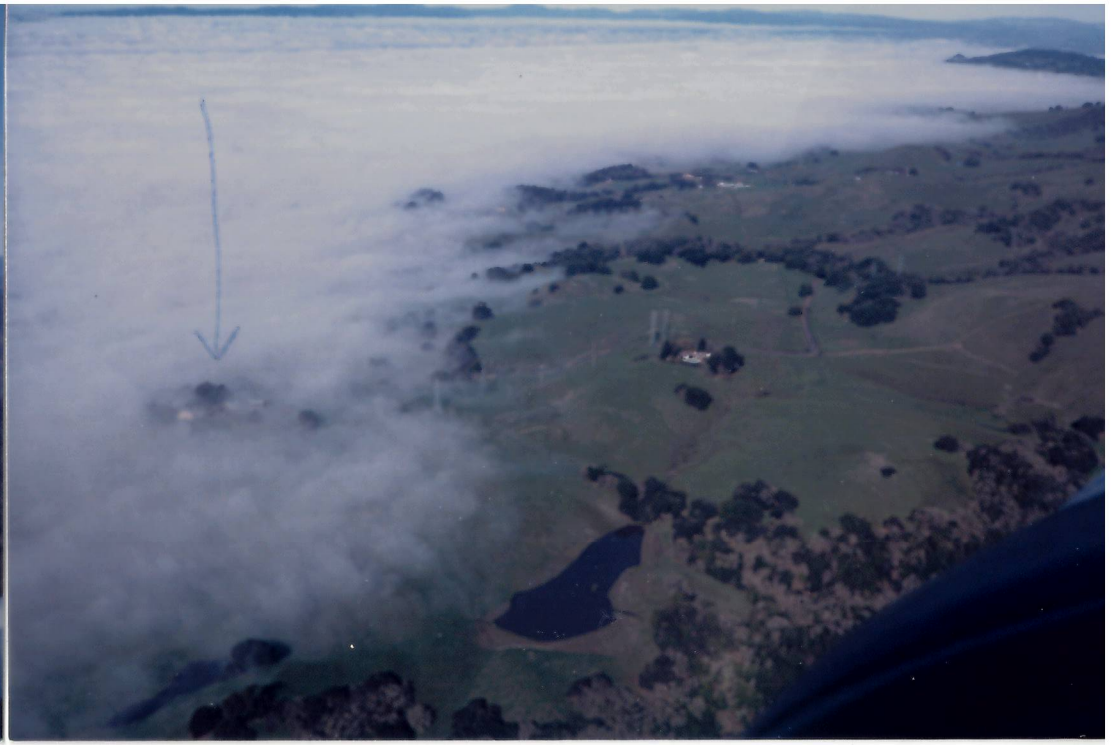
Enclosures

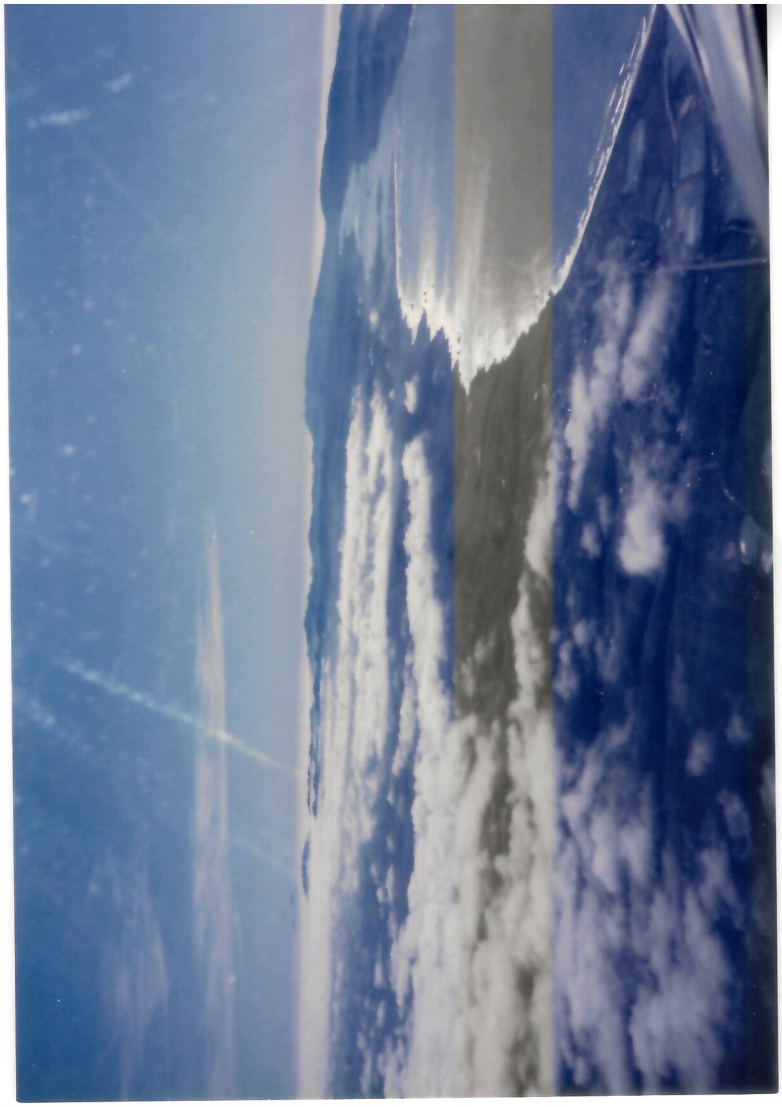
2900 SONOMA MOUNTAIN ROAD • PETALUMA, CALIFORNIA 94952
Telephone 707-795-AERO (2376)

