watch which must be brought to the attention of the skipper. Any information a watchman notices that represents a potential threat to the vessel should be given, *and acknowledged,* by the skipper/navigator whether or not he or she is busy or even asleep.

Baidarka never enters a narrow passage, a harbor, an anchorage, or a marina without one or more persons on bow watch, with standing orders of where and what to watch for. We have the watchman point continuously at an object of concern until the helmsman or navigator gives an acknowledgment. (We ask the watchman not to point in the direction he thinks the helmsman should turn, as that is the decision of the navigator.)

Baidarka's crew has been able to avoid almost all Pacific Coast charted and uncharted hazards from Cape Horn to the Gulf of Alaska by following this simple rule of maintaining a proper watch. There is absolutely NO substitute for open and alert eyeballs!

Waypoints and GPS

GPS is an excellent tool for navigating the Pacific Coast. Navigational aids become rare as you leave urban areas and commercial routes. Many inlets and channels can be confusing. GPS will help locate the proper entrances, detect cross-track errors, provide speed over the ground, and hence determine tidal currents.

Latitude and longitude for waypoints in this book—given to the nearest one-hundredth of a minute of latitude—are taken from the largest scale charts available and are referenced to NAD83 which, for practical purposes, are identical to the GPS default horizontal datum of WSG84. These latitude/longitudes are to be treated as approximate only and should be verified by each user. Many of the referenced charts are not accurate (nor can they be read accurately) to one-hundredth of a minute. We have approximated this last digit—which is about a boat's length—to provide as complete a picture as possible. With the removal of Selective Availability (SA), *Baidarka* has found both differential GPS and WASS GPS to be stable to within a boat's length, and very accurate. (See FineEdge.com's *GPS Instant Navigation* for a full discussion.)

Errata and Updates

When a new edition is published by FineEdge.com it contains all the known updates and supersedes the older edition which is no longer valid. Your comments, corrections or suggestions are welcomed. Please send them to office@FineEdge.com Errata and updates on current editions are posted when available on the publishers' website www.FineEdge.com

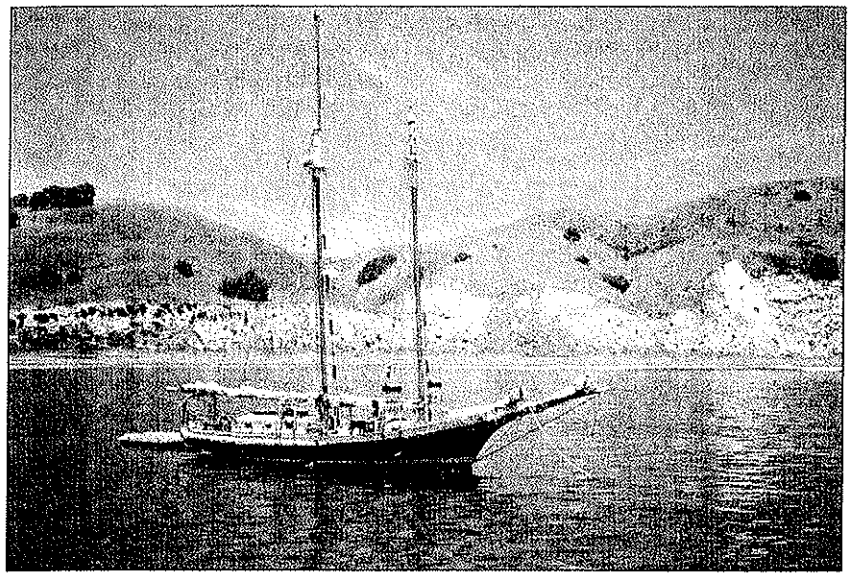
V. Weather Considerations

Key to a safe and comfortable passage along the Pacific Coast is knowledge of the weather. The U.S. National Oceanic and Atmospheric Administration (NOAA) and the National Weather Service (NWS) provide a number of comprehensive resources available to mariners along with up-to-date weather information.

Weather reports broadcast on VHF WX channels are invaluable for an update on the current state of the weather and the forecast. The recorded WX broadcasts have traditionally been used by boaters for a daily, or more frequent, update. The NOAA Weather Radio Network provides voice broadcasts of the local and coastal marine forecasts on a continuous cycle issued by the NWS every 3 to 6 hours, or amended as required, and broadcast continuously on Weather Channel 1 or 2. Local NWS Forecast offices located in San Diego, Los Angeles, San Francisco, Eureka, Medford, Portland and Seattle produce the forecasts for the Pacific Coast.

When one travels outside of their home waters, the locations used to describe a weather area are new and not easily comprehended as you hear the continuous broadcast. We have included diagrams for the Pacific Coast to illustrate the reporting area locations and the location of offshore weather buoys.

The additional services and resources from NOAA and NWS can present a deeper picture of the weather. In addition to VHF, extensive up-to-date weather data can now be obtained on the



A cozy cove in the Channel Islands

web, weatherfax and by telephone. While online resources are typically best for briefing before a trip when one can access weather data from an online connection on land, more and more vessels are being equipped with satellite connections for access to the internet and email. Marinas are now beginning to offer Internet connections for their customers. When you desire the most comprehensive report of the weather, an internet connection can provide you with access to all of the NOAA services including real-time NEXRAD Doppler Radar at www.nws.noaa.gov/om/marine/home.htm#dissemination.

Where possible, stop by the local NWS office. As an example, the Eureka weather office is only two blocks from the marina and it is open 24 hours per day, seven days per week. The staff provided the *Baidarka* crew with a personal weather briefing complete with time lapse video of the past few day's satellite shots and their fine-tuned forecasts for the route we had chosen. Let them know you appreciate their service and call them direct if you have a serious concern only they can address or assist with.

For those mariners considering the Express or Bluewater routes with access to cellular or satellite phone, you may want to consult the Dial-A-Buoy system. Along the Pacific Coast, NOAA maintains a network of weather reporting ocean buoys located between 15 and 40 miles off the coast, in addition to several buoys anchored about 300 miles offshore to report advancing weather. Buoy reports include wind direction, speed, gust, significant wave height, swell and wind-wave height and periods, air temperature, and sea level pressure. Some buoys report wave direction. To access Dial-A-Buoy, call 228.688.1948. Enter 1 and the 5 digit identifier for a buoy. The buoys and their locations are illustrated on the diagrams. The Dial-A-Buoy system can also read the latest NWS marine forecast for most station locations. If this option is available, the system will prompt you to press the # key after the buoy observation is read.

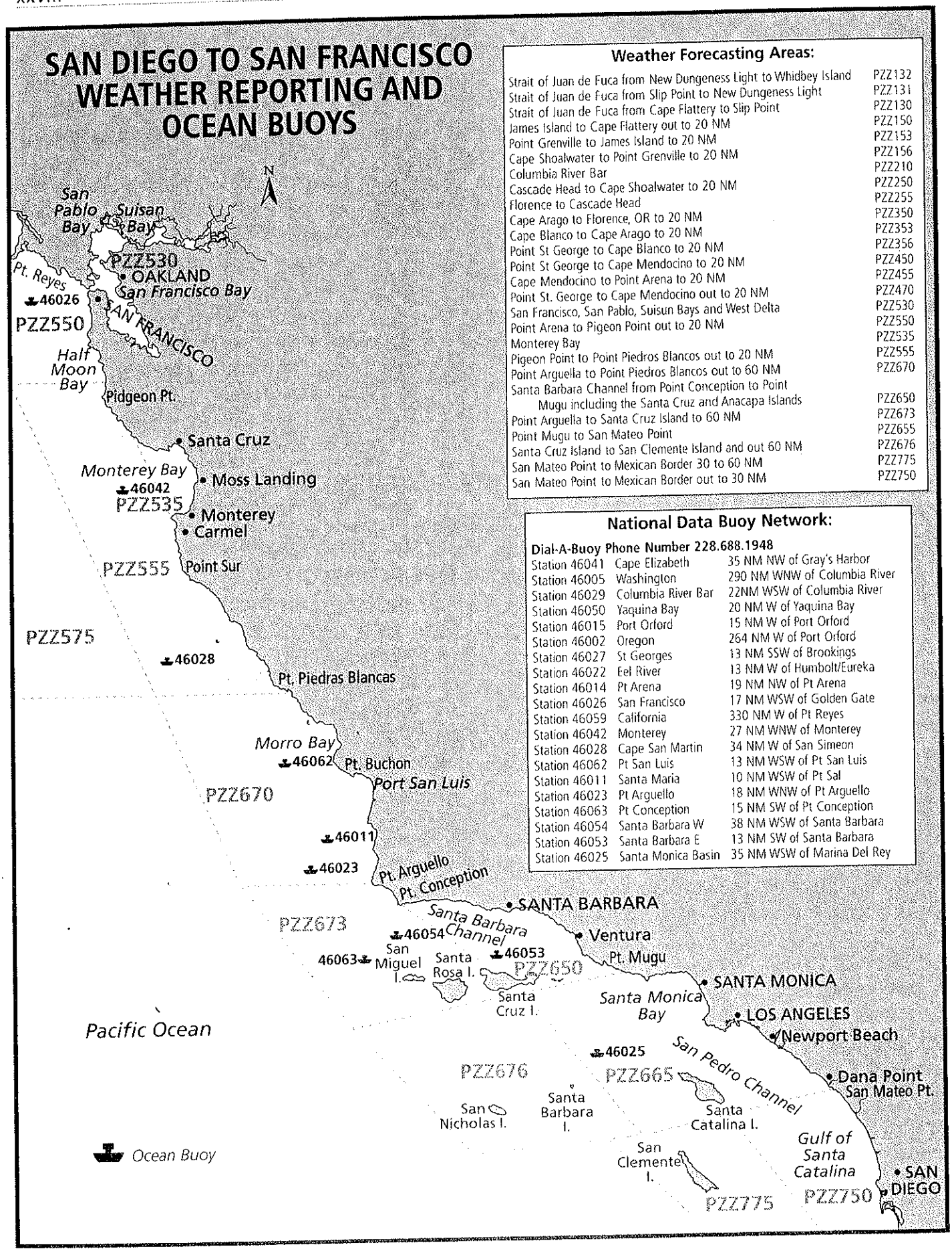
Semi-Annual Weather Patterns: Spring and Summer

The weather on the Pacific Coast follows a general semi-annual pattern. Changes are associated with the building up or breaking down of the North Pacific High Pressure Cell around the times of the spring and fall equinoxes.

Following the late winter storms, near March 21, the Pacific High begins to build about a thousand miles west of Vancouver Island. This more or less permanent high-pressure zone deflects most summer lows into the Gulf of Alaska where they either dissipate or take a varied path that affects coastal weather. We recommend waiting until the Pacific High is well entrenched—generally early to mid-May—before you head into northern waters.

During the summer months, in times of stable high pressure, the West Coast undergoes a daily pattern of diurnal micro-weather that is quite predictable. Nights are usually quite calm and quiet along the coast with fog or low clouds moving on shore. In the afternoon, moderate to strong northwest breezes pick up, dissipating the clouds and creating wind chop of several feet, until evening when conditions become calm again. During such periods, most weather

SAN DIEGO TO SAN FRANCISCO WEATHER REPORTING AND OCEAN BUOYS



Weather Forecasting Areas:

Strait of Juan de Fuca from New Dungeness Light to Whidbey Island	PZZ132
Strait of Juan de Fuca from Slip Point to New Dungeness Light	PZZ131
Strait of Juan de Fuca from Cape Flattery to Slip Point	PZZ130
James Island to Cape Flattery out to 20 NM	PZZ150
Point Grenville to James Island to 20 NM	PZZ153
Cape Shoalwater to Point Grenville to 20 NM	PZZ156
Columbia River Bar	PZZ210
Cascade Head to Cape Shoalwater to 20 NM	PZZ250
Florence to Cascade Head	PZZ255
Cape Arago to Florence, OR to 20 NM	PZZ350
Cape Blanco to Cape Arago to 20 NM	PZZ353
Point St George to Cape Blanco to 20 NM	PZZ356
Point St George to Cape Mendocino to 20 NM	PZZ450
Cape Mendocino to Point Arena to 20 NM	PZZ455
Point St. George to Cape Mendocino out to 20 NM	PZZ470
San Francisco, San Pablo, Suisun Bays and West Delta	PZZ530
Point Arena to Pigeon Point out to 20 NM	PZZ550
Monterey Bay	PZZ535
Pigeon Point to Point Piedros Blancos out to 20 NM	PZZ555
Point Arguella to Point Piedros Blancos out to 60 NM	PZZ670
Santa Barbara Channel from Point Conception to Point Mugu including the Santa Cruz and Anacapa Islands	PZZ650
Point Arguella to Santa Cruz Island to 60 NM	PZZ673
Point Mugu to San Mateo Point	PZZ655
Santa Cruz Island to San Clemente Island and out 60 NM	PZZ676
San Mateo Point to Mexican Border 30 to 60 NM	PZZ775
San Mateo Point to Mexican Border out to 30 NM	PZZ750