COASTAL SONOMA APPELLATION

Photo #1	Looking north west at Sonoma Mountain shows the fog at the 1000' level extending across the Petaluma Valley and Santa Rosa plains.
Photo #1-A	Points out the location of 550 Sonoma Mountain Rd. as mentioned on Page 21 of the proposal.
Photo #2	Looking north-northwest at Sonoma Mountain shows the fog in Southern Sonoma Valley. Note Northern Sonoma Valley is clear. Mt. St.Helena in background.
Photo #3	Shows fog around Mt. Taylor and Santa Rosa, Bennett Valley is clear.
Photo #4	Looking west towards the ocean across Santa Rosa plains at Sebastopol.
Photo #5	Looking West Northwest at Sebastopol and Laguna fog is retreating.
Photo #6	Sonoma Cutrer Winery bottom of photo looking west down the Russian River Valley clearly shows the fog intrusion from the Pacific Ocean.
Photo #7	Shows Alexander Valley (middle & right) are clear as well as Dry Creek Valley (left) is clear. All photos were taken the same day. Windsor in foreground, Healdsburg left. Mt. St. Helena extreme right.
Photo #8	Over the town of Jenner at the mouth of the Russian River at the Pacific Ocean, looking north.
Photo #9	Over Jenner looking south and east along the coast line shows the fog intrusion all the way to San Pablo Bay.
Photo #10	Looking east over Bodega Bay shows Marin County clear and fog in the Petaluma-Bodega "gap" extending to San Pablo Bay, as explained on Page 14.
Photo #10A	Taken from my residence at the 2000' level on Sonoma Mountain looking west. Shows the fog at its typical 800-1000 level.

All photos taken at 9:00 - 10:00 AM.





March 19, 1986

Mr. John Linthicum
FAA Wine and Beer Branch
Bureau of Alcohol, Tobacco & Firearms
Federal Building
1200 Pennsylvania Avenue
Washington, D.C. 20226

Re: Sonoma Coast Viticultural Area

Dear Mr. Linthicum:

As an interested vintner in Sonoma County, I would like to indicate my strong support for the proposed Sonoma Coast viticultural area.

My family has lived in the area for a number of years. Our vineyards are located inside and outside the proposed area. I can say from personal experience that the temperature, wind, and fog patterns in the proposed area do distinguish it from surrounding parts of the county. I feel that the proposal accurately describes the area, its historical identity, and its distinctive features.

I have no problem with the Sonoma Coast viticultural area overlapping previously approved viticultural areas in Sonoma County. I believe the boundaries as proposed reflect the natural boundaries of the region based on the historical and geographical evidence presented.

Sincerely,

Peter S. Friedman

Peter S. Friedman

PSF:smc

Belvedere Winery
Winery and Vineyards: 4035 Westside Road
Healdsburg, California 95448-9990, (707) 433-8236