National Data Buoy Network:

Dial-A-Buoy Phone Number 228.688.1948

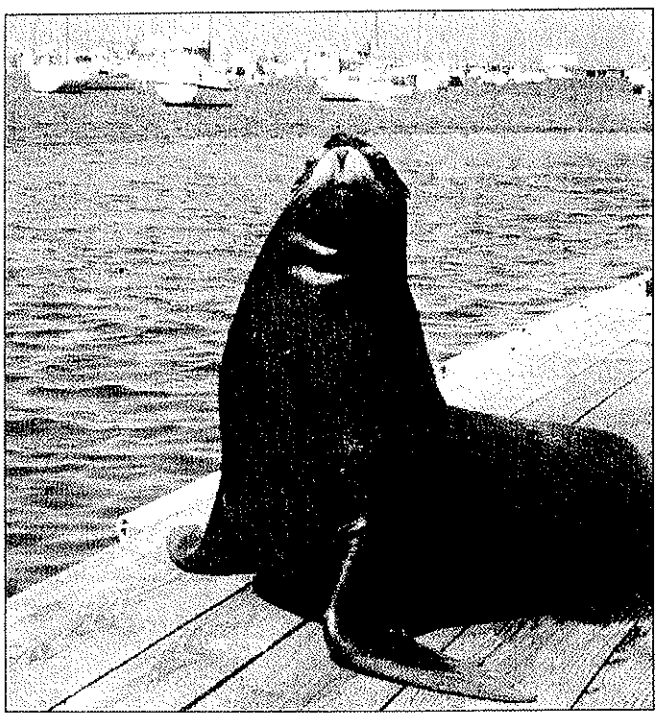
Station 46041	Cape Elizabeth	35 NM NW of Gray's Harbor
Station 46005	Washington	290 NM WNW of Columbia River
Station 46029	Columbia River Bar	22NM WSW of Columbia River
Station 46050	Yaquina Bay	20 NM W of Yaquina Bay
Station 46015	Port Orford	15 NM W of Port Orford
Station 46002	Oregon	264 NM W of Port Orford
Station 46027	St Georges	13 NM SSW of Brookings
Station 46022	Eel River	13 NM W of Humbolt/Eureka
Station 46014	Pt Arena	19 NM NW of Pt Arena
Station 46026	San Francisco	17 NM WSW of Golden Gate
Station 46059	California	330 NM W of Pt Reyes
Station 46042	Monterey	27 NM WNW of Monterey
Station 46028	Cape San Martin	34 NM W of San Simeon
Station 46062	Pt San Luis	13 NM WSW of Pt San Luis
Station 46011	Santa Maria	10 NM WSW of Pt Sal
Station 46023	Pt Arguello	18 NM WNW of Pt Arguello
Station 46063	Pt Conception	15 NM SW of Pt Conception
Station 46054	Santa Barbara W	38 NM WSW of Santa Barbara
Station 46053	Santa Barbara E	13 NM SW of Santa Barbara
Station 46025	Santa Monica Basin	35 NM WSW of Marina Del Rey

stations report a high percentage of light to moderate winds with little or moderate precipitation—conditions that provide good cruising.

Although low-pressure fronts do manage to evade the Pacific High and hit the west coast, they usually occur at intervals of two to six weeks. These fronts, which are usually announced by a falling barometer, a change in both the direction and intensity of the wind, as well as by clouds and precipitation, normally last just a day or two and are well forecast. It is best to remain in a sheltered harbor or cove during the approach of unstable weather.

Although summer gales from the southeast are not unknown, they are not as intense as winter storms, and can still pack a dangerous wallop to small craft. More frequent is a common phenomenon of a low-pressure cell forming over the deserts and inland valleys of California, caused by thermal heating, which is felt all along the coast as strong summer northwesterlies. Although northwest gale-force winds of up to 40 knots do occur, strong winds of 20 to 30 knots are more common.

Take any summer storms or deep, low-pressure fronts seriously by noting barometric pressure and monitoring weather broadcasts frequently. When you observe signs that a gale or storm from the southeast is developing, or if you hear a report of an impending gale or storm, head directly for a harbor or anchor site that offers protection from south or east winds. Take appropriate precautions for safety, such as maintaining sufficient swinging room and setting your anchor well. (It is always a good idea to take bearings on fixed objects to determine whether or not your anchor is dragging.)



Sea lion at Monterey Marina

In Southern California, when a stronger than average Pacific High is established, Northwest winds of 20 to 30 knots frequently occur off Point Conception and over the outer Channel Islands. The winds, with a duration of 12 to 18 hours, will produce wind waves of 10 to 16 feet. Coastal winds are usually light with this pattern; without a prior check of the weather, this situation can lead to unexpected and dangerously high seas.

The Santa Ana winds of Southern California, although quite localized, can cause dangerous seas particularly in Avalon Bay on Catalina Island. Avalon Harbor is exposed and unprotected to winds and seas from the East and Northeast, and the stronger Santa Ana winds can cause hazardous sea and surf in the harbor.

Semi-Annual Weather Patterns: Fall and Winter

Near the autumnal equinox (September 21), the Pacific High begins to collapse and the first major low-pressure fronts return, bringing foul weather and precipitation. Without the protection of a strong North Pacific High, about 10 low-pressure fronts per month affect the Northwest Coast; this occurs much less frequently south of Point Conception. During some of these storms, barometric pressure drops as low as 980 millibars, bringing hurricane force winds of 60 knots or more. In winter, prevailing winds are from the southeast, with heavy precipitation and high, dangerous seas. For this reason, offshore cruising along the Pacific Coast during the winter is usually not recommended; however we have heard of a number of skippers who have watched for the

calms between fronts and have had successful trips.

In the southern areas of the Pacific Coast, well-developed cold fronts in the Fall through the Spring will produce strong and shifting winds. Winds preceding a front are usually from the south and southeast, and shifting into the northwest with the frontal passage. Wind speeds are generally in the 20 to 40 knot range with heavy and confused seas.

Barometric Pressure and Wind Velocities

Wind velocity tends to occur in direct proportion to the barometric pressure gradient—the rate of rise or fall of pressure. Falling barometric pressure that descends 1 millibar per hour usually means strong winds of 20 to 30 knots; a drop of 2 millibars per hour means gales of 35 to 45 knots; a drop of 3 millibars per hour brings storm-force winds of 50 to 60 knots. On the contrary, a rising barometer of 1 millibar per hour brings strong-to-gale-force winds of 25 to 40 knots.

By noting barometric pressure hourly in your ship's log, or by using a recording barometer, you can visualize this gradient of pressure and prepare for expected wind and sea conditions. During the prevailing summer northwesterlies, a steep pressure gradient lies parallel along the shore and you will find strong winds without noting a fall in the barometer, common with a low pressure front.

Wind Rotation

In the Northern Hemisphere, winds flow clockwise around a high-pressure cell and counterclockwise around a low-pressure cell. In other words, in the Northern Hemisphere, with the wind to your back, the low pressure is on your left, while the higher pressure is on your right. This simple test, and observation of the barometric pressure gradient, can give you an idea of the path of a storm cell and an idea of the strength and direction of upcoming winds. However, local topography can greatly affect the direction of the wind so, by studying the movement of clouds aloft, you can get a better idea of true wind direction and strength.

Wind Direction and Cloud Cover

Winds that arrive in advance of a low-pressure front generally blow from the south or southwest, then back (move counterclockwise) to the southeast as the front approaches. The strongest winds and highest seas usually occur just ahead of the low-pressure front. With the approaching front, clouds thicken and lower, taking on an ominous appearance; precipitation is heavy and may last for several hours. With the passage of a low-pressure front, the wind veers (moves clockwise), first to southwest, then to northwest. During the summer after the wind veers to its prevailing northwesterly direction, it may blow hard for a day or two, as if to send all the southern air back where it originated. We have experienced our lumpiest trips along the coast when we set out too soon after the barometer "bottomed out" and the wind veered to the west.

If high pressure over the interior of British Columbia sends strong outflow or arctic winds, with cold dry winds building from the northeast, along with a rising barometer, quickly seek shelter from downslope winds and seas. This is more common in the Northwest and is similar to the Santa Ana winds of Southern California, except that the high pressure is over Nevada or Utah. In addition, during times of strong runoff caused by heavy rainstorms or snowmelt, ebb currents tend to be quite strong and, in some cases, they completely override the direction of the flood on the surface of the water. It's a good idea to stay put during the periods when strong currents oppose the wind.

Micro-Climatic Conditions

Since wind forecasts usually cover a wide general area and are given for the strongest winds expected, local winds—influenced by the topography of an area—may vary significantly from the forecast. We frequently hear stories of boats that stay put far longer than they need to because of small craft warnings or high wind notices. Weather forecasts are conservative by nature. You won't hear one calling for a beautiful calm day; instead, it forecasts the worst weather expected to occur any time during that period.

Corner wind is the effect of increased wind peed when a wind blows past a headland, uch as off Point Conception, Cape Mendocino, 'oint Reyes and the like. A corner wind is usu- lly stronger than that experienced on either ide of its land-mass.

Gap winds (or **funnel winds**) are caused by funneling effect between islands—such as ıose occurring in Santa Barbara Channel, the olden Gate, and at Cape Flattery. When gap inds blow against tidal currents, they can ause dangerous, steep, breaking waves.

Lee effect occurs along a steep shoreline here a turbulent and gusty offshore wind ieets an opposing wind at the top of a cliff. eversed eddies, along with onshore winds, ıay create confused, steep seas along the base f the cliffs.

During periods of moderate prevailing inds, **sea breezes** blow from sea toward land uring the heat of the day (usually in the after- oon). The prevailing inflow and afternoon sea reeze can combine to reach 20 to 30 knots. Sea reezes may contribute to the prevalence of ummer forecasts of moderately strong after- oon winds. These winds may intimidate a kipper new to the area who interprets them as inds that arrive in advance of a low-pressure ont. Check forecasts and your barometer to erify whether they are prevailing afternoon sea reezes or a more serious change requiring you) seek alternative shelter.

Land breezes blow from land toward sea uring the night and can be gusty, but—except for ıtflow winds—their velocity is usually less than ıat of a sea breeze. Both sea and land breezes ie quickly, as does the chop they generate.

Anabatic winds, caused by rising warm air, e upslope winds that occur during the day- me near valleys and inlets.

Katabatic winds—downslope winds occur- ng at night (also known as **williwaws**)—are ıused by falling cool air. These winds, which e usually stronger than upslope winds, often ast down a valley or gully below high ridges, ving you good reason to set your anchor well on an otherwise calm evening. Williwaws can reach frightening velocities when the sides of a fjord are steep and capped by ice or snow; they are usually of short (but intense) duration and they may affect just a small area. Since they are cyclonic in nature, the actual direction of a williwaw varies, and it can frequently be seen whipping up chop or foam wherever it hits the water. Williwaws require high mountains and are mostly found in the high latitudes.

Surge winds are strong winds generated occasionally in the summer during periods of high barometric readings (1010 to 1015 millibars). These winds disturb the stable weather of the Pacific Coast and can surprise a cruising boat. Caused by a lee trough which forms off the coast during a period of prolonged thermal heating of the interior land mass, this phenomenon causes prevailing light easterlies adjacent to the coast, but it can cause gale-force northwesterlies farther offshore. A more potentially dangerous condition called **stratus surge** occurs when a larger lee trough off northern California shoots north along the Oregon and Washington coasts, picking up speed as it surges, and bringing with it low clouds and fog. During a stratus surge, winds shift abruptly from light easterlies to southerlies of gale force or stronger; they can strike suddenly without much movement in the barometer, but they bring a sharp drop in air temperature. Local fishermen call these fog winds and, other than fog or low, dark stratus clouds from the south, there are no reliable signs of their approach. However, when such conditions do occur, they are usually forecast on the continuous weather broadcasts.

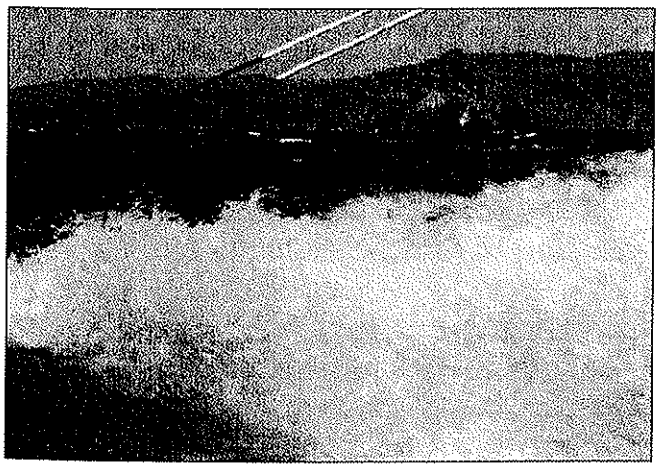
If you are in doubt about any weather forecast, or if you witness any unusual or rapid changes in prevailing conditions that could affect the safety of your boat, call the Coast Guard on Channel 16 at once and ask for a clarification or for their assistance, if you need it. They would rather give you the information you need for making a wise decision than risk a dangerous and costly rescue.

Marine Fog

Marine fog—formed when warm Pacific air moves over relatively colder seas—causes greatly reduced visibility in the Spring in the south west coast and late summer in the Northwest making navigation dangerous. At times the Pacific Coast visibility is reduced to zero. It can be highly localized or may cover a large region. Radio chatter can give you an idea how wide an area the fog covers. The *Coast Pilot* discusses the percentages of fog experienced by different areas. Cruising boats without radar often find they have to wait until the fog burns off before they can move on. Fog can be forecast quite well as the dewpoint approaches the temperature of the environment; local marine weather stations broadcast such conditions.

Marine fog frequently forms offshore, moves inland in early evening, remains all night, and then lifts or dissipates in the late morning. Many weather stations report the highest percentage of fog in their 7 a.m. observations, the least in their 4 p.m. observations. With the lengthened hours of daylight in summer, you can frequently get a late start after the fog lifts and still maintain your planned schedule.

During foggy periods, many sportfishing and commercial boats continue to fish, creating congestion and navigational hazards (or challenges!) for cruising boats, particularly near harbor entrances and across fishing grounds. It's a good idea when you approach congested areas to station an alert lookout on your bow and to listen carefully for foghorns, bells, or the sound of other propellers. Remain especially alert in shipping channels. Ferry boats and other commercial high-speed craft rarely slow down, and there's nothing quite so alarming as hearing the horn of a large ship as it bears down on your little vessel. Good radar reflectors and radar sets are critical in these situations, as is bridge-to-bridge contact on VHF. Also don't hesitate to monitor and/or call Vessel Traffic Services for a traffic report on the shipping lanes in your area.



Breaking seas in afternoon near gale

Radiation fog, primarily a problem in harbors and inlets, forms over land during the early mornings on windless days and generally dissipates after the sun or wind comes up. During prolonged spells of radiation fog, winds are usually (but not necessarily) light, and the seas are nearly flat.

When fog moves offshore during the day, it is called sea fog. Formed when winds are moderate, **sea fog** moves back onshore in the evening, and may persist as winds become stronger, lasting just a day, or continuing without a break for several days at a time.

Rain

Rain—associated with the passage of a frontal system accompanied by low, dark clouds often lasting for several hours at a time—reduces visibility, although usually to a lesser extent than fog. Drizzle (fine precipitation) also occurs with the passage of a front. However, it sometimes persists between frontal systems. Rain showers cover a small area for short periods and fall from cumulus clouds, the heaviest usually occurring after a front has passed and cold northwesterly winds have set in.

Southern California can go for months at a time with little or no rain. However, the Northwest coast and the Inside Passage are located in a temperate rain forest zone with 5 times or more the average rainfall of the south. Rain is less pervasive in summer than in winter, however the need for foul weather gear increases sharply as you leave Southern California waters.

Sea Conditions

"Sea" is defined as that segment of a wave riding on top of the prevailing swell. Seas are caused by local winds while swells are caused by winds whose source lies outside the local region.

Forecasts sometime use the phrases "sea-state" or "combined wind-wave and swell height," which refer to the significant height of the combined wind-wave and swell. Significant wave height is the average height of the highest one-third of all waves present. Note that waves of half the forecast value can and do occur, while an individual wave in a period of three to four hours can occur that is double the forecast value. Values for sea-state are given in feet in U.S. waters and in meters in Canadian waters. Wave height is generally in direct proportion to the distance over which the wind has been blowing (the fetch), the wind speed, and the duration of time the wind has been blowing.

The ocean swells you encounter on long passages can be alarming if you've sailed only on inside waters. Shoaling water found off some bays and rivers like San Francisco can cause the background swell to reach 8 to 12 feet. However, the length of such swell is generally about 100 yards, and while the swells may appear large, they are usually not threatening. However, if a strong ebb current meets a moderate southwest or west wind, the seas heap up and are much closer together, causing an uncomfortable wet ride and can become a threat to small craft. It is best to avoid these conditions if possible or slow down considerably and move out of the fast-moving water.

Tides

In general, the farther north you go, or the farther removed you are from the open ocean, the greater the tidal range. The tidal range in Southern California is a few feet but in Glacier Bay, Alaska and heads of remote inlets, an extreme tidal range of well over 20 feet is not uncommon. As standard daily procedure, especially when anchoring, check tide tables and allow for changes in tide levels (as well as their associated currents)!

Steep Waves

A wave becomes steeper near shore, or when a current flows opposite to the direction of the wave. It is this steepness that presents the most danger for small craft.

All the major bays and rivers along the coast are subject to steep waves when ebb currents oppose the wind. (See our notes on *Baidarka* at Eureka.) We have seen three wind waves roughly double in height and steepen to the breaking point when the tide and current changed to ebb current of several knots; this condition is the primary reason for loss of boats off the entrance to the Columbia River.

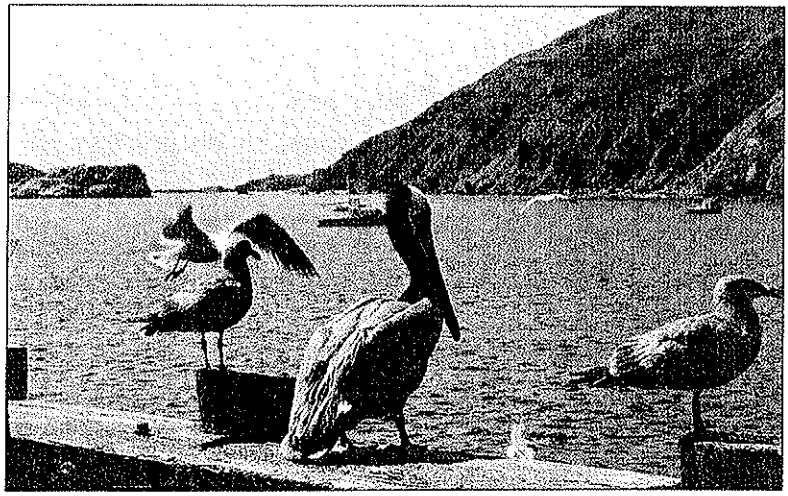
A current flowing in the same direction as the wind has the opposite effect; swell height is diminished and the period lengthened, cutting the steepness dramatically. When the current is unfavorable, it's a good idea to hole up for a few hours, rather than stressing your boat and crew unnecessarily.

Narrows and Rapids

Uncomfortable or dangerous seas can also be found in tidal narrows and rapids and across channel or inlet bars. Rips are turbulent agitation of the water caused by the interaction of currents and wind waves. In shallow water, irregular bottom rips can create short, breaking waves. These conditions are common in the Northwest. Deception Pass, south of Anacortes, is a good place to observe this phenomena which occurs all the way up the Inside Passage. Overfalls are areas of turbulent water caused by currents setting over submerged ridges or shoals. A severe overfall can produce a sharp rise or fall in water level and may even create whirlpools. Short, closely spaced standing waves ("dancing waters") are also seen where currents meet. A small boat may be tossed from side to side in overfalls. Note the indications of rips and overfalls on the nautical chart and heed the warnings and instructions in the U.S. *Coast Pilot* or the Canadian *Sailing Directions*. The key is to plan your passage through critical narrows or rapids to occur at, or near, slack water to reduce the effect of overfalls and turbulent water.

Strategies for Coping with the Variables of Weather

If we haven't made you paranoid and wanting to stay home, here are a few tips that may allow you to keep moving up or down the coast with confidence:



Pelican and seagulls guard San Luis pier

1. Monitor weather broadcasts on VHF (or on continuous recordings by telephone) *before* you arrive in a critical area, and pay particular attention to the key area (automatic weather buoy) and the adjacent areas to give you an idea of the state and speed of any approaching front.

2. Monitor actual conditions at buoys or lighthouses and reporting stations to see if the forecast is indeed materializing. Since forecasts are given for the worst weather expected over a certain area during the period, you may frequently encounter lesser conditions on your actual route.

3. Track and record barometric pressure, wind direction and strength, cloud cover and sea conditions onboard your vessel and develop your own skills for monitoring and interpreting weather. Use every opportunity to check your findings against what is being reported and what you observe.

4. Maintain radio schedules with cruising boats that are ahead or behind you, and monitor their inter-boat transmissions on working channels to get a sense of the weather conditions over the horizon. Break in to ask for a report of local conditions from time to time if conditions are deteriorating.

5. Delay or advance your daily runs to arrive at critical passages, such as crossing the Columbia River Bar, when stable conditions are expected. We find that, under normal conditions, starting early in the day (near sunrise with due regard for favorable tidal currents) gives us an advantage before prevailing winds kick up. Be sure your boat is shipshape and secure prior to your departure.

6. Prepare alternative plans for anchorage in case the weather and seas exceed your expectations, and prepare for the possibility you may need to stay at sea overnight and don't be afraid to implement these changes.

7. In critical passages, talk with Coast Guard (via Channel 16 and working Channel 22A) about weather updates, and solicit their recommendations if you need to, particularly if unexpected changes occur.

8. We have found that cruise ships that pass several miles ahead of us are frequently happy to give us factual on-site reports that are useful.

9. Turn around and head back to a safe place anytime weather or boat conditions become marginal for any reason. A sudden warm and dry Santa Ana wind from the east along the coast near Ventura is a good example to make haste for a good lee.

Caroline Buchanan has written:

The power and the danger of a storm...
Carries a threat that makes you sorry to hear
the rising wind...
Even tho' there is a beauty that fills you with
awe....

If all else fails, slow down, take defensive measures, and experience the awesomeness of nature along the Pacific Coast.

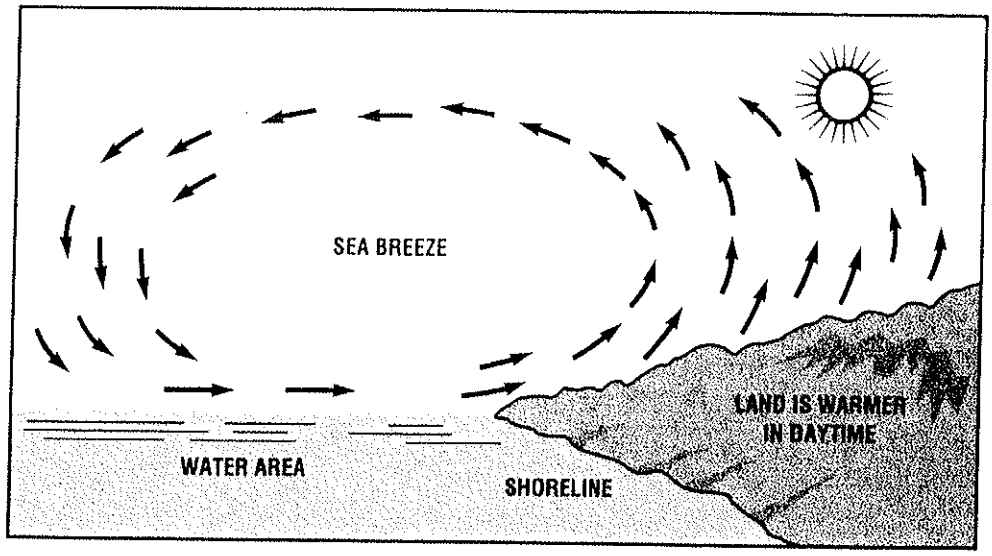


Fig. 2.3 The circulation of air during sea and land breeze conditions near the coast.

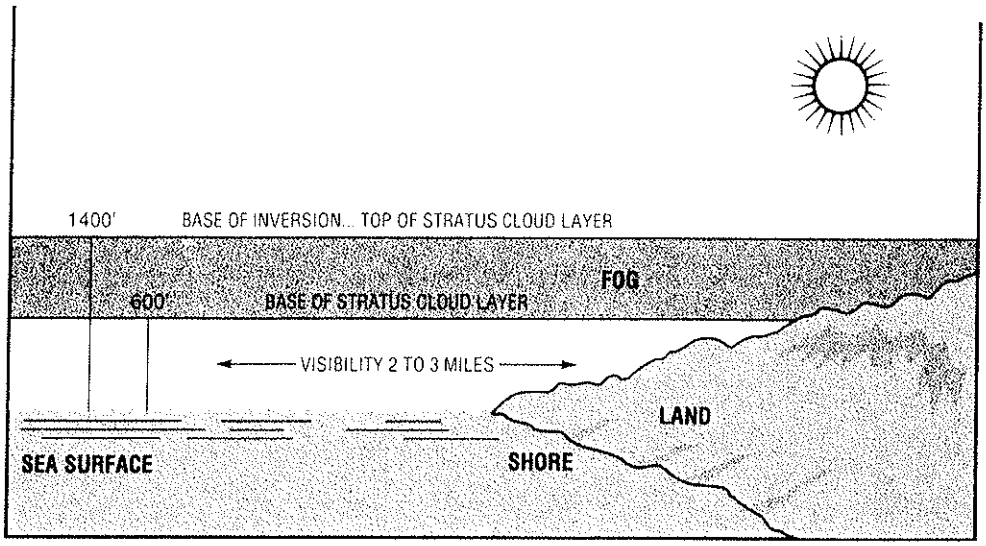


Fig. 2.1a When the inversion is lower than 800 feet the chance of dense fog over coastal waters increases.

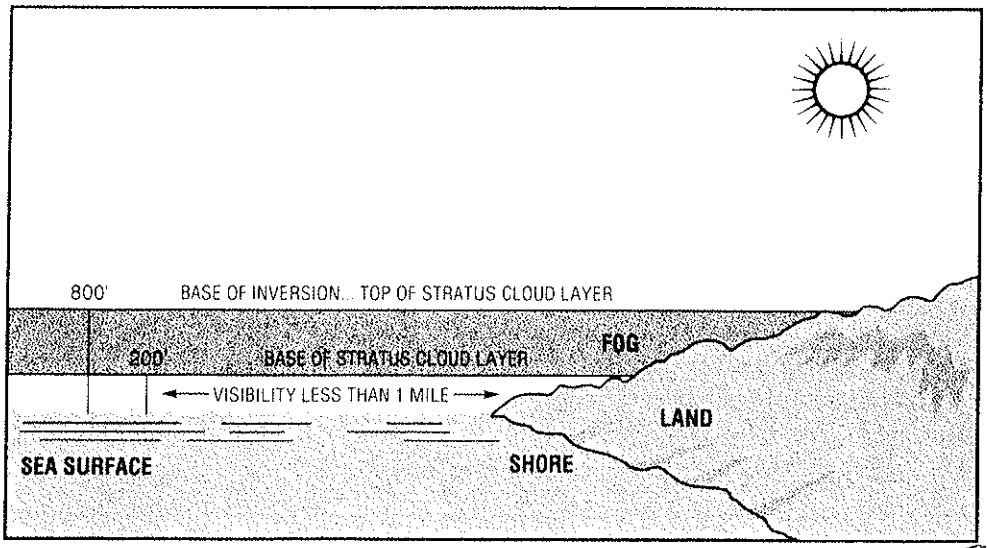


Fig. 2.1b When the inversion is around 1400 feet, low clouds rather than fog form over coastal waters.

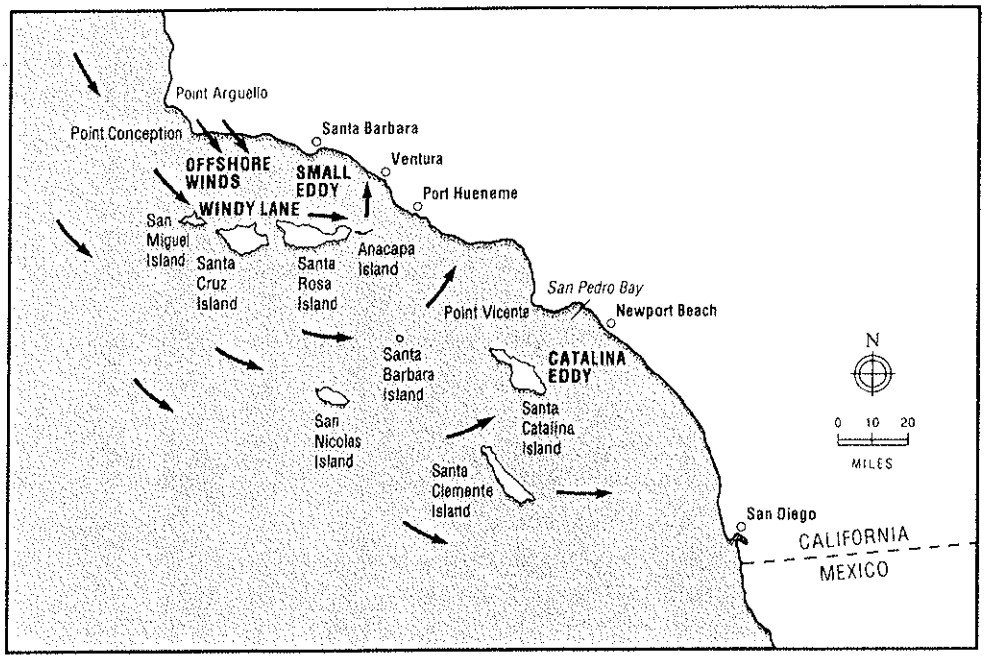


Fig. 2.4 Catalina Eddy conditions in southern California.

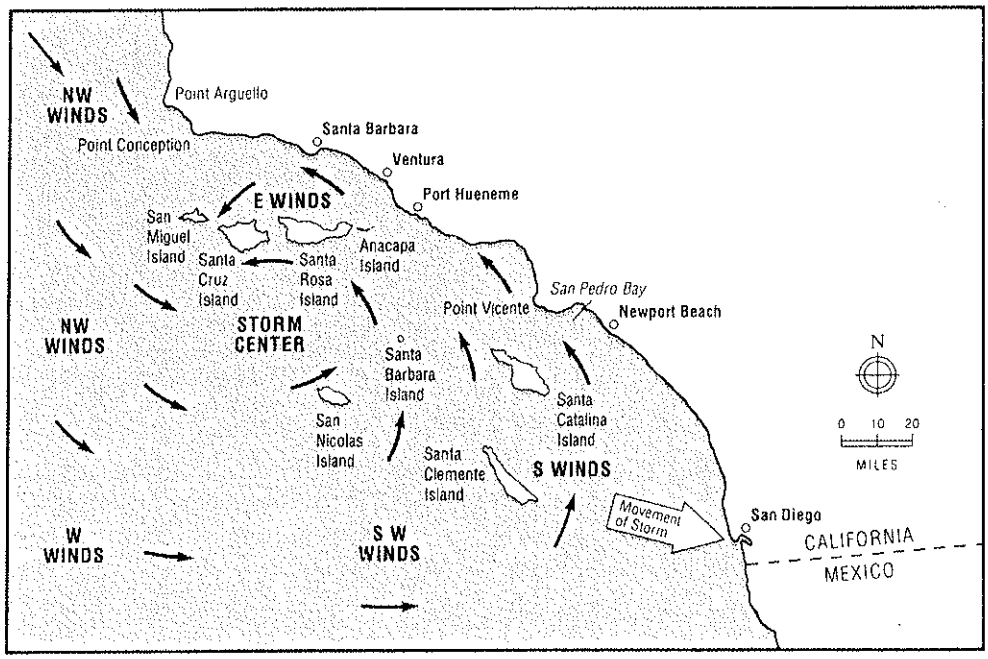


Fig. 2.6 Wind conditions for a small SE storm in southern California. E, SE, and S winds bring rain, SW, W, and NW winds herald rapidly clearing skies. Note how the winds bend around the land masses.

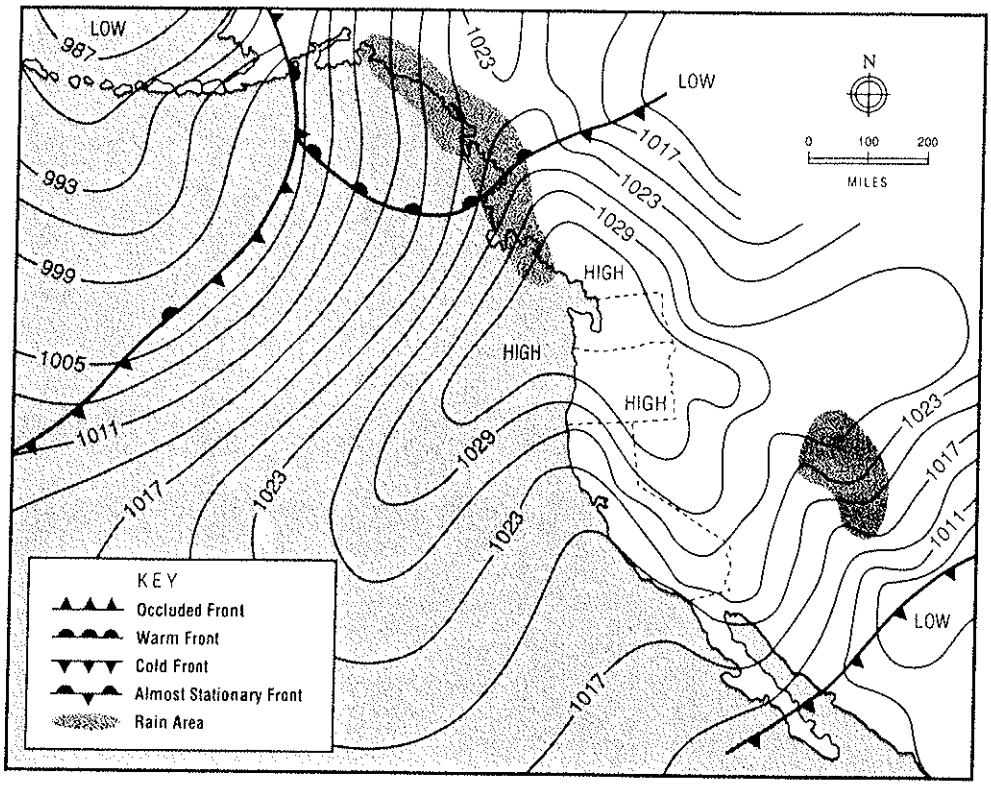
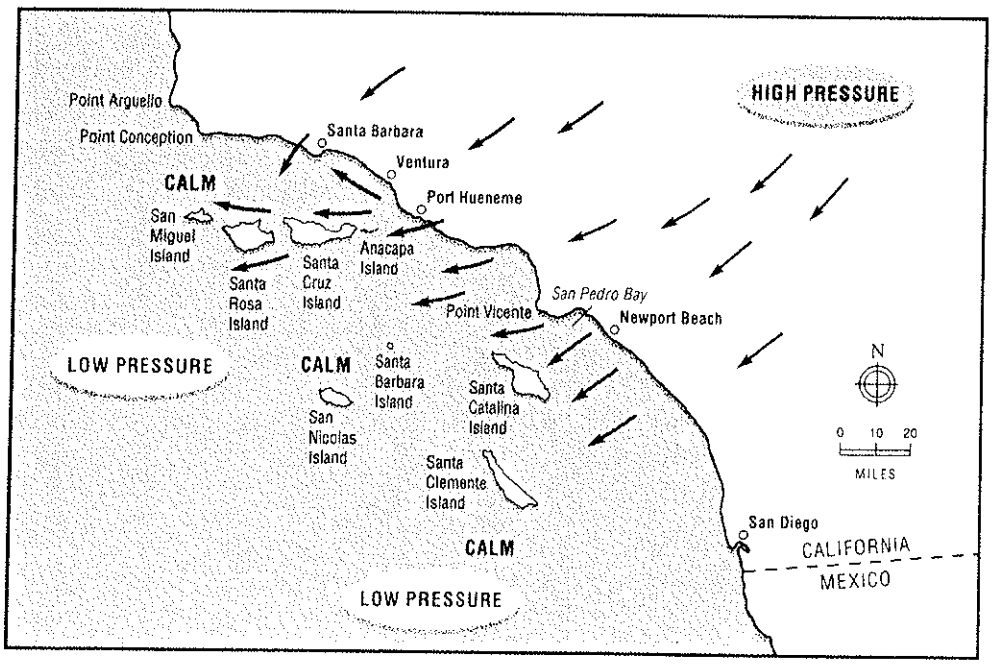


Fig. 2.8 **a** (top): Santa Ana conditions over the California coast. November 19, 1956.

b (bottom): Wind patterns in severe Santa Ana conditions in southern California.



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